THE IMPACT OF FINANCIAL LIBERALISATION ON THE ECONOMIC PERFORMANCE OF SELECTED COUNTRIES IN SUB-SAHARAN AFRICA

By

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ABSTRACT

The theory of financial liberalisation advocates the 'freeing up' of financial markets in order to stimulate savings, investment, and ultimately economic growth. This is to be achieved by eliminating financial repression and letting the market allocate savers funds to investors. Both the quantity and quality of investment are expected to increase and these should lead to higher rates of economic growth. Financial liberalisation was embarked upon by many counties in Sub-Saharan Africa (SSA) from the mid-1980s into the 1990s and most of the literature about these experiences has been purely theoretical. The objective of this thesis is to examine the impact of financial liberalisation on the economic performance of 19 countries in SSA over the period 1975 – 2000.

Financial liberalisation is measured by four proxies. These are 2 liberalisation proxies that take account of the gradual progression in financial liberalisation policies, a dummy variable that takes on a value of 1 in the year that major moves towards liberalisation started, and the real rate of interest. Panel data techniques are employed in estimating savings, investment, and growth equations.

Our results show that financial liberalisation has not had the desired effect on the economic performance of countries in SSA. It is found that financial savings, private investment, total investment, and economic growth have had a negative relationship with financial liberalisation. The only variable which showed a positive relationship with financial liberalisation was national saving.

A case study for Nigeria showed that in the long run financial liberalisation has had a positive effect on financial savings and economic growth thus lending credence to the view that financial liberalisation causes distortions and crisis in financial markets in the short run, but is beneficial to economic growth in the long run.

CHAPTER ONE: INTRODUCTION

1.1 MOTIVATION AND RESEARCH QUESTIONS OF THE STUDY

Since the publication of the seminal works of McKinnon (1973) and Shaw (1973), economists all over the world have been debating the issue of financial repression, financial liberalisation and economic growth. McKinnon (1973) and Shaw (1973) both argued that many less developed countries (LDC's) had shallow financial markets, which had contributed to retarding economic growth. Shallow finance had distorted both interest rates and foreign exchange rates among other financial prices and consequently, the real rate of economic growth had been greatly hampered. These sorts of economies were said to be financially repressed. Low interest rates, McKinnon and Shaw argued, had the effect of eroding savings and consequently stifling investment.

They thus advocated for liberalisation of the financial markets of such countries in order to stimulate savings and investment and thus enhance economic growth. Liberalisation of the financial sector can enhance economic growth in a variety of ways. One of these ways is the mobilisation of funds from inefficient to efficient uses. Financial intermediaries that increase and operate under better conditions are able to channel funds efficiently from savers to investors in a cheap and efficient way.

Also, because of higher interest rates, there is a higher reward for saving and so more people are inclined to save. The increase in savings makes it possible for more funds to be channelled into investment. A developed financial sector also facilitates trading,

hedging, pooling and the diversification of risk, which allows the establishment of large projects that may have been impossible in its absence.

This research is aimed at conducting an empirical investigation of the effect of the financial liberalisation hypothesis developed by McKinnon and Shaw on the economic performance of selected countries in Sub-Saharan Africa (SSA). Their (McKinnon and Shaw's) work has been used as a manual by international organisations such as the World Bank and International Monetary Fund (IMF) in their lending and advisory capacities to developing countries. Many SSA countries have therefore embarked at various times in the past 3 decades, on measures aimed at structurally adjusting their economies to paths of economic growth. This has been done either solely by liberalising their financial markets, or using a combination of reforms as part of a Structural Adjustment Programme (SAP).

While there is an abundance of literature surveying the experiences of such Sub-Saharan African countries with financial liberalisation, most of these studies (Callier, 1991; Chhibber & Fischer, 1991; Collier, 1993; Mehran et al., 1998) have been purely theoretical while the few empirical studies (Oshikoya, 1992; Seck and El Nil, 1993; Matsheka, 1998) have failed to properly measure the gradual institutional changes that financial liberalisation entails. The real rate of interest has been the principal variable used to measure financial liberalisation but this variable captures only one component of financial liberalisation - interest rate deregulation. It is therefore essential that a robust analysis of the impact of financial liberalisation policies on countries in SSA considers the different policies and stages involved in financial liberalisation. The

objective of this thesis is to improve on the deficiencies of previous empirical research by developing variables that adequately measure the progress made with financial reforms.

Consequently, this thesis addresses four main research questions:

(a) What has been the impact of financial liberalisation on financial and national saving in SSA?

(b) What has been the impact of financial liberalisation on private and total investment in SSA?

(c) What has been the impact of financial liberalisation on economic growth in SSA?

(d) Has there been a cointegrating relationship between financial liberalisation and savings, investment, and growth in Nigeria?

The contribution of the thesis lies in the fact that in addressing these questions we differ from existing work on the impact of financial liberalisation in SSA by testing for the impact of institutional changes associated with financial liberalisation on economic variables. Previous studies have employed the real rate of interest and measures of financial deepening such as the broad money ratio and the ratio of bank credit as proxies for financial liberalisation. However, such variables are inadequate measures of financial liberalisation because they fail to explicitly account for different liberalisation

measures. We have constructed two indexes to take account of the gradual progression of liberalisation polices. We identified five major moves towards liberalisation and principal components analysis is used to derive the first financial liberalisation index. The second index involves assigning a numerical value to progress with each of the five moves towards liberalisation. This is the first study that has constructed such indexes for financial liberalisation in SSA and because all financial liberalisation measures are included in the same index, we correct for the problem of omitted variable bias that blights other studies that use just one liberalisation measure (Gibson and Tsakalatos, 1994, p.596). We also include a dummy variable to represent the start of major moves towards financial liberalisation.

It is essential to examine the impact of financial liberalisation on savings and investment because they are the transmission mechanisms through which financial liberalisation is expected to affect growth. The financial liberalisation hypothesis predicts that policies such as interest rate deregulation, bank privatisation, and the abolishing of directed credit should increase savings thereby providing more funds for investment. The increase in investment will then lead to growth and there is strong empirical support for the positive impact of investment on growth (Levine and Renelt, 1992; Khan and Reinhart, 1990; Calamitsis, Basu, Ghura, 1999; Beddies, 1999; Hoeffler, 2002). The various criticisms of the detrimental effects of financial liberalisation in Latin America, Asia, and Eastern Europe (Diaz-Alejandro, 1985; Kaminsky and Reinhart, 1999; Kaminsky and Schmukler, 2002; Demirguc-Kunt and

Detragiache, 1999) also provides a motivation to examine how it has performed in SSA.

This thesis is unique because it focuses solely on Sub-Saharan Africa and not generally on developing countries and so the conclusions reached from the results can be used to draw broad inferences about the region. Macroeconomic data for nineteen countries in SSA will be used to test the financial liberalisation hypothesis. The countries included in the study are drawn from all over the region and they all have at one time or the other liberalised their financial systems.

There are seven countries from West Africa and these are: Cote d'Ivoire, The Gambia, Ghana, Mali, Nigeria, Senegal, and Sierra Leone. There are also seven countries from Southern Africa: Botswana, Madagascar, Malawi, Mauritius, South Africa, Zambia, and Zimbabwe. We have Burundi, Kenya, and Uganda from Eastern Africa, while Cameroon and Congo Republic are from Central Africa. These countries jointly account for a large share of SSA GDP and for the period 1960 to 2002, their average share of SSA GDP was 77.8 percent. For the same period their average share of SSA population was 54.5 percent.

Furthermore, we will employ panel data techniques to exploit both the time-series and cross-sectional dimension of the data we have. While this technique improves on the deficiencies of pure time-series or cross sectional estimates[1], it also gives us a greater number of observations thereby giving more information about the economic variables.

[1] Such problems include heterogeneity bias.

Time series techniques in the form of Autoregressive Distributed Lag (ARDL) method are applied for a chapter that focuses solely on Nigeria.

1.2 STRUCTURE OF THE THESIS

The thesis is divided into eight chapters.

In chapter two we present a review of the literature on the theory of financial liberalisation. Broadly speaking financial liberalisation is used to mean all those policies aimed at freeing "repressed" economies from the effects of such growth-retarding policies as low and often negative real interest rates and directed credit policies. The theoretical developments in the financial liberalisation literature are first outlined. Thereafter, we give a review of empirical evidences of the effects of financial development on savings, investment, and growth in SSA before finally looking at criticisms of the financial liberalisation hypothesis.

In order to fully evaluate how financial liberalisation has evolved we need to know the financial structure and institutional changes that took place during liberalisation. Consequently, chapter three examines the financial systems of all the nineteen countries included in this research. The macroeconomic and more importantly, the financial conditions before and after liberalisation are discussed and we offer insights into how financial liberalisation changed the financial system. We then provide a detailed analysis of how different liberalisation moves progressed vis-à-vis bank restructuring

and privatisation, interest rate deregulation, central bank autonomy, and the abolition of direct credit allocation.

In chapter four, we employ panel data techniques to empirically examine how financial liberalisation has affected savings in SSA. We distinguish between financial and national saving and develop our model based on various savings theories like the absolute income hypothesis and life cycle hypothesis of saving. We take account of the gradual nature of financial liberalisation by developing two indexes of financial liberalisation. We also include a shift dummy to capture the start of major moves towards financial liberalisation and the real rate of interest is employed as well, as an instrument of liberalisation.

One of the main arguments in favour of embarking on financial liberalisation has been that it helps to increase investment in the economy. Investment has been established to have a robust and positive effect on economic growth (Levine & Renelt, 1992; Khan & Reinhart, 1990). Liberalising nominal interest rates means that real interest rates can increase and this attracts deposits which can be used to finance investment. We empirically test if financial liberalisation has indeed improved investment in SSA. In doing this, we use both the domestic and private investment rates as dependent variables and employ the liberalisation proxies introduced in chapter four with a host of macroeconomic and political explanatory variables in our model.

In chapter six we examine how financial liberalisation has affected economic growth in SSA. The deepening of the financial system following financial liberalisation is expected to enhance growth. According to the financial liberalisation hypothesis, the

increased availability of investable funds coupled with better functioning financial intermediaries should ensure the allocation of capital to the most productive areas in the economy thereby enhancing economic growth. It is expected that liberalisation will improve both the quantity and quality of investment, thereby enhancing growth. We will develop a suitable model of economic growth and use the financial liberalisation proxies, in addition to other variables to test this hypothesis for our SSA countries.

Chapter seven will focus on Nigeria. Nigeria provides an interesting case study firstly because it has the second largest economy and financial system in SSA after South Africa. However, unlike South Africa which adopted a gradual and selective stance towards financial liberalisation, Nigeria embraced it completely and initiated virtually every policy measure prescribed by the liberalisation theory. Also, Nigeria's financial reforms were included as part of a Structural Adjustment Programme (SAP) and this provides a good opportunity to examine the sequencing argument of later financial liberalisation proponents (McKinnon, 1993; World Bank, 1991). Nigeria has also been chosen because there is greater access to information regarding financial liberalisation policies and data is readily available. Finally, Nigeria experienced a banking crisis after financial liberalisation and this gives us an opportunity to test the hypothesis that financial liberalisation is painful in the short-run but beneficial in the long-run (Demirguc-Kunt & Detragiache, 1996, 1998, 2000; Kaminsky & Schmukler, 2002; Loayza & Ranciere, 2004; Tornell & Westermann, 2004). Cointegration analysis will be employed to examine the impact of financial liberalisation on savings, investment, and economic growth.

In chapter eight we present the summary of the results. We also provide the implications of our results for policy.

CHAPTER TWO: THE THEORY OF FINANCIAL LIBERALISATION

2.1 INTRODUCTION

Financial liberalisation, as the name implies, means making financial markets 'liberal'. Broadly speaking financial liberalisation is used to mean all those policies aimed at freeing "repressed" economies from the effects of such growth-retarding policies as low and often negative real interest rates and directed credit policies. The term "financial liberalisation" is often used interchangeably with the terms "financial reform", "financial deregulation", "financial deepening", and "financial development".

In their books, both McKinnon (1973) and Shaw (1973) projected the analysis that financial liberalisation was needed to remedy the problems caused by financial repressive policies of developing countries. McKinnon and Shaw both identified financial repression as a regime consisting of the imposition of interest-rate ceilings, foreign-exchange regulations, direct allocation policies, high reserve requirements, and heavy taxation of the financial sector. They identified many developing countries as pursuing such policies, which had the effect of retarding economic growth in the long run. Such policies they both argued resulted in shallow finance, which reduced the real size of the financial system, and consequently hampered its role of efficient mobilisation and allocation of resources.

They both advocated the liberalisation of the financial sector of these developing countries in order to promote economic growth. Finance matters for growth in a variety

of ways and it is only through liberalisation that the many benefits of a sound and efficient working financial sector can be realised.

The services provided by the financial sector are essential in a modern economy and financial intermediaries help in channelling savings into the most productive investment uses. Gibson and Tsakalotos (1994) identify four advantages of financial intermediaries. Firstly, financial intermediaries can borrow from savers on a short-term basis and lend to investors on a long-term basis thereby creating liquidity. Secondly, by spreading their loans across a broad portfolio, financial intermediaries are able to spread the risk of lending. Thirdly, they are able to reduce transactions and information costs by bringing together savers and investors. Fourthly, saving can take place in a different sector of the economy and investment can take place in a sector different from that which the saving took place, thus capital is channelled to the most productive sectors of the economy.

This chapter provides a detailed examination of the theory of financial liberalisation. The chapter is divided into five sections. The second section looks at theoretical developments in the financial liberalisation theory. The third section provides an overview of empirical tests of the financial liberalisation theory in African countries while the fourth section contains the criticisms of the theory of financial liberalisation. The final section concludes.

2.2 DEVELOPMENTS IN THE THEORY OF FINANCIAL LIBERALISATION

Early twentieth century literature on the importance of finance to growth include Schumpeter (1912), Keynes (1936, 1937a, b), Gurley and Shaw (1955), and Patrick (1966).

Schumpeter (1912) discards the common belief at that time that money's sole function was a medium of exchange and nothing else. This view was summed up in the notion "that the creation of money is merely a technical matter, with no deeper significance for the general theory of economic life" (Schumpeter 1912, p.100). He disagrees with Ricardo's belief that banks cannot contribute to the process of wealth creation but asserts that banks - and indeed all financial intermediaries - are created not only for transporting money but also for granting credit. Schumpeter asserts that creation of credit by banks is essential for economic development, and makes the assumption that only the entrepreneur needs credit. Credit provides the entrepreneur with purchasing power without which, it would be impossible to produce. Credit can therefore be seen to feed industrial development. However, credit does not just come automatically but has to be borrowed and this can be done only through financial intermediaries. Financial intermediaries are seen to perform the role of bridging the gap between products and means of production and they achieve this by providing the entrepreneur with purchasing power. Economic development can then proceed once the entrepreneur has been empowered by credit.

Keynes (1930, 1937a, b) also identified the importance of finance to growth. In Keynes (1930) the banks are seen to play an important role in enhancing production by creating credit. The banks have a dual role in that they not only create credit for entrepreneurs, but they also apply discretion in not creating too much money that would trigger inflation. The function of creating credit is so important that Keynes states that "If, therefore, sufficient bank credit was freely available, there need never be unemployment" (p. 217).

In Keynes (1937a, b) banks play a pivotal role in the transition from a lower to a higher scale of activity. If banks are not forthcoming in releasing additional finance, then there will be a shortage of finance and the economy will stagnate, whereas, if they (banks) create funds at the prevailing interest rate, the new investment will cause the economy to move to a higher level of economic activity. Conversely, if banks do not create these funds, the interest rate will rise and investment will fall, thus causing real economic activity to stagnate. Economic growth is achieved in this model through the workings of the multiplier where an initial increase in investment spending triggers a Keynesian multiplier expansion. The multiplier as a result of increased money supply means that the level of spending in each period in the future will be greater than income earned in the previous period.

The above discussion would suggest that financial development is always a prerequisite to growth. However, Robinson (1952) and Patrick (1966) provide contrasting views to this. Robinson (1952) acknowledges the important role that finance plays in the growth process by noting that production can at times be hindered though lack of finance.

However, the author is of the opinion that growth leads financial development and so, the economy grows first, and then creates opportunities for financial development. This view was partly corroborated by Patrick (1966) who noted that the relationship between financial development can either be a 'demand-following' or 'supply-leading' one. In demand-following phenomena, growth of the real sector induces an expansion of the financial system while for supply-leading phenomena, the growth of the financial system precedes expansion in the real sector. The author is of the view that the supply-leading phenomena is likely to be the case in the early stages of economic development while demand-following relationship will dominate in advanced economies. It might therefore be the case that financial development does not always lead to economic growth as expounded by Schumpeter (1912) and Keynes (1930, 1937a, b), but in some cases, growth might cause financial development.

Both McKinnon (1973) and Shaw (1973) identified lagging economies as facing financial repressive policies which had hampered their economic development. Many of these countries had been drawn to pursuing policies of financial repression because of the "benefits"[1] to be achieved from these policies and such benefits can make the government pursue repressive policies in the financial sector. Also, repression could be practised to make cheap capital available to some "priority" sectors in the economy. These priority sectors usually have close ties with the government and ceilings on the rates of interest make cheap capital available to them.

[1] Such benefits include bypassing costs in the administration of other forms of taxation. Financial repression is a form of taxation which is cheap and convenient to administer. Such government taxation of financial intermediaries include high reserve requirements and direct taxation of banks incomes.

McKinnon and Shaw note that the problem with lagging economies is not lack of investment opportunities but unattractive savings. A main feature of shallow finance is that the low level of interest rates discourages agents from saving and consequently, this makes capital for investment hard to come by. Lagging economies are also characterised by manipulation of prices in virtually all markets.

The effects of financial liberalisation on repression can be seen from Figure 2.1.

In the diagram, the real rate of interest is measured on the vertical axis while the rates of investment and savings are measured on the horizontal axis. The SS curve represents the savings function while the II curve represents the investment function. If the market was allowed to operate freely, equilibrium in the market for loanable funds will be attained at point E, where amount saved is equal to amount invested (I*) and the market-determined rate of interest will be r*. However, if an interest rate ceiling (C) is imposed on deposit interest rates at r1, savings will be I1. Since the interest rate ceiling is only on the deposit rate, banks can charge a lending rate at r2 which corresponds to investment at I1. However, interest rate ceilings will more likely apply to both deposit and lending interest rates. In this case, both savings and investment will be restricted to I1, XY amount of investment opportunities is not met, and the investment undertaken will be inefficient (dotted area).

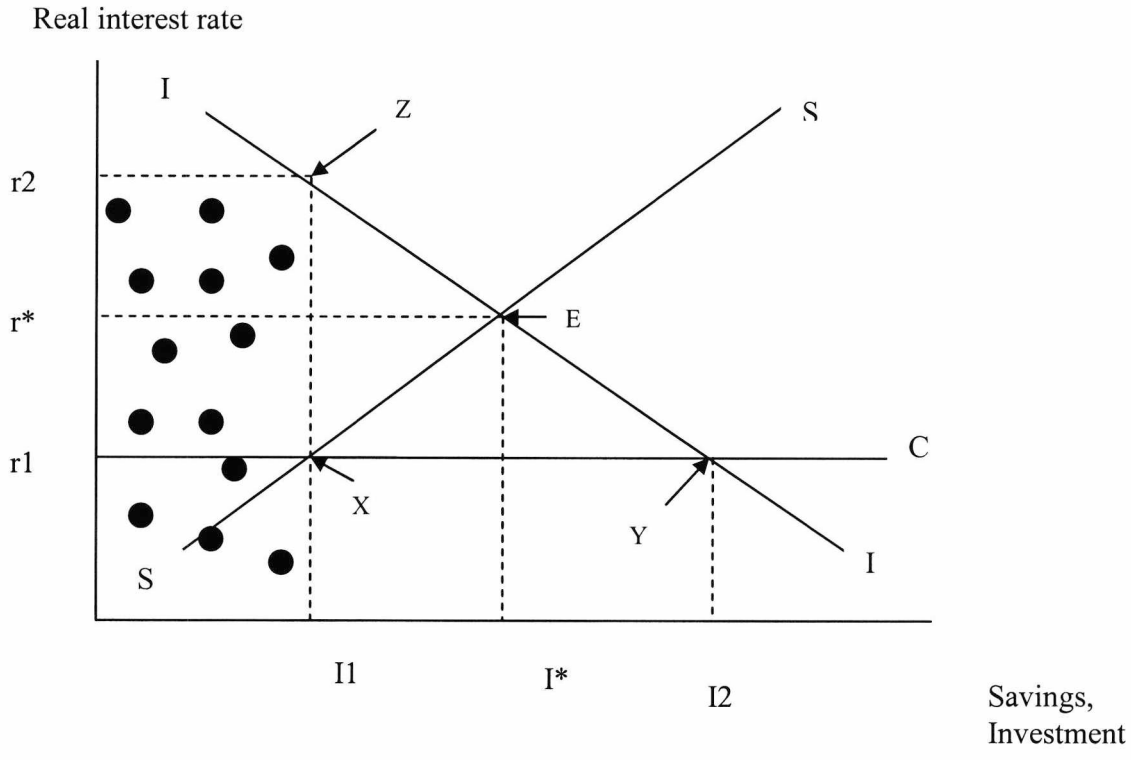

FIGURE 2.1: FINANCIAL REPRESSION

With financial liberalisation, interest rates will rise, increasing savings and also investment. This process will continue until the real interest rate is at r* where savings is enough to satisfy investment. McKinnon and Shaw therefore advocated the liberalisation of such repressed financial systems so as to increase savings and investment, and consequently promote economic growth.

Savings and investment are the transmission mechanisms through which financial liberalisation will affect economic growth. However, McKinnon and Shaw propose different ways by which these transmission mechanisms work.

McKinnon's Complementarity Hypothesis asserts that money balances and capital are complementary, and investment needs a prior accumulation of money balances. A positive relationship between money balances and the deposit interest rate therefore means that higher deposit interest rates from liberalisation attract money balances and this is channelled into investment, thus stimulating growth.

Shaw's Debt Intermediation View sees a prominent role for financial intermediaries. The advantages of intermediaries in borrowing short and lending long, reducing costs, and spreading risk, means that they are in a position to attract more savings and lend efficiently, thereby enhancing growth. An increase in the deposit rate of interest stimulates an inflow of deposits to banks. The increased deposits lead to an increase in lending and subsequently, externally financed investment is enhanced. The Debt-Intermediation View sees real yields on all forms of wealth as having a positive effect on the domestic saving ratio.

Extensions to the McKinnon-Shaw framework have attempted to show how financial liberalisation can be incorporated into stabilisation programmes. These extensions include the models of Kapur (1976) and Galbis (1977) which highlight how financial liberalisation affects the quantity and quality of investment respectively.

Kapur's (1976) model applies to a labour-surplus developing economy characterized by the Harrod-Domar aggregate production function given by:

$$Y = \sigma K \qquad (2.5)$$

where Y = real output; K = total utilised capital; σ = the productivity of capital

Bank credit is used to finance both a fixed fraction (θ) of the cost of replacing depleted capital and also all net additions to working capital, and this bank credit is determined by the deposit interest rate and inflation. Now, if ΔP is inflation, we can have a fraction which gives additional nominal value of bank credit needed to maintain working capital at a constant level in real terms. That is, $\Delta P(\theta)(1-\alpha)K$.

Thus, the net increase in total utilised capital in real terms is:

$$\Delta K = \frac{1}{(1-\alpha)}\left[\frac{\Delta L - \Delta P Q(1-\alpha)K}{P}\right] \qquad (2.6)$$

where ΔL = nominal increase in bank loans.

Equations (2.5) and (2.6) imply that changes in the supply of bank credit in real terms affects the rate of economic growth.

Substituting $\pi = \Delta P/P$; $\mu = \Delta M/M$; $qM = L$; where $q = L/M$ = ratio of bank credit to money gives :

$$\Delta K = \frac{1}{(1-\alpha)}\left[\mu q \frac{M}{P} - \pi\theta(1-\alpha)K\right] \qquad (2.7)$$

Now since $Y/K = \sigma$ and $\Delta K/K$ = rate of economic growth ($\Delta Y/Y$ or γ), equation (2.7) can be expressed in terms of γ by dividing both sides by K:

$$\gamma = \mu \frac{M}{P.Y} \cdot \frac{\sigma q}{(1-\alpha)} - \pi\theta \qquad (2.8)$$

Equation (2.8) shows that the rate of economic growth is affected positively by the rate of monetary growth μ, the output/capital ratio σ, the ratio of loans to money q, and the ratio of utilised fixed capital to total utilised capital α.

Economic growth is reduced by an increase in the income velocity of circulation P.Y/M, a higher fraction of bank financed replacement working capital θ, and a higher reserve ratio 1-q.

Therefore, the key variable influencing the rate of economic growth is the supply of bank credit in real terms available for net additions to working capital. Financial liberalisation can positively affect bank credit if the deposit interest rate increases and the reserve requirement falls after liberalisation. The increased bank credit means that the quantity of investment has increased.

Galbis (1977) examines an economy comprised of two production sectors with contrasting financial constraints and technological processes, but which produce the same output. There are two sectors: a less efficient sector and a more efficient sector which is more technologically advanced and has higher rates of return on investment.

With low deposit rates of interest because of financial repression, investment will take place in the less efficient sector as it would be more profitable for firms to invest rather than increase their bank deposits. Credit will not flow to the more efficient sector. However, with increased deposit rates following financial liberalisation, the low return to investment in the less efficient sector means that firms would prefer to increase their bank deposits – by reducing investment – and this increases credit flowing to the more efficient sector. The higher rate of return on investment in the more efficient sector

means that the quality of investment will increase, and this will increase economic growth.

The hypothesis of McKinnon and Shaw make some inferences which might not always be fulfilled in reality. First, McKinnon's complementarity analysis assumes that accumulating real money balances is always in tandem with real capital accumulation. Khatkhate (1982) notes that such complementarity could be non existent in a situation where real interest rates are higher than the rates of return to capital. Crucially, investment will only improve if real interest rates rise but not to the level of the real return to capital.[2] When real interest rates rise above the rate of return on capital, savings will be channelled abroad thereby resulting in lower rates of investment even after liberalisation – a situation which is contrary to the prediction of McKinnon. Another reason why McKinnon and Shaw's analysis might not work is because investment opportunities in many developing countries have low yield. If the economies in such countries are open, increased deposits after liberalisation could result in increased investment not at home but abroad as the capital looks for the environment offering the highest yield.

The analysis of Stiglitz and Weiss (1981) also shows that the relationship between financial development and growth is not as straightforward as McKinnon and Shaw suggest. This is because imperfections –which are inherent in financial markets - can adversely affect economic growth. These imperfections in financial markets arise as a result of asymmetric information, which is the unequal distribution of information

[2] Khatkhate (1982) highlights the differences between real interest rates and the rate of return on capital.

between two sides in a transaction. The nature of financial transactions in which the borrower usually has more information about the likelihood of the loan being repaid than the lender makes asymmetric information inherent in this market. The existence of asymmetric information leads to two types of problems namely adverse selection and moral hazard.

Adverse selection is a prior-transaction problem. It is a situation that occurs when the borrowers selected for loans by lenders are ones most likely to default, and those not selected are not likely to default. This (adverse selection) worsens with increases in interest rates because genuine investors, with high risk aversion, are forced out of the market. This leaves the market free for low risk-averse borrowers who are most likely to default.

In the case of moral hazard, it is an after-transaction problem. It is a situation where the borrower is seen to be acting 'immorally' by the lender. Usually, this means that borrowers undertake investments with a greater degree of risk than that agreed with the lender.

In light of these two problems, Stiglitz and Weiss show that equilibrium in the market for loanable funds can be attained at an interest rate below the point of intersection of the demand for and supply of funds. This is because with an excess demand for loans, some borrowers will offer higher interest rates but the banks can see such borrowers as risky and they can refuse to offer loans at any interest rates above a certain 'bank-optimal' rate. Credit is therefore rationed by the banks.

The problems of adverse selection and moral hazard can be reduced if financial intermediaries are efficient in collecting and analysing information. Borrowers can be screened and funds will only be made available to those who have a high degree of risk aversion or those who seem unlikely to default. However, in a situation where financial intermediaries are not efficient in their roles, prudential regulation and banking supervision becomes important in keeping an 'eye' on the financial system. Prudential regulation is essential in order to keep intermediaries in check and ensure the minimisation of informational asymmetries.

With an unregulated financial system, informational asymmetries are likely to lead to financial fragility or financial crisis because it would be possible for careless bankers to get away with offering excessively high interest rates. These excessive high interest rates aggravate adverse selection and moral hazard problems in the credit market, which can lead to excessive risk-taking by firms. This has the consequence that some firms will not be able to repay loans and thus leaving banks insolvent. Financial crisis occurs which adversely affects economic activities and can therefore retard economic growth. This has happened in some of the countries in our study and this is discussed in section 2.4.2.

The experience of countries that embarked on financial liberalisation in the late 1970s and early 1980s also brought into question the viability of the financial liberalisation hypothesis. Diaz-Alejandro (1985) shows that many countries in Latin America that embarked upon financial liberalisation experienced severe financial crisis which had negative effects on economic growth. Financial and banking crisis were also prevalent

after liberalisation in Eastern European countries. Although East Asian countries have been projected as success stories of financial liberalisation, there is still a lot of debate on the role liberalisation played in their rapid economic progress. Dornbusch and Reynoso (1989) argue that high real interest rates might only have shifted deposits from curb markets to banks, and not necessarily improved the allocation of resources. They also note that the rise in savings could have been a result of increased capital inflows resulting from real depreciation and the resultant export boom. Fiscal discipline included as part of the stabilisation programme could also have played an important role in increasing savings.

These criticisms to financial liberalisation prompted its proponents to make some alterations to the initial theory. McKinnon (1993) advocates a correct sequencing of financial liberalisation. The optimal order for liberalisation starts with liberalising the domestic real sector. This is followed by liberalisation of the domestic financial sector, the external real sector, and finally the external financial sector. Fiscal control and tightening of prudential regulation prior to liberalisation is also advised. The World Bank (1989) attributed the distress in financial systems to deposit insurance schemes (which resulted in imprudent behaviour by banks), lax and inadequate prudential regulation, and weak legal systems. Development of the financial system is still advocated by the World Bank (1989) but this should come after development of the legal system and enhanced accounting and auditing procedures are put in place. World Bank (1991) also proposes that financial reforms should be carried out in the absence of

political crisis; in the presence of macroeconomic stability; the reforms should not be rushed but proceed in a gradual manner; and correct sequencing is needed.

The importance of financial development to growth has also been highlighted in the endogenous growth models. Endogenous growth theories are the new breed of growth theories which have the distinct characteristic of realising self-sustaining growth without exogenous technical progress. Early models include Diamond and Dybvig (1983), Diamond (1984), and Boyd and Prescott (1986); while later models include Geenwood and Jovanovic (1990), Bencivenga and Smith (1991), and Pagano (1993).

The endogenous growth theories emphasise the role of financial intermediaries in economic growth. They show how there can be self-sustaining long run growth as a result of liberalisaed financial markets and better functioning financial intermediaries. The influence of financial markets on economic growth can be best seen in the simplest of these endogenous growth models. The model of Pagano (1993) may be utilised to make the point. In this framework the 'AK' model, in which aggregate output is a linear function of the aggregate capital stock, can be expressed as:

$$Y_t = AK_t \qquad (2.9)$$

Pagano assumes firstly that the population is stationary. He also assumes that a single good is produced in the economy, which can be consumed or invested (to depreciate at the rate of δ per period); and thirdly, he assumes that a proportion $(1-\varphi)$ of the flow of saving is lost during financial intermediation.

Following from these assumptions, gross investment can be expressed as a function of the form below:

$$I_t = K_{t+1} - (1 - \delta)K_t \qquad (2.10)$$

Capital market equilibrium is given by:

$$\varphi S_t = I_t \qquad (2.11)$$

This follows from combining the third assumption with the capital market equilibrium condition (saving = investment) that rules in a closed economy with no government.

From equation (2.9) growth rate at time t + 1 will now be:

$$g_{t+1} = Y_{t+1}/Y_t - 1 = K_{t+1}/K_t - 1$$

Using equation (2.10) and dropping the time indices the steady-state growth rate can now be expressed as:

$$g = A\frac{I}{Y} - \delta = A\varphi s - \delta \qquad (2.12)$$

where S/Y is the gross saving rate s.

Equation (2.12) shows that financial development can affect growth in three ways:

(a) Improving the allocation of capital- by raising A, the social marginal productivity of capital, financial intermediaries improve the allocation of capital. This can be done in two principal ways: firstly, by inducing individuals to invest in riskier but more productive technologies by providing risk-sharing

opportunities; and secondly, by collecting information and making sure that the most productive investments are financed.

(b) Channelling funds to firms- by raising φ, the proportion of saving channelled to investment, intermediaries can help to increase the growth rate g.

(c) Affecting the saving rate- by raising s, the private saving rate, the financial system increases the resources available for capital accumulation, and given that returns to capital are nondecreasing, the financial system can permanently raise the rate of growth of output per capita.

Following from the third point above which involves the way financial development affects the saving rate, Pagano notes that there exists an ambiguous relationship between financial development and savings. This is because among other things, financial development may enhance risk-sharing opportunities, which might reduce the need for precautionary saving. Also, technical inefficiencies can result in large spreads between deposit and lending rates, which depress the rate of return to savings and increase the cost of investing. Furthermore, the rate of interest is ambiguous on total saving because there may be substitution between assets; and also because interest rate changes have income as well as substitution effects. Pagano concludes that the inefficiencies in the financial system must be addressed before savings can increase after financial liberalisation.

The endogenous models particularly explain the impact of financial intermediaries. Financial intermediaries increase the efficiency of resource use by their activities of monitoring borrowers and evaluation of alternative investment opportunities. Also, the

financial instruments that they provide make it possible for economic agents to pool and limit risk. Financial services make it cheaper and less risky to trade goods and services and to borrow and lend (World Bank, 1989). It has been noted that the biggest difference between rich and poor is the efficiency with which their resources are used (World Bank, 1989). Resources are not useful if there is no sufficient technology or know-how to allocate them. Consequently, because of the financial sector's ability to increase efficiency, it is very vital for economic growth.

The influence of financial intermediaries on economic growth can be seen from Figure 2.2 below. In the diagrams, the vertical axis measures the cost of borrowing denoted by r and the return for lending denoted by i while the horizontal axis measures quantity of borrowing or lending per unit of time, and this is represented by X.

In the first diagram, the downward-sloping curve DD represents demand for credit in the economy. The curve SS represents supply of credit in the economy. The slopes of these curves reflect their conformity to the laws of demand and supply. The positive slope of the S curve reflects, in part, the increasing share of total saving provided for financial assets as their return rises relative to the return on real assets or investment abroad. Likewise, the negative slope of the D curve reflects, in part, the increasing quantity of profitable investment as the cost of borrowing declines. In the absence of transaction costs and interest rate regulations, the rate of interest determined by the market would be r = i with X being the corresponding amount of credit per period.

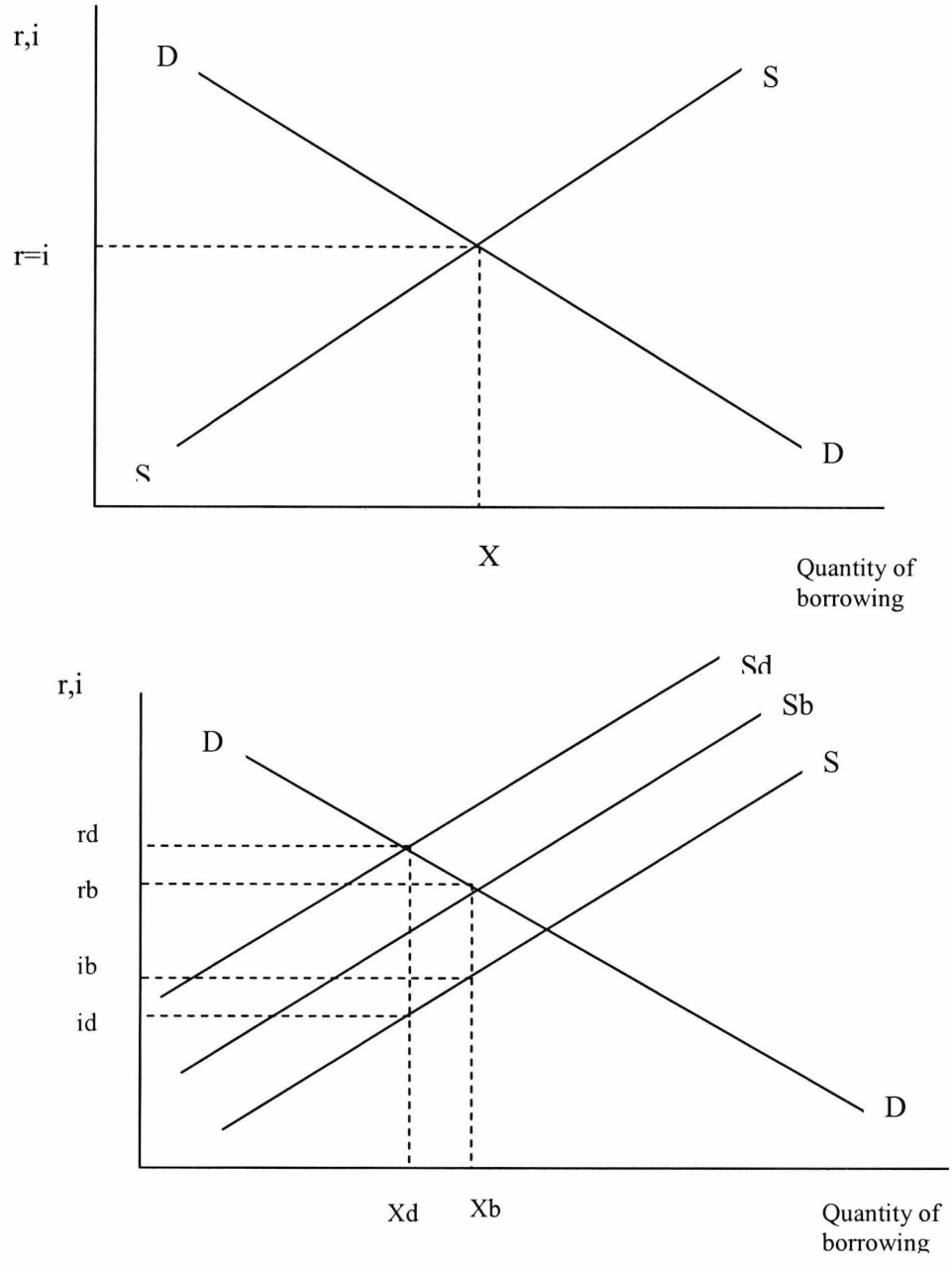

FIGURE 2.2: INFLUENCE OF FINANCIAL INTERMEDIARIES

However, in reality, there are costs incurred in the process of lenders locating borrowers directly. This situation is depicted in the second diagram. Here, consideration has been given to the costs charged by lenders on borrowers. This cost is

depicted in the curve S_d. The vertical distance between S_d and S is the amount of these transactions costs. What this means is that lenders would only be willing to supply credit of X_d and expect to earn i_d if they had to look for borrowers on their own. Borrowers would likewise be willing to pay r_d. It can thus be seen that the amount that would have been available for lending has been reduced from X_b in this case to X_d. This has happened because of the effect of transactions costs.

This is where financial intermediaries come in. Financial intermediaries are known to reduce transactions costs and limit risk. The arrival of financial intermediaries is depicted by the curve S_b. The wedge between the cost to borrowers and the return to lenders is now the "banks spread". If the banks spreads are less than the costs of direct lending, the amount lent increases form X_d to X_b, the return to lenders increases from i_d to i_b, and the cost to borrowers falls from r_d to r_b. So everybody is better off.

2.3 EMPIRICAL TESTS OF FINANCIAL LIBERALISATION

In this section, we will provide a brief overview of econometric tests that have been carried out to test the financial liberalisation hypothesis in Sub-Saharan Africa. The studies that we review involve estimations of savings, investment and growth equations. A major drawback of all these studies is that none explicitly measures the impact of financial liberalisation on these economic variables. The closest variable to measuring liberalisation has been the real rate of interest, but even this cannot account for the gradual changes that financial liberalisation entails. What we propose to in this

thesis is to improve on the existing literature by constructing indexes that explicitly measure the gradual changes involved in financial liberalisation and use them to examine its impact on savings, investment and growth in SSA.

2.3.1 Empirical Evidence of the Effect of Financial Development on Savings

Savings is one of the transmission mechanisms through which financial liberalisation is expected to affect economic growth. It is easy to see this link by examining Figure 2.1. We see from this figure that artificially low interest rates resulting from financial repression, keep savings low. The financial liberalisation hypothesis states that removing repression should increase interest rates and so attract deposits which will improve savings thereby increasing savings from point X on the SS curve to point E, the equilibrium point.

There have been many econometric tests of the effects of financial liberalisation and other variables on savings in both developed and developing countries. Overall, the empirical evidence is not conclusive. This has been attributed to the ambiguous nature of the effects of interest rate changes on savings (through the opposing interaction of substitution and income effects), and also the diverse and problematic nature of data on savings. Savings can be measured in different forms and the specific form in which saving is measured plays a large part in determining the results. Savings in national income accounts is measured as the residual between national income and consumption. Thus, the savings data are subject to measurement error. While some authors prefer to use total savings, some prefer to use private savings and still some other authors prefer to use financial savings. In addition to this, the type of estimation

technique plays an important role in the results derived from savings equations. Masson, Bayoumi, and Samiei (1998) note that "conclusions concerning the significance of one or another factor have often depended importantly on the choice of time-series or cross-sectional estimation, as well as the country or countries included" (p.483-484).

We provide an overview of the econometric research that has been conducted in examining how financial development and other factors determine savings, laying emphasis on studies that have included African countries. We will show that out of all the studies reviewed in this section, none provides a thorough and broad empirical investigation into how financial liberalisation has affected savings in SSA.

Oshikoya (1992) uses annual data from 1970 to 1989 to examine the effects of interest rate liberalization on savings in Kenya. The author uses the domestic savings ratio as the dependent variable. Explanatory variables are: real GDP growth, real rate of interest, foreign savings relative to income, and the lagged savings ratio. All the coefficients on the variables yield negative results. The coefficients on the real rate of interest and real GDP growth are not significant. The coefficient on foreign savings is negative lending credence to the view that foreign savings crowds out domestic savings.

Kariuki (1995) examines the impact of interest rate liberalisation on savings in Kenya. He uses the log of real broad money (M2) as the dependent variable and explanatory variables are: real GDP, real deposit rate, ratio of private investment to GDP, one period lagged real broad money. The results report a negative but statistically

insignificant relationship between real broad money and the real interest rate. All other variables are not statistically significant with the exception of real GDP. The author then uses a broader measure of money (M3) as the dependent variable. The results do not change much. The coefficient on the real rate of interest is positive but statistically insignificant while again, only the coefficient on real GDP is statistically significant. The author concludes that financial savings are not significantly responsive to real deposit rates and that positive real interest rates though a necessary condition, may not be a sufficient condition to increase financial savings.

Azam (1996) examines how saving responds to interest rate changes in Kenya. Using data for the period 1967 – 1990, he uses the national savings rate as the dependent variable, and the explanatory variables are: growth rate of terms of trade, the lagged value of the growth rate of the terms of trade, real deposit rate of interest, and an indicator of the degree of financial repression. All the variables are positive and statistically significant. The results do not change much when the real rate of interest is introduced in a non-linear way. All variables are still positive and statistically significant.

Seck and El Nil (1993) pool cross-section and time series data and examine the determinants of financial savings in 9, and then 21 African countries over the period from 1974-1989. The econometric tests for both the 9 and 21 countries yield positive and significant estimates for the real interest rate. The authors then conclude that this lends credence to the financial repression hypothesis.

Mwega (1997) examines the determinants of private saving in Sub-Saharan Africa. Using data for fifteen countries over the period 1970 – 1993, the author uses the following explanatory variables: dependency ratio, per capita income, the square of per capita income, per capita growth, terms of trade growth, public saving ratio, government consumption ratio, real interest rate, ratio of M2 to GDP, ratio of social security expenditure to total government expenditure, ratio of private credit to total credit, inflation, and ratio of current account deficit to GDP. The dependency ratio, square of per capita income, and economic growth all have positive and significant coefficients. Per capita income and terms of trade growth have negative and significant coefficients, while the financial development variables: M2 to GDP ratio, real rate of interest, and private sector credit all have insignificant coefficients.

Matsheka (1998) uses data for Botswana from 1976 to 1995 to examine the relationship between saving and interest rates. The dependent variables are financial saving, private saving, and total saving. Explanatory variables are the real deposit rate of interest and real income. The results are mixed. Financial and total saving are negatively related to the real interest rate with the coefficient of the real interest rate in the total saving equation, statistically significant. Private saving on the other hand is positively and significantly related to the real rate of interest. Real income has a positive and significant coefficient in all savings equations.

Elbadawi and Mwega (2000) examine the determinants of private saving for 15 SSA countries in the World Saving Database for the period 1970-1995. The explanatory variables used are: per capita gross private disposable income (GPDI), growth in per

capita GPDI, growth in terms of trade, dependency ratio, urbanization ratio, public saving/GPDI, government consumption expenditure/GPDI, real deposit rate of interest, interest rate spread, M2/GPDI, private sector credit/GPDI, inflation, transitory income, transitory terms of trade, foreign aid/GPDI. Panel data are used with both fixed effects and then GMM estimation. For the fixed effects estimation, the real rate of interest has a negative and insignificant coefficient while the interest rate spread coefficient is significant. The coefficient of M2/GPDI is also positive and significant, while the private sector credit/GPDI coefficient is negative and significant.

Kelly and Mavrotas (2002) use panel cointegration techniques to examine the effects of financial sector development on saving for 17 African countries. They employ a life-cycle model of saving where the dependent variable is the private saving ratio and explanatory variables are: liquidity constraint, the rate of government saving, real per capita GDPI, and 3 measures of financial sector development. The measures of financial development are: an index measuring the relative importance of deposit money banks relative to central banks; liquid liabilities to GDP; and private credit by banks to GDP. Long run equations are derived and tested for each country separately using the 3 financial sector development variables separately. The first financial sector variable is positive and significant for 6 countries; the second financial sector variable is positive and significant in 10 of the countries. The third financial sector variable is positive and significant in 6 of the countries. The evidence is inconclusive and the authors conclude that "...the financial reforms undertaken in many African countries in

recent years and the existing financial structure in many of them are not appropriate to mobilise private savings..." p.16.

Ziorklui and Barbee (2003) used data from 1971 to 2000 to examine savings behaviour in Ghana. The dependent variable is the private savings ratio. Explanatory variables are: real deposit rate, real treasury bill rate, inflation rate, changes in foreign exchange rate, and per capita GNI. The results show negative coefficients for all the variables with the exception of per capita GNI. However, only the coefficients on the inflation rate and on per capita GNI are statistically significant.

These studies have a number of deficiencies. First and foremost, none of them explicitly measures the gradual progression that financial liberalisation entails. Although all the studies with, the exception of Kelly and Mavrotas, try to model liberalisation by including the real rate of interest as an explanatory variable, liberalisation involves more than just interest rate liberalisation. It includes an array of measures such as directed credit abolition, bank denationalisation, and the removal of restrictions of entry into banking. Measuring financial liberalisation through the real interest rate thus negates the impact of the other liberalisation policy moves and implies that estimates derived suffer from omitted variable bias (Gibson and Tsakalatos, 1994, p.596). We will improve on these by constructing two indexes that take into account the gradual nature that financial liberalisation involves. These two indexes together with a dummy variable for financial liberalisation and the real rate of interest are then included in savings equations. Our study will therefore provide a more insightful analysis of the

relationship between savings and specific financial liberalisation policies, and such an analysis is missing from current empirical work.

Another problem is that only two of the studies (Seck and El Nil, 1993; Matsheka, 1998) have correctly employed financial saving as the dependent variable. Fry (1995) notes that an examination of the impact of financial liberalisation on savings has to consider both financial and total saving. We improve on these studies by employing both financial and national saving as dependent variables.

Also, only four (Seck and El Nil, 1993; Mwega, 1997; Elbadawi and Mwega, 2000; Kelly and Mavrotas, 2000) have used more than one country. A thorough empirical investigation into financial liberalisation in SSA cannot be based on evidence from a single country but a broad group of countries have to be included. We will use data from 19 countries in SSA in our analysis to examine how financial liberalisation has affected savings.

2.3.2 Empirical Evidence of the Effect of Financial Development on Investment

Investment is the second channel through which financial liberalisation is expected to affect economic growth. Referring back to Figure 2.1, at the artificially low interest rate r1 the demand for loanable funds is at point Y but the supply is at point X. Investment is therefore constrained by saving to I1. Liberalisation is expected to increase savings (because of higher real deposit rates of interest) which will ultimately increase investment as well, resulting in equilibrium in the loans market at point E. Liberalisation will therefore improve both savings and investment.

In this section we will review various empirical studies of the determinants of investment in SSA, highlight their faults in providing a thorough examination of how financial reforms have affected investment and then propose the hypothesis we are are going to test.

Oshikoya (1992) investigates how interest rate deregulation affected investment in Kenya over the period 1970 – 1989. The dependent variable is the private investment ratio, while explanatory variables are: the real economic growth rate, real deposit rate of interest, changes in terms of trade, public investment ratio, inflation rate, and the lagged debt service ratio. The author finds that the real rate of interest is significantly positively related to the private investment rate. The other variables – inflation rate, terms of trade, and external debt service payments have negative and significant coefficients. The coefficient on the public investment ratio is positive and significant, thus implying that public investment is complementary to private investment.

Dailami and Walton (1992) examine the behaviour of private investment in Zimbabwe over the period 1970 to 1987. The dependent variable is private investment and the explanatory variables are: GNP growth, relative price of capital goods, the real interest rate, the real effective exchange rate, real wage, the lagged dependent variable, and the real government bond yield in the UK converted to local currency. The results show that private investment is positively related to GNP growth, real interest rate, real effective exchange rate, and the lagged dependent variable, and negatively related to the government bond yield, relative price of capital goods, and real wage. However, the coefficients on the real exchange rate and real wage rate are not significant.

Seck and El Nil (1993) examine how financial liberalisation has affected investment in Africa. They use data for twenty one countries over the period 1974 to 1989. The dependent variable is the ratio of gross investment to GDP. Explanatory variables are real deposit rate of interest, nominal deposit rate, inflation rate, current account ratio, and growth in the M2 ratio. The effect of the real rate of interest and growth in the M2 ratio are positive and significant while the other variables are negative and significant.

Oshikoya (1994) examines the determinants of private investment in eight African countries for the period 1970 – 1988. The countries are: Cameroon, Kenya, Malawi, Mauritius, Morocco, Tanzania, Tunisia, and Zimbabwe. The dependent variable is the ratio of private investment to GDP while the explanatory variables used are: the percentage change in real GDP, the ratio of public sector investment to GDP, the change in credit to the private sector, variables to capture macroeconomic instability/uncertainty (e.g. the rate of inflation, the change in terms of trade, the lagged ratio of external debt service payments to exports of goods and services), the real exchange rate, and the lagged ratio of private sector investment to GDP. The countries are divided into middle-income and low-income countries and estimation is ordinary least squares on pooled data. The results show that the growth rate of real GDP, the public investment ratio, and the availability of credit all have a positive impact on private investment. The debt service ratio has a negative effect on private investment. Private investment is negatively related to the real exchange rate and inflation rate in low income countries, but positively to these variables in middle-income countries.

Jenkins (1998) estimates a model of investment for Zimbabwe using annual data over the 1969 - 1990 period. Estimation was carried out by using a two - step Engle - Granger method. The dependent variable is private sector investment. Explanatory variables are: public sector investment, the price of capital (capital formation deflator/GDP), real interest rate, private gross operating profit, tax rates, four variables to measure foreign exchange availability, two proxies to measure output prices, input prices (index for real wages), national income, foreign capital inflows, and the ratio of external debt to GDP. The results show that variables that positively affect private investment in the long run are private gross profits, while those that negatively affect private investment are foreign capital inflows and the external debt-to-GDP ratio. In the short run, variables that positively affect investment are the availability of foreign exchange lagged one period and the relative price of industrial output. Private investment is negatively related to the change in the relative cost of capital.

Matsheka (1998) estimates an investment function for Botswana for the period 1976 - 1995. The dependent variable is the real level of domestic investment. Explanatory variables are the real deposit interest rate, real private sector credit, the lagged accelerator (past level of demand), a dummy variable for 1987/88 that captures the effect of the decline in investment. The results show a positive and significant coefficient for private sector credit and the lagged accelerator, while other variables are insignificant.

Ndikumana (2000) examines the financial determinants of domestic investment in Sub-Saharan Africa. The study employs panel data for thirty countries over the period 1970

– 1995. The econometric analysis is based on a reduced form investment model that examines the effect of financial indicators, and some other control variables, on domestic investment. Dependent variables are the ratio of total gross domestic investment to GDP and the ratio of private investment to GDP. The financial development indicators are: credit to the private sector, total liquid liabilities of financial intermediaries, credit provided by banks, and a composite index combining these three indicators. The control variables are: the growth rate of real per capita GDP, government consumption, the rate of interest, international trade flows, inflation, external debt, and a black market premium. Different regressions are carried out with first of all simple tests with only the financial development indicators. The results indicate a positive relationship between both total and private investment and all the indicators of financial development, while credit to the public sector is negative and significantly related to investment. When the control variables are included in the regressions, the results show that investment is negatively related to the debt service, debt stock, the black market premium, and inflation. Investment is positively related to per capita GDP growth and international trade flows. The interest rate and government consumption are negative but not significant. The author concludes that financial factors are important in determining domestic investment in Sub-Saharan Africa, and that strong financial development leads to high future investment levels, with private investment reacting more strongly than total investment.

All the studies reviewed above model financial liberalisation only through the real rate of interest and so do not give an in-depth idea of the relationship between investment

and financial liberalisation. As noted in section 2.3.2, if we are properly examine the impact of financial liberalisation on economic variables, there is a need to explicitly account for the different policy measures and stages involved in liberalising the financial sector. The 2 indexes we will construct will take account of this and they will be included in investment equations in chapter 5, thereby providing a better understanding of how investment has fared after liberalisation. This will be the first study that models financial liberalisation in such a way in investment equations for SSA.

Another problem with the above studies is that only 3 have sued data for more than one country and out of these, only Ndikumana (2000) has produced a robust analysis by using both private and total investment as dependent variables. We will use both private investment and total investment as dependent variables and use data for 19 countries in SSA, thereby providing a more rigorous analysis than earlier research.

