EFFECT OF INTEREST RATE, CAPITAL INFLOW, INFLATION AND DEGREE OF OPENNESS ON ECONOMIC GROWTH IN KENYA

BY

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DECLARATION

Declaration by the Candidate:

I hereby declare that this Thesis has not been presented for any degree award in any university or another institution of higher learning. The work herein is my original work and all sources of information have specifically been acknowledged by means of referencing.

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DEDICATION

I dedicate this thesis to my family, and to my late mother Wilfrida Owiti who never lived long enough to see the academic achievement of her son

ABSTRACT

The general purpose of the study was to investigate the impact of financial liberalization on economic growth in Kenya. Financial liberalization refers to the deregulation of domestic financial markets and the liberalization of the capital account. According to Kaminsky and Schmukler (2002), financial liberalization often refers to: (i) domestic financial market deregulation such as decontrol of the interest rate; (ii) removal of restrictions on capital account transactions that will increase mobility of capital between countries; and (iii) opening of financial services industry to foreign competition While some studies suggest that financial liberalization raises savings and investment, improving efficiency of investment and spurring economic growth, others reveal that, it leads to financial instability and is often considered a cause for financial crises. These conflicting results logically lead to the need for further empirical research. The study specifically focused on the effect of: interest rate on economic growth, effect of capital inflow on economic growth, effect of inflation on economic growth and the relationship between degree of openness and economic growth. During the study, the secondary data was collected from World Bank information site for the period covering years 1980 to 2012, the period was chosen in order to cover different political regimes. The study adopted econometric techniques such an error correction model (ECM) to establish the degree of variables adjustment towards equilibrium. The ECM is preferred because in addition to capturing the adjustment process towards equilibrium, it also represents the short and long term dynamics of the problem. Johansen Co-integration test was also employed to test long run equilibrium relationship among the chosen variables. The study carried unit root test to establish that the time series data on all the variables are stationary, which is the pre-requisite for the Johansen Co-integration test. E-views statistical tool was used to analyze the data. Regression and correlation analysis was also done to test the relationship between the variables of the study. The analyzed data was presented in the form of tables and line graphs. The multiple regression models specify the endogenous variable (Gross Domestic Product) as a function of Capital Inflow, Interest rate, Inflation, and Degree of Openness representing the exogenous variables. The results obtained from the Co-integration test reveals the existence of a long-run equilibrium relationship among the variables and co-integrating equations at 5% significance level. Also, the ECM coefficient of adjustment had the correct negative sign and statistically significant at 5% level. The coefficient of multiple determinations (R2) in both the Over-parameterized Model (95%) and the Parsimonious Model (95%) reveal that the relevant variables highlighted jointly affect GDP significantly. The study therefore concludes that financial liberalization has a growth-stimulating effect on Kenyan economy. It recommends open economy with reasonable lending rate coupled with stable inflation in order to spur economic growth. The political economy should also be stable to encourage foreign direct investment. The government through monetary arm of CBK should also put strict prudential guidelines aimed at strengthening banking industry.

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ABBREVIATION/ACRONYMS

CBK - Central bank of Kenya

GDP - Gross Domestic Product

OLS - Ordinary least squares

DF - Dickey- Fuller

ADF - Augmented Dickey- fuller

ECM - Error correction Model

SSA - Sub-Sahara African

DOP - Degree of Openness

FDI - Foreign Direct Investment

NBFIs - Non-Banking Financial Institutions

WB - World Bank

VIF - Variance Inflation Factor

OLS - Ordinary least Square

ROE - Return on Capital

OPERATIONAL DEFINITION OF TERMS

Capital Inflow-Increase in the amount of money available from external or foreign sources for the purchase of local capital assets such buildings, land and machines.

GDP (Annual %)-An aggregate measure of production equal to the sum of the gross values added of all resident institutional units engaged in production (plus any taxes, and minus any subsidies, on products not included in the value of their outputs

GDP Percapita- A measure of the total output of a country that takes the gross domestic product (GDP) and divides it by the number of people in the country. The per capita GDP is especially useful when comparing one country to another because it shows the relative performance of the countries. A rise in per capita GDP signals growth in the economy and tends to translate as an increase in productivity.

Inflation -A sustained, rapid increase in prices, as measured by some broad index such as Index over months or years, and mirrored in the correspondingly decreasing purchasing power of the currency

Real Interest Rate- is the lending interest rate adjusted for inflation as measured by the GDP deflator

Financial Liberalization-Financial liberalization refers to the deregulation of domestic financial markets and the liberalization of the capital account. It involves Domestic financial market deregulation such as decontrol of the interest rate; (ii) removal of restrictions on capital account transactions that will increase mobility of capital between countries; and (iii) opening of financial services industry to foreign competition. Financial liberalization is therefore the process of liberalizing an economy's financial system by reducing controls on interest rates, financial intermediaries and markets.

Economic Growth- is the increase in the goods and services produced by an economy, typically a nation, over a long period of time. It is measured as percentage increase in **real gross domestic product (GDP)** which is gross domestic product (GDP) adjusted for inflation. **GDP** is the market value of all final goods and services produced in an economy or nation.

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NOTATIONS AND SYMBOLS

b_0, b_1, b_4	:	Coefficients of the independent or explanatory variable.
b_0	:	Intercept of relationship in the model
ci	:	Capital Inflows
dop	:	Degree of Openness
GDP	:	Gross Domestic Product
$H_1:$	:	Alternative hypothesis
$H_0:$	:	Null hypothesis
inf	:	Inflation Rate
ir	:	Interest Rate

CHAPTER ONE

INTRODUCTION

This was a research study on the effect of financial liberalization on economic growth. This chapter explored the background of the study, problem statement, research objectives, hypothesis, justification, significance as well as the conceptual framework of the study.

1.1 Background of the Study

Financial liberalization refers to the deregulation of domestic financial markets and the liberalization of the capital account. According to Kaminsky and Schmukler (2002), financial liberalization often refers to: (i) domestic financial market deregulation such as decontrol of the interest rate; (ii) removal of restrictions on capital account transactions that will increase mobility of capital between countries; and (iii) opening of financial services industry to foreign competition. Financial liberalization is therefore the process of liberalizing an economy's financial system by reducing controls on interest rates, financial intermediaries and markets. It emphasizes the leading role of market forces in the financial sector and concerns four major aspects. The first is a substantial reduction in government intervention, thus allowing market forces to determine interest rates and allocate credit. The second is to change the structure of the financial sector by easing entry conditions and increasing the autonomy of financial agents when mobilizing resources and making investments, so that competition may be encouraged. The third aspect is to create a new structure of regulation that is less interventionist and more open to the private sector. The fourth is to recommend policies that increase the degree of financial openness to allow an easy flow of financial facilities inside and outside of a country.

The effects of financial liberalization have been a matter of some debate. In one view, it strengthens financial development and contributes to higher long-run growth. In another view, it induces excessive risk-taking, increases macroeconomic volatility and leads to more frequent crises (Grilli and Gian, 1995). This therefore led to the need for further research in this area. Since the widespread acceptance of the ideal of financial liberalization, many countries have made attempts to liberalize their financial sectors by deregulating interest rates, eliminating or reducing credit controls, allowing free entry into the banking sector, giving autonomy to commercial banks, permitting private ownership of banks, and liberalizing international capital flows. However, of these six dimensions of financial liberalization, interest rate liberalization has rece-ived the main focus of attention. Unfortunately, the countries that embarked on interest rate liberalization have had mixed experiences, some positive some negative. Therefore, whether financial liberalization does indeed impact positively on savings, financial deepening, and economic growth still remains a question for empirical investigation (Grilli and Gian, 1995).

One of the major objectives of financial liberalization is to increase the savings and investment required for economic growth, by improving the monetary transmission mechanism. To achieve this, a financial system should be open and have its major elements fixed by the market, because real interest rate increases tend to boost savings, in turn increasing investment (Laeven, 2003). McKinnon (1973) and Shaw (1973) argue that the main objective of financial liberalization is to increase the supply and improve the allocation of funds for investment, so that the national economy can be boosted. They emphasize that the removal of interest rate ceilings should increase real interest rates and stimulate savings, and that more savings will encourage more investment in the economy, so that better financial and economic performance is possible.

Some of the common objectives of financial liberalization are to: Increase supply and improve the allocation of funds for investment (McKinnon, 1973), reduce direct credit programme and foster a competitive environment (Laeven, 2003), create strong financial intermediaries and financial markets, based on open economy (Weller, 1999), promote economic development by increasing savings, investment and the productivity of capital and resources (Kaminsky and Schmukler, 2003) and increase employment by mobilizing savings and investment and developing financial intermediaries (McKinnon, 1973; Shaw, 1973).

According to study carried by Bokros and Fleming2003, in East Asia, the major countries liberalized in the 1980s, though at different times and to different degrees. For example, Indonesia, which had liberalized capital flows in 1970, liberalized interest rates in 1984, but the Republic of Korea did not liberalize interest rates formally until 1992. Low inflation generally kept East Asian interest rates reasonable in real terms, however. In most countries, connected lending within industrial-financial conglomerates and government pressures on credit allocation remained important. In South Asia, financial repression began in the 1970s with the nationalization of banks in India (1969) and Pakistan (1974). Interest rates and directed credit controls were subsequently imposed and tightened, but for much of the 1970s and 1980s real interest rates remained reasonable. Liberalization started in the early 1990s with a gradual freeing of interest rates; a reduction in reserve, liquidity, and directed credit requirements; and liberalization of equity markets (Bokros, Fleming and Votava, 2001). In Latin America, episodes of financial liberalization occurred in the 1970s but financial repression returned, continued, or even increased in the 1980s, with debt crises, high inflation, government deficits, and the growth of populism (Dornbusch and Edwards, 1991). In the 1990s, substantial financial liberalization occurred, although the degree and timing varied across countries.

African countries turned to financial liberalization in the 1990s, often in the context of stabilization and reform programs supported by the International Monetary Fund and World Bank, as the costs of financial repression became clear. Collier (1993:2) lists African financial liberalizations according to the most conspicuous measures undertaken. For instance, a deregulation of interest rates took place in Angola, Burundi, Congo, Cote d'Ivoire, the Gambia, Ghana, Kenya, Madagascar, Malawi, Mozambique, Nigeria, Rwanda, Tanzania, Zambia and Zimbabwe. Bank restructuring took place in Cote d'Ivoire, Ghana, Guinea, Kenya, Senegal, Tanzania, Rwanda and Uganda. Some bank privatization has taken place in Cote d'Ivoire, Guinea-Bissau, Madagascar and Senegal, while bank liquidation and new bank entries have occurred in Benin, Kenya, Rwanda, Senegal, Nigeria, Uganda, Ethiopia and Zambia. Adam (1995) contains a succinct account of the financial liberalization difficulties that occurred in Zambia. In the transition economies, financial liberalization took place fairly rapidly in the 1990s in the context of the reaction against communism (Sherif, Borish and Gross, 2003).

