THE EFFECT OF FINANCIAL REFORMS ON FINANCIAL DEEPENING IN KENYA

MASTER OF ARTS (ECONOMICS) THESIS

By

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DECLARATION

This thesis is my own original work and it has not been submitted to any other institution for similar purposes. Acknowledgements have been duly made where other people's work have been used. I bear the responsibility for the contents of this paper.

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CERTIFICATE OF APPROVAL

The undersigned certify that this thesis represents the student's own work and effort and has been submitted with our approval.

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DEDICATION

This thesis is dedicated to my nieces, Sandra Keil, Rachelle Wanjiru and Trixie Wanjiru who are my pride and joy.

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Special thanks and praise goes to the Almighty for the amazing grace bestowed upon me throughout my studies. All Glory and Honour belong to him alone.

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MAY GOD SHOWER YOU WITH BLESSINGS

ABSTRACT

This paper examines the effect of financial reforms on financial deepening in Kenya. The specificic objective of the study were to assess the effect of financial liberalization on savings mobilization, to analyze the effect of financial reforms on intermediation margin and to investigate the effect of financial liberalization on the size of financial sector. ARDL technique was used to analyse a time series data from 1975 to 2014. The researcher found that, on one hand, financial sector liberalization has a positive impact on interest rate spread, fosters a shift from short term to long term savings and has a negative impact on the size of financial sector. On the other hand financial repression has no impact on the interest rate spread, encourages short term savings and has a negative impact on the size of financial sector.

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LIST OF ACRONYMS AND ABBREVIATIONS

AFC	Agricultural Finance Corporation
AIH	Absolute Income Hypothesis
APC	Average Propensity to Consume
ARDL	Auto Regressive Distributed Lag Model
DFCK	Development Finance Corporation of Kenya
ECT	Error Correction Term
FSAC	Financial Sector Adjustment Credit
FSD	Financial Sector Development
GDP	Gross Domestic Products
IBD	Industrial Development Bank
ICDC	Industrial & Commercial Development Corporation
IMF	International Monetary Fund
KPRL	Kenya Petroleum Refinery Limited
LCH	Life Cycle Hypothesis
MPC	Marginal Propensity to Consume
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Square
PIH	Permanent Income hypothesis
RIH	Relative Income Hypothesis
SAL	Structural Adjustment Loan
SAPs	Structural Adjustment Programs
SSA	Sub Saharan Africa
UECM	unrestricted error correction model
WB	World Bank

CHAPTER ONE

INTRODUCTION

1.0 Introduction

Financial deepening refers to the increased provision of financial services with a wider choice of services geared to all levels of society (McKinnon, 1973). This introductory section first outlines the background of the study, the problem statement and finally the research hypotheses to be tested.

1.1 Background of the Study

Governments, particularly those in developing countries, do intervene in their financial sectors in order to promote development and to channel funds for themselves. Until the 1970s, it was thought that by keeping interest rates at reasonably low levels and by expanding the scope of government direct intervention, investment would greatly increase. Many countries in the 1960s and 1970s tried to raise their economic growth through financial repression but this only worsened the situation (Odhiambo, 2011). This presented doubts on financial repression leading to arguments on the effectiveness of a repressed financial market in promoting economic growth.

The debates and policy discussions about the benefits of liberalized financial markets on financial deepening have intensified. There have lately been arguments on which financial policies are most appropriate; a policy of repressed finance according to

Keynesian macroeconomics or a policy of liberalized financial markets according to the neoclassical McKinnon-Shaw hypothesis. The debates have not reached a conclusion up to now with many researchers seen to find contradicting results and their stances remaining unclear.

In response to arguments against government repressive policies by the classical economists, many African governments including Kenya liberalized their financial sectors since the 1980s. However, research has shown that the world's financial system remained weak even after many countries liberalized their financial sectors. Changes in the global financial structure are not visible yet, in part because policymakers and bankers have intentionally or unintentionally delayed the implementation of reforms in some places and because some reforms are meeting resistance (International Monetary Fund, 2011). Elizabeth (2008) observes that many countries which deregulated their financial markets during the liberalization era are still faced with heavy financial crises followed by a breakdown of growth rates. In this sense, Kenya being one of the developing countries, is no exception, having experienced financial breakdowns during the period after liberalization.

In the post-independence period, the Kenyan economy was fairly stable with Gross Domestic Product(GDP) growth rate for the period 1963 to 1973 recording an average of 8.20 percent while average inflation rate being as low as 2.93 percent. However, the momentum was halted by the oil price shocks of 1974 and 1979, with the average GDP growth rate for the period drastically falling to 5.18 percent while average inflation increasing to 14.68 percent. This situation was hastened by the imposed repressive government policies.

According to Upadhyaya & Johnson (2015), after the oil price shock policymakers imposed restrictions in the market, among which included the control on foreign exchange transactions, interest rates and importations.

The government therefore had to seek advice from the Bretton Woods Institutions which is composed of the International Monetary Fund (IMF) and the World Bank (WB). The resolution given by these institutions, was the need for policy changes that would unleash the market. Thus, there was need for Kenya to phase out of import substitution policies, liberalize the product and factor markets as well as to lessen the role of the state. This led to the introduction of Structural Adjustment Programmes (SAPs) in the year 1980.

By the mid-1980s Kenya replaced the import-substitution policies it had pursued since independence with an open, liberalized trading regime. Tariffs were decreased, controls on imports loosened, and the government encouraged trade through a series of export promotion platforms (Gertz, 2008). This period saw an increase in imports as a percentage of GDP from an average of 0.05 percent in the 1970s to an average of 0.49 percent in the 1980s. The same period witnessed a large increase in the size of financial sector with the number of Non-Bank Financial Institutions (NBFIs) rising from 22 in 1975 to 94 in 1990 (a 327 percent rise).

Exports as a percentage of GDP reduced from 30.38 to 26.02 percent in the same period and neither did economic growth show an improvement. The average GDP growth declined from 5.2 percent in the 1974 – 1979 period to 4.2 percent in the

1980s. This fall in GDP growth could partly be explained by the fact that the financial sector was still repressed.

The Kenyan financial system liberalization commenced in 1989 and was financed by the World Bank's Financial Sector Adjustment Credit (FSAC). With this support, Kenya has made attempts to liberalize its financial sectors by deregulating interest rates, allowing free entry into the banking sector, eliminating or reducing credit controls, permitting private ownership of banks, and liberalizing international capital flows.

McKinnon and Shaw (1973) advocates for financial liberalization policy. According to this hypothesis, increase in interest rate attracts deposit hence increasing savings. Few studies on financial liberalization have been done in Sub Saharan Africa (SSA). Among the studies which found a negative relationship between financial liberalization and the financial deepening, include Chirwa and Mlachila (2004) who did their research for Malawi economy and found that after financial liberalization, interest rate spread increase significantly. Contrary, Odhiambo (2009) found a positive linkage between interest rate liberalization and economic growth through its effect on financial deepening for Kenya.

1.2 Problem Statement and Justification

1.2.1 Problem Statement

Due to economic problems faced by the Kenyan economy from the 1980s as afore-mentioned, the government had to again seek financial assistance from the Bretton Wood institutions. This came with liberalization of the financial sector in 1989 aided

by World Bank's Financial Sector Adjustment Credit (FSAC). The aim of financial liberalization has been to improve financial deepening through, among other ways, increasing bank competition by lifting entry restrictions, increasing savings mobilization and reducing the interest rate margin. However, some of these variables for the Kenyan economy are moving in the opposite direction as can be observed in figure 1.

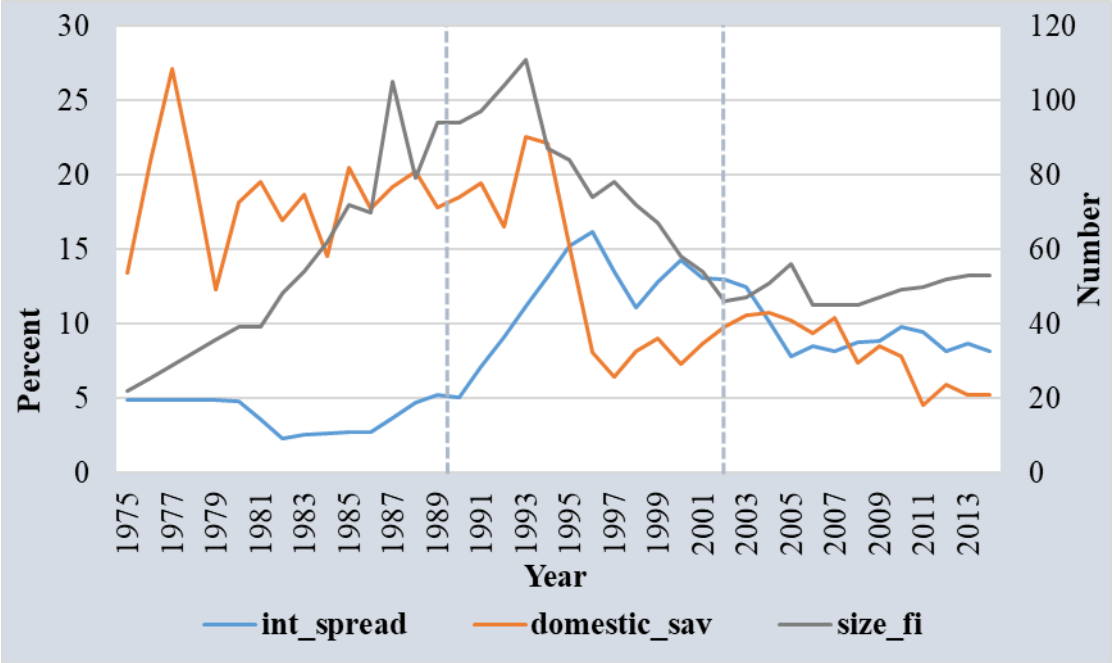


Figure 1: Trends of Interest Rate Spread, Domestic Savings and Size of financial sector

Source, Author's own computation using WDI data set (various year)

Figure 1 shows that the trend in the interest rate spread in Kenya has been volatile with a very high record of 6.89 in 2015 from 5.25 in 1989. There is agreement amongst economists and policymakers that the interest rate spread in Kenya is high. Kenya has only achieved an increase in depth with a relatively minor decrease in spreads yet theories predict that countries with greater financial depth have lower interest rate spreads (World Bank, 2013). The interest rate spread took a declining path from 1989, but after interest rate liberalization of 1991, the spread increased

significantly until 2002. From there, when the government started to regulate the financial sector, the spread started falling down to 8.14 in 2014 from a record of 12.97 in 2002.

The trend in savings is not encouraging either. As depicted by figure 1, the period before 1989 had a higher savings but this declined from the period between 1989 and 2002, with marginal improvement thereafter. This raises concern since Kenya's Vision 2030 aims at achieving a significant increase in domestic savings to 30 percent by 2030 as driven by the financial sector (Republic of Kenya, 2007). But if this trend continues in this manner, Kenya may not achieve this goal.

It should be noted that a key argument of the McKinnon-Shaw hypothesis, which formed the basis of financial liberalisation, was that a freely determined market rate of interest would increase deposits and in turn, savings. However, the above figure shows that even after the financial sector was liberalized, a sharp decline in domestic savings was witnessed in the 1990s with the ratio of domestic savings to GDP only increasing from 7.28 percent in 2000 to 10.2 percent in 2005, but has been falling steadily to 7.93 percent by 2015.

In terms of size of the financial sector, as shown by figure 1, there has been stability before the introduction of financial liberalization policies. However, for the 1990s the financial system stability deteriorated, with total number of financial institutions drastically dropping from 111 in 1993 to 87 in 1994 up to 58 by the year 2000 (see table 1 and appendix 5). This is evidence that the liberalization was also ineffective in terms of the size of the financial sector. The financial system for the period of 2001 to

2015 is seen to be stable, probably due to the stricter regulatory regime that was put in place after 2002.

This study seeks to understand why the trend in savings and interest rate spread together with the number of financial institutions moved in the wrong directions after financial liberalization. Additionally, the study seeks to understand the reason behind a continued decline in the trend of domestic savings from 2005 to 2015 and persistent high record of interest rate spread in Kenya.

1.2.2 Justification

Kenya is one of the most developed financial sectors in Africa. It is thus a country where a *priori* financial variables should play a very important macroeconomic role in Africa. Therefore, policy recommendations by this paper not only helps Kenya, but will improve the African economy at large. This study is of great importance to policy makers, since liberalization of the financial sector is generally seen to have failed in its goal. The study adds value to the existing body of knowledge on the Kenyan financial sector and will be useful to the researchers wishing to further pursue a study in financial sector around the world based on both the information and the analytical framework.

1.3 Research Objective

The aim of this study is to analyze the effects of financial sector reforms on financial deepening in Kenya. Specifically, the following objectives will be explored in the research:

i. To assess the effect of financial liberalization on domestic savings;

ii. To analyze the effect of financial reforms on intermediation margin;

iii. To investigate the effect of financial liberalization on the size of financial sector;

1.4 Research Hypothesis

To achieve the aforementioned objectives, the following null hypotheses will be tested:

i. Financial liberalization has no effect on domestic savings;

ii. Financial reform has no effect on intermediation margin;

iii. Financial liberalization has no effect on the size of financial sector;

CHAPTER TWO

OVERVIEW OF KENYA ECONOMY

2.0 Introduction

This section provides a brief outline on the financial sector developments in the Kenyan economy. It also gives an overview to sector growth and their contributions to economic growth.

2.1 Sector Growth and Contribution to the Economy

This section concentrates on the four main sectors in the Kenyan economy: The Agriculture sector which combines agriculture, forestry and fishing; Manufacturing sector composed of both manufacturing and repair; Distribution sector which includes, tourism, wholesale and retail trade, restaurant and hotels; and finally the Financial sector composed of finance, insurance and real estate. The sectors which are remaining are named "other" sectors.

Kenya Vision 2030 is the country's development blueprint launched in 2008. It aims at transforming Kenya into a "newly industrializing, middle income country providing a high quality life to its citizens by the year 2030" (Republic of Kenya, 2007). Its overarching objective is to make Kenya a "globally competitive and prosperous nation with a high quality of life by 2030". The Vision identifies financial services as one of six sectors that are key to the economy.

On average, for the period between 1975 and 2000, agricultural sector had the highest contribution to GDP having a record of 30.7 percent. This was followed by the distribution sector with an average of 13.5 percent, then the manufacturing sector with a contribution of 11.4 percent. The financial sector contributed an average 8.3 percent of GDP while other sectors contributed 36.0 percent of GDP.

In terms of sector contribution between the period of 1975 and 1979, agriculture almost doubled its contribution to GDP between 1975 and 1977.This was followed by a continuing decline in 1978 and 1979. Although the total contribution of agriculture to GDP fell in 1979 it still accounted for a high proportion of 33.6 percent of the GDP and has a more than a third average contribution to GDP between 1975 and 1979. Manufacturing sector which contributed an average of 11.6 percent of GDP comes second, then distribution sector which contributed 10.7 percent while financial did not do well and contributed 4.9 percent of the GDP. The other sectors together had an average of 37.6 percent of the GDP (See appendix 1).

GDP growth rate at current price rose by 10.4 percent in 1979 following a rise of 10.5 percent in 1978 but an average of 24.6 percent in, 1975, 1976 and 1977. Sectors of the economy which grew fast between 1975 and 1979 include manufacturing and distribution while agriculture and finance worsened in terms of growth. Agriculture was affected in this period by the limited and patchy rainfall spells during the short rains season and also by some reduction in rainfall during the long rains period. For the manufacturing sector, although it had a growth of 13.9 percent in 1979 compared to a growth of 6.98 percent in 1975, the growth is lower compared to the average growth of 20.06 between 1976 and 1978. There were some relatively successful sub-

sectors of manufacturing industry but overall demand was not particularly buoyant in 1979 and this had a dampening impact on the sector as a whole (Kenya Economic Survey, 1980).

Between 1975 and 1977, tourism grew fairly and this helped the distribution sector to record a growth of 18.5 percent. However, there was an import restrictions policy in 1979 which had a negative impact on this sector. The fall in output from agriculture between 1978 and 1979 and a small increase in foreign earnings from tourism are also thought to have caused the distribution sector to suffer a small decline. The financial sector showed a decline in terms of growth though this was very minimal. Manufacturing, finance and distribution sectors, shows an improvement in terms of average contribution between 1980 and 1984. Agriculture is still the largest sector for the period accounting for an average of 32.2 percent of GDP, a marginal decline from an average of 35 percent between 1975 and 1979 (see appendix 1).

