

**RELATIONSHIP BETWEEN ASSET STRUCTURE AND FINANCIAL
PERFORMANCE OF COMMERCIAL BANKS IN KENYA**

BY

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DECLARATION

I declare that this dissertation is my original work and has not been previously published or presented elsewhere for award of a degree. I also declare that this contains no material written or published by other people except where due reference is made and author duly acknowledged.

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ABSTRACT

Commercial banks are very important components of any economy globally. When the bank management are making decision must bear in mind the effect that the decision will have on the financial performance of the bank. A proper asset allocation and distribution should be undertaken to ensure optimum and efficient utilization of these assets. Efficient utilization of assets translates to high income to the banks. This study sought to determine the relationship that commercial banks assets structure have on the on their financial performance in Kenya. The study had sought to attain the following specific objectives; examine the relationship of investments in government securities, loans to customers and investment in fixed assets on financial performance of commercial banks in Kenya. The theory is based on balance portfolio theory, efficient structure hypothesis and the black litter man theory. Descriptive study design was applied in this study. The population target for this study is 42 commercial banks in Kenya and after census, the result of the study covered 32 commercial banks. The study used secondary data from each banks published financial statements. The study applied descriptive statistics analysis, correlation statistical analysis and regression statistical analysis to analyze the balanced panel data collected during the period 2008 to 2017. STATA was used to conduct the analysis. Results were presented in graphs and tables. The study used random effect model which was found to be appropriate after carrying out hausman test. Various diagnostic test were done for the study. From the study, correlation analysis results showed that loans to customer had a positive relationship with financial performance with a coefficient estimate of .0631. There was negative relationship between investment in government securities and fixed assets as correlation results gave coefficient estimates of -.443 and -.0238 respectively. Various diagnostic tests were carried out including multicollinearity test, autocorrelation, stationarity test and heteroscedasticity. The regression model indicated that 18.56% of financial performance of commercial banks in Kenya is explained by the variables in the study leaving 81.44% as unexplained. The study findings indicated an intercept of .62 for the period under review which meant that the performance of commercial banks holding all other factors constant, that is; loans to customers, investments in government securities and fixed assets at zero, was .62 units. The results found coefficients of the variables where loans to customer had .28, investment in government securities had -.28 and the fixed asset had a coefficient of -.89. The study found significant relationship between investment in government securities and fixed assets and the commercial banks financial performance while the relationship with loans to customers was inconclusive. The study recommends that managers and decision makers in banking industry should ensure the assets are properly distributed and efficiently utilized to ensure they generate revenue to the banks.

Keywords: Commercial banks, asset structure, financial performance

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DEDICATION

This dissertation work is dedicated to my late dad Mr. Japhat Wandai, my wife Esther, my three daughters and my mother Florence Wanjeri.

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ACRONYMS AND ABBREVIATIONS

AAA	America Accounting Association
CAMEL	Capital adequacy, Asset Quality, Management Efficiency and Liquidity
CBK	Central Bank of Kenya
EPS	Earnings Per Share
I&M Bank	Investment and Mortgage Bank
IMF	International Monetary Fund
NII	Net Interest Income
NIM	Net Interest Margin
NPLs	Non-Perform Loans
ROA	Return on Asset
ROE	Return on Equity
OLS	Ordinary Least Square
POLS	Pooled Ordinary Least Square

OPERATIONAL DEFINITION OF TERMS

Asset structure – a combination of fixed and current assets known as financial fixed assets, tangible assets, current asset, current investments and cash in hand and at bank (Gladys & Job (2017).

Government securities – are debt instruments issued by national government with promise to pay periodical interest and repay the face value at a predetermined maturity date. The main aim is to support government projects spending (Anthony (2013).

Loan – is a sum of money borrowed by or issued to bank customers for their financial needs to be repaid back in future with interest and/or other charges (Dang, 2011).

Financial Performance – This is a measure in which firms evaluate of how effectively and efficiently they have utilized available assets from business primary source and generates profits. This is measured by capability to produce sustainable profitability (ECB, 2010).

Fixed assets – are tangible assets that are physically in existence and held by bank for internal use to generate economic benefits at a particular period (Schmidt, 2014).

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Commercial banks performs very significant role in every economy globally. The banking industry constitutes the biggest portion of the financial sector in almost all countries, but especially in emerging and developing markets (Hamid & Noor, 2016). The study further indicated that banks are considered the mainstay of the global economy, providing capital fund for governance, innovation, job creation, infrastructure, and overall prosperity of the economy. Ongore and Kusa (2013) in their study highlighted the strength of the banking system as an essential requirement to ensure the economic stability and growth.

According to Bandlamudi & Taidala (2017), indicated that developed financial system of the country ensures development is attained. They noted that, banking industry plays a role of an engine that drives economic growth by efficiently allocating resources to productive sector in economy resulting in global competitiveness. Mutega (2015) noted that banks provides an efficient system and acts as the main source of liquidity in the country's economic systems.

According to Adeolu (2014), banks in Nigeria provide to the economy by circulating savings from the excess economic units and ensuring the funds accessible to those economic units with deficiency. The study posited, "these functions performed by these institutions affect steady-state growth by influencing the rate of capital formation". The study further indicated, "financial system have impact on creating more capital by way of changing the rate of saving or by redistributing savings to various capital generating technologies.

According to IMF (2016), the global banking industry has been having a number of challenges where financial risks in the sector has been in increase since year 2015. In developed economy, the outlook has been on decline due to heightened uncertainty, setbacks to growth

and confidence, the decline in oil and commodity prices and reduced growth rate have made risks elevated in emerging markets. According to Deloitte (2015), this worldwide trend has become a matter of concern to many with an example of the banking industry in the United States where banks closed 1,614 branches over the 12 months ending in June 2014, which was recorded as the largest decline in more than two decades. This trend signals the need for the banking sector need to change how they operate and conduct their business in order to adapt to changing times. Ponce (2010) indicated that, for a bank to sustain its ongoing activities and for its equityholders to realise fair returns, profitability is necessary.

Major transformation in banking industry has affected banks performance. In 2008 to 2010, there was financial crisis that faced the US economy, capital markets, and banking industry where 319 banks failed followed by another failure of 185 banks in the following 2011 to 2015 period. This financial crisis was the worst economic catastrophe to the US financial sector since the Great Depression of between 1929 and 1933, Cox and Wang (2014). This study stated that US bank collapse was caused partly by market systemic risks and poor management operational decisions. The situation affected other parts of the world, as effect of banking industry in one region have effects on other regions.

In Malaysia banking industry, credit risk has a positive correlation on the profitability of the bank, Hamid & Noor (2016). The study noted that foreign ownership has a positive effect on commercial banks' financial performance and that commercial bank operating in Malaysia as a foreign branch has a higher ROA compared to locally incorporated banks. According to Mishra (2015), among challenges that affect banks industry in India is to serve the mass market and suggested the banks need to cut cost and product differentiation.

In Africa, the situation could not be any better as observed by Calleo (2014) in his study on accessing the unbanked prospects through branchless banking in Africa, noted that there is large population which is unbanked and one of the main reasons for this is being geographically

not accessible and poor infrastructure, with many of those not banked living in remote rural areas. This study Calleo (2014), further noted that this is further aggregated by the high cost associated with banking services and a lack of financial information and knowledge, which creates a huge impossibility to banking for poor population from rural areas. This non-penetration has allowed non-banks to perform banks activities, which eats to expected bank profitability.

Within Africa, noted concerns in year 2017 continued on macro-prudential patterns, with low commodity prices, unknown risk over debt sustainability for most of African countries, the type of loans available in the banking industry and the existing political economic environment and its effect on the financial industry, CBK (2017). Cihak, Kunt, Feyen and Levine (2012), noted that in East Africa community countries, the banking industry is divided into three main groups, which are large domestic banks, subsidiary banks or branches of international banks and small domestic and foreign banks.

Kenya is currently operating under Basel II and is also set to adopt Basel III in 2018 which is expected to have more stringent rules of operation for banks and therefore affecting their profitability. According to CBK (2017), year 2017 was one of the most challenging period that commercial banks in Kenya have encountered with in few years ago. Banks went through a “perfect storm” of interest rate capping law, uncondusive weather situation and an extended elections period. These negative challenges affected the sector, which can be noted in, among other factors, the reduction in overall pre-tax profit by 9.6 percent down to Ksh.133.2 billion in 2017 from previous Ksh.147.4 billion in 2016.

According to Adeusi, Kolapo and Aluko (2014), commercial bank is has to accrue more gains in financial perspective from capital invested for it to be profitable. Therefore, the bank’s success in a certain financial year is determined from the profits it has made. According to Nduwayo (2015), well-managed loans are main source of positive financial performance.

According to Perez (2015), bank assets include loans, financial assets, cash, investments in securities, other assets and premises. The study concluded that asset diversification within banks can be measured through examining loans, financial assets, other investments made and cash equivalents. This study seek to examine whether above bank asset structure have any relationship with financial profitability of commercial banks in Kenya.

1.1.1 Assets Structure

According to Schmidt (2014), described asset structure in terms of assets including current assets, investments in long term and investment in funds, fixed assets, intangibles and others assets. Kesuma (2009), defined assets structure as the wealth or the economic resources belonging to a company and expected to generate benefits or income in the future that consists of fixed or tangible assets, intangible assets and current assets. They are found on the left side of the balance sheet and they may be inform of wealth or properties. .

According to Riyanto (2013), found that companies hold investments in fixed assets and current assets with an aim of recovering the capital or funds invested in such assets in future. He argued that many of the responsibilities of asset management, is supposed to be left in the hands of operations management that utilize those various assets. The asset structure can be defined as a variable that comprises of the fixed assets and current assets which are utilized in company activities and operations. Fixed assets is used to indicate how company has grown and its value that indicates how large the assets structure that can be used as pledge for collateral against company financial performance or profitability, actual growth and firm value.

According to Saleh, Priyawan and Ratnawati (2015), asset structure has significant impact and influence companies growth. This significant influence is also positive which means that asset structure have effect on the company growth. According to Riyanto (2013), many industrial or manufacturing companies in which most of their capital is held in fixed assets will always give priority to attaining the needs of the capital from long term capital, which includes

equity, whileas foreign sourced capital will be as a complementary. This can be related with the rule of the horizontal conservative financial structure that states that the amount of company own capital should be atleast be able to take care of the amount of fixed assets and over and above other assets that are long term or permanent. Also observed that companies that hold most of their operating assets in current assets should give first priority to taking care of the needs of their resources or funds with short-term borrowing.

In a study by Pouraghajan, Malekian, Emamgholipour, Lotfollahpour, and Bagheri (2012), asset structure refers to manner in which a firm decides to hold its investment assets. It the way in which the entity retain its asset investment mix in its asset portfolio. Assets such as property, plant and equipment are classified fixed or tangible asset. According to Akintoye (2010), those entities that retains more fixed assets as part of their investments have the capability to produce more end products and in turn are sold out and thereby increasing profitability and hence improve financial performance.

Banks generates revenue and profits by efficient use of these assets in their operations. The American Accounting Association (AAA) (2012), have defined assets as economic resources dedicated to business activities during a specific accounting entity; they are combination of service-potentials available for or beneficial to expected purposes. Perez (2015) observed that commercial banks should have assets that earn more income especially in period of increasing adoption and change in technology. This is due to the fact that different assets achieve different results when subjected to different economic settings, and the performance realized from such assets seem to have no close relationship.

Loans to customers constitutes the important asset that realise the significant share of commercial banks revenue. The quality of loans and advances mix or portfolio has a direct impact on the profitability of commercial bank. Ozgur and Gorus (2016) noted that banks loans

and advances in the form of cash credit, quick loans, overdrafts and bills of exchange to businesspersons.

In study by Thirumalai (2015) on banks in India, the study observed that the investments are significant component of commercial banks assets, which forms about 40 per cent of commercial banks total assets during the year 2005. Banks invests in government securities, which includes treasury bills and bonds, investment in listed shares in private and public companies and bonds issued by corporates.

According to Virlics (2013), investment can be referred to as resources set aside for medium or long term with expected results being to recover investment cost and at a higher profit. It is related to assets or products purchased to generate income over a period of time. The main consideration investment is the risk factor of that investment. According to Stores (2015), investment can be referred to as expenditure accrued for income generating assets.

According to Karanja (2012), among the first three most fundamental decisions is the investment decision taken by firm on their daily operations. The other very important decisions are financing decisions and operational decisions.

Fixed assets refers to bank tangible assets which are physically in existence at a particular period. They are usually held for banks internal use and are expected to generate economic benefit over years. According to Thirumalai (2015), the make up of fixed assets and other assets do not have a significant impact in the resources of commercial banks since they deals largely in financial assets than real assets.

Study by Thirumalai (2015), found that the assets structure of commercial banks is driven by various principles, like cash liquidity, profit made, flexibility and lack of risk. The other principles, which impact on the assets structure of commercial banks, are how the money market structured, economic performance of the country, government policies and vision.