As Kenya's general economic condition deteriorated in the early 1980s, the financial sector performance also went down. Despite having a diversified financial system, financial savings remained at a low level. The share of domestic savings held as financial assets with the financial sector averaged 30% in 1984—1987, similar to the levels in the1970s. Monetization of transactions fell from 34% to 30% and 29% in 1978—1980,1980-1984 and Although NBFIs were mushrooming in the 1980s, the financial system continued to be dominated by the commercial banks with about 70% of the total loans and advances in 1988. Four commercial banks accounted for 58% of bank deposits and 65% of bank assets. In the allocation of credit, the government took a substantial and rising share of loan able funds to finance the budget deficit and fund parastatals. The share of government net domestic credit rose from about 20% in 1978

to 38% in 1986.Funds were mobilized with the imposition of high liquidity requirements on banks and NBFIs. In 1986, the sector faced a crisis with most of the institutions experiencing undercapitalization problems. The situation was attributed to the various constraints facing the sector and resulted in the mounting of a financial sector reform programme. Among the constraints were: Central bank regulatory differences across financial institutions, especially between commercial banks and NBFIs, and among the financial instruments, inadequate regulatory and legal frameworks for the financial system, together with weakness in prudential supervision, weak monetary policy control by the central bank, Segmentation of the financial sector by activities. Kenya, like many other developing countries, followed a policy of low interest rates, adjusting for inflation to maintain positive real rates. The main aim of this policy was to keep the costs of funds low, with the belief that cheap credit promoted development through increased investment. The use of interest rates to manage monetary conditions and mobilize and allocate financial resources in an efficient manner was neglected. The following arguments have been raised to support the positive relationship between financial liberalisation of both credit (i.e. banking) and capital markets vis-à-vis economic growth

First, it is claimed that introducing market principles and competition in banking markets increases interest rates on deposits, which leads to higher saving rates. This, in turn, increases the amount of resources available for investment (McKinnon, 1973). If financial liberalisation includes opening up the capital account, capital inflows (in terms of both credit and equity investment) may increase, again raising the availability of funds for investment and growth. In both cases financing constraints of firms are reduced and investment will rise, leading to higher growth. Second, competition puts pressure on profit margins of banks, in particular on the interest rates demanded for loans. This reduces the cost of debt, leading to a rise in investment

and growth. Moreover, financial liberalisation increases possibilities of risk diversification for financial institutions such as banks, as well as for(international) equity investors. The subsequent reduction in loan rates and equity costs leads to a rise in investment and growth. Again, this argument would support the idea that financial liberalisation reduces financial constraints of firms, which ultimately increases macroeconomic growth.

Third, if banking markets are liberalized, banks are stimulated to become more efficient by reducing overhead costs, improving on overall bank management, improving risk management, and offering new financial instruments and services to the market to keep up with competitors. Moreover, if financial liberalisation means opening up domestic markets to foreign competition, this may lead to the import of bank and risk management techniques together with new financial instruments and services

All these effects will help to improve the efficiency of financial intermediation in a country, contributing to higher returns to investment and thus to higher rates of economic growth.

In contrast, it has also been argued that financial liberalisation has led in many cases to disappointing results and in some cases even to economic and financial crises. First, Stiglitz (2000) and others have pointed out that financial liberalization as such does not solve the problem of asymmetric information. This may prevent financial intermediation from becoming more efficient in a liberalized market. Many papers, among them the seminal contribution of Stiglitz and Weiss (1981),have indeed shown that problems of asymmetric information prevail in financial markets and that therefore financial repression may arise even without government intervention.

Second, some papers make the point that financial liberalisation may actually aggravate information problems. When financial markets become liberalized and competition is increased, this may lead to a reduction of relationship lending, more opportunities may be open to borrowers and they will look for the cheapest way of financing their investment. However, a reduction of relationship lending also destroys information capital and thereby increases asymmetric information (Boot, 2000).

Third, more competition in financial markets may also imply a reduction in profit margins and an increased financial fragility of financial intermediaries such as banks. Hellmann *et al.* (1996, 1997, 2000) in a series of articles make the point that liberalisation reduces the franchise value of banks, which makes them more prone to financial disruption and stimulates risk taking in order to try to increase profits under the pressure of falling interest rate margins. Reduced margins may also stimulate banks to economise on screening and monitoring efforts, and they may be more willing to opt for a gambling strategy when allocating loans, i.e. putting less emphasis on risk and more on profit. Thus, financial liberalisation may trigger crises if it leads to excessive risk taking under the pressure of increased competition (Demirguç-Kunt and Detragiache, 1998).

Finally, increased risk taking in financial markets and the consequent increase inthe number of failures of banks and other institutions may in itself trigger bank runs (Diamond and Dybvig, 1983). Bank runs are another source of financial Instability, even in a situation where some banks may be economically viable examples in Kenya includes the recent closure of chase bank in Kenya as a result of a run on deposit. One way to curb the adverse effects of financial liberalisation on the stability of the financial system is to install financial market regulations. Such regulations should reduce risk taking by banks and should, at least to some extent, bail out depositors when their bank goes bankrupt. Such a deposit insurance system aims to reduce the

probability of bank runs taking place in times of financial distress. This is why financial liberalisation in combination with a weak regulatory structure may have strongly adverse effects on growth (Andersen and Tarp, 2003). Examples of this abound: Chile and Argentina in the early 1980s experienced the negative effects of financial liberalisation. The same holds for Mexico (in 1994–95) and the countries affected by the Asian crisis (1997–98), to name just a few. Also the global financial crisis of 2007–08 was triggered by, among other things, insufficient financial market regulation. All these conflicting argument poses the need for further investigation to establish the whether financial liberalization leads to economic growth or not.

1.2 Statement of the Problem

Financial liberalization grants market forces a dominant role in setting financial asset prices and returns, allocating credit, and developing a wider array of financial instruments and intermediaries. All these changes are aimed at improving the efficiency of financial intermediation, raising saving and investment, improving the efficiency of investment, and spurring growth. A financial system is therefore an important driving force for growth in the economy. However, financial liberalization is often followed by financial instability and is often considered a cause of banking crises. According to Odhiambo (2004) in his study on financial sector reforms and economic growth in Kenya, it is established that in the wake of financial liberalization, many countries suffered sharp increases in interest rates, widespread bankruptcies of financial institutions, worsening inflation, widening external deficit and unstable exchange rate. In Kenya for example, Gross domestic savings as a percentage of GDP decreased from 18% in 1994 to 11% in 1998. During the same period, gross domestic investment as a percentage of GDP also decreased from over 19% to about 17%. The number of non bank financial institutions on the other hand declined from 24 to 16 following their conversion to banks. However the

commercial banks placed under statutory management of CBK on the other hand had increased fivefold during the same period: several authors claim liberalization of financial market raises the efficiency with which these markets can transform savings into investment which ultimately should improve growth performance. At the same time however, financial liberalization policies have been criticized for their role in triggering financial and economic crises in the past.

The above short discussion shows that, from a theoretical perspective, the nature of the relationship between financial liberalization and economic growth is ambiguous. Given this theoretical ambiguity, it is important to investigate from an empirical point of view whether or not financial liberalization leads to higher economic growth. Several papers have looked into this issue. The general picture that emerges from the empirical literature is that the empirical evidence is inconclusive. Yet, studies reviewing the empirical evidence provide a narrative discussion of the financial liberalization–economic growth relationship. They do not attempt to systematically review the empirical evidence, for example, by using regression analysis.

1.3 Objectives of the Study

1.3.1 General Objective

The general purpose of the study is to investigate the impact of financial liberalization on economic growth.

1.3.2 Specific Objectives of the Study

This study is guided by the following specific objectives.

1. To investigate the effect of interest rate on economic growth
2. To determine the effect of capital inflow on economic growth
3. To establish the effect of inflation on economic growth.
4. To investigate the relationship between degree of openness and economic growth

1.4 Hypothesis of the Study

1.H_0: interest rate liberalization has no effect on economic growth

2.$H_{0:}$ capital inflows does not effects economic growth

3.H_0: inflation has no significant effects economic growth

4.$H_{0:}$Thereis no significant relationship between degree of openness and economic growth

1.5 Significance of the Study

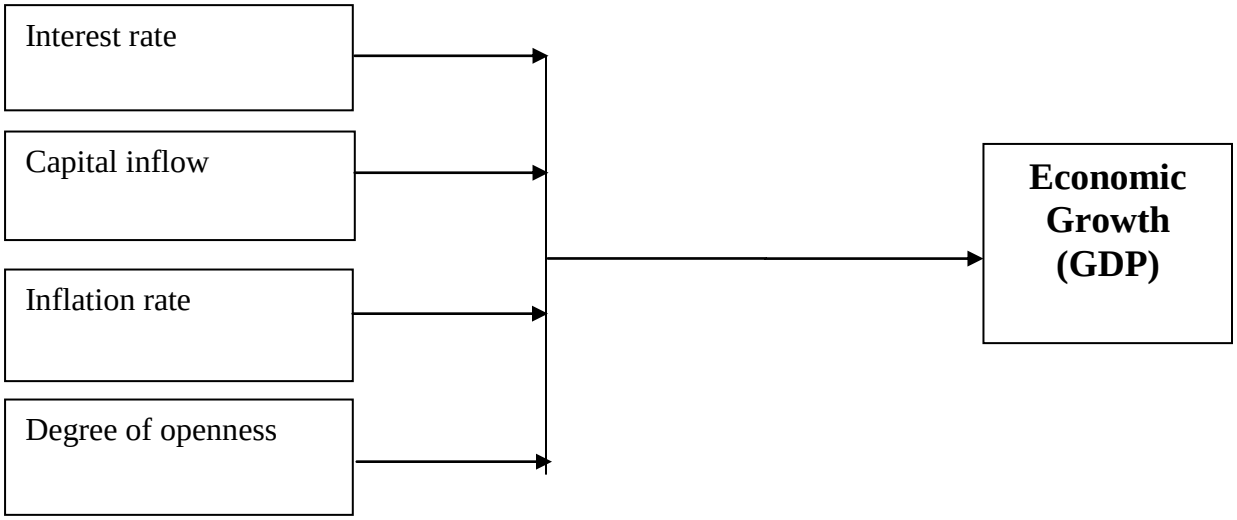
The findings of this study will be of importance to the government of Kenya. Since sound policy can only be made on informed decisions and this piece of research in to the area of financial systems structure and economic growth will yield recommendations to the government on how to stimulate the growth of Kenyan economy, this will put the economy in to the right path of long term growth. More over the study will also be of important for policy formulation in the financial sector reforms. The application of such policies will help in the reduction of the negative effects of financial liberalization hence stabilize financial sector as a whole.

1.6 Conceptual Framework of the Study

The conceptual framework below presents the relationship between the variables for the study. The independent variables are Interest rate which is the average real interest rate measured annually, capital inflows it is measured as the ratio of money supply to GDP. This measures the financial depth of a country's economy. Inflation is taken as the average annual inflation while degree of openness is share of income for a given country which is measured by (X+M)/GDP (Wilson, 2006), this provide a method for determining how open an economy is to world trade while the dependent variable is the economic growth which is the country's annual real per capita GDP for the period of the study.

Figure 1.1 : Conceptual Framework

Independent Variables: **Dependent Variable**



Source: Author's Computation

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviews both theoretical and empirical literature related to the study on financial liberalization and economic growth, financial liberalizations and interest rate, financial liberalization and capital inflows and finally financial liberalization and inflation.