2.3.3 Empirical Evidence of the Effect of Financial Development on Growth

The financial liberalisation hypothesis predicts that economic growth will be enhanced after liberalisation. This is because both the quantity and quality of investment should increase resulting in the allocation of credit to the projects with the highest rates of return. It is also expected from the endogenous growth literature that developed financial intermediaries will increase the efficiency of resource use and help in pooling and limiting risk. In this section we will review econometric tests of the impact of financial liberalisation on economic growth in SSA and highlight their limitations.

Ogun (1986) uses cross-section analysis to estimate the correlation between financial deepening and economic growth. He uses data for 20 countries in Africa from 1969 - 1983. The dependent variable is the average growth of real per capita GDP. He uses two indicators of financial deepening as explanatory variables which are: the average growth rate of per capita real balances, and the ratio of monetary liabilities to nominal GDP. Three measures of money are used, M1, M2, and M3, which means that three regressions are run for each explanatory variable. The author first runs the regression using the whole sample, and then divides the sample into high - and low - income countries.[3] The regression results show a positive and significant coefficient on per capita real balances, and the results for the ratio of monetary liabilities are insignificant.

Oshikoya (1992) uses data for Kenya from 1970 to 1989 to see how changes in the real interest rate affect economic growth. The dependent variable is the growth rate of GDP and explanatory variables are the real deposit interest rate, the aggregate investment rate, and the inflation rate. The whole sample is first used in the regression and then two sub-periods from 1970 - 1979 and 1980 - 1989 are used. The results for the full sample and for 1970 – 1989 show a negative and insignificant coefficient for the real deposit rate of interest. However, the real deposit interest rate has a positive and significant coefficient in the 1980 -1989 sub-period.

Seck and El Nil (1993) use data for 21 African countries over the period 1974 - 1989 to examine how growth is affected by financial liberalisation. The estimation method is by pooled cross-section and time-series, and the sample is divided into two groups. The

[3] Low income countries are countries with per capita income less than US$500 in 1975.

first group, which comprises nine countries,[4] is the focus of the study. The dependent variable is real GDP growth. Explanatory variables are: real deposit interest rate, gross savings ratio, financial savings, and gross investment ratio. The real interest rate is first of all included as the only explanatory variable and the results report a positive and significant coefficient for this variable. When the other explanatory variables are included, the real interest rate is still positive but it is now insignificant. Financial saving is, however, positive and significant. The authors note that the insignificance of the real interest rate with the inclusion of other variables suggests that the effect of this variable on growth is indirect. The authors conclude that financial liberalisation is beneficial to African countries.

Allen and Ndikumana (2000) employ panel data techniques for eight countries in the Southern Africa Development Community (SADC) using data over the period 1970 - 1996 to examine the relationship between economic growth and financial intermediation. The dependent variable is the change in real per capita GDP. They use four indicators of financial development and three control variables. The indicators of financial development are: the ratio of credit to the private sector to GDP, ratio of volume of credit by banks to GDP, ratio of liquid liabilities of the financial system to GDP, and an index combining all three previous indicators. The control variables are: the ratio of the sum of imports and exports to GDP, ratio of debt service to GNP, and ratio of government consumption to GDP. The ratio of liquid liabilities to GDP is the only significant financial development variable. This variable has a positive coefficient. This variable is then used in regressions that include the control variables and the

[4] The countries are: Botswana, Egypt, The Gambia, Ghana, Kenya, Malawi, Nigeria, Tunisia, Zimbabwe.

lagged dependent variable. The ratio of liquid liabilities to GDP is positive and significant in regressions that use data pooled over 5-year intervals, but insignificant in regressions that use annual data. The authors conclude that a more liquid financial system is associated with faster economic growth.

The studies reviewed above suffer from the same problems as those in sections 2.3.1 and 2.3.2 in that they fail to properly measure the different policies involved in financial liberalisation. The financial liberalisation indexes we will construct will be included in growth equations and our results will give a better understanding of the impact of financial liberalisation on economic growth in SSA countries.

2.4 CRITICISMS OF FINANCIAL LIBERALISATION

Criticisms of the theory of financial liberalisation have come from a variety of sources ranging from the neostructuralists (van Wijnbergen, 1983; Taylor, 1983) to those of the view that financial liberalisation causes financial fragility (Diaz-Alejandro, 1985; Demirguc-Kunt & Detragiache, 1996, 1998; Kaminsky & Reinhart, 1999). We shall provide a review of some of the criticisms of financial liberalisation in this section.

2.4.1 Neostructuralists

The neostructuralists questioned the prediction of the McKinnon-Shaw hypothesis that the liberalisation of the financial sector will lead to an increase in savings, investment, and then economic growth. They argued that whether higher deposit interest rates will

increase the bank lending or not will depend on a number of factors such as the required reserve ratio and the source of the increased bank deposits.

The neostructuralists' (such as van Wijnbergen (1983) and Taylor (1983)) view was that informal financial markets are more efficient in allocating credit because they, unlike formal intermediaries, are not subject to reserve requirements. Reserve requirements reduce the amount of credit provided by banks and because informal intermediaries are not subject to such requirements, they (informal intermediaries) can allocate credit more efficiently.

Also, if the higher deposit interest rates attract deposits from non-financial assets like currency or inflation hedges, this will have a positive effect on investment and growth. There will be a transfer from assets that are not important in the production process to those that are important for production because the deposits can be channelled into investment which will result into higher growth. On the other hand, if deposits are attracted from the informal financial sector, the presence of reserve requirements or credit ceilings can reduce the total amount of credit and the reduced investment can result in a fall in economic growth.

2.4.2 Financial Liberalisation and Financial Fragility

There is a growing body of literature which asserts that financial liberalisation leads to financial volatility and thus increases the incidence of banking crises (Demirguc-Kunt & Detragiache, 1996, 1998, 2000; Kaminsky & Reinhart, 1999; Kaminsky & Schmukler, 2002; Loayza & Ranciere, 2004; Tornell & Westermann, 2004). The liberalisation of financial markets relaxes bank supervision and regulation and this can

result in imprudent practices by banks. The establishment of a deposit insurance scheme can also result into a crisis if banks resort to moral hazard behaviour and lend to customers who are not credit worthy since they feel that the deposit insurance will bail them out in the event of any crisis.

Financial liberalisation, through the deregulation of interest rates can also lead to banking crisis. This can happen if short term interest rates increase following liberalisation and banks have to increase deposit interest rates but cannot increase lending rates. The banks' profit thus falls and this can even lead to losses. Banks can still run into crises even if they can increase lending rates because increased lending rates can cause an increase in the proportion of nonperforming loans which will have adverse consequences for the banks.

Financial fragility can also increase following liberalisation because of the lending boom. The lending boom can be as a result of banks' inability to effectively screen potential borrowers and monitor existing ones. It can also be as a result of abolished directed credit guidelines which frees up funds which would hitherto have been lent to the priority group. The increased lending and improper or inefficient monitoring then results in a high percentage of nonperforming loans which ultimately leads to crisis in the financial sector.

Infrequent, sharp and abrupt falls in credit growth have been observed to occur during the banking crises that are typical of the boom-bust cycles associated with financial liberalisation. The boom period sees rapid expansion of bank credit coupled with

extreme credit risk, which leads to financial fragility and leaves the financial system prone to crises (Loayza and Ranciere, 2004).

The implications of the above points are that financial liberalisation leads to financial fragility and crisis in the short run. In the long run, it is expected that banking regulation would have improved and the ability of banks to effectively screen potential borrowers would have increased. This would then result in a positive impact of financial liberalisation on financial fragility.

Brownbridge (1998) and Daumont et.al. (2004) provide surveys which show that systemic banking crisis occurred in some countries after they embarked on financial liberalisation. The countries that experienced banking crises after liberalisation include Nigeria (1991-95)[5], Kenya (1993-95), and Uganda (from 1990) while some countries such as Cameroon (1987-93), Cote d'Ivoire (1988-91), Ghana (1982-89), and Senegal (1988-91) embarked upon liberalisation in the middle of banking crises. The severity of these crises was high in some countries like Cameroon, Cote d'Ivoire, Ghana, Senegal, Nigeria, and Uganda where the share of nonperforming loans in total bank loans exceeded 40 percent; while it was less severe in Kenya with the share of nonperforming loans less than 20 percent. A common feature in all the countries was that the distress was prevalent in government owned banks and banks established by indigenes while many foreign owned banks were not affected. Brownbridge (1998) attributes the reasons for these crises as insider lending, banks' lending to high risk borrowers, and macroeconomic instability. They claim that prudential regulation needs to be

[5] Numbers in parenthesis () indicate the period in which the crises lasted.

strengthened at the same time liberalisation is taking place so as to guard against these problems.

2.4.3 The Link between Savings and Investment

The liberalisation theory asserts that in the absence of government intervention the savings and loans markets adjust automatically to equilibrium and savings will be equal to investment. However, changes in savings are not always transferred into equal changes in investment because the rate of interest is not the sole determinant of investment. Investment has been shown to depend among other things, on output growth and uncertainty, and so savings is not always channelled into investment.

2.4.4 Borrowing Constraints

It is possible that liberalisation policies such as bank denationalisation and restructuring, and the granting of more bank licences will increase competition and enhance credit allocation. Households faced with such easy access to credit might borrow more, thereby increasing consumption and consequently cutting savings. In such a case, the predictions of the financial liberalisation theory of increasing savings will be wrong, with lower deposits meaning that lower funds are available for investment. Such a view is supported by Jappelli and Pagano (1994) who have used a three-period model to show that savings increase in the presence of liquidity constraints.

2.4.5 The Effect of Asymmetric Information and Credit Rationing

We discussed the contribution of Stiglitz and Weiss in section 2.2 and so we will not embark on an in-depth analysis here. The central theme of Stiglitz and Weiss work is

that interest rate rises resulting from financial liberalisation does not necessarily lead to a rise in investment. This is because of the presence of asymmetric information in financial markets, which can lead to credit rationing by banks where they try to avoid high risk lenders by refusing to give loans demanded at excessively high interest rates.

2.5 CONCLUSION

This chapter has been concerned with providing a review of the theory of financial liberalisation. It started with a review of the theoretical developments of the financial liberalisation theory. Subsequently, we discussed empirical tests of the impact of financial development on savings, investment, and growth in SSA before finally looking at criticisms of the theory.

What we have found out is that the works of McKinnon (1973) and Shaw (1973) have played a pivotal role in the way in which finance is treated in the context of economic growth. Indeed, such multilateral organisations such as the World Bank and International Monetary Fund have employed the McKinnon-Shaw hypothesis as the backbone of their Structural Adjustment Policies recommended to developing countries. Many of these developing countries have therefore embarked on financial liberalisation policies with the objective of deepening finance and allowing for efficient allocation of resources in order to boost economic growth.

At present the empirical literature is lacking in providing adequate tests of the impact of financial liberalisation on economic variables in SSA. The real rate of interest has been

the closest variable measuring liberalisation that has been employed in econometric tests. Many studies have simply used variables such as the broad money ratio and bank credit ratio to assess the impact of finance on macroeconomic activity. However, to properly examine the impact of financial liberalisation, attention must be paid to the gradual nature of financial liberalisation policies, and this is the objective of this thesis. The empirical analysis presented in subsequent chapters will use indexes that take account of the gradual progression in financial liberalisation and include them in savings, investment, and growth equations.

CHAPTER THREE: THE FINANCIAL SYSTEMS OF SELECTED SUB-SAHARAN AFRICAN COUNTRIES

3.1 INTRODUCTION

Many countries in Sub-Saharan Africa (SSA) embarked upon a series of financial sector reforms from the mid 1980s into the early 1990s. Most of these reforms were supported by the World Bank and International Monetary Fund (IMF) under the broad guise of Structural Adjustment Programmes (SAPs). The financial reforms were supposed to reduce government intervention in financial markets and reverse the ill-effects of the repressive policies that governments had embarked upon after independence.

The financial systems in existence after independence in many SSA countries were dominated by banks which were foreign-owned. There was a lot of discontent in the newly independent countries about the services offered by these foreign banks as they were perceived to be uncommitted to the developmental objectives of the countries. Consequently, governments resorted to intervene extensively in financial markets by acquiring already existing banks or setting up new ones. There was also an active policy of keeping interest rates low and directed credit allocation to priority sectors.

The effects of these measures by the governments was that saving was stifled, bank credit was awarded based on non-commercial criteria and the financial systems were generally hampered from developing and efficiently matching savers' funds with the most efficient users. Financial systems in SSA have been characterised by high

intermediation costs, weak resource mobilisation, low and often negative interest rates, directed credit to preferential sectors, and excessive government intervention. They also had a large portfolio of unpaid loans, and bank profits were very low. SSA countries have experienced lower financial depth when compared with other regions.

It was in a bid to address these deficiencies in the financial system that the governments initiated financial liberalisation policies. Financial liberalisation included the abolishing of direct allocation of credit, interest rate liberalisation, bank restructuring and privatisation, enhancing prudential regulation and supervision, and using indirect instruments in monetary policy.

This chapter aims to present the structure of the financial systems of 19 countries in SSA. We will discuss the financial conditions prior to the reforms, and what necessitated the liberalisation of the financial systems of these countries. Subsequently, we will give a detailed outline of the various financial liberalisation efforts carried out by the various countries.

Consequently, the chapter is divided into four sections. The next section gives an outline of the developments in the financial systems of these countries following independence. The third section examines financial liberalisation policies in the 19 selected countries while the fourth section concludes.

3.2 POST-INDEPENDENCE DEVELOPMENTS IN FINANCIAL MARKETS

3.2.1 Government Intervention in Financial Markets

The financial systems in many SSA countries were dominated by foreign-owned banks after independence. These banks had been established during the colonial period and they had very strong ties with their parent offices in Europe. In fact, the banks were more or less branches of these European banks of which Barclays and Standard Chartered were the most prominent ones. There was a lot of discontent about the operations and practices of these banks which resulted in governments intervening in the working of financial markets.

Firstly, the banks were accused of lending short-term and only to foreign companies and it was felt that this failure to engage in long-term lending was detrimental to the developmental needs of the countries. The banks were also criticized for discriminating against indigenous borrowers in credit allocation and requesting for forms of collateral that were not easily accessible to indigenes. It was also felt that the banks could not cater to the financing needs of those sectors crucial for development (such as agriculture).

The governments therefore resorted to intervening in the financial system to 'correct' these deficiencies of the foreign banks. The extent of intervention was varied in different countries with countries like Botswana, Malawi, and Zimbabwe intervening in less severe fashion while countries such as Ghana, Kenya, Nigeria, Uganda, and Zambia preferred a more drastic form of intervention.

There were also varying forms of intervention in different countries. Some governments bought majority shares in the foreign banks while some established their own commercial banks. Monetary policy was conducted using direct instruments. In a bid to stimulate investment, interest rates were kept very low which, in the face of high inflation often resulted in negative real interest rates. Banks were directed to allocate specific proportions of their lending to 'priority' sectors and central banks stipulated high reserve requirement ratios on banks. Thus financial repression policies were employed by the various governments to achieve their development objectives.

3.2.2 Financial Repression

Financial repression was discussed in the previous chapter and such policies include measures aimed at bank nationalisation, interest rate and exchange rate controls, directed credit to priority sectors, and restricted entry into banking. Financial repression has often resulted into 'shallow' finance, which is characterised by low or falling real monetary aggregates, low levels of national income and wealth, and often negative real interest rates.

3.2.2.1 Interest Rate Controls: Controls on interest rates were seen as a means of ensuring cheap credit. Many governments stipulated controls on deposit and lending interest rates and some also enforced preferential lending rates of interest to priority sectors. The effects of this policy were varied. On the one hand, low deposit interest rates discouraged savings and thus meant that financial deepening was low. The low lending rates also meant that the profit margins of the banks were drastically reduced and this discouraged private participation in the financial sector. Also, because the

market was not allowed to allocate funds between savers and investors, credit was not being granted to the most efficient users.

In Botswana the new financial regulations that came into effect in 1976 authorised the Bank of Botswana (BoB) to determine all deposit and lending interest rates. The BoB was primarily concerned with encouraging commercial banks to increase their long-term lending. Consequently, interest rates were cut so as to be less than the rates in South Africa. The BoB also reduced the interest rates on its call accounts below those the commercial banks had received on balances in South Africa. All these did not have the desired effect on bank lending as commercial banks' loans and advances fell in real terms from 1976 to 1980 by 23 percent (Brownbridge & Harvey, 1998).

The central bank in Burundi also fixed ceilings on lending interest rates and floors on deposit interest rates, and preferential rates were applied to the coffee sector, with more than 30 percent of total credit going to the coffee sector.

Cameroon and the Congo Republic, being members of the monetary union in Central Africa – Banque des Etats d'Afrique Centrale (BEAC) – did not have control over their monetary policy but were subject to the monetary union's monetary policy. The BEAC was concerned with encouraging domestic investment by small and medium-scale enterprises and minimising production costs. To this end, the BEAC pursued a policy of low interest rates, which for the most part was below the inflation rate, thus resulting in negative real rates of interest.

Cote d'Ivoire, Mali, and Senegal belong to the West African Monetary Union (WAEMU) and were also subject to monetary policy dictated by the regional central

bank. The WAEMU's policy was to keep interest rates low throughout the region, while individual governments offered preferential rates to priority sectors specific to them.

The Central Bank of Kenya set both deposit and lending interest rates. The non bank financial intermediaries (NBFIs) could charge higher interest rates than the commercial banks and this stimulated the growth of NBFIs in the 1970s and 1980s.

In The Gambia, Ghana, Malawi, Uganda, and Zambia the central banks of the respective countries offered preferential lending rates to priority sectors such as agriculture and also determined maximum lending and minimum deposit rates. While this often resulted in severely negative real interest rates in Ghana and Zambia because of high and variable inflation rates, the inflation rates in The Gambia and Malawi were less variable and low, and so real rates of return were not as severely low as in Ghana or Zambia.

The Central Bank of Nigeria actively interfered in financial markets by setting minimum and maximum deposit and lending interest rates. Priority sectors such as agriculture and manufacturing were subject to preferential lending rates and for most years in the 1970s into the early 1980s interest rates were below the rate of inflation.

3.2.2.2 Directed Credit Allocation and Reserve Requirements: another form of financial repression which was popular with post-independence governments in Africa was the setting of credit ceilings and directed allocation of credit to priority sectors. This took the form of governments stipulating financial intermediaries to compulsorily allocate a specific percentage of their loans and advances to specific sectors in the economy.

Some governments also set reserve requirements for banks which had the effect of restricting the money creation functions of the banks.

The Bank of Botswana stipulated liquidity requirements for commercial banks and introduced a ceiling on the lending provided by the commercial banks after the balance of payments crisis in 1981/82. The central bank in Burundi also set in place rules aimed at directing credit to priority sectors.

The Bank of Ghana in a bid to direct credit towards priority sectors imposed sectoral credit guidelines on commercial banks. The BoG set maximum permitted percentage increases in the volume of credit granted to each sector, with priority sectors given bigger increases than non-priority sectors. These were slightly amended in 1981 with the BoG directing that credit to the agricultural sector should comprise a minimum of 20 percent of total loans.

The Central Bank of Kenya stipulated cash reserve ratios and liquid asset ratios on banks and NBFIs. Commercial banks and NBFIs were expected to lend at least 17 percent of their deposits to the agricultural sector. Compliance with this directive was low, however, since no penalties were imposed on banks that did not follow the directive. Most of the burden for directed credit was applied on parastatal banks to extend credit to both individuals and private and public corporations.

3.2.2.3 Bank Nationalisation and Restricted Entry into Banking: Many of the governments in our sample did not embark on outright nationalisation of foreign banks. In fact only in Malawi, Uganda, Nigeria and Zambia was there a large scale nationalisation of the foreign banks. However, because of the discontent with the

services provided by the existing expatriate banks, many governments set-up their own commercial banks, NBFIs, and Development Finance Institutions (DFIs) to provide long-term financing. A common characteristic of most of these public banks was that they were badly managed and most of them encountered problems in the mid-1980s which necessitated liquidation and restructuring.

The government in Botswana did not nationalise the existing expatriate banks – Barclays and Standard Chartered - but instead, the government resorted to engage in direct lending mostly to the public parastatals. By the mid-1980s the government was the largest lender in the country and government lending exceeded the combined total of commercial bank lending.

In The Gambia, Ghana and Kenya the government did not embark on nationalisation but instead, established publicly owned commercial banks, NBFIs, and DFIs to exist alongside the foreign banks.[1]

In Malawi, the government gradually acquired equity in the two foreign-owned commercial banks – National Bank of Malawi and Commercial Bank of Malawi – through a mixture of public parastatals and private holding companies. The dominant position of the two banks and the banking laws also discouraged entry into the banking sector.

A similar situation happened in Uganda were the government initially established two banks – Uganda Commercial Bank and Co-operative Bank in 1965 and 1972

[1] The exception to this was the nationalisation of Grindlays Bank in Kenya and the acquisition of 40 percent equity stakes in Barclays and Standard Chartered Banks by the government in Ghana.

respectively. The government purchased 49 percent equity in three of the four dominant foreign banks – Barclays, ANZ Grindlays, Bank of Baroda – and closed almost all the branches of the fourth bank – Standard Chartered. Most of the branches of Barclays and Grindlays were subsequently sold to the Uganda Commercial Bank which became the dominant bank in the country.

3.2.3 Effects of Repression on Financial Deepening and Economic Variables

In this section we will examine the effects of the repressionist policies carried out by the countries in our sample on both financial deepening and economic variables.

Table 3.1 shows the deposit and lending interest rates, and also the rate of inflation from 1978 to 1989, which are the repression years.[2] We see from this table that although there is a wide disparity in the interest rates, a general trend exists in the data, which is that the lending rate was greater than the deposit rate for most countries. This reflects one of the detrimental effects of financial repression, where savings are made unattractive due to low deposit interest rates, and, investors find it difficult and costly to obtain credit due to high lending interest rates. For countries like Burundi, Cameroon, Congo Republic, Cote d'Ivoire, The Gambia, Mali, Senegal, Uganda, Zambia, and Zimbabwe, the difference is quite large with the lending interest rate twice the size of the deposit interest rate for most of these countries. The interest rate spread is less severe in countries such as Botswana, Mauritius, and Nigeria. Another feature of the data is that the inflation rate is higher than the deposit interest rate for most countries resulting into negative real rates of return on financial assets. McKinnon and Shaw

[2] Interest rate data was not available for most countries before 1978.

identified negative real rates of interest as a major deterrent of financial savings. The real interest rate is severely negative in countries such as Burundi, Ghana, Nigeria, Sierra Leone, and Uganda.

We have the indicators of financial deepening displayed in Table 3.2. We see that financial depth has been rather shallow in most of the countries in the table with the only exception being South Africa, which has generally had the ratio of broad money and credit provided by banks greater than 60 percent; and Mauritius, which has generally had the ratio of broad money and credit provided by banks greater than 45 percent. In some other countries finance has been rather shallow with the ratio of credit provided by banks to the private sector to GDP less than 20 percent in Botswana, Burundi, Ghana, Madagascar, Malawi, Nigeria, Sierra Leone, Uganda, and Zimbabwe.

Macroeconomic indicators are shown in Table 3.3 and we see a wide disparity between the savings, investment and economic growth rates for the countries. With respect to savings and investment, the countries seem to be divided into two groups at polar extremes. We have one group of countries like Botswana, Cameroon, Cote d'Ivoire, Kenya, Mauritius, Nigeria, South Africa, and Zambia with high savings and investment ratios while countries such as Burundi, The Gambia, Ghana, Madagascar, Mali, and Senegal have quite low savings and investment. Growth has been very volatile and for many countries (with the exception of Botswana) it has fluctuated between positive and negative rates.

TABLE 3.1: INTEREST RATES AND INFLATION RATES

	Botswana			Burundi			Cameroon			Congo, Rep.			Cote d'Ivoire			Gambia, The			Ghana			Kenya			Malawi		
	DEP	LEND	INFL	DEP	LEND	INFL	DEP	LEND	INFL	DEP	LEND	INFL	DEP	LEND	INFL	DEP	LEND	INFL	DEP	LEND	INFL	DEP	LEND	INFL	DEP	LEND	INFL
1978	N.A.	N.A.	9.044	2.5	12	23.896	N.A.	N.A.	12.463	5.75	13	N.A.	6	12	13.243	5	15	8.8553	11.5	19	73.092	5.13	10	16.932	N.A.	N.A.	N.A.
1979	N.A.	N.A.	11.736	2.5	12	36.541	6.5	10.25	6.5806	5.5	9	N.A.	6	12	16.342	5	15	6.129	11.5	19	54.441	5.13	10	7.9794	N.A.	N.A.	N.A.
1980	5	8.475	13.632	2.5	12	2.4985	7.5	13	9.5518	6.5	11	N.A.	6.1875	14.5	14.701	5	15	6.8246	11.5	19	50.07	5.7533	10.583	13.858	7.9167	16.667	N.A.
1981	8.6667	9.625	16.428	4.5	12	12.167	7.5	13	10.727	6.5	11	N.A.	6.25	14.5	8.7992	8.5	18	5.9442	11.5	19	116.5	8.8467	12.417	11.603	9.75	18.5	11.815
1982	10.75	24.208	11.137	5	12	5.8681	7.5	13	13.257	6.5	11	N.A.	7.75	16	7.5831	8.5	18	10.856	11.5	19	22.296	12.198	14.5	20.667	9.75	18.5	9.8212
1983	11.875	13.375	10.477	4.5	12	8.1512	7.5	14.5	16.631	7.5	12	N.A.	7.5	14.5	5.6404	8.5	18	10.636	11.5	19	122.87	13.27	15.833	11.398	9.9167	18.333	13.503
1984	10	12	8.5775	4.5	12	14.317	7.5	14.5	11.373	7.5	12	N.A.	7.25	14.5	4.2848	9	18	22.098	15	21.167	39.665	11.771	14.417	10.284	11.75	16.5	20.026
1985	9	11.5	8.0946	4.5	12	3.8043	7.5	14.5	8.5084	8.25	12	N.A.	7.25	14.5	1.8638	9.75	14.483	18.32	15.75	21.167	10.305	11.25	14	13.007	12.5	18.375	10.519
1986	8.6667	11	10.002	5.9583	12	1.6757	7.3542	13.5	7.77	8.1042	11.5	4.1581	6.0833	13.5	9.683	16.125	28	56.56	17	20	24.565	11.25	14	2.5343	12.75	19	14.047
1987	7.5	10	9.8019	5.3333	12	7.1132	7.1458	13	13.14	7.7917	11.125	0.44357	5.25	13.5	6.9433	15.75	27.917	23.529	17.583	25.5	39.815	10.313	14	8.6377	14.25	19.5	25.183
1988	5	7.8333	8.3517	4	12	4.4868	7.2083	13.458	1.6823	7.8125	11.792	1.0304	5.25	13.583	6.9307	15	29.542	11.691	16.5	25.583	31.359	10.333	15	12.265	13.5	22.25	33.883
1989	5.5833	7.6667	11.575	N.A.	12	11.662	7.5	15	-1.6655	8	12.5	-1.797	6.4167	15.083	1.0495	12.917	26.833	8.275	0	N.A.	25.224	12	17.25	13.789	12.75	23	12.463

TABLE 3.1: INTEREST RATES AND INFLATION RATES (cont.)

	Mali			Mauritius			Nigeria			Senegal			Sierra Leone			South Africa			Uganda			Zambia			Zimbabwe		
	DEP	LEND	INFL	DEP	LEND	INFL	DEP	LEND	INFL	DEP	LEND	INFL	DEP	LEND	INFL	DEP	LEND	INFL	DEP	LEND	INFL	DEP	LEND	INFL	DEP	LEND	INFL
1978	6	12	N.A.	N.A.	N.A.	8.5451	4.1458	6.75	21.709	6	12	3.4197	7	11	10.896	7.6667	12.125	11.136	N.A.	N.A.	N.A.	6.25	8.25	N.A.	3.25	17.54	5.6579
1979	6	12	N.A.	N.A.	N.A.	14.466	4.4692	7.7875	11.71	6	12	9.6534	7.25	11	21.25	6	10	13.294	N.A.	N.A.	N.A.	6.75	9.0833	N.A.	3.25	17.54	18.151
1980	6.1875	14.5	N.A.	N.A.	N.A.	42	5.2667	8.4317	9.9723	6.1875	14.5	8.729	9.1667	11	12.912	5.5417	9.5	13.66	6.8	10.8	N.A.	7	9.5	N.A.	3.5208	17.54	5.4018
1981	6.25	14.5	N.A.	9.25	12.188	14.462	5.7158	8.9167	20.813	6.25	14.5	5.9132	10	15	23.369	8.1875	14	15.254	7.225	12.5	108.74	6.1667	9.5	N.A.	7.4583	20.194	13.15
1982	7.75	16	N.A.	11.146	13.375	11.416	7.6	9.5375	7.6977	7.75	16	17.376	10	15	26.89	13	19.333	14.639	9	14.5	49.274	6	9.5	N.A.	14.458	23	10.635
1983	7.5	14.5	N.A.	12.063	15.083	5.5895	7.4117	9.9767	23.212	7.5	14.5	11.617	11	17.25	68.526	13.708	16.667	12.303	10.667	16.167	24.053	7	13	N.A.	12.796	23.083	23.119
1984	7.25	14.5	N.A.	10.292	13.25	7.3892	8.2542	10.242	17.821	7.25	14.5	11.784	12	18	66.575	18.292	22.333	11.526	16	21.917	42.726	7.7083	14.542	N.A.	10.304	23	20.151
1985	7.25	14.5	N.A.	9.4583	13.833	6.6987	9.1167	9.4333	7.4353	7.25	14.5	13	11.333	17	76.576	17.021	21.5	16.294	20	24	157.66	15.333	18.603	N.A.	10.042	17.167	8.4916
1986	6.0833	13.5	N.A.	9.5	14.333	1.6327	9.235	9.9592	5.7172	6.0833	13.5	6.1848	14.167	17.188	80.867	10.975	14.333	18.655	23.333	33.333	160.98	17.742	27.395	55.828	10.279	13	14.331
1987	5.25	13.5	N.A.	9.375	14.125	0.51874	13.088	13.962	11.29	5.25	13.5	-4.1407	12.667	28.542	178.7	8.7	12.5	16.161	20	34.667	200.03	13.234	21.196	47.047	9.5767	13	12.469
1988	5.25	13.583	N.A.	10	14.958	9.1593	12.95	16.617	54.511	5.25	13.583	-1.8267	16.333	28	34.287	13.542	15.333	12.78	21.5	35	196.12	11.44	18.39	51.004	9.6792	13	7.4223
1989	6.4167	15.083	-0.07669	11.063	16.125	12.67	14.675	20.442	50.467	6.4167	15.125	0.44731	20	29.667	60.8	18.125	19.833	14.731	32.167	40	61.441	11.44	18.39	123.4	8.8517	13	12.882

Source: World Development Indicators CD-ROM 2000

Notes: DEP=deposit interest rate (%)

LEND=lending interest rate (%)

INFL=CPI inflation rate (%)

TABLE 3.2: INDICATORS OF FINANCIAL DEEPENING

	Botswana			Burundi			Cameroon			Congo, Rep.			Cote d'Ivoire			Gambia, The			Ghana			Kenya			Madagascar			Malawi		
	BANKCRE	PRIVCRE	M3	BANKCRE	PRIVCRE	M3	BANKCRE	PRIVCRE	M3	BANKCRE	PRIVCRE	M3	BANKCRE	PRIVCRE	M3	BANKCRE	PRIVCRE	M3	BANKCRE	PRIVCRE	M3	BANKCRE	PRIVCRE	M3	BANKCRE	PRIVCRE	M3	BANKCRE	PRIVCRE	M3
1965	N.A.	N.A.	N.A.	4.3905	2.5941	10.786	9.8997	13.699	11.589	17.14	20.123	15.658	17.081	19.845	21.89	N.A.	N.A.	N.A.	20.656	8.5175	20.492	N.A.	13.763	5.3732	10.444	14.507	16.363	8.4948	6.8847	17.699
1966	N.A.	N.A.	N.A.	5.5953	2.5075	9.9956	10.837	14.314	12.975	17.989	19.465	15.424	16.24	19.145	21.649	5.6871	16.162	19.329	26.745	8.4497	20.765	12.022	12.611	22.662	10.791	14.98	16.429	11.95	6.6919	18.247
1967	N.A.	N.A.	N.A.	7.7027	3.4741	10.636	12.132	14.842	12.744	20.394	19.281	16.781	19.227	20.559	22.098	5.2032	16.639	18.576	31.988	7.565	21.219	14.687	14.584	23.694	12.534	16.488	17.839	14.753	7.9596	19.799
1968	N.A.	N.A.	N.A.	9.2177	4.0125	10.364	11.671	13.444	13.566	21.178	18.053	18.307	17.393	20.653	23.102	8.3139	17.819	19.942	31.57	8.6578	20.688	13.873	12.89	23.97	13.777	16.34	17.799	14.556	9.5384	20.657
1969	N.A.	N.A.	N.A.	9.1642	3.5649	10.393	11.787	13.822	14.587	20.897	16.925	17.328	19.847	22.337	26.202	8.4688	17.226	18.959	28.073	9.2118	19.417	13.826	12.729	26.376	15.025	16.456	18.053	16.388	11.112	21.971
1970	N.A.	N.A.	N.A.	8.3907	4.4781	10.063	10.027	14.206	14.628	20.092	16.286	18.418	19.001	23.038	26.779	7.5157	16.384	18.752	26.285	8.2503	18.905	16.403	15.119	30.607	14.537	17.107	18.49	16.549	12.223	23.245
1971	N.A.	N.A.	N.A.	8.6934	5.5013	11.034	12.036	14.139	15.424	18.212	16.069	17.17	21.804	25.527	27.21	9.4563	17.397	17.834	29.315	12.581	18.982	19.896	17.433	29.674	15.22	17.947	18.234	17.135	12.659	22.078
1972	N.A.	8.571	8.8034	9.245	5.5706	11.296	15.15	15.274	15.28	19.07	15.515	15.641	26.325	28.515	26.602	10.186	13.066	23.708	29.01	10.059	23.715	20.056	16.486	28.536	16.796	17.586	19.973	18.329	12.041	22.898
1973	N.A.	11.59	9.268	9.5643	5.8481	12.269	15.297	15.313	16.665	19.348	15.315	15.382	26.856	31.366	26.679	23.711	16.359	30.695	24.072	5.343	22.664	26.947	21.945	34.842	15.27	16.224	19.062	17.891	10.171	27.263
1974	N.A.	16.297	9.837	13.122	9.746	12.692	17.941	17.195	18.344	19.452	15.092	18.348	27.827	32.982	30.403	23.344	14.692	26.26	26.904	5.6767	21.567	28.08	21.943	31.729	16.464	15.169	18.427	18.769	11.646	29.007
1975	N.A.	19.323	9.8252	7.6959	3.7744	10.102	20.555	18.747	17.515	24.079	17.174	17.828	32.023	35.053	29.491	21.661	11.025	23.472	30.239	5.7844	26.237	31.686	21.759	33.639	17.385	14.814	17.711	27.503	11.401	27.314
1976	8.4946	20.492	26.638	8.0924	5.1521	12.187	21.326	20.806	19.372	27.288	19.871	18.829	33.245	34.917	31.557	29.027	15.667	28.466	37.213	5.9025	29.113	30.892	21.675	33.778	18.497	14.616	19.221	30.92	14.297	22.535
1977	8.5281	17.855	28.554	5.5972	4.6412	13.292	24.266	24.531	22.218	30.241	20.707	18.491	34.402	39.056	34.209	26.114	16.971	19.829	34.496	5.0182	27.282	30.204	22.272	38.591	20.256	15.758	21.116	27.38	13.735	24.54
1978	3.5734	14.214	24.736	12.468	8.0304	16.208	24.622	25.358	20.328	31.43	19.879	18.71	33.027	38.74	32.739	32.759	21.122	25.326	30.747	3.5211	24.458	37.032	27.58	40.423	24.107	15.959	22.627	33.072	17.338	23.821
1979	1.2507	12.641	29.781	16.896	9.6875	13.457	23.552	25.713	20.818	26.837	17.877	17.695	35.458	40.409	29.11	40.571	21.349	21.319	26.578	2.8189	21.055	38.779	27.951	42.343	30.926	17.657	19.091	40.651	21.795	22.375
1980	0.72921	11.29	28.726	17.413	9.7824	15.517	26.842	29.543	22.562	22.308	15.537	17.099	39.298	40.762	27.063	47.141	23.871	22.128	22.552	2.1926	18.554	38.918	29.484	37.897	39.887	19.168	19.863	37.717	20.647	21.837
1981	8.5867	15.116	25.208	23.011	13.17	18.173	24.736	31.156	22.771	18.785	17.39	17.11	45.407	41.763	27.915	54.095	24.188	25.426	21.495	1.8474	16.565	42.752	29.402	38.229	43.111	18.479	21.52	42.738	19.744	24.703
1982	4.085	12.881	23.505	24.043	12.409	16.71	26.658	31.242	22.409	21.863	18.472	16.475	45.025	41.112	26.556	58.912	21.082	25.889	21.925	1.8024	17.165	49.054	29.964	39.234	40.349	17.554	18.562	44.772	20.062	25.525
1983	-0.60276	12.026	24.595	26.682	12.636	19.287	27.456	30.892	23.53	22.006	19.013	14.419	51.26	42.264	26.554	65.7	24.679	28.736	18.456	1.5423	11.305	46.192	29.323	37.982	40.19	18.032	13.767	46.05	20.031	24.253
1984	-7.965	12.666	22.897	23.599	7.8796	17.062	23.567	25.231	23.252	20.99	18.837	12.896	45.213	36.415	27.632	67.383	25.118	26.838	18.875	2.2094	11.813	48.137	30.552	40.182	42.898	19.991	21.436	39.865	15.329	26.597
1985	-19.784	8.5584	26.281	22.474	7.1395	17.244	22.237	22.879	22.719	22.693	20.73	15.404	42.123	34.051	29.968	60.022	24.34	29.316	23.469	3.1084	13.619	48.839	31.546	39.195	42.879	20.867	22.147	36.633	13.063	20.988
1986	-38.11	8.2972	23.164	22.916	8.5538	17.004	24.55	24.018	20.334	33.997	31.68	20.646	42.926	33.864	30.423	28.252	15.092	21.535	23.966	3.6281	13.515	50.862	30.251	42.541	42.065	20.62	23.186	41.749	12.901	26.382
1987	-46.642	7.9221	30.712	25.524	9.7973	16.059	20.538	25.869	17.387	28.82	27.067	20.288	45.666	37.939	30.686	13.179	11.967	22.073	28.244	3.1542	14.205	51.924	28.95	42.428	41.658	19.396	22.799	37.558	9.8126	29.931
1988	-41.246	6.6405	25.401	27.575	11.55	18.568	26.749	24.63	19.898	30.883	16.24	20.73	47.684	37.658	30.906	13.507	11.823	22.103	20.58	3.1393	14.746	49.39	30.239	39.726	34.195	16.038	22.119	22.305	8.1528	24.487
1989	-40.777	7.0044	28.925	23.87	12.401	17.986	30.221	25.26	21.9	30.308	14.734	18.591	44.153	35.548	27.877	10.04	11.02	22.148	21.228	5.8446	16.917	47.876	31.164	40.092	28.563	15.198	24.586	21.769	9.5619	20.969

TABLE 3.2: INDICATORS OF FINANCIAL DEEPENING(cont.)

	Mali			Mauritius			Nigeria			Senegal			Sierra Leone			South Africa			Uganda			Zambia			Zimbabwe		
	BANKCRE	PRIVCRE	M3	BANKCRE	PRIVCRE	M3	BANKCRE	PRIVCRE	M3	BANKCRE	PRIVCRE	M3	BANKCRE	PRIVCRE	M3	BANKCRE	PRIVCRE	M3	BANKCRE	PRIVCRE	M3	BANKCRE	PRIVCRE	M3	BANKCRE	PRIVCRE	M3
1965	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	8.6819	6.6991	11.299	13.966	17.296	15.198	7.8925	5.9213	11.504	89.563	68.941	60.186	N.A.	7.993	3.3555	-6.1161	5.6306	19.526	N.A.	N.A.	N.A.
1966	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	10.049	7.2035	11.548	10.688	14.935	13.665	8.9597	5.5444	11.503	87.49	67.112	60.067	11.558	8.82	15.28	-2.1695	7.6554	21.532	N.A.	N.A.	N.A.
1967	39.965	11.162	18.486	N.A.	N.A.	N.A.	13.216	7.8109	12.382	10.925	13.114	12.809	9.1607	5.8987	12.486	85.757	66.167	57.86	10.812	8.6901	15.09	2.8937	10.112	23.126	N.A.	N.A.	N.A.
1968	29.181	7.6317	14.077	N.A.	N.A.	N.A.	16.705	7.8654	14.237	13.854	14.948	13.783	7.676	5.2168	14.199	87.43	64.941	59.521	13.09	9.0296	16.884	4.7531	8.2333	24.518	N.A.	N.A.	N.A.
1969	35.014	11.08	14.083	N.A.	N.A.	N.A.	17.357	6.6494	14.113	16.011	15.933	13.848	5.6111	4.6744	13.451	88.211	66.43	58.738	14.582	9.9073	16.726	-0.45494	8.3031	24.888	N.A.	N.A.	N.A.
1970	33.358	11.805	13.994	N.A.	N.A.	N.A.	12.741	4.9211	11.031	15.537	15.551	15.644	7.207	5.3286	11.947	90.981	68.409	58.316	16.54	9.4403	18.554	-2.0928	11.186	33.094	N.A.	N.A.	N.A.
1971	33.679	12.715	13.754	N.A.	N.A.	N.A.	10.862	5.3906	10.156	16.049	16.03	15.542	9.2226	5.6225	13.781	92.691	68.947	57.467	18.567	8.6338	16.3	16.253	12.893	32.921	N.A.	N.A.	N.A.
1972	33.257	13.832	13.621	N.A.	N.A.	N.A.	11.544	6.1406	11.044	17.164	17.18	15.809	9.4991	5.8094	15.164	91.844	67.678	60.008	22.935	8.8169	19.965	21.457	11.741	30.919	N.A.	N.A.	N.A.
1973	38.043	17.224	14.48	N.A.	N.A.	N.A.	10.293	6.0482	11.322	23.481	22.7	18.982	10.43	6.0053	15.177	89.403	67.837	59.416	28.785	9.4357	23.634	21.907	10.56	30.984	N.A.	N.A.	N.A.
1974	49.175	26.312	21.237	N.A.	N.A.	N.A.	-1.6017	4.6996	13.332	26.649	26.344	22.956	12.656	7.1624	15.239	83.824	63.802	55.973	31.737	10.08	26.128	20.611	17.412	28.13	N.A.	N.A.	N.A.
1975	47.176	28.689	18.533	N.A.	N.A.	N.A.	4.4371	6.814	17.819	26.635	26.179	21.078	16.659	6.6989	14.915	88.718	65.907	59.589	24.762	7.6709	21.944	44.362	24.234	37.475	15.85	15.232	13.005
1976	43.358	27.312	16.371	N.A.	N.A.	N.A.	10.277	7.6193	20.117	29.665	26.401	24.61	19.681	6.604	16.907	86.804	63.559	57.288	27.659	7.0739	25.274	47.791	19.702	37.659	15.124	14.535	13.025
1977	38.982	20.682	16.405	48.997	26.417	47.77	17.706	9.2449	22.975	33.476	29.75	26.943	19.016	5.8995	17.175	87.349	62.052	57.174	16.844	4.6384	14.792	60.626	23.228	40.508	15.473	14.674	13.66
1978	42.288	23.841	18.839	52.792	25.549	50.289	21.584	10.992	21.06	42.798	39.346	31.862	22.972	6.4528	17.823	86.086	60.869	57.863	18.879	4.4871	16.653	63.978	18.2	33.348	15.237	14.443	14.08
1979	38.64	22.42	17.856	55.534	24.553	45.899	20.259	10.39	23.226	44.268	39.712	27.811	26.181	6.055	18.296	85.352	58.735	55.39	15.025	3.0917	15.926	59.711	16.971	35.702	48.872	27.812	47.381
1980	36.527	21.712	16.744	53.813	22.823	47.787	21.349	12.227	29.021	47.81	42.732	28.425	35.754	7.8676	22.569	77.091	55.642	50.126	16.924	3.9354	14.76	60.817	16.168	34.245	48.767	26.64	47.714
1981	36.46	21.53	16.029	61.88	23.685	42.914	31.095	15.927	30.629	56.348	48.119	32.463	42.667	7.6807	20.711	82.979	60.702	49.729	16.086	4.0083	12.773	64.863	19.657	32.232	45.365	25.817	40.961
1982	39.187	21.778	16.575	62.33	22.239	45.617	41.435	18.507	33.398	53.829	41.807	31.123	46.022	7.0882	26.154	84.08	62.577	50.619	13.368	2.9625	8.7457	80.939	24.18	40.551	45.895	23.242	41.581
1983	39.127	20.606	17.692	65.17	22.639	44.971	48.488	17.248	34.978	51.811	39.007	29.089	48.992	7.0513	29.442	88.266	66.867	50.834	24.584	3.1857	7.9355	76.062	23.149	38.696	44.479	24.325	33.782
1984	19.442	12.321	20.487	67.744	24.9	46.346	47.904	16.338	35.486	49.934	36.589	28.299	42.934	4.0773	25.966	90.58	69.926	50.385	33.243	2.6456	13.395	72.074	14.641	38.397	39.531	16.609	37.6
1985	21.546	14.156	21.617	64.509	29.532	53.206	44.116	15.679	34.37	47.838	34.251	26.072	59.169	3.0978	27.781	97.307	73.404	50.289	38.205	3.4033	14.299	59.721	10.936	29.721	40.428	15.175	39.83
1986	24.85	17.174	23.28	59.748	29.7	58.428	49.902	20.541	35.27	42.436	30.058	25.782	48.068	5.4148	28.963	95.138	72.769	44.628	19.981	2.9017	16.473	45.007	9.7018	31.333	40.042	15.008	38.035
1987	23.494	16.469	22.381	52.438	31.739	62.508	37.022	14.838	29.004	40.331	29.201	24.249	23.495	2.7439	16.675	93.71	73.406	43.612	N.A.	N.A.	14.289	32.681	8.391	30.359	44.562	18.021	43.548
1988	17.379	12.139	24.213	51.03	33.496	66.678	34.943	13.182	27.939	40.115	29.129	22.785	22.407	3.4964	17.136	94.628	75.28	44.089	N.A.	N.A.	9.9069	66.435	9.4593	32.851	35.467	14.299	36.707
1989	17.024	13.165	22.169	48.88	34.714	65.718	20.472	9.3942	20.475	38.946	29.973	25.255	21.068	4.8277	18.35	93.801	77.854	44.947	N.A.	N.A.	7.2878	73.182	11.333	30.314	42.013	20.997	42.74

Source: World Development Indicators CD-ROM 2000

Notes: BANKCRE=domestic credit provided by banking sector(% of GDP)

PRIVCRE=domestic credit to private sector(% of GDP)

M3=liquid liabilities(M3) as % of GDP

TABLE 3.3: MACROECONOMIC INDICATORS

	Botswana			Burundi			Cameroon			Congo, Rep.			Cote d'Ivoire			Gambia, The			Ghana			Kenya			Madagascar			Malawi		
	SAVE	INV	GROW	SAVE	INV	GROW	SAVE	INV	GROW	SAVE	INV	GROW	SAVE	INV	GROW	SAVE	INV	GROW	SAVE	INV	GROW	SAVE	INV	GROW	SAVE	INV	GROW	SAVE	INV	GROW
1965	-4.9798	11.709	5.814	3.5803	5.7666	3.9672	12.03	12.531	2.0261	5.3498	22.428	3.6765	28.571	21.872	-3.1097	N.A.	N.A.	N.A.	8.2856	17.881	1.369	15.095	14.394	2.0091	-0.28766	6.5006	-0.45226	0.18304	13.972	13.616
1966	0.12151	19.563	6.344	4.5515	6.7676	4.613	10.76	13.343	4.6149	9.0406	30.258	1.359	29.531	21.82	11.577	0.77144	8.1781	N.A.	7.8635	12.856	-4.2583	20.149	18.61	14.729	2.6295	8.5328	2.0646	1.6129	17.419	13.249
1967	-0.6689	23.857	5.9246	5.7663	6.8515	13.822	11.811	13.765	-10.912	6.1644	31.507	2.1163	27.215	19.782	4.5982	2.5194	9.1877	0	7.7976	10.31	3.0754	19.264	20.173	3.3612	5.2749	9.2647	5.5286	2.6612	13.511	7.2816
1968	-8.5884	28.825	10.567	5.1185	8.1896	-0.29788	10.849	13.359	6.3463	2.7331	29.582	7.6313	30.517	17.812	12.548	-0.41257	10.59	9.5761	10.634	11.105	0.36886	20.152	20.049	7.9827	5.2795	10.319	6.8288	0.78316	16.104	-1.9231
1969	7.9325	35.865	15.123	5.8529	8.2888	-1.4595	11.22	10.696	4.9015	1.8868	26.705	7.5485	29.217	19.525	9.5392	-0.65767	10.041	2.4355	11.181	11.791	6.0062	20.812	19.372	7.9592	5.7812	10.783	3.7212	2.2573	18.375	5.8824
1970	9.4681	42.488	17.12	3.5986	4.5308	21.326	17.568	16.028	3.0921	1.1842	24.211	6.3585	29.157	22.496	10.375	3.7725	6.8898	6.1538	12.783	14.15	9.7235	23.558	24.397	-4.6554	7.4874	9.9127	5.2765	10.822	25.733	0.4793
1971	17.751	47.29	25.821	1.8717	7.6077	2.7468	12.507	16.647	3.4797	6.5389	26.607	7.753	25.585	21.802	9.4566	0.77904	5.5931	-0.06588	9.6421	14.117	5.2161	17.366	23.916	22.174	4.6385	11.219	3.9294	7.1476	19.17	16.219
1972	20.548	47.768	26.362	-0.15883	3.1817	-6.404	12.553	18.247	2.6738	5.6039	29.082	8.6176	25.381	20.875	4.2366	0.24392	7.2266	0.24171	12.588	7.1038	-2.4877	20.183	22.323	17.082	4.7595	8.8198	-1.2726	9.7389	24.393	6.2313
1973	27.752	47.718	21.303	2.9953	5.3118	6.8891	16.588	19.891	5.3557	20.199	31.954	8.2312	25.702	23.18	5.9392	0.8415	8.12	9.2503	14.081	9.0255	2.8846	24.536	25.811	5.8966	4.4665	9.0974	-2.6185	12.445	22.39	2.3007
1974	33.609	45.582	8.7978	-1.7282	4.0523	-0.72684	19.719	17.081	10.734	28.815	35.06	7.8855	29.337	22.016	4.3274	1.2146	5.9571	5.8788	9.5706	13.047	6.8525	18.535	25.757	4.0656	3.9792	8.6602	2.0069	16.381	27.324	7.176
1975	21.702	41.9	8.8783	-3.146	7.5801	0.69792	17.116	19.974	11.245	11.253	39.112	7.7316	22.588	22.445	8.2529	9.639	8.545	12.393	13.655	12.726	-12.432	13.454	18.142	0.8822	3.1065	8.1372	1.2587	16.953	33.717	6.0868
1976	17.836	33.771	10.647	6.162	9.0884	7.9427	12.866	17.588	-5.4951	4.8253	31.004	0.91629	28.483	22.989	12.916	6.4534	11.751	7.3512	8.5456	8.8842	-3.5302	20.934	20.239	2.154	5.7738	8.1347	-3.0689	17.827	26.258	4.9977
1977	15.056	33.465	12.012	11.501	11.196	11.469	25.743	28.489	13.74	6.9148	26.596	-8.9534	33.628	27.332	7.3145	2.497	13.279	3.4396	10.008	11.064	2.2741	27.023	23.657	9.4538	4.4743	8.0783	2.364	20.055	24.684	4.918
1978	19.9	36.364	14.333	5.5182	14.037	-0.94058	26.782	31.249	22.003	9.9847	27.332	6.3597	28.848	29.762	10.909	-3.0739	23.133	6.3164	4.0465	5.375	8.4759	20.008	29.76	6.9125	2.6802	9.5866	-2.6618	20.52	38.441	9.7451
1979	26.115	37.219	12.149	6.3567	14.916	1.665	21.357	28.52	6.0351	24.745	25.961	9.8132	24.906	27.965	2.3944	0.794	29.09	-1.3282	6.6083	6.5375	-2.5149	16.522	22.526	7.6152	0.28218	16.094	9.8547	12.597	30.237	4.3962
1980	26.687	40.052	11.987	-0.59692	13.886	0.99106	21.744	20.983	-1.9653	35.655	35.766	17.637	20.359	26.536	-10.958	5.8332	26.695	6.2701	4.9356	5.624	0.4717	13.4	24.507	5.592	-1.4327	14.962	0.80577	10.785	24.744	0.40675
1981	21.58	43.406	9.0649	4.1118	17.006	12.163	19.625	27.188	17.083	30.09	48.163	17.62	18.831	25.94	3.5005	2.538	25.334	3.3219	4.0055	4.5727	-3.5031	14.793	22.913	3.7735	0.16728	11.478	-9.6988	11.795	17.625	-5.2901
1982	22.946	37.658	12.166	-2.2381	14.457	-1.0536	29.563	24.796	7.5162	46.493	59.732	23.598	20.285	23.188	0.20082	7.1566	22.46	-0.76458	3.7339	3.3776	-6.9237	14.49	18.239	1.5065	-0.95556	8.4857	-1.8102	15.053	21.403	2.5035
1983	28.907	29.389	13.136	7.1246	22.827	3.7153	27.153	25.978	6.8668	44.62	38.438	5.854	19.652	18.413	-3.9002	6.8892	18.883	10.883	3.3167	3.7498	-4.5637	17.813	18.26	1.3091	1.4016	8.3652	0.90211	15.226	22.797	3.7187
1984	32.293	29.444	8.5462	6.3225	18.371	0.15554	28.595	25.944	7.4746	46.395	30.391	6.9761	25.171	11.651	-2.7013	4.6492	18.313	3.5353	4.1504	6.877	8.6476	15.937	17.314	1.7552	3.9936	8.6195	1.7047	14.824	12.879	5.3603
1985	38.054	22.994	7.1347	4.1008	13.861	11.783	26.671	24.885	8.0632	31.067	30.284	-1.1857	27.329	12.951	4.5012	5.0344	15.086	-0.81227	6.635	9.57	5.0916	21.071	22.135	4.3006	0.27991	8.5462	1.1559	12.88	18.587	4.571
1986	40.687	21.485	8.1729	1.0518	11.644	3.2502	26.012	25.513	6.7717	15.616	29.451	-6.8615	21.378	12.063	3.2594	7.1251	16.599	4.0911	5.8024	9.362	5.1992	18.194	18.019	7.1776	5.6411	9.0395	1.9591	10.332	12.47	-0.2148
1987	42.309	15.622	11.882	6.6186	22.612	5.5031	20.993	24.7	-2.1467	22.842	19.728	0.18938	16.127	12.317	-0.34897	7.257	17.126	2.4543	3.9111	10.434	4.7949	15.673	20.774	5.9371	4.1651	10.107	1.1781	14.913	17.271	1.6252
1988	50.261	23.668	19.45	1.6727	15.035	5.031	20.97	20.897	-7.8236	18.816	18.619	1.7663	15.248	12.65	1.1365	8.2684	16.356	4.4768	5.4173	11.296	5.6282	14.87	20.162	6.2032	6.4947	13.294	3.4034	12.197	21.418	3.1773
1989	49.197	36.109	13.059	3.2651	16.463	1.3495	20.068	17.096	-1.8191	27.824	14.128	2.5999	11.882	8.904	2.948	10.148	20.365	5.8957	5.6084	13.209	5.0859	14.476	20.613	4.6903	9.5673	13.389	4.0789	8.8191	24.557	1.3447

TABLE 3.3: MACROECONOMIC INDICATORS(cont.)