This study will evaluate three assets found on banks' balance sheet, which are; loans to customers, investments in government securities and fixed assets. The choice of these assets is due to the fact that these are the only assets that management can influence on their distribution and utilization. Example, the bad management decision on loans to customers, led to collapse of Imperial bank among other banks. Management decision to investment government securities may be best informed with introduction of interest rate capping.

1.1.2 Financial Performance

Financial performance and financial profitability are usually and frequently used as interchangeable reference, (Burkhardt & Wheeler, 2013). The financial performance or profitability of commercial banks may be defined on how well the bank meets its intended objective. The European Central Bank (2010) defines bank performance as the capability to produce sustainable profitability. Kumar and Gulati (2010) define performance in both profit and nonprofit organizations as a suitable combination of efficiency and effectiveness. Profitability refers to the net gains after deducting all costs and is essential for operational activities as well as for its investors to obtain maximum returns.

According to Samadquadri (2013) the financial performance is defined as a degree to which a company or a business can have optimal utilization of the assets to realize maximum revenues or incomes. Therefore, financial performance can be used as an overall method of measuring the general financial health or well being of a company for a period of time. It is mostly used to measure and relate or compare other companies either in same industry or industries and sectors that are operational related.

According to Business Dictionary (2015), measure of the output or results of an organisations operations and application of policies given in terms of monetary value in a given period of time is referred to as financial performance. Financial performance can be defined as a measure subject to firms capacity to utilise resources in its core business thereby generating

profits. In a study done by Ongore and Kusa (2013) highlights the strength of the banking system as an important requirement to ensure the economic stability and growth. As per Hamid & Noor (2016), it is this banking industry that constitutes the biggest part of the financial system in most countries, more so in emerging and developing markets.

According to Mishra (2015), there have been a swift on the importance from development or social type of banking to commercial viable type of banking. Profitability measure became the main driver of the financial strength and performance of banks; hence, commercial banks profitability is measured by bank financial performance. Profitability can refer to economic measure of performance with an aim to evaluate the economic results or output generated by the banks from their economic assets. The market based measures is dependent on the way capital market do valuation of the performance of firms as compared to their economic and accounting value.

According to Burkhardt (2013), the financial performance is mainly measured through ratio analysis which is one those main method identified easily convenient and efficient method for assessing it because it includes and combines information from financial statements or reports and results or gives numbers that are can be easily interpreted and understood in their financial meaning. A number of financial ratios as used to measure financial performance of commercial banks of which are Return on Asset (ROA), Return on Equity (ROE) and Net Interest Margin (NII) are the main ones according to Murthy and Sree, (2003), Alexandru et al., (2008). Return on Equity is a financial ratio that defines to how much profit gained against the total amount of equity from shareholders invested by a banks or company available on the balance sheet. Net Interest Margin (NIM) is a measurement of the valuation between the interest income earned and the interest amount paid out to the lenders, comparatively to the amount of assets by commercial banks.

Return on Asset, (ROA) is a ratio of income divided by total asset (Khrawish, 2011). It evaluates the firm management ability to produce revenue by effective utilization of company assets at the control. This is the same as, it is an indicator of how competently the resources of the firm are utilised to produce revenue. It further shows the competence of the said management of a commercial bank in producing net revenue from all available resources of the firm (Khrawish, 2011). Study stated that a high return on assets shows high efficiency in using its resources.

According to Ongore and Kusa (2013), the main and ultimate achievement of any commercial bank is to generate profits thereby arguing that return of assets (ROA), return on equity (ROE), net interest margin (NIM) are main performance measurement tools for profitability in commercial banks. They argued that this measurements of return on assets and return equity involve producing, company growth and or customer satisfaction and financial strength is indicated, any weaknesses, opportunities available and threats that can be faced. Athanasoglou et al, (2006) agreed that financial performance is as result of banks own indicators which are mainly driven or affected by management of commercial bank's in their resolutions considerations and banks goals of the policy like the liquidity level, policy on provisions, adequacy of capital measures, expense or cost management strategies and bank size or value and the external related factors depending on the industrial factors like the ownership, market concentration or penetration and stock market development and various other macroeconomic factors.

As noted the financial performance of banks can be improved by efficient and effective management of assets. In this study, we will concentrate on economic measures of performance by assessing the profitability as a result of utilization of economic assets. The profitability is measured by amount of profit after tax in a given period.

1.1.3 Asset structure and financial performance

Performance of commercial banks can be measured by amount of investments in various dimensions. Bigliardi and Bottani (2010), a performance measurement framework helps in the process of building performance measures, by interpreting measurement boundaries, identifying dimensions for performance measurement or views and may provide initial insights into relationships among the dimensions. In a study by ZhengSheng and NuoZhi (2013), the business performance is measured by means of operating revenue with an aim to determine the best mix or allocation of asset structure for best financial performance. Olatunji et al. (2014) employed earned net profit of the commercial banks in the measurement of their financial performance.

The European Central Bank (2010) supports the above notion and classifies the big number of banks financial profitability evaluations used by both scholars and professionals, are classified into traditional, economic and measures based on the market of performance. The Traditional measures used to for performance measurement include return on assets (ROA), return on equity (ROE) or cost-to-income ratio and net interest margin (NIM).

Bank should make robust decision when issuing loans to their customers as they make the major asset that generates a biggest chunk of bank income. This is because loans can be risky to the banks due to huge losses as result of overdue loans (Dang, 2011). Bank must issue loans with prudence and care to avoid non-performing loans, which will affect banks performance. In a study in Kenya done by Olweny and Shipho (2011), found that commercial banks can realize profitability by enhancing asset quality through measure to reduce the non-performing loans rate.

According to Velnampy and Aloy (2012), the profitability of a bank is determined by its ability to foresee, avoid and observing risks, possibly to cover losses brought about by risks faced. Therefore, when management is making resources allocation decisions to assets of a bank

should consider the level of risk. When researching on commercial banking crises in Kenya, Waweru and Kalani (2009) found that most of the financial institutions that collapsed in 1986, collapsed because of non-performing loans (NPLs) and that large banks failures was as result and involved extensive insider lending, mostly to politicians.

According to The Kenya Financial sector stability report (2017), explained that, banking sub industry profits reduced in the year, curtailing banks' capacity to put up a strong capital barriers by enhanced retained earnings. In especially, return on Assets (ROA) reduced from 3.2 percent in year 2016 down to 2.6 percent in year 2017, while Return on Equity (ROE) also declined from 24.4 percent down to 20.6 percent in 2017.

In Kenyan context, Waweru and Kalani (2009), indicated that in instances banks maintain huge cash in liquid form, they do this at some extra hidden cost of other possible investments, which can as well produce good returns. The firm management must evaluate the trade-off between return and risks that exist in investing in a certain security. According to Eric, Evusa & Jared (2016), large capital translates to reduced profits because commercial banks having a large capital ratio avoid risk (risk averse), they assume possible risky investments opportunities and therefore, investors requests for a reduced return on their capital as a substitute to lower risk.

1.1.4 Commercial Banks In Kenya

According to Banking Act Cap 488 of Kenya, bank is defined as a company which carries on, banking business in Kenya which includes the accepting of money on deposit, payment on and acceptance of cheques and utilizing of money held on deposit, by lending, investment for the purpose and persons' risk of utilizing the money. Commercial banks in Kenya provides and serves as major financial intermediaries to economy by facilitating flow of funds in the banking sector and economy. Commercial banks in Kenya are licenced, regulated and supervised by the Central Bank of Kenya. The whole banking industry in Kenya regularised by the Company's

Act, the Banking Act, the Central bank of Kenya (CBK) Act and Kenya capital markets authority (CMA) regulations and other regulations issued by the government.

According to Mishra (2015), a commercial bank is defined by is a financial intermediary that raises funds mostly by issuing cheque deposits, savings deposits are payable on demand but do not allow the owner to write cheques and time deposits. According to The Financial Times (2013), commercial bank refers to a financial institution providing services for businesses, organizations and individuals.

Commercial banks are main component of financial sector and performs a vital role in any economy and hence their financial performance is an important topic in Kenya and beyond. Ozgur and Gorus (2016), notes that commercial banks are distinguished from other financial institutions mainly by their acceptance of demand deposits. Commercial banks are financial institutions accepts deposits, offer loans and other financial products. As per CBK (2017), there were total of 42 commercial banks operating in Kenya and regulated by CBK, Banking Act cap 488 and Company Act, as at 31st December 2017. These banks are categorized into three tiers based on their net assets at their disposal, capital funds and available reserves, customer deposits, number of loans to customers and deposits accounts held.

As stated by CBK (2017), the annual reported indicated that total net assets stood at Ksh.4 trillion in 2017, total customer deposits were Ksh.2.9 trillion while shareholders' equity Ksh.644 billion in by end of December 2017. The same report highlighted adequacy of capital and liquidity ratios' which was 18.8 percent and 43.7 percentages respectively which was above the regulatory minimum requirement. This performance showed resilience in the banking industry despite the challenges. The negative impact of the challenges experienced in banking sector saw among other factors, the reduction in total overall pre-tax profit by 9.6 percent down to Ksh.133.2 billion in 2017. Issuing of loans was negatively affected by the challenges in the operating nature of the industry, where gross lending declined by 5 percent to Ksh.2.16 trillion

in year 2017 down from Ksh.2.29 trillion in year 2016. The profit for the banking industry also reduced by 9.6 percent up from Ksh.147.4 billion in December 2016 down to Ksh.133.2 billion in December 2017. Despite the decrease in loans to customers and profit earned in year 2017, the banking sector registered strength performance in financials as indicated by an upsurge in total assets by the end of the year.

This CBK (2017) report also indicated that Kenyan commercial banks are grouped into three tier groups by use of a weighted composite index that is composed of net assets, customer deposits, capital funds and available reserves, deposit accounts numbers and number of loan accounts. A large bank is classified as a bank with a weighted composite index of 5 percent and above. For weighted composite index of between 1 percent and 5 percent, this is classified as medium bank while a small bank is that has weighted composite index of less than 1 percent.

1.2 Problem Statement

Despite important role of commercial banks in economy, several banks have collapsed, either liquidated or have been placed under receivership by Deposit Protection Fund Board in Kenya between 2008 and 2017 (CBK, 2017) which is a worrying trend to both investors and regulators. The report also noted that there has been a decrease in the number of commercial banks that were rated large, from 14 banks in 2008 to 8 banks in 2017 (CBK, 2017).

According to Cytonn Investments (2017), Net Interest Income (NII) declined to 8.4 percent in 2017 from 9.4% in 2016 due to interest rates capping. The negative effect of the challenges in 2017 was noted in, among other indicators, the reduction in overall pre-tax profitability by 9.6%. Due to this, many commercial bank have opted to invest in government securities to caution themselves from this reduced income and hence financial performance. According to CBK (2017), during year 2017 net assets decreased by 8.3%. Total assets were made up 50.3% of loans while 24.9% was investments in securities making them the major assets found on banks' balance sheets. According to Cytonn (2017), Chase bank collapsed due

to poor governance where loans were issues to customers without following proper procedures. The report also noted that the collapse of Trade bank was caused by other reasons among them liquidity problems due to investment in fixed assets.

Regionally, according to I&M Bank (2017), there was decline in total assets of the banking sector in Rwanda in 2017 compared to 2016. In year 2017 total asset grew by 12.9%, compared to 14% growth registered in the same period in 2016. During this period, some banks in Rwanda among them Commercial Bank of Africa, Development Bank of Rwanda among others reported losses.

Banks have employed various ways of enhancing their performance among them is the issuance of loans, which is the major earner of income. Some banks have improved on their performance and others have collapsed due to poor loans management. Recently, banks have turned to investment in government securities as a measure to caution against effect of interest rate capping. Finally, other banks have turned to investment in fixed assets with an aim of making profit. Banks managements have control on the above assets and therefore they should evaluate and make informed asset investment decision.

Kenya and globally, most of the studies done focused on general indicators that determine financial performance of commercial banks and that no study has dealt on asset structure. This study seek to fill this gap.

1.3 Objective of Research

3.1.1. General objective;

The general objective of the study is to investigate the relationship between assets structure and financial performance of commercial banks in Kenya.

3.1.2. Specific objective;

1. To determine the relationship between loans to customers and financial performance of commercial banks in Kenya.
2. To examine the relationship between investment in government securities and financial performance of commercial banks in Kenya
3. To evaluate the relationship between investment in fixed assets and financial performance of commercial banks in Kenya.

1.4 Research Questions

1. What is the relationship between loans to customers and financial performance of commercial banks in Kenya?
2. Is there a relationship between investments in government securities and financial performance of commercial banks in Kenya?
3. Does investment in fixed assets have a relationship with financial performance of commercial banks in Kenya?

1.5 Significance of the study

Given the crucial role commercial banks plays in the economy, the findings of this study will help to form an action plan that will help these banks in defining the type of asset to have in their balance sheet. This can also help in enhancing performance by ensuring proper distribution and choice of assets to hold.