2.2Theoretical Literature Review

In the literature, several arguments in favor of liberalisation have been put forward. Most of these arguments implicitly start from the neoclassical perspective, which assumes that markets are most efficient in allocating scarce resources. The discussion on liberalizing financial markets started with the seminal publications of McKinnon (1973) and Shaw (1973). Both scholars wrote their work asa critique of government policies, which were focused on restricting and controlling financial markets, also known as financial repression. Among other things, these policies consisted of establishing interest rate ceilings, and government directed credit and subsidies to banks, leading to excess demand and inefficient allocation of capital. McKinnon (1973) and Shaw (1973) held these policies responsible for the low growth rates in many developing countries during the 1950s and 1960s. They both argued in favor of liberalizing financial markets on the grounds that this would lead to more as well as more efficient investment which, in turn, would lead to higher economic growth rates.

In the 1990s, when the role of financial institutions in economic growth became intensively discussed in the literature, several authors explicitly modeled the relationship between finance and growth while others focused on investigating the empirical support for these models .In

financial liberalization theory, financial repression, i.e. distortions of financial prices such as interest rates, reduces the real size of the financial system relative to the non-financial, which leads to slow real rate of economic growth (McKinnon, 1973 and Shaw, 1973).

The theory rests on the assumptions that saving is an increasing function of real rate of interest on deposits and real rate of growth in output and that investment is a decreasing function of the real loan rate of interest and an increasing function of the growth rate. At the initial repressed stage, the nominal interest rate is administratively fixed, and thus the real rate is kept below its equilibrium level. Low interest rates encourage current consumption and discourage saving. Ceilings on loan rates reduce the average efficiency of investment projects since investments with lower returns that would not be profitable under the higher equilibrium interest rate, are now profitable. Removing the ceiling on interest rates leads to an increase in saving, as rising real interest rate traces the saving curve. The average return to investment increases, as the low-yielding projects are no longer profitable. Rising efficiency of investment leads to increased output, which further increases saving. Therefore, according to this theory, in an environment where investment opportunities are plentiful but the financial system is repressed, the key to higher and more efficient investment is to raise the return to savers, i.e. the real interest rate.

2.3 Empirical Literature Review

2.3.1 Financial Liberalization and Economic Growth

According to Bekaert, Harvey and Lundblad (2000) study of emerging equity markets before and after they dropped barriers to foreign participation in equity markets and report that many of them exhibit higher average growth rates after the official liberalization dates, without making any statements about the cause and effect relationship. After controlling for various factors that contribute to a country's economic performance, the authors find that the effect of liberalization on economic growth is small but still positive at about 0.7 to 1.4 percent and that the effect is stronger in countries with higher levels of secondary school enrollment. In a later study, the same authors find that equity market liberalizations lead, on average, to a one percent increase in annual real per capita GDP growth over a five-year period and that this effect is not spuriously accounted for by macroeconomic reforms or by business cycles (Bekaert, Harvey and Lundblad, 2001). They also find that investment to GDP ratio rises after capital market liberalizations, whereas the consumption to GDP ratio falls, the trade becomes more negative and the size of the government sector remains about the same. Therefore, they disagree that capital flowing in after liberalization is channeled mainly to consumption.

Rodrik (1998) casts doubt on the effect of capital account liberalization on growth. In as ample that includes almost 100 countries, developing as well as developed, he finds no significant effect of capital account liberalization on the percentage change in real income precipitate over the period 1975 to 1989. Edwards (2001) finds that the positive relationship between capital account openness and productivity performance only manifests itself after the country in question has reached a certain degree of development. At very low levels of domestic financial development a more open capital account may have a negative effect on performance. Edison

etal (2002) find mixed evidence that capital account liberalization promotes long-run economic growth and that the positive effects are most pronounced among countries in East Asia.

One possible reason for the ambiguity of findings in the empirical literature on financial liberalization and growth may arise from the difficulty in identifying and quantifying liberalization in a consistent manner across a wide group of countries. Consequently, different studies have applied different empirical measures. in this case our study will focus on time series data instead of cross section data for Kenya in particular. Another reason may be that, while most studies start with essentially the same benchmark cross-country growth model, there is divergence with respect to the set of countries included in the analysis, the sample period that is investigated, the dataset employed, and the estimation technique applied. Another explanation as to why empirical studies do not find the strong effect mentioned in the theoretical papers, is provided by Prasad *et al.* (2003). Most of the differences in income per capita can be explained by differences in social infrastructure, i.e. governance, rule of law, respect for property rights etc. If this is the case, then liberalization is unlikely to increase growth by itself. It is also true that there are costly crises that many developing countries have experienced in the process of financial integration. Most of the previous studies completed on financial liberalization and economic growth are based on evidences which are mostly from Latin American and the East Asian countries with little attention devoted to African countries.

This research will empirically investigate and provide insight into the effect of financial liberalization on interest rates, capital inflows and inflation in Kenya. The following sections therefore present literature on the relationship of financial liberalization on different aspects of economic growth in the financial sector.

2.3.2 Financial Liberalization and Interest Rates

According to the financial liberalization theory, financial repression through interest rate ceilings keeps interest rates low and this discourages savings with the consequence that the quantity of investment is stifled. Thus investment is constrained by savings. The quality of investment is also low because the projects that will be undertaken under a regime of repression will have a low rate of return. With financial liberalization, interest rate deregulation means that the interest rate will rise, thereby increasing savings and also investment. The increased investment results in the rationing out of low-yielding projects and the subsequent undertaking of high-yielding projects. The quality of investment rises and this will ultimately increase economic growth. McKinnon (1973 and Shaw (1973) therefore advocated the liberalization of such repressed financial systems so as to promote economic growth.

Many Sub-Sahara African (SSA) countries have embarked at various times in the past three decades on financial liberalization policies. Existing empirical studies (Ogun, 1986; Allen and Ndikumana, 2000) have not adequately measured the gradual institutional changes that financial liberalization entails. Some studies such as Allen and Ndikumana (2000) and Aziakpono(2004) have employed the ratio of liquid liabilities to GDP as a measure of financial intermediation, but this variable does not give any indication of the specific financial liberalization policies embarkedupon by various countries. Other studies such as Matsheka (1998) used the real rate of interest as a measure of financial liberalization but this variable captures only one component of financial liberalization - interest rate deregulation. Financial liberalization does not consist solely of interest rate deregulation but involves other policies and Gibson and Tsakalatos (1994) and Demetriades and Luintel (1996) note that studies that rely only on the real interest rate will suffer from the problem of omitted variable bias.

Fry (1988) stated that financial liberalization increases the supply and allocation of resources for investment. Financial intermediation was found to have an affirmative shock on economic growth for a sample of 74 countries Levine and Beck (2000). Similarly, Bekaert and Harvey (2001) found financial liberalization contributing 30% to the process of economic growth. La Porta *et al*. (2002) test the ownership constitution of banks in the case of 92 countries and found that higher government possession of banks resulted in lower GDP growth rate (per capita) when the original financial intermediation development had a positive and significant effect. Nair (2004) suggested a significant negative impact of financial liberalization index on the household saving rate. Mattoo *et al*. (2006) found financial services liberalization having an affirmative and momentous effect on economic growth in a sample of 59 countries. Kiyota *et al*. (2007) found the Ethiopian economy benefiting from the opening of foreign banks and the related privatization of local banks.

Galindo *et al*. (2007) using panel data pertaining to 12 developing countries at the firm level reported that financial liberalization resulted in better allocation of investment funds due to improvement in efficiency. Khan and Qayyum (2007) attribute long run growth in Pakistan to trade and financial liberalization. Ang and Mckibbin (2007) reported financial liberalization having a positive effect in enhancing the development of the financial sector in Malaysia. McKinnon (1973) and Shaw, (1973) hypothesis predicted that financial liberalization would lead to economic growth through savings, investment and capital accumulation channels. But financial liberalization causes financial crises in many countries as the Mexican financial crises (1994-95), the Asian crises (1997-98), the crises in Brazil, Russia and many Latin American countries (1998-99) reveal. Bayoumi (1993) examines the effect of financial deregulation on

personal saving in United Kingdom. He finds that household saving showed a decline associated with financial innovation; and that saving became more sensitive to wealth, real interest rates and current income. He attributes a fall of 2.25% in the personal saving rate to deregulation alone. Bandiera *et al* (2000) find no evidence of positive effect of the real interest rate on saving in eight developing countries. In most cases the relationship is negative. Furthermore, the effect of the financial liberalization index on saving is mixed: negative and significant in some countries, positive and significant in some others. All these bring conflicting results and therefore need for further research.

According to Mc Kinnon (1973) and Shaw (1973), financial liberalization ensures a better mobilization of capital. In particular, allowing a better adequacy between the investment and the saving, and an acceleration of the process of economic growth. In a study relating to seven Asian countries, Fry (1978) led so that the real credit interest rate affects positively the national saving. Diery and Yasim (1993) concluded that the real credit interest rate acts positively in the constitution of the saving in nine countries of Africa. In the same way, Bandiera and Alii (2000), analyzing the impact of financial liberalization on the mobilization of the saving, they found that financial liberalization has a positive and significant direct impact on the saving. By liberalization of the credit rates, and while believing in a strong remuneration, the depositors will resort to save their capital. It results an accumulation of capital what makes it possible the bank to hold a strong financial intensity. Once the saving is favored, (financial saving), the bank can meet all the needs for these customers in terms of financing. The investment will be thus favor and each investor finds the optimal financing of his project. If the saving and the investment were the beneficial effect of financial liberalization what it does prevent the economic growth of Mc Kinnon (1973) and Shaw (1973)? According to these two authors, the policy of financial

liberalization is work to involve an increase in saving, a stimulation of the investment and thus an economic growth. What escapes from their equation it is the reciprocal behavior of the two institutions (banks/firms). In other term, by it rationality and prudence the bank will finance the investments of the companies, on the one hand? And in addition how the company it will react with the received initial credit? And how will it maintain the determinants of a good future banking relationships? The relation of savings, investment and economic growth is a relation of long term. Once one of those components is not respected, this relation will never be checked.

Regarding level of effect of financial liberalization, there are many cross-country studies that have shown that financial liberalization in developing countries has not led to an increase in investment, growth, or even net capital inflows. Henry (2007) argues that liberalizations do increase investment and growth, but that the effects are temporary. Bekaert, Harvey, and Lundblad (2005) argue that stock market liberalizations do increase growth. And Levchenko, Ranciere, and Thoenig (2009) also found positive growth effects when analyzing industry level data. One robust result in the literature is that the effects of financial liberalization depend on country characteristics. In particular, Bekaert, Alfaro, Kalemli-Ozcan, and Volosovych (2008) found that liberalization in developing countries leads to larger capital inflows, and higher investment and growth in countries with stronger institutions, more developed domestic financial markets, and higher initial income.

Kenya, like many other developing countries, followed a policy of low interest rates, adjusting for inflation to maintain positive real rates. The main aim of this policy was to keep the costs of funds low, with the belief that cheap credit promoted development through increased investment. The use of interest rates to manage monetary conditions and mobilize and allocate financial resources in an efficient manner was neglected.

Interest rates remained under the administration of the government through a regime of fixing minimum savings rates for all deposit-taking institutions and maximum lending rates for commercial banks, Non Banking Financial Institutions (NBFIs) and building societies. Interest rates were calculated on a reducing balance method and levying of extra charges on loans was not allowed. Deposit savings rates were too low compared with the lending rates, widening the spread between the two. The inflationary pressure created by the first oil crisis made the interest rate negative in real terms. As indicated in the 1974–1978 Development Plan, the government saw the need to review the interest rates to encourage savings through the banks and to create a disincentive to forestall speculation and uneconomic use of savings by borrowers.