	Mali			Mauritius			Nigeria			Senegal			Sierra Leone			South Africa			Uganda			Zambia			Zimbabwe		
	SAVE	INV	GROW	SAVE	INV	GROW	SAVE	INV	GROW	SAVE	INV	GROW	SAVE	INV	GROW	SAVE	INV	GROW	SAVE	INV	GROW	SAVE	INV	GROW	SAVE	INV	GROW
1965	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	10.269	15.393	4.885	5.7086	5.2579	1.3322	12.427	N.A.	7.1802	26.101	26.928	8.7167	12.456	11.238	N.A.	39.974	25.383	16.647	13.652	13.652	4.9106
1966	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	9.6794	13.888	-4.2505	6.35	6.0591	2.8768	13.423	N.A.	1.7	26.471	23.985	2.6083	11.74	11.498	N.A.	44.362	30.768	-5.5703	14.949	14.949	1.5231
1967	4.8501	17.392	N.A.	N.A.	N.A.	N.A.	7.3266	13.66	-15.744	8.0872	9.7337	-1.2198	5.384	N.A.	0.03628	27.44	26.896	9.0191	14.373	13.461	N.A.	40.382	34.231	7.9197	17.426	17.426	8.367
1968	9.2088	17.081	3.7084	N.A.	N.A.	N.A.	6.5653	12.374	-1.2484	2.7027	8.9785	6.2908	8.6522	N.A.	2.0199	28.066	24.894	3.3459	14.413	13.09	N.A.	40.557	33.965	1.2483	21.123	21.123	1.9701
1969	9.5323	17.341	0.231	N.A.	N.A.	N.A.	8.1476	12.187	24.197	3.6239	10.78	-6.5541	21.867	N.A.	8.5254	26.412	25.777	6.7606	15.203	14.017	N.A.	50.945	19.201	-0.43692	16.892	16.892	12.428
1970	9.5453	15.277	6.137	N.A.	N.A.	N.A.	12.015	14.821	25.007	9.6894	13.292	8.562	18.98	N.A.	8.6205	24.167	27.623	7.2539	17.239	14.005	N.A.	45.058	28.238	4.7971	18.338	18.338	22.565
1971	9.206	16.006	2.569	N.A.	N.A.	N.A.	15.926	18.721	14.238	7.4074	13.688	-0.14045	14.171	N.A.	3.4659	26.613	30.681	5.4658	11.963	16.102	N.A.	35.168	37.294	-0.08604	20.171	20.171	8.9176
1972	7.5461	17.086	5.844	N.A.	N.A.	N.A.	20.258	21.085	3.3643	11.087	14.54	6.3832	14.401	N.A.	0.90023	28.448	25.821	-1.0487	14.254	11.643	N.A.	37.219	35.619	9.2089	23.705	23.705	8.3298
1973	4.2316	16.887	-1.4551	N.A.	N.A.	N.A.	22.978	22.41	5.3928	7.0433	16.089	-5.5832	27.319	N.A.	2.2566	28.07	25.299	7.4485	12.117	8.72	N.A.	44.714	28.884	-0.96204	22.876	22.876	2.6047
1974	-14.613	13.533	-1.5288	N.A.	N.A.	N.A.	27.581	16.971	11.161	14.37	19.453	4.2008	25.493	N.A.	3.4998	29.286	29.788	10.002	11.289	11.615	N.A.	46.468	36.944	6.4282	24.744	24.744	6.6252
1975	-4.0813	15.522	11.625	N.A.	N.A.	N.A.	20.738	25.231	-5.2277	10.722	15.153	7.5357	12.055	N.A.	1.6692	28.372	30.743	1.258	5.7873	8.0524	N.A.	21.207	40.86	-2.2693	21.964	23.632	-1.9312
1976	3.3379	13.363	13.623	N.A.	N.A.	N.A.	25.768	31.475	9.0424	6.7562	13.642	8.9205	10.396	N.A.	-0.44918	27.288	28.231	-0.04436	8.0333	6.2518	N.A.	36.397	31.544	6.221	18.474	16.111	0.46484
1977	8.7649	15.589	6.3486	21.255	30.076	N.A.	30.676	28.326	6.0241	7.0562	14.503	-2.6829	11.489	N.A.	0.04668	32.346	26.952	-2.7883	7.4038	6.0497	N.A.	22.08	24.668	-4.5642	18.363	17.186	-6.8607
1978	-2.3127	15.918	-1.4635	18.652	30.096	N.A.	23.322	27.532	-5.7642	1.9659	14.323	-3.9539	20.859	N.A.	2.4063	32.116	25.14	2.5873	3.0719	8.2815	N.A.	20.5	23.859	0.55377	12.731	10.695	-2.7069
1979	0.24091	15.475	10.396	18.812	30.72	N.A.	27.836	22.082	6.7594	2.3924	11.432	7.0017	16.824	N.A.	4.5113	35.707	26.151	3.4975	8.4501	6.5801	N.A.	23.109	14.133	-3.0239	10.548	11.41	3.297
1980	1.0622	15.468	-4.3258	14.547	25.406	N.A.	31.431	21.252	4.2048	-4.9549	11.729	-3.3106	0.85677	16.209	4.8435	37.842	29.86	9.1858	-0.43387	6.1545	N.A.	19.262	23.283	3.0356	13.781	16.937	14.421
1981	0.08079	15.972	-4.4115	12.691	22.966	4.6685	19.23	23.281	-13.128	-9.1009	12.77	-1.1783	2.3681	19.091	2.8814	31.283	32.925	7.9541	-0.37389	5.6083	N.A.	6.8055	19.318	6.168	14.336	20.816	12.525
1982	0.83233	16.284	-4.6377	14.956	21.273	5.6897	14.035	20.002	-0.2347	-2.5045	12.243	15.333	3.2035	13.381	4.7818	24.762	24.871	-2.7197	-0.04592	9.093	N.A.	7.9687	16.769	-2.8128	13.76	19.054	2.6343
1983	-3.2181	12.149	4.798	16.12	17.642	2.9404	10.827	14.743	-5.2945	-1.8857	12.769	2.1754	3.3154	14.28	-2.1028	28.335	24.741	-3.4445	2.4252	7.4096	5.7446	15.175	13.752	-1.9667	11.274	14.305	1.5853
1984	-2.7162	12.309	4.3696	17.784	19.71	2.5411	11.424	9.5262	-4.8183	0.74737	12.849	-4.0021	10.925	12.706	4.093	26.668	24.784	6.7507	6.5071	8.1398	-0.34468	16.522	14.683	-0.33683	10.792	17.036	-1.9074
1985	-11.44	15.775	-11.356	20.056	22.603	5.8264	12.627	8.9686	9.7048	-2.9413	10.472	3.7972	9.1363	10.923	-5.3113	29.253	20.513	-3.9971	7.4622	8.732	-3.3064	14.129	14.89	1.6153	18.018	17.82	6.9444
1986	-1.2591	20.715	8.4353	25.152	22.431	8.3483	11.628	15.031	2.5136	4.1726	11.404	4.5326	7.5431	10.636	1.236	27.884	19.002	0.31359	6.0188	8.4469	0.39009	22.103	23.81	0.72389	20.585	18.056	2.099
1987	4.2047	20.741	-0.51824	27.819	23.735	9.3165	19.92	15.981	-0.70036	5.1362	12.472	4.0056	18.961	10.186	7.2313	25.54	17.845	2.7888	-0.07798	9.7182	3.9619	16.505	12.714	2.6757	17.677	14.936	1.1507
1988	3.1138	21.322	1.4815	26.546	28.279	7.8412	19.102	18.007	9.8995	6.3509	12.715	5.069	20.227	5.8942	-7.08	26.194	21.011	3.8852	0.58765	10.792	8.2671	18.213	11.074	6.2807	22.082	18.702	7.5524
1989	5.6525	21.702	11.764	24.618	30.794	5.6282	25.264	17.726	7.2003	6.4099	11.851	-1.4055	14.572	8.3256	0.73	26.033	21.038	2.3951	0.9974	11.136	6.3619	3.7879	10.807	-1.0235	16.66	15.038	5.1998

Source: World Development Indicators CD-ROM 2000

Notes: SAVE=gross domestic savings (% of GDP)

INV=gross capital formation (% of GDP)

GROW=GDP growth (annual %)

3.3 FINANCIAL LIBERALISATION[3]

The common elements of the financial liberalisation efforts included the following: bank denationalisation and restructuring; interest rate liberalisation; abolition of directed credit; strengthening of central banks, and development of financial markets.

In this section, we shall examine in detail those countries which have undertaken financial liberalisation with respect to the implementation of each of the above mentioned measures.

3.3.1 Bank Denationalisation, Liquidation, Restructuring, and Privatisation

An important feature of the financial liberalisation measures in SSA has been bank restructuring and privatisation. Indeed the incidence of bank runs and insolvency actually necessitated financial sector reforms in some countries. Financial liberalisation thus attempted to correct the ill-effects of banking crises and fragility by restructuring ailing banks and in some cases where there was excessive government intervention in banking, state-owned banks were privatised. All this was done in order to make financial markets healthy and increase competition so as to enhance the efficiency of resource allocation and spur private sector development.

In the BCEAO zone, although the regional body adopted a common policy towards financial reforms, bank restructuring and privatisation were carried out on a country-

[3] Due to lack of sufficient data, all surveys of financial liberalisation in this chapter and subsequent chapters refer to domestic financial liberalisation. Unlike Latin America and East Asia, liberalisation of the capital account in SSA was not very extensive and information on countries that embarked on them has proved difficult to come by. Our discussion is therefore more in the 'spirit' of Gibson and Tsakalatos (1994) and Reinhart and Tokatlidis (2003) who focus exclusively on domestic financial liberalisation. Reinhart and Tokatlidis (2003) note that the external liberalisation dating offers few observations for any statistically meaningful testing.

by-country basis. The BCEAO was, however, heavily involved in all the restructuring and privatisation in all countries. In Cote d'Ivoire, the government embarked on the restructuring and recapitalisation of the 4 major commercial banks. The government followed this up by repaying outstanding loans it owed the banks. In Senegal, the banking crisis was a major determinant of the financial reforms. An audit into the banking sector recognised 9 financial institutions facing insolvency. Restructuring and recapitalisation of banks followed which left only 8 banks standing after the process. The reforms also included a review of the structure of the banking sector. The government's maximum share in banks was reduced to 25% and efforts were made to recover bad debt.

Bank restructuring and privatisation in the BEAC zone, as in the BCEAO, was supervised by the regional central bank but was implemented separately by each country. The process saw 3 banks restructured in the Republic of Congo while 8 banks were restructured in Cameroon. Specifically, monitoring of the restructuring process in Cameroon was by Société de Recouvrement de Creances. The government substantially reduced its role in banking by reducing its equity share in banks. Monitoring of the restructuring process in Republic of Congo was by accredited liquidators.

In The Gambia, bank restructuring started in 1985 with the restructuring of the Gambian Commercial and Development Bank. In July 1991 the Bank was offered for outright sale.

In August 1989, the Ghanaian government adopted a comprehensive restructuring plan for the banking sector. This was followed in January 1990 with the appointment of new

management and board of directors for banks in difficulty. In April of the same year, actual restructuring started for 3 financially distressed banks. The Non-Performing Assets Recovery Trust was established to facilitate the restructuring of insolvent banks by taking over all non-performing loans from banks' balance sheets, and replacing them with Bank of Ghana bonds.

In Kenya a major restructuring plan of the financial sector started in 1988. In Madagascar, bank restructuring took place in 1988 and 1989. Privatisation of banks also took place with the enactment of a new banking law to end the government's domination of banks and also to allow the entry of foreign investors.

The 1989 Reserve Bank Act gave the Reserve Bank of Malawi more power in the supervision and regulation of financial institutions. The Act also gave the central bank authority to grant banking licenses.

Bank restructuring started in 1992 in Uganda with the commencement of the restructuring programme for the Uganda Commercial Bank (UCB). This was made possible with procurement of a U.S. $100million loan from the World Bank. The restructuring exercise was 4-fold and included efforts to restructure UCB's balance sheet to restore it to solvency; insulating the bank from political pressure; re-organising lending procedures and internal controls; and reducing operating costs to prevent further operating losses. The restructuring programme for the Cooperative Bank also started in 1992. Two smaller banks have also had restructuring programmes initiated by the Bank of Uganda.

The liquidation of banks has also been implemented in the financial reforms carried out in SSA.

In the BCEAO region bank liquidation was done individually by each country. Comprehensive bank liquidation was carried out in Senegal and this resulted in the closing down of 7 banks (out of 15). In the BEAC region, bank liquidation occurred in Cameroon. In The Gambia, the Agricultural Development Bank was liquidated in 1989.

In Mauritius, the Bank of Mauritius closed the Mauritius Co-operative Central Bank Limited (MCCB) in April 1996 and the Union International Bank Limited (UIB) had its doors closed in May 1996. In Uganda following the comprehensive restructuring of banks embarked upon after liberalisation, insolvent banks have been closed down.

3.3.2 Interest Rate Liberalisation

The liberalisation/deregulation of interest rates has been a major component of financial liberalisation measures all over the world. SSA has not been an exception in this respect. Interest rates have been liberalised –whether wholly or partially – in almost all the countries considered in this study.

The liberalisation of interest rates has been considered important in the literature on financial liberalisation because of the potential effects that interest rates can have on the level of savings and subsequently investment. Removing interest rate controls has therefore been considered to be essential for financial sector reform.

In line with the policy pursued by the regional Central Bank of West African States (BCEAO)[4], interest rates were liberalised in 1989 in the WAEMU (West African Economic and Monetary Union) countries. These are Cote d'Ivoire, Mali and Senegal because monetary policy is conducted on a regional basis for all member countries of the WAEMU. The BCEAO liberalised interest rates in October 1989 when it scrapped its preferential discount rate. This was partial liberalisation since interest rates charged by banks were still partially under the BCEAO's control. However, in October 1993, interest rates were fully liberalised by the BCEAO.

Cameroon and the Republic of Congo liberalised interest rates in 1990. This was also in line with the policy of the regional Bank of Central African States (BEAC)[5,6]. The BEAC abolished preferential discount rates in October 1990. The BEAC also simplified the structure of, and raised, interest rates. Further measures included the unification of discount rates and the use of one minimum and maximum rate.

In Botswana, the liberalisation of interest rates took place in 1986 before the more comprehensive financial sector reforms of the early 1990s. Before the liberalisation, the Bank of Botswana exercised direct control over maximum lending and minimum deposit rates that could be charged by banks. Real interest rates were negative before the liberalisation. The Bank of Botswana Certificate (BoBC) was later introduced in 1991 as an indirect monetary policy tool for interest rates.

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[4] BCEAO is the Central Bank for the West African Economic and Monetary Union whose members are: Benin, Burkina Faso, Cote d'Ivoire, Guinea-Bissau, Mali, Niger, Senegal and Togo.
[5] BEAC is the Central Bank for the Central African Economic and Monetary Union whose members are: Cameroon, Central African Republic, Chad, Republic of Congo, Equatorial Guinea and Gabon.
[6] The 14 countries of the WAEMU and CAEMC form the CFA franc zone.

Financial liberalisation in Burundi started in 1986 (the same year it started implementing its SAP[7]). Prior to the financial reforms, the Central Bank of Burundi had engaged in controlling interest rates by fixing floors on deposit interest rates and ceilings on lending interest rates. This was done in conjunction with fixing discount rates for each sector. Interest rates controls were removed (partially) in August 1986 as the government attempted to reverse financial repressive policies and boost the availability of capital for investment purposes. Deregulation of interest rates was progressive and they were closely linked with the treasury certificate auctions. Although interest rates on term and savings deposits were liberalised, interest rates did not become fully market-determined (World Bank 1994a).

Interest rate liberalisation in The Gambia was implemented as part of the Economic Recovery Program which began in 1985. Pre-reform, the Central Bank had been engaged in fixing all deposit and lending rates which resulted in negative real interest rates. Liberalisation involved the abrupt and full freeing of interest rates in September 1985; interest rates were thereafter determined by the market. There is, however, a requirement that bank deposit rates on 3-month deposits be set at 3 percentage points below the prevailing interest rate on treasury bills.

In Ghana financial reforms implemented as part of the SAP initiated in April 1983 brought about interest rate liberalisation. Interest rates were deregulated gradually from 1985. In October 1986 deposit interest rates were revised upwards and September 1987 saw the removal of maximum lending and minimum deposit rates for banks.

[7] Burundi's SAP was 80% financed by donors and aid seemed to be a key factor in embarking on the SAP, see World Bank 1994, p.3.

Commercial banks had minimum lending rates removed in February 1988, and in March 1989 commercial banks were allowed to determine their own rates.

In Kenya, financial liberalisation began in 1989. There was full liberalisation of treasury bill rates in November 1990. This was then followed by the removal of ceilings on lending rates in July 1991.

Financial liberalisation started in 1985 in Madagascar. Interest rate controls were gradually removed until November 1990 when deposit and lending interest rates were fully liberalised.

Malawi's financial sector reforms started in 1987 as part of the SAP. Lending rates were decontrolled in 1987 and deposit rates were also decontrolled in 1988. The discount rate is used by the Reserve Bank of Malawi to influence changes in the interest rate structure. Thus the Reserve Bank of Malawi influences interest rates.

Financial liberalisation started in Mauritius in November 1981 with the liberalisation of maximum lending rates to non-priority sectors. Lending rates to priority sectors were liberalised in February 1983. Liberalisation of minimum time deposit rates came in March 1984 while saving deposit rates were deregulated in July 1988.

Financial liberalisation in Nigeria was implemented from 1985 as part of the SAP. Minimum and maximum interest rates were liberalised in August 1987. Rediscount and treasury bill rates were also raised in the same year. Interest rate liberalisation was further strengthened in 1992 with banks being given a free hand with direct lending rates.

South Africa's financial liberalisation efforts started in the early 1980's. Interest rates were fully liberalised in 1982 with banks setting their own rates thereafter. Mortgage rates were liberalised in 1984.

Liberalisation of interest rates started in Uganda in 1992 with the partial removal of interest rate controls. Other rates were linked to the treasury bill rate with the introduction of a treasury bill auction. Further liberalisation occurred in 1994 with the abolition of the connection with treasury bill rates.

Interest rates in Zambia were temporarily liberalised between September 1985 and May 1987. More comprehensive financial reforms took place from 1992. Interest rates were initially adjusted upwards without deregulation in 1990. The controls were, however, removed in September 1992. January 1993 saw treasury bill rates being market-determined with the introduction of the treasury bill auction.

Interest rate controls were removed in Zimbabwe in 1991 as part of the governments SAP.

3.3.3 Abolition of Directed Credit

Directed credit has been another major form of financial repression in SSA. The post-independence governments in SSA picked out priority sectors which received preferential treatment. This preferential treatment took the form of directing banks and other financial institutions to allocate credit to these priority sectors at very low rates of interest.

These directed credit schemes were detrimental in two ways: on one hand, only businesses that were friendly with the government could have access to credit, thereby excluding other businesses that might have credible investment ideas; and on the other hand, banks did not make meaningful returns on credit because of the low rate of interest. The elimination of directed credit during financial liberalisation is supposed to correct these deficiencies.

In the BCEAO zone, administrative controls over credit were abolished in September 1989. The policy of selective credit and preferential interest rates for priority sectors was abolished in Cote d'Ivoire. In Senegal sectoral credit policy was also dropped in 1989 when the government eliminated the preferential discount rate that applied to priority sectors (agriculture, exports, residential construction companies, and small and medium-size companies).

The BEAC scrapped its preferential lending rates in October 1990. It then abolished all credit controls in 1991.

In The Gambia, credit controls were abolished in September 1990.

Sectoral credit controls were removed in Ghana in April 1988. There was an exception to this, though, as a credit ceiling on the agricultural sector remained. Preferential credit to the agricultural sector was, however, abolished in November 1990.

In Kenya, the government did not specifically abolish sectoral credit guidelines. However, after interest rate deregulation in 1991, the credit ceilings were not enforced.

Credit ceilings were scrapped in Malawi in January 1991.

In Mauritius, credit ceilings to priority sectors were removed in July 1992. July 1993 saw the removal of ceilings on lending to non-priority sectors.

In Nigeria, liberalisation of directed credit controls started in 1985 when the government abolished the minimum credit allocation requirement to indigenous borrowers. This was followed in 1986 with the gradual removal of selective credit allocations.

Credit controls were removed in South Africa from the early 1980's. Sectoral credit controls were also removed in Zimbabwe following financial liberalisation.

3.3.4 Strengthening of Prudential Regulation

Another important feature of financial liberalisation is the strengthening of prudential regulation and supervision. The development of financial markets needs a corresponding development of prudential regulation to act as a check on the activities of agents in the financial sector. Consequently, the financial liberalisation episodes embarked upon in SSA have included measures aimed at granting Central Banks autonomy and power to regulate financial markets. Proper regulation and supervision would go a long way in avoiding any financial crisis before it gets out of hand.

The BCEAO introduced a new reserve requirements ratio of 1.5% for banks and 5% for financial institutions. It was also made mandatory for banks to get approval from the BCEAO for loans exceeding a specified level: for Cote d'Ivoire the limit was 300 million, for Senegal it was 200 million, and for Mali it was 100 million. A new body – the Banking Control Commission - was established to further strengthen prudential

regulation and supervision. The Banking Commission had as its objective, among other things to inspect financial institutions including banks, to strengthen control, to ensure transparency of the financial system and to stop the high rate of default on loans (see Moreira 1999). The Banking Commission had powers to warn, suspend or dismiss erring workers and institutions alike.

The BEAC introduced liquidity ratios for commercial banks. These ratios were supposed to guard against liquidity crises for the banks. The ratio was 70% in Cameroon and 75% in the Republic of Congo. Further measures aimed at prudential regulation were the restriction of 75% of banks' capital as the maximum loanable funds to a single customer. Bank solvency was further buoyed with the introduction of a debt to asset ratio.

Strengthening of prudential regulation in Botswana started with the Banking Act of 1995 which replaced the Financial Institutions Act of 1986. The Bank of Botswana was given greater autonomy and independence from the Ministry of Finance. Specifically, the new Act gave the Bank of Botswana power to grant banking licenses and also streamlined the central bank's activities to comply with international standards. Continuing in the same vein, the Bank of Botswana Act of 1975 was amended to give the Amendment Acts of 1996 and 1999.

In Burundi, before the financial reforms monetary policy was closely linked with the size of the budget deficit and circumstances of the coffee sector. The central bank did not have much control over monetary policy and prudential regulation was quite weak. Following liberalisation, efforts aimed at prudential regulation were rather shallow and

included the introduction of the reserve requirement system in March 1992 and the imposition of a sub-ceiling on credit to the public sector in order to free-up credit to the private sector.

In The Gambia, the Central Bank Act was amended in September 1985 to grant the Central Bank of The Gambia the power to fix minimum and maximum deposit rates. In June 1987 the reserve requirements for banks was increased, and in 1991 proposals were made to revise the Financial Institutions Act and the Central Bank of The Gambia Act.

In Ghana, strengthening regulation and supervision was one of the major objectives of the financial reforms which were implemented in 1988. The Banking Law was revised in August 1989 which gave the Bank of Ghana more regulatory and supervisory powers. The revised Banking Law required better auditing and accounting requirements for banks and also set in place a minimum capital base for assets. A new Bank of Ghana Law was introduced in October 1992 for stronger supervisory and regulatory powers for the Bank of Ghana. The Financial Institutions Law was introduced in 1993 to strengthen the Bank of Ghana in its dealings with non-bank financial institutions.

Efforts at strengthening the prudential and regulatory framework in Kenya started with the review and implementation of the Banking Act in 1985. This was followed by the establishment of the Deposit Insurance Fund in September 1986 and introduction of a cash ratio for commercial banks in December of the same year. The Deposit Insurance Fund was for the protection of depositors against bank insolvency. The Banking Act was further reviewed in 1988 and 1989. In order to enhance monetary policy and

reduce the inherent conflict of interest, the Central Bank directed all non-bank financial institutions to convert to commercial banks.

In Malawi, the Reserve Bank Act of 1989 signalled the first major step towards prudential regulation and supervision. The Act empowered the Reserve Bank of Malawi in its supervisory and regulatory capacity on all financial institutions. The same year also saw the enactment of the Banking Act which gave the central bank powers to grant banking licenses. The entry requirement was then increased to K2million (Malawi Kwacha) and K250, 000 for commercial banks and financial institutions, respectively.

Specific moves aimed at prudential regulation came quite late in Mauritius. The financial reforms were implemented gradually and in phases. The Bank of Mauritius Act of 1988 mandated banks to report to the central bank loans made to one customer group or group of closely related customers (Bundoo and Dabee, 1999, p.459). Banks' minimum equity capital was raised from Rs25million to Rs50million in January 1997and then to Rs100million later the same year. Further initiatives have been instituted to update the Bank of Mauritius Act of 1966 and the Banking Act of 1988.

1988 saw the emergence of moves in Nigeria to strengthen regulation. This was evidenced by the establishment of the Nigeria Deposit Insurance Corporation (to insure bank deposits); enactment of a new Securities and Exchange Commission (SEC) Decree, and across-the-board changes at the Central Bank of Nigeria. Further efforts were made in 1990 when the central bank mandated the reporting of activities of subsidiaries of banks offering financial services. Cash requirement was also introduced

for merchant banks in the same year, and this was followed by new accounting guidelines for banks and non-bank financial institutions.

The Reserve Bank of South Africa is relatively independent compared to what obtains elsewhere in SSA. The Constitution of 1996 recognised the central bank as an independent financial institution. The revised banking legislation of 1999 in South Africa empowered the South African Reserve Bank in the supervision of financial fraud. The legislation also mandated banks to appoint compliance officers in this regard.

The strengthening of prudential regulation and supervision was a central point of the financial liberalisation policies in Uganda. The 1969 Banking Act was replaced with the Financial Institutions Statute of 1993. The statute gives the Bank of Uganda greater autonomy from the Minister of Finance and empowers the central bank to license banking licenses. The statute also imposes restrictions on banks in matters relating to insider lending, investment in non bank business and large credit exposures. All financial institutions are now regulated by the Bank of Uganda and the central bank has at its disposal various instruments for sanctioning erring financial institutions.

In Zambia, strengthening of the Bank of Zambia for regulation and supervision started in 1994 with the enactment of the Banking and Financial Services Act (BFSA). This act gave the Bank of Zambia greater independence from the Minister of Finance. The act gave the central bank powers to request valuable financial information from banks and also to make guidelines. Minimum paid up capital for banks was increased to Kw1.25billion. The act also places limits on insider lending, loan exposure and

shareholder concentration. The Bank of Zambia was empowered to issue warnings and disciplinary action, and in extreme cases revoke the licenses of banks that were found to be on the wrong side of the law.

3.3.5 Free Entry into Banking

Another prominent feature of financial liberalisation, and which is closely linked with bank restructuring, is the deregulation of entry into banking. Freeing entry into the banking system enhances competition and helps to break monopolistic or oligopolistic tendencies. Indeed, many SSA countries prior to financial liberalisation had 1 or 2 dominant banks, which were usually state-owned. These banks were often lacking in innovation and many of them had terrible balance sheets – owing to unpaid loans and lack of prudential regulation. Granting banking licenses to more players would help to drive out those firms who are not capable of surviving in the market.

In Botswana, financial liberalisation saw the liberalisation of commercial bank licensing requirements to enhance free entry into banking.

In Ghana, the granting of bank licenses was liberalised. In Kenya, free entry was enhanced when the central bank urged non bank financial institutions to convert to banks.

In Madagascar, the new banking law of 1988 relaxed controls on banking, ended the government's monopoly on the domestic banking system, and granted both local and foreign entry into the banking sector. The Reserve Bank Act of 1989 in Malawi deregulated the banking industry and opened the industry to new entries.

In Mauritius, financial reforms have been exercised with caution, and entry requirements are still stiff. However, the government licensed the opening up of many new branches for existing banks. Financial liberalisation in Nigeria included the freeing up of the banking sector to allow new entrants.

In South Africa, liberalisation has enabled non-bank financial institutions to be able to enter into banking since 1988. In Zambia, financial liberalisation eased-up access for new entrants into the banking industry.

3.4 CONCLUSION

We have provided a survey of the structure of financial systems in nineteen SSA countries in this chapter. We saw that the governments of these countries resorted to intervening in the financial system after liberalisation in order to provide cheap credit to government parastatals and priority sectors, and at the same obtain easy government revenue from taxation of financial intermediaries. These policies –such as interest rate controls, directed credit allocation, and bank nationalisation - repressed the financial system and resulted in shallow finance and this culminated in low savings and investment rates in the countries concerned.

Many countries in SSA liberalised their financial systems from the mid-1980s to combat the ill-effects of previous repression policies. Financial liberalisation entailed five major policy moves which were: bank denationalisation and restructuring, interest rate deregulation, abolishing directed credit, and granting more bank licences.

Having examined the theory of financial liberalisation and the specific financial liberalisation measures embarked upon by SSA countries, it is essential to empirically examine how financial liberalisation has affected their economic performance. This is the focus of the next 4 chapters where we develop indexes to measure the gradual progression of financial liberalisation policies and include them in savings, investment, and growth equations.

APPENDIX3A

3A.1: STARTING DATES OF MAJOR FINANCIAL LIBERALISATION

COUNTRY	DATE	SOURCE
Botswana	1989	Bank of Botswana (2001)
Burundi	1986	Hussain & Faruqee(1994)
Cameroon	1990	Galbis (1993)
Congo, Rep.	1990	Reinhart & Tokatlidis (2003)
Cote d'Ivoire	1989	Galbis (1993)
Gambia, The	1986	Moreira (1999)
Ghana	1987	Honohan (2000)
Kenya	1991	Demirguc-Kunt & Detragiache (1998)
Madagascar	1994	Reinhart & Tokatlidis (2003)
Malawi	1992	Honohan (2000)
Mali	1989	Reinhart & Tokatlidis (2003)
Mauritius	1981	Galbis (1993)
Nigeria	1987	Galbis (1993)
Senegal	1989	Reinhart & Tokatlidis (2003)
Sierra Leone	1991	Honohan (2000)
South Africa	1980	Williamson & Mahar (1998)
Uganda	1988	Galbis (1993)
Zambia	1992	Demirguc-Kunt & Detragiache (1998)
Zimbabwe	1993	Naude (1995)

3A.2: FINANCIAL LIBERALISATION POLICIES

COUNTRY	INTEREST RATES	CENTRAL BANK AUTONOMY/ REGULATION	BANK RESTRUCTURING & PRIVATISATION	DIRECTED CREDIT	FREE ENTRY	BANK LIQUIDATION
Botswana	interest rate controls abolished through introduction of Bank of Botswana certificate	Bank of Botswana granted more autonomy and powers for regulation and supervision	reforms of non-bank financial institutions		liberalisation of commercial bank licensing requirements	
Burundi	partial liberalisation of interest rates; interest rates were linked to rates obtained during treasury certificate auctions	public enterprises allowed to reduce their deposit requirements in centrral bank	elimination of monopoly of Savings Bank of Burundi on compulsory savings deposits of workers	abolishment of credit rationing		introduction of more efficent and less discrimanatory instruments to manage bank liquidity
Cameroon	interest rates liberalised in accordance with CAEMC** policies	liquidity ratio introduced to ensure availability of liquidity for commercial banks; debt to asset ratio introduced to reinforce bank solvency	8 banks restructured; privatisation of banks	removal of constraints on credit		
Congo, Rep.	interest rates liberalised in accordance with CAEMC** policies	liquidity ratio introduced to ensure availability of liquidity for commercial banks; debt to asset ratio introduced to reinforce bank solvency	3 banks restructured	removal of constraints on credit		
Cote d'Ivoire	interest rates liberalised in accordance with WAEMU* policies	in line with WAEMU policies: adoption of strict management standards and reinforcement of bank monitoring;banking commission to ensure regional supervision	the 4 major commercial banks restructured and recapitalised; repayment of loans owed by government; bank privatisation	abolishing selective credit and preferential interest rates for priority sectors		liquidation of distressed banks

Gambia, The	ceilings on lending rates removed; and thereafter ceilings on all interest rates removed	Central Bank of The Gambia strengthened for regulation; banks reserve requirements increased	Gambian Commercial and Development Bank privatised	credit ceilings abolished		Agricultural Development Bank liquidated
Ghana	interest rates liberalised gradually	banking law revised to strengthen Bank of Ghana for bank regulation and supervision	comprehensive restructuring for distressed banks	credit controls removed for all sectors, except agriculture - but later removed for agriculture too		
Kenya	ceilings on lending rates removed	Deposit Protection Fund established;	bank restructuring	directed credit to priority sectors though in place, but not enforced since 1991		bank liquidation
Madagascar	gradual liberalisation of interest rate controls		restructuring and privatisation of state-owned banks	state-owned banks still benefit from priority lending rates		
Malawi	full liberalisation of interest rates	Reserve Bank Act (1989) broadened powers and mandates of Central Bank; and also more autonomy; reserve requirement increased	bank restructuring and privatisation	credit ceilings and credit rationing abolished	opening up of financial system to more participants	
Mali	interest rates liberalised in accordance with WAEMU* policies	banking commission to ensure regional supervision; new reserve requirements system established	restructuring of banks			
Mauritius	liberalisation of interest rates					

Nigeria	interest rates liberalised	Central Bank granted more autonomy in regulation and supervision	National Deposit Insurance Corporation established to insure bank deposits	credit ceilings abolished	licenses granted for new financial institutions	liquidation of distressed banks
Senegal	partial liberalisation of interest rates	in line with WAEMU policies: adoption of strict management standards and reinforcement of bank monitoring;banking commission to ensure regional supervision	bank restructuring and privatisation	sectoral credit policy abolished		bank liquidation
Sierra Leone						
South Africa	interest rates liberalised	Reserve Bank Act of 1989 gave the South African Reserve Bank more autonomy and independence		removal of credit controls	liberalisation of scope of activities of financial institutions to enhance free entry into the market	
Uganda	interest rates partially liberalised	Bank of Uganda strengthened for prudential regulation and supervision by 1993 Financial Institutions Statute	major restructuring of public and private banks			liquidation of insolvent banks
Zambia	interest rates liberalisation	Banking and Financial Servicies Act of 1994 gave the Bank of Zambia more independence and power in prudential regilation and supervision				
Zimbabwe	liberalisation of interest rates	Reserve bank granted more independence to conduct monetary policy		policy shift away from direct credit allocation	entry restrictions relaxed to ensure entrance of more financial institutions	

Sources: World Bank (1994), Collier, P. (1993), ADB (1997)

3A.3 SEQUENCING OF FINANCIAL LIBERALISATION

BOTSWANA

1986
lending interest rates reduced from 11.5% to 10%
relaxation of exchange-control rule
1987
further reduction in lending rates
1989
announcement of various financial reform measures
1990
granting of bank licenses (Zimbank)
bank restructuring (BCB)
1991
new bank opens
issuing of Bank of Botswana certificates
1992
Two more banks opened
1994
reforming of BSB
1995
new banking law
nbfi/bank supervision started

Sources: Brownbridge and Harvey (1998), Bank of Botswana (2001)

BURUNDI

1986
abolition of directed credit
1988
interest rate liberalisation
1992
strengthening of Central Bank

Sources: World Bank (1994a), Nkurunziza and Ngaruko (2005)

CAMEROON

1990
BEAC eliminated preferential lending rates
simplified the interest rate structure
increased its power to determine interest rate policy
1991
bank restructuring

introduction of monetary programming constraints on credit lifted
1994 introduction of a monetary market

Sources: Galbis (1993), Moreira (1999), Blandford et.al. (1994), World Bank (1994a)

CONGO REPUBLIC

1990 BEAC eliminated preferential lending rates simplified the interest rate structure increased its power to determine interest rate policy
1991 bank restructuring constraints on credit lifted
1992 introduction of monetary programming
1994 introduction of a monetary market

Sources: World Bank (1994a), Moreira (1999)

COTE D'IVOIRE

1989 BCEAO abolished preferential discount rate removal of directed credit
1990 establishment of the Banking Commission– a regional bank supervision body
1992 reserves on deposits made mandatory
1994 credit containment eliminated

Sources: Galbis (1993), World Bank (1994a), African Development Bank (1994), Moreira (1999)

GAMBIA

1985 bank restructuring (Gambian Commercial and Development Bank) amendment of Central Bank Act removal of ceilings on lending rates
1986 introduction of requirement of weekly reporting of commercial banks balance sheets and closer monitoring of their developments removal of all controls on interest rates

1987
increase in banks reserve requirements
1989
liquidation of Agricultural Development Bank
1990
removal of credit ceilings
1991
preparation of proposals to revise the Central Bank Act and Financial Institutions Act
offering for sale of Gambian Commercial and Development Bank

Sources: Turtelboom (1991), Pill and Pradhan (1995), Montiel (1996), Brownbridge and Harvey (1998), Moreira (1999), Naude (1995)

GHANA

1986
introduction of weekly foreign exchange auction
1987
liberalisation of maximum and minimum deposit rates
1988
removal of sectoral credit controls except for agriculture
decontrol of minimum bank savings rate
establishment of foreign exchange bureaus
1989
bank restructuring
revision of the banking law
1990
unification of foreign exchange markets
abolition of requirement for lending to agricultural sector
replacement of non performing bank claims on both public and private enterprises
1991
replacement of non performing claims on the private sector

Sources: Turtelboom (1991), Pill and Pradhan (1995), Montiel (1996), Inanga and Ekpenyong (2002), Brownbridge and Harvey (1998), Moreira (1999), World Bank (1994a), African Development Bank (1994), Emenuga (2002), Naude (1995)

KENYA

1985
implementation of the banking act
1986
establishment of deposit protection fund
introduction of a cash ratio for commercial banks
1987
adoption of building societies act
1988
start of major restructuring programme of financial sector
1989

revision of banking bill
1990 removal of fees and charges from interest rate ceilings
1991 removal of ceilings on lending rates

Sources: Turtelboom (1991), Pill and Pradhan (1995), Montiel (1996), Inanga and Ekpenyong (2002), Brownbridge and Harvey (1998), Moreira (1999), World Bank (1994a), Naude (1995), Mwega (2002)

MADAGASCAR

1985 start of interest rate liberalisation
1988 bank restructuring new banking law to increase entry into banking
1989 more bank restructuring establishment of new banks
1990 full interest rate liberalisation

Sources: Dorosh and Bernier (1994), Pill and Pradhan (1991)

MALAWI

1988 removal of interest rate ceilings
1989 initiation of steps to set up discounting and financing facilities introduction of statutory reserve requirement of 10% of total bank deposits
1990 provision of Investment and Development Bank of Malawi to start accepting corporate deposits introduction of a bank rate, linked to an official auction rate of bills granting of permission to 2 parastatals to switch their deposits from Reserve Bank of Malawi to commercial banks
1991 removal of credit ceilings

Sources: Turtelboom (1991), Pill and Pradhan (1995), Montiel (1996), Moreira (1999), Mwega (2002), Chirwa and Mlachila (2002)

MALI

1989
BCEAO abolished preferential discount rate
removal of directed credit
1990
establishment of the Banking Commission– a regional bank supervision body
1992
reserves on deposits made mandatory
1994
credit containment eliminated

Sources: Moreira (1999), World Bank (1994a)

MAURITIUS

1981
removal of ceiling on lending rates to non-priority sectors
removal of ceilings on inter-bank rates
1983
removal of maximum lending rates
1984
removal of minimum interest rates on time deposits
1988
removal of minimum interest rates on saving deposits
introduction of Banking Act
1989
launching of offshore banking
1992
removal of ceiling on bank credit to priority sectors
1993
full lifting of ceilings on credit to non-priority sectors
abolition of maximum amount of loans banks can grant
1994
banks no longer have unlimited automatic access to central bank credit
1995
bank liquidation
1996
bank liquidation
1997
phasing out of law mandating commercial banks to keep high reserve requirements and invest in government securities
raising minimum equity capital of commercial banks

Sources: Galbis (1993), Bundoo and Dabee (1999)

NIGERIA

1985
elimination of minimum credit allocation requirement to indigenous borrowers
implementation of third phase of rural banking programme
1986
modification of credit ceilings for merchant banks
gradual abolition of selective credit allocations
1987
removal of controls on minimum and maximum interest rates
1988
adoption of new Securities and Exchange Commission decree
establishment of National Deposit and Insurance Corporation
introduction of significant institutional changes at the Central Bank
unification of credit ceiling requirement for commercial and merchant banks
1989
adoption of privatization and commercialization programme
signing of accord between banks and Central Bank to limit spreads between interest rates
1990
introduction of cash requirement for merchant banks
all banks to report on activities of their subsidiaries offering financial services
introduction of minimum capital requirement
introduction of new accounting guidelines for all financial institutions
1991
re-administration of interest rates
no new bank licenses

Sources: Turtelboom (1991), Galbis (1993), Montiel (1996), Inanga and Ekpenyong (2002), Brownbridge and Harvey (1998), Moreira (1999), Naude (1995), Emenuga (2002), African Development Bank (1994)

SENEGAL

1981
restructuring of banking sector
1988
adoption of reorganization and liberalisation plan for banking sector
restructuring of banking sector
1989
proposal to liquidate 6 banks
flexible interest rate policy
abolition of directed credit
further restructuring of banking sector
1990
establishment of the Banking Commission – a regional bank supervision body
further restructuring of banking sector

1991
further restructuring of banking sector
1992
reserves on deposits made mandatory

Sources: Inanga and Ekpenyong (2002), Moreira (1999), World Bank (1994a), Berthelemy (1997)

SIERRA LEONE

1989
start of adjustment programme
1992
deregulation of commercial banks interest rates
discontinuation of directed credit
bank restructuring

Sources: Emenuga (2002), Davies (2002)

SOUTH AFRICA

1980
removal of interest rate controls
removal of credit controls
1982
further interest rate liberalisation
1983
reduction of banks' liquidity ratios
abolishment of Register of Cooperation (which limited competition between banks)
1984
liberalisation of the mortgage rate
1985
further reduction of banks liquidity ratios
reversed reduction of banks liquidity ratios
1986
building societies act which increased competition in the mortgage sector
1988
amendments to the building societies act to further increase competition
1989
demutualization and takeovers
Reserve Bank Act

Sources: Aron and Muellbauer (2000), Absa (1999)

UGANDA

1992
bank restructuring
decontrol of some interest rates
1993
Financial Institutions Statute
1994
bank liquidation- Tieffe Bank closed
further interest rate liberalisation
1995
establishment of Non-Performing Assets Recovery Trust
Bank of Uganda takes over Nile and Sembule Banks
injection of Sh10 billion additional equity capital

Sources: Brownbridge and Harvey (1998)

ZAMBIA

1991
granting of bank licences
1992
decontrol of interest rates
further granting of bank licences
1993
further interest rate liberalisation
further granting of bank licences
1994
new banking legislation to increase prudential regulation
more bank licences granted
1995
bank closures

Sources: Pill and Pradhan (1995), Brownbridge and Harvey (1998)

ZIMBABWE

1991
interest rate liberalisation
abolishing directed credit
granting of bank licences
1996
bank restructuring
strengthening of Central Bank
further entry into financial sector

Sources: Naude (1995), Brownbridge and Harvey (1998), Mwega (2002)

CHAPTER FOUR: THE IMPACT OF FINANCIAL LIBERALISATION ON SAVINGS

4.1 INTRODUCTION

Sub-Saharan Africa (SSA) has experienced the lowest savings rates among other developing regions in the past three decades. Savings rates in SSA have 'stagnated' over the years. Aryeetey and Udry (2000) note that unlike other regions, changes in saving in SSA have been dominated by public saving and consequently attribute the dismal performance of saving rates in SSA since the 1980s to the decline in public savings.

A central theme of McKinnon and Shaw's financial liberalisation hypothesis was that the low savings prevalent in developing countries was a contributory factor to their low growth rates. McKinnon and Shaw attributed low interest rates as the primary cause of poor savings. Low savings lead to a higher degree of competition between different investment projects than would otherwise be the case, which results in a situation where high-yielding investments are rationed out. Consequently, only low-yielding investment projects are undertaken which adversely effects economic growth. The main theme of financial liberalisation is that raising interest rates will improve savings and ultimately stimulate investment and growth.

This can be seen by referring to Figure 2.1 on page 16. We see from this figure that artificially low interest rates as a result of financial repression make the accumulation of financial assets unattractive and this discourages savings. This results in low savings

which restricts the lending capabilities of banks for investment purposes. Liberalisation of the financial sector through interest rate decontrols, denationalisation of banks, strengthening of prudential regulation, and the granting of more bank licences is expected to attract deposits thus increasing savings. This would involve an upward shift along the SS curve in Figure 2.1. The increased savings provide more funds for investors (increasing the quantity of investment), and also rations out low-yielding investments (increasing the quality of investment).

We saw from chapter three that virtually all the countries in our study liberalised interest rates. Bank denationalisation is expected to limit government intervention in financial intermediation and enable intermediaries to operate efficiently with profit maximisation in mind. This would also enable countries to move away from subsidised, state provided credit, and move toward a market based system that acts as an intermediary, channelling funds from savers to investors (Mavrotas and Kelly, 1999). Countries that denationalised and restructured existing banks are Cote d'Ivoire, Senegal, Cameroon, Congo Republic, The Gambia, Ghana, Kenya, Madagascar, and Nigeria. The granting of bank licences will also stimulate competition in the banking sector and will enhance the quality of products offered by financial intermediaries. Countries such as Botswana, Ghana, Kenya, Madagascar, Malawi, Mauritius, Nigeria, South Africa, and Zambia granted more bank licences. All the countries in our study embarked on strengthening of prudential regulation. This can increase confidence in the financial system and thus attract more deposits.

Following such measures aimed at financial liberalisation, it is essential to empirically examine if financial liberalisation has been able to raise savings as predicted by McKinnon and Shaw. This chapter is concerned with the effects of financial liberalisation on savings in Sub-Saharan Africa. Previous studies that have attempted to examine such effects in SSA have principally modelled financial liberalisation using the real rate of interest (Seck and El Nil, 1993; Mwega, 1997; Elbadawi and Mwega, 2000). Such studies fail to take into account the fact that financial liberalisation is not a one-time measure but a gradual process that also involves more than just deregulating interest rates. We saw in section 2.3.1 that these previous studies are lacking in providing an in-depth measure of financial liberalisation, and so their conclusions cannot be construed as giving the true relationship between savings and financial liberalisation.

This chapter attempts to improve on these studies by providing a better measure of financial liberalisation. Specifically, we will improve on previous studies by constructing two indexes to take account of the gradual nature that financial liberalisation entails. We will also make use of a dummy variable that is zero prior to liberalisation and one after liberalisation. These indexes and the dummy are then included in savings equations that make use of both financial and national saving rates as dependent variables to empirically test how financial liberalisation has affected savings in a panel of SSA countries. This is the first study we are aware of that constructs such indexes and uses panel data econometrics for countries in SSA.

The structure of the chapter is as follows. The second section examines savings behaviour in SSA and how liberalisation has affected savings. In the third section, we develop our empirical model while the fourth section conducts econometric tests to examine the impact of financial liberalisation on both financial and national savings for a panel of 19 Sub-Saharan countries. The final section concludes.

4.2 FINANCIAL LIBERALISATION AND SAVINGS IN SUB-SAHARAN AFRICA

4.2.1 Savings in Sub-Saharan Africa

Sub-Saharan Africa (SSA) has experienced relatively low and declining savings rates when compared to other regions over the past three decades. In the 1980s, gross national savings for SSA averaged 19% of GNP as compared with 23% for the Middle East and North Africa and 28% for East Asia and Pacific. The region did not fare any better in the 1990s with the gross national savings rate averaging 13% in SSA while it was 21% in Middle East and North Africa and 35% in East Asia and Pacific. From Figure 4.1 it can be seen that the saving rate for SSA has exhibited a declining trend since the early 1980s.

The experience of the High Performing East Asian (HPEA)[1] economies is in stark contrast with that of SSA. The average saving rate in these countries for the period 1980-1998 was 31%. Aryeetey and Udry (2000) note that the changes in saving rates in Africa were driven by public savings while the changes in Asia were usually driven by

[1] High Performing Asian Economies are Hong Kong, Indonesia, Japan, Malaysia, Republic of Korea, Singapore, Taiwan (China), and Thailand.

private savings. The savings rate in SSA is not only low but also very volatile. Elbadawi and Mwega (2000) show that the coefficient of variation of private (public) saving in SSA is more than three (twice) times that of the HPAEs.

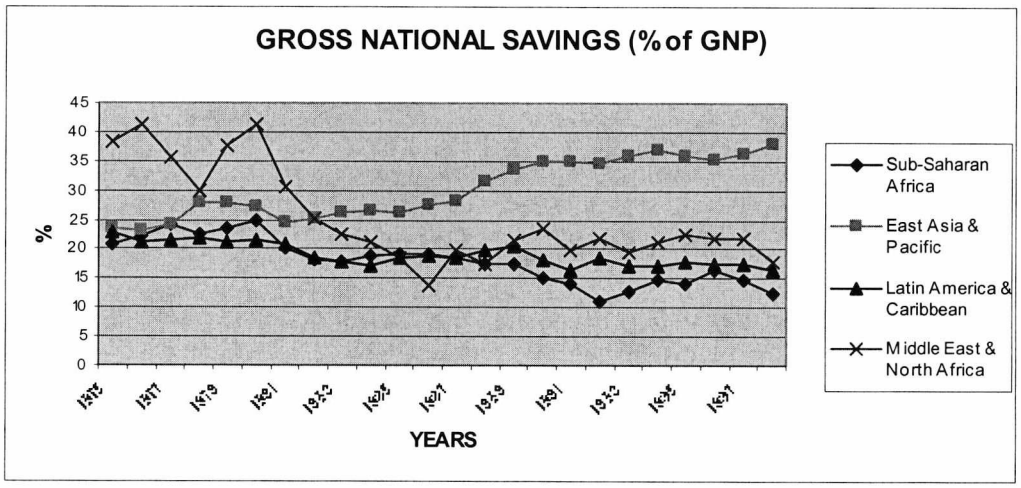


Fig 4.1: Gross National Savings Ratios

Source: World Development Indicators CD-ROM 2000

Table 4.1 shows the saving rates from 1977 to 1998 for the countries in our study and we see that savings has not performed well. Savings has been particularly dismal in countries such as Burundi, Madagascar, Senegal, Sierra Leone, and Uganda where both financial and national saving rates have been below 10 percent. Financial savings are generally lower than national savings, which reflects low financial intermediation and the unattractive nature of financial assets as opposed to other forms of wealth holding. The fragmented structure of financial systems in SSA, and the concentration of production in small-scale industries have made wealth holding to be concentrated in non-financial assets. It is interesting that in countries such as Botswana, Kenya,

Mauritius, South Africa, and Zimbabwe who have fairly advanced and diversified financial systems, financial saving is still low with average financial saving rates of 4.42, 5.29, 8.76, 7.40, and 4.53, percent respectively.

National saving has also been low for most of the countries, with the exception of Botswana and Mauritius whose savings rates average 38.96 and 23.21 percent respectively. Botswana is a special case because most of the saving was done by the government who had excess revenues from mining. A common feature in some of the countries was the decline of national saving in the mid-1980s. Countries which experienced such declines include Nigeria, Senegal, South Africa, Uganda, Malawi, Madagascar, and Cote d'Ivoire. The fall in national saving in Malawi has been attributed to increased external transfers, while in Nigeria it has been as a result of increased debt service payments (Aryeetey and Udry, 2000).

The nature of savings data has also made measuring savings difficult. Savings data from national accounts are not observed directly but derived as residual from income and consumption. Savings data are thus subject to measurement error, are sensitive to the particular approach used in deriving national income accounts, and face underestimation problems.

High and volatile inflation rates also contribute to hampering savings in SSA. Many agents in the face of uncertainty arising from volatile inflation will prefer to hold non-financial assets as opposed to financial assets.