1.5.1 Policy makers

The study findings will guide CBK and Government of Kenya in developing essential banking sector policies and regulations. The regulator can draw frameworks on assets structure and composition, which is most preferred by bankers, and be able to design banking policies addressing such needs. The study will also be used by CBK and government to inform on areas

they are supposed to intervene in banks management to ensure proper decision are made in assets distribution.

1.5.2 Bank management

The management and board of directors of commercial banks will also have an empirical basis upon which they can base their strategies to improve bank financial performance. The study will provide management to formulate strategies by ensuring correct composition of assets structure that maximizes shareholders return and impact positively on banks financial performance. The result will inform management the necessary reforms and practices to adopt in future.

1.5.3 Academicians

Since there has been no known study has assessed assets as drivers of profitability in the Kenyan banking sector, this study will provide further insights in this area and provide opportunity for further study. There will be empirical literature for those academician interested in study on this area by contributing to body of knowledge. The study will therefore widen the knowledge on assets strucutre and provide the basis on which future research or studies on assets structure and its relationship with financial performance of commercial banks in Kenya.

1.6 Scope of the Study

The study assessed the relationship between asset structure and financial performance of commercial banks in Kenya. The study used secondary data drawn from annual reports available on those banks websites and published financial reports. There are 42 registered and licensed commercial banks in Kenya as at 31st December 2017 and in the Central bank of Kenya website. Data is obtained for a ten-year period from 2008 to 2017. The study choose this period to evaluate the effect of some emerging issues like increased number of fallen banks, interest rate caping, reduced categories example reduced number of large banks among others.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter will present literature review on the relationship of asset structure on financial performance of commercial banks in Kenya. The chapter also will cover empirical review from other studies that had previously and has link to above subject.

2.2 Theoretical review

Among the theories that the chapter will analyse are balanced portfolio theory, capital asset theory and efficient structure hypothesis as the main theoretical underpinning for the study.

2.3.1. Modern portfolio theory

This theory was devised by Markowitz (1952), where he suggested that an investor can balance the expected return of a portfolio and risk by using diversification. Portfolio balance model of asset diversification exerts that the optimal holding of every asset is as a result of decision made by policy makers to determined by various factors such as rates of return on every assets held in the portfolio, risks associated every financial asset and the portfolio size.

Modern portfolio theory aims at maximising profit for an investment at a given level of risk. This means that an investor expect high returns from an investment but at the lowest level of risk possible. The model believes that investors who are investing are well informed and there is sufficient market and it is assumed the asset returns is well spread.

According to Catur, Tri and Slamet (2017), the capacity to obtain highest profits will depend on how feasible is the set of assets and liabilities determined by the bank management and every unit costs experienced by the bank for generating every component of assets. The balanced portfolio theory is the most relevant and important in bank performance studies. Rop,

Kibet and Bokongo (2016) noted that banks enhance their financial performances by diversifying their incomes from both interest income and non-interest income in their portfolios. Also noted that, assessment of the returns of a portfolio of assets especially risky assets continue to be one of the difficult challenges in finance world today.

According to Sears and Trennepohl,(2008), the 2003 Treynor and Jensen might differs in sequence or ranking of investments as a result of the way risk element is accounted and incorporated. Investment with different level of risks may also not be well accommodated or suited. According to this study it is observed that low risk investment portfolios might have positive Jensen index and therefore high risk investment portfolios will have negative Jensen index.

According to Anderson & Garcia (2006), modern portfolio theory states that investments can be well explained through statistics in terms of expected final returns rate and the experienced volatility during its short term. The volatility is compared to risk with an aim to select the normal risk tolerance level and thereby get the most optimal portfolio that maximises expected return at a given risk level. This therefore shows that portfolio diversification and desired portfolio mix of commercial banks is only dependent on the decisions by the bank management on the best composition. It further shows that, the capacity to earn the maximum profits will be dependent on the available set of assets which will give the highest return attractive to the policy makers together with costs of units related to observing every element of these assets which gives the best financial performance in terms of profitability.

This study applies this theory because of its application on impact of diversification of assets on financial performance. The theory propagates for assessment of portfolio diversity for maximum profit. The banks management are responsible for investment decisions and therefore they are required to balance assets portfolio for the highest profitability. This theory argues that the composition of bank portfolio, its profitability and the returns to the shareholders are as

result of management and policy decisions. This theory is applicable to commercial banks as management can apply it in making alterations of the proportions of different assets to be invested by the banks for maximum returns. It is also important to banks management when making investment decisions on desirable asset portfolio composition based on expected maximum profits and minimum risks that can be obtained from the assets. The banks management must weigh all options as representations of potential classification of future returns for a given period and have to make correct decisions when deciding which set of assets to have and the ratios to hold so that they can realise the highest returns and at lowest risk level.

2.2.2. Arbitrage Pricing Theory

Ross (1976), developed arbitrage Pricing Theory (APT). According to APT, the returns of financial assets are likely to be obtained from a financial asset will depends highly on return loadings. He argued that if equilibrium price offers no arbitrage on portfolio of assets, then the expected return on the assets is linearly related to beta. Ross proof showed that the linear pricing relation is a paramount circumstance for equilibrium in a market where agents ensures maximum utilization of certain types of utility. This return loadings or beta measures the association between factors related to one another in a company and which impact on the financial performance or the entire industry where the company operates. If the asset prices diverges, APT will bring it back to the normal position.

The arbitrage pricing theory advocates the idea that financial assets expected returns can be explained in linear function of macro-economic issues or factors where the sensitivity to dynamic nature in each factor is shown by a beta coefficient specific factor. This model is derived at a rate of return which will then be used to put a price on an asset, then the asset price should therefore be equal to the expected end of the period price which is discounted at the rate derived by the model. If the price diverts, arbitrage as able to bring it back to the line. The rate of return derived from the model can be used to obtain the correct price or correct value of an

asset. The asset value obtained should be equal to the expected end price at period asset value or the future cash flows at a rate discounted by the model.

APT is a useful tool for evaluating portfolios from a perspective of value investing to identify securities that may be mispriced temporarily. It helps the investor or user to evaluate whether a security is overpriced or underpriced and whether can make profit from this information. This theory is also very important in composition of portfolios as it allows the user or management to test whether the portfolios are exposed to microeconomic factors.

This study has employed arbitrage pricing theory because it ties up the connection between diversification of assets and the financial performance of banks. Arbitrage Pricing Theory supports assets diversification as an investment strategy to companies, which can results into positive returns. The theory also signals that assets diversification is synonym to risk and therefore the diversification must be critically evaluated. Commercial bank management should lend loans to customers if the interest rates are high and favourable. In the other case, if the rates are low or not favourable, the management should channel available deposits to treasury bills or bonds and other investments in securities which are regarded as low risk investments. However, the bank management has to properly evaluate assets diversification as it is related to risk before making the final decision.

2.2.3. The Black Litterman Theory

This portfolio model was developed by Black & Litterman in 1992, to be used by portfolio managers as portfolio construction tool to produce set of expected returns. Since its introduction, the Black-Litterman methodology has become widely used and remains very flexible, providing asset returns and optimal weights.

According to Litterman (2003), the model suggests that assets allocation can be divided into two different types of decisions: asset distribution between classes of assets that are not the same for example stocks and bonds and assets allocation within one class of assets for example

sectors. The theory seeks to remove the barriers that investors meet as they apply modern portfolio theory by not requiring users to post estimates of expected return. The assumption made is that the initial expected returns are whatever is required so that the equilibrium asset allocation needs to be proportionate to the value of market of the existing assets and then adjusts this to ensure an investor attains the best asset distribution.

This study has applied this theory as it can help the management in optimising the assets allocation for maximum returns. Asset allocation is a decision that has to be faced by investors or management in choosing how to allocate their portfolio across a few asset classes. This theory is relevant to banks when seeking to maximize the relationship between risk and return in the assembled portfolio in asset allocation. It will be helpful when examining asset allocation volatility and financial performance.

2.3 Empirical Review

This Empirical review will examine information, studies and researches done in the past relating to this topic. The review will show that the problem being investigated has not been carried out in the way proposed by the researcher. A number of studies were done both internationally and locally related to commercial banks and financial performance.

Various studies have been done previously on the relationship between the asset structure and financial performance of various types of firms which have observed that some components that make up asset structure have effect on the financial performance differently. According to Olatunji et al. (2014) on a study on the effect of investment in fixed assets on profitability of particular Nigerian Commercial Banks, found and concluded that investments in fixed assets have statistical significant and positive statistical relationship on the profitability of banking sector in Nigeria.

It was observed that research on asset structure bear more practical value and significance universally than one on capital structure, as they create corporate value being the the main source and avoid risks (ZhengSheng and NuoZhi, 2013). In a study by Saleh, Priyawan and Ratnawati (2015), where the study examined the impact of assets structure, capital structure and market risk on manufacturing companies in Indonesia found that asset structure has significant relationship with company profitability. The study used quantitative research design to analyse the data colleted from secondary sources during the period between 2009 and 2013. ths study found that the relationship of the variables was positive, which meant that the asset structure affected the company profitability during the period. The study results also indicated that the larger the amount of assets structure are held by the company will automatically trnaslate to an increase in borrowing ratio or financing or debt activities by using borrowed funds itself. This phenomenon is caused by factor called collateral factor. When the value of asset structure is said to be large, it is very likely that the value of fixed assets owned is also large. This study will intend to examine the nature of relationship between the asset structure and financial performance of the commercial and services firms in the Kenyan context.

2.3.1. Investments in securities and financial performance

In a study by Anthony (2013), on government securities investment of commercial banks in USA between 2010-2012 found three reasons why there has been rise in securities holding by bank. These reasons included; slow pace of economy and widespread deleveraging of corporate balance sheet which could have weakened demand for business loans, sustained steepness in the term structure making long term securities attractive investment and finally new bank risk based capital standards which has made bank increase capital and shift asset to lower risk categories. Berger and Bouwman (2011), while studying how capital can have effect on bank financial performance during financial crises observed that higher adequacy of capital ratios

motivates commercial banks to invest in low risky assets among them loans and securities which are low risks.

According to Thirumalai (2015) study on investment policy by commercial banks in India found that the profit of commercial bank depends mostly on the interest rate, amount of loan, period of time and investment nature in different securities. It noted that a commercial bank greatly improve on its volume of wealth by ensuring maxim return on their investment and issuing of loans so, they must invest their funds to gain maximum profit. The study found that performance of Indian banks in regards to investment is quite satisfactory but doesn't seem to follow definite policy. The study concluded that, a bank should lay down its investment policy in such a manner so as to ensure the safety and liquidity of its funds and at the same time maximise its profits.

A study by Baird (2013) argued that investments in securities can be a contributor of increased risks and returns in an investment portfolio. The study continued and further noted that investors who are engaging twenty substitutes may have an aim of realizing a certain degree of definite income. The study argued that an efficient investment portfolio may enable firms to spread their risks and therefore improving the earning capacity of the portfolio. The study argued that the alternative choice by a firm business to diversify its assets should be carried only when the advantages that arises from this diversification are more than the costs incurred, and this enables a company or a business to be steadfast and focused in case of any possible negative deviation.

Study by Kotšina and Hazak (2012) assessed the effect of intensity in investment which is measured by the ratio of fixed assets divided by total assets and the financial performance represented by return on assets. The study collected 8,074 companies as sample in six (6) European Union (EU) member states for a period of nine years from 2001 to 2009. The study

findings showed that there was neither contrary nor decisive effect of intensity of investment by companies on financial performance measured in return on assets.

A study by Mukarushema, Kule and Mbabazize (2016), evaluated the effect of financial statement analysis in investment decision making by commercial banks in Rwanda. The study used detailed survey design on 100 sampled respondents using stratified random sampling. Data for the study was collected using questionnaire. As per the regression analysis results, the study found that financial statements analysis is one of the most crucial or important statement when making investment decisions.

In a study by Rop, Kibet and Bokongo (2016) on impact of diversification investments on commercial banks financial performance in Kenya found that government securities and commercial banks financial performance had significant relationship. The study also found that the investments in securities affected individual banks differently. The study implied that government securities had significant relationship on financial performance in that duration of bonds repayment.

Study by Makhoha, Namusonge and Sakwa (2016) examined portfolio diversification on commercial banks financial performance. Mixed research analysis was performed and questionnaires were used for data collection and interviews on 43 commercial banks in Kenya and 133 managers randomly selected. The study found that diversification of portfolio had significantly and positively influenced financial performance of commercial banks in Kenya and that diversification of investments had enabled increase in profits and performance in the past years.

According to Mutega (2015) in study on the effect of asset diversification on the financial performance of commercial banks in Kenya, found that financial assets have a significant relationship with financial performance. The study indicated that loans had direct and significant impact on financial performance of banks in Kenya. The study also found that

other investments had significant relationship with financial performance. The study attributed this relationship to the positive influence of other investments on company's chances of earning good returns. This was the same case with cash and cash equivalent. The study covered a period of year 2011 to 2015 using secondary data from 43 commercial banks in Kenya and regression model was used to establish the relationship among the study variables. The study concluded that an increase in diversification of financial assets hence results to increased financial performance of the banks.