In the 1980s, the interest rate policy was reviewed with the following objectives: (1) to keep the general level of interest rates positive in real terms in order to encourage savings and to contribute to the maintenance of financial stability; (2) to allow greater flexibility and encourage greater competition among the banks and non-bank financial institutions to enhance efficient allocation of financial resources – in particular, the policy strove to ensure that funds flowed into those areas that are most productive, with the biases against long term lending and lending to small business eliminated; and (3) to reduce the differential to maximize lending for banks and NBFIs.

With liberalization, the interest rate policy aimed to harmonize the competitiveness among the commercial banks and NBFIs by removing the differential that had existed for maximum lending rates to allow greater flexibility and encourage greater competition in interest rate determination so that the needs of both borrowers and lenders could be better met through the cooperation of market forces and to maintain the general positive levels of interest rates in real terms in order to encourage the mobilization of savings and contribute to the maintenance of financial stability

(World Bank, 1992). The first review of interest rates in the post independent period was in June 1974, a decade after independence. Further reviews were made in the 1980s to allow commercial banks more room to compete and have flexibility in meeting the needs of customers, narrowing further the difference between NBFI and commercial bank rates. Also, it was aimed at making interest rates responsive to changes in international markets to provide protection against adverse movements of funds internationally. In 1989 the ceilings on savings deposit rates for both commercial banks and NBFIs were progressively raised, while the ceilings on long-term bank loans were brought to the same level with the ceiling for NBFI lending. These moves harmonized interest rates across the institutions, allowing banks greater flexibility in varying rates according to loan maturities.

However, the gap between the lending and deposit rate was not narrowed. In 1990 institutions were allowed to include all lending related charges and fees, so that the effective rates on loans could exceed stipulated ceilings. Treasury bill rates were fully liberalized in mid November 1990.This made it possible for the central bank to use the bill rate to influence the level of other short term interest rates. Interest rates were finally liberalized in July 1991. The immediate experience with interest rates was very promising, as they recorded positive real rates and the spread between the lending and the deposit rates narrowed. This was short lived, however, with the high inflationary conditions. A tight monetary policy was adopted to mop up the excess liquidity (World Bank, 1992).

Treasury bill rates increased, pushing up the interest rates. Commercial banks increased their deposit rates as they competed for deposits from the non-banking sector. The depreciation of the exchange rate and the increasing treasury bill rates worsened the inflationary condition. The interest rates became negative in real terms and the spread between the lending and deposit rates

widened. With liberalization it is expected that the financial sector will grow and become efficient as information flows improve, while the low cost of intermediation leads to a closing gap between the lending and deposit rates. As efficiency improves and competition increases, then the spread is expected to narrow. So far, then, the results demonstrate a non-achievement of efficiency in banking intermediation. At the same time, the short-term deposit rates have continued to increase at a faster rate compared with the longer deposit rates so that the yield curve assumed a negative slope (World Bank, 1992).

Despite the efforts to introduce competitiveness, the banking sector seemed to gain an oligopolistic structure, with only a few institutions controlling the sector. Four major commercial banks continued to dominate, with more than 70% of the total deposit liabilities and a similar share of the loans market. With such a structure it was even difficult for the banking system to respond to changes in other price indicators, e.g., the improved exchange rate condition. As the country experienced exchange rate appreciation in 1994, banking institutions failed to reflect this in their lending rates. The central bank responded by calling upon the banking institutions to reduce lending rates so as to increase the demand for imports and allow for absorption of available foreign exchange. The central bank felt that it was only logical for the lending rates to come down to reflect change in inflation and the downward trend in treasury bill rates. In October1994, dominant commercial banks responded by lowering their base rate as a step toward reversing the steady appreciation of the shilling. The lending interest rate was reduced by between 3% and 5%, setting at a higher level than expected. The high lending rates discouraged borrowing from the banking sector and commercial banks accumulated more than minimum statutory requirements (Ngugi and Kabubo, 1998).

2.3.3 Capital Inflows and Financial Liberalization

Martin and Rey (2005) analyze the impact of stock market liberalization on capital flows, asset prices and investment. They show that when there are transactions costs in international assets, stock market liberalization can lead to two possible outcomes for an emerging market economy. Under normal circumstances, liberalization performs the positive role of generating capital inflows, expanding diversification opportunities and lowering the cost of capital, thus leading to higher investment and growth. However, under certain circumstances, ”pessimistic” expectations about the state of the economy can be self-fulfilling, leading to a fall in the demand for assets, capital outflows and financial crashes associated with low investment and low growth. The key element for this mechanism to operate is that the decision to invest by one agent influences the cost of capital of other investors through the impact of that decision on income and the price of assets.

Financial liberalization policies such as the elimination of credit and interest rate controls, the elimination of entry barriers in the banking sectors, the removal of restrictions on capital flows, and security market liberalization tend to have an impact on prices, transaction costs, returns on assets, and quantitative limits of ownerships and investments (Campion and Neumann 2004). These policies affect foreign and domestic investors' decisions on whether to allocate their funds locally or abroad. As a consequence, this leads to a change in the movement and structure of international capital flows.

Many studies have theoretically and empirically investigated the effects of financial liberalization on financial development, economic growth, and financial crises. However, while many authors have made statements about the effect of financial liberalization on the behavior of capital flows, there have been few systematic studies of this question. Of these studies, most

researchers have studied the effectiveness of capital controls. However, they fail to consider the influence of domestic financial liberalization policies, such as the relaxation of credit controls, interest rates controls, entry barriers in the banking sector, privatizations of state-owned banks, and the security market liberalization on capital movements and the structure of capital flows. Moreover, the few empirical studies in this area have generally adopted simple zero-one dummy variables of financial liberalization which cannot detect the degrees of liberalization of financial sectors and capital flows. By doing so, it is unable to capture how the intensity of financial liberalization influences the behavior of capital flows.

Fernandez-Arias and Montiel (1995) found that country-specific factors such as creditworthiness can influence capital flows, and when the credit rating in a country is downgraded it may result in large capital outflows. In addition, Alfaro *et al*. (2006) found that capital flows are also strongly determined by institutional quality. Calvo and Reinhart (1996) suggested that regional location matters, i.e., when a large country receives capital flows, the capital flows to small countries located in the same region appear to increase.

Several studies have examined the determinant of different types of capital inflows, e.g., foreign direct investment, portfolio investment, and private loan flows. For example, Calvo *et al*. (1996) showed that countries with sound domestic fundamentals and strong financial institutions are likely to attract capital on a larger scale, and with a higher proportion of long-term investments. The World Bank (2007) also found that an increase in foreign direct investment{FDI} inflows is sensitive to sound macroeconomic fundamentals such as high investment per GDP, low inflation, and low real exchange rates, but not for global interest rates. Therefore, FDI flows appear to rely heavily on pull factors rather than push factors.

Chuhan *et al*. (1993) found that equity and bond flows from the U.S. to Latin America have been equally influenced by global effects, mainly U.S. interest rates, U.S. industry production, and country-specific effects, particularly country creditworthiness. In contrast, in Asia, country-specific factors tend to induce more equity and bond flows than do global factors.

Calvo *et al*.(1993 and 1996) described the three main factors that shifted foreign lending to emerging markets in the early 1990's: 1) a substantial decline in world interest rates, along with a recession in several industrialized countries, 2) the trend toward international diversification of investments in financial sectors such as mutual funds and life insurance, and 3) the rapid trend toward trade and financial liberalization. These studies suggest that FDI flows tend to be determined mainly by the pull effect, or country-specific factors, while portfolio investment and loan flows are influenced by both.

The push and pull effects, however, the World Bank (1997) suggested that the factors that determine capital inflow have changed over time. Calvo (1993) also confirmed this argument by finding that the importance of the role of domestic factors in driving capital inflow may be increasing. However, Montiel and Reinhart (1999) argued that both factors are important for inducing capital flow, but they play different roles. They suggested that while push factors may help explain when the new capital flows would enter and how large the capital flows would be, pull factors may be necessary to explain where or which countries would absorb these capital flows.

Several studies have suggested that the trend toward financial liberalization in the early 1990s was a crucial factor in bringing enormous amounts of capital inflows into emerging markets (Reinhart and Rogoff 2009). However, most empirical studies appeared to focus only on the

effect of openness (or control) of a capital account on cross-border capital flows. But there is no one particular policy toward financial liberalization that leads to a change in the movement of capital flows. Many policies, such as the elimination of interest rates and directed credit controls, a relaxation in the entry barriers in the banking system, privatization in the financial sector, or even openness in the security market can change prices, transaction costs, returns on assets, and the quantitative limits on ownership and investment (Campion and Neumann, 2004). As a result, these policies tend to impact the behavior of foreign and domestic investors which affects the movement and structure of capital flows.

The controls on credit allocations and reserve requirements were key financial policies that developing countries used to support export-oriented strategies, and finance fiscal balance (Montiel, 2003). The implementation of directed credit controls is normally accompanied by restrictions on interest rates. These policies appear to be initially successful for governments in reducing the cost of borrowing, allocating credit to priority sectors, and creating extra revenues that finance their fiscal balance (McKinnon, 1993). However, the inefficiency of resource allocation, moral hazard, lack of competitive incentive, and lack of transparency are inherent consequences of these types of financial repression. This can lead to adverse effects on economic growth and welfare (Honohan and Stiglitz, 2001). For example, during the 1990s, the Japanese government strongly encouraged banks to allocate their credits to unproductive firms, the so-called Zombie firms. As a result, the misallocation of credit created negative externalities in terms of a reduction in the entry of new firms and investments (Caballero *et al*., 2008).

When credit controls and reserve restrictions are removed, financial institutions tend to respond by reducing their holdings of excessive reserves that were built up through credit controls, and by allocating more funds to the private sectors that previously could not access credit but had a

higher risk-adjusted return. In addition, market-based credit allocation can create an incentive for lenders to gather more information about borrowers in order to reduce their risk from information asymmetry, which could also improve the allocation of credit (Caprio *et al*., 2001).Although the elimination of directed credit control and reserve requirement is expected to have a positive impact on FDI flows and portfolio flows, the effect of these policies on private loan flows is ambiguous, thus, net capital flows might increase or decrease when the directed credit controls and reserve requirements are abolished.

2.3.4 Financial Liberalization and Inflation

Bernanke (2011:12) states that "the objective of monetary policy should remain focused on macroeconomic objectives, while more-targeted micro-prudential and macro-prudential tools should be used to address developing risks to financial stability, such as excessive credit growth". By contrast, Svensson (2011) maintains that the objective of monetary policy and that of financial stability are distinct. He explains that "monetary policy, in the form of flexible inflation targeting, has the objective of stabilizing both inflation around the inflation target and resource utilization around a sustainable level, while financial stability has the objective of maintaining and promoting financial stability through supervision, regulation and financial stability reports that may provide early warnings of stability threats". However, he continues to explain that these policies need to work in harmony with one another as monetary policy affects the real economy and financial stability policy affects the transmission mechanism of monetary policy.