TABLE 4.1:SAVING RATES IN SUB-SAHARAN AFRICA

	YEARS	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	average
BOTSWANA	financial	5.35	2.41	10.90	4.44	-1.04	1.69	5.41	3.31	9.35	1.91	13.08	4.95	9.97	-3.69	7.98	3.23	-3.30	2.42	2.17	3.12	5.22	8.27	4.42
	national	29.16	26.64	36.50	37.47	36.63	34.38	36.28	35.74	38.93	43.24	60.95	58.75	45.91	37.10	42.38	38.54	40.32	37.10	39.37	46.64	32.32	22.89	38.96
BURUNDI	financial	3.80	4.39	0.83	4.11	3.45	-0.62	4.15	0.16	2.74	0.22	0.40	2.39	2.20	1.72	1.16	0.73	1.19	6.04	N.A.	N.A.	1.74	N.A.	2.15
	national	11.50	5.52	6.36	-0.60	4.11	-2.24	7.12	6.32	4.10	1.05	6.62	1.67	3.27	-5.37	-4.18	-5.08	-4.50	-7.65	-4.81	2.47	3.85	-2.52	1.23
CAMEROON	financial	7.92	2.97	4.35	4.77	5.62	3.81	5.24	4.11	3.48	-0.92	-4.02	1.22	1.31	-0.40	0.44	-5.59	-1.87	4.56	-1.10	-1.53	2.35	1.08	1.72
	national	6.00	20.70	11.04	7.59	11.73	25.90	23.80	26.01	24.88	25.22	18.93	19.00	17.59	16.80	17.38	13.07	12.03	12.13	14.55	12.03	14.39	16.56	16.70
CONGO, REP.	financial	0.46	1.26	3.41	5.06	6.08	3.65	-0.24	0.93	2.85	-2.66	1.12	-0.61	0.79	4.13	-1.10	1.24	-6.87	4.17	-0.01	2.57	1.65	-2.62	1.15
	national	N.A.	8.67	19.42	28.86	26.54	41.94	39.40	42.97	26.55	18.04	24.59	6.21	17.21	8.33	2.47	12.48	10.87	19.44	11.33	11.79	16.98	N.A.	19.70
COTE D'IVOIRE	financial	11.72	3.33	-0.84	0.77	2.69	0.90	1.35	4.83	4.01	0.87	-1.25	0.49	-2.86	-0.89	0.04	-0.39	-0.44	10.09	4.87	1.12	2.21	1.88	2.02
	national	26.57	20.45	14.34	9.00	7.41	9.01	5.90	15.23	15.44	10.76	4.11	1.70	-5.10	-5.99	-4.25	-2.54	-6.42	11.97	7.40	10.27	12.05	14.33	7.80
GAMBIA	financial	-2.64	7.90	-1.94	2.09	4.43	3.62	6.44	1.38	10.38	1.73	4.24	2.77	4.06	1.74	4.98	2.94	2.85	-0.92	3.16	1.40	5.47	2.79	3.13
	national	N.A.	3.47	10.87	16.14	27.92	21.30	11.38	13.58	7.21	0.53	29.89	29.48	19.29	23.10	24.37	24.43	15.59	12.50	13.49	8.19	14.44	12.91	16.19
GHANA	financial	10.30	9.97	2.88	4.71	5.64	3.26	3.27	4.17	4.38	4.48	5.08	4.79	6.12	1.69	3.10	6.55	3.65	5.84	5.04	3.91	5.82	3.94	4.93
	national	10.29	4.32	7.06	5.05	4.03	3.75	2.81	5.28	7.26	7.09	8.08	10.23	11.67	10.74	12.09	7.05	13.66	21.28	19.80	18.82	17.96	22.31	10.48
KENYA	financial	11.43	4.16	4.13	0.24	3.57	4.57	1.37	3.33	1.65	7.76	3.15	2.20	3.37	5.24	5.45	11.05	10.23	10.27	5.96	9.67	6.59	0.94	5.29
	national	25.56	18.11	10.61	12.85	15.27	13.10	18.22	15.91	21.30	18.04	15.01	15.20	14.12	14.33	16.17	11.42	20.89	18.92	13.91	16.50	12.14	10.98	15.84
MADAGASCAR	financial	3.38	3.31	0.59	3.43	4.26	1.56	-1.42	3.10	1.89	3.57	2.65	3.06	4.85	0.73	5.08	4.08	4.68	8.98	2.81	2.73	3.61	1.14	3.09
	national	5.52	4.65	1.16	-1.43	-0.53	-1.80	0.09	2.25	-0.21	6.31	4.63	8.32	11.16	9.59	-1.98	4.68	3.91	1.74	2.52	7.95	6.13	5.91	3.66
MALAWI	financial	5.67	0.98	0.19	2.32	4.83	2.98	1.21	5.86	-0.21	5.01	7.37	4.39	1.21	1.99	4.03	2.74	5.67	6.41	6.17	4.67	0.29	6.43	3.65
	national	20.06	20.52	12.60	10.79	11.80	15.05	15.23	14.82	12.88	10.12	13.28	9.20	4.72	9.66	14.20	0.69	-0.92	8.26	7.97	0.85	2.06	0.37	9.74
MALI	financial	2.16	3.47	2.56	0.72	0.48	1.78	3.11	5.35	1.76	1.35	-0.94	1.87	0.21	-1.06	2.59	0.60	1.73	6.92	1.44	4.66	1.99	0.89	1.98
	national	16.70	5.55	8.31	8.47	6.56	7.57	4.12	3.17	-1.03	5.67	10.28	10.88	13.26	15.14	17.10	14.77	15.11	20.03	15.01	13.17	13.55	N.A.	10.64
MAURITIUS	financial	4.93	8.21	3.35	8.49	1.58	8.32	4.07	5.60	12.29	12.45	13.26	13.89	8.21	11.02	12.13	9.55	10.47	8.00	12.40	5.35	11.20	8.01	8.76
	national	20.68	19.29	19.46	10.62	12.87	14.99	16.33	17.91	21.56	29.68	29.62	29.21	26.62	26.70	27.99	29.24	27.79	25.79	25.51	25.85	27.06	25.83	23.21
NIGERIA	financial	5.92	-0.43	5.46	9.50	1.72	2.86	4.18	3.57	2.74	0.67	5.41	6.70	2.42	6.06	7.20	8.58	7.79	6.26	2.82	2.01	2.05	2.70	4.37
	national	29.60	22.53	26.82	27.27	16.36	11.58	8.56	8.48	9.03	4.58	10.71	17.22	18.55	21.67	24.79	18.27	12.44	12.85	12.15	29.76	18.61	6.24	16.73
SENEGAL	financial	3.66	5.79	0.40	2.72	6.09	5.60	1.18	1.46	1.18	2.69	-0.06	0.12	2.44	-1.19	1.37	0.85	-3.26	6.70	1.60	2.51	0.79	1.83	2.02
	national	10.01	4.12	3.25	-4.41	-7.08	-0.11	0.28	1.35	-4.95	2.45	3.38	4.82	5.04	8.44	5.45	8.38	5.22	11.53	12.64	13.71	15.80	19.92	5.42
SIERRA LEONE	financial	3.16	4.78	3.32	3.77	0.48	8.89	5.92	4.50	8.43	7.74	5.69	5.33	6.44	6.25	6.09	3.35	2.25	0.94	1.78	2.35	5.09	1.42	4.45
	national	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	1.35	0.11	-1.50	3.07	0.39	2.94	6.88	12.87	9.07	9.37	4.24	-5.67	N.A.	N.A.	N.A.	3.59
SOUTH AFRICA	financial	5.74	8.67	8.82	10.47	8.39	6.78	6.87	9.56	7.36	4.34	8.88	12.20	9.88	5.74	8.26	1.44	2.84	7.73	7.05	6.51	8.39	6.99	7.40
	national	18.24	21.22	23.94	28.58	23.89	20.24	18.95	18.46	20.16	18.89	18.09	18.59	18.67	14.22	14.15	13.84	15.43	15.91	17.09	15.56	14.44	14.36	18.31
UGANDA	financial	2.40	3.40	5.21	3.82	8.16	1.22	3.18	7.47	8.29	10.68	8.63	5.40	3.00	2.91	3.00	4.28	2.55	2.85	1.39	1.61	2.08	2.24	4.26
	national	7.19	2.68	8.13	-0.85	-35.96	-34.13	-29.11	6.40	7.57	8.31	2.64	3.00	2.62	1.24	2.21	3.07	2.99	9.64	12.20	11.28	12.88	14.14	0.82
ZAMBIA	financial	3.96	-2.81	7.93	2.64	2.11	9.79	3.75	5.63	6.39	18.54	12.05	14.07	13.32	7.72	12.44	N.A.	N.A.	5.93	6.60	4.86	3.58	3.80	7.12
	national	22.08	20.50	23.11	19.26	6.81	7.97	15.18	16.52	14.13	22.10	16.51	18.21	3.79	16.57	8.38	0.04	9.00	9.30	8.12	8.74	9.32	5.32	12.77
ZIMBABWE	financial	0.84	1.40	15.01	6.53	3.46	5.57	-0.76	1.99	3.69	0.91	5.65	4.36	4.94	3.14	0.25	1.93	9.91	6.36	5.71	6.73	9.34	2.77	4.53
	national	18.36	12.73	10.55	13.78	14.34	13.76	11.27	16.79	18.03	20.56	17.68	22.08	16.65	17.44	15.82	10.98	21.05	21.81	16.96	18.91	11.12	15.37	16.18

Notes: financial=financial saving (% of GNP)

national=gross national saving (% of GNP) except Burundi, Malawi, Zambia, and Zimbabwe where it is gross doemstic saving (% of GDP)

Source: World Development Indicators (WDI) CD-ROM 2000

The informal financial market also plays a role in the low savings rates found in SSA. Informal financial markets are not only popular but some authors suggest that they attract more saving than formal intermediaries (Aryeetey and Udry, 1997, 2000). Funds deposited with such informal intermediaries will also not come up in savings data derived from national accounts statistics.

Table 4.2 contains the average financial saving and national saving ratios for all countries before and after liberalisation. For all countries taken as a whole, the financial saving ratio fell after liberalisation from 4.13 percent to 3.84 percent, while the national saving ratio increased very slightly from 12.77 percent to 12.82 percent. These changes are only marginal and we need to examine the countries individually. Financial saving increased after liberalisation in only 7 countries (Kenya, Madagascar, Malawi, Mali, Mauritius, Nigeria, and Zimbabwe), while it decreased in Botswana, Burundi, Cameroon, Congo Republic, Cote d'Ivoire, The Gambia, Ghana, Senegal, Sierra Leone, South Africa, Uganda and Zambia. The difference between the pre- and post-liberalisation financial saving rates was low in counties like Burundi, Cote d'Ivoire, The Gambia, Ghana, Madagascar, Mali, and South Africa where it was below a percentage point while the difference was quite high in Cameroon (-3.3%), Kenya (3.5%), Mauritius (3%), Uganda (-2.8%), Zambia (-2.8%), and Zimbabwe (3.1%). These figures seem to suggest that financial saving has not been particularly enhanced by financial liberalisation.

The national saving ratio increased in 10 countries (The Gambia, Ghana, Madagascar, Mali, Mauritius, Nigeria, Senegal, Sierra Leone, Uganda, and Zimbabwe), and it fell in

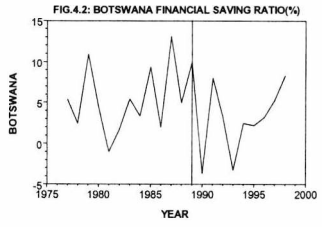
Botswana, Burundi, Cameroon, Congo Republic, Cote d'Ivoire, Kenya, Malawi, South Africa, and Zambia. Although there is a more even distribution of countries where national saving increased and decreased after liberalisation, the difference in pre- and post-liberalisation rates is bigger than those for financial saving. The biggest difference between these rates for financial saving was 3.51% for Kenya. For national saving, the biggest difference in the rates was -13.32% in Congo Republic. Other countries that had big differences include Uganda (12.04%), Malawi (-10.24%), Senegal (9.52%), Ghana (8.78%), Cote d'Ivoire (-8.49%), Zambia (-8.29%), and Mali (8.05%). It appears that liberalisation has had more impact on national saving than financial saving.

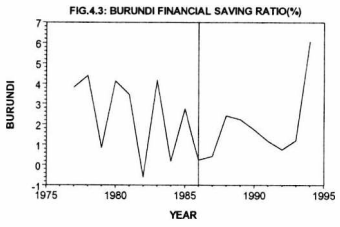
TABLE 4.2: AVERAGE SAVING RATIOS PRE- AND POST-LIBERALISATION

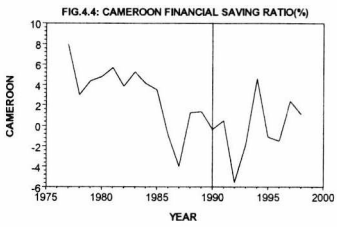
Country	Start of Major Financial Liberalisation	Period	Financial Saving		National Saving	
			Average pre-liberalisation (%)	Average post-liberalisation (%)	Average pre-liberalisation (%)	Average post-liberalisation (%)
Botswana	1989	1977-1998	5.15	3.54	39.55	38.26
Burundi	1986	1977-1998	2.56	1.78	4.69	-1.17
Cameroon	1990	1977-1998	3.07	-0.23	18.34	14.33
Congo Rep.	1990	1977-1998	1.70	0.35	25.03	11.71
Cote d'Ivoire	1989	1977-1998	2.41	1.56	11.66	3.17
Gambia	1986	1977-1998	3.52	2.86	13.98	17.55
Ghana	1987	1977-1998	5.30	4.63	5.69	14.47
Kenya	1991	1977-1998	4.01	7.52	16.26	15.12
Madagascar	1994	1977-1998	2.87	3.85	3.31	4.85
Malawi	1992	1977-1998	3.19	4.62	12.99	2.75
Mali	1989	1977-1998	1.97	2.00	7.19	15.24
Mauritius	1981	1977-1998	6.25	9.32	17.51	24.48
Nigeria	1987	1977-1998	3.62	5.00	16.48	16.94
Senegal	1989	1977-1998	2.57	1.36	1.09	10.61
Sierra Leone	1991	1977-1998	5.34	2.91	1.89	5.98
South Africa	1980	1977-1998	7.74	7.35	21.13	17.87
Uganda	1988	1977-1998	5.68	2.85	-5.19	6.84
Zambia	1992	1977-1998	7.84	4.95	15.41	7.12
Zimbabwe	1993	1977-1998	3.68	6.80	15.68	17.54

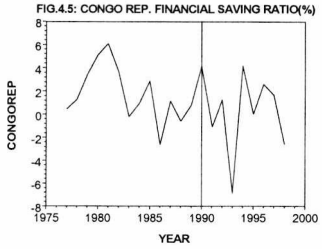
Source: World Development Indicators CD-ROM 2000

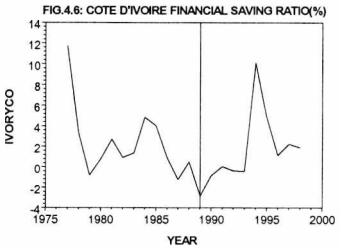
Figures 4.2 – 4.20: Financial Saving Ratios

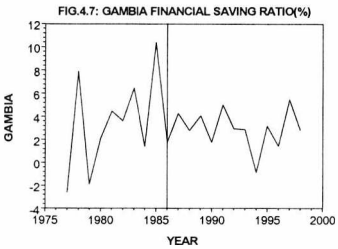


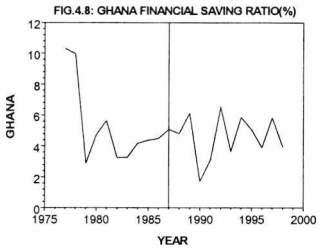


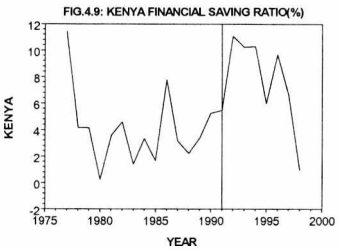


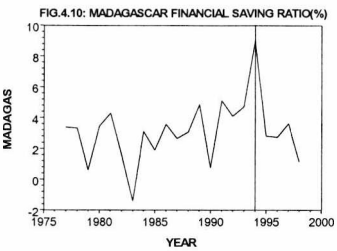


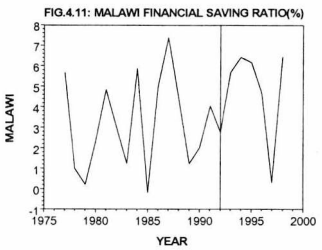


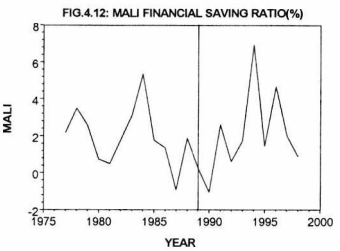


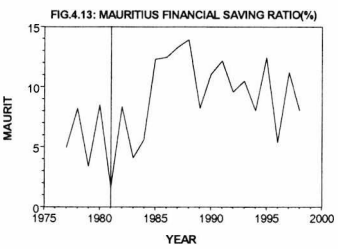


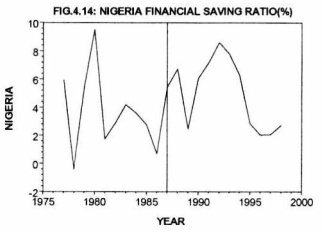


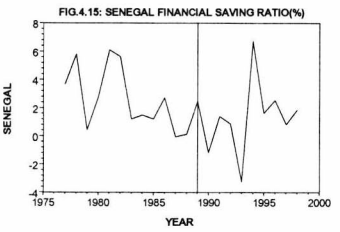


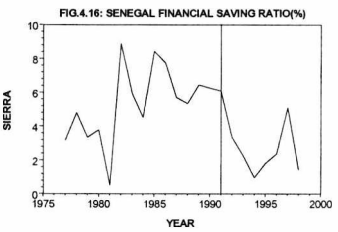


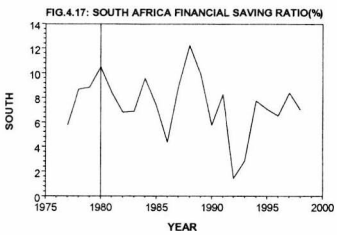


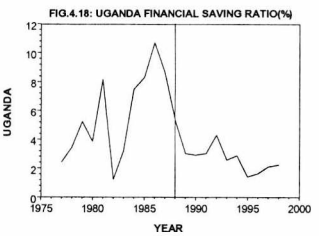




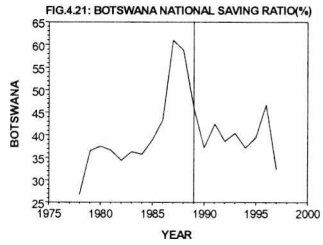


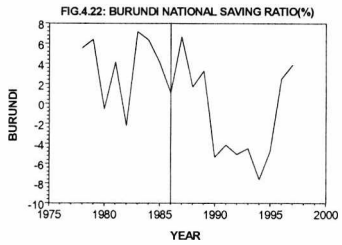


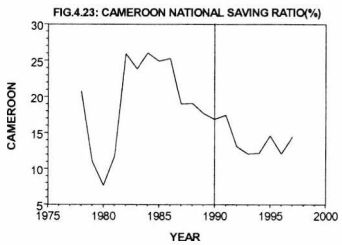


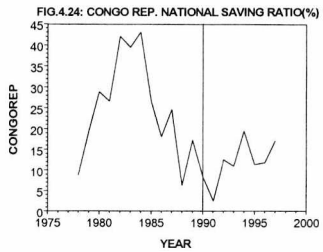


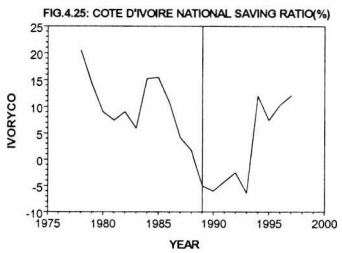
Figures 4.21 – 4.39: National Saving Ratios

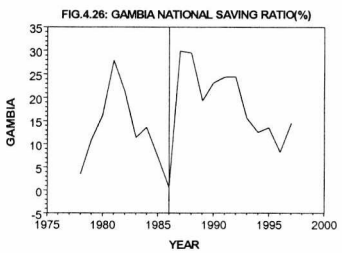


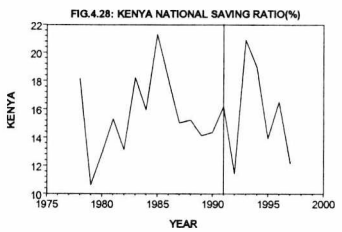


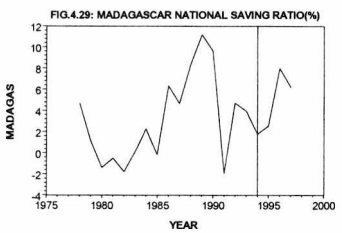


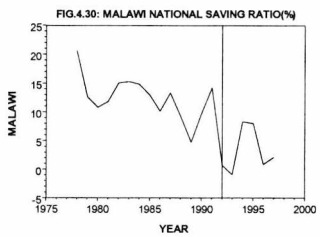


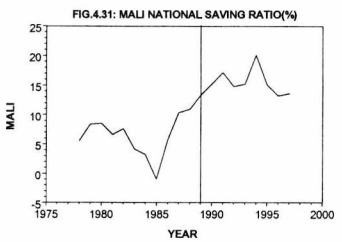


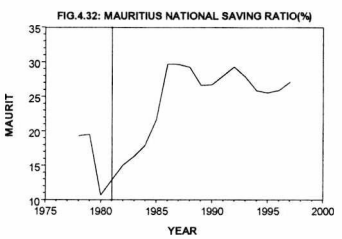


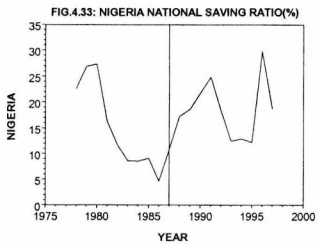


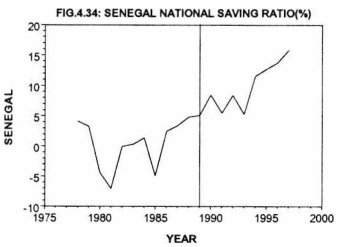


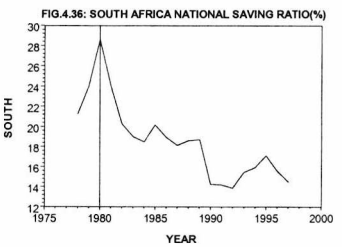


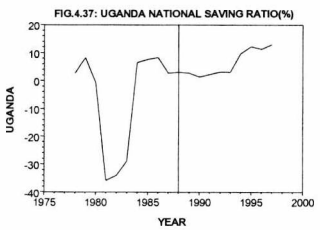


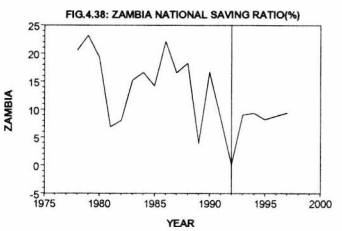


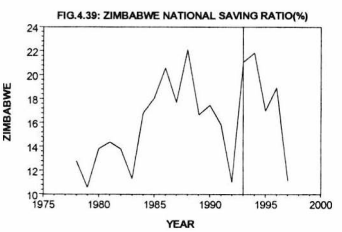












We have plotted the financial saving ratios in figures 4.2 to 4.20 and the national saving ratios in figures 4.21 to 4.39 indicating the start date of major moves towards financial liberalisation. What can be observed first of all is that savings has been very volatile in these SSA countries. We notice an appreciation in the financial saving ratios after liberalisation in Burundi, Cote d'Ivoire, Kenya, Mali, Mauritius, and Nigeria. For national saving, an increase after liberalisation is seen for Cote d'Ivoire, The Gambia, Ghana, Mali, Mauritius, Nigeria, Senegal, and Uganda. These confirm what we observed from Table 4.3 where there was a greater increase in national savings rates than financial saving rates after liberalisation.

4.2.2 Empirical Evidence

We surveyed empirical studies into the determinants of saving in SSA in chapter 2 and so we will not embark on another survey here. We saw that many of the studies did not employ financial saving as a dependent variable. The two studies that modelled financial saving as a dependent variable are: Seck and El Nil (1993) and Matsheka (1998). Kariuki (1995) tried to model financial saving by using real money balances but Fry (1995) notes that the correct measure of financial saving is the change in real money balances (p.191). If we are to examine how financial liberalisation has affected saving, it is essential that both financial and total saving should be employed. Also, only one (Seck and El Nil, 1993) of the studies that have used financial saving as the dependent variable has used more than one country. We improve on these studies by using financial saving as a dependent variable in our model. We pool data for nineteen SSA countries and also, include other explanatory variables in our equations.

The predominant variable used by the studies to examine the impact of the financial sector on savings is the real rate of interest (Oshikoya, 1992; Seck & El Nil, 1993; Kariuki, 1995; Azam, 1996; Mwega, 1997; Matsheka, 1998; Elbadawi & Mwega, 2000; Ziorklui & Barbee, 2003). Other financial variables included in the studies are: real broad money (Kariuki, 1995), the ratio of money to national income (Mwega, 1997; Elbadawi & Mwega, 2000; Kelly & Mavrotas, 2002), the ratio of private credit to total credit (Mwega, 1997), ratio of private credit to national income (Elbadawi & Mwega, 2000; Kelly & Mavrotas, 2002), an indicator of financial repression (Azam, 1996). These variables are commonly included in econometric models to take account of financial development. However, none of the variables explicitly takes into account liberalisation and the gradual process that is involved in financial systems moving from a state of repression to liberalisation. We improve on these studies by constructing two indexes that take account of the sequencing of liberalisation as indicated by 5 policy moves, and also use a dummy variable that takes on the value of 0 in years in which repression is in place and 1 in years in which liberalisation took place.

We will employ a fixed effects estimator to exploit both the time series and cross section nature of the data, while allowing for unobserved country-specific effects. Estimates derived from our equations will then be able to give a broader view of how financial liberalisation has affected savings behaviour in SSA.

This chapter therefore conducts a more rigorous investigation into savings behaviour in SSA. In doing this, we will examine the determinants of both the rates of financial and

national savings in a group of selected countries in SSA, and explicitly model the impact of financial liberalisation on savings.

4.3 MODELLING OF SAVINGS BEHAVIOUR

This section will focus on the theories of saving that are commonly used in modelling savings behaviour. These are the Classical Theory of Interest which postulates a positive relationship between the level of savings and the rate of interest; the Absolute Income Hypothesis which establishes a positive relationship between the level of savings and the level of income, or the savings ratio and per capita income; and the Life Cycle Hypothesis (LCH) which predicts a positive relationship between the savings ratio and income growth[2]. The variables proposed by these theories will be included in our savings equations along with our primary variables of interest measuring financial liberalisation to model savings behaviour in SSA.

4.3.1 Financial Liberalisation

Our primary variable of interest is financial liberalisation and we saw in the introduction that liberalisation is expected to improve savings through a variety of ways. Decontrolling interest rates is expected to result in higher real deposit rates of interest and this will encourage agents to transfer their assets holding from non-

[2] The Permanent Income Hypothesis (PIH) is also widely used in examining savings behaviour and its main proposition is that the determinant of households' consumption is their expected lifetime earnings (permanent income) rather than current income. The conclusions of the LCH and Permanent Income Hypothesis (PIH) of Modigliani are basically the same with the main difference being in their definitions of income accrued in life. The LCH labels such income as life resources while the PIH calls it permanent income (Modigliani, 1986, p.299).

financial into financial assets. Bank denationalisation and restructuring is also expected to improve the efficient operation of banks and enhanced financial products are expected to improve savings. It is also expected that allowing more banks entry into the financial system will increase competition and better practice among banks, thereby attracting more deposits.

The rate of interest has been widely used in savings equations based on classical theory. The classical theory of interest regarded the rate of interest as the principal factor that determines saving. The interest rate is the reward for abstaining from present consumption. In its simplest form, when the rate of interest increases, savings will increase and when the rate of interest falls, savings will also fall. However, this positive relationship between savings and the interest rate is not so straightforward. This is because any price change has two components: a substitution and an income effect. With higher interest rates, for example, the price of present consumption rises and so, current consumption will be foregone. This is the substitution effect. But the higher interest rate also means that current income has increased and consumers might decide to utilise their increased income by consuming now and saving less. This is the income effect. These two effects of the price change move in opposite directions. Consequently, the extent to which the interest rate determines saving is dependent upon the relative sizes of the income and substitution effects. Total saving will only increase if the substitution effect outweighs the income effect. Otherwise, the interest rate change would reduce saving, or the effect will be insignificant.

The evidence on the relationship between savings and the interest rate is not conclusive and the debate is an ongoing one. While some studies find a positive and significant coefficient for the real interest rate in savings equations (Abe et.al., 1977; Fry, 1980; Seck & El Nil, 1993; Azam, 1996; Athukorala & Sen, 2002), others find a significantly negative coefficient (Matsheka, 1998; Hussein & Thirlwall, 1999; Loayza, Schmidt-Hebbel, & Serven, 2000). However, most find an insignificant relationship between savings and the real interest rate (Giovannini, 1983, 1985; Oshikoya, 1992; Schmidt, Webb & Corsetti, 1992; Kariuki, 1995; Edwards, 1996; Mwega, 1997; Masson, Bayoumi & Samiei, 1998; Bandiera et.al., 2000; Elbadawi & Mwega, 2000; Ziourklui & Barbee, 2003).

4.3.2 Absolute Income Hypothesis

The Absolute Income Hypothesis (AIH) propounded by Keynes established for the first time the link between savings and income. Savings is a function of income but the relationship is not necessarily linear. Rich people or nations will save more than poor people or nations. Therefore:

$$\frac{S}{P} = -\alpha_0 + \alpha_1\left(\frac{Y}{P}\right) \qquad (4.1)$$

where S/P is per capita saving and Y/P is per capita income.

The relationship between a country's savings ratio and level of per capita income is also not linear. This can be seen by multiplying equation (4.1) by P and dividing by Y, which gives:

$$\frac{S}{Y} = \alpha_1 - \alpha_0 \left(\frac{Y}{P}\right)^{-1} \tag{4.2}$$

where S/Y is the savings ratio. What equation 4.2 means is that the savings ratio will increase as per capita income increases but at a decreasing rate, with α_1 being the asymptote. This non-linear relationship is supported by our data as shown in Figure 4.40. In this diagram, the saving ratio increases non-linearly and approaches an asymptote of 30 percent for national saving.

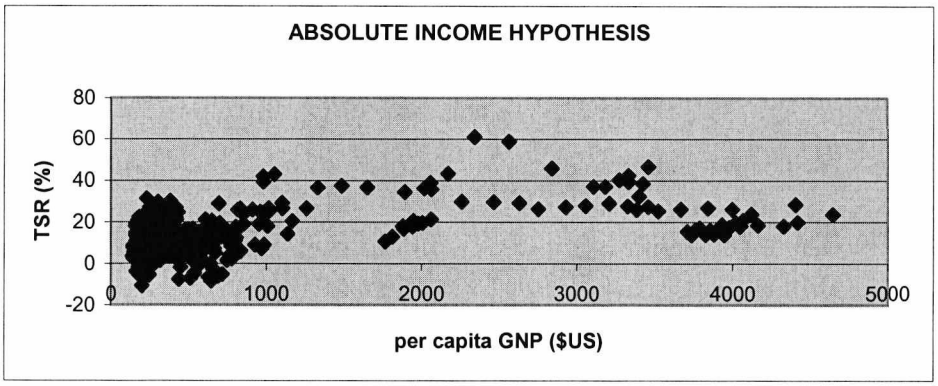


Fig. 4.40: Absolute Income Hypothesis (National Saving)

There have been a lot of empirical investigations of the AIH. Studies that have found results supporting this hypothesis include Mwega (1997), Matsheka (1998), Masson, Bayoumi & Samiei (1998), and Hussein & Thirlwall (1999).

4.3.3 Life Cycle Hypothesis

The Life Cycle Hypothesis (LCH) was first propounded by Modigliani and Brumberg (1954). The LCH establishes a positive relationship between the savings ratio and output growth. In the LCH, the individual's objective is to smooth out consumption

over his lifetime. Savings are then determined by total lifetime earnings and not by the level of current income.

The LCH identifies three age groups in the society – the young (non-active), the middle-aged (active), and the old (retired). The young borrow (dissave) and attain a level of consumption which they intend to hold on to during their lifetime. In middle-age, they earn more and save, and then after retirement they spend what has been saved in mid-life but they cannot borrow (or leave bequests) and so, break-even on death.

The LCH recognises the fact that income increases with age, and so as incomes increase over the life-cycle, saving would also increase until retirement. Thus increased growth resulting in increased incomes will increase the saving ratio because the saving of the current generation is greater than the dissaving of the previous generation. The diagram below shows the link between individual's consumption and income as they go through the stages of life – from childhood to working and then to retirement.

The lifetime profile of earnings and consumption are represented in the diagram. The hump in earnings reflects the age-earnings profile, while the hump in consumption reflects the changing demographic composition of the household. Young households will borrow at the start of their working lives, save in the middle and dissave after retirement. In the presence of income growth across cohorts where the young are richer than the old, saving will increase. Income growth comprises of two components: productivity growth and population growth.

With zero income growth, the saving ratio will be zero. With increased productivity growth, national income will increase and consequently, the lifetime profile of earnings

and consumption of present working households will be higher than that of retired households. This higher profile of consumption means that the consumption of present working households will exceed that of present retired households. In order to sustain this level of consumption when they retire, present working households have to save more. The savings ratio therefore increases as income growth (resulting from productivity growth) increases.

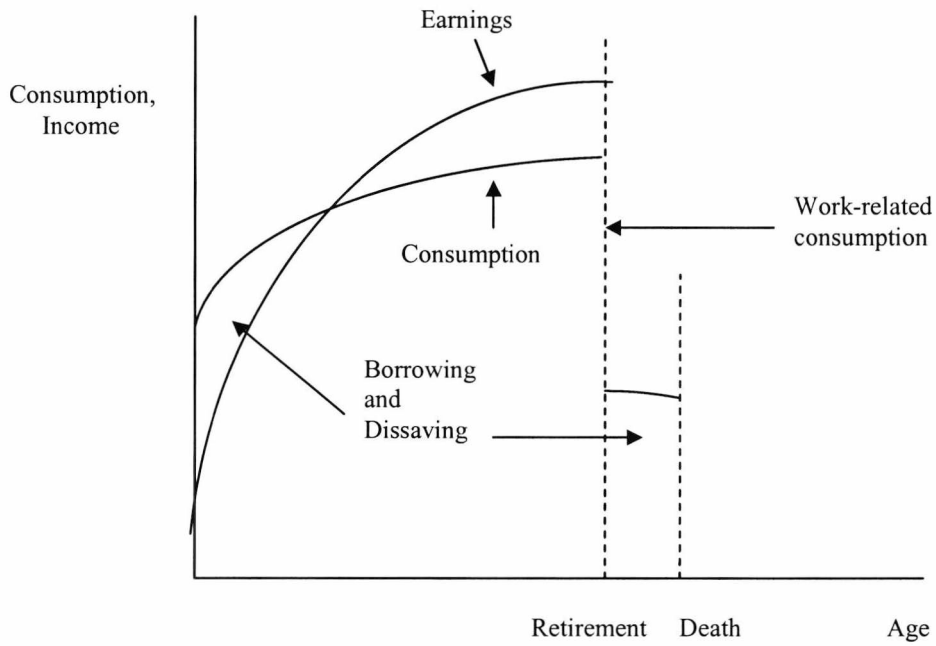


Fig. 4.41: Life Cycle Hypothesis

Source: Schmidt-Hebbel, K. and Serven, L (1999)

With increased population growth, the ratio of active to non-active households will increase in the long run and this increases the savings ratio. The population has to be balanced for population growth to increase the saving ratio. Otherwise rising child-dependency ratios (leading to increased consumption) will adversely affect the saving

ratio. Thus the saving ratio depends on the age structure of the population with increased saving coming only from an increase in the proportion of active workers to non-active workers and children.

Deaton (1997) criticises the LCH on the grounds that the long-term saving and dissaving predicted by the model is carried out by few households (p.338). The model also runs into difficulties when applied to developing countries because firstly, low life expectancies mean that the percentage of old people in the total population is small. Secondly, many of the old people are catered and cared for by their children whom they live with. There is thus no basis for the savings in mid-life and dissavings in later life. Deaton uses data for Cote d'Ivoire from the Living Standards Surveys for 1985 and 1986 to plot the age profiles of consumption and income. The graphs show that consumption closely tracks income and the hump in saving predicted by the LCH is not observable.

Despite these criticisms, the LCH is still one of the most popular theories used to explain saving behaviour in both developed and developing countries. Indeed empirical evidence in support of the hypothesis include Hussein & Thirlwall (1999) and Athukorala & Sen (2002).

4.3.4 Macroeconomic Uncertainty and Instability

The precise nature of the effect of macroeconomic uncertainty is ambiguous. Uncertainty as measured by the rate of inflation can either have a negative or positive effect on saving. On the one hand, high inflation rates can be viewed by households as signs that a government does not have control over the economy. High inflation rates

also result in low or negative real rates of interest. Thus, volatile or high inflation rates can lead to low savings rates.

On the other hand, unexpected increases in inflation can cause economic agents to cut back on aggregate consumption - thereby increasing savings - if they think the unanticipated inflation represents a change in relative prices (Deaton, 1977). Also, precautionary saving may increase because of the increased uncertainty from volatile inflation.

4.4 ECONOMETRIC ESTIMATION OF THE IMPACT OF FINANCIAL LIBERALISATION ON SAVINGS

4.4.1 Methodology

The provision of the Summers and Heston (1988, 1991) data set has resulted in a proliferation of work into investigating cross-country economic relationships. Early econometric analysis made use of single period cross-country regressions (Barro, 1991; Barro and Sala-i-Martin (1992); Mankiw, Romer, and Weil, 1992; Levine and Renelt, 1992). It has been shown that results obtained from such single period cross-country regressions suffer from a host of deficiencies such as omitted variable bias as a result of parameter heterogeneity, and loss of degrees of freedom (Islam, 1995; Caselli et al., 1997; Baltagi, 2001; Hsiao, 2003). Panel data have been proposed as a better econometric technique for use in cross-country regressions because it allows for the inclusion of country-specific effects and thus corrects the problem of omitted variable

bias. Panel data also exploits the time series dimension of the data thereby giving greater degrees of freedom. Consequently, panel data has been the technique of choice in recent years in estimating cross-country regressions (Islam, 1995; Knight, Loayza, and Villanueva, 1993; Edwards, 1996; Caselli, Esquivel, and Lefort, 1997; Easterly and Levine, 1997; Loayza, Schmidt-Hebbel, and Serven, 2000, Attanasio, Picci, and Scorcu, 2000).

Panel data have a number of advantages over pure cross section estimation[3]. Firstly, using panel data controls for heterogeneity bias arising from omitted country-specific effects. Using pure cross section estimators could result in ignoring country specific effects and this could result in inconsistent parameter estimates. Secondly, with panel data it is possible to observe the dynamics of adjustment. Thirdly, panel data gives richer data quality because it provides more degrees of freedom, more variability, and more efficiency. By allowing for greater flexibility, panel data also reduces misspecification problems which might be present in pure cross-section regressions.

While running time series regressions for countries individually could be an alternative to panel data, obtaining sufficient long-run data series for developing countries poses a serious problem. Durlauf, Johnson, and Temple (2004) also highlight the problems with time series econometrics for this type of analysis which include little variation over time for some variables, inconsistent parameter estimates when lagged dependent variables are included on the right hand side, and the destabilising effect of highly volatile data.

[3] Baltagi (2001) and Hsiao (2003) provide comprehensive surveys of panel data econometrics.

In light of the above, and considering that our investigation will be conducted on countries in SSA, panel data is the preferred econometric technique for our analysis.

Panel data models take the general form:

$$y_{it} = \beta' x_{it} + \varepsilon_{it} \qquad (4.3)$$

where the double subscripts indicate variability over time (T) and countries (N)

i.e. $i = 1,\ldots, N; t = 1,\ldots, T.$

The disturbance term $\varepsilon_{it} \sim$ iid $(0, \sigma^2)$ has the following error structure:

$$\varepsilon_{it} = \alpha_i + \eta_{it} \qquad (4.3a)$$

From this specification, α_i is the country specific effect and η_{it} is the error term which is independent of α_i and varies unsystematically across time and countries. Equation (4.3) can now be re-written as:

$$y_{it} = \alpha_i + \beta' x_{it} + \eta_{it} \qquad (4.4)$$

Furthermore, the disturbance term ε_{it} can be broken down to include a time specific effect:

$$\varepsilon_{it} = \alpha_i + \lambda_t + \eta_{it} \qquad (4.3b)$$

where α_i and η_{it} remain the same as before and λ_t is the time specific effect, and this gives another equation:

$$y_i = \alpha_i + \beta' x_{it} + \lambda_t + \eta_{it} \qquad (4.5)$$

Estimation with panel data is carried out by using either the fixed effects or random effects estimation.

Under the fixed effects model, the unobservable country specific effects are assumed to be fixed parameters to be estimated. These effects are treated as country specific constant terms in the regression model. The fixed effects model assumes the country specific effects are correlated with the explanatory variables.

The random effects estimator treats the country-specific effects as random variables. These effects are treated as country specific disturbance terms and are seen as random drawn from a common population. The random effects model assumes that the country specific effects are uncorrelated with the explanatory variables.

The choice between which of these estimators to employ can be done by either using an F-test of the joint significance of country dummies or the Hausman's specification test.[4] We have used the fixed effects F-test as proposed by Baltagi (2001, p.14). This involves testing the joint significance of the country-specific dummy variables. The null hypothesis of the test is that all the country-specific dummies are jointly equal to zero. Rejection of the null hypothesis signifies that fixed effects are the appropriate estimating technique.[5]

The null hypothesis for this test is given as:

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[4] The Hausman test follows a chi-square distribution and tests the null hypothesis of no correlation between the country specific effects and the explanatory variables, against the alternative hypothesis of correlation between the country specific effects and explanatory variables. Rejection of the null hypothesis favours the fixed effects model while non-rejection favours the random effects model.

[5] Baltagi (2001, p.12) also notes that fixed effects are appropriate when estimation is being carried out among countries, such as is being done in our study.

$$H_0 : \mu_1 = \mu_2 = ... = \mu_{N-1} = 0$$

where $\mu_1 ... \mu_{N-1}$ are the country-specific dummies.

The F-test is calculated using the formula below:

$$F_0 = \frac{(RRSS - URSS)/(N-1)}{URSS/(NT - N - K)}$$

which follows an F distribution with N-1 and N(T-1)-K degrees of freedom and where:

RRSS = restricted residual sum of squares of OLS on the pooled model,

URSS = unrestricted residual sum of squares of the fixed effects model with the country specific dummies.

4.4.2 Model Specification and Data

In this section we specify the model we will use to test the impact of financial liberalisation and other variables on saving in SSA. We work with an unbalanced panel which has data ranging broadly from 1977 – 1998. The choice of sample period was based on the availability of data. Because the data on gross national saving was available from the World Development Indicators CD-ROM 2000 but not in later versions, this thus restricted the end of our sample to 1998, while the same variable limits our start period to 1977. We proceed by first specifying the model and describing the variables as proposed by the discussion in the previous section. The data sources are the World Development Indicators (WDI) CD-ROM 2000, the International Financial Statistics (IFS) CD-ROM 2000, and the African Development Bank (ADB), and all estimations are carried out using LIMDEP 7.0 (Greene, 1995).

In line with other studies (Islam, 1995; Ojo and Oshikoya, 1995) the data are smoothed using five-year non-overlapping averages for a number of reasons. Firstly, averaging reduces the impact of business cycle fluctuations on the estimates (as suffered by pure time series); and secondly, averaging reduces volatility and also the impact of outlying data points on our results. Consequently, we arrive at 84 observations for the financial saving equations and 79 observations for the national saving equations.

We will carry out our econometric analysis using two dependent variables which are: the ratio of financial saving to GNP, and the ratio of total saving to GNP. Fry (1995) defines financial saving as the process of accumulating financial assets, and notes that the important component of financial savings in developing countries is indirect financial claims. [6] "The financial aggregate generally analysed consists of currency in circulation, all types of bank deposits (excluding government and interbank deposits), and deposits held in nonbank depository institutions." (p.191). Financial saving is then the change in the real or inflation-adjusted value of this monetary aggregate. We have used the change in M2 as our measure of financial saving.

For our measure of total savings, we follow Fry (1995) in using the gross national savings ratio. Gross national saving is preferred to gross domestic saving for a variety of reasons, one of which is that national saving includes net factor income from abroad.[7]

It is expected that the effects of financial liberalisation will be more evident for financial savings than total savings because of the effect of the real rate of interest on

[6] indirect claims such as demand and time deposits as opposed to direct claims such as stocks and bonds.
[7] See Fry (1995) for an exposition.

the willingness to hold financial assets, and because the effect of interest rates on total saving is, in any case, ambiguous, as already discussed.

Our models take the general form:

$$FINSAV = A_1 + A_2 FINLIB + A_3 AIH + A_4 LCH + A_5 INS + \Sigma_1 \qquad (4.6)$$

$$NATSAV = B_1 + B_2 FINLIB + B_3 AIH + B_4 LCH + B_5 INS + \Sigma_2 \qquad (4.7)$$

where FINSAV is the ratio of financial saving to GNP; NATSAV is the ratio of national saving to GNP; FINLIB represents variables measuring financial liberalisation; AIH represents variables proposed by the AIH; LCH represents variables proposed by the LCH; and INS represents variables capturing macroeconomic uncertainty and instability.

We have included 4 different indicators of financial liberalisation. These are 2 financial liberalisation indexes (FINDEX1 and FINDEX2), a dummy for financial liberalisation (FINDUMMY), and the real deposit rate of interest (RR). The first liberalisation index (FINDEX1) is derived from the method of principal components. Principal component analysis is useful for reducing the dimension of a data set and extracting the main relations from it. This method has been used in the financial liberalisation literature to obtain an index which measures the different phases of the deregulatory and institution-building process.[8] What we do is to identify five major indicators of moves towards liberalisation which are: bank denationalisation and restructuring, interest rate liberalisation, central bank autonomy, directed credit abolition, and free entry into

[8] See Bandiera et al. (2000).

banking. We then allocate to each of these variables a value of 0 prior to liberalisation. After liberalisation, the indicators take on values from 1 and this increases depending on the progress made for each specific liberalisation policy. We get a matrix of 0-5 variables for each country and then apply principal components analysis. We use the first principal component for each country as our index of liberalisation, and for all countries except Nigeria (58.8%) and Mauritius (56.9%) this first component accounts for at least 65% of the total variation. The second liberalisation index (FINDEX2) also measures the progressive nature of financial liberalisation. The index ranges from 0-5 with zero indicating no financial liberalisation and one indicating one financial liberalisation policy in a given year, two indicating two financial liberalisation policies, and five indicating all five policies, which is the highest level of financial liberalisation.[9,10,11] FINDUMMY, the dummy variable for financial liberalisation, captures the starting date of major financial liberalisation in the countries. The dummy takes a value of 0 prior to liberalisation and 1 after liberalisation. RR, the real rate of interest has often been observed to have very low or negative values under financial repression. Financial liberalisation is expected to increase the real interest rate and this should make savings more attractive to agents.

AIH is represented by per capita GNP (PCGNP). It is expected that the savings ratio will have a positive (non-linear) relationship with per capita income. Consequently, this variable is included in the model in an inverse form $(PCGNP)^{-1}$.

[9] Laeven (2000) has used such methods to construct a financial liberalisation index.
[10] The financial liberalisation policies are bank denationalisation and restructuring, interest rate liberalisation, central bank autonomy, abolishing directed credit, and free entry into banking.
[11] See appendix for the derivation of these indexes.

The variables under LCH are the growth of per capita income (GPCGNP) and population growth (POPGROW). Savings is expected to have a positive relationship with GPCGNP and POPGROW. As per capita income grows, savings within the framework of the LCH increases; and as the population grows, savings rises.

Macroeconomic uncertainty is proxied by the volatility of inflation (VOLINFL). High and unpredictable inflation rates reduce the real return on financial assets and can result in savings being channelled into non-financial assets. We use standard deviation in computing the volatility of inflation.[12] Standard deviation measures the dispersion of the probability distribution of a variable and it captures all the volatility surrounding the variable (Bo, 2006). In line with other studies (Serven, 1997; Bo and Zhang, 2002; Bekaert, Harvey, and Lumsdaine, 2002; Veiga and Aisen, 2006) we measure the volatility of inflation in each year with a 3-year rolling standard deviation of the inflation rate.

The equations we will estimate are as follows:

$$FINSAV = \alpha_1 + \alpha_2 FINDEX1 + \alpha_3 (PCGNP)^{-1} + \alpha_4 GPCGNP + \alpha_5 POPGROW + \alpha_6 VOLINFL + \zeta \quad (4.8)$$

$$FINSAV = \beta_1 + \beta_2 FINDEX2 + \beta_3 (PCGNP)^{-1} + \beta_4 GPCGNP + \beta_5 POPGROW + \beta_6 VOLINFL + \xi \quad (4.9)$$

$$FINSAV = \chi_1 + \chi_2 FINDUMMY + \chi_3 (PCGNP)^{-1} + \chi_4 GPCGNP + \chi_5 POPGROW + \chi_6 VOLINFL + \omega \quad (4.10)$$

[12] Serven (1997) discusses why standard deviation is a better measure of inflation volatility rather than the coefficient of variation.

$$FINSAV = \delta_1 + \delta_2 RR + \delta_3 (PCGNP)^{-1} + \delta_4 GPCGNP + \delta_5 POPGROW + \delta_6 VOLINFL + \upsilon \quad (4.11)$$

$$NATSAV = \phi_1 + \phi_2 FINDEX1 + \phi_3 (PCGNP)^{-1} + \phi_4 GPCGNP + \phi_5 POPGROW + \phi_6 VOLINFL + \varepsilon \quad (4.12)$$

$$NATSAV = \gamma_1 + \gamma_2 FINDEX2 + \gamma_3 (PCGNP)^{-1} + \gamma_4 GPCGNP + \gamma_5 POPGROW + \gamma_6 VOLINFL + \mu \quad (4.13)$$

$$NATSAV = \lambda_1 + \lambda_2 FINDUMMY + \lambda_3 (PCGNP)^{-1} + \lambda_4 GPCGNP + \lambda_5 POPGROW + \lambda_6 VOLINFL + \nu \quad (4.14)$$

$$NATSAV = \pi_1 + \pi_2 RR + \pi_3 (PCGNP)^{-1} + \pi_4 GPCGNP + \pi_5 POPGROW + \pi_6 VOLINFL + \vartheta \quad (4.15)$$

where FINSAV = the ratio of financial saving to GNP

NATSAV = the ratio of national saving to GNP

FINDEX1 = index of financial liberalisation derived from principal components

FINDEX2 = a second index of financial liberalisation

FINDUMMY = dummy for financial liberalisation

RR = real deposit rate of interest

$(PCGNP)^{-1}$ = inverse of per capita GNP

GPCGNP = growth of per capita GNP

POPGROW = growth rate of population

VOLINFL = the volatility of inflation

4.4.3 Discussion of Results

4.4.3.1 Financial Saving

The results of the financial saving equation are presented in Table 4.3. Homoskedastic tests showed the presence of heteroskedasticy and so, White's robust standard errors have been used in obtaining the t-ratios. The diagnostic tests show that our model performs reasonably well. The explanatory variables explain about 70 percent of the variation in financial saving and the fixed effects test shows that the country-specific effects are significantly different from zero. The fixed effects model is therefore an appropriate technique for estimating this equation. Also, the presence of serial correlation is rejected for all equations.

Looking first at the primary variable of interest, all the proxies for financial liberalisation are negative and statistically significant, which implies a negative relationship between financial saving and financial liberalisation. The coefficient on the liberalisation dummy implies that on average, liberalisation has reduced financial saving by 1.6 percentage points; while the coefficient on the real rate of interest means that a 1 percentage point increase in the real deposit rate of interest is associated with a 0.18 percentage point decrease in the financial saving ratio. These results are contrary to what is predicted by the McKinnon and Shaw hypothesis; that financial liberalisation will make financial assets more attractive and will result in a shift from non-financial to financial assets after liberalisation. The results show that this has not been the case in the countries in our sample. A number of factors could be responsible for this negative relationship. Firstly, it could be that the income effect of interest rate changes is greater

than the substitution effect. Higher interest rates will therefore lead to an increase in consumption rather than savings. Such dominance of the income effect over the substitution effect has been highlighted as the reason for the interest inelasticity of savings found by some studies (Giovannini, 1983, 1985). The fact that we found a negative relationship between financial saving and financial liberalisation could also be due to the removal of liquidity constraints after liberalisation. Jappelli and Pagano (1994) have shown that savings increase in the presence of liquidity constraints. It could be the case that with liberalisation and increased competition among financial intermediaries for depositors' funds, borrowing constraints have been relaxed. Another reason for the negative coefficient on the liberalisation proxies could be that the financial systems of the countries are not well developed and savings cannot be easily liquidated when needed. In such a case, liberalisation will not improve savings until such financial intermediaries like mutual funds and stock markets are created which can provide a diverse array of financial instruments, easy liquidity, and adequate insurance. Another reason for the negative relationship between financial saving and financial liberalisation could be due to demonetisation in the countries in our sample. Many SSA countries have been known to have slow monetisation because of the need to hold a considerable amount of cash balances especially in agricultural dominated activities. It would be difficult for households involved in such activities to increase savings unless financial liberalisation results in the development of a non-cash based payments mechanism. Low confidence in the banking system as noted by World Bank (1994a), could also be leading people to have savings in physical assets rather than in the financial sector.

TABLE 4.3: FINANCIAL SAVING

	Dependent Variable : financial saving/GNP ratio			
Explanatory Variables	**Equation 4.8 Fixed Effects**	**Equation 4.9 Fixed Effects**	**Equation 4.10 Fixed Effects**	**Equation 4.11 Fixed Effects**
findex1	-0.43 (-2.06)**			
findex2		-0.5 (-2.34)**		
findummy			-1.66 (-2.52)**	
rr				-0.18 (-3.31)*
$(pcgnp)^{-1}$	-895.26 (-1.29)	-758.31 (-1.19)	-814.19 (-1.19)	-1511.68 (-2.03)**
gpcgnp	0.19 (3.44)*	0.19 (3.64)*	0.19 (3.29)*	0.15 (2.63)**
popgrow	-2.96 (-2.28)**	-3.04 (-2.41)**	-2.74 (-2.35)**	-1.99 (-2.51)**
volinfl	0.14 (3.42)*	0.13 (3.44)*	0.15 (3.58)*	0.03 (0.73)
	Diagnostic Statistics			
R^2	0.69	0.69	0.69	0.76
Fixed Effects F-Test	[0.0000]	[0.0000]	[0.0000]	[0.0000]
Serial Correlation	[0.8218]	[0.8229]	[0.8389]	[0.5213]
Number of Observations	84	84	84	84

Notes:

1. * indicates that a coeffcient is significant at the 1 percent level; ** significant at the 5 percent level; and *** significant at the 10 percent level
2. Figures in parenthesis ( ) are t-ratios; figures in [ ] are p-values
4. All coefficients have been rounded to 2 decimal places
5. Serial Correlation is a test of serial correlation in residuals and the null hypothesis is that $\rho = 0$. The test is $\chi 2$ distributed
6. t-ratios have been computed using White's heteroscedastic consistent standard errors.
7. Fixed Effects is a an F-test of the joint significance of country-specific effects and the null hypothesis is that all fixed effects are jointly equal to zero.