Agriculture sector grew by an average of 14.18 between 1980 and 1984. The 1981 and 1982 rains after a drought period of 1980 and 1979 were generally beneficial to most crops, although some were still suffering from the earlier drought. “Deliveries to the marketing boards of maize, paddy rice, pineapples and tea showed substantial increases but falls were recorded in the deliveries of sugar-cane, cotton, coffee and sisal,” (Kenya Economic Survey, 1982). There was, however, a decline of growth in 1984 which can mainly be attributed to the severe drought in the year. Manufacturing, accounting for 12.6 percent of the overall GDP, is the second largest sector for the period. The Government's import liberalization policies implemented in 1983 increased significantly the sector's GDP. It rose to 12.9 percent in 1984 from 9.65 in

1983. This could have been better had not there, been the severe drought of 1984 which adversely affected a majority of the agro-based industries thereby curbing its GDP (Kenya Economic Survey, 1985).

From appendix 1, distribution comes third accounting for an average of about 10.9 percent of the total GDP. The growth of this sector improved from an average of 13.5 percent between 1975 and 1979, to realise an average of 15.28 percent between 1980 and 1984. As a result of the tightening of import restrictions in the second half of 1981, the import of goods and services fell sharply (Kenya Economic Survey, 1984). As a consequence, the distribution sector had a relatively poor year in 1981 and 1982. The import liberalization policies introduced in 1983, must have contributed to the improved activity in the distribution sector between for 1983. This however showed a decline in 1984 probably due to the drought experienced in this period. The financial sector has been improving dynamically from 1980 to 1984. The sector's share increased from 5.5 percent in 1980 to 7.1 percent in 1984, which demonstrated the growing monetization of the economy.

GDP, which had stood at K£ 4,290.70 million in 1985, reached K£ 7,330.50 million in 1989. The reason for this commendable economic performance included, the trade liberalisation, reduction of average level of tariffs and appropriate monetary policies. Other reasons for this includes the political stability and favourable world economic environment, particularly in 1986 and 1988 (Kenya Economic Survey,1990). However, in 1989, overall real GDP, which had risen by 5.2 percent in 1988, grew at a moderate rate of 5.0 percent. Agriculture still continued to have the largest share in the overall GDP. However, it fell from 33.7 percent in 1984 to 32.5 percent in 1985

before declining further, to reach 30.1 percent in 1989. The share for the manufacturing and distribution sectors have also declined from the 1985 records, while the financial sector contribution and "other" sectors continued to increase (see appendix 1).

During the period 1985-1989, the average annual growth for agriculture sector grew from an average of 14.18 in 1980-1984 to 15.59 percent. Factors which explain this gain include the decontrol of livestock prices which helped in increasing livestock production and provision of market incentives by the government. Favourable weather conditions of the 1985-1986 period was an additional factor helping agricultural activity and the world favourable prices of coffee and tea in 1986 and 1988. Ample rains accounted for the sharp increases in fishing activities. "The total tonnage of fish that landed in Lake Victoria rose from 72 tonnes to 89 tonnes and further to 103 tonnes in 1984, 1985 and 1986 respectively," (Economic survey,1987). Increased afforestation activity also helped to raise the value of forest stock (Kenya Economic Survey, 1987).

The distribution sector did well during same period. The sector owes much to the impressive growth rates in the sectors such as agriculture and manufacturing. Much of the growth in the sector reflects increasing urbanisation and industrialisation which took place in the last five years of 1980s. The growth in this this sector increased from 13.34 in 1985 to 16.43 in 1989. The high rate of tourism activity in 1986 assisted the sector's growth. "Visitor departures (a good indicator of tourism) rose by 12 percent in 1986" (Kenya Economic Survey 1987). High agricultural output facilitated greater rural incomes which increased demand for manufactured commodities and other

goods. At the same time, increased manufacturing output provided higher incomes to the urban population and the net effect was the increase of activities in the sector (check with appendix 1).

Manufacturing sector growth for the period mainly depended on the performance of agriculture sector and the world prices of Kenyan exports and imports. When agricultural sector performed satisfactorily and the world prices of coffee and tea were favourable in 1985-1989 period, the country earned adequate foreign exchange in favour of manufacturing sector. The sector also benefited from the price decontrol, trade liberalisation which removed selective restrictions on imports of raw materials and tariff reduction which encouraged exports of manufactured goods (Kenya Economic Survey, 1990)

Kenya's financial sector continued to expand significantly in the period under review. This increase reflects the growth of the financial sector. An annual growth rate of 17.05 percent was registered in 1985 and in 1989, the sector grew by 19.07 percent compared to the 14.62 percent observed in 1987. For the 1990s decade, the structure of the Kenyan economy did not change much with agriculture and the distribution being the main driving force of the economy, accounting an average contribution of about 45.0 percent of the total share. Together with the manufacturing sector, these two sectors underwent appreciable processes of change in a liberalised economy. The average contribution of agriculture sector to GDP for the period between 1990 and 1999 records 28.7 percent, distribution sector 16.5 percent followed by finance sector 10.93 and manufacturing sector 10.29 percent (see appendix 1).

The Kenyan economy witnessed the implementation of major economic and financial reforms in this period. These include removal of import controls, price and foreign exchange controls and also there was continued liberalization of financial sector. All these implementations and deregulations opened up the domestic economy to stiff competition in every sphere (Kenya Economic Survey, 1990).

As seen in appendix 1, virtually all sectors of the economy recorded marked growth in 1995, in contrast to 1994 and 1993. The positive impact of the liberalisation process contributed to increased foreign exchange available for investment in the manufacturing and agriculture. However, continued slowdown in economic performance was reflected in nearly all the key sectors of the economy for the period of 1997 up to 1999. Adequate and well distributed long rains, stable exchange rate, decline in the prices of agricultural inputs and liberalisation in the various sub-sectors were responsible for the increased agricultural output during the 1994. This was however followed by a continued decline in the growth of the sector up to 1999.

The sector recorded a growth of 6.75 percent in 1997 compared with a growth of 7.96 percent in 1996. Drought in late 1996 and early part of 1997, heavy rains towards the end of 1997 and rising input costs reduced production of most commodities. The growth further declined to -4.89 percent in 1999 mainly due to fall in the prices of coffee and tea on the international market and inadequate rainfall in major food growing areas (Kenya Economic Survey, 2000).

The growth of manufacturing sector experienced slight decline from 15.43 percent in 1990 to 8.18 percent in 1999. This slump was as a result of competition from cheap

imports, poor infrastructure and lower aggregate demand (Kenya Economic Survey, 2000). However, despite increased competition from low priced imported consumer goods, the GDP for the manufacturing sector grew by 7.62 percent in 1995, compared with 7.33 percent growth of 1994. The improved performance of the sector for this year was largely attributed to adequate supply of agro-based raw materials, availability of foreign exchange, and various export oriented incentives (see appendix 1),

As shown in appendix 1, the liberalisation of the economy led to high volumes of trade and improvement in the tourism sector. This has mainly affected the distribution sector whose share contribution rose from 11.3 in 1989 to an average of 16.5 percent in 1990. The financial sector continues to be one of the most dynamic sector. It recorded an average growth of 22.40 percent for the period between 1990 and 1999.The good performance of the sector can partly be attributed to continued implementation of financial liberalization policies for the period.

In terms of the average sector contribution for the period between 2000 and 2014 agricultural sector leads with a 24.1 percent average contribution, tourism sector comes second at 12.3 percent with financial sector coming third at 11.2 percent. Manufacturing sector contributed an average, 10.7 percent while other remaining sectors contributed 41.7 percent. Agriculture continued to be the highest contributor with the share increasing from 18.4 percent in 2001 to 25.3 percent in 2003. It then started declining to a record of 22.7 percent in 2008 and further to 27.33 in 2014. Manufacturing sector contribution declined from 12.64 percent in 2001 to 9.66

percent in 2003 and eventually increasing to 11.02 percent in 2012 and declined further in 2014 (see appendix 1).

Financial sector contribution continued to show an increase and in 2010 the share was 10.21. There was a slight decrease in 2005 but then it started catching up and increased again up until it recorded 14.55 percent in 2014. Tourism sector contribution showed a decline in 2003, increased to 11.85 percent in 2005 and started moving down until 9.09 percent in 2014 (check with appendix 1).

For the sector growth, agriculture sector GDP growth declined further to about -10.51 percent in 2001 from -4.86 percent in 1999. The poor performance in this period is attributed mainly to the drought that persisted from 1999 and 2000 which resulted in reduced crop production and pasture for livestock (Kenya Economic Survey,2001). In 2001 the agricultural sector recovered to a growth of 6.83 percent largely due to the favourable weather conditions in 2001 as opposed to the severe drought experienced in 2000.

There was a continued growth of the sector up to 2004 but at a slower rate in 2005, 2006 and 2007. The slower pace was due to the drought experienced in many parts of the country in late 2005 and early part of 2006 which affected some agricultural produce (Kenya Economic Survey 2007). In 2008 up to 2010, the growth of the sector started improving. This was followed by a continued decline from a growth of 39.23 in 2011 to post a growth of 12.31 in 2013. Unfavourable weather in some regions, high cost of agricultural inputs and weak Kenya shilling contributed significantly to this decline in growth.

In 2014, the agricultural sector expanded with a record of 17.05 percent. This was due to increased coffee production, tea production and volume of raw milk. "Coffee production increased from 39.8 thousand tonnes in 2012 to 49.5 thousand tonnes in 2014. Tea production increased from 432.4 thousand tonnes in 2013 to 445.1 thousand tonnes in 2014," (Kenya Economic Survey, 2015). The drought in 2000 severely affected the manufacturing sector which caused shortage of agricultural material. However, in 2001 the sector registered an improved growth rate of 10.22 percent, compared to 5.18 percent in 2000. Improved power supply and agricultural production, contributed to the sector performance.

The sector continued to grow by 19.84 percent in 2009 compared to 10.22 percent registered in 2002. The recovery was mainly attributed to zero rating of excise duty and related taxes for industrial inputs and stakeholder efforts to promote exports opportunities of manufactured products (Kenya economic survey, 2010). Favourable weather conditions led to an improved supply of raw materials to a number of the agro-based industries especially the dairy and grain milling sub-sectors (Kenya Economic Survey, 2010).

From 2009 to 2013, the sector growth continued to decline mainly due to contractions in the food processing, the rising cost of fuel and a weak Kenya Shilling which lowered the demand for manufactured products. In addition, the continued drought experienced in 2010 and 2011 resulted in reduced availability of raw materials for the agro based industries (Kenya Economic Survey, 2014).

The manufacturing sector output grew by 9.87 in 2014 compared to 8.09 in 2013. The sector benefited from an improved economic environment during the period. According to economic survey, 2014, some of the factors which positively influenced growth of the industry included; cheaper and reliable electricity supply, restrained inflation and resilient domestic demand. However, the growth was affected by lack of output of refined petroleum products since the country stopped refining crude from Kenya Petroleum Refinery Limited (KPRL).

In 2000, the growth of the distribution sector declined from 11.81 percent in 1999 to 8.85 percent. This growth improved to post an average of 25.40 percent between 2001 and 2006. Increased aggregate demand due to low inflation contributed to this improvement. Proportion of the imported consumables increased while those of the locally manufactured goods declined. This is because the price differential favoured imports compared to locally produced goods. Also the sector growth can be attributed to increase in earnings in the tourism sector for the year (Kenya Economic Survey 2007).

The average growth of the sector for the period from 2007 to 2013 declined to 10.69 percent from an average of 25.40 percent. This can be attributed to the post-election violence in 2008, drought which occurred from 2009 and beginning of 2010 and the oil price crises during the same period. The sector performance continued to decreased in 2014 on account of a number of factors which includes insecurity, negative travel advisories and fear of continued spread of Ebola in West African countries (Kenya Economic Survey, 2014)

The financial sector continues to be among the most dynamic sector with the average growth from 2001 to 2014 of 18.25 percent. This was credited to several factors chief among them being the increase in loans and advances by financial institutions in 2006, the vast investments in the banking and insurance sub-sectors and the buoyant activity at the stock exchange during the period (Kenya Economic Survey,2015)

In short, the structure of the Kenyan economy has not changed much with the Agriculture and manufacturing sector still leading on their contributions. A lot of investments have been done for the financial sector and it is therefore the most dynamic sector.

2.2 Financial Sector Development

This sector concentrates on the development of financial sector since 1966 to 2015. It focuses on two main sub-periods; the period before financial liberalization (1966-1989), termed "Developing financial Market" and the period of financial reforms (1989 to 2015). The period of financial reforms includes the period of financial liberalization and the period of financial repression.

2.2.1 1966-1989 Developing Financial Market

The Central Bank of Kenya was formed under the Central Bank of Kenya Act of 1966 after the collapse of the East Africa Currency Board (EACB). From its inception, the Central bank of Kenya pursued a monetary aggregate targeting framework with a fixed exchange rate regime. The government concentrated more on credit ceilings as a direct monetary control tool. The ceilings did not apply to NBFI but varied with the credit given by commercial banks to the private sector.

The economy was fairly stable in this period with GDP for the period 1963 to 1973 recording an average of 8.20 percent while average inflation rate was low at 2.93. The 1973 oil crises worsened the economic situation with GDP falling from 17.08 in 1972 to 0.88 in 1975. The government had to therefore seek IMF for assistance in 1975 and this was a step towards liberalization. In October the same year, imports were more restricted and Kenya shilling was devalued by 12.5 (Kenya Economic Survey, 1976). The 1979 oil crises dragged the economy even further and again the Government had to come up with policy measures to solve the problem. The term of agreement was signed but then there was delay in disbursement. There was an exigent need for quick disbursement that coincided with the World Bank's decision to move into medium-term balance of payment support to help the country adjust to the oil price shock (Swamy, 1994).

Structural adjustment loan was provided in early 1980 with an aim of promoting exports. This was a move to the introduction of structural adjustment program by the IMF. Much emphasis was however made on stabilization of the economy and solving the balance of payments problems. IMF proposed a liberalized economy that includes elimination of quantitative restrictions on imports, free industrial protection and a liberalized interest rate structure. In 1981, import controls were freed.

By the year 1982, there was very little change. The second SAL was signed in June 1982 and there was an improvement in 1984 though at the expense growth. In 1986, various proposals were made to develop the financial sector which included the establishment of secondary market, money market and capital market in order to

improve the effectiveness in the sector (Were, Ngugi, & Makau, 2006). However, financial sector was greatly liberalized in 1989.

2.2.2 1989-2015 Regime Change Period

This period is categorized into two. The author relates the period from 1989 to 2000 as highly liberalized period while 2000 to 2015 is related to period of financial repression.

Kenya's financial system liberalization commenced in 1989 and was financed by the World Bank's Financial Sector Adjustment Credit (FSAC). With this, Kenya has made attempts to liberalize its financial sectors by deregulating interest rates, allowing free entry into the banking sector, eliminating or reducing credit controls, permitting private ownership of banks, and liberalizing international capital flows. However, in spite of the experience of several years of strong growth, Kenya's economy performed poorly during this liberalization era. Having averaged to over 5 percent in the 1970s, average annual growth slipped to 4.2 percent in the 1980s, and fell to only about 2.2 percent during the 1990s. GDP from the year 2000 to June 2016 increased to an average of about 5.4 and this can be attributed to change in government policies.

Financial deepening also did show improvement during the liberalization era (1989-2000). As indicated by the graphs below, interest rate spread increased while the domestic savings declined. Also the size of financial sector declined with no improvement seen in terms of bank competition. This is depicted by figure 2.

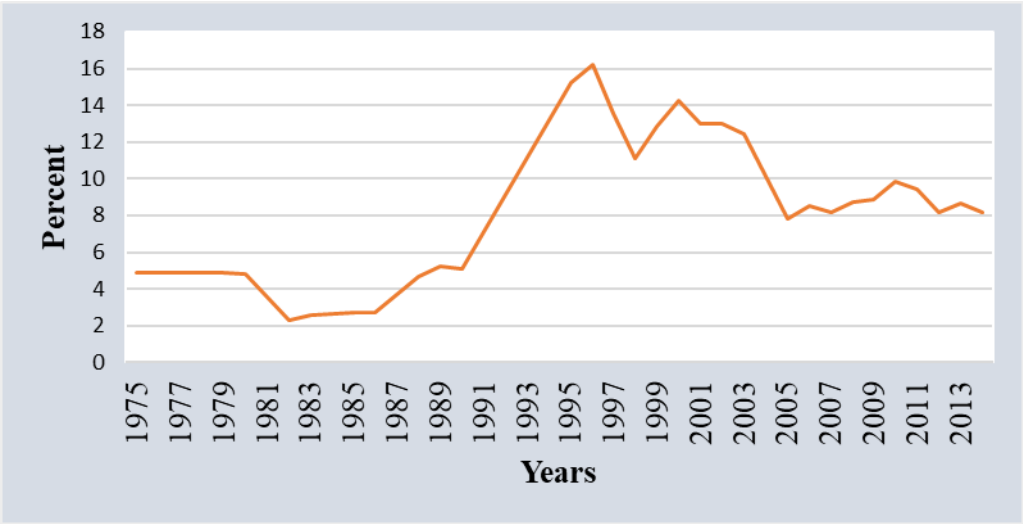


Figure 2: Trend in Interest Rate Spread

Source: Author's own computation using WDI data set (various years)

As evidenced by the figure 2, the trend in the interest rate spread in Kenya has been volatile with very high record of 6.89 in 2015 from 5.25 in 1989. Interest rate spread took a declining path from 1989, but following the interest rate liberalization of 1991, the spread increased significantly. In October 1995 the Central Bank Act was amended which enhanced the ability of the Central bank to supervise the industry more effectively, protects small depositors and foster financial prudence and discipline in the management of banking institutions. By December, Central bank started paying 5 percent interest on all cash balances held by Commercial banks and NBFIs in order to facilitate a reduction in banking lending rates (Kenya economic survey, 1996).