Kamin *et al*. (1998:8) state that the "objective of monetary policy is to achieve sustainable economic growth with a reasonable level of internal and external stability". Monetary policy enhances price stability by ensuring that markets are functioning in an efficient manner. Thus

price stability, in turn, contributes to financial stability by anchoring inflation expectations, thus limiting uncertainties in the market arising from inflation. The deregulation of economic activities in early 1990s marked a major milestone in the conduct of monetary policy in Kenya in terms of objectives, instruments and institutional framework. The Central Bank of Kenya (CBK) Act was amended in 1996 to allow CBK greater operational autonomy in the conduct of monetary policy. The same Act stipulated the principal objective of the CBK as formulation and implementation of monetary policy directed to achieving and maintaining stability in the general level of prices. Against this background, we investigate the behavior of the CBK over the past ten years or so using a policy rule with appropriate modification to take into account the characteristics of the economy. Specifically, we first test whether the CBK reacts to changes in inflation and GDP growth in a consistent and predictable fashion, as predicted by the standard Taylor rule. As the CBK used a reserve money framework in conducting monetary policy, the policy variable is the monetary aggregate borrowing from McCallum (1988).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter gives a description of the methods and approaches that were adopted in conducting this study. It includes the research design, the study population, sampling size procedure, data collection instruments and analysis. The type and sources of data expected the methods of data collection and how reliability and validity were tested. The measurements of variables and data analysis techniques are also discussed.

3.2 Research Design

Correlation research design is used for the study. This involves measurement of statistical relationship between variables with no influence from any extraneous variable. The study used regression and correlation statistics.

3.3 Target Population

The study targeted selected macro variables that relate to or have a direct bearing on the financial liberalization of the Kenyan economy therefore affecting the economic growth of the Kenyan economy.

3.4 Sample size

The study gathered annual time series data for the period covering years 1980 and 2012.This is in order to cover different economic regime. It's also meant to cover period before and after financial reforms was introduced.

3.5 Data Collection Instruments and Procedure

3.5.1 Type of Data and Sources

Secondary data was used in the study. The data was collected from World Bank information site.

3.5.2 Data Collection Instruments.

A schedule was drawn to give direction on the particulars of data relevant for the study. This ensured that the study focused on its objectives.

3.6 Data Analysis.

The study adopted correlation, unit root test, error correction module and co-integration analysis. The study also used the descriptive statistics in its analysis. The models would be of great importance in data analysis. E-views software was used as an aid in the analysis.

3.6.1 Correlation

In order to determine the correlation between the time series variables, the study used the correlation coefficient (Pearson correlation) $[r]$ at 5% significance level.

$$r_{xy} = \frac{\sum x_i y_i}{\sqrt{\sum x_i^{\,2}} \cdot \sqrt{\sum y_i^2}} \qquad (3.1)$$

Where $x_i = X_i - \overline{X}$ and $y_i = Y_i - \overline{Y}$ (deviations from the mean of the variables).

The correlation coefficient ranges from −1 to 1. A value of 1 implies that a linear equation describes the relationship between X and Y perfectly, with all data points lying on a line for which Y increases as X increases. A value of −1 implies that all data points lie on a line for which Y decreases as X increases. A value of 0 implies that there is no linear correlation between the variables.

More generally, note that $(X_i - X)(Y_i - Y)$ is positive if and only if X_i and Y_i lie on the same side of their respective means. Thus the correlation coefficient is positive if X_i and Y_i tend to be simultaneously greater than, or simultaneously less than, their respective means. The correlation coefficient is negative if X_i and Y_i tend to lie on opposite sides of their respective means.

3.6.2 Stationarity test

Variables are said to be stationary if its mean and variance are constant over time and the value of covariance between the two periods depend on the distance between the two time periods. Time series data are often assumed to be non-stationary and thus it is necessary to perform a pretest to ensure there is a stationary co-integrating relationship among the variables in order to avoid the problem of spurious regression. Spurious regression exists where the test statistics show a significant relationship between variables in the regression model even though no such relationship exists between them. Therefore, in order to address the issue of non-stationarity and avoid the problem of spurious regression, the study employed dickey fuller test.

The Augmented Dickey-Fuller (ADF) test is used to test for stationarity in the time series. In general an ADF (p) test is represented as;

$$\Delta Y_t = \beta_1 + \delta Y_{t-1} + \alpha_i \sum_{i=1}^{p} \Delta Y_{t-i} + \varepsilon_t \qquad \varepsilon_t \sim IID(0, \sigma_\varepsilon^{\,2}) \qquad (3.2)$$

Where $\delta = \rho - 1$ and

ΔIs the first difference operator.

The hypothesis is that

$H_0 : \phi_1 = 0$

$H_1 : \phi_1 < 0$

The testing for stationarity is formulated in the statistical hypothesis testing framework as a test of the null hypothesis is non-stationary and the alternative hypothesis is series is stationary. If the null hypothesis is rejected, it implies that $p < 1$ and that $_t\varepsilon$ is integrated of order zero, i.e. it is $I(0)$ and thus stationary. If the null hypothesis cannot be rejected then the E has a unit root i.e. it is non-stationary in levels.

3.6.3 Test for Co integration

In order to establish a long run relationship between the variables, the study will utilize the concept of Cointegration. The test of co-integration is applied once it is established that series under consideration are non-stationary. Two variables are said to be cointergrated if they have long term, or equilibrium relationship between them. Therefore cointegration is used to analyze the relationship between non-stationary time series. The idea is looking for linear combinations of individually non-stationary time series that they are stationary.

The presence of a long run relationship among variables could be interpreted as the stochastic trend in Gross domestic growth is related to the corresponding stochastic trends in macro variables. Thus, intuitively cointegration among a set of variables implies that there exists fundamental economic forces which make the variables move stochastically together over time.

Cointegration test adopted here is that of Johansen (1988) and Johansen and Juselius (1990) maximum likelihood estimator. According to the multivariate model of Johansen and Juselius (1990), the vector autoregressive (VAR) in equation (3.1) is estimated.

The long-run equilibrium is ΠX=*0,* where the long-run coefficient matrix Π is defined as

$$\prod_i = I - \prod_1 - \prod_2 - \ldots - \prod_k \; i = 1,2..k \quad (3.3)$$

The long-run co-integrating matrix Π is an *N* x *N* matrix whose rank determines the number of co integrating vectors, say r . If we define two matrices $\alpha(N \times p)$ and

$\beta(N \times p)$ such that $\Pi = \alpha\beta^T$, the row of β consists r co integrating vectors.

The study used the maximum-eigenvalues method introduced by Johansen and Juselius (1990) in determining the number of co-integrating vectors. The likelihood ratio test statistics for the hypothesis that there are at most r Co integrating vectors is given by

$$-2\ell n(Q) = -T \sum_{r=r+1}^{p} \ell n(1-\hat{\lambda}_i) \; i = 1,2,\ldots p$$

where $\hat{\lambda}_{r+1} > \ldots > \hat{\lambda}_p$ are the smallest eigenvalues corresponding to the smallest squared canonical correlations.

4.6.4 OLS Estimation

Ordinary least squares (OLS) or linear least squares is a method for estimating the unknown parameters in a linear regression model, with the goal of minimizing the differences between the observed responses in some arbitrary dataset and the responses predicted by the linear approximation of the data (visually this is seen as the sum of the vertical distances between each data point in the set and the corresponding point on the regression line - the smaller the differences, the better the model fits the data). The resulting estimator can be expressed by a simple formula, especially in the case of a single regress or on the right-hand side.

The OLS estimator is consistent when the regressors are exogenous and there is no perfect multicollinearity, and optimal in the class of linear unbiased estimators when the errors are

homoscedastic and serially uncorrelated. Under these conditions, the method of OLS provides minimum-variance mean-unbiased estimation when the errors have finite variances. Under the additional assumption that the errors be normally distributed, OLS is the maximum likelihood estimator

3.6.5 Autocorrelation

Autocorrelation of a random process describes the correlation between values of the process at different times, as a function of the two times or of the time lag.This was done to measure whether the covariance and the correlations between different disturbances are no longer non-zero i.e. This is because the time series data may have tendencies for random shocks or disturbances that spill over from one time period to the next

3.6.6: Heteroscedasticity

This refers to a situation where the disturbance variance is no longer constant. They tend to occur where there is a large variation in the size of the independent variable. This is because the data set spans a very long time period and the accuracy with which economic variables are measured may also vary considerably

3.7 Model specification

The study adopted an econometric model in determining the impact of financial liberalization on economic growth in Kenya, both the short and long run deterministic equilibrium was established. The model to be employed in this study is built based on the modification of the models in Kasekende and Atingi-Ego (2003), Faira *et al*. (2009), and Akpan (2004).

For the purpose of this study, Degree of Openness will be included because it is seen as an important financial liberalization proxy. The model specifies the endogenous variable

(Gross Domestic Product) as a function of Capital Inflow, Interest rate, Inflation Rate, and Degree of Openness representing the exogenous variables. Multiple regression model presented below was used during the study.

$$\text{GDP} = f(ci, ir, \inf, dop) \qquad (3.4)$$

Where;

GDP = Gross Domestic Product(growth)

ci = Capital Inflows;

ir = Interest Rate;

if = Inflation Rate;

dop = Degree of Openness

The econometric form of equation (1) is represented as:

$$GDP_t = b_0 + b_1 ci_t + b_2 ir_t + b_3 if_t + b_4 dop_t + e_t \qquad (3.5)$$

Where:

b_0 = Intercept of relationship in the model/constant

b_0, b_4 = Coefficients of each independent or explanatory variable

e= Stochastic or Error term

3.8 Data Presentation.

The study used tables and graphs in data presentation.

CHAPTER FOUR

EMPIRICAL RESULTS AND DISCUSSION

4.1Introduction

In this chapter, the study presents the regression analysis and results that exist between the structural relationships specified in chapter three using economic techniques. The study analyses the descriptive statistics and the time series properties of the GDP growth in relation to macro-economic variables, interest rate, inflation, capital inflow and degree of openness of the Kenyan economy.

4.2 Data description

This section provides a descriptive analysis of the time series data as already been discussed in the previous chapter.

The results from Figure 4.1 above show that all the variables are positive except inflation in the year 1996. As indicated by the results, the degree of openness came down to 0.00 in 2012 while the inflation rate came down in 1995 but again the result revealed that all the variables remained at an almost flat rate from 1996 to 2012.

Table 4.1: Descriptive Statistics

	GDP	ci	dop	inf	In
Mean	3.48303	0.536364	42.15758	11.98394	7.893939
Median	3.78	0.4	41.2	10.28	6.8
Maximum	7.18	2.7	61.1	45.98	21.1
Minimum	-0.8	0	0	1.55	-5.8
Std. Dev.	2.158885	0.608183	10.10634	8.685845	6.30664
Skewness	-0.11856	2.410177	-1.89688	2.140836	0.369208
Kurtosis	1.996458	8.815134	10.45944	8.592553	2.48788
Jarque-Bera	1.462071	78.44594	96.2994	68.21288	1.110345
Probability	0.48141	0	0	0	0.573973

Source: Author's Computation

As presented inTable 4.1 above, the maximum level GDP is 7.18 while the minimum is –0.8. The maximum and minimumcolumn represents the maximum and minimum values of the variables as percentages of GDP. The null hypothesis was that all the variables are normally distributed while alternative hypothesis was vice versa. From the table, capital inflow, inflation rate and degree of openness are peaked while those for GDP growth and interest rate are flat hence are in line with the kurtosis method of establishing thickness and flatness of variable distribution which states that if kurtosis exceeds 3, the distribution is considered to be peaked (leptokurtic) relative to the normal hence has a thick/fat tail; and if the kurtosis is less than 3, the distribution is flat (platykurtic) relative to the normal hence has a thin tail. The study further established that GDP and DOP are skewed to the left (-1.2 and -1.90 respectively) while capital inflow, interest rate and inflation are skewed to the right.