Looking at the other variables in the model, as expected, the inverse of per capita income is negative and significant in equation 4.11, indicating that increasing per capita income will lead to an increase in financial saving. The growth of per capita income is positive and significant in all equations. The coefficient on this variable means that on the average, a 10 percentage point increase in per capita income growth will increase financial saving by 1.9 percentage points. Financial saving is negatively related to population growth and this relationship is significant. However, the LCH is not strictly about the relationship between financial saving and population growth but between total saving and population growth. Macroeconomic instability, as proxied by the

volatility of inflation, has a positive coefficient. This result supports Deaton's (1977) view that unstable inflation could have a positive effect on savings because households reduce consumption as a result of changes in relative income. It could also mean that savings has increased with unstable inflation because households perceive future income as uncertain.

Since the variables in equations 4.8 to 4.11 are not in logarithmic form, direct comparison of the coefficients is not possible. We therefore convert them into beta coefficients and this ensures that all coefficients are in standard deviation units. The beta coefficient measures the change in the dependent variable corresponding to a unit change in each explanatory variable, holding other explanatory variables constant and measuring all changes in standard deviation units. Table 4.4 contains the standardised regressions and only significant variables have been included. We see from this table that the variable that has had the highest impact on financial saving is per capita income in equation 4.11. The variable with the next highest impact is the real rate of interest. The beta coefficient of the real rate of interest is -0.51 which implies that if the real interest rate increases by 1 standard deviation, on average, the financial saving ratio decreases by 0.5 standard deviation units. Population growth has the next highest impact on financial saving with a beta coefficient of about -0.48, followed by volatility of inflation (0.4). The second index of financial liberalisation has a beta coefficient of -0.25, while the financial liberalisation dummy has a coefficient of -0.22, which means that the liberalisation of the financial sector has reduced financial saving on the average by 0.2 standard deviation units.

TABLE 4.4: STANDARDISED REGRESSIONS

	Dependent Variable : financial saving/GNP ratio			
Explanatory Variables	**Equation 4.8**	**Equation 4.9**	**Equation 4.10**	**Equation 4.11**
$(pcgnp)^{-1}$				-0.68
rr				-0.51
popgrow	-0.48	-0.49	-0.45	-0.33
volinfl	0.41	0.39	0.43	
findex2		-0.25		
findummy			-0.22	
findex1	-0.21			
gpcgnp	0.19	0.19	0.18	0.15

We have conducted sensitivity analysis to examine how robust our results are to changes in the specification of the model. Table 4.5 contains three different variations to the model presented above. In the first part of the table we have omitted the AIH (per capita income), in the second part we have omitted the LCH (growth of per capita income and population growth), and the last part replaces the volatility of inflation with the inflation rate. Our results are broadly robust to such changes as the results and conclusions from Table 4.5 are virtually unchanged from those in Table 4.3. When per capita income is excluded all liberalisation proxies are still negative and statistically significant and there is hardly any difference in their magnitudes. Exclusion of per capita income growth and population growth in part b; and replacing the volatility of inflation with the inflation rate in part c still give negative coefficients for all liberalisation proxies. The results of the other variables are also largely unchanged.

TABLE 4.5: FINANCIAL SAVING

(a) excluding per capita income				
	Dependent Variable : financial saving/GNP ratio			
Explanatory Variables	**Equation 4.8 Fixed Effects**	**Equation 4.9 Fixed Effects**	**Equation 4.10 Fixed Effects**	**Equation 4.11 Fixed Effects**
findex1	-0.47 (-2.11)**			
findex2		-0.53 (-2.38)**		
findummy			-1.78 (-2.54)**	
rr				-0.18 (-3.09)*
gpcgnp	0.2 (3.89)*	0.21 (4.03)*	0.19 (3.67)*	0.17 (3.01)*
popgrow	-2.98 (-2.23)**	-3.07 (-2.37)**	-2.75 (-2.30)**	-1.93 (-2.34)**
volinfl	0.13 (3.32)*	0.12 (3.34)*	0.14 (3.57)*	0.01 (0.29)
R^2	0.68	0.69	0.69	0.75
(b) excluding per capita income growth and population growth				
findex1	-0.18 (-1.19)			
findex2		-0.25 (-1.49)		
findummy			-1.01 (-1.8)***	
rr				-0.19 (-3.12)*
$(pcgnp)^{-1}$	-1292.56 (-1.59)	-1184.81 (-1.54)	-1136.69 (-1.47)	-1585.71 (-2.15)**
volinfl	0.15 (3.21)*	0.15 (3.26)*	0.15 (3.29)*	0.03 (0.77)
R^2	0.61	0.61	0.62	0.71
(c)replacing volatility of inflation with inflation rate				
findex1	-0.29 (-1.63)			
findex2		-0.39 (-2.07)**		
findummy			-1.07 (-1.94)***	
rr				-0.27 (-3.42)*
$(pcgnp)^{-1}$	-1285.91 (-1.74)***	-1114.7 (-1.62)	-1222.29 (-1.65)	-981.59 (-1.5)
gpcgnp	0.18 (3.38)*	0.19 (3.56)*	0.18 (3.29)*	0.14 (2.3)**
popgrow	-2.14 (-1.94)***	-2.31 (-2.12)**	-1.98 (-1.99)**	-2.34 (-2.67)*
infl	0.07 (2.95)*	0.07 (2.85)*	0.07 (2.88)*	-0.04 (-1.32)
R^2	0.7	0.71	0.7	0.76

Notes:

1. * indicates that a coeffcient is significant at the 1 percent level; ** significant at the 5 percent level; and *** significant at the 10 percent level

2. Figures in parenthesis ( ) are t-ratios; figures in [ ] are p-values

4.4.3.2 National Saving

In Table 4.6 we have the results of the estimations of the national saving equations. Contrary to what we obtained for financial saving, we find a positive relationship between national saving and financial liberalisation. Three of the proxies for financial liberalisation have positive coefficients while one proxy (the real rate of interest) has a negative coefficient. However, only the first index for liberalisation (FINDEX1) is significant with a coefficient of 0.54. Such discrepancy in the relationship between financial and national saving and financial liberalisation has a number of implications. Firstly, it means that liberalisation has stimulated savings in non-financial assets as opposed to financial assets and this further reiterates the argument on page 123 of low confidence in the banking sector. Thus, even after financial liberalisation and its attendant polices intended to make deposits in financial intermediaries more attractive, households still do not feel comfortable with banks. This result could also be a precautionary measure on the part of households as a result of uncertainty following liberalisation. Financial liberalisation has been known to increase uncertainty and if this happens, households might increase their holdings of real assets to hedge against uncertainty and so national saving will increase while financial saving will not. Another reason why we get contrasting results for financial and national saving could be as a result of the difficulty with savings data as already highlighted in section 2.3.1. The problems with estimating savings equations have been well documented (Gibson and Tsakalatos, 1994, p.594; Balassa, 1990, p.112; Arrieta, 1988, p.603; Fry, 1995, pp.160-161; Giovannini, 1983, pp.603-604; Giovannini, 1985, p.205; Mikesell and Zinser,

1973, pp.1-3; Deaton, 1990, pp.63-64). Giovannini (1983, p.603) cast doubts on the results they obtain from estimating savings equations because of the huge errors inherent in savings data, and conclude that strong conclusions cannot be made. Gibson and Tsakalatos (1994) also attribute the huge differences in the results of different savings equations to difficulties in measuring savings (p.594). This result could also be reflecting a common culture in SSA of people not going to banks, and particularly the inadequate services offered by financial intermediaries in rural areas. The finding of a positive relationship between national saving and liberalisation also means that liberalisation could still have a positive effect on investment through the national saving channel.

The AIH is well supported because the coefficients on the inverse of per capita income in all the equations are negative and statistically significant. This implies that increases in per capita income will increase saving but at a decreasing rate. The LCH is also supported with the growth rates of per capita income and population having positive coefficients. The coefficient of the growth of per capita income ranges between 0.56 and 0.58 which is similar to the coefficient of 0.56 obtained by Schmidt-Hebbel, Webb, and Corsetti (1992). The volatility of inflation is negative but insignificant in all equations.

The coefficient of determination is 0.81 which means that over 80 percent of the variation in national saving rates has been explained by the explanatory variables in the model. We do not find any evidence of the presence of autocorrelation and the fixed effects method is an appropriate estimation technique for our model.

TABLE 4.6: NATIONAL SAVING

	Dependent Variable : gross national saving/GNP ratio			
Explanatory Variables	**Equation 4.12 Fixed Effects**	**Equation 4.13 Fixed Effects**	**Equation 4.14 Fixed Effects**	**Equation 4.15 Fixed Effects**
findex1	0.54 (1.82)***			
findex2		0.45 (1.45)		
findummy			1.25 (1.06)	
rr				-0.04 (-0.51)
$(pcgnp)^{-1}$	-5544.39 (-2.55)**	-5497.88 (-2.48)**	-5354.45 (-2.44)**	-4905.05 (-2.37)**
gpcgnp	0.57 (2.54)**	0.56 (2.52)**	0.58 (2.63)**	0.57 (2.68)*
popgrow	2.76 (2.03)**	2.53 (1.91)***	2.19 (1.65)	1.92 (1.39)
volinfl	-0.02 (-0.21)	-0.02 (-0.21)	-0.03 (-0.42)	-0.08 (-0.89)
	Diagnostic Statistics			
R^2	0.82	0.81	0.81	0.81
Fixed Effects F-Test	[0.0000]	[0.0000]	[0.0000]	[0.0000]
Serial Correlation	[0.8875]	[0.9390]	[0.9676]	[0.8115]
Number of Observations	79	79	79	79

Notes:

1. * indicates that a coeffcient is significant at the 1 percent level; ** significant at the 5 percent level; and *** significant at the 10 percent level
2. Figures in parenthesis ( ) are t-ratios; figures in [ ] are p-values
4. All coefficients have been rounded to 2 decimal places
5. Serial Correlation is a test of serial correlation in residuals and the null hypothesis is that $\rho = 0$. The test is $\chi 2$ distributed
6. t-ratios have been computed using White's heteroscedastic consistent standard errors.
7. Fixed Effects is a an F-test of the joint significance of country-specific effects and the null hypothesis is that all fixed effects are jointly equal to zero.

The standardised regressions for the national saving equations are presented in Table 4.7. Just like we obtained for financial saving, the inverse of per capita income has had the largest impact on national saving with a beta coefficient of -0.9. Per capita income growth has the next highest impact with a beta coefficient of 0.2 which implies that increasing per capita income growth by 1 standard deviation has on the average increased the national saving ratio by 0.2 standard deviation units. This is followed by population growth with a coefficient of 0.17 for equation 4.12 and 0.15 for equation 4.13, and the first liberalisation index has a beta coefficient of 0.09. Thus financial

liberalisation had the least impact on national saving among all the variables included in our equations.

TABLE 4.7: STANDARDISED REGRESSIONS

	Dependent Variable : gross national saving/GNP ratio			
Explanatory Variables	**Equation 4.12**	**Equation 4.13**	**Equation 4.14**	**Equation 4.15**
$(pcgnp)^{-1}$	-0.9	-0.9	-0.89	-0.82
gpcgnp	0.2	0.2	0.21	0.21
popgrow	0.17	0.15		
findex1	0.09			

In Table 4.8 we have conducted robustness checks similar to those conducted for financial saving on our national saving equations. We see from this table that the results from Table 4.6 are robust to changes in the specification of the model. Removing the level of income from the model in part a still gives positive coefficients on the two indexes and dummy, and the real rate of interest is still negative. The only difference in this case is that the first index (FINDEX1) is now insignificant. The signs and significance levels of the other variables are unchanged. The same result is obtained for all liberalisation proxies in part b of the table when per capita income growth and population growth are excluded from the model. In part c when we replace the volatility of inflation with the inflation rate all liberalisation proxies are now positive, and the two indexes are statistically significant. The conclusions of Table 4.8 and Table 4.6 are still the same, and national saving is positively related to financial liberalisation.

TABLE 4.8: NATIONAL SAVING

(a) excluding per capita income				
	Dependent Variable : gross national saving/GNP ratio			
Explanatory Variables	**Equation 4.12 Fixed Effects**	**Equation 4.13 Fixed Effects**	**Equation 4.14 Fixed Effects**	**Equation 4.15 Fixed Effects**
findex1	0.35 (1.13)			
findex2		0.23 (0.72)		
findummy			0.5 (0.43)	
rr				-0.03 (-0.41)
gpcgnp	0.62 (2.65)*	0.61 (2.66)*	0.62 (2.72)*	0.61 (2.75)*
popgrow	2.75 (2.06)**	2.51 (1.91)**	2.28 (1.75)***	2.20 (1.57)
volinfl	-0.1 (-1.38)	-0.1 (-1.41)	-0.11 (-1.57)	-0.14 (-1.49)
R^2	0.79	0.79	0.79	0.79
(b) excluding per capita income growth and population growth				
findex1	0.39 (1.22)			
findex2		0.35 (1.04)		
findummy			0.97 (0.76)	
rr				-0.06 (-0.62)
$(pcgnp)^{-1}$	-6270.41 (-3.58)*	-6250.21 (-3.55)*	-6125.61 (-3.49)*	-5773.67 (-3.32)*
volinfl	-0.05 (-0.69)	-0.05 (-0.66)	-0.06 (-0.84)	-0.12 (-1.32)
R^2	0.78	0.78	0.77	0.77
(c)replacing volatility of inflation with inflation rate				
findex1	0.71 (2.45)**			
findex2		0.6 (2.03)**		
findummy			1.73 (1.56)	
rr				0.18 (1.41)
$(pcgnp)^{-1}$	-6569.74 (-2.75)*	-6475.87 (-2.68)*	-6349.77 (-2.63)**	-5797.73 (-2.42)**
gpcgnp	0.57 (2.57)**	0.57 (2.54)**	0.58 (2.68)*	0.63 (2.85)*
popgrow	3.57 (2.68)*	3.27 (2.53)**	2.78 (2.18)**	2.55 (1.89)***
infl	0.05 (1.59)	0.04 (1.47)	0.04 (1.28)	0.1 (1.77)***
R^2	0.82	0.82	0.81	0.81

Notes:

1. * indicates that a coeffcient is significant at the 1 percent level; ** significant at the 5 percent level; and *** significant at the 10 percent level

2. Figures in parenthesis ( ) are t-ratios; figures in [ ] are p-values

4.4.3.3 Testing for Liquidity Constraints

The fact that we found a negative relationship between financial saving and financial liberalisation could be due to the removal of liquidity constraints after liberalisation. Jappelli and Pagano (1994) have shown that savings increase in the presence of liquidity constraints; and Bayoumi (1993) showed that financial deregulation lowered savings by as much as $2\frac{1}{4}$ percentage points per annum. Financial liberalisation policies such as bank denationalisation, bank restructuring, and the granting of more bank licences are expected to enhance competition and provide easier access to credit. It is possible that households faced with such easy access to credit will borrow more, thereby increasing their consumption and consequently cutting savings.

Empirical investigations into the presence of liquidity constraints typically make use of Euler equations in line with the permanent income hypothesis (Rossi, 1988; Campbell and Mankiw, 1989, 1991; Villagomez, 1997, Bandiera et al, 2000). We will adopt Campbell and Mankiw's (1989, 1991) model where total income Y is divided among two groups of consumers. The first group are liquidity-constrained and receive a fixed fraction λ of income while the second group receive the remainder $(1 - \lambda)$. The Euler equation we will estimate takes the form:[13]

$$\Delta Inc_t = \mu + \lambda \Delta Iny_t + \theta r_t + \varepsilon_t \qquad (4.16)$$

where c is consumption, $\mu = (1-\lambda)\kappa$, κ is a constant that depends on the variance and covariance of c and r, y is income, r is the real rate of interest, $\theta = (1-\lambda)\varphi$, φ is the coefficient of intertemporal elasticity of substitution $(1/\gamma)$, $\varepsilon = (1-\lambda)\varepsilon'$.

[13] See Campbell and Mankiw (1989) for a derivation of this model.

The variable we are interested in equation 4.16 is λ (the fraction of liquidity-constrained consumers). A positive and significant value for λ suggests the presence of liquidity constraints with the degree of constraint rising with its value. If liquidity constraints are present, we can then proceed to examine if such constraints have been affected by financial liberalisation. We have used a fixed effects instrumental variables estimator for estimating equation 4.16 because of the possibility of correlation between ε_t and Δy_t or r_t (Campbell and Mankiw, 1991, p.731). In line with previous research, lagged values of Δy_t, Δc_t and r_t have been used as instruments (Villagomez, 1997, p.610; Campbell and Mankiw, 1989, p.7), and all instruments are lagged at least two periods (Campbell and Mankiw, 1991, p.732).

Keeping in line with the sample period of the savings equations, the data covers the period 1977 to 1998. We measure consumption with real private consumption per capita[14], income with real GNP per capita and r is the real rate of interest as defined previously. After averaging out the data over five-year periods we arrive at 84 observations.

The results of estimating the Euler equation are presented in Table 4.9. We find positive but insignificant values for λ in all specifications and so, no evidence of the presence of liquidity constraints for the countries in our sample.

[14] The ideal measure of c is consumption on non-durables but data limitations have restricted us to use private consumption per capita.

TABLE 4.9: EULER EQUATION

	λ	θ	observations
$1(y_{t-2}, y_{t-3}, r_{t-2}, r_{t-3})$	0.43 [0.46]	0.001 [0.26]	28
$2(y_{t-2}, y_{t-3}, c_{t-2}, c_{t-3})$	1.27 [1.36]	0.01 [1.99]***	27
$3(r_{t-2}, r_{t-3}, c_{t-2}, c_{t-3})$	1.28 [1.64]	0.003 [1.45]	27
$4(y_{t-2}, y_{t-3}, r_{t-2}, r_{t-3}, c_{t-2}, c_{t-3})$	1.07 [1.56]	0.004 [2.13]***	27

Notes:

1. * indicates that a coeffcient is significant at the 1 percent level; ** significant at the 5 percent level; and *** significant at the 10 percent level
2. Figures in parenthesis ( ) are instruments; figures in [ ] are p-values

4.5 CONCLUSION

We have carried out an empirical investigation of the impact of financial liberalisation on savings in SSA. Using a panel of 19 countries, we used fixed effects to estimate the effects of financial liberalisation and a host of other variables on saving. This study is particularly unique because we used four different proxies for financial liberalisation, two of which measure the gradual policy moves towards liberalisation.

Our descriptive analysis showed that savings ratios have been low in SSA when compared to other developing regions. Financial saving has been lower than national saving which indicates that financial assets have been unattractive in these SSA countries. Factors contributing to these low savings ratios include an unstable macroeconomic environment, the predominance of informal financial markets, and difficulty in measuring savings in national accounts statistics.

Our econometric analysis showed that financial saving has had a negative relationship with financial liberalisation, while national saving has been positively correlated with financial liberalisation. Possible explanations for the negative relationship between

financial saving and liberalisation could be that financial liberalisation has increased uncertainty and prompted households to save in real assets to hedge against inflation, thereby resulting in a fall in financial savings. Another explanation could be because of the low confidence in the banking system and maybe liberalisation has not been able to increase the faith households have in banks. It could also be that the income effects from interest rate deregulation have outweighed the substitution effect causing an increase in consumption as opposed to saving.

For the other variables, financial saving was positive and significantly correlated with per capita income, the growth of per capita income, and the volatility of inflation; and negatively correlated with population growth. We found that national saving was positively and significantly correlated with per capita income, the growth of per capita income, and population growth. The beta coefficients from standardised regressions show that per capita income has had the largest impact on both forms of savings, thus offering strong support to the AIH.

Having examined the relationship between savings and financial liberalisation in this chapter, we proceed in the next chapter to estimate the impact of financial liberalisation on investment. It would be interesting to see if the rise in national saving after financial liberalisation has resulted in an increase in investment. We will include the four financial liberalisation proxies developed in this chapter in investment equations that use private and total investment as dependent variables.

APPENDIX4A

Series: Gross national savings, including NCTR (% of GNP) (NY.GNS.ICTR.GN.ZS)
Gross national savings, including net current transfers is equal to gross domestic savings plus net income and net current transfers from abroad.
Series: Gross domestic savings (% of GDP) (NY.GDS.TOTL.ZS)
Gross domestic savings are calculated as the difference between GDP and total consumption.
Series: GNP per capita (constant 1995 US$) (NY.GNP.PCAP.KD)
GNP per capita is gross national product divided by midyear population. GNP is the sum of gross value added by all resident producers plus any taxes (less subsidies) that are not included in the valuation of output plus net receipts of primary income (employee compensation and property income) from non-resident sources. Data are in constant 1995 U.S. dollars.

Series: GNP per capita growth (annual %) (NY.GNP.PCAP.KD.ZG)
Annual growth rate of GNP per capita based on constant local currency. Aggregates are based on constant 1995 U.S. dollars. GNP is the sum of gross value added by all resident producers plus any taxes (less subsidies) that are not included in the valuation of output plus net receipts of primary income (employee compensation and property income) from non-resident sources.

Series: Money and quasi money (M2) (current LCU) (FM.LBL.MQMY.CN)
Money and quasi money comprise the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central government. This definition of money supply is frequently called M2; it corresponds to lines 34 and 35 in the International Monetary Fund's (IMF) International Financial Statistics (IFS). Data are in current local currency.

Series: Deposit interest rate (%) (FR.INR.DPST)
Deposit interest rate is the rate paid by commercial or similar banks for demand, time, or savings deposits.

Series: Inflation, consumer prices (annual %) (FP.CPI.TOTL.ZG)
Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a fixed basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used.
Series: Population growth (annual %) (SP.POP.GROW)
Annual population growth rate. Population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship--except for refugees not permanently settled in the country of asylum, who are generally considered part of the population of the country of origin.
Series: Private consumption per capita (constant 1995 US$) (NE.CON.PRVT.PC.KD)
Private consumption per capita is calculated using private consumption in constant 1995 prices and World Bank population estimates. Private consumption is the market value of all goods and services, including durable products (such as cars, washing machines, and home computers) purchased or received as income in kind by households. It excludes purchases of dwellings but includes imputed rent for owner-occupied dwellings. It also includes payments and fees to governments to obtain permits and licenses. In practice, private consumption may include any statistical discrepancy in the use of resources relative to the supply of resources. Data are in constant 1995 U.S. dollars. For more information, see WDI table 4.10.

4A.1: DESCRIPTIVE STATISTICS

Variables	Mean	Standard Deviation	Minimum	Maximum	Observations
FINSAV	4.59	3.77	-0.91	24.57	84
NATSAV	14.85	10.14	-4.86	59.85	79
FINDEX1	0.08	1.8	-3.31	3.04	84
FINDEX2	2.05	1.88	0	5	84
RR	-3.93	10.7	-55.39	13.83	84
(PCGNP)-1	0.003	0.002	0.0002	0.007	84
GPCGNP	0.29	3.66	-7.46	11.21	84
POPGROW	2.76	0.62	0.79	4.22	84
VOLINFL	9.96	11.13	0.41	54.42	84

FINSAV = ratio of financial saving to GNP (%)
NATSAV = ratio of gross national saving to GNP (%)
FINDEX1 = first index of financial liberalisation derived from principal components
FINDEX2 = second index of financial liberalisation
RR = real deposit rate of interest
(PCGNP)-1 = inverse of per capita GNP
GPCGNP = growth rate of per capita GNP (%)
POPGROW = annual population growth rate (%)
VOLINFL = volatility of inflation
Notes: real interest rates calculated using the formula: (((1+R)/(1+INF))-1)*100
where R=nominal interest rates, INF=inflation rate and R and INF are expressed as proportions

4A.2: DERIVATION OF FINDEX

BOTSWANA

YEARS	BANK DENATIONALISATIO N & RESTRUCTURING	INTEREST RATE LIBERALISATION	CENTRAL BANK AUTONOMY	FREE ENTRY INTO BANKING	FINDEX1	FINDEX2
1975	0	0	0	0	-1.693595	0
1976	0	0	0	0	-1.693595	0
1977	0	0	0	0	-1.693595	0
1978	0	0	0	0	-1.693595	0
1979	0	0	0	0	-1.693595	0
1980	0	0	0	0	-1.693595	0
1981	0	0	0	0	-1.693595	0
1982	0	0	0	0	-1.693595	0
1983	0	0	0	0	-1.693595	0
1984	0	0	0	0	-1.693595	0
1985	0	0	0	0	-1.693595	0
1986	0	1	0	0	-1.247791	1
1987	0	2	0	0	-0.8019867	1
1988	0	2	0	0	-0.8019867	1
1989	0	2	0	0	-0.8019867	1
1990	1	2	0	1	0.1508838	3
1991	1	2	1	2	1.113843	4
1992	1	2	1	3	1.477308	4
1993	1	2	1	3	1.477308	4
1994	2	2	1	3	2.066713	4
1995	2	2	2	3	2.666210	4
1996	2	2	2	3	2.666210	4
1997	2	2	2	3	2.666210	4
1998	2	2	2	3	2.666210	4
1999	2	2	2	3	2.666210	4
2000	2	2	2	3	2.666210	4

BURUNDI

YEARS	INTEREST RATE LIBERALISATION	CENTRAL BANK AUTONOMY	DIRECTED CREDIT	FINDEX1	FINDEX2
1975	0	0	0	-1.647082	0
1976	0	0	0	-1.647082	0
1977	0	0	0	-1.647082	0
1978	0	0	0	-1.647082	0
1979	0	0	0	-1.647082	0
1980	0	0	0	-1.647082	0
1981	0	0	0	-1.647082	0
1982	0	0	0	-1.647082	0
1983	0	0	0	-1.647082	0
1984	0	0	0	-1.647082	0
1985	0	0	0	-1.647082	0
1986	0	0	1	-0.4938203	1
1987	0	0	1	-0.4938203	1
1988	1	0	1	0.6935239	2
1989	1	0	1	0.6935239	2
1990	1	0	1	0.6935239	2
1991	1	0	1	0.6935239	2
1992	1	1	1	1.814605	3
1993	1	1	1	1.814605	3
1994	1	1	1	1.814605	3
1995	1	1	1	1.814605	3
1996	1	1	1	1.814605	3
1997	1	1	1	1.814605	3
1998	1	1	1	1.814605	3
1999	1	1	1	1.814605	3
2000	1	1	1	1.814605	3

CAMEROON

YEARS	BANK DENATIONALISATIO N & RESTRUCTURING	INTEREST RATE LIBERALISATION	CENTRAL BANK AUTONOMY	DIRECTED CREDIT	FINDEX1	FINDEX2
1975	0	0	0	0	-1.578587	0
1976	0	0	0	0	-1.578587	0
1977	0	0	0	0	-1.578587	0
1978	0	0	0	0	-1.578587	0
1979	0	0	0	0	-1.578587	0
1980	0	0	0	0	-1.578587	0
1981	0	0	0	0	-1.578587	0
1982	0	0	0	0	-1.578587	0
1983	0	0	0	0	-1.578587	0
1984	0	0	0	0	-1.578587	0
1985	0	0	0	0	-1.578587	0
1986	0	0	0	0	-1.578587	0
1987	0	0	0	0	-1.578587	0
1988	0	0	0	0	-1.578587	0
1989	0	0	0	0	-1.578587	0
1990	0	1	1	0	-0.5121509	2
1991	1	1	2	1	2.032596	4
1992	1	1	2	1	2.032596	4
1993	1	1	2	1	2.032596	4
1994	1	2	2	1	2.584738	4
1995	1	2	2	1	2.584738	4
1996	1	2	2	1	2.584738	4
1997	1	2	2	1	2.584738	4
1998	1	2	2	1	2.584738	4
1999	1	2	2	1	2.584738	4
2000	1	2	2	1	2.584738	4

CONGO REP.

YEARS	BANK DENATIONALISATION & RESTRUCTURING	INTEREST RATE LIBERALISATION	CENTRAL BANK AUTONOMY	DIRECTED CREDIT	FINDEX1	FINDEX2
1975	0	0	0	0	-1.546442	0
1976	0	0	0	0	-1.546442	0
1977	0	0	0	0	-1.546442	0
1978	0	0	0	0	-1.546442	0
1979	0	0	0	0	-1.546442	0
1980	0	0	0	0	-1.546442	0
1981	0	0	0	0	-1.546442	0
1982	0	0	0	0	-1.546442	0
1983	0	0	0	0	-1.546442	0
1984	0	0	0	0	-1.546442	0
1985	0	0	0	0	-1.546442	0
1986	0	0	0	0	-1.546442	0
1987	0	0	0	0	-1.546442	0
1988	0	0	0	0	-1.546442	0
1989	0	0	0	0	-1.546442	0
1990	0	1	0	0	-0.9951265	1
1991	1	1	1	1	1.561834	4
1992	1	1	2	1	2.085435	4
1993	1	1	2	1	2.085435	4
1994	1	2	2	1	2.636951	4
1995	1	2	2	1	2.636951	4
1996	1	2	2	1	2.636951	4
1997	1	2	2	1	2.636951	4
1998	1	2	2	1	2.636951	4
1999	1	2	2	1	2.636951	4
2000	1	2	2	1	2.636951	4

COTE D'IVOIRE

YEARS	BANK DENATIONALISATIO N & RESTRUCTURING	INTEREST RATE LIBERALISATION	CENTRAL BANK AUTONOMY	DIRECTED CREDIT	FINDEX1	FINDEX2
1975	0	0	0	0	-1.677979	0
1976	0	0	0	0	-1.677979	0
1977	0	0	0	0	-1.677979	0
1978	0	0	0	0	-1.677979	0
1979	0	0	0	0	-1.677979	0
1980	0	0	0	0	-1.677979	0
1981	0	0	0	0	-1.677979	0
1982	0	0	0	0	-1.677979	0
1983	0	0	0	0	-1.677979	0
1984	0	0	0	0	-1.677979	0
1985	0	0	0	0	-1.677979	0
1986	0	0	0	0	-1.677979	0
1987	0	0	0	0	-1.677979	0
1988	0	0	0	0	-1.677979	0
1989	1	1	0	1	0.4454376	3
1990	1	1	1	1	0.8022103	4
1991	1	1	1	1	0.8022103	4
1992	1	1	2	1	1.158983	4
1993	1	1	3	1	1.515756	4
1994	1	2	3	2	2.681015	4
1995	1	2	3	2	2.681015	4
1996	1	2	3	2	2.681015	4
1997	1	2	3	2	2.681015	4
1998	1	2	3	2	2.681015	4
1999	1	2	3	2	2.681015	4
2000	1	2	3	2	2.681015	4

GAMBIA

YEARS	BANK DENATIONALISAT ION & RESTRUCTURING	INTEREST RATE LIBERALISA TION	CENTRAL BANK AUTONOMY	DIRECTED CREDIT	FINDEX1	FINDEX2
1975	0	0	0	0	-2.142256	0
1976	0	0	0	0	-2.142256	0
1977	0	0	0	0	-2.142256	0
1978	0	0	0	0	-2.142256	0
1979	0	0	0	0	-2.142256	0
1980	0	0	0	0	-2.142256	0
1981	0	0	0	0	-2.142256	0
1982	0	0	0	0	-2.142256	0
1983	0	0	0	0	-2.142256	0
1984	0	0	0	0	-2.142256	0
1985	0	1	1	0	-0.984541	3
1986	0	1	2	0	-0.205867	3
1987	0	1	2	0	0.0749274	3
1988	0	1	2	0	0.0749274	3
1989	1	2	2	0	0.4539692	3
1990	1	2	2	1	1.40098	4
1991	1	3	2	1	2.060817	4
1992	1	3	2	1	2.060817	4
1993	1	3	2	1	2.060817	4
1994	1	3	2	1	2.060817	4
1995	1	3	2	1	2.060817	4
1996	1	3	2	1	2.060817	4
1997	1	3	2	1	2.060817	4
1998	1	3	2	1	2.060817	4
1999	1	3	2	1	2.060817	4
2000	1	3	2	1	2.060817	4

GHANA

YEARS	BANK DENATIONALISA TION & RESTRUCTURING	INTEREST RATE LIBERALISA TION	CENTRAL BANK AUTONOMY	DIRECTED CREDIT	FREE ENTRY INTO BANKIN G	FINDEX1	FINDEX2
1975	0	0	0	0	0	-2.037911	0
1976	0	0	0	0	0	-2.037911	0
1977	0	0	0	0	0	-2.037911	0
1978	0	0	0	0	0	-2.037911	0
1979	0	0	0	0	0	-2.037911	0
1980	0	0	0	0	0	-2.037911	0
1981	0	0	0	0	0	-2.037911	0
1982	0	0	0	0	0	-2.037911	0
1983	0	0	0	0	0	-2.037911	0
1984	0	0	0	0	0	-2.037911	0
1985	0	0	0	0	0	-2.037911	0
1986	0	0	0	0	0	-2.037911	0
1987	0	1	0	0	1	-1.405071	2
1988	0	2	0	1	1	-0.648376	3
1989	1	3	1	1	1	0.0958478	5
1990	2	3	2	2	1	1.004465	5
1991	3	3	3	2	2	1.789227	5
1992	3	3	4	2	2	1.983213	5
1993	3	3	5	2	3	2.513889	5
1994	3	3	5	2	3	2.513889	5
1995	4	3	5	2	3	2.767975	5
1996	4	3	5	2	3	2.767975	5
1997	4	3	5	2	3	2.767975	5
1998	4	3	5	2	3	2.767975	5
1999	4	3	5	2	3	2.767975	5
2000	4	3	5	2	3	2.767975	5

KENYA

YEARS	BANK DENATIONALISAT ION & RESTRUCTURING	INTEREST RATE LIBERALISATION	CENTRAL BANK AUTONOMY	DIRECTE D CREDIT	FREE ENTRY INTO BANKIN G	FINDEX1	FINDEX2
1975	0	0	0	0	0	-1.910347	0
1976	0	0	0	0	0	-1.910347	0
1977	0	0	0	0	0	-1.910347	0
1978	0	0	0	0	0	-1.910347	0
1979	0	0	0	0	0	-1.910347	0
1980	0	0	0	0	0	-1.910347	0
1981	0	0	0	0	0	-1.910347	0
1982	0	0	0	0	0	-1.910347	0
1983	0	0	0	0	0	-1.910347	0
1984	0	0	0	0	0	-1.910347	0
1985	0	0	1	0	0	-1.721828	1
1986	0	0	2	0	0	-1.51331	1
1987	0	0	3	0	0	-1.304792	1
1988	1	0	3	0	0	-0.43916	2
1989	1	0	4	0	0	-0.230642	2
1990	1	1	4	0	0	0.2402054	3
1991	1	2	4	1	0	1.637543	4
1992	1	2	4	1	0	1.637543	4
1993	1	2	4	1	0	1.637543	4
1994	1	2	5	1	1	2.756052	5
1995	1	2	5	1	1	2.756052	5
1996	1	2	5	1	1	2.756052	5
1997	1	2	5	1	1	2.756052	5
1998	1	2	5	1	1	2.756052	5
1999	1	2	5	1	1	2.756052	5
2000	1	2	5	1	1	2.756052	5

MADAGASCAR

YEARS	BANK DENATIONALISATION & RESTRUCTURING	INTEREST RATE LIBERALISATION	CENTRAL BANK AUTONOMY	FREE ENTRY INTO BANKING	FINDEX1	FINDEX2
1975	0	0	0	0	-2.016752	0
1976	0	0	0	0	-2.016752	0
1977	0	0	0	0	-2.016752	0
1978	0	0	0	0	-2.016752	0
1979	0	0	0	0	-2.016752	0
1980	0	0	0	0	-2.016752	0
1981	0	0	0	0	-2.016752	0
1982	0	0	0	0	-2.016752	0
1983	0	0	0	0	-2.016752	0
1984	0	0	0	0	-2.016752	0
1985	0	1	0	0	-1.48716	1
1986	0	1	0	0	-1.48716	1
1987	0	1	0	0	-1.48716	1
1988	1	1	1	1	0.5104579	4
1989	2	1	1	2	1.524419	4
1990	2	2	1	2	2.054011	4
1991	2	2	1	2	2.054011	4
1992	2	2	1	2	2.054011	4
1993	2	2	1	2	2.054011	4
1994	2	2	1	2	2.054011	4
1995	2	2	1	2	2.054011	4
1996	2	2	1	2	2.054011	4
1997	2	2	1	2	2.054011	4
1998	2	2	1	2	2.054011	4
1999	2	2	1	2	2.054011	4
2000	2	2	1	2	2.054011	4

MALAWI

YEARS	INTEREST RATE LIBERALISATION	CENTRAL BANK AUTONOMY	DIRECTED CREDIT	FREE ENTRY INTO BANKING	FINDEX1	FINDEX2
1975	0	0	0	0	-1.726598	0
1976	0	0	0	0	-1.726598	0
1977	0	0	0	0	-1.726598	0
1978	0	0	0	0	-1.726598	0
1979	0	0	0	0	-1.726598	0
1980	0	0	0	0	-1.726598	0
1981	0	0	0	0	-1.726598	0
1982	0	0	0	0	-1.726598	0
1983	0	0	0	0	-1.726598	0
1984	0	0	0	0	-1.726598	0
1985	0	0	0	0	-1.726598	0
1986	0	0	0	0	-1.726598	0
1987	0	0	0	0	-1.726598	0
1988	1	0	0	0	-1.21301	1
1989	1	1	0	0	-0.703375	2
1990	2	2	0	1	1.324277	3
1991	2	2	1	1	2.303788	4
1992	2	2	1	1	2.303788	4
1993	2	2	1	1	2.303788	4
1994	2	2	1	1	2.303788	4
1995	2	2	1	1	2.303788	4
1996	2	2	1	1	2.303788	4
1997	2	2	1	1	2.303788	4
1998	2	2	1	1	2.303788	4
1999	2	2	1	1	2.303788	4
2000	2	2	1	1	2.303788	4

MALI

YEARS	BANK DENATIONALISATION & RESTRUCTURING	INTEREST RATE LIBERALISATION	CENTRAL BANK AUTONOMY	DIRECTED CREDIT	FINDEX1	FINDEX2
1975	0	0	0	0	-1.677979	0
1976	0	0	0	0	-1.677979	0
1977	0	0	0	0	-1.677979	0
1978	0	0	0	0	-1.677979	0
1979	0	0	0	0	-1.677979	0
1980	0	0	0	0	-1.677979	0
1981	0	0	0	0	-1.677979	0
1982	0	0	0	0	-1.677979	0
1983	0	0	0	0	-1.677979	0
1984	0	0	0	0	-1.677979	0
1985	0	0	0	0	-1.677979	0
1986	0	0	0	0	-1.677979	0
1987	0	0	0	0	-1.677979	0
1988	0	0	0	0	-1.677979	0
1989	1	1	0	1	0.4454376	3
1990	1	1	1	1	0.8022103	4
1991	1	1	1	1	0.8022103	4
1992	1	1	2	1	1.158983	4
1993	1	1	3	1	1.515756	4
1994	1	2	3	2	2.681015	4
1995	1	2	3	2	2.681015	4
1996	1	2	3	2	2.681015	4
1997	1	2	3	2	2.681015	4
1998	1	2	3	2	2.681015	4
1999	1	2	3	2	2.681015	4
2000	1	2	3	2	2.681015	4

MAURITIUS

YEARS	BANK DENATIONALISATION & RESTRUCTURING	INTEREST RATE LIBERALISATION	CENTRAL BANK AUTONOMY	DIRECTED CREDIT	FREE ENTRY INTO BANKING	FINDEX1	FINDEX2
1975	0	0	0	0	0	-1.968655	0
1976	0	0	0	0	0	-1.968655	0
1977	0	0	0	0	0	-1.968655	0
1978	0	0	0	0	0	-1.968655	0
1979	0	0	0	0	0	-1.968655	0
1980	0	0	0	0	0	-1.968655	0
1981	0	1	0	1	0	-1.306942	2
1982	0	1	0	1	0	-1.306942	2
1983	0	2	0	1	0	-1.069193	2
1984	0	3	0	1	0	-0.831443	2
1985	0	3	0	1	0	-0.831443	2
1986	0	3	0	1	0	-0.831443	2
1987	0	3	0	1	0	-0.831443	2
1988	0	4	1	1	0	-0.263418	3
1989	0	4	1	1	0	-0.263418	3
1990	0	4	1	1	0	-0.263418	3
1991	0	4	1	1	0	-0.263418	3
1992	0	4	1	2	0	0.1605448	3
1993	0	4	2	3	0	0.9147822	3
1994	0	4	3	3	0	1.249057	3
1995	1	4	3	3	0	1.221941	4
1996	2	4	3	3	0	2.398226	4
1997	2	4	4	3	0	2.7291	4
1998	2	4	4	3	0	2.7291	4
1999	2	4	4	3	1	3.93735	5
2000	2	4	4	3	1	3.93735	5

NIGERIA

YEARS	BANK DENATIONALISATION & RESTRUCTURING	INTEREST RATE LIBERALISATION	CENTRAL BANK AUTONOMY	DIRECTED CREDIT	FREE ENTRY INTO BANKING	FINDEX1	FINDEX2
1975	0	0	0	0	0	-2.007865	0
1976	0	0	0	0	0	-2.007865	0
1977	0	0	0	0	0	-2.007865	0
1978	0	0	0	0	0	-2.007865	0
1979	0	0	0	0	0	-2.007865	0
1980	0	0	0	0	0	-2.007865	0
1981	0	0	0	0	0	-2.007865	0
1982	0	0	0	0	0	-2.007865	0
1983	0	0	0	0	0	-2.007865	0
1984	0	0	0	0	0	-2.007865	0
1985	0	0	0	1	0	-1.52209	1
1986	0	0	0	2	0	-1.036315	1
1987	0	1	0	2	1	-0.106799	3
1988	1	1	1	2	1	0.5118864	5
1989	1	2	2	2	1	1.181906	5
1990	1	2	3	2	2	1.95639	5
1991	1	2	4	2	2	2.213884	5
1992	1	2	4	2	2	2.213884	5
1993	1	2	4	2	3	2.730874	5
1994	2	2	4	2	3	3.092066	5
1995	2	0	4	2	1	1.233053	3
1996	2	0	4	2	1	1.233053	3
1997	3	0	4	2	1	1.594225	3
1998	3	0	4	2	1	1.594225	3
1999	3	0	4	2	1	1.594225	3
2000	3	0	4	2	1	1.594225	3

SENEGAL

YEARS	BANK DENATIONALISATION & RESTRUCTURING	INTEREST RATE LIBERALISATION	CENTRAL BANK AUTONOMY	DIRECTED CREDIT	FINDEX1	FINDEX2
1975	0	0	0	0	-1.804783	0
1976	0	0	0	0	-1.804783	0
1977	0	0	0	0	-1.804783	0
1978	0	0	0	0	-1.804783	0
1979	0	0	0	0	-1.804783	0
1980	0	0	0	0	-1.804783	0
1981	1	0	0	0	-1.579622	1
1982	1	0	0	0	-1.579622	1
1983	1	0	0	0	-1.579622	1
1984	1	0	0	0	-1.579622	1
1985	1	0	0	0	-1.579622	1
1986	1	0	0	0	-1.579622	1
1987	1	0	0	0	-1.579622	1
1988	2	0	0	0	-1.354461	1
1989	3	1	0	1	0.0292247	3
1990	4	1	1	1	0.6133772	4
1991	5	1	1	1	0.8385381	4
1992	5	1	2	1	1.19753	4
1993	5	1	3	1	1.556521	4
1994	5	2	3	2	2.715095	4
1995	5	2	3	2	2.715095	4
1996	5	2	3	2	2.715095	4
1997	5	2	3	2	2.715095	4
1998	5	2	3	2	2.715095	4
1999	5	2	3	2	2.715095	4
2000	5	2	3	2	2.715095	4

SIERRA LEONE

YEARS	BANK DENATIONALISATION & RESTRUCTURING	INTEREST RATE LIBERALISATION	DIRECTED CREDIT	FINDEX1	FINDEX2
1975	0	0	0	-1.235779	0
1976	0	0	0	-1.235779	0
1977	0	0	0	-1.235779	0
1978	0	0	0	-1.235779	0
1979	0	0	0	-1.235779	0
1980	0	0	0	-1.235779	0
1981	0	0	0	-1.235779	0
1982	0	0	0	-1.235779	0
1983	0	0	0	-1.235779	0
1984	0	0	0	-1.235779	0
1985	0	0	0	-1.235779	0
1986	0	0	0	-1.235779	0
1987	0	0	0	-1.235779	0
1988	0	0	0	-1.235779	0
1989	0	0	0	-1.235779	0
1990	0	0	0	-1.235779	0
1991	0	0	0	-1.235779	0
1992	1	1	1	2.334249	3
1993	1	1	1	2.334249	3
1994	1	1	1	2.334249	3
1995	1	1	1	2.334249	3
1996	1	1	1	2.334249	3
1997	1	1	1	2.334249	3
1998	1	1	1	2.334249	3
1999	1	1	1	2.334249	3
2000	1	1	1	2.334249	3

SOUTH AFRICA

YEARS	BANK DENATIONALISATION & RESTRUCTURING	INTEREST RATE LIBERALISATION	CENTRAL BANK AUTONOMY	DIRECTED CREDIT	FREE ENTRY INTO BANKING	FINDEX1	FINDEX2
1975	0	0	0	0	0	-3.305353	0
1976	0	0	0	0	0	-3.305353	0
1977	0	0	0	0	0	-3.305353	0
1978	0	0	0	0	0	-3.305353	0
1979	0	0	0	0	0	-3.305353	0
1980	0	1	0	1	0	-1.91169	2
1981	0	1	0	1	0	-1.91169	2
1982	0	2	0	1	0	-1.52e74	2
1983	0	2	1	1	1	-0.666645	4
1984	0	3	1	1	1	-0.283628	4
1985	0	3	2	1	1	0.229103	4
1986	0	3	2	1	2	0.674411	4
1987	0	3	2	1	2	0.674411	4
1988	0	3	2	1	3	0.926921	4
1989	1	3	2	1	3	1.70291	5
1990	1	3	2	1	3	1.70291	5
1991	1	3	2	1	3	1.70291	5
1992	1	3	2	1	3	1.70291	5
1993	1	3	2	1	3	1.70291	5
1994	1	3	2	1	3	1.70291	5
1995	1	3	2	1	3	1.70291	5
1996	1	3	2	1	3	1.70291	5
1997	1	3	2	1	3	1.70291	5
1998	1	3	2	1	3	1.70291	5
1999	1	3	2	1	3	1.70291	5
2000	1	3	2	1	3	1.70291	5

UGANDA

YEARS	BANK DENATIONALISATION & RESTRUCTURING	INTEREST RATE LIBERALISATION	CENTRAL BANK AUTONOMY	DIRECTED CREDIT	FINDEX1	FINDEX2
1975	0	0	0	0	-1.34135	0
1976	0	0	0	0	-1.34135	0
1977	0	0	0	0	-1.34135	0
1978	0	0	0	0	-1.34135	0
1979	0	0	0	0	-1.34135	0
1980	0	0	0	0	-1.34135	0
1981	0	0	0	0	-1.34135	0
1982	0	0	0	0	-1.34135	0
1983	0	0	0	0	-1.34135	0
1984	0	0	0	0	-1.34135	0
1985	0	0	0	0	-1.34135	0
1986	0	0	0	0	-1.34135	0
1987	0	0	0	0	-1.34135	0
1988	0	0	0	0	-1.34135	0
1989	0	0	0	0	-1.34135	0
1990	0	0	0	0	-1.34135	0
1991	0	0	0	0	-1.34135	0
1992	1	1	0	1	0.626711	3
1993	1	1	1	1	1.20467	4
1994	2	2	1	1	2.162955	4
1995	3	2	2	1	3.134234	4
1996	3	2	2	1	3.134234	4
1997	3	2	2	1	3.134234	4
1998	3	2	2	1	3.134234	4
1999	3	2	2	1	3.134234	4
2000	3	2	2	1	3.134234	4

ZAMBIA

YEARS	BANK DENATIONALISATION & RESTRUCTURING	INTEREST RATE LIBERALISATION	CENTRAL BANK AUTONOMY	FREE ENTRY INTO BANKING	FINDEX1	FINDEX2
1975	0	0	0	0	-1.301883	0
1976	0	0	0	0	-1.301883	0
1977	0	0	0	0	-1.301883	0
1978	0	0	0	0	-1.301883	0
1979	0	0	0	0	-1.301883	0
1980	0	0	0	0	-1.301883	0
1981	0	0	0	0	-1.301883	0
1982	0	0	0	0	-1.301883	0
1983	0	0	0	0	-1.301883	0
1984	0	0	0	0	-1.301883	0
1985	0	0	0	0	-1.301883	0
1986	0	0	0	0	-1.301883	0
1987	0	0	0	0	-1.301883	0
1988	0	0	0	0	-1.301883	0
1989	0	0	0	0	-1.301883	0
1990	0	0	0	0	-1.301883	0
1991	0	0	0	1	-0.323967	1
1992	0	1	0	1	0.222523	2
1993	0	2	0	1	0.774925	2
1994	0	2	1	1	1.90678	3
1995	1	2	1	1	3.04263	4
1996	1	2	1	1	3.04263	4
1997	1	2	1	1	3.04263	4
1998	1	2	1	1	3.04263	4
1999	1	2	1	1	3.04263	4
2000	1	2	1	1	3.04263	4

ZIMBABWE

YEARS	BANK DENATIONALISATION & RESTRUCTURING	INTEREST RATE LIBERALISATION	CENTRAL BANK AUTONOMY	DIRECTED CREDIT	FREE ENTRY INTO BANKING	FINDEX1	FINDEX2
1975	0	0	0	0	0	-1.44547	0
1976	0	0	0	0	0	-1.44547	0
1977	0	0	0	0	0	-1.44547	0
1978	0	0	0	0	0	-1.44547	0
1979	0	0	0	0	0	-1.44547	0
1980	0	0	0	0	0	-1.44547	0
1981	0	0	0	0	0	-1.44547	0
1982	0	0	0	0	0	-1.44547	0
1983	0	0	0	0	0	-1.44547	0
1984	0	0	0	0	0	-1.44547	0
1985	0	0	0	0	0	-1.44547	0
1986	0	0	0	0	0	-1.44547	0
1987	0	0	0	0	0	-1.44547	0
1988	0	0	0	0	0	-1.44547	0
1989	0	0	0	0	0	-1.44547	0
1990	0	0	0	0	0	-1.44547	0
1991	0	1	0	1	1	0.558826	3
1992	0	1	0	1	1	0.558826	3
1993	0	1	0	1	1	0.558826	3
1994	0	1	0	1	1	0.558826	3
1995	0	1	0	1	1	0.558826	3
1996	1	1	1	1	2	3.497742	5
1997	1	1	1	1	2	3.497742	5
1998	1	1	1	1	2	3.497742	5
1999	1	1	1	1	2	3.497742	5
2000	1	1	1	1	2	3.497742	5

CHAPTER FIVE: THE IMPACT OF FINANCIAL LIBERALISATION ON INVESTMENT

5.1 INTRODUCTION

In this chapter we are concerned with how financial liberalisation has affected investment, the other channel through which it is expected to affect growth. There are two main reasons why we can proceed with such an analysis.

Firstly, having established in the previous chapter that financial liberalisation (as measured by the first liberalisation index) has exerted a positive effect on national saving, it is important to find out if the rise in national saving has been channelled into investment. Going by the analysis of McKinnon and Shaw, such an increase in saving will lead to an increased allocation of loans by banks, thereby increasing investment.

Referring back to Figure 2.1, financial repression keeps the real interest rate at the low level of r1, and investable funds are rationed based on non-market criteria such as political clout, friendship, loan size, and benefits accruable to bank officials. Such criteria result in an inefficient allocation of loans between investment projects and also, the actual investment undertaken will be lower at I1 instead of I2 because investment is constrained by savings.

Such financial repression was evident in the countries in our sample through ceilings on interest rates, directed credit to priority sectors, and a small number of banks which were mainly government owned and very inefficient. Directed credit allocation imposes the condition that bank credit should be granted to a few selected corporations which

are not always the most efficient users of credit. The financial systems were dominated by commercial banks that faced little competition and were inefficient in their operation. They were not able to adequately carry out the functions of pooling and assessing risk and bringing savers' funds in line with investors' demands.

Financial liberalisation addresses these constraints to investment. Interest rate deregulation makes savings more attractive and savings increases, thereby making more credit available, and this increases investment. Thus, savings and investment move up along the SS curve in Figure 2.1 until equilibrium is reached at point E at the equilibrium real interest rate of r*. The implication of this is that below r* investment and the real interest rate are positively related but they are negatively related above r*. Thus this analysis depends crucially on whether the real rate of interest is below or above the equilibrium rate. If the real interest rate is below equilibrium, investment will increase but if it is above equilibrium, investment will fall.

The second reason for examining the relationship between investment and financial liberalisation relates to the fact that interest rate deregulation is not the only component of financial liberalisation. The analysis presented above suggests that financial liberalisation solely consists of interest rate liberalisation but this is not the case. In fact this is a central theme that sets our study different from others – the fact that the indexes we have constructed take account of the other components of financial liberalisation. Thus, the interest rate channel is not the only way by which financial liberalisation can affect investment, and so despite the fact that we found a negative relationship between financial saving and financial liberalisation in the previous

chapter, it is possible that other liberalisation measures can actually increase investment even in the absence of an increase in savings. For example, reducing reserve requirements after financial liberalisation makes more loanable funds available to banks and consequently, investment can increase after liberalisation. Also, the granting of more bank licences and the subsequent increase in competition after liberalisation ensures that the banks are more predisposed to provide better and improved services, part of which is to increase credit to attract more customers, and we saw in chapter 3 that Botswana, Ghana, Kenya, Madagascar, Malawi, Mauritius, Nigeria, South Africa, and Zambia freed up competition in the banking sector and granted bank licences. Furthermore, financial liberalisation also involves the removal of credit restrictions which increase the lending capabilities of banks and we saw in chapter 3 that directed credit allocation to priority sectors was abolished in Cote d'Ivoire, Mali, Senegal, Cameroon, Congo Republic, The Gambia, Ghana, Kenya, Malawi, Mauritius, Nigeria, South Africa, and Zimbabwe. The importance of the above measures makes it necessary to conduct an empirical analysis of the impact of financial liberalisation on investment.

We saw in chapter two that the real rate of interest has been found to have a positive and significant effect on investment in studies by Oshikoya (1992), Seck and El Nil (1993), Dailami and Walton (1993), and Asante (2000); while it has had a negative effect in Matin and Wasow (1992) and Matsheka (1998). Credit provided by banks to the private sector had a positive and significant coefficient in Matin and Wasow (1992), Oshikoya (1994), Matsheka (1998), Asante (2000), Ndikumana (2000).

While the above studies have made an attempt to examine the impact of financial liberalisation on investment in SSA, they have not paid much attention to the gradual nature that financial liberalisation involves. Indeed the real rate of interest has been the major financial variable employed by these studies while a few of them have used the private sector credit variable. If we are to properly examine how financial liberalisation has affected investment, it is essential that we explicitly take into account the start of the financial liberalisation process and the gradual sequencing that liberalisation entails.