In a study by Machuki (2014), it examined the effect of investment decision on the financial performance of listed firms at Nairobi Securities Exchange. The study covered all firms listed in Nairobi Securities Exchange and not commercial banks only. This study used a descriptive research design and used data obtained from 61 companies listed at Nairobi Securities Exchange main segment. The study employed panel data methodology consisting of both cross sectional and time series. The study found that there was significant and positive correlation between return on assets (ROA) and investments decision, liquidity and financial leverage.

A study undertaken by Karimi (2013) sought to examine the connection between investment portfolio choice and profit earned by investment companies listed in Nairobi Securities Exchange. The study main focus was on the profitability gains and choice of investment portfolio. This study adopted a descriptive research design and four companies listed under the investment sector Nairobi Securities Exchange were sampled. The study employed structured questionnaire for data collection. From the descriptive statistical results, the study noted found that investment projects that have high returns and also have high risks are deemed to be attractive to many institutional investors. The study also noted that investors expect to get good returns or reward from their investment as compensation for taking the high risk in an investment.

Study by Mayoli (2013) assessed the effect of financial assets allocation on the performance of Commercial banks in Kenya with a focus on asset allocation decisions. The study used cross sectional and time series using secondary data between years 2000 to 2012 and adopted linear regression model. The study found that commercial banks in Kenya invested 21.82% of assets allocation. Also noted that investments in securities offered the highest returns other factors held constant. It also found that commercial banks had low investments in securities representing less than 1% of asset allocation. Assets. The study concluded that investments in securities had greatest impact on profitability with 2.789 despite posting low average allocation of 0.7% of investments to total securities during this period. This study will evaluate if the above finding have changed since the study was done.

2.3.2. Loans to customers and financial performance

Study by Ponce (2010) examined the determinants of commercial bank profitability in Spain between 1999-2009 using an unbalanced panel data of 697 observations. The results indicated that banks with higher proportion of loans to customers have higher profitability, higher customer cash deposits, efficiency in operations and reduced credit risks. The study noted that efficient bank are capable of holding more asset in terms of loans and hence have higher profitability. Study argued that holding higher assets in loans comes with additional costs though the bank produce higher profit level and where there is higher loan, the problem is liquidity thus, banks need to consider balancing between the two. Study added that despite the huge operational costs of maintaining a huge loans portfolio, profitability of banks increases as the loans to asset ratio as much as rates of interest on loans are not restricted and a mark up pricing is applied by the bank. This study did not factor other assets in bank like investments in security and fixed assets.

A study by Perez (2015) indicated that commercial banks are categorised on basis of the asset size they possess, large proportion of those assets is the loans to customer. Large banks

value loans to customers very much as observed in the study reason advocated being large banks diversify most of their asset portfolio to the maximum. Therefore the argument that managing loan portfolio efficiently and effectively and of the credit endeavors are key to the commercial banks soundness and safety. Due to this, many banks have focused their attention to managing loans so as to ensure that there are low levels of nonperforming loans since high levels of nonperforming loan have an effect on the banks profitability.

In a study by Garcia et al (2012) the determinants of commercial bank profitability in Spain was examined. The results of the study observed that commercial banks had a higher profit growth if they had higher proportional of loans to customers to total assets, high customers cash deposits, management efficiency and minimal credit risks. Due to this findings the study argued that high financial performance or profitability will be on the commercial banks that have capacity to hold high assets in form of loans to customers. It was also noted that there is higher additional costs for holding high amount of loans to customers, the will bankbe able to accumulate higher profitability margin aanf therefore when banks have large loans to customers, liquidity may become a problem and hence commercial banks managements need to do better and strike the balance between the loans to customer and cost associated with it where theoretically means that high loans to customer will translate to better financial performance or profitability.

A study by Ozgur and Gorus (2016) assessed the effect of bank specific and macroeconomic factors on deposit bank profitability in Turkey. The study used the OLS methodology to come up with multiple regression statistical analysis. The study used the data collected on monthly basis during the period between 2006:1 and 2016:2. The study output indicated that total equity over total assets, total non-performing loans to total cash loans, net interest income or revenues to average total assets, and policy interest rate from central bank have a significant effect on the return on assets (ROA) while the non interest income compared

to total assets, bank deposits market share in banking industry, operational costs to average total assets, and exchange rate were not statistically significant. The study concluded that impact of recent global financial crisis on commercial banks performance was statistically significantly negative on banking industry performance in Turkey.

In a study by Syafri (2012) on the factors that affect profitability of commercial banks listed at the Indonesia Stock Exchange between 2002 and 2011 in Indonesia. Secondary data was collected from from published financial reports during this period. The study used descriptive statistical analysis to analyse the panel data obtained. The study measured bank profitability using return on assets (ROA) and results based on panel data regression model, showed that loans to cutomers to total assets, total equity to total assets and loan loss provision to total loan all have positive impact on profitability of the commercial banks. The study concluded that the profitability of commercial banks is influenced by loans to customers even though the variable may not have significant impact on the financial performance in terms of profitability.

In a study by Islam (2014), the financial performance of National Bank Limited in Bangladesh was analysed for the period of 2008-2013 using financial ratios. Some of the financial ratios that were used in the study included Net loans to asset ratio, loan to deposit ratio, asset credit quality ratio, and return on assets. The study employed descriptive research design and data obtained from secondary sources among them annual reports, brochures, manuals and publications of the National Bank Ltd available on the bank's website. The financial ratio analysis was undertaken and the results of the study found that despite the prevailing unfavourable economic conditions for some years, the bank was able to achieve good performance in all of core banking operations of the bank. The study also indicated that the performance of commercial banks depends on the management's capacity to put in place

strategic plans and the efficiency in implementation of these strategies and policies that aims at improving financial performance.

Study by Gul et al, (2011) was undertaken and focused on determining the possible relationship between commercial banks specific factors together with macroeconomic factors on financial performance or profitability in Pakistan by collecting data from top fifteen Pakistan commercial banks during the period between 2005 and 2009. The study used Pooled Ordinary Least Square (POLS) method to evaluate the effect of fixed assets, loans to customers, shareholders equity, cash deposits, country economic growth, general inflation and capitalization on profitability in the market, which was measured by use return on asset (ROA), return on equity (ROE), return on capital employed (ROCE) and the net interest margin (NIM). The results implied to the evidence that both internal factors and external factors have a positive strong influence on financial performance or profitability.

In a Study by Kuo et al. (2010) on loan policy and commercial bank performance in Taiwan found that loans on Information technology firms have a significant negative impact as banks increase ratio of loans to the IT industry. It noted that, during a macroeconomic downturn, banks suffer losses if they abruptly offer loans to the IT industry and do not handle such business efficiently. The study also found that there is a positive correlation between the consumer loan ratio and bank performance, and that the changes in the political and economic environment have a negative impact on the performance of banks. This study did not consider loans issued to general economic sector and therefore cannot relied upon to make conclusion on effect of loan on financial performance of bank.

According to Obamuyi (2013), while studying determinant of banks profitability in developing economy in Nigeria, used panel secondary data (cross-sectional and time-series data) for studying 20 Nigerian commercial banks during the period 2006-2012, finding same key indicators of bank profitability. The study employed both descriptive statistics and

econometric analysis to analyse the data. The findings of the study was that the relationship between financial performance in terms of profitability and loans to customers is positive and statistically significant. The result meant that the banks with large asset structure are able to diversify their business activities by putting more strength on their capacity to take risk and receive funds at minimum cost, thereby enhancing their liquidity position and hence financial performance.

A study conducted by Hadad (2013) in Ghana to determine the factors that had impact the financial performance of the Naara rural banks in the upper east region of that country. The study collected secondary data from the financial statements and annual reports for the period of 11-years between year 2000 and year 2010. The study used multiple regression statistical analysis to analyze the secondary data collected from the commercial banks covered in the study. The research was determined to establish theoretical relationship that was in existence between Naara rural commercial banks financial performance or profitability and their credit portfolio or mix, banks liquidity, loans to customers and total assets. The study found that liquidity, loans to customers and size were positively and statistically significant in consideration of the relationship with financial performance of the commercial bank.

According to Adeolu (2014), in his study on how assets quality relates to performance of banks based on market capitalisation in Nigeria stock exchange, found out that assets quality has significant influence on performance of listed banks. The study noted that banks should be more careful with loans as they are mostly the most risky assets among all and because of this they may have a negative effect their liquidity position and which could lead to crisis. The study had not factored any other asset on bank balance sheet. In a study by Mayo (2013), the study examined the effect of investments on financial performance of companies listed on Nairobi Securities Exchange. The study employed a descriptive research design and had data collected from population consisting of 40 companies quoted at Nairobi Securities Exchange. The study

used regression statistical analysis and found that the relationship between investment and financial performance had positive relationship in companies listed at Nairobi Securities exchange.

A study was done by Nduwayo (2015) on effect of loan on the financial performance of Bank of Kigali between 2010 and 2013. Twenty five (25) respondents from credit department from this Bank were selected using purposive sampling techniques and they have received and responded to the self-administered questionnaires. The study found that well managed loans are main source of positive financial performance. Loan management factors were found to help credit managers to understand of what is required and what should be done in order to avoid errors and other mismanagement that may occur with loan analysis and approval.

A research by Thiongo, Matata and Simiyu (2016), studied on the effect of loans portfolio on financial performance of commercial banks in Kenya for period from 2011 to 2015. The study on loan book effect on profitability of commercial banks results showed that growth in commercial banks' loans portfolio negatively affected the commercial banks financial performance in the following subsequent years. The study also indicated that growth in commercial banks' loan portfolio lend to increased non-performing loans (NPL) in following subsequent years. This study also observed that commercial banks in Kenya issues more loans to customers with a lot of caution subsequent periods of the financial performance of commercial banks.

A research was done by Anjichi (2014), on the impact of assets and liabilities on the financial performance of commercial banks in Kenya during the period between 2004 and 2013. The study used SPSS version 20.0 for secondary data collected for analysis and the results found that, the statistical analysis of all the CAMEL factors which included capital adequacy, asset quality, management, earnings and liquidity had statistically significant effect on financial performance of the commercial banks in Kenya.

According to study by Mayoli (2013) on the effect of financial assets allocation on the performance of Commercial banks in Kenya with a focus on asset allocation decisions. The study used cross sectional and time series using secondary data between years 2000 to 2012 and adopted linear regression model. The study found that loans and advances represented the highest percentage of asset allocation at 51.90% to total assets among commercial banks in Kenya. The study also noted that there was increase in loans during the period of study, which impacted on the financial performance of the bank and growth of economy. It concluded that loans and advances had positive effect on financial performance of the bank. This study will evaluate if the above position remains after the above period of study.

2.3.3. Fixed Assets and financial performance

The study recommended that bank managements and policymakers should find ways to obtain the optimal utilization of capacities while making the best use of their resources, so that these resources are not wasted during the production of banking products and services.

Study by Olatunji and Tajudeen (2014) which evaluated the impact of investment in fixed assets on some of Nigerian banks profitability, found that there was heavy and positive significant impact of investments in fixed assets on the profitability of banking industry in Nigeria. The study carried out to determine the impact of fixed assets investment on financial performance in terms of profitability of chosen Nigerian commercial banks. The study findings showed that fixed assets investment had positive significant relationship with the performance of the analysed banks which implied to the fact for each increase in net profit during the period of year 2000 to year 2012 came from investment in Building with an increase of 5.35%, information communication increased by 1.14% , increase in machinery was 7.79%, leasehold increased by 8.06%, increase in land of 6.07% and fixture and fitting increased by increase of 9.32%. The study results found positive correlation between fixed asset quality and net profit

of the banks, when it was independently examined whereas a positive relationship was noted when examined together with other performance indicators.

According to Iqbal & Mati (2012), in a study, the fixed assets are taken to have a very important productive capacity in companies undertaking manufacturing activities as they are used to generate income through sales and thereby the profit. At the same time, these assets are considered as the main factor when generating and accumulating the fixed assets. Efficiency of the assets in generating the profitability, the commercial banks management uses assets management ratios. The results of the study found that fixed assets structure does not have any impact on ROA. Among the important reasons learned from the above results was that the fixed assets were not being utilized efficiently to generate income or profit for commercial banks.

The study by Mawih (2014) assessed the effects of assets structure made up of fixed assets and current assets on the financial performance of manufacturing companies listed on Muscat Securities Market (MSM), during the period of 2008 to 2012. Fixed assets turnover and current assets turnover were used to measure the asset structure while Return on assets and return on equity was used to measure the financial performance. The end results of this study found that the assets structure do not have a strong effect on profitability in terms of return on equity while the other result of the study found that the fixed assets had positive effect on return on assets.