However, instead of solving the problem of high interest rate spread, this only worsened the situation with a sharp increase in the trend up until 1997. From 1997 to 2000, the trend declined though still very high, from a record of 17 percent to 13 percent. This is partly due to the amendment of CBK act in 1997 where the

responsibilities for appointing the governor were transferred to a board of directors appointed by the president, as opposed to being appointed by the minister of finance as was before. This was to reduce political interference in the Banks (Central Bank of Kenya, 1997).

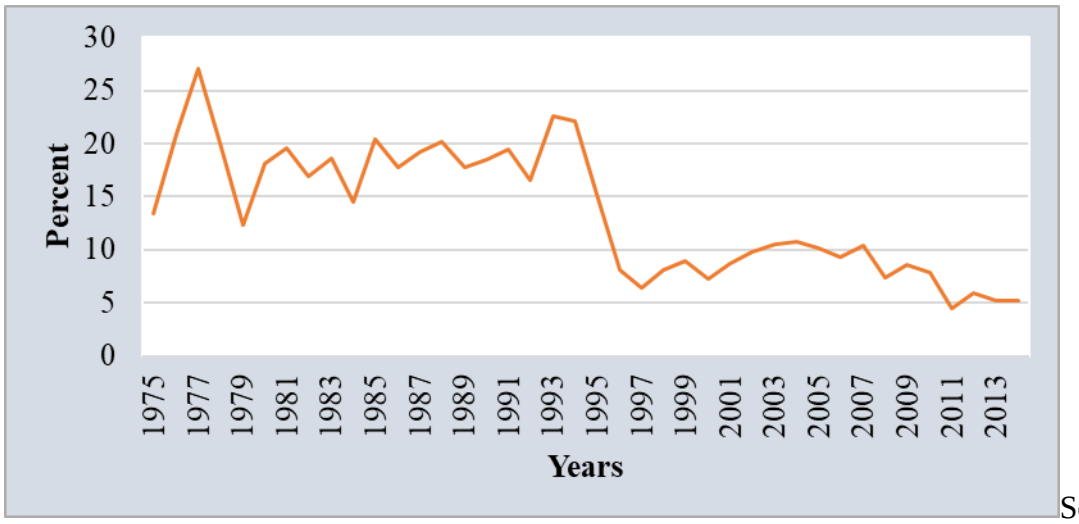
High interest rates charged by the banks led to a situation where 36 percent of loans were non-performing and by the year 2000 the real interest rate was about 24 percent with the highest interest rate spread recorded in the world (Upadhyaya & Johnson, 2015). This led to introduction Donde Bill which aimed at capping interest rates on loans given by the banks. The bill was passed in December 2000 but was then rejected by the then President in January 2001. In August the same year, the Bill was brought back to the house with a memorandum and was again passed with some amendments and assented to by the President therefore becoming a law. But due to a technicality, whereby the Bill passed the amendment in August 2001 but did not change the date of the Bill from January 2001, banks went to court and succeeded in throwing out the Bill. The spread therefore continued to increase further.

In 2004 the Banking Act was amended and there was a repeal of Section 39 of the Central Bank of Kenya Act which regulates interest rates. Also, the requirement by the Banking Act that financial institutions should obtain approval of the Minister for Finance before increasing their rates of banking or other charges was removed. An attempt to control interest rates was seen in July 2014 with the introduction of the Kenya Bankers' Reference Rate (KBRR) which was supposed to guide banks on the interest rates that they were supposed to charge. However, although the KBRR rate

was at 11 percent by that time, banks were still charging up to 24 percent, an indication that they did not go by those regulations.

The KBRR has recently been out-powered by the new amended Banking Act passed by parliament and endorsed by the president in August 2016. The main aim of the Bill is to provide a mechanism of regulating banks and other financial institutions on the interest rates they charge through the introduction of a cap. This involves setting a maximum interest rate chargeable by credit facilities at below 4 percent of the rates set by the Central Bank of Kenya (Central Bank of Kenya, 2016).

The trend in savings is not encouraging either and this can be seen in figure 3.



Sou

Figure 3: Trend in Domestic Savings as a percentage of GDP

Source: author's own calculation using WDI data set (various years)

It should be noted that a key argument of the McKinnon-Shaw hypothesis that formed the basis of financial liberalisation was that a freely determined market rate of interest would increase deposits and, in turn, savings (Upadhyaya & Johnson, 2015).

However, from the above figure, a sharp decline in domestic savings is witnessed in the 1990s even after the financial sector was liberalized. The ratio of domestic savings to GDP only increased from 7.28 percent in 2000 to 10.2 percent in 2005, but has been falling steadily to 7.93 percent by 2015.

Competition in the banking sector is still very low with a marginal improvement since independence. At independence, the first three banks to be established in Kenya continued to dominate the banking sector, controlling about 85 percent of the total branch network (Engberg, 1965). In 2000, the financial sector was dominated by 8 banks that owned 70.8 percent of the total deposit.

Recently, the banks were categorized into three tiers with the first tier composing of 6 out of 43 commercial banks. These banks, however, still control more than a half (52.4 percent) of the entire industry thereby making smaller banks resort to expensive funding leading to higher lending rates. Table 1 below shows the number of financial institutions in Kenya from 1963 to 2000 for selected years:

Table 1: Number of Financial Institutions in Kenya, 1963-2000

Type of Institution	**Year**								
	1963	**1975**	**1980**	**1990**	**1993**	**1994**	**1997**	**1998**	**2000**
Banks	9	14	17	24	40	37	53	53	49
NBFIs	5	10	22	70	71	50	25	19	9
Total	14	22	39	94	111	87	78	72	58

Source: Upadhyaya & Johnson (2015)

As depicted by table 1, the increasing trend in the financial institutions since independence was precipitated by the liberalisation of interest rates and exchange rates. According to Brownbridge (1998), liberalization of interest rates and exchange rates provided further avenues for the local banks to compete with more established banks and this was also an added stimulus for local bank entry. However, for the 1990s the financial system stability deteriorated, with total number of financial institutions drastically dropping from 111 in 1993 to 87 in 1994.

Ngugi (2000) notes that the financial sector was faced by two major banking crises in the mid-1980s and during the late and early 1990s. This decline was partly due to CBK adopting a universal banking policy in 1993, reducing the regulatory advantages such as lower reserve requirements that were enjoyed by the NBFIs, thereby making several of the institutions to convert to banks and even some merging with their parent banks (Ngugi, 2000). However, the financial systems continued to decline eventually to 58 by the year 2000, evidence that the liberalization was also ineffective in terms of the number of financial institutions.

The financial system for the period of 2001 to 2015 is seen to be stable (see appendix 5), probably due to the stricter regulatory regime that was put in place after 2000. For example, compliance to the banking laws was enforced and prudential regulations were imposed in 2004 (Central Bank of Kenya, 2004). In 2004, the Banking Act was amended which transferred most of the powers related to supervision and regulation of financial institutions from the minister of finance to the Central Bank governor.

There was also a requirement of registration of microfinance institutions in 2008 (Central Bank of Kenya, 2008). This saw a gradual increase in total number of financial institutions from 45 in 2008 to 54 in 2015. In November 2014, there was an expansion of agency banking networks which further led to an increase in the number of financial institutions.

CHAPTER THREE

REVIEW OF RELATED LITERATURE

3.0 Introduction

This chapter reviews literature surrounding the concepts of financial deepening. In the beginning, theories related to the topic are reviewed and then studies that have been conducted in relation to the same, as well as available empirical knowledge on how financial deepening is influenced by financial liberalization are analysed. Along the way, the specific indicators of financial deepening, namely, interest rate spread, size of the financial sector and savings mobilization are considered.

3.1 Theoretical Literature

The few theoretical literature reviewed here are related to financial deepening. We review the McKinnon and Shaw hypothesis; Absolute, Relative, permanent and Lifecycle hypothesis, The Friedman restatement of quantity theory of money and finally the liquidity preference theories.

3.1.1 McKinnon-Shaw Hypothesis

According to this hypothesis, financial repression retards financial deepening thereby negatively affecting economic growth. McKinnon and Shaw (1973) argue that financial repression through interest rate ceilings, high reserve requirements, directed credit, exchange rate controls and control on the source of finance of banking

institution results in negative real deposit rate of interest. Keynesian theories believed that low interest rates would promote investment spending and economic growth. However, this was opposed by McKinnon (1973) and Shaw (1973) who provides a rationale for liberalization as means of promoting financial development and hence economic growth.

In what he called the complementarity theory, McKinnon (1973) observes that it is not the cost of capital but the availability of finance that constrains investment in financially repressed economies. The theory assumes that economic units are self-financed and that money is fiat money issued by the public sector and further notes that most developing countries have fragmented economic conditions and inefficient financial systems. McKinnon (1973) therefore suggests that a complementarity exists between physical capital and money demand where the demand for firms precedes investment because the capital is lumpy and requires the accumulation of monetary assets in order to purchase capital goods. Demand for real money balances is said to depend positively on the real average return on capital.

Interest rate ceilings therefore result in low returns on bank deposits, encouraging savers to hold their savings in form of unproductive assets such as land, rather than the potentially productive bank deposits. This reduces the supply of loanable funds and forces banking institutions to apply credit rationing in front of excess demand of loanable funds. Therefore, when the real deposit rate increases, investment increases as well because the financial constraint is relaxed.

Shaw (1973), in his debt intermediation model, assumes that money created as loans to private sector is based on internal debt of the private sector. As the amount of money stock relative to economic activity rises, the level of intermediation between savers and investors through the financial system becomes greater. Here, it is argued that higher interest rate is needed to attract savings. He further observes that raising interest rates would improve the quality of investments undertaken. With a rise in interest rates previously unfunded or underfunded projects with high economic returns are likely to be appropriately funded because banks enjoy economies of scale in collecting and processing information of the borrowers.

Thus the hypothesis of a financially repressed economy argues that interest rate ceilings stifle savings by promoting current consumption, reducing the quantity of investment below its optimal level, by encouraging banks to finance only low-return projects. The pool of potential borrowers will therefore contain entrepreneurs with low yielding projects who would not want to borrow at the higher market clearing interest rates.

Conclusively, both McKinnon (1973) and Shaw (1973) advocate for financial liberalization. Liberalization of financial markets allows financial deepening by encouraging savings in the form of various financial assets, reducing constraints on capital accumulation and improving allocative efficiency, since investors are now undertaking projects with higher expected rates of return. Financial deepening reflects an increasing use of financial intermediation by savers and investors as well as monetization of the economy and it allows an efficient flow of resources among people and institutions over time.

3.1.2 Absolute, Relative, Permanent and Life Cycle Hypothesis

Consumption theories were for a long time dominated by the Keynesian perspective popularly known as the absolute income hypothesis (AIH). The AIH states that consumption is a stable function of individual disposable income. Households allocate their income to either current or future purchases. When income is allocated to current purchases it is known as *consumption*, but when allocated to future purchases it is called *savings*.

According to absolute income hypothesis, savings is a residual from income after consumption. This consumption function is such that the marginal propensity to consume, MPC, is a positive fraction and the average propensity to consume (APC), is greater than the MPC; that is,

$$0 < MPC < 1 \; and \; APC > MPC. \quad (3.1.2.1)$$

However, Keynes' dictum has been tested using both time series and cross-sectional data. The cross sectional data revealed that the propensity to consume declines with income and households with low income de-save. A study by Kuznets 1946 showed that the APC did not fall as income increased but was stable. Kuznets found that both MPC and APC are equal and constant. The empirical evidence therefore seems to show that, in the short run, current income alone offers a poor explanation of consumption behaviour while giving a stable relationship between consumption and current income over the long run. The inadequacies of AIH were rectified by the Relative Income Hypothesis (RIH), Permanent Income Hypothesis (PIH) and finally the life Cycle Hypothesis (LCH).

The relative income hypothesis (RIH) was propounded by S. Duesenberry in 1949. According to the hypothesis, the average fraction of income consumed does not change in the long run. But there may be variations between consumption and income in the short run. In the short run, the MPC is less than the APC while these two are equal in the long run. That is,

Short-run: $MPC < APC$ (3.1.2.2)

Long-run: $MPC = APC$

Duesenberry's RIH is based on two hypotheses, first is the relative income hypothesis and second is the past peak income hypothesis. In the first hypothesis, consumption depends not on the 'absolute' level of income but on the 'relative' income; that is, income relative to the society in which the individual lives.

A household consumption depends on the consumption patterns of his neighbors. Therefore, in order to keep up with the consumption standards of their neighbors, people with low income will tend to consume more and save less. This imitative nature of consumption is described by Duesenberry as the "demonstration effect". The hypothesis implies that, the families with relatively high incomes experience lower APCs and families with relatively low incomes experience high APCs. If, however, income distribution is relatively constant, then APC will not change.

In terms of past peak hypothesis, the present consumption of the families is influenced not just by current incomes but also by the levels of past peak incomes. If current incomes rise, households tend to consume more but slowly because of the slow adjustment from the relatively low habitual consumption patterns. However, if current incomes decline these households do not immediately reduce their consumption as

they find it difficult to reduce their consumption established by the previous peak income.

The hypothesis generates a non-proportional consumption function such that during prosperity consumption as a fraction of income does increase slowly and during depression consumption as a fraction of income rises. Thus, the short run consumption is subject to what Duesenberry referred to as 'the ratchet effect'. Consumption ratchets up following an increase in income levels, but it does not fall back downward in response to income declines.

The PIH and LCH deal with inter temporal choice (IC), the choice between savings and consumption. The IC assumes zero borrowing and lending costs and that households know their future income and market interest rate with certainty. It further assumes that capital markets are perfectly competitive and that consumption is the ultimate purpose of all economic activity.

In the PIH, Milton Friedman (1957) holds that the basic relationship between consumption and income is proportional. But consumption, according to Friedman, depends neither on 'absolute' income, nor on 'relative' income but on 'permanent' income, based on expected future income. Friedman divides the current measured income, that is, income actually received into two: permanent income (Y_p) and transitory income (Y_t). Similarly measured consumption is the sum of permanent and transitory components of consumption. By permanent income (consumption), Friedman refers to the expected income (consumption over a long period of time), while the term transitory is used to mean unanticipated rise or fall in income or

consumption. Friedman's basic argument is that permanent consumption depends on permanent income. Expressed algebraically:

$$C = kY_p \qquad (3.1.2.3)$$

Where k is constant and $k = APC = MPC$

Friedman assumes that there is no correlation between Y_p and Y_t, between Y_t and C_t and between C_p and C_t such that for all the families taken together, the average transitory income and average transitory consumption are zero. Therefore, it follows that $Y = Y_p$ and $C = C_p$. In the short run, Friedman's hypothesis yields a consumption function similar to the Keynesian one in which $MPC < APC$. However, over time as the economy grows transitory components reduce to zero for the society as a whole. So the measured consumption and measured income values are permanent consumption and permanent income. However, in the long run, $C = MPC$.

The Life Cycle hypothesis was the work of Modigliani and Ando (1957). It states that, the individual has a finite life span of T years, during which she seeks to enjoy a fairly constant or smoothed consumption using her lifetime resources which consist of income (Y), assets accumulated (b), and by lending and borrowing. At any point in time the individual is confronted with the following simplified financial balance:

$$\Delta b_t = S_t = Y_t - C_t \qquad (3.1.2.4)$$

Where, $b_t = \frac{B_t}{P_t} = \frac{P_t^b V_t^b}{P_t}$ is the stock of real financial assets,

B is the stock of nominal financial assets,

V is the asset volume and

P is the general price level.