In this chapter we propose to measure the impact of financial liberalisation on investment using a whole range of variables to measure financial liberalisation. We explicitly take account of the move toward a more liberalised financial system by using four variables to capture the impact of financial liberalisation. One is a shift dummy variable to capture the major move toward liberalisation and two indexes developed in the previous chapter that take account of the different stages that are involved in the liberalisation process. While using these financial indicators, we also include other variables to take account of macroeconomic policy and uncertainty. This is the first study we are aware of that has employed broad measures of financial liberalisation in investment equations for a group of SSA countries.

We also improve on previous studies by employing panel data techniques for our sample of 19 countries. Panel data allows us to estimate using a greater number of observations and also allows us to control for country-specific effects and deal with the problems of single-period cross section analysis.[1]

[1] See section 4.4.1 for an analysis of the benefits of panel data.

This chapter is divided into five sections. The second section examines investment behaviour in SSA. The general trend of investment is examined, and then a review of how investment has performed before and after financial liberalisation in the countries is discussed. In the next section we build up our model of investment using financial variables and some other variables identified in the literature as important determinants of investment. The fourth section contains our econometric tests of investment in Sub-Saharan Africa. We first of all attempt to determine the equilibrium real rate of interest. We then estimate investment equations first using private investment, and then total investment,[2] as dependent variables. We draw conclusions in the last section.

5.2 INVESTMENT IN SUB-SAHARAN AFRICA

5.2.1. An Overview of Investment in Sub-Saharan Africa

Average total investment in our sample of Sub-Saharan countries has been relatively stable since 1984 following a decline from a peak of 21 per cent in 1981. The average rate of total investment has been fairly stable between 16 and 18 percent of GDP. This can be seen from Figure 5.1. When total investment is broken down into private and public investment, it can be seen that the ratio of private investment, after declining from 1981 to 1984, has been increasing to 2000. The public investment ratio, on the other hand, has been falling since 1982.

[2] Total investment as used here is gross domestic investment. See appendix for definition.

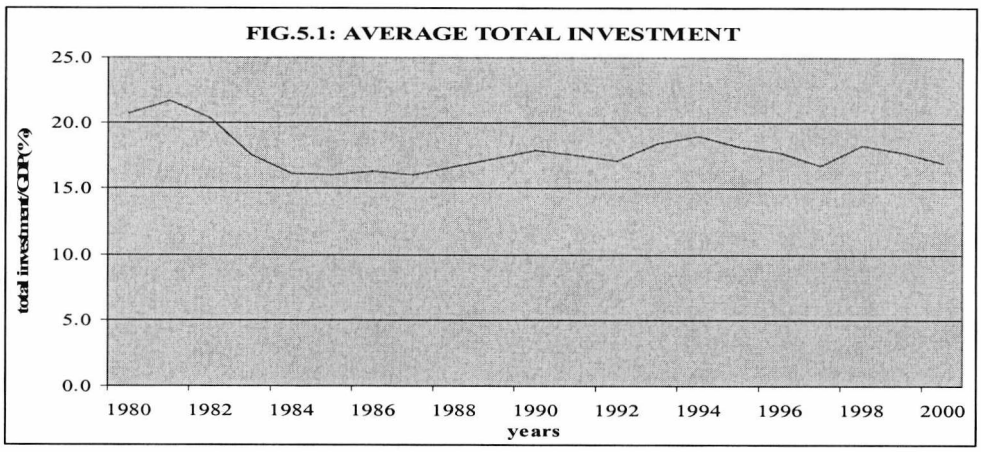


FIG.5.1: AVERAGE TOTAL INVESTMENT
25.0
20.0
15.0
10.0
5.0
0.0
total investment/GDP(%)
1980 1982 1984 1986 1988 1990 1992 1994 1996 1998 2000
years

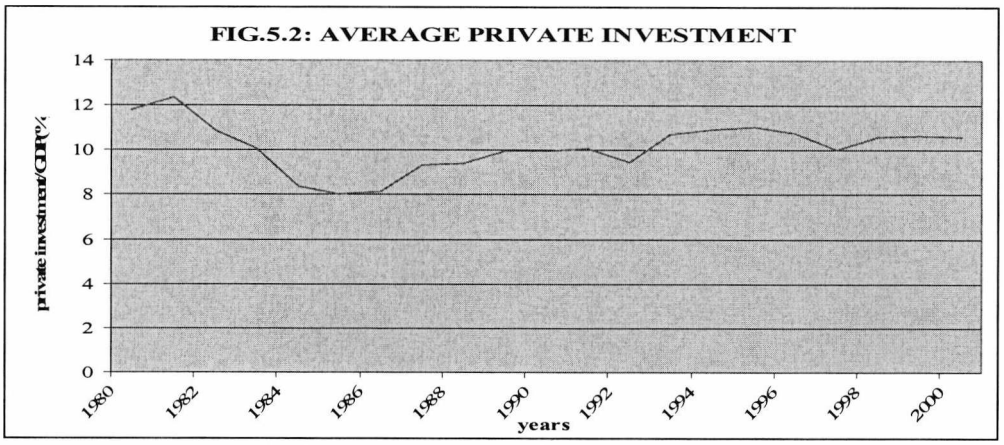


FIG.5.2: AVERAGE PRIVATE INVESTMENT
14
12
10
8
6
4
2
0
private investment/GDP(%
1980 1982 1984 1986 1988 1990 1992 1994 1996 1998 2000
years

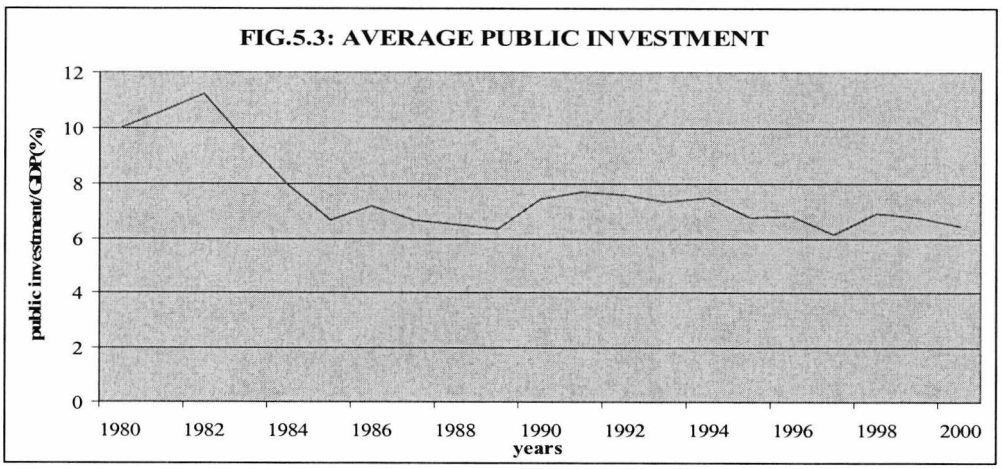


FIG.5.3: AVERAGE PUBLIC INVESTMENT
12
10
8
6
4
2
0
public investment/GDP(%)
1980 1982 1984 1986 1988 1990 1992 1994 1996 1998 2000
years

TABLE 5.1: INVESTMENT RATES IN SUB-SAHARAN AFRICA

	YEARS	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000 ave.
BOTSWANA	total	40.1	43.4	37.7	29.4	29.4	23.0	21.5	15.6	23.7	36.1	37.4	33.2	30.4	28.8	26.5	24.6	25.0	28.1	33.5	26.9	17.0 29.1
1989	private	34.5	35.8	32.2	27.2	26.3	22.8	22.4	27.5	30.0	31.4	19.7	17.6	16.7	14.1	12.6	14.6	13.4	12.5	14.2	14.7	12.2 21.5
	public	5.5	7.6	5.5	2.2	3.1	0.2	-0.9	-11.9	-6.3	4.7	12.7	13.7	12.9	12.8	13.0	11.0	11.4	12.4	13.2	13.1	12.3 7.1
BURUNDI	total	13.9	17.0	14.5	22.8	18.4	13.9	11.6	22.6	15.0	16.5	14.5	14.4	15.0	16.3	10.6	9.6	12.1	8.1	8.8	9.1	9.1 14.0
1986	private	1.1	1.6	1.4	2.5	2.7	2.4	2.9	4.4	1.7	1.9	2.7	2.9	2.8	3.0	1.6	1.4	1.8	2.2	2.3	1.8	2.4 2.3
	public	12.8	11.9	13.8	16.8	14.9	11.9	11.1	17.1	13.4	14.7	12.5	12.0	11.7	12.9	9.0	8.3	10.4	5.0	5.6	6.2	5.6 11.3
CAMEROON	total	21.0	27.2	24.8	26.0	25.9	24.9	25.5	24.7	20.9	17.1	17.8	16.7	14.3	16.5	15.3	14.5	15.4	16.2	17.5	18.3	16.4 19.9
1990	private	15.6	20.0	16.4	16.2	12.8	9.5	14.4	13.1	11.6	12.0	11.9	12.7	11.6	14.7	14.0	13.3	14.9	15.2	15.5	16.0	15.1 14.1
	public	4.4	4.5	4.2	4.9	6.6	7.7	10.4	11.4	9.2	6.1	5.5	4.0	2.7	1.8	1.3	1.2	0.5	1.0	2.0	2.3	1.4 4.4
CONGO, REP.	total	35.8	48.2	59.7	38.4	30.4	30.3	29.5	19.7	18.6	14.1	15.9	20.5	21.6	29.5	31.2	36.6	27.0	22.4	26.7	27.8	21.0 28.8
1990	private	0.0	0.0	0.0	0.0	0.0	11.8	10.1	12.3	11.2	11.8	11.6	15.0	15.9	21.8	16.9	25.0	20.7	18.2	19.6	20.4	12.3 12.1
	public	35.8	48.2	59.7	38.4	30.4	18.5	19.3	7.5	7.4	2.7	5.6	4.7	4.7	7.1	12.8	9.3	5.2	3.6	4.7	6.1	7.0 16.1
COTE D'IVOIRE	total	26.5	25.9	23.2	18.4	11.7	13.0	12.1	12.3	12.7	8.9	6.7	7.4	6.9	8.3	12.5	13.5	12.1	14.4	13.3	13.1	10.6 13.5
1989	private	13.0	13.9	9.5	7.1	8.6	8.0	7.9	6.7	6.8	5.9	4.9	5.1	4.7	4.1	7.0	8.7	9.9	9.1	9.9	10.2	8.2 8.1
	public	11.4	10.5	12.2	10.6	4.4	3.7	3.9	5.1	4.7	4.4	3.6	3.4	3.8	3.7	4.1	4.2	4.9	5.4	6.0	4.2	2.8 5.6
GAMBIA	total	26.7	25.3	22.5	18.9	18.3	15.1	16.6	17.1	16.4	20.4	22.3	21.9	22.2	21.0	18.1	20.2	21.6	17.2	18.4	17.8	17.0 19.8
1986	private	..	9.7	9.0	6.7	4.2	3.7	9.0	10.3	10.4	14.0	14.9	14.2	14.4	13.5	11.1	10.2	8.6	9.3	13.2	13.1	13.2 10.6
	public	..	15.6	13.5	12.1	14.1	11.4	7.6	6.8	5.9	6.4	7.4	7.7	7.8	7.5	7.0	10.0	12.9	7.9	5.2	4.7	3.8 8.8
GHANA	total	5.6	4.6	3.4	3.7	6.9	9.6	9.4	10.4	11.3	13.2	14.4	15.9	12.8	22.2	24.0	20.0	29.2	24.8	23.1	21.0	23.7 14.7
1987	private	..	..	..	..	4.4	5.4	2.0	2.4	3.2	5.4	6.9	7.5	2.4	12.7	9.3	7.1	15.9	11.4	11.1	11.8	14.8 7.9
	public	..	..	..	..	2.5	4.2	7.3	7.9	8.0	7.8	7.5	8.3	10.3	11.1	13.3	14.0	13.3	12.4	11.3	9.8	9.2 9.3
KENYA	total	24.5	22.9	18.2	18.3	17.3	22.1	18.0	20.8	20.2	20.6	19.7	20.0	13.7	17.7	16.4	17.5	16.8	15.4	15.3	14.6	13.7 18.3
1991	private	8.2	8.6	7.1	8.8	7.4	7.1	7.9	9.1	7.2	7.5	6.8	7.7	6.2	8.9	7.5	9.7	9.2	8.1	9.4	9.3	8.5 8.1
	public	10.1	10.0	8.4	6.7	7.2	7.0	8.0	7.1	8.0	7.8	9.4	10.3	7.1	8.0	8.5	7.4	7.0	6.4	5.0	4.3	4.4 7.5
MADAGASCAR	total	15.0	11.5	8.5	8.4	8.6	8.5	9.0	10.1	13.3	13.4	17.0	8.2	11.2	11.4	10.9	10.9	11.6	12.8	14.8	14.9	15.0 11.7
1994	private	..	..	..	..	2.2	2.6	3.6	3.1	6.4	3.7	6.9	4.7	3.7	3.7	4.7	5.2	5.0	6.3	6.9	8.0	8.3 5.0
	public	..	..	..	..	6.4	6.0	5.4	7.0	6.9	9.7	7.9	6.0	7.5	7.8	6.2	5.8	6.7	6.5	7.9	6.9	6.7 6.9
MALAWI	total	24.7	17.6	21.4	22.8	12.9	18.6	12.5	17.3	21.4	24.6	23.0	20.2	19.9	15.2	29.1	17.0	11.6	12.2	13.5	14.8	12.5 18.2
1992	private	4.7	4.9	6.1	5.4	3.3	5.1	3.1	7.6	10.2	12.9	12.4	8.7	6.9	4.6	11.6	7.6	5.4	2.7	2.4	2.3	2.6 6.2
	public	17.5	10.2	8.4	8.3	9.8	8.3	9.2	7.8	7.9	7.3	7.7	8.3	10.2	8.4	15.1	9.4	6.1	7.1	8.7	10.6	10.0 9.3
MALI	total	15.5	16.0	16.3	12.1	12.3	15.8	20.7	20.7	21.3	21.7	23.0	22.8	21.9	21.8	27.3	22.9	22.9	20.6	20.9	21.2	22.6 20.0
1989	private	..	..	..	..	..	6.8	9.1	10.4	11.3	11.9	12.4	10.7	12.4	12.5	13.7	13.5	13.7	12.4	11.4	11.8	12.2 11.6
	public	..	..	..	..	..	9.0	11.6	10.3	10.1	9.8	10.5	12.1	9.5	9.3	13.7	9.4	9.2	8.2	9.5	9.4	10.4 10.1

TABLE 5.1: INVESTMENT RATES IN SUB-SAHARAN AFRICA (contd.)

	YEARS	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	ave.
MAURITIUS	total	25.4	23.0	21.3	17.6	19.7	22.6	22.4	23.7	28.3	30.8	30.7	29.3	28.9	30.0	30.9	28.8	25.3	27.2	27.6	26.0	25.7	26.0
1981	private	16.1	14.0	12.3	11.5	11.9	12.4	12.6	13.4	15.1	17.6	19.0	19.8	19.3	19.3	20.6	18.7	16.4	18.4	18.7	19.1	19.1	16.4
	public	8.1	8.4	7.3	6.4	6.0	5.8	6.5	7.1	9.7	9.3	9.3	9.6	8.9	8.5	8.2	8.4	8.6	7.6	6.2	6.3	6.5	7.8
NIGERIA	total	21.3	23.3	20.0	14.7	9.5	9.0	15.0	16.0	18.0	17.7	14.7	23.4	21.8	23.3	19.6	16.3	14.2	17.4	24.1	23.4	22.7	18.4
1987	private	..	..	..	..	5.2	3.9	3.6	7.3	7.2	8.3	3.8	12.0	8.3	12.5	16.0	11.1	8.9	10.3	12.8	13.0	12.9	9.2
	public	..	..	..	..	4.3	5.1	11.4	8.7	10.8	9.4	10.8	11.4	13.4	10.7	3.6	5.3	5.2	7.1	11.3	10.4	9.8	8.7
SENEGAL	total	11.7	12.8	12.2	12.8	12.8	10.5	11.4	12.5	12.7	11.9	13.8	12.9	14.8	14.1	18.6	16.7	18.5	18.0	18.6	19.0	19.8	14.6
1989	private	7.7	8.5	8.3	9.1	8.4	7.6	8.0	8.3	8.8	9.0	8.8	9.3	9.2	9.7	11.1	10.2	9.9	11.6	11.8	12.4	13.1	9.6
	public	5.5	4.2	3.9	4.0	4.0	3.9	4.0	4.1	3.9	4.2	4.1	4.6	5.2	4.2	5.0	4.4	6.4	6.4	6.5	6.6	6.7	4.8
SIERRA LEONE	total	16.2	19.1	13.4	14.3	12.7	10.9	10.6	10.2	5.9	8.3	10.0	9.3	8.3	7.7	7.8	5.2	10.0	-2.4	5.3	0.3	8.0	9.1
1991	private	9.5	11.7	7.1	8.1	8.5	6.7	5.7	6.3	3.9	5.7	5.7	4.1	3.6	2.4	3.8	2.8	6.7	-3.9	0.4	-2.1	2.8	4.7
	public	5.3	6.6	5.6	4.5	3.7	3.0	3.5	3.8	1.5	2.8	3.9	4.5	4.7	5.3	4.0	2.4	3.3	1.5	4.9	2.4	5.2	3.9
SOUTH AFRICA	total	23.4	28.6	23.5	18.5	19.9	15.0	13.7	13.3	16.2	16.5	11.8	11.9	12.0	14.0	15.6	18.2	16.9	16.0	15.4	14.5	14.8	16.6
1980	private	12.9	15.1	15.5	15.1	14.0	12.5	11.0	10.6	12.5	12.5	12.2	11.0	10.4	10.3	11.0	11.6	11.7	11.8	11.2	10.4	10.5	12.1
	public	13.0	12.4	12.0	11.0	9.9	10.3	8.6	7.2	6.9	7.7	7.0	6.1	5.2	4.4	4.1	4.3	4.4	4.5	5.4	4.7	4.1	7.3
UGANDA	total	6.2	5.6	9.1	7.4	8.1	8.7	8.4	9.7	10.8	11.1	12.7	15.2	15.9	15.2	14.7	16.4	16.1	16.8	16.2	19.4	19.8	12.6
1988	private	..	..	..	..	..	5.3	5.2	5.4	5.2	5.7	6.5	7.8	8.5	8.5	9.2	10.2	11.3	11.7	11.0	13.7	13.1	8.6
	public	..	..	..	..	..	3.4	3.2	4.3	5.6	5.4	6.2	7.4	7.4	6.7	5.4	5.4	5.3	5.4	4.7	5.5	6.4	5.5
ZAMBIA	total	23.3	19.3	16.8	13.8	14.7	14.9	23.8	12.7	11.1	10.8	17.3	11.0	11.9	15.0	8.2	16.0	12.8	14.6	16.4	17.6	18.7	15.3
1992	private	17.2	13.8	12.8	10.1	9.0	6.6	3.2	5.9	3.3	1.5	7.2	3.5	3.8	7.0	7.3	7.3	5.2	7.7	3.5	5.4	7.2	7.1
	public	4.0	3.7	4.4	4.6	3.6	3.6	7.5	3.0	4.4	5.1	6.2	7.8	6.7	4.5	4.0	5.1	6.0	5.4	11.3	10.6	10.0	5.8
ZIMBABWE	total	16.9	20.8	19.1	14.3	17.0	17.8	18.1	14.9	18.7	15.0	17.4	19.1	20.2	22.8	23.7	19.7	18.5	18.1	17.1	16.1	12.6	18.0
1993	private	12.3	15.2	14.6	13.6	13.3	12.2	13.0	13.6	12.5	10.8	14.8	17.1	18.6	19.9	18.3	21.7	15.7	15.3	15.7	10.8	12.4	14.8
	public	1.8	2.0	3.8	4.4	3.7	2.1	2.1	2.5	3.0	3.2	3.4	3.5	3.8	3.7	3.1	2.9	2.3	2.8	1.8	4.1	0.2	2.9

Disaggregating by country, however, there is a wide disparity in investment performance. While some countries such as Kenya, Mali, Senegal and South Africa have experienced fairly stable investment rates, others such as Botswana, Burundi, Madagascar, Malawi, Nigeria, and Zambia have had very volatile rates. Still others such as Mauritania and Sierra Leone have had a decreasing trend in their rates of investment while countries such as Ghana and Uganda have had an increasing trend.

Countries with private investment rates greater than public rates include Botswana, Cameroon, Mali, Mauritius, Senegal, South Africa, Uganda, and Zimbabwe. Those countries that have had higher public investment rates are Burundi, Ghana and Madagascar, while in countries such as Kenya, Malawi, and Nigeria the importance of private and public investment has fluctuated.

5.2.2. Financial Liberalisation and Investment in SSA

When we examine investment following financial liberalisation, we see from Tables 5.2 and 5.3 that private investment increased in 13 countries while it decreased in 5 of the countries. Total investment, on the other hand, increased in 7 of the countries and decreased in 10 countries. Considering the fact that most of the countries in our sample liberalised their financial systems in the mid-1980s and early 1990s, we see from Figure 5.2 that private investment increased during this period. Such preliminary evidence would suggest that financial liberalisation has been good for private investment.

TABLE 5.2: AVERAGE INVESTMENT RATIOS PRE- AND POST-LIBERALISATION

Country	Start of Major Financial Liberalisation	Period	Private Investment		Total Investment	
			Average pre-liberalisation (%)	Average post-liberalisation (%)	Average pre-liberalisation (%)	Average post-liberalisation (%)
Botswana	1989	1980-2000	29	14.8	30	28.3
Burundi	1986	1980-2000	2.1	2.4	16	13
Cameroon	1990	1980-2000	14	14.3	23.3	16.1
Congo Rep.	1990	1980-2000	6.3	18.6	31	26.4
Cote d'Ivoire	1989	1980-2000	8.7	7.4	16.5	10.8
Gambia	1986	1980-2000	7.1	12.2	20.5	19.4
Ghana	1987	1984-2000	3.5	9.7	6.7	20.4
Kenya	1991	1980-2000	7.8	8.5	20.2	15.7
Madagascar	1994	1984-2000	4.1	6.6	11	13.4
Malawi	1992	1980-2000	7	4.9	19.8	15.7
Mali	1989	1985-2000	9.9	12.4	17.2	22.5
Mauritius	1981	1980-2000	15.1	16.6	24.2	16.1
Nigeria	1987	1984-2000	5	10.6	16.1	19.8
Senegal	1989	1980-2000	8.4	10.6	12.1	16.8
Sierra Leone	1991	1980-2000	6.9	1.8	11.7	5.6
Uganda	1988	1980-2000	5.3	9.8	8.2	15.8
Zambia	1992	1980-2000	7.6	6.3	15.5	14.9
Zimbabwe	1993	1980-2000	14.4	15.7	18	18

TABLE 5.3: COUNTRIES WHERE INVESTMENT HAS INCREASED AND DECREASED

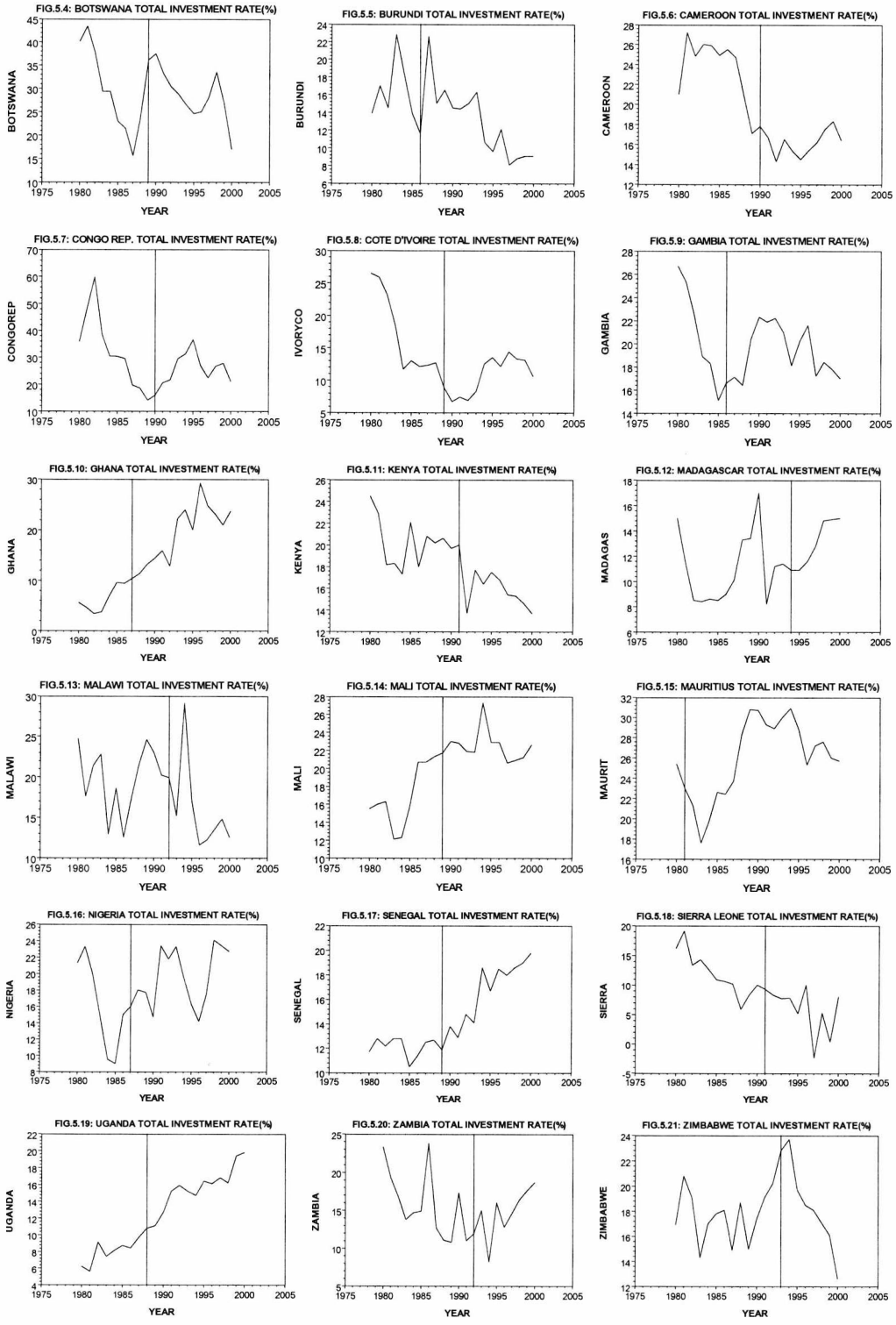
Private Investment Increased	Private Investment Decreased	Total Investment Increased	Total Investment Decreased
Burundi	Botswana	Ghana	Botswana
Cameroon	Cote d'Ivoire	Madagascar	Burundi
Congo Rep.	Malawi	Mali	Cameroon
Gambia	Sierra Leone	Mauritius	Congo Rep.
Ghana	Zambia	Nigeria	Cote d'Ivoire
Kenya		Senegal	Gambia
Mali		Uganda	Kenya
Madagascar			Malawi
Mauritius			Sierra Leone
Nigeria			Zambia
Senegal			
Uganda			
Zimbabwe			

However, despite the fact that private investment has increased following financial liberalisation, caution must be exercised in attaching too much significance to these investment rates since the share of investment in GDP is still low as against the level required for sustainable growth and development. We see from Table 5.1 that private investment has been extremely low in the countries in our sample. In fact it is only in two countries – Botswana and Mauritius - that the average private investment rate has been greater than 15 percent, and it is below 8 percent in six countries – Burundi, Ghana, Madagascar, Malawi, Sierra Leone, and Zambia. Total investment has not fared better. Sixteen countries had total investment rates below 20 percent and only Botswana, Congo, and Mauritius had total investment rates above 20 percent.

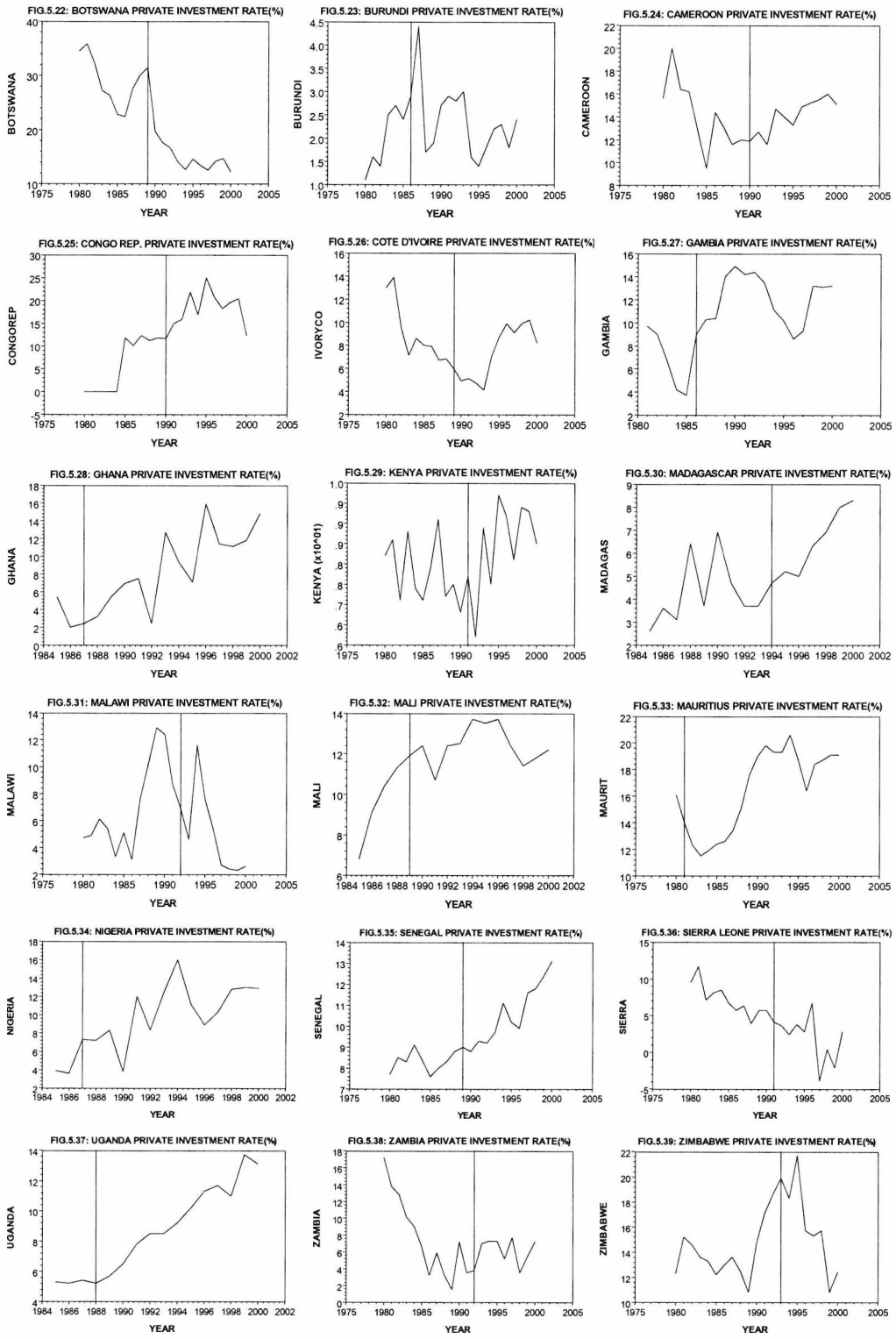
We have plotted the total investment ratios in Figures 5.4 to 5.21 and the private investment ratios in Figures 5.22 to 5.39 indicating the start date of major moves towards financial liberalisation.

We see from Figures 5.4 to 5.21 that total investment has been quite volatile in Burundi, Kenya, Malawi, Nigeria, Senegal, Sierra Leone, Zambia, and Zimbabwe. Total investment has experienced an increasing trend after liberalisation in Congo Republic, The Gambia, Ghana, Madagascar, Mali, Senegal, and Uganda; while it has been falling in Burundi, Cameroon, Kenya, Sierra Leone, and Zimbabwe. For other countries like Malawi, Nigeria, Zambia, Burundi the high volatility makes it difficult to pinpoint a specific direction of total investment after liberalisation.

Figures 5.4 – 5.22: Total Investment Rates



Figures 5.22 – 5.39: Private Investment Rates



From Figures 5.22 to 5.39 we see that private investment has displayed a clear increasing trend after liberalisation in Cameroon, Madagascar, Senegal, and Uganda, and has fallen in countries such as Botswana, and Sierra Leone. We see that for some countries such as Burundi, Mali, and Zimbabwe private investment experienced a sharp rise after liberalisation but thereafter fell; while in countries such as Congo Republic and The Gambia the rise in private investment lasted for a number of years before it fell. The opposite was the case in countries such as Cote d'Ivoire, Malawi, Mauritius, and Zimbabwe where private investment fell abruptly after liberalisation before increasing. It has been quite volatile in Ghana, Kenya, Nigeria, and Zambia.

5.3 A MODEL OF INVESTMENT

In this section we develop the model of investment that we will use to examine the impact of financial liberalisation on investment in SSA. The variables that are included in our model fall under five broad categories which are: financial, accelerator theory, macroeconomic policy, macroeconomic uncertainty, and political instability and institutions.

5.3.1 Financial Variables

The liberalisation of the financial sector is expected to increase the flow of investable resources to businesses. The evolution of financial intermediaries and subsequent financial development should reduce transactions costs and risks of investment and thereby increase investment.

The variables with which we propose to measure the impact of financial liberalisation are the same ones used in the previous chapter: two financial liberalisation indexes (FINDEX1 & FINDEX2), a shift dummy capturing the major move towards financial liberalisation (FINDUMMY), and the real rate of interest(RR).

The deregulation of interest rates has been a key feature of financial liberalisation policies. As discussed in the introduction, liberalising interest rates should encourage savings as a result of higher real rates of interest and consequently, bank credit will increase. Investment will then be expected to increase, although this analysis depends crucially on whether the real rate of interest is below or above the equilibrium rate. This is illustrated in Figure 5.40 where we see that if the real interest rate is below equilibrium (below r0), investment is constrained by savings, and as the real interest rate increases, increased savings is expected to increase investment. Both savings and investment move along the arrow on the SS curve and in this case investment will be positively related to the real interest rate. However, if the real interest rate is above equilibrium (above r0), investment is now on the negatively-sloped investment curve as seen by the direction of the arrow on the II curve, and investment will be negatively related to the real interest rate, other variables constant. This brings us to another criticism of the McKinnon and Shaw framework – it is not enough to deregulate interest rates but care must be taken to ensure that interest rates do not rise above equilibrium after financial liberalisation, or else, investment will fall and growth will be hampered.

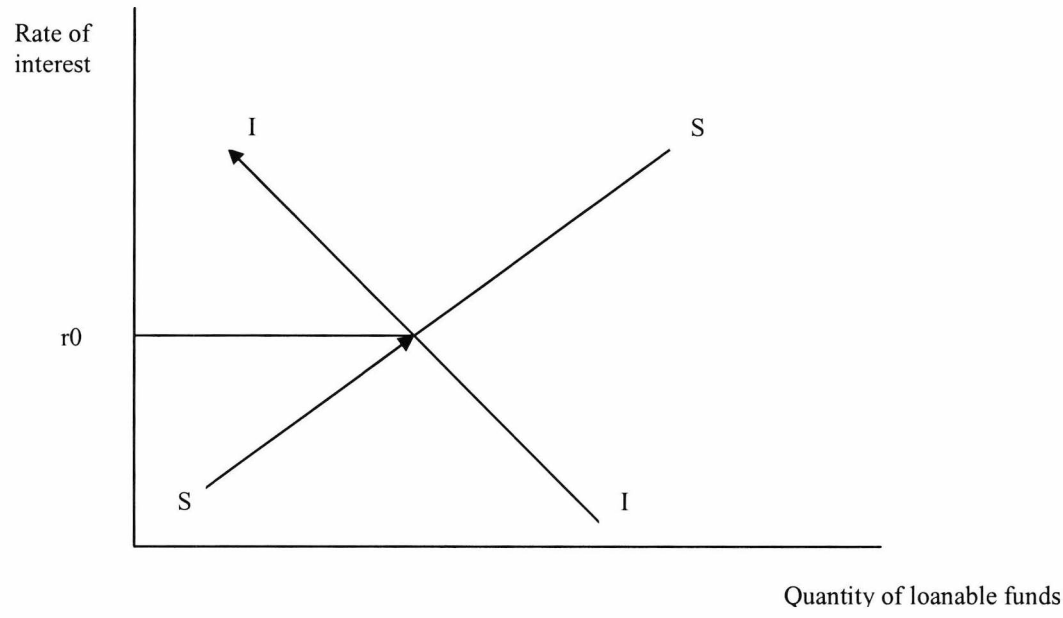


Fig. 5.40: Equilibrium Interest Rate

Source: Rittenberg (1991)

This means that we have to determine if investment is positively or negatively related to the real interest rate and in order to do this, we use a switching model so as to determine if the real interest rate is above or below equilibrium; and also to separate the positive and negative impact of the interest rate on investment (Hussain, Mohammed and Kameir, 2002, p.8). Following other studies into the relationship between investment and financial liberalisation (Rittenberg, 1991; Warman and Thirlwall, 1994; Hussain, Mohammed and Kameir, 2002; Agrawal, 2004) we create a dummy variable which is equal to one when the real rate of interest is above equilibrium and zero otherwise. When the real rate of interest is below equilibrium, the dummy variable will be zero and then it is expected that investment will increase as the real interest rate

increases. However, if the real interest rate is above equilibrium, it is expected that investment will fall as the real interest rate increases.

This gives an equation of the form:

$$INVESTMENT = \lambda_0 + \lambda_1 RR + \lambda_2 (RR - RRE)D + \lambda_n X_n \qquad (5.1)$$

where RR is the real rate of interest, RRE is the equilibrium rate of interest, D is the dummy variable that is one when RR>RRE and zero otherwise, and X are other factors affecting investment. This means that when the real interest rate is equal to or below equilibrium (RR $\leq$ RRE) equation 5.1 reduces to equation 5.1'. However, if the real interest rate is above equilibrium (RR > RRE) equation 5.1 stays the same. Thus it is important to determine the level of the real interest rate in relation to equilibrium if we are to arrive at the correct estimate of its impact on investment.

$$INVESTMENT = \lambda_0 + \lambda_1 RR + \lambda_n X_n \qquad (5.1)'$$

It is expected from financial liberalisation theory that the coefficient on RR will be positive and that on (RR-RRE) will be negative. Before we can proceed with our estimation, we need to determine the equilibrium rate of interest and we adopted a trial and error approach in searching for the value of the equilibrium interest rate. After trying different values of RRE from -12% to +12%, we chose the value of RRE which gave the smallest sum of squared residuals as the equilibrium interest rate (Warman and Thirlwall, 1994, p.639; Hussain, Mohammed and Kameir, 2002, p.10) and obtained a

value of -6% for the private investment equation and 9% for the total investment equation.[3]

5.3.2 The Accelerator Theory

Output growth has been the most consistent and significant determinant of investment found by other studies. The accelerator theory makes investment a function of changes in output. In this theory, planned investment is seen as brought about by changes in demand, and so changes in aggregate demand for consumer goods will cause changes in demand for capital goods. Thus if national income is growing investment will also grow, and a fall in national income will also cause a fall in investment. We measure output growth by the growth in GDP.

5.3.3 Macroeconomic Policy Variable

It is essential that the government provides a conducive environment for investment to take place. The variable we propose for measuring macroeconomic factors is public investment. The relationship between private and public investment is theoretically ambiguous. An increase in public investment can have either a positive or negative effect on private investment. On the one hand, public investment can raise private investment in a situation where resources are not fully employed. In such a case income would increase following an increase in public investment and this increased income would send positive signals to private investors that they can increase their profit margins by investing more. Also, if public investment is on the construction of

[3] The investment equations estimated included all the control variables as given in equations 5.5 and 5.9 below.

infrastructure facilities, then these facilities will reduce the cost of production, and thus public investment will be complementary to private investment.

On the other hand, however, public investment will be a substitute for private investment if it is financed through inflation or debt issues. Public investment can also be detrimental to private investment if the goods produced by the public sector compete directly with private sector produced goods. Thus, this crowding out of private investment by public investment makes them substitutes. The exact relationship between private and public investment can only be ascertained empirically.

5.3.4 Macroeconomic Uncertainty Variables

The irreversible nature of investment and its relationship with macroeconomic uncertainty has attracted considerable attention in the literature in recent years (Aizenmann and Marion, 1993; Serven, 1997, 1998). Because investment is irreversible, investors watch out for signs of uncertainty in the macroeconomic environment and if they perceive that the economy is too volatile or dangerous for investment, they will desist from investment. Consequently, the degree of instability and uncertainty in the economy sends out signals to investors and is an important determinant of investment behaviour. We propose three variables for measuring macroeconomic uncertainty and these are the volatility of inflation, the debt service ratio, and capital flight.

High rates of inflation send out a signal that the government is unable to manage the economy properly and is a sign of instability. There is also the possibility that the actions of the government in attempting to control inflation through contractionary

policies might depress demand and this would result in a fall in investment. Also, when inflation is volatile, it sends out the signal to investors that the macroeconomic environment is not stable. Investment therefore suffers when there is high volatility in inflation. We measure the volatility of inflation in each year with the standard deviation of the rate of inflation over the previous three years.

A government that is heavily indebted is constrained in its fiscal policy because it has to service its debt obligations. High indebtedness is thus another indicator of uncertainty and the higher this variable, the lower investment is expected to be. We measure the level of indebtedness by the debt service ratio.

Our third variable of macroeconomic uncertainty is capital flight. The World Bank (1985) adopts a broad definition of capital flight as the increase in the net foreign assets of the private sector. Various reasons have been given for why capital flight occurs. One reason could be that domestic residents in a bid to avoid capital loss as a result of currency devaluation choose to deposit their capital abroad. Capital flight could also occur as a result of financial repression where negative real interest rates and high financial intermediation costs cause residents to deposit their capital in better functioning and developed financial markets abroad. Measuring capital flight has proved to be a contentious issue. Ajayi (1997) identifies five different measures of capital flight. We use the broad measure of the World Bank (1985) which is called the residual measure. The residual approach measures capital flight as the residual of 'sources of funds' and 'uses of funds' from balance of payments statistics. The 'sources

of funds' are net foreign direct flows and the increase in external debt, and the 'uses of funds' are the current account deficit and the increase in official reserves.

5.3.5 Political Instability and Institutions Variable

To measure political instability we use a dummy to capture years in which there was significant armed conflict in the countries in our sample. We use the information provided by Gleditsch et al. (2002) who define armed conflict as 'a contested incompatibility that concerns government or territory or both where the use of armed force between two parties results in at least 25 battle-related deaths' (p.618). Armed conflict is further sub-divided into three categories: minor armed conflict, intermediate armed conflict, and war. We identify 38 cases of armed conflict for our sample period and there are 13 countries that have had cases of armed conflict. The countries are: Burundi, Cameroon, Congo Republic, Gambia, Ghana, Kenya, Mali, Mauritania, Senegal, Sierra Leone, South Africa, and Uganda. It is expected that investment will be negatively related to armed conflict as it causes both political and economic instability which are detrimental to investment.

North (1991) defines institutions as humanly devised constraints that structure political, economic and social interaction and they consist of formal rules such as constitutions and rules, and informal constraints such as taboos, customs, and codes of conduct (p.1). Institutions have been identified as important in influencing development (North, 1991; IMF, 2003; Rodrik, 2003; Acemoglu, Johnson, Robinson, 2004). The quality of institutions helps not only to stimulate investment, but also to enhance the efficiency of investment and consequently improve growth (Frances, 2004). This is achieved by the

ability of good institutions to enforce property rights and reduce rent-seeking behaviour. Law and Demetriades (2005) have also shown that good quality institutions improve financial development. We have used data on political rights and civil liberties from Freedom House to measure the quality of institutions in the countries in our study. Political rights and civil liberties are measured on a one-to-seven scale, with one representing the highest degree of freedom and seven the lowest. We constructed an average of these two indexes to arrive at our measure of institutions (INST) and a negative coefficient would imply that institutions have exerted a positive effect on investment.

5.4 ECONOMETRIC TESTS OF INVESTMENT BEHAVIOUR IN SUB-SAHARAN AFRICA

5.4.1. Methodology

The methodology employed in this chapter will be based on panel data econometrics as discussed in section 4.4.1 of the previous chapter.

5.4.2. Model Specification and Data

The econometric analysis of the effects of financial liberalisation on investment that will be carried out in this chapter will use the ratio of private investment to GDP and the ratio of total investment to GDP as the dependent variables.

We have an unbalanced panel with data ranging from 1980 to 2000. The sample period has been selected based on data availability. Specifically, we were unable to get private investment data prior to 1980 and this set the start period at 1980. Data sources are World Development Indicators (WDI) CD-ROM 2002, International Financial

Statistics (IFS) CD-ROM 2002, Global Development Finance (GDF) CD-ROM 2000, and the African Development Bank and all estimations are carried out using LIMDEP 7.0 (Greene, 1995). After smoothing the data using five-year non-overlapping averages we have 79 observations.

Based on the discussion in section 5.3 we have eleven explanatory variables. The variables that will be used in the private investment equation are: the real rate of interest, the switching dummy for equilibrium real interest rate, the two financial liberalisation indexes, the financial liberalisation dummy, GDP growth rate, the ratio of public investment to GDP, volatility of inflation, debt service ratio, capital flight, and the armed conflict dummy.

The variables included in the total investment equation are: the real rate of interest, the switching dummy for equilibrium real interest rate, the two financial liberalisation indexes, the financial liberalisation dummy, GDP growth, volatility of inflation, debt service ratio, capital flight, and the armed conflict dummy.

We have estimated four equations for each dependent variable and the equations to be estimated are as follows:

$$PRIVATE = \alpha_0 + \alpha_1 FINDEX1 + \alpha_2 GDPGROW + \alpha_3 PUBLIC + \alpha_4 VOLINFL + \alpha_5 DEBT + \alpha_6 CAPFLY + \alpha_7 ARMED + \alpha_8 INST + \varepsilon \quad (5.2)$$

$$PRIVATE = \beta_0 + \beta_1 FINDEX2 + \beta_2 GDPGROW + \beta_3 PUBLIC + \beta_4 VOLINFL + \beta_5 DEBT + \beta_6 CAPFLY + \beta_7 ARMED + \beta_8 INST + \nu \quad (5.3)$$

$$PRIVATE = \eta_0 + \eta_1 FINDUMMY + \eta_2 GDPGROW + \eta_3 PUBLIC + \eta_4 VOLINFL + \eta_5 DEBT + \eta_6 CAPFLY + \eta_7 ARMED + \eta_8 INST + \zeta \quad (5.4)$$

$$PRIVATE = \theta_0 + \theta_1 RR + \theta_2 (RR - RRE)D + \theta_3 GDPGROW + \theta_4 PUBLIC + \theta_5 VOLINFL + \theta_6 DEBT + \theta_7 CAPFLY + \theta_8 ARMED + \theta_9 INST + \xi \quad (5.5)$$

$$TOTAL = \sigma_0 + \sigma_1 FINDEX1 + \sigma_2 GDPGROW + \sigma_3 VOLINFL + \sigma_4 DEBT + \sigma_5 CAPFLY + \sigma_6 ARMED + \sigma_7 INST + \tau \quad (5.6)$$

$$TOTAL = \psi_0 + \psi_1 FINDEX2 + \psi_2 GDPGROW + \psi_3 VOLINFL + \psi_4 DEBT + \psi_5 CAPFLY + \psi_6 ARMED + \psi_7 INST + \mu \quad (5.7)$$

$$TOTAL = \varphi_0 + \varphi_1 FINDUMMY + \varphi_2 GDPGROW + \varphi_3 VOLINFL + \varphi_4 DEBT + \varphi_5 CAPFLY + \varphi_6 ARMED + \varpi_7 INST + \omega \quad (5.8)$$

$$TOTAL = \kappa_0 + \kappa_1 RR + \kappa_2 (RR - RRE)D + \kappa_3 GDPGROW + \kappa_4 VOLINFL + \kappa_5 DEBT + \kappa_6 CAPFLY + \kappa_7 ARMED + \kappa_8 INST + \vartheta \quad (5.9)$$

where PRIVATE = ratio of gross private investment to GDP

TOTAL = ratio of gross total investment to GDP

FINDEX1 = index of financial liberalisation derived from principal components

FINDEX2 = a second index of financial liberalisation

FINDUMMY = dummy for year of financial liberalisation

RR = real deposit rate of interest

RRE = equilibrium real rate of interest

D = dummy variable which takes on the value of 1 when RR>RRE and 0 otherwise

GDPGROW = growth rate of GDP

PUBLIC = ratio of public investment to GDP

VOLINFL = volatility of inflation

DEBT = debt service ratio

CAPFLY = ratio of capital flight to GDP

ARMED = a dummy variable for armed conflict

INST = a measure of institutions

5.4.3. Presentation and Discussion of Results

In this section we will present the results of our econometric tests of the impact of financial liberalisation and other variables on investment. We will first estimate using private investment as the dependent variable, and thereafter we will use total investment as the dependent variable.

5.4.3.1 Private Investment

The results of estimating the private investment equations are given in Table 5.4. Homeskedasticity tests showed the presence of heteroskedasticy and so, White's robust standard errors have been used in obtaining the t-ratios. The diagnostic statistics are presented in the bottom part of the table and we see that the model has produced a high R^2 of 0.82. This implies that our explanatory variables have done a good job of explaining the variation in the private investment ratios and they explain up to 82 percent of the variation in private investment. The F-test for fixed effects rejects the joint insignificance of the country-specific effects, thus, the fixed effects method is a

good technique for estimating this equation. There is also no evidence of autocorrelation.

We will first discuss the results for the primary variable of interest – financial liberalisation – before those of the control variables. Our results show no significant relationship between private investment and financial liberalisation. The first liberalisation index has a positive coefficient while the other proxies for liberalisation are negative. One possible reason for this could be because the financial liberalisation theory tends to overemphasise the importance of the deposit rate of interest while paying little attention to the lending rate. But decontrolling interest rates increases not only the deposit rate but also the lending rate and indeed in many cases, the lending interest rate increases by a larger proportion than the deposit rate. This has often resulted in a widening of the interest rate spread after liberalisation. An increase in lending interest rates cannot be good for investment as it increases the cost of obtaining credit. Another reason for this as noted by World Bank (1994a) is that lending to the public sector still accounts for a large percentage of total bank credit and this adversely affects private sector borrowing. In fact this is further corroborated by the negative coefficient on public investment which would imply that private and public investment are directly competing for credit. This result is different from what has been found in other studies; Oshikoya (1992, 1994) and Asante (2000) found positive and significant coefficients for public investment. The negative relationship could also be due to the fact that financial liberalisation did not remove the structural bottlenecks in the real

sectors of the economies of many SSA countries and the difficult conditions under which private companies were operating did not foster investment.

TABLE 5.4: PRIVATE INVESTMENT

	Dependent Variable : private investment/GDP ratio			
Explanatory Variables	**Equation 5.2 Fixed Effects**	**Equation 5.3 Fixed Effects**	**Equation 5.4 Fixed Effects**	**Equation 5.5 Fixed Effects**
findex1	0.01 (0.07)			
findex2		-0.1 (-0.48)		
findummy			-0.67 (-0.87)	
rr				-0.08 (-1.51)
(rr-rre)D§				0.06 (0.63)
gdpgrow	0.19 (1.6)	0.18 (1.64)	0.19 (1.72)***	0.22 (1.86)***
public	-0.49 (-7.57)*	-0.5 (-7.8)*	-0.5 (-8.04)*	-0.52 (-7.59)*
volinfl	-0.08 (-2.62)**	-0.08 (-2.69)*	-0.08 (-2.61)**	-0.12 (-2.59)**
debt	-0.07 (-1.93)***	-0.08 (-2.03)**	-0.08 (-1.97)***	-0.06 (-1.59)
capfly	-0.08 (-1.26)	-0.08 (-1.37)	-0.08 (-1.44)	-0.09 (-1.56)
armed	-0.94 (-0.66)	-0.65 (-0.46)	-0.39 (-0.27)	-0.74 (-0.54)
inst	-0.09 (-0.23)	-0.17 (-0.39)	-0.22 (-0.55)	-0.09 (-0.21)
	Diagnostic Statistics			
R^2	0.82	0.82	0.82	0.82
Fixed Effects F-Test	[0.0000]	[0.0000]	[0.0000]	[0.0000]
Serial Correlation	[0.6069]	[0.6326]	[0.6968]	[0.9235]
Number of Observations	79	79	79	79

Notes:

1. * indicates that a coeffcient is significant at the 1 percent level; ** significant at the 5 percent level; and *** significant at the 10 percent level
2. Figures in parenthesis ( ) are t-ratios; figures in [ ] are p-values
4. All coefficients have been rounded to 2 decimal places
5. Serial Correlation is a test of serial correlation in residuals and the null hypothesis is that $\rho = 0$. The test is $\chi 2$ distributed
6. t-ratios have been computed using White's heteroscedastic consistent standard errors.
7. Fixed Effects is a an F-test of the joint significance of country-specific effects and the null hypothesis is that all fixed effects are jointly equal to zero.

§rre= -6

The growth rate of GDP has a positive coefficient in all equations and is statistically significant in equations 5.4 and 5.5. This result is as expected from the accelerator theory and private investment is positively related to income growth. The coefficient

implies that a 10 percentage point increase in income growth has been associated on the average, with a 2 percentage point increase in private investment. Macroeconomic uncertainty and instability as proxied by the volatility of inflation and the debt service ratio are negative. Inflation volatility is significant in all equations while the debt service ratio is significant in equations 5.2 to 5.4, implying that private investment has had a negative relationship with macroeconomic uncertainty and instability. Thus the irreversible nature of investment deters investors from undertaking investment in the face of uncertainty and instability in the economy. Capital flight, the armed conflict dummy, and institutions are negative, but insignificant.

We have estimated standardised regressions to produce beta coefficients so that direct comparison of the coefficients can be made. The results of the standardised regressions are presented in Table 5.5 and we see that public investment has had the greatest impact on private investment with a beta coefficient of -0.47 meaning that increasing the debt service ratio by 1 standard deviation has on the average led to a fall in private investment of 0.47 standard deviations. Inflation volatility with a beta coefficient of -0.19 implies that a 1 standard deviation increase in the volatility of inflation has decreased private investment by 0.19 standard deviation units. This followed by the debt service ratio with a coefficient of -0.17, and income growth is the only variable with a positive coefficient of 0.12.