A study by ZhengSheng and NuoZhi (2013) was carried out on the optimal allocation of asset Structure and corporate management performance in China. The study used fixed asset as a proportion of total assets. The study found that asset structure research had positive importance in value and also statistical significance in evaluating the financial performance of manufacturing textile companies in China. In a study by Deloof (2013) examined how profit ratios and asset management were related for firms listed in Belgium. The study use secondary data which was collected from a population sample of 1,000 Belgium firms quoted on the stock

exchange for a given period of time. The study analysed collected data using multiple regression statistical analysis. The study found that there was indirect or negative relationship between the ratios of profit and the management of asset for every firms quoted in Belgium stock exchange during the period of study.

In study by Reyhani (2012), the study examined the effect of assets structure on the performance of listed companies of Tehran Stock Exchange (TSE). The study expressed the assets structure based the independent variables on fixed assets and variable assets while Earnings before Interest and Taxes (EBIT) was expressed as dependent variable. The study found that the fixed assets had a significant positive relationship or impact on the earning before interest and taxes (EBIT). Also, the study noted that the effect of these two independent variables i.e. fixed assets and variable assets on earning before interest and taxes was not the same between various industries.

Another study by Okwo, Okelue, and Nweze (2012), to determine the effect of investment in fixed assets on operating profit margin of companies in Nigeria. This study was based on a collection of companies in the Nigerian brewery sector among them Nigerian Breweries Plc, Guinness Nigeria Plc, International Breweries Plc and Champion Breweries Plc during the period of 1999 to 2009. Secondary data was collected from annual financial reports for four firms during this period. A cross sectional data was collected. The study used regression statistical analysis to evaluate the relationship between investment in fixed assets level and impact thereon operating profit of the companies. The study found that there was a positive relationship between the investment in fixed assets and profitability of the companies, but this was not statistically significant. Due to this, the result did not find any strong positive relationship between investment in fixed assets and the operating profit earned by brewery firms in Nigeria during this period.

According to Gladys & Job (2017), in their research on asset structure and financial performance: a case of firms quoted under commercial and services sector at the Nairobi securities exchange, with an aim to establish the impact of Property, Plant and Equipment on financial performance of commercial banks and service industry at NSE, Kenya for a five year period, 2010 to 2014. The results of this study show that the Property, Plant and Equipment have a strong effect on the financial performance that is statistically significant. The study found that one unit increase in Property, Plant and Equipment reduces the financial performance by 0.072 units. This means that there is an optimal asset structure in which, increase in the value of this variable will start reducing the financial performance of these firms. This study seek to determine if the above findings applies to commercial banks in Kenya.

A study by Olweny & Shipho (2011) was to determine and evaluate the effects of bank-specific factors on bank profitability. The study used the CAMEL factors (Capital adequacy, Asset quality, management efficiency, earning performance and liquidity) and market structure factors (foreign ownership and market concentration) to achieve their objectives. The data for 38 commercial banks in Kenya from 2002 to 2008 was analysed using multiple linear regressions method. The study found that all the bank specific factors had a statistically significant impact on profitability. However to the contrary, market factors do not have any significant influence to the profitability of commercial banks in Kenya. The study concluded that profitable commercial banks are the one that aim to; improve their current capital bases, reduce operational expenses or costs, improve assets quality or loans by minimising the rate of non-performing loans, use revenue diversification plans and strategies as against to focused strategies and keep the right amount of liquid cash. Therefore, commercial banks profitability is driven my management decision and policies. This study did not evaluate the relationship of banks assets like loans and investments in government securities.

2.4 Knowledge gap

From observation, the available literature provides exhaustive narrative of the impact of internal and industry related determinants of commercial bank profitability, but the study on relationship between asset structure and financial profitability has not received considerable attention in the finance literature. Many studies on financial performance of commercial banks have been done in relations to; determinants of financial performance, effects of capital structure, effects of assets diversifications, effects of bank specific factors, effects of assets quality among others. In addition, these studies have been done during earlier time dimensions and therefore this study want to capture recent times happenings.

For those studies that have evaluated some of assets, the results have shown the significance of those components. For instance, a study by Rop, Kibet and Bokongo (2016) on effect of investment diversification found that government securities and financial performance of commercial banks had significant relationship. The study considered the components of investments like insurance, government securities, shares and real estate and therefore did not include any other assets as found in balance sheet. In a study done by Catur, Tri and Slamet (2017) on how asset structure, capital structure, risk management and good governance influence the financial performance, found out that asset structure had negative influence and not significance in financial performance. In the same study, it was found that asset structure had positive influence and significant to earnings which was the same on the value of the firm. The study left a research gap as did not consider any individual component of assets in banks' balance sheet. The study did not breakdown components of assets structure as this was considered as whole. The study broke down the assets structure to find out relationship of those assets with financial performance. The study considered asset structure as those resources and assets that are owned by the bank and found on the left side of balance sheet and therefore no effect can be related to particular asset.

From the literature available, there is an disconnect between variables in different studies to some extent that some important proxy have the same profitability determinant. It is therefore important that studies undertaking the profitability analysis of the banking industry should discuss and evaluate the above asset structure issues more in details, so that it can allow a better understanding into the factors affecting banks profitability. This study found there was research gap as most studies did not consider assets that the management have influence on in their decision making. The study found three main assets that management have influence and sought to fill existing research gap.

2.5 Conceptual Framework

Conceptual framework for this study shows independent and dependent variables relationship on the figure 2.1 below. These independent variables are; loans to customers, investments in government securities and fixed assets that are part asset structure of commercial banks. The dependent variable in this study is financial performance measured in terms of profitability.

Conceptual framework

Independent Variables

Dependent Variable

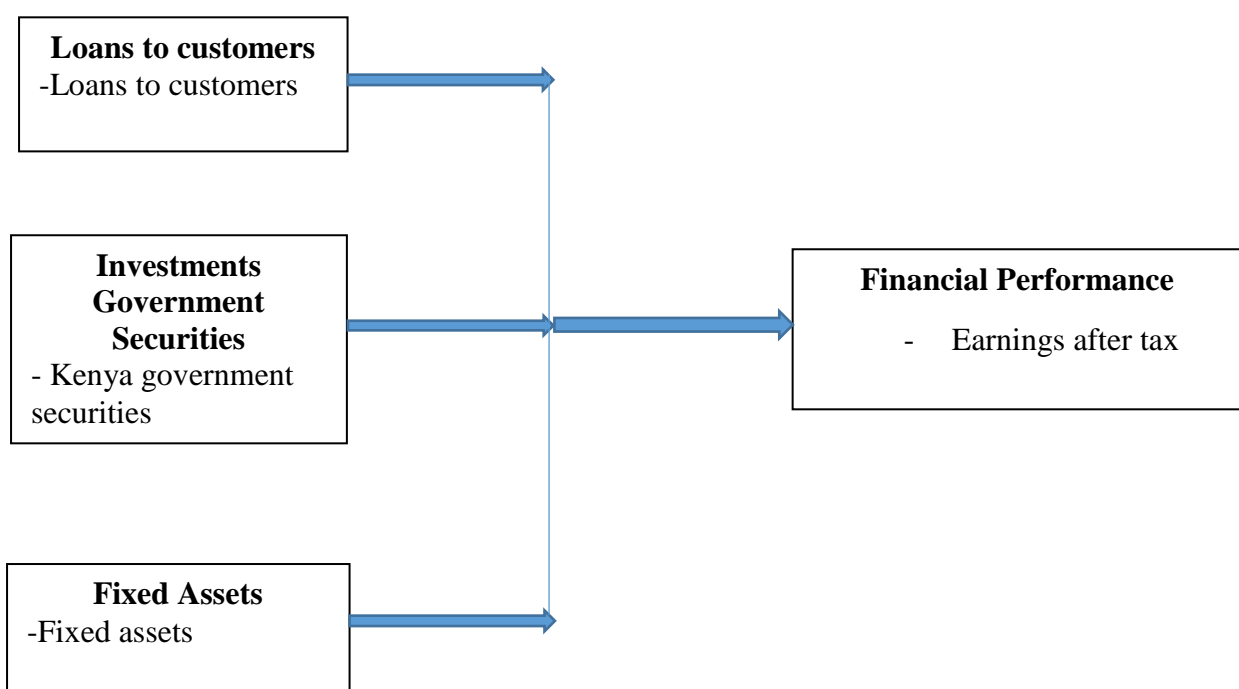


Figure 2.1 Conceptual framework

2.6 Operationalisation

This section presents the measurements that will be used to operationalise the study variables before the application of the linear multiple regression analysis.

Operationalisation Framework

Variables	Measurement
Financial performance	Ratio of profit after tax to total assets
Asset structure variables	
Loans to customers	Ratio of total loans to customers to total assets.
Investment in government securities	Ratio of total investments in government securities to total assets
Fixed assets	Ratio of total fixed assets to total assets

Table 2.1 Operationalisation framework

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter will discuss research methodology used to conduct the current study. The chapter comprises of the research design, target population in the study, sample design, data collection procedure and method used for data analysis.

3.2 Research design

Research design is defined as the linkage and organization of situations for gathering and exploration of gathered data in a manner that intends at achieving the study goals (Rajendra, 2008). Rajendra (2008), argues that research plan should focus on lowering chances of drawing wrong casual inferences from the data.

The main objective of this study is to examine and evaluate the relationship of assets structure on the financial performance of commercial banks in Kenya. Descriptive study design was used in this study. Descriptive study is described as detailed analysis of an event or system that is studied singly or as group to provide information about them (Alexandru et al., 2008). Ozgur and Gorus (2016) indicated that descriptive study helps the researcher in obtaining information on the status of the phenomena and also explains the association with the variables in the study. Descriptive research design is also chosen because it permits the study of the relationship between the variables.

Many studies have used descriptive research design. Ozgur and Gorus (2016) study was on determinants of deposit bank profitability: evidence from Turkey, Mutega (2015), on the effect of asset diversification on the financial performance of commercial banks In Kenya, Olweny and Shipho (2011), in their study on impact of banking industry factors on the profitability of commercial banks in Kenya among others.

3.3 Target population

According to Mugenda and Mugenda (2003), population can be described as a group of individuals, events or objects that have common characteristics. The researcher aims at generalising the study to this population. In this study, all commercial banks in Kenya possess common characteristics and operates in the same environment.

Our population comprises of all commercial banks in Kenya as per CBK data during the period between 2008 and 2017 that have information available for all the variables analysed. As at 31st December 2017, there were 42 commercial banks in Kenya as per CBK 2017 report as indicated on Appendix I. Census was conducted on above commercial banks where two banks, Chase bank and Imperial bank are under receivership while one bank, Charterhouse bank is under statutory management were eliminated thereby having 39 banks under review.

3.4 Data collection

The study used secondary data from the banks audited financial statements and annual reports and from annual CBK supervisory reports for the eight year period, between 2008 and 2017. The data collection sheets were used to collect the data as shown in Appendix II. During this period there has been changes in banking industry and this could offer some recent useful observations and also make up a period of main developments in banking industry like interest rate capping legislation. Data for each of the bank assets structure was collected namely; Loans to customers, investments in government securities and fixed assets. Data on return on assets to measure performance for the commercial banks was also collected over the study period.

3.5 Data analysis

The data collected was analysed by using descriptive statistics, correlation analysis and multiple regression analysis. Olweny (2012) argued that multiple regression techniques give both quantitative and qualitative result that is conclusive and vigorous. According to Sekaran &

Bougie (2011), descriptive survey design assist a researcher in understanding the nature and characters of a group in a given circumstances and help in wider thinking about aspects of a situation faced. This will enable generate more meaning from the data to assist in answering research questions. The mean and standard deviation was used to analyse the general trends of the data from 2008 to 2017 for the variables included in the study. The findings were well presented using tables and figures. Panel data collected was analysed using STATA as data analysis and statistical software in this study.

3.1.1 Analytical model

Regression analysis was used to test the relationship of asset structure to financial performance of commercial banks in Kenya. The regression model is illustrated as below;

$$Y_{it} = \alpha_i + \beta_1 X_{1,it} + \beta_2 X_{2,it} + \beta_3 X_{3,it} + \mu_{it}$$

Where:

Y_{it} = financial performance where i is entity and t is time

$X_{1,it}$ = Loans to customer measured by using proportion of total loans to customers over total assets.

$X_{2,it}$ = Investments in government securities measured by using proportion of total investments in government securities over total assets.

$X_{3,it}$ = Fixed assets measured using the proportion of total fixed assets over total assets.

α_i = Intercept

$\beta_1, \beta_2,$ and β_3 = Coefficients of the independent variables

μ_{it} = error term

3.1.2 Diagnostic tests

Diagnostic tests are undertaken to determine the nature of the panel data and determine the best model for analysis (Krista & Lisa, 2015). The following are some of tests are undertaken to make sure that the data is perfect to the basic assumptions of linear regression statistics model and criteria used for making decision.

Pooled OLS or random test was done to determine the best technique to be used for estimation of the balanced panel data. Breusch-Pagan Lagrange Multiplier (LM) test was carried out to determine the best model between the two is appropriate.