Graphically, we can depict an individual's lifetime consumption pattern as shown in figure 4:

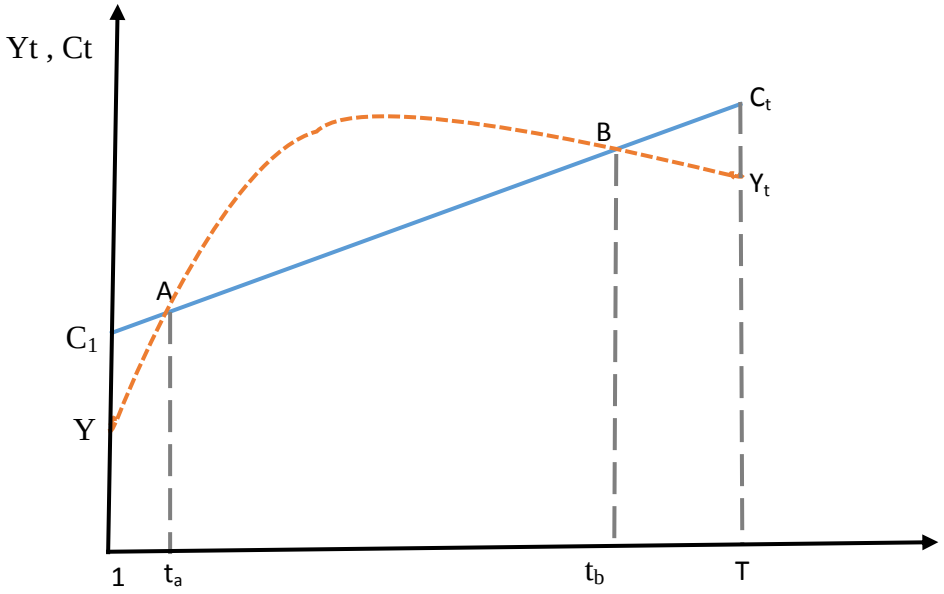


Figure 4: Savings Pattern in a Lifecycle

Source: Modigliani F (1986)

The smoothing of consumption is achieved by saving and dissaving behaviour. In the early years up to time t_a, the individual, has not yet achieved his threshold income potential and therefore is a net borrower. He borrows against future income in order to finance current consumption. When he starts earning, he now becomes a net creditor. He uses his surplus income ($Y_t - C_t$) in order to service past debts and accumulate income earning assets which he will use when he retires. During the retirement period, years between t_b and T, the individual is using income from the assets to meet current consumption requirement.

From this theory, we observe that, individual's disposable income is one of the greatest determinants of domestic savings. As an individual's income increases, his

savings increase pro-cyclically. Financial liberalization will lead to increases in deposit interest rates, increasing individual interest income hence increase in savings.

3.1.3 Friedman's Restatement of Quantity Theory of Money

Friedman (1966) developed the theory of demand for money within the context of the traditional microeconomic theories of consumer behaviour and of the producer's demand for inputs. In this theory he proposed various reasons as to why individuals hold real cash balances. First, consumers hold money because it yields utility with the convenience of holding the means of payments rather than making frequent trips to the broker and risking losses on bonds. Secondly, their demand for real balances depends on the level of real income. While treating money balances as an asset, money demand also depends on its price (price of the good being demanded) and the prices of other goods and services (returns to other ways of holding assets such as bonds).

According to Friedman, durable goods can also serve as alternative assets to money. As the price level rises, the purchasing power of a stock of durable goods remains roughly constant as durable goods prices rise along with the general price index. On the other hand, the purchasing power of money falls with an increase in prices so that an increase in the expected rate of inflation should cause a shift out of money and bonds and into consumer durables. Therefore, the quantity theory of money equation was adjusted as follows:

$$\frac{M}{P} = m(Y, r, r_1, r_2 \dots\dots\dots r_i, P_e) \qquad (3.1.3)$$

Where, Y is real income,

r real opportunity cost

r_i is returns on other assets

P_e is the expected inflation

Therefore, the level of demand for money depends on interest rates which means that savings are affected positively by the deposit interest rate and demand for loans are affected negatively by the increase in interest rates on loans. Financial liberalization will therefore lead to an increase in savings while reducing savings.

3.1.4 Liquidity Preference Theory

Keynes (1936) distinguished three main motives for holding money, namely, the transactions, precautionary and speculative motives. The transactions and precautionary motives are derived from money's use in facilitating exchanges, while the speculative motive is derived from money's use as an asset, as a store of value.

The transactions are carried out both by private persons and businesses so that Keynes divided his transactions motive into an income motive and a business motive. The income motive is that transactions motive applied to private persons, a motive arising out the absence of perfect synchronization of personal payments and receipts. The strength of this motive depends according to Keynes, largely on the size of incomes and the length of time between the receipt of income and its being paid out.

The business motive refers to the desire on the part of businesses to hold cash in order to bridge the interval between the incurring of costs and receipt of the proceeds from sales. The strength of this motive depends on the value of current output and hence on current income and on the numbers of hands through which output passes.

For the precautionary motive, Keynes suggested that people also find it prudent to hold some cash in case they are not able to realize other assets quickly enough to be of used to them for those classes of payments that cannot be considered regular and planned, such as paying unexpected bills, making purchases at unexpectedly favourable prices and meeting sudden emergencies caused perhaps by accidents or health. People want to hold money, Keynes said, not only for transacting current business but also as a store of value or wealth because of the existence of uncertainty as to the future of the rate of interest. Once the future rate of interest is uncertain people have the opportunity to speculate in the hope of securing profit from knowing better than the market what the future will bring forth.

Each individual is seen as being quite clear in his or her own mind as to what is going to happen to the rate of interest, but individual views differ from person to person. In this motive, Keynes considered only one alternative to money as a store of value, the bonds. What a person think is going to happen to the rate of interest will depend upon the relationship of the current rate of interest to the rate that the person thinks is the normal one.

Every person is thought to have in mind an idea as to what is the safe or normal level for the rate of interest. If the return on bond is positive, the asset holder can be expected to put his liquid wealth into bonds but if negative, he will put his liquid wealth into money. Here we can implicitly say that, financial liberalization according to this theory affects the deposits positively.

3.2 Empirical Literature

Financial liberation may deepen the financial sector, impact it negatively or may not have any effect on financial deepening. Researchers who are against financial liberalization believe that financial liberalization reduces savings, increases interest rate spread, reduces the size of the financial sector and also there are those who finds that it has no impact on the three mentioned variables.

The critique dates back to Keynesian theories which advocated for government interference in credit markets. It was thought that, by controlling interest rates at sensibly low levels and by expanding the scope of government direct intervention, investment would greatly increase. Here, whereas the Keynesian school believes in prior investment policy, the McKinnon-Shaw school believes in prior savings. As discussed earlier, the McKinnon-Shaw school argues that high interest rates promote savings, investment and income. However, for the Keynesian school, a high interest rates policy discourages savings by negatively influencing investment and income (Khatkhate, 1988).

Jappelli and Pagano (1994), in a study of the effect of borrowing constraints on economic growth, argued that relaxation of borrowing constraints through financial sector liberalization might not lead to an increase in the volume of savings. At low level of income interest rates may not induce savings. Using cross-country regressions of saving and growth rate on indicators of liquidity constraints on households for the period of 1960 to 1987, the authors found a decline of savings in OECD countries in 1980s due to financial deregulation. They argue that even at relatively high levels of income, financial reforms aimed at easing borrowing tend to induce consumption

more than savings. They observe that the liquidity constraints on household lead to higher savings rate, hence higher growth rate. Therefore, they suggest that credit should be rationed to households while making it available to firms efficiently in order to enhance capital accumulation and growth.

Mwega et al (1990) tested the McKinnon-Shaw hypothesis in Kenya. The study was for the period of 1966 to 1985. The study employed three equations testing the following hypotheses; real private savings rate is influenced positively by real deposit rate, real money balances are influenced by real deposit rate and demand for credit by the private sector are influenced by real lending rate. Using the OLS method, the result did not find any support that increases in real deposit rates raise private sector financial savings. However, the results showed that the cost of borrowing had a significant negative influence on demand for credit to the private sector.

A study on Financial Sector Reform and Financial Savings in Sub-Saharan Africa was carried out by Ziorklui and Barbee (2003). They employed descriptive statistics on financial savings and financial deepening measured by the ratio M2/GDP. The study showed that the impact of financial reforms on financial savings was lower than anticipated. They observed that financial savings as a ratio of GDP remained weak even after financial sector reform while financial depth remained low. They suggested that financial reform do better in stable macroeconomic environment than in environment where there is instability.

Studies which found a positive relationship between financial liberalization and the interest rate spread include Chirwa and Mlachila (2004). In their research, the authors

used data for Malawi from 1989 to 1999 and found that after financial liberalization, the interest rate spread increased significantly. They attributed this to the high reserve requirement which still persisted in Malawi, provision of doubtful debt, high and variable inflation and bank discount rate. The study found that commercial banks were shifting the cost of financial liberalization to their customers and the degree of monopoly power declined due to the entry of new commercial banks and licensing of nonbank financial institutions in deposit-taking activities. However, commercial banks in Malawi were found to continue to use their monopoly power in charging interest rates that are unfavorable to depositors.

One study in Columbia on the bank spread supports the idea that intermediation margins are positively related to market power. In the study, it was found that there is a positive and significant relationship between spreads and liquidity reserves in Colombian banking system (Barajas, Stainler, & Salazar, 1999). The paper examined the determinants of the high interest rate spread observed in the Colombian banking sector using a reduced-form equation on the basis of a bank profit maximization model. They noted that the composition of interest rate spread changed with market power being significantly reduced while the responsiveness to loan quality increased.

Brownbridge and Kirkpatrick (2000), on their study in least Developed countries(LDCs) which covers Kenya, Botswana, South Africa, Ghana, Malawi Mauritious, Namibia, Tanzania, Uganda, Zambia, Zimbabwe, Rwanda, Mozambique Swaziland, Lesotho, Ethiopia, BEAC countries and BCEAO countries, found that financial liberalization may worsen the quality of loans which may in turn lead to systemic risk. According to them, interest rate liberalization and the removal of credit

control may be an incentive for the banks with moral hazard behavior to engage in risky assets in order to maintain high market share. This leads to an increase in nonperforming loan and also higher provision for doubtful debts. The banks therefore tend to further charge higher interest rates in order to offset the cost of monitoring and screening due to bad debt hence likely to widen interest rate spread.

Stieglitz (1984) argues that since financial markets are prone to market failures, there should be some form of government intervention to correct these failures. Raising interest rates beyond a certain level may lower banks' overall return (Stiglitz, 1984). With increase in interest rates, there is a rise in cost which pulls down profitable firms and therefore firms undertake riskier investments. This, in turn, increases their chance to default and as a result leads in an adverse selection of projects and a general deterioration of banks portfolios. Government intervention should keep interest rates below their market clearing levels. Implicitly, financial liberalization beyond a certain limit according to this study, will have a negative impact on size of financial institution.

In spite of the above arguments against financial liberalization, there is consensus among a majority of economists that financial liberalization spurs financial deepening.

Among the studies which support the McKinnon-Shaw hypothesis, there is Soyibo and Adekanye (1992) who discovered that financial liberalization in Nigeria is a possible way of promoting savings, though the relationship is weak. The study adopted an ex-post analysis of the Nigerian banking system using data generated

between 1969 and 1989. In their analysis on the impact of policies regulation and deregulation on saving mobilization in Nigeria, they found that the ex-post real interest rate is a significant determinant of both savings and the real stock of money demand in Nigeria.

Also in favor of financial liberalization, a study by Korsah et al (2002) in Ghana found that competition in banks increased and banks also became more efficient with financial liberalization. In their empirical analysis, the authors applied market concentration ratios and data envelopment analysis (DEA) on data for the period of 1988 to 1999 in assessing the impact of financial liberalization on the performance of Ghanaian banks.

Chirwa (1999) provides an empirical evidence on the financial liberalization hypothesis with respect to financial intermediation, savings mobilization and market structure in Malawi. The results were in favor of the financial liberalization hypothesis. He proved that there is a significant decrease in the monopoly power of banks, an increase in financial deepening, share of savings and time deposits in total deposits with also an increase in share of commercial bank credit to the manufacturing sector. The analysis divides the data into two sub-samples and the *before* versus *after* analysis is undertaken for the period 1970 to 1986, period before liberation and 1987 to 1994, period after liberalization. The before versus after analysis employed in this study, however, does not consider other factors that may have caused the changes in the depended variable rather than the policy change.

A study by Johnson and Babalola (2015) examined the relationship between savings, investment and economic growth. The study used time series data spanning twenty-nine years using error correction model. They found a positive relationship between savings, investment and economic growth in Nigeria with interest rate positively affecting savings. This shows that financial liberalization has a positive impact on savings.

Giovannini (1985) used two stage–least squares technique on cross-section data for seven Asian countries (Burma, India, Korea, Malaysia, Philippines, Singapore and Taiwan). The results showed that the estimated coefficients of real interest rates on domestic saving were positive and significant. This was attributed to presence in the sample of some observations following the Korean financial reforms of 1965. When he estimated the same saving equation without the outlying variables, he found that, though positive the coefficient of real rate of interest was insignificant.

Another study done by Ahmed (2007) on the potential impact of financial reforms on savings in Botswana found results which favour McKinnon-Shaw hypothesis. He observed a positive link between private savings and the financial liberalization and further found that savings are positively related to real interest rates. While testing the financial repression hypothesis, the paper employed an empirical examination, Johansen VECM approach, on annual data running from 1971 to 2003.

A study by Mwagana (2013) on the effect of financial liberalization on financial performance of commercial banks in Kenya had findings consistent with the financial liberalization school prediction that the nominal interest rates have a positive impact

on private savings. The study was carried out for the data from 1989 to 2012. It established that financial liberalization policies introduced in Kenya in the late 1980s have had a positive impact on return on equity and return on assets. On the other hand, return on equity and return on assets through financial development have positively and significantly affected financial development.

Some studies have discovered a negative impact of financial liberalization on interest rate spread. Government, through its intervention policies, remains a major determinant of bank spreads, though the effect of government intervention to the banking system is efficiency enhancing (Njie, 2006). A two-stage regression was carried for the data from the period of 1999 to 2004 in order to explain the determinant of bank spread in Malaysia. Njie (2006) found that bank spread reduced significantly after financial liberalization and the decline was attributed mainly for financial liberalization.

In terms of the size of financial sector, a study carried by Vallence (2011) in Uganda concludes that financial liberalization has a positive impact on money demand and economic growth. Time series data were used for the period 1978-2008 using principal component analysis method. Thus it was found that financial liberalization has a positive impact on the financial performance hence on the size of the financial sector, given that financial liberalization affects money demand positively.

More literature in favor of financial liberation includes Odhiambo (2009) who used the financial deepening model and granger-causality model to examine the impact of interest rate reforms on financial deepening and growth in Kenya and concluded that

interest rate liberalization, through its effect on financial deepening, increases economic growth. This impact is however limited by the dependency ratio. Time series data covering the period of 1968 to 2004 were utilized in this study. The first relationship, interest rate liberalization and financial deepening was examined by regressing the financial depth variable on deposit rate, real income, expected inflation and the lagged value of financial depth. The second relation, the causality between financial deepening and economic growth was tested using the bivariate Granger-causality model.

There is a strong support for the positive impact of financial liberalization on financial deepening in both South Africa, Tanzania, Zambia, and Lesotho (Odhiambo, 2011). The study found the coefficient of the lagged deposit rate in the financial deepening model to be positively and statistically significant in the four countries, concluding that positive real deposit rates that result from liberalization unambiguously lead to financial deepening. The results also reveal a difference in the causality between financial development and economic growth from country to country.

Odhiambo (2010) found that interest rate reforms have positive impact on financial development. He however concludes that, although interest rate reforms impact positively on financial depth in South Africa, the causal relationship between financial depth and economic growth tends to take a demand following path. It is likely that the economic development in South Africa is driven largely by the growth of the real sector rather than the financial sector. In his study, Odhiambo (2010) tested time series data from 1969 to 2006.

3.3 Chapter Summary

The empirical literature draws experiences from East African countries such as Kenya, Uganda, Tanzania, and other Sub-Saharan African countries which include Malawi, Nigeria, Botswana, Zambia, South Africa and Lesotho and Asian countries among others. Some of these studies supports the positive relationship between financial liberalization and financial deepening, others support the negative relationship between financial liberation and financial deepening while there are those who claim that there is no relationship between financial liberalization and financial deepening. The majority of this studies used interest rate spread, savings while others like Odhiambo (2009), used M2/GDP as indicators of financial deepening. The current research employs three indicators of financial deepening, namely; interest rate spread, savings mobilization and size of the financial sector whose theoretical literature have been reviewed.