TABLE 5.5: STANDARDISED REGRESSIONS

	Dependent Variable : private investment/GDP ratio		
Explanatory Variables	**Equation 5.2**	**Equation 5.3**	**Equation 5.4**
public	-0.46	-0.47	-0.47
volinfl	-0.16	-0.19	-0.19
debt	-0.16	-0.17	-0.17
gdpgrow			0.12

Sensitivity analyses are carried out in Table 5.6 to check the robustness of the private investment equations to changes in their specification and we see that the results are largely unchanged from those in Table 5.4. In the first part of the table, we omit the growth rate of GDP and we see that the coefficients of all the financial liberalisation proxies are of similar sizes, and are still insignificant. All the other variables too are similar in size and significance level to those in Table 5.4 with the only significant variables being public investment, inflation volatility, and debt. In the second part of the table, we include the ratio of credit provided by banks to the private sector to GDP, and all financial liberalisation proxies are still insignificant. Again, the only significant variables are public investment, volatility of inflation, and the debt service ratio. We also included the rate of inflation instead of the volatility of inflation and the results were still unchanged. We can therefore be confident in the robustness of our analysis of the impact of financial liberalisation on private investment.

TABLE 5.6: PRIVATE INVESTMENT

(a) excluding GDP growth rate				
	Dependent Variable : private investment/GDP ratio			
Explanatory Variables	**Equation 5.2 Fixed Effects**	**Equation 5.3 Fixed Effects**	**Equation 5.4 Fixed Effects**	**Equation 5.5 Fixed Effects**
findex1	0.004 (0.02)			
findex2		-0.11 (-0.49)		
findummy			-0.64 (-0.79)	
rr				-0.04 (-0.85)
(rr-rre)D§				-0.004 (-0.05)
public	-0.46 (-9.1)*	-0.47 (-9.34)*	-0.47 (-9.76)*	-0.48 (-8.55)*
volinfl	-0.09 (-3.07)*	-0.09 (-3.13)*	-0.09 (-3.04)*	-0.12 (-2.52)**
debt	-0.09 (-2.47)**	-0.09 (-2.59)**	-0.09 (-2.5)**	-0.09 (-2.37)**
capfly	-0.06 (-1.01)	-0.07 (-1.1)	-0.07 (-1.16)	-0.07 (-1.19)
armed	-1.35 (-0.89)	-1.07 (-0.69)	-0.86 (-0.55)	-1.37 (-0.97)
inst	-0.12 (-0.29)	-0.19 (-0.46)	-0.24 (-0.59)	-0.1 (-0.26)
R^2	0.81	0.81	0.81	0.81
(b) including ratio of private sector credit/GDP				
findex1	0.03 (0.14)			
findex2		-0.08 (-0.38)		
findummy			-0.58 (-0.73)	
rr				-0.08 (-1.48)
(rr-rre)D§				0.05 (0.56)
gdpgrow	0.19 (1.57)	0.19 (1.62)	0.19 (1.69)***	0.22 (1.84)***
public	-0.51 (-7.67)*	-0.51 (-7.89)*	-0.51 (-8.14)*	-0.52 (-7.78)*
privcre	0.04 (0.79)	0.03 (0.7)	0.03 (0.55)	0.04 (0.78)
volinfl	-0.07 (-2.33)**	-0.08 (-2.42)**	-0.08 (-2.39)**	-0.11 (-2.42)**
debt	-0.08 (-2.08)**	-0.08 (-2.13)**	-0.08 (-2.02)**	-0.07 (-1.77)***
capfly	-0.08 (-1.24)	-0.08 (-1.35)	-0.08 (-1.39)	-0.09 (-1.55)
armed	-0.79 (-0.55)	-0.53 (-0.37)	-0.32 (-0.22)	-0.56 (-0.39)
inst	-0.06 (-0.15)	-0.13 (-0.32)	-0.19 (-0.46)	-0.06 (-0.16)
R^2	0.82	0.82	0.82	0.82

Notes:

1. * indicates that a coeffcient is significant at the 1 percent level; ** significant at the 5 percent level; and *** significant at the 10 percent level

2. Figures in parenthesis ( ) are t-ratios; figures in [ ] are p-values

5.4.3.2 Total Investment

Table 5.7 contains the regression results for total investment. Just like the results for private investment in Table 5.4 the proxies for liberalisation are negative. The difference in this case is that with the exception of the first liberalisation index, all other liberalisation proxies are statistically significant. The results for the liberalisation proxies vary in magnitude. For the dummy of liberalisation, the coefficient implies that financial liberalisation has reduced total investment by 1.7 percentage points; while a 10 percentage point increase in the real interest rate has led to a 1.5 percentage fall in total investment. Most of our discussions for the private investment equations apply here and we do not embark on a repetition here. Suffice to say that as discussed earlier, higher lending interest rates might be responsible for this negative relationship between investment and financial liberalisation. Another reason for this negative relationship could be due to the fact that financial reforms were implemented as part of structural adjustment programmes (SAPs) in many countries and most SAPs included fiscal contractionary measures aimed at reducing domestic demand while encouraging export promotion so as to correct the lopsided external account balance. This often resulted in currency devaluations and a reduction in imports of both goods for consumption and production (inputs) thereby reducing investment. Financial liberalisation could also reduce investment if increased real interest rates following financial liberalisation could increase borrowing for consumption thereby crowding out borrowing for productive investment, a situation called distress borrowing by Fry (1998, p.14).

The accelerator theory is supported for total investment because the coefficient on income growth is positive and statistically significant in all equations. The coefficients in the total investment equations are higher than those for private investment by as much as 0.24 percentage points. The highest coefficient is 0.46 which implies that a 10 percentage point increase in income growth has, on average, increased total investment by 4.6 percentage points. As expected, all the variables measuring instability and uncertainty are negative implying that total investment is negatively related to both macroeconomic and political instability. However, only the volatility of inflation is statistically significant.

TABLE 5.7: TOTAL INVESTMENT

	Dependent Variable : total investment/GDP ratio			
Explanatory Variables	**Equation 5.6 Fixed Effects**	**Equation 5.7 Fixed Effects**	**Equation 5.8 Fixed Effects**	**Equation 5.9 Fixed Effects**
findex1	-0.33 (-1.44)			
findex2		-0.48 (-1.96)***		
findummy			-1.73 (-1.9)***	
rr				-0.15 (-2.57)**
(rr-rre)D§				-0.47 (-0.78)
gdpgrow	0.44 (2.37)**	0.43 (2.42)**	0.45 (2.52)**	0.46 (3.07)*
volinfl	-0.11 (-2.69)*	-0.12 (-2.81)*	-0.11 (-2.58)**	-0.19 (-3.42)*
debt	-0.07 (-1.32)	-0.07 (-1.35)	-0.06 (-1.15)	-0.04 (-0.73)
capfly	-0.09 (-1.46)	-0.09 (-1.47)	-0.09 (-1.59)	-0.09 (-1.65)
armed	-0.03 (-0.12)	0.17 (0.09)	0.31 (0.17)	-1.02 (-0.56)
inst	-0.14 (-0.25)	-0.24 (-0.44)	-0.26 (-0.47)	0.15 (0.31)
	Diagnostic Statistics			
R^2	0.76	0.76	0.76	0.78
Fixed Effects F-Test	[0.0000]	[0.0000]	[0.0000]	[0.0000]
Serial Correlation	[0.5573]	[0.4711]	[0.4083]	[0.4387]
Number of Observations	79	79	79	79

Notes:

1. * indicates that a coeffcient is significant at the 1 percent level; ** significant at the 5 percent level; and *** significant at the 10 percent level
2. Figures in parenthesis ( ) are t-ratios; figures in [ ] are p-values
4. All coefficients have been rounded to 2 decimal places
5. Serial Correlation is a test of serial correlation in residuals and the null hypothesis is that $\rho = 0$. The test is $\chi 2$ distributed
6. t-ratios have been computed using White's heteroscedastic consistent standard errors.
7. Fixed Effects is a an F-test of the joint significance of country-specific effects and the null hypothesis is that all fixed effects are jointly equal to zero.

§rre= 9

Standardised regressions for total investment are presented in Table 5.8 and we see that GDP growth has had the highest impact on total investment with a beta coefficient of 0.24. This is in contrast to a value of 0.12 obtained for private investment. The volatility of inflation has beta coefficients ranging between -0.22 and -0.25 while the dummy for liberalisation has a beta coefficient of -0.13.

TABLE 5.8: STANDARDISED REGRESSIONS

	Dependent Variable : total investment/GDP ratio		
Explanatory Variables	**Equation 5.6**	**Equation 5.7**	**Equation 5.8**
gdpgrow	0.24	0.24	0.24
volinfl	-0.23	-0.25	-0.22
findex2		-0.14	
findummy			-0.13

Table 5.9 contains the results of robustness checks conducted for the total investment equations. When we exclude the GDP growth rate the results for financial liberalisation are unchanged from those in Table 5.7 and all liberalisation proxies are similar in size, negative, and findex2, findummy, and the real rate of interest are significant. The only difference with the results from Table 5.7 is that the debt service ratio is now significant in equations 5.6 to 5.8. The results are largely unchanged when we include the ratio of credit provided by banks in the second part of the table and total investment still has a negative relationship with financial liberalisation, implying that our results are robust.

TABLE 5.9: TOTAL INVESTMENT

(a) excluding GDP growth rate				
	Dependent Variable : total investment/GDP ratio			
Explanatory Variables	**Equation 5.6 Fixed Effects**	**Equation 5.7 Fixed Effects**	**Equation 5.8 Fixed Effects**	**Equation 5.9 Fixed Effects**
findex1	-0.37 (-1.5)			
findex2		-0.53 (-2.05)**		
findummy			-1.73 (-1.8)***	
rr				-0.12 (-2.03)**
(rr-rre)D§				-1.09 (-1.16)
volinfl	-0.14 (-3.47)*	-0.15 (-3.56)*	-0.14 (-3.29)*	-0.21 (-3.45)*
debt	-0.12 (-1.91)***	-0.12 (-1.93)***	-0.1 (-1.71)***	-0.08 (-1.29)
capfly	-0.06 (-0.89)	-0.06 (-0.91)	-0.07 (-0.99)	-0.06 (-0.91)
armed	-1.25 (-0.59)	-1.03 (-0.49)	-1.06 (-0.49)	-2.59 (-1.19)
inst	-0.19 (-0.34)	-0.29 (-0.53)	-0.28 (-0.51)	0.17 (0.32)
R^2	0.72	0.73	0.72	0.74
(b) including ratio of credit provided by banks/GDP				
findex1	-0.32 (-1.28)			
findex2		-0.5 (-1.88)***		
findummy			-1.9 (-1.84)***	
rr				-0.15 (-2.39)**
(rr-rre)D§				-0.47 (-0.78)
gdpgrow	0.44 (2.37)**	0.43 (2.44)**	0.45 (2.56)**	0.46 (3.09)*
bankcre	0.001 (0.03)	-0.01 (-0.16)	-0.01 (-0.31)	-0.0002 (-0.01)
volinfl	-0.11 (-2.75)*	-0.12 (-2.88)*	-0.11 (-2.63)**	-0.19 (-3.31)*
debt	-0.08 (-1.24)	-0.07 (-1.19)	-0.06 (-0.91)	-0.04 (-0.65)
capfly	-0.09 (-1.35)	-0.09 (-1.41)	-0.1 (-1.54)	-0.09 (-1.58)
armed	-0.04 (-0.02)	0.19 (0.11)	0.39 (0.22)	-1.02 (-0.56)
inst	-0.14 (-0.25)	-0.25 (-0.45)	-0.28 (-0.51)	0.15 (0.31)
R^2	0.76	0.76	0.76	0.78

Notes:

1. * indicates that a coeffcient is significant at the 1 percent level; ** significant at the 5 percent level; and *** significant at the 10 percent level

2. Figures in parenthesis ( ) are t-ratios; figures in [ ] are p-values

5.5 CONCLUSION

In this chapter we have conducted an empirical analysis into the impact of financial liberalisation in investment in SSA. We deviated from previous research into the effect of financial liberalisation by using indexes that measure the gradual progression with different financial liberalisation policies.

Our results show a negative relationship between investment and financial liberalisation thereby offering no support for the financial liberalisation hypothesis. The reasons for this negative relationship are varied and range from the fact that financial liberalisation has increased lending interest rates thereby increasing the cost of loanable funds; to the fact that financial liberalisation is a component of structural adjustment programmes which aim to reduce domestic demand while cutting fiscal expenditure and this causes investment to fall.

We also found evidence supporting the accelerator theory and the detrimental effects of macroeconomic uncertainty on investment.

In the next chapter we will conduct econometric tests of the impact of financial liberalisation on economic growth. It is possible that even though financial liberalisation has not improved the quantity of investment, it could still have improved the quality of investment thereby increasing growth. We will test such an impact by including our financial liberalisation indexes in growth equations.

APPENDIX5A

Series: Gross capital formation (% of GDP) (NE.GDI.TOTL.ZS)
Gross capital formation (formerly gross domestic investment) consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales, and "work in progress." According to the 1993 SNA, net acquisitions of valuables are also considered capital formation.

Series: GDP growth (annual %) (NY.GDP.MKTP.KD.ZG)
Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 1995 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.

Series: Debt service (TDS)/Exports of goods and services (XGS) (%) (DT.TDS.DECT.EX.ZS)
Total debt service to exports of goods and services (including workers' remittances).
(TDS/XGS), also called the debt service ratio.

Series: Deposit interest rate (%) (FR.INR.DPST)
Deposit interest rate is the rate paid by commercial or similar banks for demand, time, or savings deposits.

Series: Inflation, consumer prices (annual %) (FP.CPI.TOTL.ZG)
Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a fixed basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used.

Series: Foreign direct investment, net (BoP, current US$) (BN.KLT.DINV.CD)
Foreign direct investment is net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows total net, that is, net FDI in the reporting economy less net FDI by the reporting economy. Data are in current U.S. dollars.

Series: Current account balance (BoP, current US$) (BN.CAB.XOKA.CD) Current account balance is the sum of net exports of goods, services, net income, and net current transfers. Data are in current U.S. dollars.

Series: Long-term debt (DOD, current US$) (DT.DOD.DLXF.CD)
Long-term debt is debt that has an original or extended maturity of more than one year. It has three components: public, publicly guaranteed, and private nonguaranteed debt. Data are in current U.S. dollars.

Series: International reserves (RES) (US$) (FI.RES.TOTL.CD) International reserves (RES) are the sum of a country's monetary authorities holdings of special drawing rights (SDRs), its reserve position in the IMF, its holdings of foreign exchange, and its holdings of gold (valued at year-end London prices). Data on international reserves are drawn mainly from the files of the IMF, complemented by World Bank staff estimates.

5A.1: DESCRIPTIVE STATISTICS

Variables	Mean	Standard Deviation	Minimum	Maximum	Observations
PRIVATE	10.15	5.46	0	31.21	83
TOTAL	18.08	6.38	4.24	42.49	83
FINDEX1	-0.004	1.83	-3.43	2.71	83
FINDEX2	2.51	1.81	0	5	83
RR	-3.39	10.83	-55.39	13.83	83
GDPGROW	2.92	3.49	-10.06	14.34	83
PUBLIC	7.43	5.05	-4.73	42.49	83
VOLINFL	10.97	13.2	0.61	67.14	83
DEBT	23.59	12.24	2.08	62.83	81
CAPFLY	0.64	10.17	-28.69	37.35	79
INST	4.58	1.47	1.5	6.5	83

PRIVATE = ratio of gross private investment to GDP (%)
TOTAL = ratio of gross domestic investment to GDP (%)
FINDEX1 = first index of financial liberalisation derived from principal components
FINDEX2 = second index of financial liberalisation
RR = real deposit rate of interest
GDPGROW = growth rate of real GDP (%)
PUBLIC = ratio of gross public investment to GDP(%)
VOLINFL = volatility of inflation
DEBT = debt service ratio (%)
CAPFLY = ratio of capital flight to GDP (%)
INST=a measure of institutions
Notes: real interest rates calculated using the formula: (((1+R)/(1+INF))-1)*100
where R=nominal interest rates, INF=inflation rate and R and INF are expressed as proportions

	5A.2 DERIVATION OF ARMED CONFLICT DUMMY						
Location	**Side_A**	**Side_B**	**Territory**	**Begin**	**End**	**Type**	**Startdate**
South Africa	South Africa	SWAPO	Namibia	1980	1983	3	26/08/1966
Gambia	Gambia	SRLP		1981	1981	3	29/11/1981
Ghana	Ghana	Military faction		1981	1981	3	31/12/1981
South Africa	South Africa	ANC, PAC, Azapo		1981	1988	3	01/01/1976
Uganda	Uganda	NRA, UFM, UPM, UNRF, UFDM, UPF, UPDA, UPC, UNLA, FOBA, HSM		1981	1988	3	01/10/1980
Kenya	Kenya	Military faction		1982	1982	3	01/08/1982
Chad - Nigeria	Chad	Nigeria	Lake Chad	1983	1983	2	01/04/1983
Ghana	Ghana	Military faction		1983	1983	3	24/02/1966
Cameroon	Cameroon	Military faction		1984	1984	3	06/04/1984
South Africa	South Africa	SWAPO	Namibia	1984	1985	3	26/08/1966
South Africa	South Africa	SWAPO	Namibia	1986	1988	3	26/08/1966
South Africa	South Africa	ANC, PAC, Azapo		1989	1993	3	01/01/1976
Uganda	Uganda	Faction of UPDA, UPA, HSM, UDCM, UPDCA		1989	1989	3	01/01/1989
Burundi	Burundi	Ubumwé, Palipehutu, CNDD, Frolina, CNDD-FDD		1990	1992	3	13/08/1990
Mali	Mali	MPA	Air and Azawad	1990	1990	3	01/06/1990
Senegal	Senegal	MFDC	Casamance	1990	1990	3	01/01/1983
Uganda	Uganda	Faction of UPDA, UPA, HSM, UDCM, UPDCA		1990	1990	3	01/01/1989
Sierra Leone	Sierra Leone	RUF, AFRC, ECOMOG, Kamajors		1991	1993	3	23/03/1991
Uganda	Uganda	Faction of UPDA, UPA, HSM, UDCM, UPDCA		1991	1991	3	01/01/1989
Senegal	Senegal	MFDC	Casamance	1992	1993	3	01/01/1983
Mali	Mali	FIAA	Air and Azawad	1994	1994	3	01/06/1990
Sierra Leone	Sierra Leone	RUF, AFRC, ECOMOG, Kamajors		1994	1997	3	23/03/1991
Uganda	Uganda	LRA, WNBF, ADF		1994	1995	3	01/01/1994
Burundi	Burundi	Ubumwé, Palipehutu, CNDD, Frolina, CNDD-FDD		1995	1996	3	01/09/1994
Senegal	Senegal	MFDC	Casamance	1995	1995	3	01/01/1983
Cameroon - Nigeria	Cameroon	Nigeria	Bakassi	1996	1996	2	18/02/1994
Uganda	Uganda	LRA, WNBF, ADF		1996	2002	3	01/01/1994
Burundi	Burundi	Ubumwé, Palipehutu, CNDD, Frolina, CNDD-FDD		1997	1997	3	01/09/1994
Congo-Brazzaville	Congo-Brazzaville	FDU, Angola		1997	1997	4	05/06/1997
Senegal	Senegal	MFDC	Casamance	1997	2001	3	01/01/1983
Burundi	Burundi	Ubumwé, Palipehutu, CNDD, Frolina, CNDD-FDD		1998	1998	3	01/09/1994
Congo-Brazzaville	Congo-Brazzaville, Angola, Chad	Ninjas, Cobras, Cocoyes, Ntsiloulous		1998	1998	4	14/12/1998
Sierra Leone	Sierra Leone	RUF, AFRC, ECOMOG, Kamajors		1998	1999	3	23/03/1991
Burundi	Burundi	Ubumwé, Palipehutu, CNDD, Frolina, CNDD-FDD		1999	1999	3	01/09/1994
Burundi	Burundi	Ubumwé, Palipehutu, CNDD, Frolina, CNDD-FDD		2000	2002	3	01/09/1994
Sierra Leone	Sierra Leone, United Kingdom	RUF, AFRC, ECOMOG, Kamajors		2000	2000	4	23/03/1991
Ivory Coast	Ivory Coast	MPCI,MJP,MPIGO		2002	2002	3	19/09/2002
Congo-Brazzaville	Congo-Brazzaville, Angola	Ninjas, Cobras, Cocoyes, Ntsiloulous		2002	2002	4	14/12/1998
Congo-Brazzaville	Congo-Brazzaville, Angola, Chad	Ninjas, Cobras, Cocoyes, Ntsiloulous		1999	1999	4	14/12/1998
Congo-Brazzaville	Congo-Brazzaville	FDU		1993	1994	3	05/06/1997

Notes:

Side_A: identifying the country/countries of side A in a conflict. Always the government side in civil wars.

Side_B: identifying the names and/or country/countries of side B in a conflict. In a civil conflict, this includes military opposition organisation.

Territory: the name of the territoty over which the conflict is fought, provided that the incompatibility is territorial.

Begin: start year of observation

End: end year of observation

Type: four different types of conflict (interstate, extrastate, internal, internationalized internal)

Startdate: the date, as precise as possible, of the first violent action of the conflict resulting in death.

Source: Gleditsch et. al. (2002)

CHAPTER SIX: THE IMPACT OF FINANCIAL LIBERALISATION ON ECONOMIC GROWTH[1]

6.1 INTRODUCTION

The results of the econometric tests conducted in the previous chapter showed a negative relationship between investment and financial liberalisation. Thus, financial liberalisation cannot improve economic growth through the investment quantity channel. However, growth could still be enhanced if financial liberalisation has been able to increase the quality of investment. Financial repression causes inefficient allocation of credit as low yielding and 'safe' projects are financed thereby rationing out high yielding investments. With financial liberalisation such an inefficient allocation can stop. Referring back to Figure 2.1 financial liberalisation increases the quantity of savings and investment rightwards towards I* and this increases the efficiency of investment because the low yielding investments undertaken before (represented by the dotted area) are now rationed out and only high yielding investments are undertaken. This is further outlined by the analysis of Galbis (1977) presented in section 2.2 where interest rate deregulation increases bank deposits, which increases the amount of credit flowing to a more efficient sector thus increasing the quality of investment. Fry (1998, p.10) also shows that financial liberalisation can improve investment quality even if it has not improved savings and investment quantity. This could happen if illegal capital flight (arsing from underinvoicing exports and overinvoicing imports) results in an over-estimation of current account deficit,

[1] All references to economic growth in this chapter relate to the annual growth rate of real GDP.

which causes a fall in national saving (since national saving is derived as the difference between domestic investment and current account deficits). In such a case financial liberalisation might not raise savings or the volume of investment, but increase the efficiency of investment.

The argument presented above is also closely linked with the emphasis that the endogenous growth theories place on the importance of financial intermediaries in stimulating growth. By monitoring borrowers and evaluating alternative investment opportunities; and also by providing financial instruments that make it possible for pooling and limiting risk; financial intermediaries increase the efficiency of resource use. We also saw from Figure 2.2 on page 28 that the presence of financial intermediaries reduces transactions costs, increases the amount of credit, and also increases the returns to depositors. All these serve to increase the efficiency with which investment is allocated.

The fact that liberalisation can increase investment efficiency as outlined above makes it necessary to examine how economic growth has been affected by financial liberalisation. It is therefore necessary to conduct econometric tests of the impact of financial liberalisation on economic growth.

Examining financial liberalisation in a growth model for SSA is not new. As we saw from section 2.3.3 some studies have tried to include financial development in various growth equations for countries in SSA. Seck and El Nil (1993) use the real rate of interest to measure financial liberalisation; while Allen and Ndikumana (2000) use four financial development indicators; and both studies find a positive relationship between

growth and financial development. A major problem of these studies as outlined in chapter two is that they fail to take into account the gradual progression of financial liberalisation measures. A proper analysis of the impact of financial liberalisation needs to make provision for the different liberalisation policies and varying speed of reforms. Our analysis takes account of these by using the two indexes of financial liberalisation.

Other studies like Ogun (1986) use cross section analysis to estimate the correlation between economic growth and financial deepening for a group of 20 countries. We have already examined the deficiencies of cross section analysis in section 4.4.1 and we improve on this study by applying panel data to a group of 19 countries in SSA.

We proceed in this chapter by first discussing economic growth in the countries in our sample. We examine SSA growth in relation to growth in other developing regions and review some of the factors identified as responsible for the low growth rates in the region. In the next section we examine the relationship between financial liberalisation and economic growth by looking at economic growth following financial liberalisation in the countries in our sample. We present our growth equation and the results of the econometric tests in the fourth section and the final section concludes.

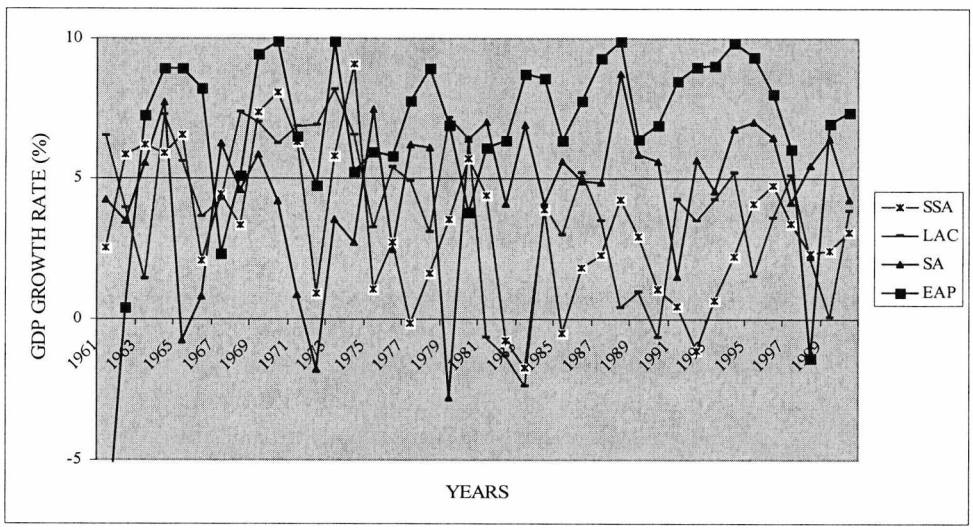
6.2 ECONOMIC GROWTH IN SSA

6.2.1 Post-Independence Growth

Economic growth in Sub-Saharan Africa has continued to mystify growth economists from the mid-1980s to date. SSA has been the only region in the developing world to

'stagnate', and growth rates have been, by and large, poor. Average GDP growth rate from 1961 to 2000 was 3.2% for SSA while it was 3.9% for LAC, 4.6% for SA, and 6.7% for EAP. We see from figure 5.1 that while SSA had comparable growth rates with LAC and SA in the 1960s, SSA's growth rates declined sharply in the 1970s and never really rose to the pre-1970 level again. GDP growth has mainly been fluctuating below 3% since then. Although SA also experienced a sharp fall in growth rates in the 1970s, growth picked up in the 1980s and fluctuated more around the 5% rate. EAP, on the other hand, has consistently had growth rates above 6% for the past four decades. This was only punctuated by a negative rate in 1998 as a result of the Asian financial crisis.

FIG 6.1 GROWTH RATES ACROSS REGIONS



Source: World Development Indicators (WDI) CD-ROM 2002

TABLE 6.1: REAL GDP GROWTH RATES (%)

Years	Botswana	Burundi	Cameroon	Congo, Rep.	Cote d'Ivoire	Gambia	Ghana	Kenya	Madagascar	Malawi	Mali	Mauritius	Nigeria	Senegal	Sierra Leone	South Africa	Uganda	Zambia	Zimbabwe	
1970	17.12	21.33	3.09	6.36	10.38	6.15	9.72	-4.66	5.28	0.48	6.14	-0.40	25.01	8.56	8.62	7.25	..	4.80	22.57	
1971	25.82	2.75	3.48	7.75	9.46	-0.07	5.22	22.17	3.93	16.22	2.57	4.27	14.24	-0.14	3.47	5.47	..	-0.09	8.92	
1972	26.36	-6.40	2.67	8.62	4.24	0.24	-2.49	17.08	-1.27	6.23	5.84	8.35	3.36	6.38	0.90	-1.05	..	9.21	8.33	
1973	21.30	6.89	5.36	8.23	5.94	9.25	2.88	5.90	-2.62	2.30	-1.46	11.98	5.39	-5.58	2.26	7.45	..	-0.96	2.60	
1974	8.80	-0.73	10.73	7.89	4.33	5.88	6.85	4.07	2.01	7.18	-1.53	8.81	11.16	4.20	3.50	10.00	..	6.43	6.63	
1975	8.88	0.70	11.25	7.73	8.25	12.39	-12.43	0.88	1.26	6.09	11.63	0.91	-5.23	7.54	1.67	1.26	..	-2.27	-1.93	
1976	10.60	7.94	-5.50	0.92	12.92	7.35	-3.53	2.15	-3.07	5.00	13.62	23.75	9.04	8.92	-0.45	-0.04	..	6.22	0.46	
1977	11.65	11.47	13.74	-8.95	7.31	3.44	2.27	9.45	2.36	4.92	6.35	6.55	6.02	-2.68	0.05	-2.79	..	-4.56	-6.86	
1978	14.28	-0.94	22.00	6.36	10.91	6.32	8.48	6.91	-2.66	9.75	-1.46	3.83	-5.76	-3.95	2.41	2.59	..	0.55	-2.71	
1979	12.22	1.67	6.04	9.81	2.39	-1.33	-2.51	7.62	9.85	4.40	10.40	3.52	6.76	7.00	4.51	3.50	..	-3.02	3.30	
1980	11.74	0.99	-1.97	17.64	-10.96	6.27	0.47	5.59	0.81	0.41	-4.33	-10.06	4.20	-3.31	4.84	9.19	..	3.04	14.42	
1981	8.44	12.16	17.08	17.62	3.50	3.32	-3.50	3.77	-9.70	-5.29	-4.41	5.88	-13.13	-1.18	2.20	7.95	..	6.17	12.53	
1982	11.91	-1.05	7.52	23.60	0.20	-0.76	-6.92	1.51	-1.81	2.50	-4.64	5.50	-0.23	15.33	4.77	-2.72	..	-2.81	2.63	
1983	13.61	3.72	6.87	5.85	-3.90	10.88	-4.56	1.31	0.90	3.72	4.80	0.38	-5.29	2.18	-3.00	-3.44	5.74	-1.97	1.59	
1984	9.22	0.16	7.47	6.98	-2.70	3.54	8.65	1.76	1.70	5.36	4.37	4.70	-4.82	-4.00	2.21	6.75	-0.34	-0.34	-1.91	
1985	7.34	11.78	8.06	-1.19	4.50	-0.81	5.09	4.30	1.16	4.57	1.26	6.95	9.70	3.80	-5.72	-4.00	-3.31	1.62	6.94	
1986	8.22	3.25	6.77	-6.86	3.26	4.09	5.20	7.18	1.96	-0.21	-5.08	9.74	2.51	4.53	1.03	0.31	0.39	0.72	2.10	
1987	12.22	5.50	-2.15	0.19	-0.35	2.45	4.79	5.94	1.17	1.63	-0.52	8.89	-0.70	4.01	4.61	2.79	3.96	2.68	1.15	
1988	14.12	5.03	-7.82	1.77	1.14	4.48	5.63	6.20	3.41	3.18	1.48	6.79	9.90	5.07	1.86	3.89	8.27	6.28	7.55	
1989	9.15	1.35	-1.82	2.60	2.95	5.90	5.09	4.69	4.07	1.34	11.76	4.47	7.20	-1.40	5.93	2.40	6.36	-1.02	5.20	
1990	7.22	3.50	-6.11	0.91	-1.10	3.56	3.33	4.19	3.13	5.69	-1.85	7.19	8.20	3.89	4.82	-0.32	6.47	-0.48	6.99	
1991	7.48	5.00	-3.81	2.40	0.04	3.11	5.28	1.44	-6.31	8.73	1.62	4.26	4.76	-0.40	-7.99	-1.02	5.55	-0.04	5.53	
1992	3.00	0.70	-3.10	2.60	-0.24	3.38	3.88	-0.80	1.18	-7.33	8.33	6.21	2.92	2.21	-9.65	-2.14	3.42	-1.75	-9.02	
1993	1.98	-5.71	-3.20	-1.00	-0.18	3.01	4.84	0.35	2.10	9.69	-2.14	5.45	2.20	-2.22	0.05	1.23	8.33	6.82	1.05	
1994	3.60	-3.86	-2.50	-5.51	1.97	0.15	3.42	2.63	-0.04	-10.24	0.91	4.06	0.10	2.95	6.74	3.23	6.40	-8.70	9.24	
1995	5.07	-7.27	3.30	4.00	6.95	0.88	4.00	4.41	1.68	16.73	6.21	4.70	2.50	5.23	-10.60	3.12	11.52	-2.49	0.16	
1996	6.95	-8.36	5.00	-4.30	6.89	2.22	4.60	4.15	2.15	7.32	3.22	5.68	4.30	5.10	1.74	4.15	9.07	6.59	10.36	
1997	4.00	0.37	5.10	-2.40	6.00	4.90	4.20	2.08	3.69	3.79	6.76	5.94	2.70	5.18	-17.03	2.50	4.75	3.30	2.68	
1998	6.02	4.78	5.04	3.70	5.80	4.90	4.70	1.62	3.94	3.31	3.42	5.86	1.88	5.70	2.80	0.69	5.60	-1.86	2.89	
1999	5.94	-0.97	4.39	-3.20	1.60	6.40	4.41	1.29	4.66	4.04	6.15	3.28	1.10	5.13	-11.31	1.87	7.52	2.02	-0.70	
2000	3.43	0.30	4.20	7.90	-2.30	5.60	3.70	-0.24	4.80	1.67	4.55	8.02	3.78	5.60	6.96	3.08	3.50	3.47	-4.88	
AVERAGE																				AVERAGE
1970 - 2000	10.25	2.45	3.91	4.13	3.20	4.10	2.60	4.35	1.28	3.97	3.03	5.66	3.67	3.02	0.39	2.36	5.18	1.21	3.80	3.61
1970-79	15.70	4.47	7.29	5.47	7.61	4.96	1.45	7.16	1.51	6.26	5.21	7.16	7.00	3.02	2.69	3.36	.	1.63	4.13	5.34
1980-89	10.60	4.29	4.00	6.82	-0.24	3.94	1.99	4.22	0.37	1.72	0.47	4.32	0.93	2.50	1.87	2.31	3.01	1.44	5.22	3.15
1990-2000	4.97	-1.05	0.76	0.46	2.31	3.47	4.21	1.92	1.91	3.94	3.38	5.51	3.13	3.49	-3.04	1.49	6.56	0.63	2.21	2.43

Source: World Development Indicators (WDI) CD-ROM 2002

Closer examination of the growth rates of the countries in our sample shows a wide disparity across different countries. We see from Table 6.1 that countries such as Botswana, The Gambia, Kenya, Mauritius, and Uganda have performed fairly well with average growth rates greater than 4% between 1970 and 2000. These countries had negative growth rates in not more than four years in this period. However, countries like Burundi, Madagascar, Sierra Leone, South Africa, and Zambia have not fared particularly well with average growth rates over the period less than 2.5%. These countries had negative growth rates in at least nine years from 1970 to 2000.

The decade averages of the growth rates show the declining economic performance of SSA countries through time. Generally, the countries performed well in the 1970s with an average growth rate of 5.34% for all countries. Growth fell in both the 1980s and 1990s and, on average, growth was higher in the 1980s than the 1990s.

GDP growth was higher in the 1980s than the 1990s in ten countries while it was higher in the 1990s than the 1980s in nine countries. The average growth rate of real GDP was 3.15% in the 1980s and 2.43% in the 1990s. The evidence thus suggests that growth has been declining over the decades in the countries in our sample.

6.2.2 Reasons for SSA's Poor Growth Performance

Different authors have attributed SSA's low growth rates to a variety of factors such as ethnic divisions (Easterly and Levine, 1997); weak governance and fragile institutions (Sachs and Warner, 1997); political unrest and wars (Guillaumont et al., 1999; Gyimah-Brempong and Taylor, 1999); and misguided economic policies (Hernandez-Cata, 2000).

Many reasons have been given for the poor growth performance of countries in SSA. These include the low rate of investment in SSA. Hernandez-Cata (2000) compares the investment ratios for different regions in the 1990s and finds that it was about 17 percent in SSA, between 20 and 22 percent in Latin America, and between 27 and 29 percent in Asia. Since these other regions experienced higher growth rates during this period, the author claims that the lower investment rates in SSA were to blame for the low growth. Also, econometric evidence (Levine and Renelt, 1992; Khan and Reinhart, 1990; Beddies, 1999) shows that investment has been one of the most significant variables to positively affect growth. It therefore makes some sense that if investment is low (as in SSA) growth will be low.

Armed conflicts and the lack of democratic governance in many SSA countries are also to blame for the poor economic performance. Armed conflicts affect the proper functioning of institutions, obliterate physical infrastructure, and lead to a loss of human lives. They also divert government spending from growth-enhancing projects to expenditure on arms. Armed conflicts have an adverse impact on economic growth and SSA has been the region that has had the most incidences of armed conflicts. Growth has therefore been hampered by these armed conflicts. Bad governance, corruption, and poor institutions are also linked to the low growth rates achieved in SSA. Rent seeking behaviour is rife in many countries and this concentrates a lot of wealth in the hands of a few individuals in the society. This increases income inequality and poverty. Corruption in public parastatals results in low productivity and the channelling of resources towards areas that will not benefit the majority of the populace.

Another reason that has been given for SSA's low growth is that SSA is seen as a high risk environment for investment. The rates of return on investment in SSA are high but the problem for investors is that there is a high rate of capital loss and also high taxes which can work to negate the returns on investment.

Poor infrastructural facilities have also been blamed for SSA's poor growth. Inadequate infrastructure in transportation, health, education, portable water, and power generation limit the production capacity of industries and also impose high production and transactions costs, all of which discourage investment thereby reducing economic growth.

There has been a marked increase in recent years in econometric investigations of the determinants of economic growth in both developed and developing countries. Initially, most of these studies employed cross section analysis for a wide range of countries.[2] More recently, econometric research has focused on using panel data owing to the problems inherent with coefficients derived from single period cross sectional estimations. While many of the studies have combined countries from different regions together, a few have modelled SSA and Latin America in their studies by including a dummy variable that takes on the value of 1 if a country is in the region and 0 otherwise. In some studies, a significant negative coefficient for SSA and Latin America has been found which is often interpreted as meaning that the growth equation is not sufficient in explaining the determinants of economic growth in such regions (Barro, 1991; Guillaumont et al., 1999). Other studies report an insignificant coefficient

[2] See Temple (1999) for a review of these studies

and conclude that their growth equation is capable of understanding growth in all regions (Sachs and Warner, 1997; Hoeffler, 2002).

Empirical testing of the determinants of economic growth in SSA has largely followed global trends where most of the recent estimations have applied the use of panel data techniques (Savvides, 1995; Ojo and Oshikoya, 1995; Ghura and Hadjimicheal, 1996; Calamitsis et.al., 1999; Tsangarides, 2000; Hoeffler, 2002). Some studies have examined how economic growth in SSA is influenced by specific factors/variables such as aid (Levy,1988; Gyimah-Brempong, 1992); instability (Guillaumont et al., 1999; Gyimah-Brempong and Taylor 1999); ethnic fractionalisation (Easterly and Levine, 1997); and adjustment (Calamitsis et al. 1999); while other studies have simply examined how macroeconomic policies affect growth (Ojo and Oshikoya, 1995; Savvides, 1995; Ghura and Hadjimichael, 1996; Sachs and Warner, 1997; Tsangarides, 2000; Hoeffler, 2002).

6.3 THE LINK BETWEEN GROWTH AND FINANCIAL LIBERALISATION IN SSA

Most of the financial liberalisation policies in SSA started from the mid-1980s and into the 1990s. These policies were supposed to stem declining growth rates and improve economic performance. From Table 6.2, cursory examination of the average growth rates of the countries in our sample before and after financial liberalisation shows that the growth rate of GDP increased after liberalisation in 9 countries and fell in 9 countries. It remained virtually the same in Zambia where the average pre-liberalisation growth rate was 0.81% and the average post-liberalisation growth rate was 0.82%. The

growth rate of GDP increased in Cote d'Ivoire, Gambia, Ghana, Madagascar, Mali, Mauritius, Nigeria, Senegal, and Uganda; while it decreased in Botswana, Burundi, Cameroon, Congo Republic, Kenya, Malawi, Sierra Leone, South Africa, and Zimbabwe. The difference between pre- and post-liberalisation growth rates has been quite varied in different countries. While it was small in countries such as The Gambia, Malawi, Senegal, South Africa, and Zimbabwe, the growth rate changed by a larger amount in countries such as Botswana, Cameroon, Congo Republic, Kenya, Mali, Mauritius, Nigeria, Sierra Leone, and Uganda.

TABLE 6.2:AVERAGE GROWTH RATES BEFORE AND AFTER LIBERALISATION

Country (start of major financial liberalisation)	Pre-Liberalisation Growth Rate	Post-Liberalisation Growth Rate
Botswana (1989)	11.21	5.49
Burundi (1986)	3.56	0.24
Cameroon (1990)	5.67	0.76
Congo, Rep. (1990)	7.03	-0.41
Cote d'Ivoire (1989)	0.73	2.37
Gambia, The (1986)	3.43	3.67
Ghana (1987)	1.15	4.42
Kenya (1991)	4.69	1.69
Madagascar (1994)	0.84	2.98
Malawi (1992)	3.27	3.22
Mali (1989)	0.17	3.87
Mauritius (1981)	-0.9	5.7
Nigeria (1987)	-0.67	3.63
Senegal (1989)	2.68	3.08
Sierra Leone (1991)	2.14	-4.29
South Africa (1980)	3.04	1.88
Uganda (1988)	1.29	6.67
Zambia (1992)	0.81	0.82
Zimbabwe (1993)	3.75	2.6

We have plotted the growth rates of real GDP for each country in figures 6.2 to 6.20 and indicated the start date of the major move towards financial liberalisation. We see from the figures that countries such as Cameroon, Cote d'Ivoire, Madagascar and Mauritius seem to have experienced an increasing trend in output growth following financial liberalisation while countries such as Botswana and South Africa seem to have experienced a decline in growth rates after liberalisation. The evidence is less clear cut for the other countries because of the volatility in the growth rates.

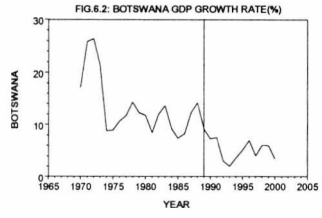


FIG.6.2: BOTSWANA GDP GROWTH RATE(%)
BOTSWANA
YEAR

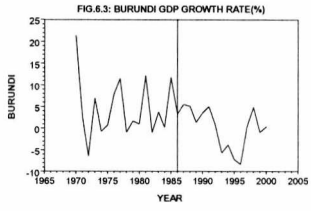


FIG.6.3: BURUNDI GDP GROWTH RATE(%)
BURUNDI
YEAR

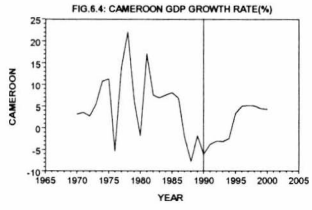


FIG.6.4: CAMEROON GDP GROWTH RATE(%)
CAMEROON
YEAR

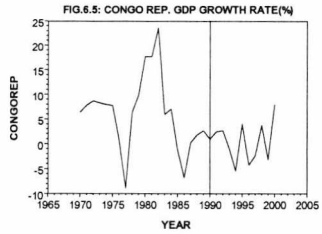


FIG.6.5: CONGO REP. GDP GROWTH RATE(%)
CONGOREP
YEAR

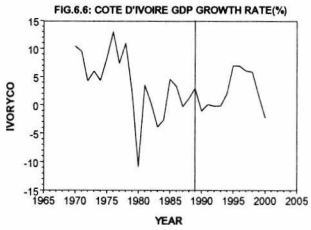


FIG.6.6: COTE D'IVOIRE GDP GROWTH RATE(%)
IVORYCO
YEAR

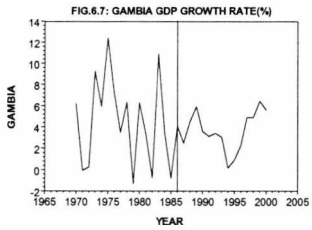


FIG.6.7: GAMBIA GDP GROWTH RATE(%)
GAMBIA
YEAR

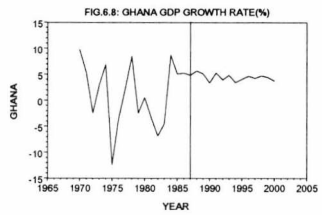


FIG.6.8: GHANA GDP GROWTH RATE(%)
GHANA
YEAR

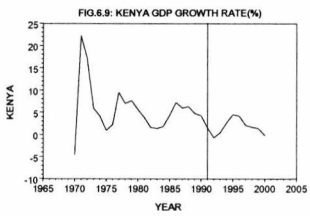


FIG.6.9: KENYA GDP GROWTH RATE(%)
KENYA
YEAR

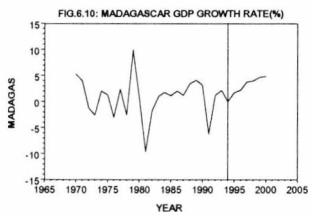


FIG.6.10: MADAGASCAR GDP GROWTH RATE(%)
MADAGAS
YEAR

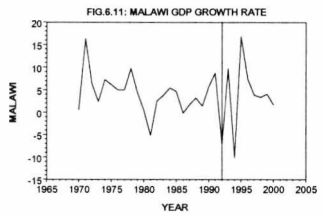


FIG.6.11: MALAWI GDP GROWTH RATE
MALAWI
YEAR

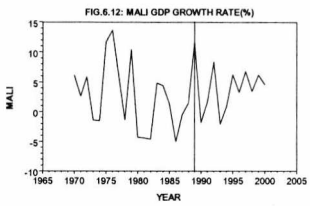


FIG.6.12: MALI GDP GROWTH RATE(%)
MALI
YEAR

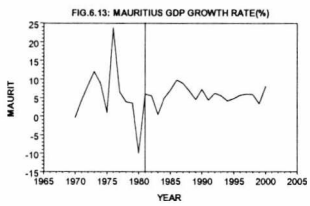


FIG.6.13: MAURITIUS GDP GROWTH RATE(%)
MAURIT
YEAR

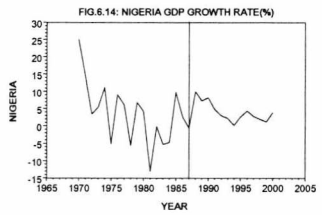


FIG.6.14: NIGERIA GDP GROWTH RATE(%)
NIGERIA
YEAR

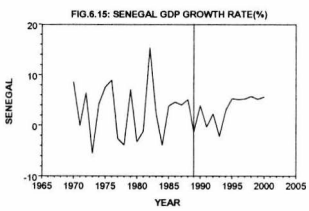


FIG.6.15: SENEGAL GDP GROWTH RATE(%)
SENEGAL
YEAR

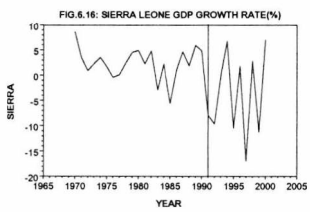


FIG.6.16: SIERRA LEONE GDP GROWTH RATE(%)
SIERRA
YEAR

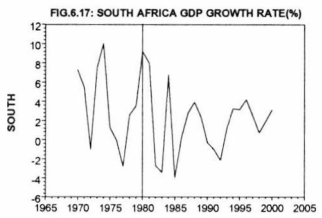


FIG.6.17: SOUTH AFRICA GDP GROWTH RATE(%)
SOUTH
YEAR

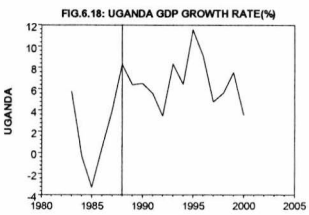


FIG.6.18: UGANDA GDP GROWTH RATE(%)
UGANDA
YEAR

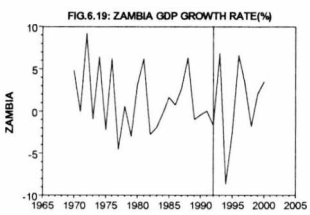


FIG.6.19: ZAMBIA GDP GROWTH RATE(%)
ZAMBIA
YEAR

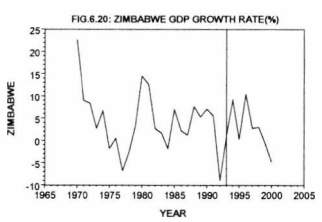


FIG.6.20: ZIMBABWE GDP GROWTH RATE(%)
ZIMBABWE
YEAR

As seen from chapter 2 most of the empirical works into the finance-growth nexus in SSA have found a significant positive correlation between growth and finance. We also saw that these studies have generally used variables such as monetary liabilities and credit provided by banks, and only two studies (Oshikoya, 1992; Seck and El Nil, 1993) have modelled financial liberalisation in their estimations through the real rate of interest. But interest rate liberalisation is only one of a number of policies implemented during financial liberalisation. We improve on these studies by modelling financial liberalisation through the use of indexes which take into account a whole array of financial liberalisation policies. This is the first study we are aware of that constructs such broad measures of financial liberalisation and employs them using panel data for SSA countries.

6.4 ECONOMETRIC TESTS OF THE IMPACT OF FINANCIAL LIBERALISATION ON ECONOMIC GROWTH

6.4.1 The Growth Equation

In this section we present our growth equation through which we will examine how financial liberalisation has affected growth in our sample of Sub-Saharan African countries. The model takes the general form:

$$Y_{it} = \mathrm{A}_{it} + \mathrm{B}_{it}F + \mathrm{X}_{it}INV + \Delta_{it}MP + \mathrm{E}_{it}INS + u_{it} \qquad (6.1)$$

where Y is the growth rate of real GDP, F includes variables measuring financial liberalisation, INV is the ratio of investment to GDP, MP includes variables measuring

macroeconomic policy, and INS includes variables measuring macroeconomic and political instability and institutions.

F represents the primary variables of interest in this study. It comprises four measures of financial liberalisation which we will include in the models separately to measure the impact of financial liberalisation on growth. The variables used to measure financial liberalisation are those we used in chapters 4 and 5 which are: the two financial liberalisation indexes that measure the gradual progress made with financial liberalisation (FINDEX1 and FINDEX2), a financial liberalisation dummy (FINDUMMY), and the real rate of interest (RR). To support the financial liberalisation hypothesis for SSA, these variables should have positive and significant coefficients in the growth regressions.

INV is the ratio of investment to GDP and it is included in the model as a proxy for capital accumulation. The accumulation of capital has been identified as an important determinant of economic growth (Levine and Renelt, 1992; Khan and Reinhart, 1990; Beddies, 1999) and a positive relationship is expected between growth and investment.

MP represents the variables measuring macroeconomic policy. Numerous empirical studies have included a diverse array of macroeconomic policy variables in growth equations to measure the impact of these variables on growth (Kormendi and Meguire, 1985; Knight, Loayza, and Villanueva, 1993; Fischer, 1993). The general consensus is that stable macroeconomic policies promote economic growth. The macroeconomic policy variables employed in this study are the growth rate of exports (as a measure of trade policy) and the ratio of government consumption to GDP (as a measure of fiscal

policy). Thirlwall (2002) identifies a variety of ways in which export growth can lead to faster economic growth. This is evident if viewed from both the supply and demand sides. From the supply side, import growth is stimulated as a result of export growth, and if the imports are equipment and raw materials for production, then growth will also be stimulated. On the demand side, the growth of exports increases the availability of foreign exchange which allows other components of demand to grow faster. A sound fiscal policy of the government is expected to promote economic growth. Excessive spending of the government on consumption has been shown to negatively affect economic growth. Thus we expect a negative relationship between economic growth and government consumption.

Macroeconomic uncertainty and instability adversely affects economic growth. High and unpredictable inflation rates can be portrayed by investors as a sign that the government is losing control of the economy and thus discourage investor confidence. We measure the volatility of inflation in each year with the standard deviation of the rate of inflation over the previous three years. Countries that are heavily indebted have to commit resources that would otherwise have been used for investment and development projects to service their debt obligations. Higher debt service payments will therefore be expected to impact negatively on economic growth.

Political instability has also been identified as having an important influence on growth. It is widely acknowledged that a stable political environment is conducive to growth. We use a dummy variable to represent years in which there was armed conflict in the

countries in our sample. The dummy takes on the value of one for years in which there were armed conflicts and is zero for years in which there were no armed conflicts.

Good and credible institutions provide a conducive environment for growth and ensure the efficient allocation of resources. Data on political rights and civil liberties are combined to arrive at our measure of institutions. A negative coefficient on this variable would mean that institutions have had a positive impact on growth.

Thus we estimate four different equations which are as follows:

$$Y = \alpha_1 + \alpha_2 INV + \alpha_3 FINDEX1 + \alpha_4 EXGROW + \alpha_5 GOVCON + \alpha_6 DEBT + \alpha_7 VOLINFL + \alpha_8 ARMED + \alpha_9 INST + \varepsilon \quad (6.2)$$

$$Y = \beta_1 + \beta_2 INV + \beta_3 FINDEX2 + \beta_4 EXGROW + \beta_5 GOVCON + \beta_6 DEBT + \beta_7 VOLINFL + \beta_8 ARMED + \beta_9 INST + \nu \quad (6.3)$$

$$Y = \varphi_1 + \varphi_2 INV + \varphi_3 FINDUMMY + \varphi_4 EXGROW + \varphi_5 GOVCON + \varphi_6 DEBT + \varphi_7 VOLINFL + \varphi_8 ARMED + \varphi_9 INST + \upsilon \quad (6.4)$$

$$Y = \gamma_1 + \gamma_2 INV + \gamma_3 RR + \gamma_4 EXGROW + \gamma_5 GOVCON + \gamma_6 DEBT + \gamma_7 VOLINFL + \gamma_8 ARMED + \gamma_9 INST + \zeta \quad (6.5)$$

where Y = real GDP growth rate (%)

INV = ratio of gross domestic investment to GDP (%)

FINDEX1 = the first index of financial liberalisation

FINDEX2 = the second index of financial liberalisation

FINDUMMY = dummy variable for financial liberalisation

RR = real rate of interest (%)

EXGROW = rate of growth of exports of goods and services (%)

GOVCON = ratio of government consumption to GDP (%)

DEBT = ratio of debt service to exports of goods and services (%)

VOLINFL = volatility of inflation

ARMED = dummy variable for armed conflicts

INST = a measure of institutions

6.4.2 Data and Methodology

The data for the macroeconomic time-series are from the World Development Indicators (WDI) CD-ROM 2002 and this dictated the sample period of our analysis which covers the period 1978 – 2000. Additional data on nominal rates of interest were obtained from the African Development Bank and International Financial Statistics (IFS) CD-ROM 2002. Data on armed conflicts were obtained from Gleditsch et al. (2002) while data on institutions were from Freedom House. All estimations are carried out using LIMDEP 7.0 (Greene, 1995).