Table 4.2: Highs and Lows of the variables and the corresponding years

	GDP		***ir***		***ci***		***Inf***		***dop***	
	high	low	High	Low	high	low	High	low	high	Low
YEAR	1988	1992	2001	1996	2007	1999	1993	2002	2011	2012
Percentages	6.20	0.80	17.80	5.80	2.70	0.00	45.98	1.97	61.10	0.00

As presented in Table 4.2 above, the GDP was higher in 1988 and low in 1992. Whereas the low GDP of 1992 could be attributed to economic slow- down in 1992 which was as a result of prolonged drought, high inflations, massive depreciation of Kenya shilling, the liberalization policies pursued by the government and the suspension of foreign aid by donors which led to foreign exchange shortages during the first half year. The political environment was also polarized due to agitation for multiparty democracy.

The study revealed that there were high interest rates in 2001most probably due to the interest rate policy which was reviewed with the following objectives: (1) to keep the general level of interest rates positive in real terms in order to encourage savings and to contribute to the maintenance of financial stability; (2) to allow greater flexibility and encourage greater competition among the banks and non-bank financial institutions to enhance efficient allocation of financial resources – in particular, the policy strove to ensure that funds flowed into those areas that are most productive, with the biases against long term lending and lending to small business eliminated; and (3) to reduce the differential to maximize lending for banks and NBFIs.

With liberalization, the interest rate policy aimed to harmonize the competitiveness among the commercial banks and NBFIs by removing the differential that had existed for maximum lending rates to allow greater flexibility and encourage greater competition in interest rate determination so that the needs of both borrowers and lenders could be better met through the cooperation of

market forces and to maintain the general positive levels of interest rates in real terms in order to encourage the mobilization of savings and contribute to the maintenance of financial stability (World Bank, 1992). As a result of this, all commercial bank's interest rates were reviewed upwards thus increasing the cost of investments. McKinnon (1973 and Shaw (1973) therefore advocated the liberalization of such repressed financial systems so as to promote economic growth.

The study further revealed that capital inflow was high in 2007 due to increased government spending and investments from the private sector. It was low in 1999 as a result of the highly political tension of the 1997 as the country was fresh from the multiparty elections. The study again established that the inflation was high in 1993. The high inflationary pressures ascribed to the devaluation of the shilling and bad weather conditions. As a result, there were significant price increases for most imported goods, and manufactured goods requiring imported raw materials. Further increases in fuel prices were announced in the year. Other factors included the high volume of money in the economy and further price decontrols. Prices were also pushed up by the widening of the Value Added Tax (VAT) base to encompass the retailing of motor vehicle spare parts and the hotel business. The GDP was also low in the year 1992 due tribal classes and high political tension as a result of multiparty democracy.

4.3 Correlation Analysis

Inferential statistics namely Pearson's Product moment correlation analysis was employed for the study variables. the Pearson product-moment correlation coefficient (Pearson's *r*) is a measure of the linear correlation (dependence) between two variables *X* and *Y*, giving a value between +1 and −1 inclusive, where 1 is total positive correlation, 0 is no correlation, and −1 is total negative correlation Pearson's product moment correlation tests were chosen in order to assess whether there is association between study variables. The results of correlation are presented in Tables 4.3

Table 4.3 Correlation Analysis:

Sample: 1980- 2012
Included observations: 32

Correlation

Probability	**GDP**	**CI**	**DOP**	**INF**	**IR**
GDP	1.000000				
CI	0.247647 (0.1718)	1.000000			
DOP	0.032747 (0.8588)	0.143889 (0.4321)	1.000000		
INF	-0.430982 (0.0138)*	-0.010897 (0.9528)	0.188810 (0.3007)	1.000000	
IR	0.078823 (0.6681)	0.198051 (0.2772)	-0.104518 (0.5692)	-0.348079 (0.0509)	1.000000

* denotes a significant correlation at 5% level

Source: Author's Computation

Table 4.3

The results of the correlation analysis in Table 4.3 revealed that there is negative correlation of -0.430982 between inflation rate and GDP. The correlation is also statistically significant at 5% as shown by esterix. There is also a negatively relationship between inflation and capital inflow of -0.010897 meaning the variables are inversely related. The results also show there is a positive relation between GDP, capital inflow, degree of openness and interest rate. However interest rate in negatively related to DOP and inflation though not very significant.

4.4 The stationary tests

Time series data are often assumed to be non-stationary and thus, it is necessary to perform a pretest that is unit root test to ensure that there is stationary of data. The test would be employed to avoid the problem of spurious regression. In conducting this test, the Augmented Dickey-Fuller (ADF) unit root test was employed to determine the stationary of data. The decision rule is that Augmented Dickey-Fuller (ADF) test statistics must be greater than Mackinnon Critical Value at 5% and at absolute term i.e. ignoring the negativity of both the ADF test statistics and Mackinnon critical value, before the variable can be adjusted to be stationary, otherwise we accept the null hypothesis (H0) i.e. data is non-stationary and reject the alternative hypothesis (H1) i.e. data is stationary.

Table 4.4: Result of ADF Unit Root Test at Level

Table 4.4: Unit root test (ADF- Schwartz criterion)

Variables	At level 5% level	Dickey fuller test	probability	REMARKS
GDP	-2.957	-3.307	0.0229*	Stationary
CI	-2.957	-7.112	0*	Stationary
IR	-2.957	-3.826	0.0006*	Stationary
INF	-2.957	-3.132	0.0341*	Stationary
DOP	-2.957	-3.257	0.0257*	Stationary

*MacKinnon (1996) one-sided p-values

From the results of the above Table 4.4, test for stationarity of data at both l . It was revealed that all the variables were found to be stationary and statistically significant at 5% level hence we reject the null hypothesis of non-stationary, we therefore proceed to test for contergration.

4.5Autocorrelation

This was done to measure whether the covariance and the correlations between different disturbances are no longer non-zero. This is because the time series data may have tendencies for random shocks or disturbances that spill over from one time period to the next.The results are tabled below using***Breusch-GodfreySerial Correlation LM Test***:

Table 4.5 Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.248083	Prob. F(2,24)	0.3050
Obs*R-squared	2.920466	Prob. Chi-Square(2)	0.2322

As revealed by the findings in Table 4.5, there was no autocorrelation of the error term and the results shows that the probability of the observed chi- square (χ^2) is 23.22%, greater than 5%, hence accepting hypothesis of no autocorrelation between the residuals.

4.6 Heteroscedasticity Test

This refers to a situation where the disturbance variance is no longer constant. They tend to occur where there is a large variation in the size of the independent variable. This is because the data set spans a very long time period and the accuracy with which economic variables are measured may also vary considerably. Therefore, heteroscedasticity measures how constant the error terms are. The results were presented in Table 4.6 below.

Table 4.6 Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	0.514795	Prob. F(4,26)	0.7255
Obs*R-squared	2.274997	Prob. Chi-Square(4)	0.6853
Scaled explained SS	1.640577	Prob. Chi-Square(4)	0.8015

From the results, we accept the null hypothesis of homoscedasticity at 5% level since the coefficients of the variables have high probability values of greater than 0.05. As to the level of significance, all the coefficients of the independent variables are statistically insignificant.

4.7 Multicollinearity

Multicollinearity is a statistical phenomenon in which two or more predictor variables in a multiple regression model are highly correlated, meaning that one can be linearly predicted from the others with a non-trivial degree of accuracy. In this situation the coefficient estimates may change erratically in response to small changes in the model or the data. Multicollinearity does not reduce the predictive power or reliability of the model as a whole, at least within the sample data themselves; it only affects calculations regarding individual predictors. That is, a multiple regression model with correlated predictors can indicate how well the entire bundle of predictors predicts the outcome variable, but it may not give valid results about any individual predictor, or about which predictors are redundant with respect to others.

A high degree of multicollinearity can also prevent computer software packages from performing the matrix inversion required for computing the regression coefficients, or it may make the results of that inversion inaccurate.a test for multicollinearity is to examine pair wise or zero order correlation coefficients among the regressors and this is done with the aid of correlation matrix. Where the pair wise or zero-order correlation coefficients among the regressors are observed to be too high say in excess of 0.7 or 10 then multicollinearity is a serious problem. From the below table it can be deduced that there is no multicollinearity with the model as the VIF of the coefficients are less than 10 therefore we can proceed to run the regression equation.

Table 4.7: Presentation of Multicollinearity Results

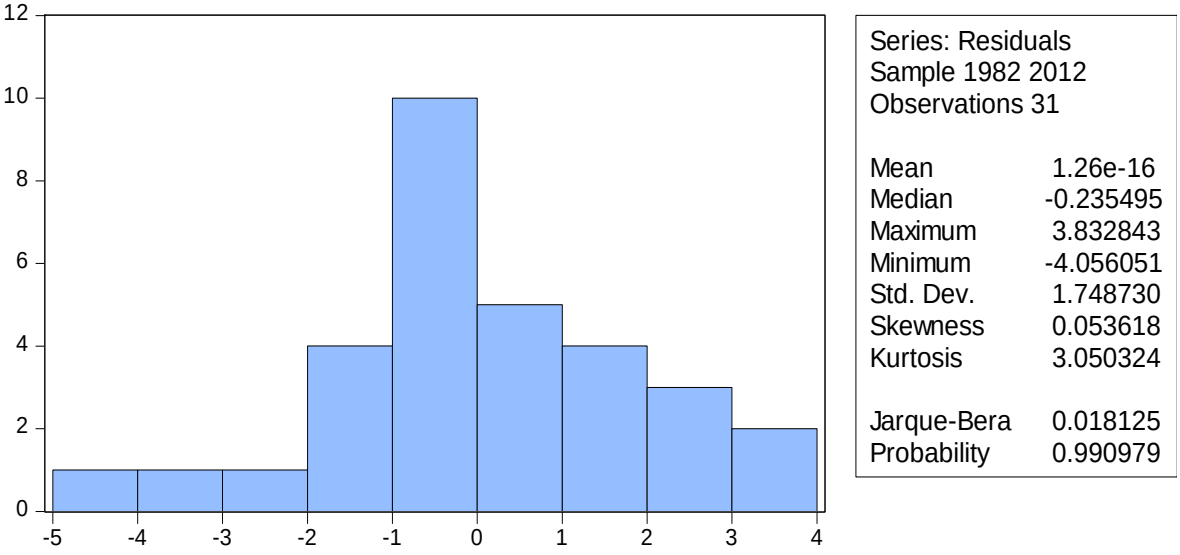
Variance Inflation Factors
Date: 03/31/15 Time: 09:11
Sample: 1980- 2012
Included observations: 31

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.113898	1.000660	NA
DCI	0.044125	1.065074	1.065070
DIF	0.000902	1.266839	1.266804
DRI	0.001111	1.294036	1.293717
U(-1)	0.033297	1.034488	1.034276

4.8 Normality Test

This was done to establish whether the error term is normally distributed compared to other independent variable. The results are shown in the table below.

Figure 4.1 Normality test



From the above table it is assumed that that the residuals are normally distributed. From the results above, the probability value of Jarque Bera is greater than 0.05 at 99% meaning; meaning we accept the null hypothesis that the error term/residuals is normally distributed.