CHAPTER FOUR

RESEARCH METHODOLOGY

4.0 Introduction

In this study, in order to examine the relationship between financial reforms and financial deepening, the b*efore vs after* analysis will be employed for data from 1975 to 2014. In order to capture financial deepening, indicators are used. Data on the variables under consideration will be obtained from the World Bank Development Indicators (WDI) and the Central Bank of Kenya (CBK).

4.1 Descriptive Test_ *Before versus After*

The data used in this analysis covers the period between 1975 and 2014. Although structural adjustment programs in Kenya started in 1980, a program of financial sector reforms was first introduced in 1989. In order to capture the impact of financial liberalization on financial deepening the analysis will impose two break points; 1989 where financial liberalization is introduced and 2002 where there is a gradual move to repress the financial sector.

The researcher uses the test of the difference between two means; mean values after financial liberalization minus mean value before financial liberalization and, the mean value after financial repression minus mean value mean value before financial

repression in order to establish the statistical significance of the changes in performance of variables.

Specifically, investigation is done on savings mobilizations where structure of deposits such as the demand deposits (percentage of total deposits), savings and time deposits (percentage of total deposit) and domestic savings are used to capture the savings behavior. Interest rate spread is analyzed in nominal terms and also the size of financial sector is studied. In addition to the core variables to the study, the changes in credit allocation and the selected macroeconomic variables specifically, the size of the economy and inflation are examined for the period.

4.2 Model Specification

Since the main objective of the study is to analyse the effect of financial reforms on financial deepening in Kenya, the study uses the indicators of financial deepening as the dependent variables while dummy variables are used as independent variables to capture regime change. Other explanatory variables are included for control purposes and are based on the theoretical, empirical and conceptual frameworks on the factors that affect interest rate spread, savings and size of financial sector. The following three models are adopted.

$$Sav = f(deprate, lendrate, GDP, infl, dummy1, Dummy2)$$

(4.2.1)

$$Intsprd = f(Size, GDP, liqrisk, infl, dummy1, dummy2)$$

(4.2.2)

$$Size = f(intsprd, GDP, infl, dummy1, Dummy2$$

(4.2.3)

Where: *Sav* is domestic savings, measured as percentage of GDP,

Intsprd is the difference between lending and deposit interest rate,

Size is the size of financial sector, size of banks has been used as a proxy,

deprate is the deposit interest rate,

lendrate is the lending interest rate,

GDP is the size of the economy,

Inf is the inflation rate,

Dummy1 represents regime change from financial repression (1975-1988) to financial liberalization (1989-2001)

Dummy2 represents regime change from financial liberalization (1989-2001) to financial repression (2002-2014) and

liqrisk is the liquidity risk measured as the ratio bank liquid assets to total assets.

4.3 Variable Justification and Expected Relationships

For the factors which affect domestic savings, GDP is included based on the Keynesian Absolute income hypothesis and the sign of the coefficient is expected to be positive. According to AIH income has a positive effect on savings. According to liquidity preference theory, deposit interest rate is expected to have a positive effect on savings. However, the effect of the deposit rate is theoretically ambiguous, the sign on it can be positive or negative depending on the relative significance of the substitution effect and the income effect together with the elasticity of inter-temporal substitution.

It is expected that high lending interest rate discourages the economic agents to get loans reducing investment hence leading to lower savings. It is expected, therefore, that the sign of the coefficient for lending interest rate will be negative. The coefficients of the financial liberation and financial repression are expected to be positive and negative respectively based McKinnon and Shaw hypothesis. When inflation is high, people will have less money left to save because a major part of their disposable income will be spent to satisfy their needs and wants. Therefore, it is expected that inflation will have a negative impact on savings. For the factors that affect the interest rate spread, Bank size is measured as the log of total bank's assets. One would expect bigger banks to be associated with lower interest rate spreads, because they enjoy large economies of scale and ability to invest in technology that would enhance efficiency. However, to the extent that bank size can imply control of the market in the deposit and loan markets, a positive relationship between interest rate spreads and bank sizes can also be possible.

The liquidity risk is computed as the ratio of bank's liquid assets to total assets. A bank with higher liquidity faces lower liquidity risk hence is likely to be associated with lower spreads due to a lower liquidity premium charged on loans. Banks with high risk tend to borrow emergency funds at high costs and thus charge liquidity premium leading to higher spreads (Ahokpossi, 2013)

Inflation and economic growth are used to capture the impact of the macroeconomic factors. Increased economic activity can heighten demand for loans leading to higher lending rates. On the other hand, increased economic activity can make projects more profitable, reduce defaults, and increase deposits, all of which reduce the spreads.

Financial liberalization is expected to increase both lending and the deposit interest rate and therefore the sign of the coefficient is not yet clear.

Moving on to factors which affect the size of financial sector which is proxied by the size of banks, high interest rate spread increases the financial sector profitability thereby boosting the size of the financial sector. According to the demand following hypothesis, economic growth is expected to have a positive impact on the size of the financial sector. Since inflation reduces the financial sector activity by reducing the savings, it is expected to have a negative impact on the size of the financial sector. The financial liberalization is expected to have a positive impact on the size of financial sector while the financial repression expected to have a negative impact on the size of the financial sector. The summary is presented in table 2:

Table 2: Summary of the A priori Expectations

Independent variable	**Model 1: Domestic savings**	**Model 2: Interest rate spread**	**Model 3: Size of FS**
Economic growth	+	_	+
Inflation	_	_	_
Lending rate	_		
Deposit rate	+/_		
Financial liberalization	+	+/_	+
Financial repression	_	+/_	_
Bank Liquidity		_	
Size of financial sector		+/_	
Interest rate spread			+

4.4 Estimation Techniques

This Section will review some of the techniques which will be used in this study. We first summarize the pre-estimation tests and then the Autoregressive Distributed Lag (ARDL) model.

4.4.1 Stationarity Test

To test for stationarity, both Phillip Peron and Clemente et al tests are used. We therefore give a brief outline to both.

Phillips Perron Unit Root Test

The researcher performs a stationarity test using the Phillips Perron (1988) unit root test procedure. This procedure is an improvement to the Augmented Dickey Fuller (ADF) by relaxing assumptions about autocorrelation and heteroscedasticity. A non-parametric correction is made to the t-ratio of the coefficient from equation to account for the autocorrelation of ε_t. The model is given as follows:

$$\Delta y_t = \alpha + \beta y_{t-1} + \Sigma_t \qquad (4.4.1.1)$$

Where, y_t is the variable of interest,

α is the constant,

β is the slope

The null hypothesis to be tested here is that there is unit root.

Clemente et al Unit Root Test

In order to avoid the possibility of biased results emanating from a likely existence of unit roots in the variables under study, the researcher complements the Phillips Perron

test by the Clemente et al (1998) unit root test procedure. This procedure is an improvement to the Augmented Dickey Fuller (ADF) test whose major weakness is a potential confusion of structural break to evidence of non-stationarity.

The test has an advantage relative to other non-stationarity tests because it considers more than two structural breaks. This means that it allows for two events within the observed history of a time series, either *additive outliers*, (the AO model) which captures a sudden change in a series or the *innovational outliers* (IO model) allowing for a gradual shift in the mean of the series. The study concentrates on innovations outliers' model which is given as follows:

$$Y_t = \mu + \rho y_{t-1} + \delta_1 D_{1t} + \delta_2 D_{2t} + \theta_1 DTB_{1,t} + \theta_2 DTB_{2,t} + \sum_1^k \theta_i \Delta y_{t-1} + \epsilon_t \quad (4.4.1.2)$$

Where,

TB₁ and *TB₂* are the time periods when the mean is being modified, given as $\mathrm{TB_i} = \lambda_i \mathrm{T}$

i is [1, 2] and $0 < \lambda_i < 1$.

D is dummy which is given as below;

$$D_{t_i} = \begin{cases} 0 & if\ t \leq TB \\ 1 & if\ t > TB \end{cases}$$

4.4.2 Cointegration Test

In practice, many economic variables which are non-stationary converge in the long run. The data under consideration are expected to converge to some long-run values, although they may drift away from the equilibrium. Such will be said to have a long run relationship. For this test, we use Bounds test and complement it with the Gregory Hansen Cointegration test.

Bounds Test

The ARDL ‘‘Bounds test’’ analysis is developed by Pesaran et al. (2001). The approach is based on the ordinary least square (OLS) estimation of a conditional unrestricted error correction model (UECM) for Cointegration.

Gregory-Hansen Test

In order to test for the effect of structural breaks in the model, Gregory Hansen test is used. Using this test, we are able to get the periods when there was a regime shift. The model also generates changes both in the intercept or the slope coefficients when there is a regime shift. The model is presented as below.

$$y_{1t} = \alpha + \beta y_{2t} + e_t \qquad (4.4.2.1)$$

$$y_{1t} = \alpha_0 + \alpha_1 D_{t\iota} + \beta y_{2t} + e_t \qquad (4.4.2.2)$$

$$y_{1t} = \alpha_0 + \alpha_1 D_{t\iota} + \gamma t + \beta y_{2t} + e_t \qquad (4.4.2.3)$$

$$y_{1t} = \alpha_0 + \alpha_1 D_{t\iota} + \beta_1 y_{2t} + \beta_2 Y_{2t} D_{t\iota} + e_t \qquad (4.4.2.4)$$

Where t = 1... T

Equation (1) is the standard cointegration. Equation (4.4.2.2), (4.4.2.3) and (4.4.2.4) represents the level shift, level shift with trend and regime shift (structural change) respectively. α_0 represents the intercept before the shift, and α_1 represents the change in the intercept at the time of the shift. β_1 denotes the cointegrating slope coefficients before the regime shift, and β_2 denotes the change in the slope coefficients.

D is a dummy variable defined as below:

$$D_{t\iota} = \begin{cases} 0 & if \ t \leq [T\iota] \\ 1 & if \ t > [T\iota] \end{cases}$$

4.4.3 Diagnostic Tests

Diagnostic tests ensure the model framework satisfies the various econometric assumptions is order to derive a reliable coefficient estimates.

Autocorrelation

Serial correlation refers to correlation between the errors in different time periods. It is considered as a serious problem because of its impact on standard errors and the efficiency of the estimators. Breusch-Godfrey serial correlation LM test is used to test for serial correlation with null hypothesis of no seral correlation.

Normality Test

One of the assumptions of classical regression is that the variables should be normal. Jarque-Bera histogram normality test is used to assess the hypothesis of normality in the study.

Stability Test

In order to specify a precise model, we test for stability of the models used for the study using Cumulative sum proposed by Borensztein et al. (1998).

4.4.4 Autoregressive Distributed Lag Model

ARDL method is employed. This technique has an advantage over the other tests in that, it generates consistent estimates of the long run coefficient regardless of whether the variables are I (0) or I (1). In general, the technique provides unbiased estimates of the long-run model and valid t-statistics even in situations when the variables are endogenous. Moreover, ARDL models are suitable for small sample sizes. The model is presented as follows:

Long-run

$$FD_t = \phi_0 + \phi_1 FD_{t-1} + \phi_2 GDP_{t-1} + \phi_3 INF_{t-1} + \phi_4 Dummy_1 + \phi_5 Dummy_2 + \sum_{r=6}^{z} \phi_r Y_{r,t-1} + \nu_t \quad (4.4.4.1)$$

Short-run

$$\Delta FD_t = \psi_0 + \sum_1^n \psi_{1i} \Delta FD_{t-i} + \sum_0^m \psi_{2i} \Delta GDP_{t-i} + \sum_0^p \psi_{3i} \Delta INF_{t-i} + \psi_4 Dummy_1 + \psi_5 Dummy_2 + \sum_{r=6}^z \sum_0^q \psi_{ri} \Delta y_{r,t-i} + \psi_{z+1} ECT_{t-1} + \epsilon_t \quad (4.4.4.2)$$

Where,

FD is a measured by domestic savings, interest rate spread and size of financial sector.

GDP is Economic growth

INF is inflation

Y represent the specific variables that affects the specific dependent variables

ECT is the error correction term

CHAPTER FIVE

RESULTS AND DISCUSSIONS

5.0 Introduction

This chapter interprets the results of the study. The descriptive test results are presented first before the discussion of regression results for the financial deepening models.

5.1 Descriptive Test Results

The T-test results and interpretations, for both before versus after financial liberalization and before versus after financial repression are given for the changes in interest rates, savings mobilization, size of the financial sectors and the macro economy.

5.1.1 Changes in Interest Rates

The trend in the interest rate spread in Kenya has been volatile with a high record of 8.07 percent on average from 1975 to 2015. Interest spread for 2015 stood at 6.89 percent from 5.25 percent in 1989. Following financial liberalization, it is observed that the spread increased significantly. Refer to figure 1. Table 3 gives t-tests for lending rate, deposit rate and interest rate spread.

Table 3: Changes in Interest Rate

Variable	*Before (1975-1988) vs After* Liberalization(1989-2002)				*Before (199-2001) vs After* Repression(2002-2014)			
	Before	**After**	**t-value**	**change**	**Before**	**After**	**t-value**	**change**
Lending rate	12.67	25.31	8.09***	positive	25.31	14.70	-5.23***	negative
Deposit rate	8.88	13.14	3.49**	positive	13.14	6.02	-4.80***	negative
Interest spread	3.79	11.31	6.02***	positive	11.31	9.36	-1.41	negative

*=significant at 10 percent **=significant at 5 percent ***=significant at 1 percent

The difference between the interest spread for the periods before and after financial liberalization is positive and significant at 1 percent level. This positive change is as a result of a more increase in the lending interest rate, than the increase in the deposit interest rate after financial liberalization.

Conversely, interest spread after financial repression was statistically insignificant. The lending interest rate declined significantly from an average of 25.31 before financial repression to 14.70 after financial repression. Likewise, there is a significant decline in deposit interest rate from 13.14 before financial repression to 6.02 after financial repression. The change in interest rate spread after financial repression is not significant after financial repression in a manner that banks were trying to maintain their profits.

5.1.2 Changes in Savings Mobilization

Figure 5 shows the evolution of the composition of liabilities. On average, the demand deposit is more liquid while time and saving deposit are less liquid.

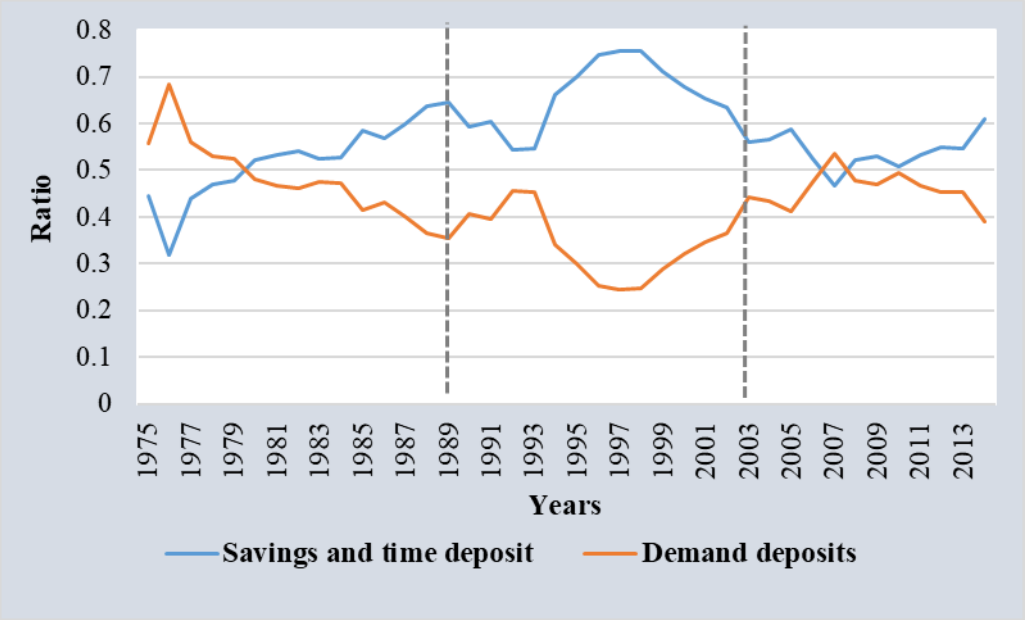


Figure 5: Trends of Long and Short Term Deposit Ratios

Source: author's own computation using Kenya Economic Surveys (various years)

Prior to the first oil shock Kenyan savers preferred demand deposits. However, subsequent to the first oil shock the share of demand deposit began to decline and by the second oil shock (1979) the two were equal. Since then, and after to SAPs, savings and time deposits dominate. The t-test results for the savings structures are given by table 5.