Hausman test was carried out to determine the best appropriate model specification between fixed effect and random effect. Fixed effect is where intercept in the regression model, individual-specific effects are correlated with the independent variables. Random effect is where individual effects of predictor variables are not correlated with the independent variables. The Hausman test statistic was used to test for Fixed Effect where P value was >0.05 , the study used random effects model. The null hypothesis for this test states that unique error is not correlated. The alternative hypothesis is that unique error is correlated

Normality Tests was done to examine if the sample represents a normally-distributed population through Z-test using Kurtosis and Skewness. An absolute value of the score greater than 1.96 or lesser than -1.96 is significant at $P < 0.05$ for a sample qZ with normal distribution. The null hypothesis is that the data collected represent population which is normally distributed and the alternative hypothesis is not normally distributed.

Multicollinearity occurs when independent variables have high intercorrelation. A statistical test of Variance Inflation Factor (VIF) was used to test this. Scores of 10 and above show the existence of multicollinearity. The null hypothesis for this test states that coefficient of variable is zero while the alternative hypothesis states that effect does not equal to zero.

Heteroscedasticity is the variance of the dependent variable differs across the levels of the independent data. To test this, we used Wald Chi-Square test where a large chi-square indicate that heteroscedasticity is present. The study will test the null hypothesis that the variance of the error term do not differ across the levels of the independent dat for all time periods. The Alternative hypothesis stated that the variance of the error term differs for all time periods.

Unit roots/stationarity occurs when statistical properties such as mean, variance, autocorrelation, etc. are all constant over time. Levin-Lin-Chu Unit test for icfs/ Harris-Tzavalis test for icfs was used to test this in the study. If p-value <0.05 use stationary alternative. The null hypothesis states there is presence of unit root and the alternative hypothesis states the panels are stationary.

Autocorrelation is the data characteristics where the comparison between the values of the same variables is based on related objects. Wooldridge's test was carried out where when the correlation is .2 or higher, the test has nearly 100% power in all cases. The null hypothesis states that ther is no first order autocorrelation and the alternative hypothesis states there is auto correlation.

CHAPTER FOUR

DATA ANALYSIS, FINDINGS AND DISCUSSION

4.1 Introduction

The results of the study are presented in this chapter based on objectives and research questions. The chapter present an overview of the results of the study on relationship of asset structure on financial performance of commercial banks in Kenya from 2008 to 2017. The strongly balance data set was analysed using STATA. The study carried out various statistical tests among them; descriptive statistics analysis, exploratory statistical analysis, Diagnostic test and Regression statistical analysis. This chapter will present regression analysis results, correlation analysis and panel data specification tests and findings among others.

4.2 Descriptive Analysis Results

Descriptive statistical analysis was used to explain the variables used in the study to measure average tendency and variability. The table below shows the descriptive statistics results for secondary data variables used in the study. The results shows the number of observations made, mean, standard deviation, minimum and maximum on each variable. From the below Table 4.1, it can be observed that there were total of 320 observations made from 32 units of measure for a period of 10 years on all variables.

ROA was used to measure financial performance of the commercial banks in Kenya and was obtained by taking net profit divided by total assets. It is noted that the financial performance (ROA) had an overall mean of 0.55, an overall standard deviation of 0.11 which shows the possible valuation from the mean. This means that the commercial banks have less net profit compared to total assets and they are not likely to fall in financial crisis. The standard deviation is small and therefore there would be no large variations from the panels. An overall minimum possible value of 0.15 and an overall maximum possible value of 0.76. There is a

variation of ROA between and within standard deviation, which were 0.09 and 0.07 respectively. This also shows a small variation in the data set.

The study sought to examine the relationship between loans to customer and financial performance. The loan ratio was obtained by dividing total loans issued to customers by total assets. The loans to customer had an overall mean of 0.02 and an overall standard deviation of 0.03. This means the commercial banks have less loans to customers compared to total assets and that they are not likely to fall into financial crisis. This standard deviation is low and has contributed to by low dispersion of loans within and between the panels. The between and within standard deviation record no variation as both had 0.02 as standard deviation which showed low variability. An overall minimum value of negative 0.19 and an overall maximum value of 0.12. This shows that the commercial banks may have been unable to meet their short term obligation.

The study also determined the relationship between investment in government securities and financial performance of commercial banks in Kenya where it found that investments in government security had an overall mean of 0.20 and overall standard deviation of 0.12. This shows there was low dispersion from the mean. This means that the commercial banks in Kenya have less investment in government security compared to total assets and therefore, they are not likely to fall into financial crisis. The low variation of the investment in government securities can be explained by low variability within the panels and between panels by the standard deviation on between and within of 0.09 and 0.07 respectively. An overall minimum value of 0.00 and an overall maximum value of 0.59.

This study also sought to find out the relationship between fixed assets and financial performance of commercial banks in Kenya. From the descriptive results, fixed Assets had an overall mean of 0.02 and an overall standard deviation of 0.02. The variability between and within the panels under the study were the same. Both between and within recorded a standard

deviation of 0.02, which depicts low variations. An overall minimum value of 0.00 and an overall maximum value of 0.20. Overall mean was used as a measure of central tendency, which gave average value of data collected.

Overall standard deviation was used to measure how far observations are from the sample average. Overall minimum value and Overall maximum possible value were used to measure how the lowest and highest value of a given variable during this period of study. Between output measures the unit level averages for each unit used while within output measures how much a variable varies within the units while all variations between units are ignored.

Table 4.1 Descriptive statistics on dependent and independent variables

Variable		Mean	Std. Dev.	Min.	Max.	Observations
ROA	Overall	0.55	0.11	0.15	0.76	N = 320
	Between		0.09	0.35	0.68	n = 32
	Within		0.07	0.26	0.77	T = 10
Loan	Overall	0.02	0.03	-0.19	0.12	N = 320
	Between		0.02	-0.02	0.05	n = 32
	Within		0.02	-0.16	0.12	T = 10
Investment	Overall	0.20	0.12	0.00	0.59	N = 320
	Between		0.09	0.02	0.49	n = 32
	Within		0.07	-0.28	0.40	T = 10
Assets	Overall	0.02	0.02	0.00	0.20	N = 320
	Between		0.02	0.00	0.20	n = 32
	Within		0.02	-0.04	0.14	T = 10

Source: Research findings

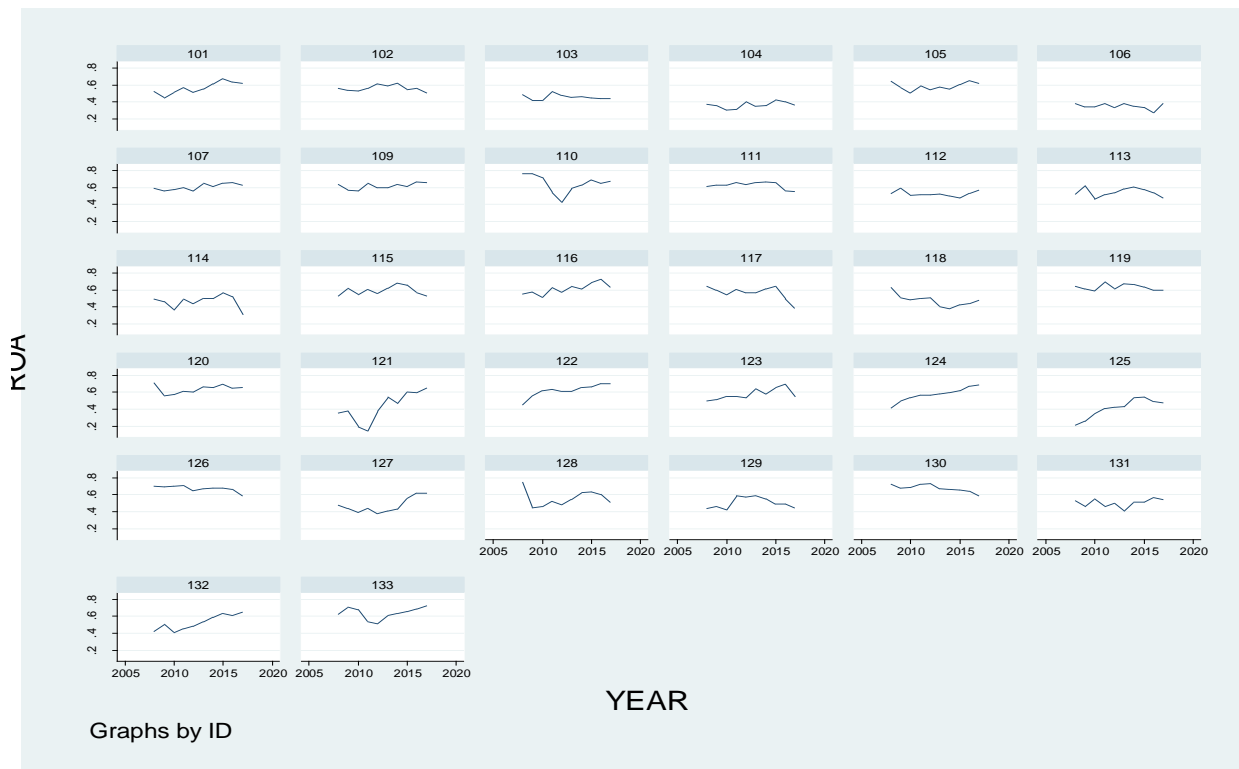
4.3 Exploratory Data Analysis

Exploratory data analysis was done in order to have a general view of some data but without making any assumptions about it by trying to get what it might mean before exploring it further. The data is summarized in graph and patterns so that it can be understood and interpreted easily (Yong & Pearce, 2013). Figure 4.1 and 4.2 below shows the results.

Growth Trend Plot

This study examined the relationship between asset structure and financial performance measured by ROA for different commercial banks in Kenya during the period of 2008 to 2017. The study results as shown in figure 4.1 below, shows that there was variations in return on assets among banks in Kenya during period of study. It can be observed that most of the banks have generally indicated a constant trend in financial performance with little variations during this period of study. Some of the banks that shows some constant performance trend includes banks represented by number 103, 104, 105, 107, 109 among others. It can also be noted that during the period of study, some of the banks sharp upward trend in ROA include banks depicted by numbers 121, 122, 124 133 among others while a few of the commercial banks had declining trend in ROA among them banks depicted by number 117,129,130 among others during period of 2010 and 2017.

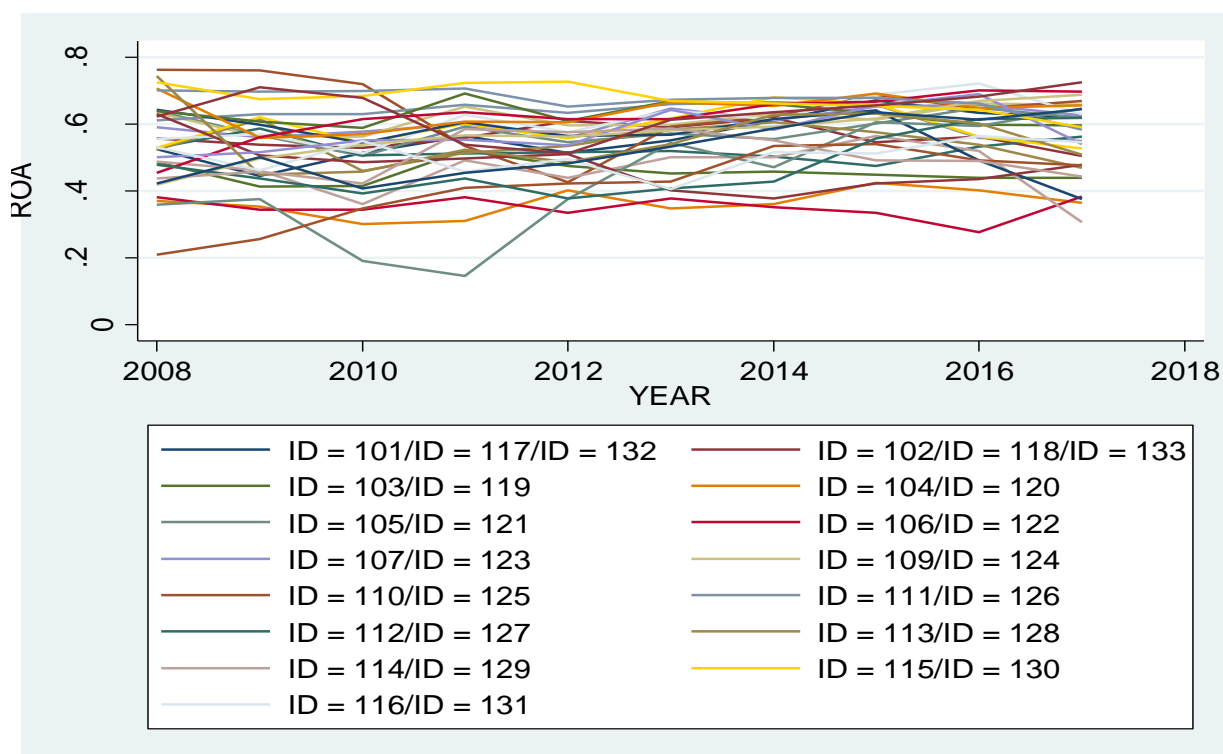
Figure 4.1 Growth trend plots



Spaghetti Plot

The study used Spaghetti plot to show the individual tracings of the entities ROA against time during the period of the study. The plot shows a general observation on the behavior of return on assets across the entities by showing banks possible diverse nature. The plot shows general presentation of ROA behavior across the entities during the period of study which shows dynamic nature of commercial banks in Kenya. From the results, we can note that it shows near constant trend in ROA over the years where some banks experienced constant trend and very few downward trend as shown on figure 4.2 below. It can be deduced that commercial banks in Kenya had intercepts, which are different but it also shows there was variations in financial performance measured by ROA among commercial banks in Kenya during period of consideration.