4.9Co-integration Test

The concept of co-integration is relevant to the problem of determination of long-run equilibrium relationship. Co-integration is the statistical implication of the existence of a long-run equilibrium relationship between variables. The condition for a long run co-integrating vector is that the trace statistics (likelihood ratio) must be greater than 5% critical value.

Table 4.8 Co-integration Test

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.8374	149.374	88.8038	0*	54.50673	38.33101	0.000*
At most 1	0.75289	94.8676	63.8761	0*	41.93841	32.11832	0.002*
At most 2	0.5708	52.9292	42.91525	0.0038*	25.37708	25.82321	0.0572
At most 3	0.51364	27.5521	25.87211	0.0306*	21.62468	19.38704	0.023*
At most 4	0.17928	5.92750	12.51798	0.4696	5.927505	12.51798	0.4696

Trace test indicates 4 cointegrating eqn(s) at the 0.05 level
Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

From the table 4.8 above, it could be inferred that long-run relationship or co-integration exists among gross domestic product (GDP), Interest rate (IR), Capital inflow (CI), Inflation rate (INF), and Degree of Openness (DOP). This is because the critical value at 5% is less than the trace statistic value as shown above. Therefore, the hypothesis of no co-integration has been rejected at 5% significance level.

4.9.1 Normalized equation

Table 4.9 Normalized Equation

1 Cointegrating Equation(s): Log likelihood -411.2105

Normalized cointegrating coefficients (standard error in parentheses)					
GDP	CI	DOP	INF	IR	@TREND(82)
1.000000	27.47165	0.814678	1.453036	-1.154108	-0.000439
	(3.11772)	(0.53096)	(0.45122)	(0.29087)	(0.16120)

Therefore in the long run the equation will be written as

$$GDP_t - \alpha_1 CI_t - \alpha_2 DOP_t - \alpha_3 INF_t + \alpha_4 IR_t + T = 0 \ldots\ldots (4.1)$$

Where; T is the @trend 82.

In this case all the variables are taken to the left hand side and the coefficient signs reversed to compare whether the signs are as anticipated. Numerically the normalize equation can be written as follows:

$$GDP = -\underset{(3.11772)}{27.47165}CI - \underset{(0.53096)}{0.814678}DOP - \underset{(0.45122)}{1.453036}INF + \underset{(0.29087)}{1.154108}IR + \underset{(0.16120)}{0.000439}T \ldots\ldots\ldots (4.2)$$

4.10 OLS Estimation

This method was used to estimate the true relationship between GDP and the independent variables- at first difference- using the equation below and results shown in table 4.10 below:

$$GDP_t = \alpha_0 + \alpha_1 IR_t + \alpha_2 CI_t + \alpha_3 INF_t + \alpha_4 DOP_t + \varepsilon_t \qquad (4.3)$$

Table 4.10: OLS estimation

Dependent Variable: GDP
Method: Least Squares
Date: 03/28/15 Time: 17:55
Sample: 1980- 2012
Included observations: 32

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.013900	0.360324	-0.038575	0.9695
CI	0.589406	0.389377	1.513716	0.1417
DOP	0.013682	0.031553	0.433627	0.6680
IF	-0.123030	0.044863	-2.742381	0.0107
IR	-0.041772	0.055821	-0.748328	0.4607

R-squared	0.266551	Mean dependent var	-0.049687
Adjusted R-squared	0.157891	S.D. dependent var	2.202760
S.E. of regression	2.021395	Akaike info criterion	4.388054
Sum squared resid	110.3230	Schwarz criterion	4.617075
Log likelihood	-65.20886	Hannan-Quinn criter.	4.463968
F-statistic	2.453089	Durbin-Watson stat	2.191794
Prob(F-statistic)	0.070001		

From the above table the results of OLS can be written as follows:

$$GDP_t = \underset{(0.51753)}{-0.0139} + \underset{(0.53643)}{0.589406}CI_t + \underset{(0.24056)}{0.013682}DOP_t - \underset{(0.4309)}{0.123030}INF_t - 0.041772IR_t + \varepsilon_t \ldots\ldots\ldots\ldots (4.4)$$

Interpretation

The results in Table 4.5 above were interpreted against the specific objective of establishing the relationship between GDP and a set of four variables. The null hypothesis was that all the coefficients were zero. The results indicates that there is a negative constant coefficient and an intercept of 0.0139 meaning that in the absence of all the other independent variables, 0.0139% decline of the GDP each year occurs as a result of a unit increase of other factors other than the independent variables highlighted. As per the statistical significance, the result indicates that the coefficients of CI, DOP and IR are statistically insignificant at 5%level. Only INF is significant.

The probability of F- statistics (which also tests for the overall model fit within the population) is 0.07 which is higher than 5% level, which is not very impressive.

The results further show that the OLS estimation is not very impressive. Bearing in mind that R^2 is less than 50%, it symbolizes that the independent variables only explains 26.6% of GDP. The F-statistics are also greater than 5% and hence is not the best in estimating the relationship due to the fact that the independent variables (IR, CI, INF and DOP) are the major determinants of GDP. This is contrary to Campion and Neumann (2004), argument that strengthening financial liberalization indicators such as the elimination of credit and interest rate controls, the elimination of entry barriers in the banking sectors, the removal of restrictions on capital flows, and security market liberalization tend to have an impact on prices, transaction costs, returns on assets, and quantitative limits of ownerships and investments hence has positive relationship to the overall GDP growth. Since these results are not very impressive it was necessary to introduce the overparametized model for further analysis.

4.11 Error correction model

The error correction mechanism measures the speed or degree of adjustment i.e. the rate at which the dependent variable adjust to changes in the independent variables towards equilibrium. Since a long run equilibrium relationship has been established, the next step is test for the speed of adjustment using the short run dynamism of error correction mechanism (ECM). Critical to the condition of error correction is the condition that the independent variable must be co-integrated with at least one of the independent variable; this condition has been met in the previous chapter.

Table 4.11 Presentation of ECM Results

Error correction model
Dependent Variable: D(GDP)
Method: Least Squares
Date: 03/29/15 Time: 08:05
Sample (adjusted): 1980- 2012
Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.062202	0.359069	0.173232	0.8639
D(CI)	0.779689	0.222061	3.511143	0.0017
D(DOP)	0.011187	0.026785	0.417657	0.6798
D(INF)	-0.157736	0.032770	-4.813384	0.0001
D(IR)	-0.067455	0.035106	-1.921495	0.0661
U(-1)	-1.151504	0.193422	-5.953333	0.0000

R-squared	0.702389	Mean dependent var	0.046452
Adjusted R-squared	0.642867	S.D. dependent var	3.309992
S.E. of regression	1.978073	Akaike info criterion	4.374109
Sum squared resid	97.81931	Schwarz criterion	4.651655
Log likelihood	-61.79868	Hannan-Quinn criter.	4.464582
F-statistic	11.80044	Durbin-Watson stat	2.068272
Prob(F-statistic)	0.000006		

From the table 4.11above, the coefficient ECT is -1.151504. In the model it indicates that the speed of adjustment of any past deviation to long run equilibrium is -1.2and also significant at 5%.This shows that present value of the dependent variable adjust at a rate of 12% to changes in the independent variables. The result of the model also reveals that variable CI and INF and error term are significant. Their significance was determined by taking into consideration their probability value. The corresponding probability value of each variable must be less than 5%. It

can be concluded that changes affecting GDP are determined by INF and CI in the short run and DOP and IR in the long run.

The table shows that the coefficient of INF is negative while the coefficient of DOP is positive. From the results, it could be deduced that INF has a negative relationship with GDP because of the negatively signed coefficient i.e. -0.157736. This implies that a unit increase in INF will lead to a decrease in GDP by -0.157736 units. Also, the coefficient of DOP (+0.011187) suggests that a positive relationship subsists between DOP and GDP. The implication is that a unit change in DOP will consequently lead to increase 0.011187 units of GDP. The R^2 is 70.2%, meaning that the model explains more than 70.2% of the total population. The F- statistics (11.8), which measures the overall model fit is also very significant at 5% significant level considering its probability.

4.11.1: Over parameterized

The table below shows the results of the over-parameterized model

Table 4.12: Over Parameterized model

Over parameterized
Dependent Variable: GDP
Method: Least Squares
Date: 03/29/15 Time: 08:12
Sample (adjusted): 1980- 2012
Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.013900	6.41E-16	-2.17E+13	0.0000
DGDP	-6.86E-16	3.89E-16	-1.761440	0.0934
DCI	-4.01E-16	9.92E-16	-0.404359	0.6902
CI	0.589406	1.54E-15	3.82E+14	0.0000
DOP	0.013682	2.24E-16	6.12E+13	0.0000
DDOP	2.20E-16	1.93E-16	1.139047	0.2681
DIF	-2.53E-16	1.47E-16	-1.719655	0.1009
IF	-0.123030	1.37E-16	-8.98E+14	0.0000
DIR	-2.00E-16	1.25E-16	-1.595641	0.1262
IR	-0.041772	2.21E-16	-1.89E+14	0.0000
U	1.000000	5.61E-16	1.78E+15	0.0000

R-squared	1.000000	Mean dependent var	0.007419
Adjusted R-squared	1.000000	S.D. dependent var	2.214961
S.E. of regression	3.50E-15	Sum squared resid	2.44E-28
F-statistic	1.20E+30	Durbin-Watson stat	1.440610

The above results shows that the R^2 is perfectly 100%. The F-statistics is also very significant. The coefficient of the error term is 1 and is very significant. The coefficients are different from zero and the probability values at 5% level signify that the lagged values of variables are

statistically insignificant while there current values are significant. The results shows a very ideal situation and portrays that the over parameterized model explains the dependent variable fully as indicated by the value of R^2.

The over parameterized model gives estimates of both the lagged values of the independent variables as well as the current variables together. The coefficients of the over-parameterized model shows mixed relationship between the dependent variable and the independent variables. The probability values greater than 5% imply that the corresponding variables are not significant whereas those that are less than 5% are statistically significant in determining GDP. The ideal nature of this model called for the use of a parsimonious model formed below.

4.11.2 Parsimonious model

Table 4.13: Parsimonious model

Dependent Variable: GDP
Method: Least Squares
Date: 03/29/15 Time: 08:20
Sample (adjusted): 1980- 2012
Included observations: 31 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.029472	0.337488	0.087327	0.9311
DCI	0.496147	0.210060	2.361932	0.0259
DIF	-0.100953	0.030038	-3.360786	0.0024
DIR	-0.082683	0.033329	-2.480776	0.0199
U(-1)	-0.045528	0.182474	-0.249506	0.8049

R-squared	0.376677	Mean dependent var	0.007419
Adjusted R-squared	0.280781	S.D. dependent var	2.214961
S.E. of regression	1.878437	Akaike info criterion	4.245447
Sum squared resid	91.74165	Schwarz criterion	4.476735
Log likelihood	-60.80443	Hannan-Quinn criter.	4.320841
F-statistic	3.927983	Durbin-Watson stat	2.239540
Prob(F-statistic)	0.012644		

As presented in Table 4.13 above, the coefficients of the results show the short run relationship between the dependent variables and the independent variables. At 5% level of significance, the relationship between GDP, IR, INF and CI are significant. The error term is also insignificant as its value is more that 5% significant level. The study therefore reveals that current GDP is influenced by last year values of CI, INF and IR. The findings meant that deregulating interest rate and increasing capital inflow and managing inflation leads to the significant growth of the economy. According to Montiel and Reinhart (1999), both factors (pull and push) are important for inducing capital flow, but they play different roles. They suggested that while push factors may help explain when the new capital flows would enter and how large the capital flows would be, pull factors may be necessary to explain where or which countries would absorb these capital flows to boost their economic growth.