Table 4: Impact of Reforms on Savings Behaviour

Variable	*Before (1975-1988) Versus After (1989-2001)* **financial liberalization**				*Before (1989-2001) Versus After (2002-2014)* **financial Repression**			
	Before	**After**	**t-value**	**change**	**Before**	**After**	**t-value**	**Change**
Financial depth	0.30	0.34	1.58	positive	0.34	0.33	-0.23	Negative
deposit structure								
demand	0.50	0.34	-8.23***	negative	0.34	0.45	4.16***	Positive
Tim and savings	0.50	0.66	8.23***	positive	0.66	0.55	-4.16***	Negative
Time	0.22	0.35	4.81***	positive	0.35	0.34	-0.12	Negative
Savings	0.28	0.31	0.10	positive	0.31	0.21	-3.92***	Negative

*=significant at 10 percent **=significant at 5 percent ***=significant at 1 percent

The effects of both financial repression and financial liberalization on financial deepening are insignificant as seen from table 4.

There is a significant negative mean difference in the share of demand deposits to total deposits, between the period before financial liberalization and the period after financial liberalization. This confirms the graphic evidence that financial liberalization has had a general negative impact on the demand deposits. The share of total savings and time deposits in the banking industry recorded 66 percent on average for the period after financial liberalization, from an average of 50 percent before financial liberalization. This difference is significant at 1 percent and it should be noted that it is only due to the increase in time deposit since the increase in savings deposit is insignificant.

After the introduction of financial repression, the mean share of demand deposits increased significantly from 34 percent to 45 percent. Together with this, the average share of the sum of savings and time deposit declined from 66 percent to 55 percent after financial repression. Financial repression has also led to a decline in savings deposit but has no impact on time deposit. The decline in the average share of the sum of savings and time deposit is therefore mainly caused by the decline in savings deposit from 31 percent to 21 percent.

Financial liberalization has led to an increase in long-term liabilities of the banking system and a decline in short term liabilities. Financial repression, on the other hand, has led to a decline in savings deposits and an increase in short term liabilities of the banking industry. These results on the savings mobilization in Kenya suggests that, the economic agents are rational beings and react significantly to the financial sector policies by shifting from short-term to long term savings after financial liberalization[1].

5.1.3 Changes in the Financial Industry and Macro-economy

Table 5 gives t-test result for the number of banks together with the economic variables.

[1] Long term and medium term savings earn interest rates as opposed to the short term savings which do not earn interest rate.

Table 5: Impact of Reforms on Financial Industry and Macro-economy

Variable	*Before (1975-1988) vs After (1989-2001)* **Financial liberalization**				*Before (1989-2001) vs After (2002-2014)* **Financial Repression**			
	Before	**After**	**t-value**	**change**	**Before**	**After**	**t-value**	**change**
Number of banks	18	41	10.84***	positive	41	43	0.77	positive
Sector allocation								
Private sector	0.64	0.69	0.59	positive	0.69	0.73	2.55**	positive
Public sector	0.35	0.33	-0.59	negative	0.331	0.26	-2.55**	negative
Macro economy								
GDP	4.90	2.42	-2.44**	negative	2.42	4.73	2.11*	positive
Inflation	11.95	15.67	1.03	positive	15.67	10.26	-1.41	negative

*=significant at 10 percent **=significant at 5 percent ***=significant at 1 percent

There is a significant increase in the average size of the financial sector after financial liberalization while there is no change on the size of financial sector after financial repression.

Financial liberalization has no impact on the claims by the banking industry both on private and public sector. However, financial repression has a positive impact on banking industry claims from private sector and a negative impact on banking industry claims from public sector. This means that, credit allocation to private sector increased after introduction of financial repression. For the private sector to increase their profit margin, they increased loans they take due to financial repression.

Moving on to the economic variables, the GDP growth on average for the period after financial liberalization slows down to 2.42 percent from a record of 4.90 percent before financial liberalization. The mean difference is negative and significant, showing a decline of economic growth as a result of financial liberalization. The mean difference for the annual GDP between the period before financial repression and the period after financial repression is positive and significant. Financial repression has therefore led to an increase in economic growth. Inflation rate, on average, is not affected by both financial liberalization and financial repression.

5.2 Pre-Estimation Tests

In order to determine which technique was suitable to estimate our model, we tested for stationarity and diagnostics. Stationarity test was carried using Clemente et al which was complemented by the Phillips Peron stationarity test (See appendix 2A). In both, the variables were found to be integrated of different orders (I (1) and I (0) . ARDL was therefore a suitable technique used for estimation.

The diagnostic tests prove that the variables used in the study are normally distributed and the residual are not serially correlated. Further, the stability test confirms that the models used are stable. Appendix 2 gives more details on the diagnostic tests.

5.3 Lag Length Selection

In order to specify precise models, the study first sought to come up with the appropriate lag order of the differenced terms. This was guided by the standard information criteria (Akaike information criteria (AIC), Schwarz Information Criterion and Hannan-Quinn Information Criterion). From appendix 3, it can be seen

that a maximum lag of one has been chosen for the first model, while maximum lag of two for both the second and last models.

5.4 Estimation Results and Interpretation

The ARDL model is estimated to determine the nature and direction of short run and long run dynamics of the selected variables. This section provides the estimation results on the impact of financial reforms on financial deepening. Specifically, the impact of the reforms on savings, interest rate spread and on the size of financial sector is discussed.

5.4.1 Impact of Reforms on Savings

Introduction

With reference to model 4.2.1, domestic saving is regressed on deposit and lending rate, economic growth, inflation and the financial reforms (financial liberalization and financial repression policies).

Short Run Approach

Table 6 presents the regression results for model 4.2.1. From the results, the impact of financial reforms on savings are captured.

Table 6: Short-run Result for Savings Regression

Variable	Coefficient	Prob.
Financial Liberalization	-0.12773	0.95940
Financial Repression	2.64081	0.47350
D(Inflation)	0.22522***	0.00030
D(GDP)	0.47710**	0.01110
D(Lending Interest Rate)	-0.12795	0.41580
D(Deposit Interest Rate)	0.02543	0.90680
C	11.54202***	0.00000
CointEq(-1)	-0.59802***	0.00000
Adjusted R_square	0.80160	
Prob(Fstat)	0.00000	

*=significant at 10 percent **=significant at 5 percent ***=significant at 1 percent

The financial reform policies together with both lending and deposit interest do not affect savings in the short run. On average, a one percent increase in inflation in the short run, leads to an increase in savings by 22.5 percent holding all things constant. This is not in line with the a priori expectation. An increase in inflation indicates an increase in the price of goods and services at a certain rate.

According to Keynesian Absolute income hypothesis, income is used for only consumption and savings purpose. So inflation would represent increase in the amount of income spend for consumption and therefore, savings would reduce. However, the positive effect of inflation on savings should not be surprising. The increase in prices due to inflation could also mean more profit for firms and therefore

more investment and more savings. Also economic agents may react to high inflation by cutting back on borrowing and spending, thereby increasing their savings.

On average, a one percent increase in economic growth increases the savings by 47.7 percent in the short run, *ceteris paribus*. This is in agreement with the life cycle hypothesis, which implicitly says that, savings increases with increase in income. Increase in economic activity means an increase in per capita income and hence increase in savings.

The explanatory variables seem to account for about 80 per cent of the variability in savings rate. This is supported by the highly statistically significant F-Statistic which shows a joint significance of variables. The Error Correction Term (ECT) is significant at one percent level of significance. The ECT of -0.60 indicates that the speed of adjustment is high and that about 60 per cent of all the deviations of explanatory variables from their equilibrium level in the short run are corrected each year.

Long Run Approach

In order to examine the existence of a long-run relationships between the variables used in model 4.2.1, bounds test was first carried out. After confirming that the variables are cointegrated, long-run estimation results were then obtained.

Bounds test

From appendix 4, The F-statistics lies above the upper limit at 5 percent level of significance, and we, therefore, reject the null hypothesis of no co-integration and conclude that there is a long run relationship between the variables under study.

Long run estimation result

Table 7 presents the long-run results for model 4.2.1 which captures the long-run impact of financial reforms on domestic savings.

Table 7: Long Run Results for Savings Regression

Variable	Coefficient	Prob.
Financial Liberalization	-4.56284	0.24244
Financial Repression	-9.84937***	0.00001
Inflation	0.43695***	0.00000
GDP	-0.45285	0.49300
Lending Interest Rate	-0.30235	0.24660
Deposit Interest Rate	0.00679*	0.08179

*=significant at 10 percent **=significant at 5 percent ***=significant at 1 percent

In the long run, financial liberalization, economic growth and lending interest rate do not have a significant effect on savings. However, inflation, deposit rate and financial repression have a significant effect on the savings in the long run.

In line with the McKinnon and Shaw hypothesis, financial repression has on average a negative long run effect on savings, holding other factors constant. Financial repression would result to a low interest rate and discouraging savings. It will also

result to a high reserve requirement and restriction of credit to some economic sectors which result to a low investment hence reducing savings. Similar results were found by a study in Malawi by Chirwa (1999), Ahmed (2007) in Botswana and a study in Kenya by Mwagana (2013).

Holding other factors constant, a one per cent increase in inflation rate in the long run leads on average to a 44 per cent increase in domestic. This is not in line with the sign expected a priori. However, according to Wachtel (1977), the long-run effect of inflation on saving results from uncertainty created by higher and more variable inflation rates. Because households are unable to forecast prices accurately, they become uncertain about future prices and real income and, as a result, save more. Chaturvedi et al. (2008) found a similar result for South Asia.

On average, a one percent rise in deposit interest rate, causes an increase in savings by 0.7 percent, *Ceteris Paribus*. The sign of the coefficient is in line with the McKinnon and Shaw hypothesis that an increase in interest rate affects savings positively. High deposit rate is likely to increase savings as it pushes up the reward for saving. Awan et al. (2010) found a similar result for Pakistan.

In summary, we have found that in the short run, financial reforms do not affect savings in Kenya. Further, in the long run, only financial repression has a significant effect on the savings. Financial reforms as seen by the descriptive test in table 5, has an impact on the savings behaviour. The savers shift from short term savings to long term savings when the sector is liberalized and from long term savings to short term savings when the sector is repressed. For the short term savings, withdrawals can be

done frequently, and therefore this could be the reason as to why financial repression is seen to have a negative impact on the savings. Therefore, the regime changes are deemed to affects mostly the savings behaviour of the economic agents in the long run rather than the amount saved.

5.4.2 Impact of Reforms on Interest Rate Spread

Introduction

For this analysis, Interest rate spread is presented as a function of bank liquidity risk, size of financial sector which is proxied as the size of banks, size of the economy, inflation and financial reforms (Refer to model 4.2.2). Both the short run and the long run results for the estimation of model 4.2.2 are discussed.

Short Run Approach

Table 8 below presents the results after regressing interest rate spread on its explanatory variables that are included in this study. The result captures the short run effects of financial reforms on interest rate spreads.

Table 8: Short run results for interest rate spread regression

Variable	Coefficient	Prob.
Financial Liberalization	1.28350	0.16060
Financial Repression	0.96953	0.46550
D(Interest Rate Spread(-1))	0.24341*	0.05010
D(Size)	-1.41253	0.45430
D(GDP)	-0.11094	0.13560
D(Inflation)	-0.01918	0.47120
D(Inflation(-1))	-0.06503***	0.00360
D(Liquidity Risk)	9.46420**	0.02530
C	1.69009**	0.00120
CointEq(-1)	-0.43415***	0.00000
Adjusted R-square	0.9475	
Prob(Fstat)	0.0000	

*=significant at 10 percent **=significant at 5 percent ***=significant at 1 percent

In the short run, both the financial liberalization and financial repression policies have no impact on interest rate spread. interest rate spread is affected by the current values of bank liquidity risk and one year lagged values of inflation and interest rate spread.

Interest rate spread for the previous year has on average, a positive impact on the current interest rate spread, *Ceteris Paribus*. The result indicates an insignificant effect of the size of banks on interest rate spread in the short run.

Increased economic activity can increase the demand for loans to be used for investment leading to higher lending rates. Increased economic activity can also make projects more profitable thus increasing deposits. All the two cases lead to a reduction in interest rate spread. However, the result shows that size of the economy at current period does not have any impact on the current interest rate spread.

Inflation at current period does not have any impact on interest rate spread. However, inflation at the previous period has a negative impact on the current interest rate spread, holding other factors constant. According to Friedman's quantity theory restatement, expected inflation has a negative impact on money demand. When the economic agents expect that inflation will be high, they reduce their deposits and they hold their money in form of durable goods. In this case, the Kenyan economic agents follow adaptive expectations. They expect that the previous year's inflation rate will be the same as the current year's inflation and therefore they hold the savings because of uncertainty leading to increase in deposit interest rates reducing interest rate spread.

In the short run, a higher liquidity is on average associated with higher interest rate spread holding other factors constant. This is inconsistent with our a priori expectation. Banks with higher liquidity faces lower liquidity risk hence likely to be associated with lower spreads as they do not have to incur extra costs of sourcing funds when faced with increased demand for credit. Banks with high risk tend to borrow emergency funds at high costs and thus charge liquidity premium leading to higher spreads (Ahokpossi, 2013).

From the table 8, the explanatory variables seem to explain about 95 percent of the variability in interest rate spread. This is supported by the highly statistically significant F-Statistic which shows a joint significance of variables. The Error Correction Term (ECT) is significant at one percent level of significance. The ECT of -0.43 indicates that the speed of adjustment is moderate, 43 percent of all the deviations from the equilibrium level that are caused by changes in the explanatory variables are corrected each year.

Long Run Approach

This section presents the long run results for model 4.2.2. Prior to testing the presence of a long-run relationship among the variables in this section, we first determine whether there is long-run relationship among the variables or not using the ARDL bound test.

Bounds tests

From appendix 3, variables under study are found to be cointegrated. The F statistics 4.79 falls above the upper bound limit at 5 percent level of significance.

Long run estimation results

Table 9 below presents the ARDL long run estimation results for model 4.2.2. In the long run, interest rate spread is influenced by the liquidity risk and financial liberalization. Ceteris Paribas, a one percent increase in the bank liquidity leads to a 41.7 percent increase in interest rate spread.

Table 9: The Long Run Results for Interest Rate Spread Regression

Variable	Coefficient	Prob.
Financial Liberalization	4.54966*	0.05650
Financial Repression	1.29802	0.68860
Size	-0.46672	0.61200
GDP	-0.31892	0.18340
Inflation	-0.04502	0.77900
Liquidity Risk	41.66493***	0.00050

*=significant at 10 percent **=significant at 5 percent ***=significant at 1 percent

The impact of financial liberalization on interest rate spread is in line with the McKinnon and Shaw hypothesis. The more financially liberalized Kenya is, the more the interest rate spread. This supports the results found in the T-test that both lending and deposit rate increases, though the increase in lending rate is higher than the increase in deposit rate. The result conforms to the findings by Chirwa and Mlachila (2004) based on the case of Malawi and Brownbridge and Kirkpatrick (2000) in their study for least developed countries including kenya.

The impact of financial repression on interest rate spread is insignificant. The coefficients for the economic variables, though negative are insignificant. These results are consistent with those of other studies based on African countries such as Bennaceur and Goaied (2008) based on evidence from Tunisia and Ahokpossi (2013). The size of financial sector also has no statistical significant effect on interest rate spread in the long run, holding other factors constant.

In general, the financial reforms do not influence the interest rate spread in the short run. In the long run, only the financial liberalization has a positive effect on interest rate spread while financial repression has no impact. This result is similar to the descriptive test in table 4 and therefore similar conclusion can be made. The result portrays exploitation of economic agents. When the financial sector is liberalized, lending interest rate increases more that the deposit interest rate. However, when the financial sector is repressed, deposit and lending interest rate are adjusted in a way that high interest rate spread is still maintained. In this manner, banks will make profit at the expense of their customers.

5.4.3 Impact of Reforms on Size of Financial Sector

Introduction

The size of banks is used as a proxy to the size of financial sector. This dependent variable, as seen from model 4.2.3 is regressed on interest rate spread, size of the economy, inflation and financial reforms which were captured by the dummies. Both the short run and long run results for the model are discussed in this section.

Short Run Approach

Table 10 reports the short run result for the regression of the size of the financial sector. The size of financial sector is proxied by the log of the total bank assets.

Table 10: Short Run Result for Financial Sector Size Regression

Variable	Coefficient	Prob.
Financial Liberalization	-0.19493***	0.00390
Financial Repression	-0.41221***	0.00030
D(Size(-1))	-0.24129**	0.02160
D(GDP)	0.00350	0.45060
D(Inflation)	-0.00006	0.96370
D(Inflation(-1))	-0.00621***	0.00000
D(Interest Rate Spread)	0.00674	0.40820
D(Interest Rate Spread (-1))	-0.02148**	0.03850
C	5.44042***	0.00000
CointEq(-1)	-0.62369***	0.00000
Adjusted R-squared	0.99871	
Prob(F-statistic)	0.00000	

*=significant at 10 percent **=significant at 5 percent ***=significant at 1 percent

In the short run, financial liberalization has a negative impact on the size of financial sector. This could partly be due market power enjoyed by few banks. The high profit due to high interest rate spread is enjoyed by only the leading banks out powering the infant ones by depressing them further with stiff competition. Financial repression has a negative and a statistical significant effect on the size of the financial sector. According to McKinnon and Shaw hypothesis, financial repression has a negative impact on the savings. As a result of this negative savings effect, the size of the financial sector is affected negatively.