Figure 4.2 ROA over time spaghetti plot



4.4 Correlation Analysis

In order to examine the relationship between financial performance, which is the dependent, and loans to customers, investment in government securities and fixed assets, which are independent variables, Pearson correlation was done as shown on Table 4.2. Pearson correlation was used as a measure of strength of relationship between two variables being studied. Table 4.2 below shows the Pearson coefficient value of each variable, the sample size of data set at significant level of 0.05.

The output on Table 4.2 reflects that return on assets has positive correlation with loans to customer with correlation coefficient of .0631. This shows that a one unit increase in loans to customer will have the financial performance increase with .0631 units. This means that there is positive relationship between loans issued to customers and financial performance measured in ROA. Therefore, commercial banks can improve their financial performance by improving on the loans issued to the customers. Investments in government securities have a negative

correlation with return on asset with a correlation coefficient of $-.443$. The results means there is a negative relationship between investment in government securities and financial performance measured in ROA. This shows that one unit increase in investment in government securities would have a decrease effect on the financial performance by $.443$. The commercial banks should be cautious when investing in government securities to avoid the negative effect on their financial performance. On the other hand, investment in government securities had a positive correlation with loans to customers with correlation coefficient of $.08$. This means that increase in investment in government securities would increase each unit of loans to customers by $.08$. Fixed assets have negative correlation with return on assets with correlation coefficient of $-.0238$ which mean that one unit increase in fixed asset would have a decrease effect on the return on asset by $.0238$. The results means that fixed assets have a negative relationship with financial performance of commercial banks. The commercial banks should take caution when investing in fixed assets as these will have a negative effect on the banks financial performance. Similarly, fixed asset had negative correlation to both loans to customers and investment in government securities which means that increase by one unit of fixed asset will have a negative effect on loans to customers by $.215$ and the same effect on the investment in government securities by $.225$. These results means that investment in fixed assets by commercial banks, will result into negative effect on both the loans to customers and investments in government securities.

Table 4.2 Correlation analysis

	ROA	LOAN	INVESTMENT	ASSETS
ROA	1			
LOAN	0.0631	1		
INVESTMENT	-0.443***	0.0800	1	
ASSETS	-0.0238	-0.215***	-0.225***	1

* p<0.05, ** p<0.01, *** p<0.001

Source: Research Data

4.5 Diagnostic Tests

Model Specification

This study used a balanced panel data to carry out the study for ten years from 2008 to 2017. Gujarati (2012) suggested various techniques that can be used in estimation of the panel data which are; pooled OLS, Random effect (RE) and Fixed Effect (FE). A test was done to determine the best model to apply in this study.

Pooled OLS or Random Effect Model

According to Bell & Kelvyn (2015), the decision on the appropriate model to use between random effect regression or pooled OLS model regression should be based on the Breusch-Pagan Lagrange multiplier (LM) test. According to LM test, the null hypothesis is that there is no significant difference across units and variances are zero, as a result, random effect should not be used. The alternative hypothesis is that random effect should be applied. Results of the Breusch Pagan LM test are shown on Table 4.3 which shows a P-value of 0.000 which is less than 0.05 and therefore the null hypothesis is therefore rejected and the alternative hypothesis accepted. Based on this LM test, pooled effects model was not appropriate for the study and therefore will either use random effects model (REM) or fixed effects model (FEM).

Table 4.3 Breusch-Pagan LM test

Dependent Variable	X²	P-Values
ROA	354.47	0.0000

Hausman Test

Hausman test was used to determine the appropriate model to adopt between the two models. It simply tests whether the unique errors are correlated with the regressors and the null hypothesis is that unique error is not correlated (Bell and Kelvyn (2015), the alternative hypothesis is that unique error is related. If null hypothesis is accepted then the appropriate model is random effects otherwise use the fixed effects model. Below table 4.4 shows the hausman test results which indicates a P-value of 0.0927 which is greater than 0.05 and therefore null hypothesis is accepted and random effect identified as the appropriate model.

Table 4.4 Hausman Test

	Fixed	random	Difference	S.E.
LOAN	2913379	.2796357	.0117022	.0436091
INVESTMENT	-.2427959	-.2798681	.0370721	.0155976
ASSETS	-.9963195	-.8908625	-.1054571	.070111
chi2= 6.42	Pvalue = 0.0927			

Multicollinearity Test

Multicollinearity occurs when there is high degree of colleration between explanatory variables. Value Inflation Factor (VIF) was used to measure collinearity impact related to independent variables where if VIF values exceeds 5 it implies that there is multicollinearity. From the results, the VIF value of 1 was found on all predictor variables which indicates there is no correlation or minimal levels of collinearity between explanatory variables because the values are less than 5. The null hypothesis stated that coefficient of variable is zero. Therefore we reject the null hypothesis meaning that there is collinearity between predictors and accept the alternative hypothesis meaning there is no collinearity. Results are as shown in the Table 4.5 below.

Table 4.5 VIF results

Variable	VIF	1/VIF
ASSETS	1.10	0.910107
INVESTMENT	1.05	0.948275
LOAN	1.05	0.952559
Mean = 1.07		

Autocorrelation

This refers to degree of correlations between variables values in different observations. Autocorrelation test is done using Wooldridge Test to test whether there is any serial correlation. The result for the test gave a p-value of 0.000 which is less than 0.05 meaning that there was serial correlation. The null hypothesis states that there is no first order autocorrelation. Therefore we reject the null hypothesis that there is no existence of first autocorrelation and accept the alternative hypothesis meaning there is autocorrelation. The effect of autocorrelation is minimal as it applies to micro panels with long time series of between 20 to 30 years. The table 4.6 shows the results of the test where

Table 4.6 Autocorrelation

Fvalue = 36.47	P-value = 0.0000
----------------	------------------

Testing for Stationarity

The study carried out unit root test for stationarity using Levin-Lin-Chu unit-root test for the panel data. This test was done to determine whether there is stationarity in all the available panels. The LLC test result show that all variables test statistic t as significant as all has p-value less than 0.05. The null hypothesis stated that there is stationarity. With these results,

we therefore reject the null hypothesis of unit root that panels contain unit roots and accept the alternative hypothesis that panels have stationarity.

Table 4.7 Unit-Root Test for Panel Stationarity

Variable		Statistic	P-Value
ROA	Unadjusted t	-7.6357	
	Adjusted t*	-1.7450	0.0405
Loan	Unadjusted t	-8.6436	
	Adjusted t*	-3.5769	0.0002
Investment	Unadjusted t	-13.6255	
	Adjusted t*	-9.5652	0.0000
Assets	Unadjusted t	-21.1980	
	Adjusted t*	-19.9805	0.0000

Testing for Heteroscedasticity

Modified Wald Test was performed to check whether there exist heteroscedasticity. From the below results, the chi-squared value generated is 1774.26 and p-value of 0.0000. The null hypothesis states that coefficients are equal to zero. The P-value is less than used criteria of 0.05 and therefore null hypothesis is rejected meaning that the coefficients are not simultaneously equal to zero. The results as shown on the Table 4.8 below.

Table 4.8 Testing for Heteroscedasticity

Chic2 = 1774.26	P-value = 0.0000
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Since there was existence of heteroscedasticity, robust standard error was employed to correct the issue of wrong standard errors and thereon valid interval estimates and hypothesis are

obtained. The results shown on the regression table 4.9 below shows results of the standard error adjusted for 32 clusters.

4.6 Regression Analysis

The study employed regression analysis to examine the relationship between independent variables represented by loans to customers, investment in government securities and fixed assets and dependent variable represented by financial performance measured by Return on Assets (ROA).

The objective of this study was to determine the relationship of bank asset structure on the financial performance of commercial banks in Kenya. The data used was collected from secondary source for a period of ten years, which facilitated linear regression analysis. The study used hausman test as indicated above to determine random effect model as the most appropriate model to use. The random regression model results were as shown in table 4.9 below.

The study used regression model illustrated as below;

$$Y_{it} = \alpha_i + \beta_1 X_{1,it} + \beta_2 X_{2,it} + \beta_3 X_{3,it} + \mu_{it}$$

The model was fitted as follows;

$$Y_{it} = 0.62 + 0.28 X_{1,it} - 0.28 X_{2,it} - 0.89 X_{3,it} + \mu_{it}$$

Where:

Y_{it} = financial performance where i is entity and t is time measured as ROA.

$X_{1,it}$ = Loans to customer measured by using proportion of total loans to customers over total assets.

$X_{2,it}$ = Investments in government securities measured by using proportion of total investments in government securities over total assets.

$X_{3,it}$ = Fixed assets measured using the proportion of total fixed assets over total assets.

α_i = Intercept

$\beta_1, \beta_2,$ and β_3 = Coefficients of the independent variables

μ_{it} = error term

Findings from above random effect regression model;

This study had an general objective to determine if there is relationship between asset structure and financial performance of commercial banks in Kenya. The three independent variables were studied among them loans to customers, investment in government securities and fixed assets. The model result had a coefficient of determination overall R^2 of 0.1856 or 18.56% which indicates that 18.56% of commercial banks financial performance in Kenya is explained by the model. Other factors or variables not explained by this study which accounted for 81.44%.

The study findings shows varying degrees of relationship between independent and dependent variables which indicated an intercept of 0.62 for the period under study. The results means that the performance of commercial banks holding all other factors constant, that is; loans to customers, investments in government securities and fixed assets at zero, was 0.62 units. Therefore, from this finding we can conclude on the general objective of the study that asset structure has a relationship with financial performance of commercial banks in Kenya.

The first objective of the study was to find out if there is relationship between loans to customer and financial performance of commercial banks in Kenya. The study results found that the coefficient for loans to customer was 0.28. The loans to customers has positive

relationship with the financial performance of commercial banks in Kenya. Loans to customers had p-value of 0.182, which was not statistically significant in predicting the relationship with financial performance of commercial banks in Kenya since p-value was more than 0.05. The results from the study did not have sufficient evidence to conclude that a non-zero correlation existed and hence inconclusive. This results could not answer our research as the results were inconclusive. This is in agreement to study by Syafri (2012) on factors that affect profitability of commercial banks in Indonesia. The result of the study was inconclusive. Ozgur and Gorus (2016) study on bank specific factors in Turkey, was in disagreement where they found that loans to customers were negative insignificant relationship with profitability of banks. The findings were not in agreement to a study by Obamuyi (2013) on determinant of banks profitability in Nigeria where the study found that the relationship between financial performance in terms of profitability and loans to customers is positive and statistically significant. This was the same result with study by Hadad (2013) on factors that have impact on banks profitability in Ghana. Therefore from this study results, neither the null hypothesis or alternative hypothesis could be accepted as the loans to customers inconclusive predictor of relationship between asset structure with financial performance of commercial banks in Kenya.

The second objective of the study was to examine the relationship between investment in government and financial performance of commercial banks in Kenya. The investment in government securities had coefficient of estimate of -0.28, which means that, if commercial banks holds all other factors constant, there would be a decrease of 0.28 units in financial performance of the banks. The investments in government securities had p-value of 0.001 which is less than 0.05 shows that they have significant relationship with financial performance. Therefore the study results shows that, there was a significant relationship between investments in government securities and financial performance of commercial banks in Kenya. This was in agreement with study findings by Rop, Kibet & Bokongo (2016), which found that investment

in government securities had negative significant effect on financial performance of commercial banks in Kenya. The study by Mayoli (2013) on effect of financial assets allocation on the performance of Commercial banks in Kenya was in agreement when they found investments have a significant relationship with financial performance. In a study by Kotšina and Hazak (2012), on effect of investment on financial performance in EU, they found that the results were indifferent and no conclusive decision can be made. The findings therefore answers our second research question whether the investment in government securities have relationship with financial performance.