It therefore means that they explain the movement of GDP. The coefficients of INF and IR are negative and significant at 5% level hence significantly explain GDP. Therefore an increase in inflation and interest rate by 10% and 8% respectively will lead to a decrease GDP with similar percentage assume other factors are held constant. Simarly an increase of Capital inflow by 49.6% will definitely lead to an increase in GDP with equal percentage the study determined that the R Square explain 37.6% of the total variations in the dependent variable. The F-statistics at 3.927983 with a probability of 0.012644 is also very significant. The result from the parsimonious model revealed that there is a relationship between the dependent variable and independent variables.

According to the results, IR, INF and CI were significant in the determination of GDP whereas DOP was not significant determinants of GDP. This confirms the findings by Svensson (2011) which explains that “monetary policy, in the form of flexible inflation targeting, has the objective

of stabilizing both inflation around the inflation target and resource utilization around a sustainable level, while financial stability has the objective of maintaining and promoting financial stability through supervision, regulation and financial stability reports that may provide early warnings of stability threats"

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Since the early 1970s, the relationship between financial liberalisation and economic growth has been hotly debated, in both in policy and academic circles on the one hand, this is due to the fact that during the past two decades many countries have liberalized their domestic financial markets. On the other hand, views with respect to the impact of these liberalisation policies differ. Whereas some have claimed that liberalisation of financial markets contributes to the efficiency with which these markets can transform saving into investment, which ultimately fosters economic growth, others have pointed out that these liberalizations have contributed to various financial and economic crises in the past. Several papers have investigated the nature of the relationship between financial liberalisation and economic growth. The evidence that emerges from these studies remains inconclusive.

In this study we aimed at providing a systematic analysis of the empirical literature by conducting a regression analysis of the relationship between financial liberalization and economic growth in Kenya covering period between year 1980 and 2012. In the regression analytical framework we have used, we focus on explaining the heterogeneity of results regarding the relationship between financial liberalization and economic growth reported in the studies in our sample. In particular, we focus on a number of study-, data- and method-specific characteristics, such as the way financial liberalisation has been measured (de jure versus de facto measures),whether the study has been published as a working paper or as a peer-reviewed academic journal article, the time periods covered by the original studies the type of countries

included in the analysis (developed countries, developing countries and a mixed set of developed and developing countries), the number of countries taken into account in the analysis, whether or not panel data are used, whether potential endogeneity problems have been treated, whether or not fixed effects are used, and whether or not a set of relevant conditioning variables has been included (i.e. measures of the development of the financial sector, the openness of the real economy, the size of the government, life expectancy, population growth, investment, inflation, property rights, law and order, human capital and financial crises). The study investigated the quantitative effect of financial liberalization on economic growth in Kenya. The data was analyzed following a methodological approach that allows for short and long run relationships existing between the dependent variable GDP and explanatory variables CI, IR, INF and DOP to be revealed. The regression analysis provided the following main results

5.2: Summery and Conclusion.

The first specific objective was to investigate the effect of interest rate on economic growth. As revealed by the study, interest rate affected economic growth in the sense that interest rate deregulation increases savings and also investment while repressing interest rate results to statistical insignificance growth to the dependent variable, this is revealed by the regression coefficient which indicated that there was a negative growth of the economy by -0.0139 most probably due to the regulation of interest rate hence low investment opportunity. This confirms the theory of McKinnon (1973) and Shaw (1973). Who advocated for liberalization on interest rate to increase savings and investment hence economic growth.

The second objective was to establish the relationship between capital inflow and economic growth. The study established that increase of capital inflow results to an increase of GDP by 0.589406 or a GDP change by 59% as revealed by the regression analysis though statistically

insignificant, the results indicate that capital inflow determines economic growth this could be due to foreign direct investment that come due to open economy. The third objective was to establish the effect of inflation on economic growth. As revealed by the regression coefficient, inflexible inflation rate causes a negative change of 0.12303 in GDP as opposed to the fact that flexible inflation has the objective of stabilizing both the inflation around the inflation target and resource utilization around a sustainable level for the realization of economic growth.

Lastly the fourth objective was to investigate the relationship between degree of openness and economic growth. The study found that degree of openness had a positive relationship with GDP due to the fact that as the economy continue to open to the outside world the economic growth increase by 0.013682.Again, from the OLS results, the coefficient of financial deepening (DOP) is positive this shows that DOP is positively related to GDP and this relationship confirms that stated a priori expectation. The coefficient of DOP (trade dependency ratio) is *+0.013682*. This is in agreement with the a priori expectation because the value of the coefficient of DOP shows that in the short run, a direct relationship exists between GDP and DOP.

It can be adduced therefore that financial liberalization is a prominent feature in both developed and developing nations. The core of the study has been to determine and examine the quantitative effect of financial liberalization on the economic growth ofKenya. The study employed the Johansen Co-integration test and Error Correction Mechanism (ECM) in its analysis. The unit root test was carried out to establish that the time series data on all the variables are stationary, which is a pre-requisite for the Johansen Co-integration test. The result of the co-integration test shows that there exists a long run equilibrium relationship among the variables. The error correction mechanism shows that the speed of adjustment in the model is significant because it is negatively signed.

The main finding emerging from this study indicates that financial liberalization in Kenya has been significant on her economic growth; hence, it justifies the assertion of Mckinnon (1973) and Shaw (1973) on financial liberalization. Also, the study concludes that financial liberalization has not refrained investors from seeking funds from banks at the deregulated lending rate. The lending rate also allowed for the effective and efficient intermediation of funds to the users of funds to participate in productive activities that contribute to economic growth. The macroeconomic instability perceived with financial liberalization does not have a negative influence on the overall output of the economy, hence, it is concluded that the macroeconomic instability cannot be attributed to financial liberalization. Though, financial development is significant for economic growth, financial liberalization has not really increased the depth of the financial system which would consequentially impact on the economy positively. The degree of openness or trade dependency ratio is an important aspect of globalization which shows that the trade relation of Kenya with the rest of world has contributed significantly towards economic growth. In light of the findings of this study, it is of cognizance to recommend policy measures to further enhance the effect of financial liberalization on economic growth I therefore would recommend the following recommend the following policy.

5.3 Recommendation

The stability of the economy should first be taken into consideration before implementing financial liberalization measures. Strong macroeconomic policies should be pursued to maintain and stabilize the economy. The regulatory and supervisory framework for the financial sector should be strengthened. One way to achieve this is by laying down strict prudential rules and regulations to stabilize and strengthen the banking industry. More over the policy towards interest rate should be made such that savings would be stimulated thereby placing more funds in the hands of banks to intermediate to investors seeking funds. Also, lending rate should be reasonable so as not to deter investors to borrow to embark on viable investment projects. The borrowing should also be for development and not for consumption purposes this will spur economic growth.

The Government should also create a conducive business environment to encourage both local and foreign participation in investment thereby spurring economic growth. Proper integration of the financial sector should be ensured by the government so that financial units can be strategically positioned and adequately capable to intermediate funds, thereby promoting financial development and accessibility The Central Bank of Kenya (CBK) through its monetary policy department should implement policies that increase the flow of investible funds and improves the capacity of banks to extend credit to the economy by reaching the all areas within the country. The CBK should promote healthy competition in the banking industry so as to improve the efficiency of banks in rendering financial services to the public and also increase the penetration of foreign banks in the country. The government should maintain reasonable inflation to avoid the negative effects on economic growth.

5.4: Limitations of the study

There was limitation of study variables. Financial performance of commercial banks is influenced by many other factors other than the variables used such as, measure of return on assets, equity and exchange rate deepening. The introduction of other variables could change the nature of the observed relationship. Its consideration can form a basis of interesting topics for research if pursued further.

The independent variables only explained 27% of the dependent variable. Key among the missing variables that the research left out was the non-financial factors such as the dependency rates in Kenya. The reason was data was not readily available. Upon the availability of these data, future researchers can incorporate them together with the economic variables to have a compact analysis of determinants of GDP in Kenya.

5.5 Areas for Further Research

This study did not include everything and a further study is recommended to include other variables affecting financial performance of institution. The researcher recommends that future research should be directed towards validating the results of this study by conducting a similar research in micro-finance in Kenya by collecting data from different sources.

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APPENDICES

APPENDIX 1: STATISTICAL DATA

YEAR	GDP GROWTH	INTEREST TATE(EVERAGE REAL INTEREST RATE	CAPITAL INFLOW	INFLATION RATE	DOP=((X+M) /GDP)
1980	5.59	0.90	1.10	13.87	46.40
1981	3.77	1.40	0.20	7.90	44.90
1982	1.51	2.60	0.40	13.82	41.40
1983	1.31	3.60	0.20	11.60	37.00
1984	1.76	3.80	0.50	20.67	41.20
1985	4.30	5.30	0.50	11.40	39.00
1986	7.18	4.90	0.00	10.28	38.90
1987	5.94	8.20	0.80	13.01	34.10
1988	6.20	8.00	0.70	4.80	36.50
1989	4.69	6.80	0.20	7.62	37.60
1990	4.19	7.30	0.10	11.20	38.00
1991	1.14	5.70	2.50	19.10	37.30
1992	-0.80	1.80	0.10	27.33	38.70
1993	0.30	3.40	0.50	45.98	54.70
1994	2.63	16.40	0.90	28.81	51.50
1995	4.41	15.80	0.50	1.55	53.80
1996	4.15	-5.80	0.20	8.86	41.60
1997	0.47	16.90	0.40	11.92	40.70
1998	3.29	21.10	0.90	6.72	36.90
1999	2.31	17.50	0.00	5.75	35.50
2000	0.60	15.30	0.20	9.96	38.10
2001	3.78	17.80	0.50	5.73	39.60
2002	0.55	17.40	0.20	1.97	40.80
2003	2.93	9.80	0.50	9.81	41.20
2004	5.10	5.00	0.30	11.79	45.00
2005	5.91	7.60	0.10	9.87	49.50
2006	6.33	5.40	0.20	6.04	47.70
2007	6.99	7.30	2.70	4.27	48.00
2008	1.53	0.70	0.30	15.10	52.90
2009	2.74	5.10	0.40	10.55	48.00
2010	5.76	12.20	0.60	4.09	53.60
2011	4.38	2.60	1.00	14.00	61.10
2012	4.00	8.70	0.00	10.10	0.00

Source: World Bank information site

APPENDIX 11: ECT

	ECT
	Last updated: 09/17/13 - 17:49
	Modified: 1980 2012 // makeresid
YEAR	
1980	1.292158
1981	-0.78538
1982	-2.11215
1983	-2.339
1984	-0.7947
1985	0.563682
1986	3.546736
1987	2.628828
1988	1.675613
1989	0.748476
1990	0.877919
1991	-2.60468
1992	-2.27338
1993	1.184977
1994	2.046516
1995	-0.05094
1996	-0.89032
1997	-2.04884
1998	0.173403
1999	-0.72032
2000	-2.19195
2001	0.394014
2002	-3.2691
2003	-0.65087
2004	1.401179
2005	2.213826
2006	1.831643
2007	0.887355
2008	-2.24138
2009	-1.24908
2010	1.270576
2011	0.048497
2012	1.436682