Size of the economy, current year inflation and current year interest rate spread have no impact on the size of the financial sector, in the short run. The previous year size of the financial sector has a negative impact on the current year size of the financial sector. This means that, larger size of financial sector in the current year has a competitive disadvantage forcing some of the financial institution to exit the market in the next year.

A one percent increase in the previous period inflation leads to a 0.6 percent decline in the size of financial sector, holding other factors constant. As inflation rises, consumer's part of disposable income declines since more money will be used for consumption. Savings will be reduced and therefore amounts available for loans will be lower, reducing the bank profitability. Interest rate spread at lag one has a negative effect on the size of financial sector, in the short run. When the lending interest rate increases, the consumers will react by reducing their borrowing. This will repress investment activity and reducing savings hence low banking activity.

The explanatory variables are jointly significant and explaining about 99 percent of the variability of the size of the financial sector. The Error Correction Term (ECT) which is given -0.62 is high and is significant at one percent. It indicates that approximately 62 percent of all the deviations from the equilibrium level that are caused by changes in the explanatory variables are corrected each year.

Long Run Approach

After the discussion of the short run results, it was necessary to check whether there exists a long run relationship within the variables used in model 4.2.3. After confirming the existence of co-integration, the long run results are presented and discussed.

Bounds test

From the bounds test in appendix 4, the F-statistics of 7.95 lies above the upper limit which indicates that, Bank size, interest rate spread, GDP and inflation have a long run relationship

Long run estimation results

Table 11 presents the long run output after regressing equation 4.2.3. All the explanatory variables are found to have a significant effect on the size of financial sector in the long run.

Table 11: The Long Run Result for Size of Financial Sector Regression

Variable	**Coefficient**	**Prob.**
Financial Liberalization	-0.22661***	0.00020
Financial Repression	-0.46279***	0.00000
GDP	0.02849**	0.02240
Inflation	0.01271*	0.07890
Interest Spread	0.06225***	0.00000
@TREND	0.15401	0.00000

*=significant at 10 percent **=significant at 5 percent ***=significant at 1 percent

In the Long run financial liberalization has a negative effect on the size of the financial sector. According to Brownbridge and Kirkpartrick (2000), in his study in LDCs, financial liberalization may worsen the quality of loans which may in turn lead to systemic risk. According to them, interest rate liberalization and the removal of credit control may be an incentive for the banks with moral hazard behavior to engage in risky assets in order to maintain high market share. This leads to an increase in non-performing loan and also higher provision for doubtful debt hence this might reduce the size of the financial sector. Also this could partly be explained by the fact that financial liberalization may lead to more market power by leading banks hence can cause failure of the infant banks. The negative impact of financial repression on the size of the financial sector is in line with the a priori expectation. Financial repression can lead to loss of bank profit making some of the banks exit the market.

In line with the demand following hypothesis, a one percent increase in size of the economy, leads to a 2.8 percent increase in the size of the financial sector, in the long run. A one percent increase in inflation, representing an increase in economic activity, leads to a 1.3 percent increase in the size of the financial sector in the long run. The result shows a positive and significant effect of interest rate spread on the size of the financial sector. This conforms to the a priori expectation. High interest rate spread means that the bank profitability is high and hence an incentive for more banks to join the financial market.

In general**,** the regime changes, have a negative effect on the size of the financial sector both in the long run and in the short run. It was expected, financial liberalization would have a positive impact on the size of financial sector while

financial repression would have a negative impact on the size of the financial sector. The result was opposite for financial liberalization. This means that, after financial liberalization, banks started involving in risky assets which worsened the size of the financial sector in terms of the banks total asset. However, in terms of the number of banks according to the descriptive of table 6, financial liberalization in seen to have increased the number of banks. Ngugi (2000) notes that, in the mid-1980s and during the late and early 1990s, Several Non-Bank financial institutions converted to banks as a result of CBK adopting a universal banking policy in 1993 which reduced the regulatory advantages such as lower reserve requirements that were enjoyed by the NBFIs.

CHAPTER SIX

SUMMARY, CONCLUSION AND IMPLICATIONS

6.0 Introduction

The numerous studies on financial reforms in developing countries have identified a number of mechanisms through which financial liberalization should improve financial deepening; through, *inter alia*, increasing bank competition by lifting entry restrictions, increasing savings mobilization and reducing the interest rate margin. The empirical relevance of these effects to Kenya's financial reforms has been investigated in this paper. This section gives summary of the discussions together with the policy implications. In addition, study limitations are reported and recommendations for future studies given.

6.1 Summary

The main objective of the study was to investigate the effect of financial reforms on financial deepening in Kenya. The researcher used savings, interest rate spread and size of financial sector as indicators of financial deepening. The specificic objective of the study were to find the effect of financial liberalization on each of the specific indicators.

Various pre-regression analysis were perfomed which include,stationary test and the diagnostic tests. The stationarity tests revieled that the variables used for each specific

models are integrated of different order,I(0) and I(1).The resercher therefore used Autoregressive Distributed Lag Model as a technique for the *before versus after* analysis of time series data framework running from 1975 to 2014. On the lag selection, lags were selected based on Akaike Information Criterion, Schwarz Bayesian Criterion and Hannan-Quinn Criterion.

The empirical result has revealed a number of interesting findings. First, financial reforms have failed to reduce interest rate spread. We found that financial liberalization has a positive impact on interest rate spread while financial repression has no impact on the interest rate spread. A closer look at the descriptive tests has shown that the increase in interest rate spread due to financial liberalization was as a result of a higher increase in the lending than deposit rate.

Secondly, financial reforms influence the savings behaviour, with no effect on the domestic savings. Though the regression result show that financial repression has a negative effect on domestic savings, the descriptive results revealed that the savings deposits were substituted by the demand deposit after financial repression. We explained that, since the demand deposits are short lived, this could be the reason as to why financial repression was found to have a negative impact on the savings. Lastly, the reforms were found to have a negative impact on the size of financial sector, though the, the descriptive result showed that the number of banks increased after financial liberalization we argued that, this may be as a result of the banking crises after financial liberalization where some nonbank financial institutions converted to banks.

6.2 Policy Implication

The empirical results shown that financial reforms are both bad for the interest rate spread. We believe that financial liberalization, combined with adequate prudential regulation on the lending interest rate can rear a deep financial system able to reduce interest rate spread and boost savings over an extended period of time. According to Were et al 2006 notes that interest rate spread can be explained by the demand side. There is high demand for loans especially for big banks relative to supply. The smaller banks are not able to attract deposits at low interest rate, while the big banks are able to mobilize more deposits even at near zero deposit rate while at the same time attracting large loan application despite charging relatively higher rate hence leading to higher spreads.

The result has also revealed that, savers substitute time deposits for demand deposit as a result of financial liberalization. Similarly, they substitute the demand deposit for savings deposit due to financial repression. Time deposit is a long term savings which is good for development. The government should therefore promote financial liberalization in order to boost long term savings for a developed financial system

We have found that the financial reforms have a negative impact on the size of the financial sector. We recommend a liberalized financial market with adequate supervision of the financial sector. This will ensure that the financial institutions do not engage in risky activities, trying to boost their profit and ending up failing. There is need for macroeconomic stability and conditions which favour financial liberalization. This will enhance financial stability which is crucial for achieving positive results from the liberalisation process.

For the macroeconomic variables, we have also established that inflation can be good to a certain limit. Essentially, it can encourage savings as well as boost the size of the financial sector up to a certain point. Beyond this limit, savings will increase at an expense of reducing the size of the economy. The government should therefore determine a maximum level over which inflation should not go beyond, hence can shift to inflation targeting in order to control the consumer's expectations for the inflation.

The study has observed a positive effect of the size of the economy on the size of the financial sector. Therefore, in order for the government to improve the financial sector, the policies that improve the size of the economy should be put in place. Mwangi et al. (2015) found that international remittances, economic openness, government expenditure, investment and population have a positive and statistically significant effect on economic growth in Kenya. In this line, Kenyan Diaspora should be provided with information on the investible opportunities available so that the remittances can be put into productive use, the government should remove any trade barriers and provide more resources for the improvement of quality of education.

6.3 Limitations of the Study

The main limitation of this study is the inadequate data for the income statement specific variables that influence the interest rate spread one of which include the credit risk. This forced the researcher to eliminate this arguably important variable from the current study. Also data for the size of the financial sector were incomplete and the researcher had to rely on the size of banks as a proxy.

6.4 Suggestions for Further Research

Further research that incorporates bank concentration as an indicator of financial deepening can be conducted to empirically establish the effect of financial liberalization on financial deepening.

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APPENDICES

APPENDIX 1: SECTOR CONTRIBUTION AND GROWTH

Sector shares					Sector growth			
Agriculture	**Manufacturing**	**Finance**	**distribution**	**Others**	**Agriculture**	**Manufacturing**	**Finance**	**distribution**
0.2730	0.0983	0.0422	0.0940	0.4925	32.5443	6.9875	16.8162	5.1696
0.3663	0.1232	0.0525	0.1115	0.3465	34.1556	25.3631	24.4375	18.5459
0.4030	0.1186	0.0494	0.1190	0.3100	42.6498	24.8028	21.9756	38.4189
0.3598	0.1226	0.0538	0.1059	0.3579	-4.9806	10.0396	15.9557	-5.3111
0.3358	0.1265	0.0551	0.1059	0.3767	3.0583	13.9157	13.0015	10.4996
0.3170	0.1324	0.0549	0.1098	0.3858	6.5261	18.1316	12.6000	16.9391
0.3164	0.1271	0.0654	0.1061	0.3850	15.6315	11.1879	37.8910	12.0044
0.3223	0.1279	0.0707	0.1029	0.3762	14.8343	13.4569	21.9761	9.2581
0.3206	0.1227	0.0748	0.1148	0.3671	13.6887	9.6530	20.8430	27.5518
0.3378	0.1214	0.0709	0.1113	0.3587	20.2685	12.9084	8.1619	10.6497
0.3252	0.1208	0.0734	0.1172	0.3633	18.7959	12.4610	17.0463	19.0009
0.3228	0.1189	0.0714	0.1097	0.3772	18.3158	17.3283	15.9318	11.5661
0.3094	0.1163	0.0746	0.1119	0.3878	15.1652	7.2736	14.6295	11.9855
0.3105	0.1178	0.0785	0.1114	0.3818	14.2859	15.4015	19.8686	13.3355
0.3014	0.1167	0.0787	0.1131	0.3901	11.3295	13.5997	14.9573	16.4375
0.2781	0.1156	0.0804	0.1110	0.4149	7.5267	15.4368	19.0331	14.3004
0.2627	0.1224	0.0907	0.1188	0.4054	5.5046	18.2297	26.0292	19.6005
0.2515	0.1079	0.0948	0.1330	0.4127	14.4160	5.4249	24.9483	33.8574
0.3095	0.1001	0.0986	0.1354	0.3565	5.1075	7.3527	20.2998	26.6001
0.3487	0.1137	0.1267	0.1510	0.2599	26.3105	7.3357	44.1634	24.9999
0.3147	0.1013	0.1195	0.1686	0.2959	8.9807	7.6221	13.8849	34.8711
0.2984	0.1044	0.1210	0.1896	0.2866	7.9693	17.3051	15.2750	28.0037
0.2847	0.1006	0.1028	0.1931	0.3188	6.7555	13.5600	17.2750	20.0000
0.2891	0.0399	0.1399	0.2302	0.3009	5.7352	11.1967	41.7333	24.1051
0.2308	0.1238	0.1190	0.2160	0.3104	-4.8587	8.1890	1.4241	11.8087
0.1964	0.1309	0.1038	0.2235	0.3455	-10.502	5.1887	7.8970	8.8547
0.1837	0.1264	0.0967	0.2525	0.3407	6.8228	10.2245	6.3427	28.9709
0.2585	0.0982	0.0959	0.1017	0.4455	7.9345	6.2233	9.6789	28.0023
0.2573	0.0966	0.1021	0.1007	0.4434	9.3782	8.0365	17.0057	27.7478
0.2470	0.0991	0.0910	0.1110	0.4519	8.5253	15.9785	0.6951	24.7023
0.2366	0.1031	0.0860	0.1185	0.4558	7.6220	16.9684	6.1899	19.8664
0.2402	0.1017	0.0869	0.1284	0.4428	5.3564	16.0006	14.8475	23.1642
0.2204	0.1039	0.1005	0.1130	0.4621	2.4592	14.0994	29.1060	14.7408
0.2278	0.1083	0.0973	0.1128	0.4537	18.8080	19.8465	11.3071	-1.7890
0.2388	0.0991	0.1037	0.1151	0.4434	17.6983	12.7385	19.6267	10.5752
0.2483	0.1126	0.1388	0.0924	0.4079	39.2289	14.0822	79.3035	7.5225
0.2630	0.1175	0.1377	0.0942	0.3875	24.5491	14.7339	16.6117	19.8522
0.2614	0.1102	0.1395	0.0919	0.3970	13.6490	7.2378	15.8936	11.5437
0.2644	0.1073	0.1456	0.0929	0.3898	12.3113	8.0984	15.8267	12.2339
0.2733	0.1003	0.1455	0.0909	0.3900	17.0520	9.8714	13.1988	10.8142

APPENDIX 2: PRE-ESTIMATION TEST RESULTS

Appendix 2A: Test for Stationarity

Phillips-Peron test for unit root

Variable	At levels		After first difference		Order of integration
	Test statistics	**5% critical value**	**Test statistics**	**5% critical value**	
Domestic savings	-23.262	-18.964			I(0)
Deposit rate	-6.917	-12.948	-38.857	-12.916	I(1)
Lending rate	-5.132	-12.948	-36.745	-12.916	I(1)
Inflation	-21.380	-12.948			I(0)
GDP growth	-4.607	-7.524	-37.023	-7.508	I(1)
Int_spread	-3.536	-12.948	-20.93	-12.916	I(1)
Liquidity risk	-8.312	-12.948			I(0)
Size	-0.030	-12.948			I(0)

At levels, we reject the null hypothesis of unit root for domestic savings, inflation, liquidity risk and the size of FS, and conclude that the variables are integrated of order zero. Interest spread, Deposit rate, lending rate and GDP growth on the other hand are found to be non-stationary at levels but stationary after first difference, using the 5% critical value.

Clemente et al unit root test

Variables	Test statistics at level	Test statistics at difference	breakpoint	Order of integration
Domestic savings	-6.864		1994 and 2009	I(0)
Deposit rate	-5.690		1979 and 1997	I(0)
Lending rate	-4.231	-7.010	1991 and 1997	I(1)
Inflation	-7.309		1991 and 1993	I(0)
GDP growth	-1.244	-7.018	1989 and 2001	I(1)
Int_spread	-5.175	-6.728	1989 and 2002	I(1)
Liquidity risk	-0.539	-11.603	1991 and 1996	I(1)
Size	-3.818	-5.627	1989 and 2005	I(0)

5 percent critical values at both level and at difference= -5.490

Similar to Phillips Peron test, the table above confirms that even with the existence of structural breaks, the variables above are still integrated of different order and therefore a suitable technique to be used for both models (4.2.1), (4.2.1) and (4.2.3) is the Autoregressive Distributed Lag model.

Appendix 2B: Cointegration Test

To test if the variables are sensitive to structural breaks, the Gregory Hansen test is used to complement the bounds test. The table below presents the cointegration

results for the case of three models of Gregory-Hansen with structural variables. The null hypothesis tested is that there is no Cointegration between the variables.

Gregory-Hansen test for Cointegration

Models	ADF-Test statistics	Break point	5% Critical value	Variables cointegrated?
$Sav_t = \alpha + \beta_1 GDP_t + \beta_2 INF_t + \beta_3 Lendrate + \beta_4 DepRate + \epsilon_t$				
Change in Level (CC)	-6.19	1993	-5.56	Yes
Change in level and trend (CT)	-6.64	1982	-5.83	Yes
change in regime (CS)	-3.51	2000	-6.41	No
$Intsprd_t = \alpha + \beta_1 GDP_t + \beta_2 INF_t + \beta_3 Size + \beta_5 LiqRisk + \epsilon_t$				
Change in Level (CC)	-3.77	2000	-5.28	No
Change in level and Trend (CT)	-4.84	1989	-5.83	No
Change in Regime (CS)	-2.49	2005	-6.41	No
$Size_t = \alpha + \beta_1 GDP_t + \beta_2 INF_t + \beta_3 Intsprd + \epsilon_t$				
Change in Level (CC)	-4.36	1990	-4.92	No
Change in level and trend (CT)	-4.03	1987	-5.57	No
change in regime (CS)	-2.75	2007	-6.00	No

The result indicates that the variables are sensitive to structural breaks. There is co-integration between domestic savings, the size of the economy, inflation, lending interest rate and deposit interest rate. The break dates for the variables are; 1993 according to model CC, 1982 for model CT, and 2000 for model CS.