The third objective of the study was to determine whether there is a relationship between fixed assets and financial performance of commercial banks in Kenya. This study found that the coefficient for fixed assets as -0.89, which means that, if the banks holds all other factors constant, an increase in one unit of fixed asset would translate to a decrease in 0.89 units in financial performance. This can be translated to mean that there is optimal asset structure that financial performance will decline with increase in this variable. Fixed assets had p-value of 0.003 which was significant in predicting the relationship with financial performance of commercial banks in Kenya since all had p-values of less than 0.05. This can be explained most banks have not utilized the assets they hold efficiently to generate profit . Also most commercial banks hold fixed assets for tax advantage reasons. Therefore the results shows that there is significant relationship between fixed assets and financial performance of commercial banks in Kenya. These findings are in disagreement with research findings of Gladys & Job (2017), which found that fixed assets had positive and significant effect on the financial performance of commercial banks in Kenya. This findings are also in disagreement with a study by Olatunji & Adegbite (2014) which found that fixed assets had positive and significant relationship to the financial performance of banks in Nigeria. Another study by Iqbal & Mati (2012), disagreed with the findings as it found that fixed assets structure does not have any impact on ROA. The

study findings answers our third research question on whether there is relationship between fixed assets and financial performance of commercial banks in Kenya.

Table 4.9 Random Effect Model

```
. xtreg ROA LOAN INVESTMENT ASSETS, robust

Random-effects GLS regression           Number of obs   =       320
Group variable: ID                     Number of groups =        32

R-sq:  within = 0.1252                  Obs per group:  min =        10
      between = 0.2418                                     avg =       10.0
      overall  = 0.1856                                     max =        10

corr(u_i, X) = 0 (assumed)              Wald chi2(3)    =       18.58
                                           Prob > chi2     =       0.0003
```

(Std. Err. adjusted for 32 clusters in ID)

ROA	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
LOAN	.2796357	.2096513	1.33	0.182	-.1312733	.6905447
INVESTMENT	-.2798681	.0836505	-3.35	0.001	-.44382	-.1159161
ASSETS	-.8908625	.3032872	-2.94	0.003	-1.485295	-.2964304
_cons	.6214704	.025612	24.26	0.000	.5712719	.6716689
sigma_u	.07111144					
sigma_e	.06572418					
rho	.53930937	(fraction of variance due to u_i)				

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The main objective of this study was to determine the relationship between loans to customers, investments in government securities and fixed assets on financial performance of commercial banks in Kenya. The chapter recalls and discuss the findings drawn from the previous chapter. This chapter will give summary of the findings, conclude on the same and make necessary recommendations based on the findings.

5.2 Summary of findings

The study general objective sought to answer the question on relationship between dependent variable i.e. financial performance and asset structure made up of three independent variables, which are loans to customers, investments in government securities and fixed assets with financial performance of the commercial banks in Kenya

The findings of regression analysis of the data obtained out of 320 observations made, the overall R-squared was 0.1856 (18.56%) which meant that the variable underconsideration could only explain only 18.56% of factor that affect financial performance of commercial banks in Kenya. The 81.44% of the variables could not be explained by this study. The chi-test was used to check the model and the p-value was 0.00 which is less than 0.05 meaning our model was okay. The concept for the study was 0.62 which meant that if all factors are held constant at zero the financial performance would be 0.62 units. The study found constant term to be significant with a p-value less than 0.05.

5.2.1 Relationship between loans to customer with financial performance

The first objective of the study was to determine the relationship between loans to customer to financial performance of commercial banks in Kenya. Loan ratio is got by taking total loans to

customers divided by total assets employed by commercial banks in Kenya during the study period. The analysis results indicated that during the period of study, loans to customers had a positive but not significant relationship on financial performance of commercial banks in Kenya.

From the study, we found that results regression analysis, where loans to customer had coefficient of .28 to ROA which measured financial performance. The study results gave inconclusive results. The study also found loans to customers to be not significant in influencing financial performance as the variable had p-value of .14 which is greater than .05. Due to this, the findings were inconclusive. This was in agreement with results obtained in a study by Mayoli (2013) where loans had coefficient of .309 and a p-value of .138. This results were in disagreement with Garcia et al (2012) where they found that the loans to customer have significant relationship with financial performance of commercial banks.

5.2.2 Relationship between investments in government securities with financial performance

The second objective of the study was to examine the relationship between investment in government securities and financial commercial banks in Kenya. This study used the proportion of total investment in government securities divided by commercial banks total assets. The statistical analysis results found that investment in government securities had a negative statistical significance in determining the relationship of financial performance of commercial banks in Kenya.

The regression results from the study shows that investments in government securities had a coefficient of -0.28. This means the change in one unit of investment in government securities would decrease the financial performance by 0.28 units. The p-value of investment in government securities was less than 0.05 at 0.00 and therefore indicated that the variable was statistical significance in determining relationship with financial performance. These results

were in agreement with results of the study by Gladys & job (2017) where found that investments in government security had significant relationship with financial performance where it produced a coefficient of .069 and a p-value of .01. The findings were in disagreement with Mayoli (2013), which gave a insignificant relationship between investment in government securities and financial performance.

5.2.3 Relationship between fixed assets with financial performance

The third objective of the study was to evaluate the relationship of fixed assets on financial performance of commercial banks in Kenya. The study used the proportion of total fixed assets divided by total assets. The statistical analysis findings indicated that fixed assets had a negative and significant relationship on financial performance of commercial banks in Kenya.

From the study regression results fixed assets had negative coefficient of -0.89, which means that there is negative relationship between the fixed assets and financial performance where an increase in one unit of fixed assets would decrease the financial performance by 0.89 units. The fixed assets was found to have significant relationship with financial with p-value of 0.00 which was less than 0.05. These findings are in agreement with results of the study by Gladys & job (2017) which produced a coefficient of -.084 and a p-value of 0.008. The study was also in agreement with Okwo et al. (2012), that the fixed assets have significant relationship with financial performance. The study by Olatunji et al. (2014), was in disagreement as it found that fixed assets had significant positive relationship with the financial performance in Nigeria during the period of 2000 to 2012.

The study concludes that commercial banks in Kenya whose asset structure is made up of large proportion of fixed assets are comparatively more negatively affected in financial performance. This conclusion borrows from the finding that tangibility has negative and significant relationship with financial performance.

5.3 Conclusion

The conclusion of the study was based on the general objective of the study, which was to find out if there is relationship between asset structure and financial performance of commercial banks in Kenya. From the study findings, it can be concluded that asset structure have relationship with financial performance of commercial banks in Kenya. It is therefore advisable that banks should ensure there is optimal asset mix by holding more of loans to customer and less of investment in government securities and fixed assets so that they can effectively have positive impact on the profitability. While holding the loans to customers, the banks should also consider the cost associated with loans held.

Loans to customers had inconclusive results. It was found that increase in loans to customer would have same effect i.e. increase on the financial performance. The study also showed a positive correlation between loan and financial performance. On the other hand, investments in government securities have a negative relationship that unit increase in each would give negative results on the financial performance. This result could be explained by commercial banks reluctance to invest in government securities due to uncertainties or risk associated although has guaranteed good returns.

The study indicated that fixed assets have a negative relationship that unit increase in each would negative results on the financial performance. This variable had statistically significant relationship with the financial performance of the banks. There was negative correlation between investments in fixed assets with the financial performance.

5.4 Recommendations

Commercial bank in Kenya management can use the findings of this study to make informed decision on capital asset structure mix that they can use to maximize on financial performance.

From the findings of the study, loans to customer had inconclusive results and therefore no recommendations could be done at this point. Based on the study findings, it is recommended that commercial banks in Kenya managers should limit amount of capital for investing in government securities. From these, it is recommended to commercial bank management to put into place measures and plans that curb negative effect of investment given that government securities are key investment vehicle, which can earn guaranteed interest income.

The study also recommend that commercial banks management should put in place in strategies that will enable banks make optimal utilisation of the fixed assets at their disposal to ensure they earn or contribute to profitability. The study recommends that the management and commercial banks policy makers should put in place initiatives with an aim at lowering the high interest rate charged on loans to customers and thereby encourage more loan intake and hence improved profitability thus the financial performance. Investment in government securities and fixed assets are independent variables and have have significant influence on the relationship of asset structure and financial performance of the commercial and therefore, management should utilise to the maximum the two investments to ensure they contribute to the profitability of the banks.

The study could only explain 18.56% based on variables used and therefore recommends further studies on commercial banks in Kenya to explain the 81.44% of unexplained part of the variations, putting into considerations the focus of this study. The study would further recommend research by including the most recent results from the commercial banks to fully cover the effect of emerging issues like interest rate capping on the loans to customers.

5.5 Suggestions for further studies

The topic on asset structure in relationship to financial performance in commercial banks in Kenya has not been widely researched as per empirical literature available. From the empirical

literature available, the studies done have considered whole asset structure of banks and none has isolated these assets for study.

From the findings of the study, it is advocated that further study on this subject should be undertaken using different combination of variables like shareholder funds, cash deposits, balances due from Central Bank of Kenya among others. Other area of study should also focus on corporate governance practices, risk management strategies, internal control measures and regulatory and supervisory weaknesses in the system.

This study was done based on the Kenyan commercial banks for a period upto 31st December 2017. There has been new regulatory changes in banking sector like interest rate capping which came into effect on September 2016 and there could be interesting new twist in issuance of loans to customers and hence financial performance by the banks due to this law. This may also have effect on banks appetite or turn towards investments in government securities as an alternative to regulated loans and thereby affecting financial performance. Therefore, it is suggested a further study should be done beyond this period to determine the resulting changes.

There has been surge in recent times by commercial banks in going into real estate business and this forms part of the fixed assets which in future can be interesting area to study to find out the eventual effect.

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APPENDIX I: Commercial Banks in Kenya

1. KCB Bank Kenya Limited
2. Equity Bank (Kenya) Limited
3. Co-operative Bank of Kenya Limited
4. Barclays Bank of Kenya Limited
5. Standard Chartered Bank Kenya Limited
6. Diamond Trust Bank Kenya Limited
7. I & M Bank Limited
8. Commercial Bank of Africa Limited
9. Citibank N.A Kenya
10. NIC Bank Kenya PLC
11. Stanbic Bank Kenya Limited
12. Bank of Baroda (K) Limited
13. Bank of India
14. Prime Bank Limited
15. Victoria Commercial Bank Limited
16. National Bank of Kenya Limited
17. Habib Bank A.G Zurich
18. Gulf African Bank Limited
19. Guaranty Trust Bank (Kenya) Limited
20. Guardian Bank Limited
21. First Community Bank Limited
22. African Banking Corporation Limited
23. Credit Bank Limited
24. M-Oriental Bank Limited
25. Paramount Bank Limited

26. Development Bank of Kenya Limited
27. Transnational Bank Limited
28. Bank of Africa Kenya Limited
29. UBA Kenya Bank Limited
30. Middle East Bank (K) Limited
31. Mayfair Bank Limited 3
32. SBM Bank (Kenya) Limited
33. Consolidated Bank of Kenya Limited
34. Sidian Bank Limited
35. Jamii Bora Bank Limited
36. DIB Bank Kenya Limited
37. Family Bank Limited
38. Ecobank Kenya Limited
39. Spire Bank Limited
40. Charterhouse Bank Limited
41. Chase Bank (K) Limited
42. Imperial Bank Limited

APPENDIX II: Data Collection Sheet

Name of the Bank.....

Date of Licensed /Registered.....

Physical address.....

Part I: Loans to customers

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total assets										
Total loans to customers										
Loans to total assets ratio = Loans/Total assets										
Total investments in government securities (IS)										
Investment in government securities to total assets ratio = IS/Total assets										
Total fixed assets (FA)										

Fixed assets to total assets ratio = FA/Total assets										
Profit after tax (EAT)										
Profit after tax to total assets ratio=EAT/Total assets										

Panel Data Diagnostic Tests

Test	Description	Statistic to be used	Null hypothesis	Threshold
Normality	Tests if the sample represents a normally-distributed population.	z-test using Kurtosis and Skewness.	Sample distribution is normal.	An absolute value of the score greater than 1.96 or lesser than -1.96 is significant at $P < 0.05$.
Multicollinearity	Occurs when independent variables have high intercorrelation.	Variance Inflation Factor (VIF)	Coefficient of a variable is zero.	Scores of 10 and above show the existence of multicollinearity.
Heteroscedasticity	The variance of the dependent variable differs across the levels of the independent data.	Wald Chi-Square test.	The variance of the error term is constant.	A large chi-square indicate that heteroscedasticity is present.

Unit roots/stationarity	Occurs when statistical properties such as mean, variance, autocorrelation, etc. are all constant over time.	Levin-Lin-Chu Unit test for icfs/ Harris-Tzavalis test for icfs	Null hypothesis of a unit root is rejected in favor of the stationary alternative in each case if the test statistic is more negative than the critical value.	If p-value <0.05 use stationary alternative;
Random/fixed effect	In a fixed effects model, individual-specific effects are correlated with the independent variables while random	Hausman test	Slope coefficients of the two models being compared do not differ significantly	If P value >0.05, use random effects model.

	effects model, the individual specific effects are uncorrelated with the independent variables.			
Autocorrelation	Characteristic of data in which the correlation between the values of the same variables is based on related objects.	Wooldridge' s test	No serial correlation is strongly rejected	When the correlation is .2 or higher, the test has nearly 100% power in all cases