For the co-integration between interest rate spread, the size of the economy, inflation, liquidity risk and liquidity ratio, we fail to reject the null hypothesis of no co-integration for all the three models. Breakpoints are 2000, 1989 and 2005 for CC, CT and CS models respectively. The results also suggest no co-integration between size of financial sector, the size of the economy, inflation and interest rate spread for the three models. The break points are 1990 for CC model and 1987 and 2007 for CS and CT models respectively.

Appendix 2C: Normality Test

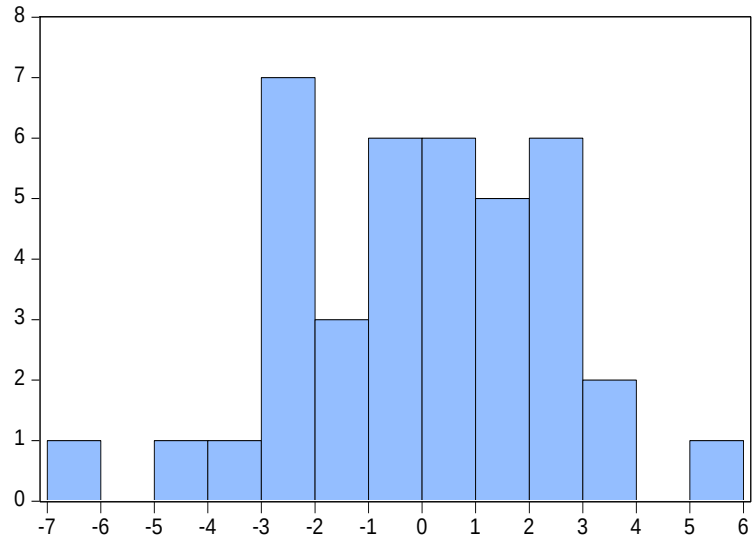
Jarque-Bera histogram normality test was used to assess the hypothesis of normality in the study. The table below gives the results.

Normality Test Results

Dependent variable	**Jarque Bera**	**P value**	**Normal**
$Sav = f(deprate, lendrate, GDP, infl, dummy1, Dummy2)$	0.711	0.7008	yes
$Intsprd = f(Size, GDP, liqrisk, infl, dummy1, dummy2)$	0.3226	0.8511	yes
$Bank\ Size = f(intsprd, GDP, infl, dummy1, Dummy2)$	2.9377	0.2302	yes

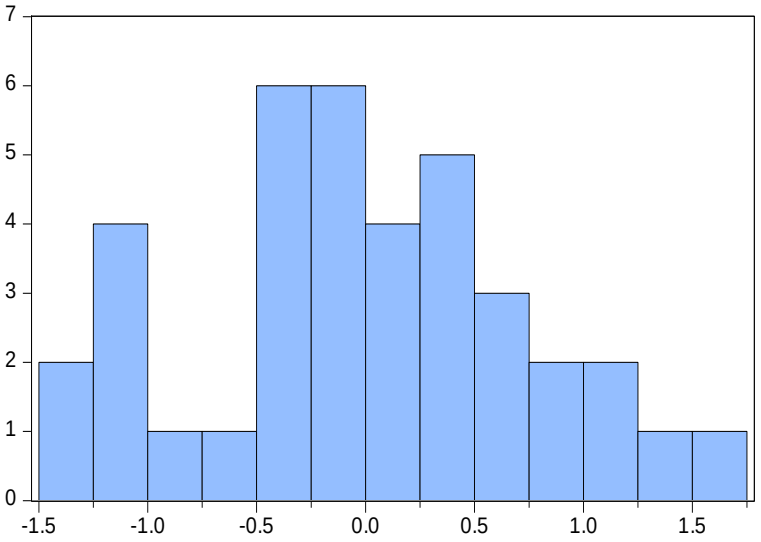
The null hypothesis tested is that the variables are normally distributed. As can be seen from the results, the residuals from the estimated models are normally distributed.

Histogram for the Regression of Savings



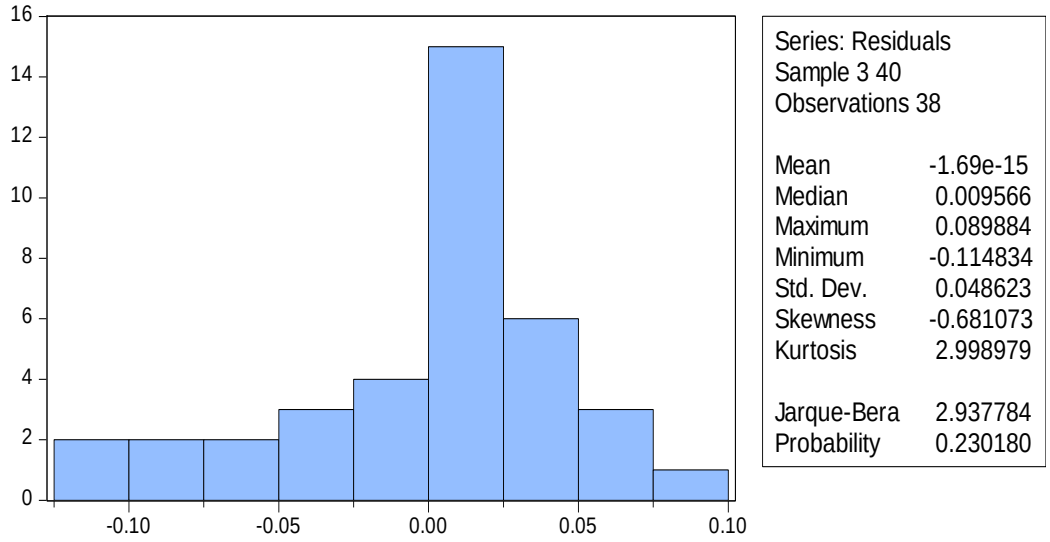
Series: Residuals	
Sample 2 40	
Observations 39	
Mean	-9.34e-16
Median	0.227225
Maximum	5.198720
Minimum	-6.479809
Std. Dev.	2.402318
Skewness	-0.329211
Kurtosis	3.063635
Jarque-Bera	0.711050
Probability	0.700805

Histogram for the Regression of interest Rate Spread



Series: Residuals	
Sample 3 40	
Observations 38	
Mean	-3.39e-16
Median	-0.005204
Maximum	1.670245
Minimum	-1.412737
Std. Dev.	0.766626
Skewness	0.029618
Kurtosis	2.552541
Jarque-Bera	0.322571
Probability	0.851049

Histogram for the Regression of the Size of FS



Appendix 2E: Serial Autocorrelation Test

Breusch-Godfrey serial correlation LM test

Model	F-stat	P-value	Serially correlated
$Sav = f(deprate, lendrate, GDP, infl, dummy1, Dummy2)$	1.012	0.376	No
$Intsprd = f(liqrtio, GDP, liqrisk, infl, dummy1, dummy2)$	1.497	0.244	No
$Bank\ Size = f(intsprd, GDP, infl, dummy1, Dummy2)$	1.950	0.163	No

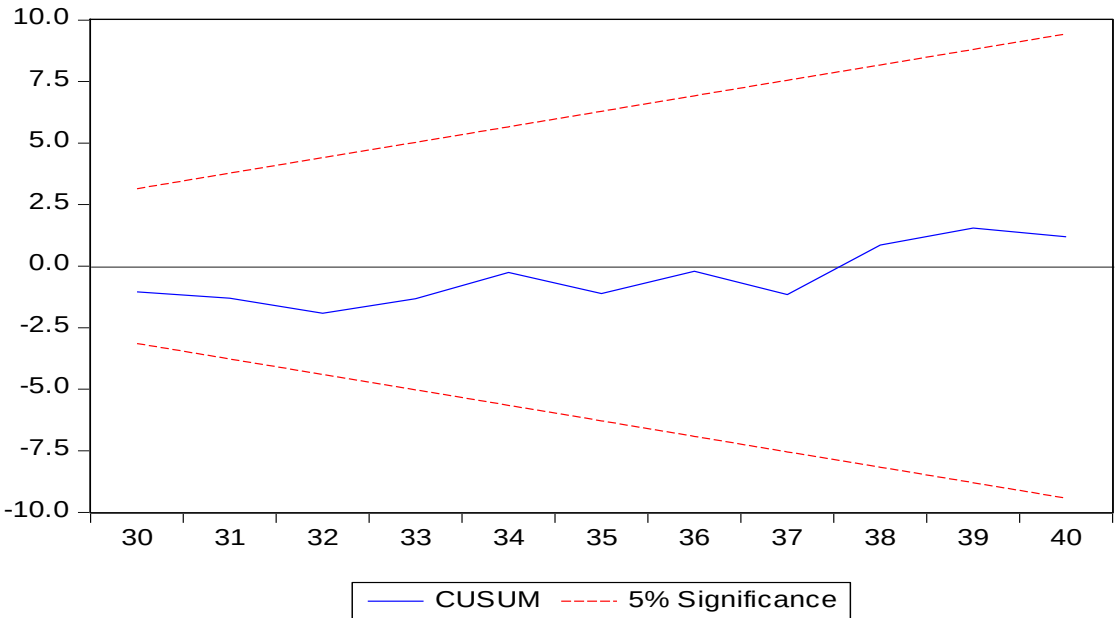
The null hypothesis to be tested is that there is no serial correlation between the residual terms. From the table above, the probability values for all the residual terms

are greater than 5 percent. We can therefore safely conclude that the residuals in the models are not serially correlated.

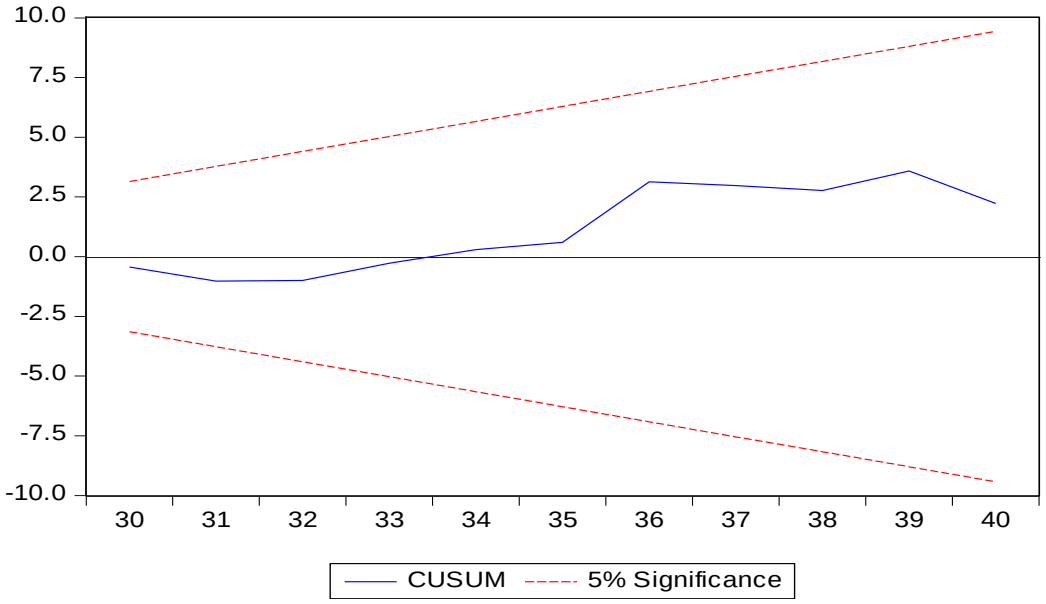
Appendix 2F: Stability Test

For this study, we examined the stability of the long-run parameters together with the short-run movements of the equations. For the test, we relied on cumulative sum (CUSUM) test proposed by Borensztein et al. (1998) and the results are shown by the figures below. It can be seen from the figures that the plots of CUSUM stays within the critical 5% bounds. This indicates that the models are correctly specified and are hence stable.

Stability test for Savings Regression

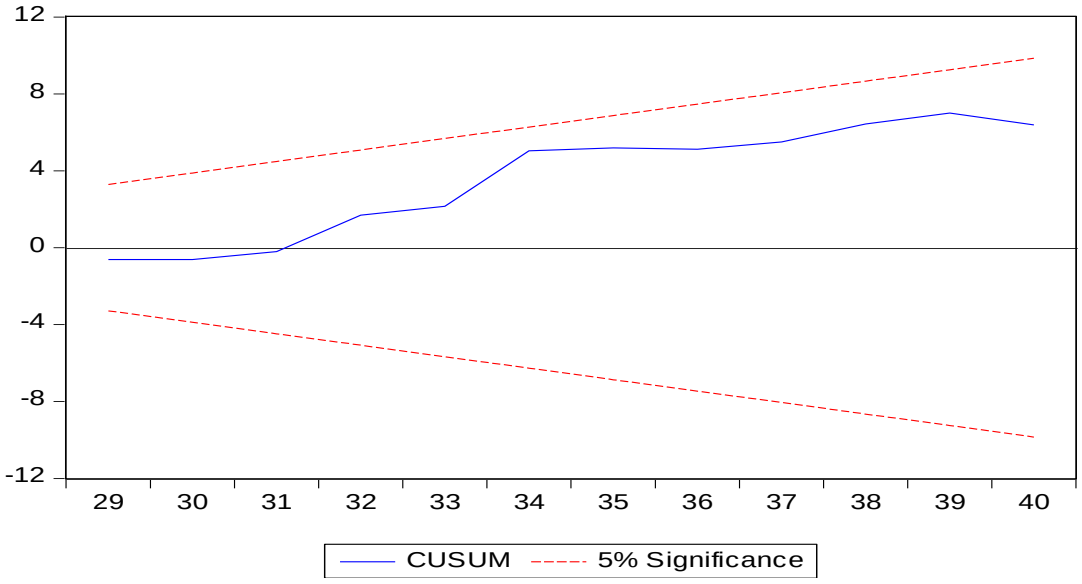


Stability test for Interest Rate Spread Regression



Stability Test for Regression of the Size of Financial

Sector



APPENDIX 3: LAG LENGTH SELECTION CRITERIA

	lag	AIC	SIC	HQ
$Sav = f\ (deprate, lendrate, GDP, infl, dummy1, Dummy2)$				
	0	5.265	5.606	5.387
	1	5.026*	5.410*	5.164*
$Intsprd = f(Size, GDP, liqrisk, infl, dummy1, dummy2)$				
	0	3.224	3.565	3.346
	1	3.164	3.590	3.317
	2	2.911*	3.428*	3.095*
$Bank\ Size = f(intsprd, GDP, infl, dummy1, Dummy2)$				
	0	-1.883	-1.542	-1.761
	1	-1.904	-1.520	-1.766
	2	-2.499*	-1.896*	-2.285*

*=lag selected by each criteria

APPENDIX 4: BOUNDS TEST

Bounds test output for Savings regression

Significance	I(0) Bound	I(1) Bound	F statistics
10%	2.45	3.52	
5%	2.86	4.01	4.8976
2.5%	3.25	4.49	
1%	3.74	5.06	

Bounds test result for interest rate spread regression

Significance	I(0) Bound	I(1) Bound	F statistics
10%	2.45	3.52	
5%	2.86	4.01	4.7937
2.5%	3.25	4.49	
1%	3.74	5.06	

Bounds Test for Size of FS regression

Significance	I(0) Bound	I(1) Bound	F stat
10%	2.97	3.74	
5%	3.38	4.23	7.9520
2.50%	3.8	4.68	
1%	4.3	5.23	

APPENDIX 5: SIZE OF THE FINANCIAL SECTOR FROM (2000 -2015)

Years	Banks	NBFIs	Mortgage	Building societies	Total
2000	50	7	2	4	63
2001	47	3	2	4	56
2002	42	2	2	4	50
2003	42	2	2	3	49
2004	44	2	2	3	51
2005	52	1	2	1	56
2006	41	1	2	1	45
2007	42	1	2	0	45
2008	43	0	2	0	45
2009	44	0	2	0	47
2010	43	1	0	0	49
2011	43	0	1	0	50
2012	43	1	0	0	52
2013	43	1	0	0	53
2014	43	1	0	0	53
2015	42	1	0	0	55