In line with the discussion in section 4.4.1 panel data econometrics are used in estimating the growth equations. White's robust standard errors have been used in obtaining the t-ratios to correct for heteroskedasticity and after smoothing out the data we arrived at 87 observations.

6.4.3 Presentation and Discussion of Results

The results of estimating the growth equations are given in Table 6.3. The diagnostic statistics show a value for the coefficient of determination just over 0.5, which means that our explanatory variables have been able to explain 50 percent of the variation in the growth rates. The serial correlation tests show that there is no serial correlation in

our models and the fixed effects are jointly significant, indicating that fixed effects are the appropriate estimation technique.

Contrary to the predictions of the financial liberalisation hypothesis, all the proxies for financial liberalisation are negative which means that the experience of the SSA countries with financial liberalisation has not been favourable to growth. Our results offer support to the various criticisms levelled against financial liberalisation of its destabilising effects on macroeconomic stability and its subsequent detrimental effects on growth (Diaz-Alejandro, 1985; World Bank, 1994a; Demirguc-Kunt and Detragiache, 1999; Kaminsky and Reinhart, 1999; Ram, 1999). The results bring to light some important observations.

Firstly, considering the fact that many countries in SSA embarked upon financial liberalisation while going through severe macroeconomic uncertainty, overvalued currencies, high budget deficits, and structural imbalances, the prescriptions of the World Bank (1991) of a stable political and macroeconomic environment prior to financial reforms is important. However, it is difficult to see how such conditions can be met since the financial reforms were implemented in many countries as part of structural adjustment programmes (SAP) which themselves are necessitated because of the economic problems stated above. A contributory factor to the inability of financial liberalisation to improve growth has to do with the fact that the SAPs were a package of different (and sometimes conflicting policies) which were at work at the same time and thus providing no room for a policy such as financial liberalisation to achieve its objectives. Often liberalisation of the real sector was carried out at the same time as the

liberalisation of the financial sector and this led to a series of conflicting programmes which further destabilised the economies. This also shows the importance of correct sequencing where liberalisation of the real sector should precede liberalisation of the financial sector (McKinnon, 1993).

The World Bank (1994a) has attributed the less than impressive record of financial liberalisation in SSA to the continuing interference of governments in the operations of central banks where political considerations are taken into account in issuing bank licences, incompetent and unqualified people are employed in the central bank, and erring banks are 'untouchable' by the central bank because they are highly connected. All these result in imprudent banking practices and lead to financial fragility which is detrimental to growth.

Another explanation of the undesirable consequences of financial liberalisation on growth relates to the problem of adverse selection (Stiglitz and Weiss, 1981). Because of their inability to repay their loans, in the face of rising interest rates, insolvent borrowers continue borrowing and this leads to even higher interest rates. Such high interest rates either ration out agents willing to borrow for productive investment or force them to borrow at the very high rates. The consequences are that businesses either close down or accumulate bad debts which create insolvency thereby undermining economic growth (Fry, 1998, p.5).

The inability of financial liberalisation to improve growth could also be caused by insufficient and ineffective prudential regulation to monitor the activities of banks. Financial liberalisation attempts to increase competition between banks by offering

more bank licences and in many countries, the explosion of new banks has exceeded the regulatory capabilities of the central bank. Such lax regulation increases the incidence on insolvency as there is no control on the activities of banks. Banks may also be inclined lend to risky borrowers because of the existence of deposit insurance schemes. The banks accrue losses and become insolvent when loans to those risky borrowers cannot be repaid.

Turning to the other variables in the model macroeconomic policy variables generally perform well in the model. The ratio of gross domestic investment to GDP is positive and significant and this offers strong support to the importance of investment to economic growth (Levine and Renelt, 1992; Khan and Kumar, 1997; Khan and Reinhart, 1990; Ghura, 1997; Beddies, 1999). The value of the coefficient of about 0.22 is similar to that obtained by Ojo and Oshikoya (1995), and implies that an increase in the investment ratio by 10 percentage points is on the average associated with an increase of 2.2 percentage points in the growth rate of GDP. This means that the investment rate for an average economy would have to increase from 22 percent to 32 percent to achieve a 2 percentage point increase in the GDP growth rate. The growth of exports is positive and statistically significant. The coefficient on export growth is 0.2, which indicates that on average a 10 percentage point increase in export growth is associated with an increase in the growth rate of output by 2 percentage points. The coefficient on the variable measuring fiscal policy - government consumption – is negative as expected, but insignificant.

TABLE 6.3: ECONOMIC GROWTH

	Dependent Variable : GDP growth			
Explanatory Variables	**Equation 6.2 Fixed Effects**	**Equation 6.3 Fixed Effects**	**Equation 6.4 Fixed Effects**	**Equation 6.5 Fixed Effects**
inv	0.23 (2.49)**	0.23 (2.49)**	0.24 (2.54)**	0.24 (2.59)**
findex1	-0.21 (-1.25)			
findex2		-0.13 (-0.72)		
findummy			-0.22 (-0.34)	
rr				-0.01 (-0.26)
exgrow	0.2 (4.53)*	0.2 (4.48)*	0.19 (4.42)*	0.19 (4.38)*
govcon	-0.16 (-1.59)	-0.14 (-1.37)	-0.12 (-1.23)	-0.11 (-1.27)
debt	-0.06 (-1.87)***	-0.06 (-1.82)***	-0.06 (-1.87)***	-0.06 (-1.77)***
volinfl	0.02 (0.57)	0.03 (0.66)	0.03 (0.85)	0.03 (0.51)
armed	-3.12 (-2.45)**	-3.42 (-2.59)**	-3.53 (-2.65)*	-3.68 (-2.67)*
inst	0.29 (0.89)	0.34 (1.03)	0.38 (1.17)	0.41 (1.32)
	Diagnostic Statistics			
R^2	0.53	0.52	0.52	0.52
Fixed Effects F-Test	[0.0000]	[0.0000]	[0.0000]	[0.0000]
Serial Correlation	[0.5661]	[0.5373]	[0.5565]	[0.4459]
Number of Observations	83	83	83	83

Notes:

1. * indicates that a coeffcient is significant at the 1 percent level; ** significant at the 5 percent level; and *** significant at the 10 percent level
2. Figures in parenthesis ( ) are t-ratios; figures in [ ] are p-values
4. All coefficients have been rounded to 2 decimal places
5. Serial Correlation is a test of serial correlation in residuals and the null hypothesis is that $\rho = 0$. The test is $\chi 2$ distributed
6. t-ratios have been computed using White's heteroscedastic consistent standard errors.
7. Fixed Effects is a an F-test of the joint significance of country-specific effects and the null hypothesis is that all fixed effects are jointly equal to zero.

The signs on the two variables measuring the impact of macroeconomic instability are different. Only the coefficient on the debt service ratio is significant however, while volatility of inflation is insignificant. The variable measuring political instability is negative as expected, and statistically significant. This suggests that the preponderance of armed conflicts in SSA has been detrimental to growth in this region and the coefficient implies that armed conflicts have reduced growth by as much as 3½

percentage points. We find no significant effect of institutions as measured by civil liberties and political rights on growth.

Table 6.4 shows standardised regressions and all variables have been arranged in their order of magnitude. We see that investment has had the highest impact on growth and the beta coefficient implies that a 1 standard deviation increase in the investment ratio, increases real GDP growth, on average, by about 0.45 standard deviations. The next variable that contributes significantly to the explanation of growth is the growth of exports. The beta coefficient of export growth of 0.39 implies that a 1 standard deviation increase in export growth increases growth by 0.39 standard deviations. Armed conflict has the next highest significant impact on growth (-0.36) followed by the debt service ratio (-0.25).

TABLE 6.4: STANDARDISED REGRESSIONS

	Dependent Variable : GDP growth			
Explanatory Variables	**Equation 6.2**	**Equation 6.3**	**Equation 6.4**	**Equation 6.5**
inv	0.44	0.44	0.45	0.45
exgrow	0.39	0.39	0.38	0.38
armed	-0.3	-0.33	-0.34	-0.36
debt	-0.22	-0.21	-0.22	-0.22

To test the robustness of the regression results reported above, changes have been made to the specifications of the equations and the results of the new estimations are reported in Table 6.5. In the first part of the table we have included foreign aid as an additional explanatory variable while the second and third parts exclude investment and export growth respectively - the two variables that have had the biggest impact on growth.

TABLE 6.5: ECONOMIC GROWTH

(a) including foreign aid				
	Dependent Variable : GDP growth			
Explanatory Variables	**Equation 6.2 Fixed Effects**	**Equation 6.3 Fixed Effects**	**Equation 6.4 Fixed Effects**	**Equation 6.5 Fixed Effects**
inv	0.23 (2.5)**	0.23 (2.5)**	0.24 (2.55)**	0.24 (2.59)**
findex1	-0.23 (-1.33)			
findex2		-0.14 (-0.76)		
findummy			-0.24 (-0.35)	
rr				-0.01 (-0.26)
exgrow	0.2 (4.64)*	0.2 (4.57)*	0.19 (4.45)*	0.19 (4.39)*
govcon	-0.16 (-1.59)	-0.13 (-1.37)	-0.12 (-1.23)	-0.11 (-1.26)
debt	-0.07 (-1.65)	-0.06 (-1.59)	-0.06 (-1.59)	-0.06 (-1.55)
volinfl	-0.02 (0.53)	0.02 (0.63)	0.03 (0.85)	0.03 (0.49)
armed	-3.15 (-2.51)**	-3.44 (-2.64)**	-3.54 (-2.67)*	-3.68 (-2.69)*
inst	0.02 (0.9)	0.36 (1)	0.39 (1.09)	0.41 (1.19)
foreign aid	0.02 (0.32)	0.01 (0.22)	0.01 (0.09)	0.0004 (0.01)
R^2	0.53	0.53	0.52	0.52
(b) excluding investment				
findex1	-0.25 (-1.49)			
findex2		-0.19 (-1.08)		
findummy			-0.35 (-0.54)	
rr				-0.03 (-0.52)
exgrow	0.24 (4.78)*	0.24 (4.75)*	0.23 (4.65)*	0.23 (4.61)*
govcon	-0.17 (-1.86)***	-0.15 (-1.67)	-0.13 (-1.46)	-0.13 (-1.51)
debt	-0.07 (-1.78)***	-0.08 (-1.72)***	-0.07 (-1.77)***	-0.07 (-1.74)***
volinfl	-0.03 (-1.003)	-0.03 (-0.91)	-0.02 (-0.69)	-0.04 (-0.75)
armed	-3.2 (-2.23)**	-3.47 (-2.36)**	-3.64 (-2.41)**	-3.86 (-2.45)**
inst	0.09 (0.3)	0.13 (0.4)	0.18 (0.57)	0.22 (0.71)
R^2	0.47	0.47	0.46	0.46
(c) excluding export growth				
inv	0.31 (3.37)*	0.31 (3.37)*	0.31 (3.37)*	0.31 (3.46)*
findex1	-0.17 (-0.86)			
findex2		-0.08 (-0.4)		
findummy			-0.39 (-0.51)	
rr				-0.02 (-0.45)
govcon	-0.19 (-1.83)***	-0.17 (-1.63)	-0.18 (-1.68)***	-0.17 (-1.78)***
debt	-0.05 (-1.39)	-0.05 (-1.39)	-0.05 (-1.35)	-0.05 (-1.27)
volinfl	0.02 (0.43)	0.02 (0.55)	0.02 (0.61)	0.01 (0.23)
armed	-3.18 (-2.46)**	-3.46 (-2.62)**	-3.36 (-2.56)**	-3.62 (-2.74)*
inst	0.31 (0.8)	0.37 (0.94)	0.34 (0.88)	0.39 (1.11)
R^2	0.47	0.47	0.47	0.46

Notes:

1. * indicates that a coeffcient is significant at the 1 percent level; ** significant at the 5 percent level; and *** significant at the 10 percent level
2. Figures in parenthesis ( ) are t-ratios; figures in [ ] are p-values

All the proxies for financial liberalisation from Table 6.5 are negative and insignificant, which is the same as what we observed from Table 6.3 and our previous conclusions are unchanged: financial liberalisation has not improved growth in SSA. For the other variables, we notice an increase of 10 percentage points on the investment ratio when export growth is excluded. The coefficient of determination falls by about 5 percentage points when either investment or export growth are excluded, thus highlighting the important roles they play in explaining the variation in growth rates in SSA. The coefficients and signs of the other variables are largely unchanged and so the results of Table 6.3 are robust.

6.5 CONCLUSION

In this chapter we have examined the impact of financial liberalisation on economic growth in a sample of countries in SSA. We have used both a descriptive analysis and panel data techniques to investigate how economic growth has been affected by the liberalisation of the financial sectors of these countries.

We conducted econometric tests of the impact of financial liberalisation on economic growth in these SSA countries. Our results offer no support to the importance of financial liberalisation in stimulating growth. We found that financial liberalisation has had no significant effect on growth and possible explanations for this include an unstable macroeconomic environment, incorrect sequencing of adjustment programmes, and moral hazard behaviour by borrowers.

The variables that have had positive and significant impacts on growth are investment and export growth. The ratio of government consumption to GDP, the debt service ratio, and armed conflict have had significantly negative impacts on growth.

Standardised regressions revealed that the variables that have had a significant impact on economic growth in SSA are in order of magnitude investment, export growth, armed conflict, and the debt service ratio while financial liberalisation has not had a detectable significant impact on growth.

The econometric results from this chapter and chapters 4 and 5 have shown that with the exception of national saving, financial liberalisation has not exerted a positive impact on the economic performance of SSA countries. The results lend credence to the school of thought who question the viability of the financial liberalisation hypothesis (van Wijnbergen, 1983; Taylor, 1983; Dornbusch and Reynoso, 1989; Chandavarkar, 1992) and those who assert that financial liberalisation causes financial fragility (Demirguc-Kunt and Detragiache, 1998, 1999; Kaminsky and Reinhart, 1999). Recently, some studies have found that even though financial liberalisation causes financial fragility in the short-run, it enhances growth in the long-run (Kaminsky and Schmukler, 2002; Loayza and Ranciere, 2004; Tornell and Westermann, 2004). Since our econometric tests so far have not examined the long-run implications of financial liberalisation, it would be useful to see the impact of financial liberalisation in the long-run. This is the focus of the next chapter where we conduct cointegration analysis using one of the countries (Nigeria) as a case study.

APPENDIX6A

Series: Deposit interest rate (%) (FR.INR.DPST)
Deposit interest rate is the rate paid by commercial or similar banks for demand, time, or savings deposits.
Series: Exports of goods and services (annual % growth) (NE.EXP.GNFS.KD.ZG)
Annual growth rate of exports of goods and services based on constant local currency. Aggregates are based on constant 1995 U.S. dollars. Exports of goods and services represent the value of all goods and other market services provided to the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude labor and property income (formerly called factor services) as well as transfer payments.
Series: GDP growth (annual %) (NY.GDP.MKTP.KD.ZG)
Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 1995 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.
Series: Gross capital formation (% of GDP) (NE.GDI.TOTL.ZS)
Gross capital formation (formerly gross domestic investment) consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings. Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales, and "work in progress." According to the 1993 SNA, net acquisitions of valuables are also considered capital formation.
Series: Inflation, consumer prices (annual %) (FP.CPI.TOTL.ZG)
Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a fixed basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used.
Series: Inflation, GDP deflator (annual %) (NY.GDP.DEFL.KD.ZG)
Inflation as measured by the annual growth rate of the GDP implicit deflator shows the rate of price change in the economy as a whole. The GDP implicit deflator is the ratio of GDP in current local currency to GDP in constant local currency.
Series: Total debt service (% of exports of goods and services) (DT.TDS.DECT.EX.ZS)
Total debt service is the sum of principal repayments and interest actually paid in foreign currency, goods, or services on long-term debt, interest paid on short-term debt, and repayments (repurchases and charges) to the IMF.
Series: General government final consumption expenditure (% of GDP)
General government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defense and security, but excludes government military expenditures that are part of government capital formation.

TABLE 6A.1: SUMMARY STATISTICS

Variables	Mean	Standard Deviation	Minimum	Maximum	Observations
YGROW	3.03	3.38	-4.82	15.01	87
FINDEX1	0.29	1.87	-3.31	3.69	87
FINDEX2	2.23	1.89	0	5	87
RR	-3.25	9.49	-39.14	11.08	87
INV	18.46	6.39	5.1	39.39	87
EXGROW	4.94	6.52	-15.43	24.14	86
GOVCON	15.28	5.51	7.01	36.6	87
DEBT	22.48	11.84	2.15	62.68	84
VOLINFL	9.56	10.42	0.3	45.79	87
INST	4.65	1.45	1.5	6.7	87

YGROW = growth rate of real GDP (%)
FINDEX1 = the first index of financial liberalisation
FINDEX2 = the second index of financial liberalisation
RR = real rate of interest
INV = ratio of gross domestic investment to GDP (%)
EXGROW = rate of growth of exports of goods and services (%)
GOVCON = ratio of government consumption to GDP (%)
DEBT = ratio of debt service to exports of goods and services (%)
VOLINFL = volatility of inflation
INST= a measure of institutions
Notes: real interest rates calculated using the formula: (((1+R)/(1+INF))-1)*100
where R=nominal interest rates, INF=inflation rate and R and INF are expressed as proportions

CHAPTER SEVEN: EVALUATION OF FINANCIAL LIBERALISATION IN NIGERIA

7.1 INTRODUCTION

In this chapter we will use time series econometrics to examine the impact of financial liberalisation on savings, investment and growth for one of the countries in our sample – Nigeria. We saw from chapters 4, 5, and 6 that financial liberalisation has not improved savings, investment, and growth of the countries in our panel. The results are in line with other studies who report the detrimental effects of financial liberalisation (Diaz-Alejandro, 1985; World Bank, 1994a; Demirguc-Kunt and Detragiache, 1998, 1999; Kaminsky and Reinhart, 1999). Some studies acknowledge this fact but note that the economic distortions are limited to the short-run (Kaminsky and Schmukler, 2002; Loayza and Ranciere, 2004; Tornell and Westermann, 2004). They claim that the establishment of deposit insurance schemes and relaxation of banking supervision after financial liberalisation can lead to imprudent behaviour by banks. Financial fragility can also increase following liberalisation because of lending booms which arise either as a result of banks' inability to effectively screen potential borrowers and monitor existing ones; or as a result of abolished directed credit guidelines which frees up funds which would hitherto have been lent to the priority group. In the long run, it is expected that banking regulation would have improved and the ability of banks to effectively screen potential borrowers would have increased, thereby reducing financial fragility and leading to improved economic performance. This chapter is therefore an attempt to test the validity of such comments and this is done by applying cointegration techniques

to examine the impact of financial liberalisation on savings, investment, and growth in the long-run for Nigeria.

Nigeria has been chosen because it has some interesting characteristics which make it suitable for what we propose to do in this chapter. Firstly, Nigeria has been chosen because of the size of its financial system as it has the second largest economy and financial system in SSA after South Africa. With about 90 commercial and merchant banks, over 200 licensed finance companies, over 100 insurance companies, and over 1000 rural-oriented community banks, there is considerable diversification in the activities of financial intermediaries which is non-existent in many other countries.

Another reason for choosing Nigeria is because unlike South Africa, Mauritius, or Botswana who adopted a gradual and selective approach, Nigeria embraced financial liberalisation completely and initiated virtually every policy prescription of the liberalisation hypothesis thereby making it a more interesting case study than the other countries. Also, the Nigerian government embarked upon financial liberalisation as part of its Structural Adjustment Programme (SAP) and this provides a good opportunity to see if correct sequencing is important as advocated by McKinnon (1993) and World Bank (1991). Nigeria has also been chosen because there is greater access to information regarding financial liberalisation policies and data is readily available.

We have also chosen Nigeria because it fits into the group of countries who have experienced banking crisis and financial fragility after financial liberalisation (Kaminsky and Reinhart, 1999; Demirguc-Kunt and Detragiache, 1999). The banking crisis was at its most severe between 1991 and 1995, and by 1993, insolvent banks

accounted for 20% of total assets and 22% of banking system deposits (Caprio and Klingebiel, 1996). In light of this, it is then possible to test for Nigeria if such destabilising effects of financial liberalisation are limited to the short-run, with financial liberalisation improving economic performance in the long-run (Kaminsky and Schmukler, 2002; Loayza and Ranciere, 2004; Tornell and Westermann, 2004).

This chapter is divided into five sections. In the second section, we will provide a short history of banking in Nigeria and highlight the repressive nature of the financial system before liberalisation. The third section is concerned with giving a descriptive analysis of financial liberalisation and its effects on both the banking system, financial deepening, and on savings, investment, and economic growth. In the fourth section we will conduct econometric analyses using cointegration techniques to examine the impact of liberalisation on savings, investment, and economic growth in the long run, and the final section concludes.

7.2 THE NIGERIAN FINANCIAL SECTOR: PRE-LIBERALISATION

7.2.1 Development of Banking Activities

The monetary and banking system in Nigeria effectively started with the establishment of the African Banking Corporation in 1892. The early period of banking in Nigeria was characterised by lax regulations and there were virtually no restrictions or laws guiding the establishment of banks.[1] Two years after the establishment of the African Banking Corporation, the Bank of British West Africa (BBWA) (now called First

[1] The only restriction was that they could not issue Bank of England notes.

Bank) was established and this new bank acquired the African Banking Corporation. Other banks that were established in this early period were the Anglo-African Bank in 1905[2], Barclays Bank Dominion, Colonial and Overseas in 1917 (now called Union Bank) and the British and French Bank in 1949 (now called United Bank for Africa).

Table 7.1 shows commercial banks established in this early period (often called the free banking era), i.e. before regulation. A remarkable feature of the 'early' banks was that their establishment was affected by politics as, on the one hand, there were a group of banks established by foreigners, and on the other hand there were another group of banks established by indigenes.[3] It can be seen from this table that there was a boom in the establishment of banks from the late 1940s into the early 1960s. We also see from the table that most of the banks that were established did not last long and failed within a few years. This was for a number of reasons. Firstly, many of the indigenous banks lacked the management expertise to effectively run the banks and so encountered problems which proved insurmountable. Also, owing to the fact that the foreign banks were linked to their head-offices in developed countries, they had access to more capital and most of the indigenous banks could not compete with them.

The widespread failure of banks resulted in the setting up of the Paton Commission in 1948 to investigate banking in Nigeria and recommend appropriate actions needed for regulation of the industry. The government acted on the recommendations of the Paton Commission in 1952 when it enacted the 1952 Banking Ordinance. The Banking

[2] The name of this bank was changed to Bank of Nigeria and it was later acquired by the BBWA.
[3] In this chapter foreign banks are those banks with 100% foreign ownership, indigenous banks are banks with 100% local ownership, and mixed banks are banks with joint foreign and local ownership.

Ordinance restricted entry into the banking industry by requiring interested parties to obtain bank licences, ensure liquidity levels satisfactory to the Financial Secretary, set up a threshold of minimum paid up capital[4], and the maintenance of a special reserve fund, and 20 percent of profits was to be paid annually into the reserve fund until it (the reserve fund) equalled the paid-up capital. There were also restrictions on making loans, and provision was made for bank supervision. Existing banks were given three years to comply with the requirements of the Ordinance, while it was enforced immediately for new banks.

Despite the fact that the 1952 Banking Ordinance put some regulatory control into the banking industry, there were still a lot of concerns that more needed to be done. Firstly, it was felt that the expatriate banks exerted too much control over banking activities and that they were not favourably disposed to the developmental needs of the country. They were seen more as avenues for the expatriate companies to obtain funds and did not serve indigenes particularly well. There was also no recognised body to conduct regulatory and supervisory activities in this sector. There was no central bank and the body that was responsible for issuing currency was the West African Currency Board (WACB). All these concerns resulted in the government setting up the Loynes Commission in 1958 and following the submission of the report of this commission, the Central Bank Ordinance of 1958 was enacted which established the Central Bank of Nigeria.

[4] This paid up capital was ₦50,000 for indigenes and ₦200,000 for expatriates

TABLE 7.1: EARLY ESTABLISHMENT OF BANKS IN NIGERIA

COMMERCIAL BANK	YEAR ESTABLISHED	STATUS
African Banking Corporation	1892	
Bank of British West Africa	1894	Now Standard Bank of West Africa
Barclays Bank, D.C.O.	1917	
The Industrial and Commercial Bank	1929	Failed in 1930
The Nigerian Mercantile Bank	1931	Failed in 1936
National Bank of Nigeria	1933	
Agbonmagbe Bank	1945	Now Wema Bank
The Nigerian Penny Bank	?	Failed in 1946
African Continental Bank	1947	
The Nigerian Farmers and Commercial Bank	1947	Failed in 1953
British and French Bank	1948	Now United Bank for Africa
Merchants Bank	1952	Failed in 1960
Pan Nigeria Bank	1951	Failed by the end of 1954
Standard Bank of Nigeria	1951	Failed by the end of 1954
Premier Bank	1951	"
Nigerian Trust Bank	1951	"
Afroseas Credit Bank	1951	"
Onward Bank of Nigeria	1951	"
Central Bank of Nigeria	1951	"
Provincial Bank of Nigeria	1952	"
Metropolitian Bank of Nigeria	1952	"
Union Bank of British Africa	1952	"
United Commercial (Credit) Bank	1952	"
Cosmopolitan Credit Bank	1952	"
Mainland Bank	1952	"
Group Credit and Agricultural Bank	1952	"
Industrial Bank	1952	"
West African Bank	1952	"
Muslim Bank	1958	"
Banque de L'Afrique Occidentale	1959	Banque Internationale Pour L'Afrique Occidentale
Bank of Lagos	1959	
Berini (Beirut-Riyad) Bank	1959	
Bank of the North	1959	
Bank of America	1960	
Chase Manhattan Bank	1961	Merged with Bank of West Africa in 1965
Bank of India	1962	
Arab Bank	1962	
Co-operative Bank of Western Nigeria	1962	
Co-operative Bank of Eastern Nigeria	1962	

Source: Economic and Financial Review, vol.6, no.1, June 1968

The Central Bank of Nigeria (CBN) started operations on the 1st of July 1959 with an authorised capital of ₦3million which was paid by the Federal Government. The main objectives of the CBN as set out in section 4 of the Ordinance were: (a) to issue legal tender currency in Nigeria; (b) to maintain external reserves in order to safeguard the international value of the currency; (c) to promote monetary stability and a sound financial structure in Nigeria; and (d) to act as banker and financial adviser to the Federal Government.

These objectives have been criticised as not being broad enough (Okigbo, 1980) and that they were a mere carbon-copy of the functions of the WACB. Okigbo (1980) highlights some important functions of a central bank as organising and providing development finance; developing and controlling the financial system; developing research and procuring data and statistics on the economy; and acting as an agent of the government. Although these so-called modern functions were not explicitly included in the 1958 Ordinance, the establishment of the CBN triggered a host of developments in the financial sector in Nigeria. The Treasury Bill Ordinance was enacted in 1959, which preceded the first issuing of Treasury Bills in April 1960; the Lagos Stock Exchange was set up in June 1961, as a result of the recommendations of the Barback Committee of 1959. The Lagos Stock Exchange later became the Nigerian Stock Exchange (NSE) after the NSE Act. The Capital Issues Committee was set up in 1962 and this later became the Capital Issues Commission and then the Securities and Exchange Commission.

This period also witnessed the emergence of development finance institutions and merchant banks to provide long-term financing to prospective indigenous investors. The Investment Company of Nigeria (ICON) was established in 1959 and later became the Nigerian Industrial Development Bank (NIDB) in 1964. Other banks were encouraged to develop following the 1969 Banking Act and so 1973 witnessed the establishment of the Nigeria Bank for Commerce and Industry (NBCI) and the Nigerian Agricultural and Cooperative Bank (NACB). The Nigerian Building Society was established in 1977 and this later became the Federal Mortgage Bank of Nigeria.

The 1960s marked the start of the CBN's regulatory control of banking in Nigeria. There were a number of amendments to the 1958 Ordinance all of which resulted in more stringent banking regulations and restrictions to entry. Indeed the two decades from the 1960s into the 1970s are known as the period when banking regulation was very strict and there were not many banks that were established in this period. Amendments to the 1958 Ordinance were made in 1961, 1962, and 1964 and a new decree was enacted with the 1969 Banking Decree. All these banking legislations further regulated banking and notable developments were the increase of paid up capital for banks, guidelines regarding liquidation of banks, and stipulation of capital-deposit ratios.

There was a lot of discontent within the country with the predominance of the expatriate banks. It was felt that the expatriate banks were more concerned with catering to the needs of foreigners and did not bother about the development goals of the country. There was also the feeling that these banks discriminated against the indigenous population with regard to the granting of loans and their insistence on specific forms of collateral. It was in a bid to address the perceived lack of commitment of expatriate firms to the developmental goals of the country that the Federal Government embarked upon nationalisation in the 1970s. The enactment of the Nigerian Enterprises Promotion Decree in 1972 signalled the beginning of the indigenisation moves of the Federal Government. The Federal Government subsequently acquired a 40% equity stake in the 3 biggest banks: UBA, Barclays, and Standard. This was then increased to 60% in 1978.

7.2.2 Financial Repression

Shaw (1973) defines financial repression as policies that distort financial prices including interest rates and foreign-exchange rates, and which have reduced real growth rates and the real size of the financial system relative to nonfinancial magnitudes. Financial repression policies have been identified as measures such as bank nationalisation, interest rate and exchange rate controls, directed credit to priority sectors, and restricted entry into banking. These type of polices have often resulted into 'shallow' finance, which is characterised by low or falling real monetary aggregates, low levels of national income and wealth, and often negative real interest rates. A situation where shallow finance exists has an adverse effect on savings as holders of financial assets are not rewarded for their assets. Consequently, savings are not encouraged and the lack of savings results in a lack of investment. It must be noted that there is an abundance of investment opportunities in such economies but inadequate finance causes low investment, and this in turn, results in low economic growth.

The situation in the Nigerian financial sector before liberalisation was one of financial repression. The monetary policy adopted by the federal government was one of direct monetary control and the government was actively involved in interfering with both the interest rates charged by financial institutions and the allocation of credit to corporations. There was restricted entry into the financial sector and with the indigenisation decree, the Federal Government effectively nationalised the major banks in the country.

TABLE 7.2: INDICATORS OF FINANCIAL DEPTH

YEARS	DOMESTIC CREDIT PROVIDED BY BANKING SECTOR (% of GDP)	DOMESTIC CREDIT TO PRIVATE SECTOR (% of GDP)	LIQUID LIABILITES (M3) (% of GDP)	MONEY AND QUASI MONEY(M2) (% of GDP)	QUASI-LIQUID LIABILITIES (% of GDP)
1961	3.31	3.70	9.61	9.03	2.42
1962	5.63	5.57	9.66	9.02	2.46
1963	7.16	6.44	9.97	9.41	2.68
1964	8.51	6.33	11.01	9.99	3.00
1965	8.68	6.70	11.30	10.72	3.48
1966	10.05	7.20	11.55	10.87	3.69
1967	13.22	7.81	12.38	13.10	3.70
1968	16.71	7.87	14.24	13.14	5.13
1969	17.36	6.65	14.11	12.50	4.67
1970	12.74	4.92	11.03	9.16	3.86
1971	10.86	5.39	10.16	9.74	3.70
1972	11.54	6.14	11.04	10.18	4.27
1973	10.29	6.05	11.32	10.51	4.89
1974	-1.60	4.70	13.33	10.11	5.07
1975	4.44	6.81	17.82	14.44	7.08
1976	10.28	7.62	20.12	17.03	7.09
1977	17.71	9.24	22.98	19.92	6.84
1978	21.58	10.99	21.06	21.08	6.91
1979	20.26	10.39	23.23	20.24	8.90
1980	21.35	12.23	29.02	24.11	10.67
1981	31.10	15.93	30.63	29.19	11.43
1982	41.44	18.51	33.40	30.73	14.06
1983	48.49	17.25	34.98	31.26	15.23
1984	47.90	16.34	35.49	31.66	16.30
1985	44.12	15.68	34.37	30.68	16.09
1986	49.90	20.54	35.27	32.00	17.94
1987	37.02	14.84	29.00	24.11	15.32

Source: World Development Indicators (WDI) CD-ROM 2004

An examination of Table 7.2 shows that finance was shallow as the indicators of financial depth were quite low. Between 1961 and 1987, the ratio of credit provided by banks to the private sector hardly exceeded 15 percent and averaged 9.7 percent, while total credit provided by banks for the same period averaged 19.6 percent. The broad money ratio (M3) did not fare any better from the early 1960s to 1979 when it averaged 13.9 percent. This ratio only started to increase and reach 30 percent from the early 1980s. Thus, the government's policy of financial repression resulted in stifling financial depth in the economy.

TABLE 7.3: NOMINAL AND REAL INTEREST RATES IN NIGERIA: 1963-1987

Years	Inflation Rate	Minimum Rediscount Rate (nominal)	Minimum Rediscount Rate (real)	Savings Deposit Rate (nominal)	Savings Deposit Rate (real)	Time Deposits Rate (3-6months) (nominal)	Time Deposits Rate (3-6months) (real)	Minimum Lending Rate (nominal)	Minimum Lending Rate (real)	Maximum Lending Rate (nominal)	Maximum Lending Rate (real)
1963	-2.69	4	6.88	3	5.85	3	5.85	7	9.96	12	15.10
1964	0.86	4-5		3	2.13	4	3.12	7	6.09	12	11.05
1965	4.10	5	0.86	3.5	-0.58	4	-0.10	7.5	3.26	12	7.59
1966	9.69	5	-4.28	3.5	-5.64	4	-5.19	7.5	-2.00	12	2.11
1967	-3.73	5	9.06	3.5	7.51	3.5	7.51	7.5	11.66	12	16.33
1968	-0.48	4.5	5.00	3.5	4.00	4	4.50	7	7.51	12	12.54
1969	10.16	4.5	-5.13	3	-6.50	4	-5.59	7	-2.87	12	1.67
1970	13.76	4.5	-8.14	3	-9.46	4	-8.58	7	-5.94	12	-1.54
1971	16.00	4.5	-9.91	3	-11.21	4	-10.34	7	-7.76	12	-3.45
1972	3.46	4.5	1.01	3	-0.44	4	0.52	7	3.42	12	8.26
1973	5.40	4.5	-0.86	3	-2.28	4	-1.33	7	1.52	12	6.26
1974	12.67	4.5	-7.25	3	-8.59	4	-7.70	7	-5.04	12	-0.60
1975	33.96	3.5	-22.74	4	-22.37	negotiable	negotiable	6	-20.87	9	-18.63
1976	24.30	3.33	-16.87	4	-16.33	negotiable	negotiable	6	-14.72	10	-11.50
1977	15.09	4	-9.63	4	-9.63	5	-8.77	6	-7.90	10	-4.42
1978	21.71	5	-13.73	5	-13.73	5	-13.73	7	-12.09	11	-8.80
1979	11.71	5	-6.01	5	-6.01	5	-6.01	7	-4.22	11	-0.64
1980	9.97	6	-3.61	6	-3.61	6	-3.61	7.5	-2.25	11.5	1.39
1981	20.81	6	-12.26	6	-12.26	6	-12.26	7.5	-11.02	11.5	-7.71
1982	7.70	8	0.28	7.5	-0.18	7.5	-0.18	10.5	2.60	11.75	3.76
1983	23.21	8	-12.35	7.5	-12.75	7.5	-12.75	9.5	-11.13	11.5	-9.51
1984	17.82	10	-6.64	9.5	-7.06	9.5	-7.06	n.a.	n.a.	13	-4.09
1985	7.44	10	2.39	9.5	1.92	9.5	1.92	n.a.	n.a.	11.75	4.02
1986	5.72	10	4.05	9.5	3.58	9.5	3.58	n.a.	n.a.	12	5.94
1987	11.29	12.75	1.31	14	2.44	15.3	3.60	n.a.	n.a.	19.2	7.11

Sources: interest rate data from 1963-1981 taken from Falegan (1987)
interest rate data from 1982-1987 taken from Central Bank of Nigeria Statistical Bulletin vol.14, 2003
inflation data taken from World Development Indicators (WDI) 2004

Notes: real interest rates calculated using the formula: (((1+R)/(1+INF))-1)*100
where R=nominal interest rates, INF=inflation rate and R and INF are expressed as proportions

7.2.2.1 Interest Rate Controls

From the late 1950s when the CBN was established until the liberalisation of the financial sector in 1987, the government dictated both deposit and lending interest rates to financial institutions in the country. The Banking Amendment Act of 1962 and the Banking Decree of 1969 both empowered the CBN to fix deposit, and minimum and maximum lending interest rates. A main objective of this policy was to make credit cheap for both the government and some 'preferred sectors', and consequently, the nominal interest rates were kept very low which resulted in negative real interest rates.

The effect of this policy was that credit was cheap to come by for the government, while deposits were low because of the low savings interest rate. We see from Table 7.2 that for the 25 years from 1963 – 1987, the real savings deposit rate was negative for 18 years and the real time deposit rate was negative in 15 years.

7.2.2.2 Sectoral Credit Guidelines, Reserve Requirements and Credit Ceilings

In a bid to curb inflation, the CBN imposed credit ceilings on commercial banks loans and advances of 15 percent in 1964 and 13 percent in 1965. In 1969 the credit expansion ceiling was set at 10 percent which was subsequently revised to 20 percent in 1970 and then 8.4 percent in 1971. In April 1970 the expatriate banks were also directed to lend at least 35 percent of their total loans to indigenes, and throughout all these directives, it was maintained that priority should be given to the preferred sectors over the less preferred sectors. Banks were required to extend a greater percentage of their credit to sectors identified as the preferred sectors while the less preferred sectors were to receive a lower percentage of bank's loans. The preferred sectors were production and services while the less preferred sectors were general commerce and others[5]. The main purpose of the policy of directed credit to preferred sectors was to stimulate economic growth and 'take-off' of the economy. It was believed that the preferred sectors of agriculture, manufacturing, transportation and communication were crucial to achieving a fast pace of economic development. A system of penalties was put in place to deal with banks which failed to meet the stipulated credit guidelines.

[5] The subsectors of production are agriculture, mining, manufacturing, real estate, construction. Subsectors of services are public utilities, transport and communication. Subsectors of general commerce are exports, imports, domestic trade and bills discounted. Subsectors of others are credit and financial institutions, government, personal and professional and miscellaneous.

Another form of repression which was used by the CBN was the setting of reserve requirements for banks which restricted their credit creation capabilities. The government's argument for setting reserve requirements was that they limit the amount of credit that banks can create and also make sure that sufficient funds are available for depositors. The prescribed cash ratio for banks varied depending on their total deposits but the liquidity ratio was fixed at 25 percent.

Table 7.4 shows the distribution of loans and advances to different sectors. We see that loans to the production and general commerce sectors by commercial banks were similar in the early 1970s with each sector getting about 35 percent of total loans. By the late 1970s, however, the government's credit guidelines were fully at work and the preferred sector of production received about 60 percent of total commercial bank loans and advances while loans to general commerce had dropped considerably to about 17 percent. Credit to services and 'others' have been similar for this period, ranging between 6 percent and 15 percent.

The bottom part of Table 7.4 shows a similar trend for merchant banks. The government's repression policy was also at work as production received by far the largest percentage of merchant bank loans – about 60 percent.

TABLE 7.4:SECTORAL DISTRIBUTION OF COMMERCIAL AND MERCHANT BANKS TOTAL LOANS AND ADVANCES

A.COMMERCIAL BANKS

Years	Production Nmillion	%	Services Nmillion	%	General Commerce Nmillion	%	Others Nmillion	%	Total Nmillion
1970	116	33.00	22.4	6.37	167.5	47.65	45.6	12.97	351.5
1971	178	35.46	41.2	8.21	221.2	44.06	61.6	12.27	502
1972	222.6	35.93	63.8	10.30	222.2	35.87	110.9	17.90	619.5
1973	286.7	38.05	74.6	9.90	267.1	35.45	125.1	16.60	753.5
1974	395.7	42.18	94.8	10.11	284.9	30.37	162.7	17.34	938.1
1975	677.2	47.11	150.7	10.48	403.7	28.08	205.9	14.32	1437.5
1976	1115.5	52.54	253.3	11.93	531	25.01	223.2	10.51	2123
1977	1676.6	38.87	374.9	8.69	712	16.51	1550	35.93	4313.5
1978	2289.3	55.63	497.6	12.09	868.7	21.11	459.3	11.16	4114.9
1979	2788.4	60.22	472.8	10.21	863.7	18.65	505.5	10.92	4630.4
1980	3795.3	59.78	780.2	12.29	1209.3	19.05	564.3	8.89	6349.1
1981	5088.9	59.29	1148.3	13.38	1475	17.19	870.7	10.14	8582.9
1982	6003.5	58.43	1302.8	12.68	1826.5	17.78	1142.5	11.12	10275.3
1983	6372.4	57.44	1709.6	15.41	1727.2	15.57	1284.7	11.58	11093.9
1984	6674.9	58.02	1692.4	14.71	1822.7	15.84	1313.6	11.42	11503.6
1985	7272.2	59.75	1525.9	12.54	2051.3	16.86	1320.8	10.85	12170.2
1986	9353.9	59.57	1795.6	11.44	2754.8	17.54	1797.3	11.45	15701.6
1987	10527	60.04	2135.4	12.18	3037.4	17.32	1832.1	10.45	17531.9

B. MERCHANT BANKS

Years	Production Nmillion	%	Services Nmillion	%	General Commerce Nmillion	%	Others Nmillion	%	Total Nmillion
1981	438.5	61.59	19.1	2.68	109.8	15.42	144.6	20.31	712
1982	676.5	65.88	30.1	2.93	153	14.90	167.2	16.28	1026.8
1983	792.7	66.87	42.3	3.57	182.8	15.42	167.7	14.15	1185.5
1984	979.5	57.09	51.9	3.02	227.9	13.28	456.5	26.61	1715.8
1985	1041.6	57.77	64.6	3.58	238.1	13.21	458.6	25.44	1802.9
1986	1615.4	58.29	100	3.61	387.7	13.99	668.4	24.12	2771.5
1987	224.5	10.46	112.6	5.25	718.4	33.49	1089.8	50.80	2145.3

Source: Central Bank of Nigeria Statistical Bulletin vol.14, 2003 and author's own calculations

Table 7.5 provides an indication of the extent of control the government exerted on banks. Starting from 1972, commercial banks where required to allocate 45 percent of their total credit to production. This figure increased gradually over the years and by 1983, it was 61 percent. In contrast to this, 32 percent of bank credit was required to be appropriated to general commerce but this figure decreased and was 16 percent by 1983. Thus, the preferred sector of production was favoured by the government to get credit.

TABLE 7.5:SECTORAL CREDIT GUIDELINES FOR COMMERCIAL BANKS (%)

Years	Production	Services	General Commerce	Others
1972	45	11	32	12
1973	45	11	32	12
1974	45	11	32	12
1975	48	20	32	10
1976	48	10	32	12
1977	48	10	30	12
1978	50	10	28	12
1979	53	11	18	12
1980	56	12	17	8
1981	56	12	17	8
1982	59	12	17	8
1983	61	12	16	8

Source: Falegan (1987)

7.2.2.3 Bank Nationalisation and Entry Restrictions

As was noted in 7.2.1 above, the 1960s and 1970s are known as a period of strict regulation of banking in Nigeria. The government exercised a lot of control on the creation of banks as restrictions were in place on entry into the banking sector in the country. The government further strengthened its hold on the banking sector with the Indigenisation Decrees. An examination of Table 7.6 reveals that only 6 commercial banks where established in 10 years between 1970 and 1980. This improved after 1980 with 14 established in the 7 years from 1980 to 1987. By 1987 there where 1476 commercial bank branches in the country and with an estimated population of 88 million, this translates on average, to 1 branch per 60,000 people. There was thus a shortage of bank branches in the country.

TABLE 7.6:NUMBER OF BANK BRANCHES IN NIGERIA AND ABROAD

	COMMERCIAL BANKS					MERCHANT BANKS		
Year	Number of Banks	Number of Branches	Branches			Number of Banks	Number of Branches	Population (millions)
			Urban	Rural	Abroad			
1970	14	273				1		53.215
1971	16	318				1		54.701
1972	16	367				1		56.239
1973	16	385				2		57.835
1974	17	403				3		59.5
1975	17	436				5		61.241
1976	18	463				5		63.043
1977	19	492	474	13	5	5	1	64.931
1978	19	614	511	98	5	5	7	66.911
1979	20	672	533	133	6	6	7	68.983
1980	20	740	565	168	7	6	12	71.148
1981	20	869	622	240	7	6	15	73.409
1982	22	991	676	308	7	8	19	75.774
1983	25	1108	694	407	7	10	24	78.217
1984	27	1249	810	432	7	11	25	80.699
1985	28	1297	839	451	7	12	26	83.196
1986	29	1367	879	181	7	12	27	85.718
1987	34	1483	947	529	7	16	33	88.273

Note: Classification of branches into rural and urban started in July, 1977

The existing merchant banks at that time had no branches until 1977

Sources: Central Bank of Nigeria Statistical Bulletin, vol.14, 2003 and World Development Indicators (WDI) CD-ROM 2004

7.2.3 Macroeconomic Variables

Since the objective of financial liberalisation is to improve economic performance, Table 7.7 contains macroeconomic variables before liberalisation. The financial saving ratio was very low from 1961 to 1987 and averaged 2.87 percent of national income. This means that economic agents were not keen on holding financial assets. This can be attributed to the very low nominal deposit interest rates that banks were offering at the time. The gross domestic saving ratio was very low in the 1960s and with the exception of 1965, was below 10 percent. The savings ratio increased in the 1970s and averaged 22 percent. This included a peak of 30.6 percent in 1977. The 1980s saw a downward movement of the savings ratio and it has fallen below 15 percent from 1982.

The figures for the gross domestic investment ratio show a similar pattern. The investment ratio averaged 17.5 percent from 1961 to 1987. Investment was also low in the 1960s, rose (above 20 percent) in the 1970s, and then fell in the 1980s.

The rate of economic growth from 1961 to 1980 was very volatile but mainly positive for most years. The average growth rate from 1961 to 1980 was 4.9 percent with a high of 25 percent in 1970 and a low of -15 percent in 1967. Starting from the early 1980s, the growth rate took a downward spiral and was negative from 1981 to 1984. This is what led to the government's decision to embark on structural adjustment.

TABLE 7.7: MACROECONOMIC VARIABLES

Years	Financial Saving (% of GNP)	Gross National Saving (% of GNP)	Gross Domestic Saving (% of GDP)	Gross Domestic Investment (% of GDP)	Real GDP Growth (%)
1961	0.76	n.a.	4.61	11.73	0.19
1962	0.94	n.a.	5.24	10.54	4.10
1963	0.79	n.a.	6.42	11.18	8.58
1964	1.78	n.a.	7.10	13.31	4.95
1965	0.93	n.a.	10.27	15.39	4.89
1966	1.17	n.a.	9.68	13.89	-4.25
1967	-1.80	n.a.	7.33	13.66	-15.74
1968	1.89	n.a.	6.57	12.37	-1.25
1969	3.06	n.a.	8.15	12.19	24.20
1970	3.67	n.a.	12.02	14.82	25.01
1971	0.65	n.a.	15.93	18.72	14.24
1972	1.59	n.a.	20.26	21.09	3.36
1973	1.46	n.a.	22.98	22.41	5.39
1974	6.46	n.a.	27.58	16.97	11.16
1975	6.44	n.a.	20.74	25.23	-5.23
1976	5.98	n.a.	25.77	31.48	9.04
1977	5.92	29.60	30.68	28.33	6.02
1978	-0.43	22.53	23.32	27.53	-5.76
1979	5.46	26.82	27.84	22.08	6.76
1980	9.50	27.27	31.43	21.25	4.20
1981	1.72	16.36	19.23	23.28	-13.13
1982	2.86	11.58	14.04	20.00	-0.23
1983	4.18	8.56	10.83	14.74	-5.29
1984	3.57	8.48	11.42	9.53	-4.82
1985	2.74	9.03	12.63	8.97	9.70
1986	0.67	4.58	11.63	15.03	2.51
1987	5.41	10.71	19.92	15.98	-0.70

Source: World Development Indicators (WDI) CD-ROM 2000 and 2004

7.3 THE NIGERIAN FINANCIAL SECTOR: POST-LIBERALISATION

7.3.1 Financial Liberalisation

Nigeria embarked upon a Structural Adjustment Programme (SAP) in July 1986. This was necessitated by the adverse economic conditions the country found itself in following the fall in world oil prices in the early 1980s. Nigeria's over- dependence on oil meant that government revenues suddenly fell sharply; GDP also experienced a sharp fall and the government had accumulated a budget deficit of over 11 percent of GDP by 1982. The aims of the SAP were to:

(i) restructure and diversify the productive base of the economy in order to reduce dependence on the oil sector and on imports;

(ii) achieve fiscal and balance of payments viability over the period;

(iii) lay the basis for a sustainable non-inflationary or minimum inflationary growth;

(iv) lessen the dominance of unproductive investments in the public sector; improve the sector's efficiency and intensify the growth potential of the private sector.

These were to be achieved through exchange rate and trade liberalisation, more liberalised pricing polices and restructuring of the public expenditure. Thus, reform of the financial sector was not initially an objective of the SAP. Financial liberalisation was only partially drafted into the SAP in September 1986 when the second-tier foreign exchange market was introduced, and it was fully incorporated into the SAP with the deregulation of interest rates in August 1987. The mere fact that financial liberalisation was more or less an 'after-thought' and not one of the main objectives of the SAP have made some authors posit that it was doomed to failure (Ayogu et al., 1998). The financial reforms progressed gradually over the next decade with a series of policies which included further interest and exchange rate deregulation, relaxing restrictions on bank licensing, the adoption of a new Securities and Exchange Commission Decree, and the abolition of some directed credit policies.

With regard to sectoral credit guidelines and credit ceilings, the requirement of a minimum credit allocation to indigenous borrowers was abolished in 1985 which was followed by gradual abolition of selective credit allocations starting from 1986. 1986 also saw the modification of credit ceiling for merchant banks, and in 1988 the

government unified the credit ceilings requirement for commercial and merchant banks. The minimum capital requirement and the cash requirement for merchant banks were re-introduced in 1990.

The controls on maximum and minimum interest rates were abolished in 1987 and in the same year, the unified foreign exchange market was established. In 1989 the official and autonomous parts of the foreign exchange market were unified, and also the CBN and the banks agreed to limit the spread between interest rates. However, interest rate controls were re-introduced in 1991 as a result of the banking crisis in the country.

The liberalised policies induced a flurry of activities in the financial sector. Most notably, there was a big increase in the number of banks operating in the country. We see from Table 7.8 that the number of commercial banks operating in the country doubled between 1986 and 1992 while the number of branches increased from 1367 to 2275. However, we see that there was a disproportionate concentration of bank branches in the urban areas as opposed to the rural areas with about twice as many bank branches in the urban areas to the rural areas. We also see from this table that the number of merchant banks had quadrupled by the mid-1990s from 12 in 1986 to 51 in 1997. This rise in the number of banks, however, did not have any impact on the bank branch to population ratio because of the rapid rise in population. By 2002, there was still on average, 1 branch per 60,000 people.

TABLE 7.8:NUMBER OF BANK BRANCHES IN NIGERIA AND ABROAD (after liberalisation)

	COMMERCIAL BANKS					MERCHANT BANKS		
Year	Number of Banks	Number of Branches	Branches			Number of Banks	Number of Branches	Population (millions)
			Urban	Rural	Abroad			
1986	29	1367	879	181	7	12	27	85.718
1987	34	1483	947	529	7	16	33	88.273
1988	42	1665	1057	602	6	24	46	90.866
1989	47	1855	1093	756	6	34	56	93.505
1990	58	1939	1169	165	5	49	74	96.203
1991	65	2023	1253	165	5	54	84	98.983
1992	65	2275	1495	774	6	54	116	101.88
1993	66	2358	1577	775	6	53	124	104.89
1994	65	2403	1634	763	6	51	144	108.01
1995	64	2368	1661	701	6	51	144	111.27
1996	64	2407	1727	675	5	51	144	114.5
1997	64	2407	1727	675	5	51	144	117.68
1998	54	2185	1466	714	5	38	113	120.82
1999	54	2185	1466	714	5	38	113	123.9
2000	54	2193	1466	722	5	38	113	126.91
2001	90	2193	1466	722	5			129.88
2002	90	2227	1500	722	5			132.79

Note: Classification of branches into rural and urban started in July, 1977
The existing merchant banks at that time had no branches until 1977
Source: Central Bank of Nigeria Statistical Bulletin, vol.14, 2003

TABLE 7.9:SECTORAL DISTRIBUTION OF COMMERCIAL AND MERCHANT BANKS TOTAL LOANS AND ADVANCES

A.COMMERCIAL BANKS

	Production		Services		General Commerce		Others		Total
Years	Nmillion	%	Nmillion	%	Nmillion	%	Nmillion	%	Nmillion
1986	9353.90	59.57	1795.60	11.44	2754.80	17.54	1797.30	11.45	15701.60
1987	10527.00	60.04	2135.40	12.18	3037.40	17.32	1832.10	10.45	17531.90
1988	12379.90	63.29	1336.00	6.83	3616.20	18.49	2229.10	11.40	19561.20
1989	13640.50	61.98	1500.80	6.82	4222.30	19.19	2644.40	12.02	22008.00
1990	15678.30	60.30	1869.90	7.19	4838.70	18.61	3613.20	13.90	26000.10
1991	20039.00	64.01	2107.60	6.73	5101.60	16.30	4058.00	12.96	31306.20
1992	27201.90	63.65	2764.20	6.47	7392.50	17.30	5378.20	12.58	42736.80
1993	40692.90	61.97	4419.30	6.73	13494.00	20.55	7059.10	10.75	65665.30
1994	57279.60	86.62	n.a.	n.a.	8848.00	13.38	n.a.	n.a.	66127.60
1995	95441.00	83.08	n.a.	n.a.	19442.90	16.92	n.a.	n.a.	114883.90
1996	120551.70	71.15	n.a.	n.a.	32998.20	19.48	15887.20	9.38	169437.10
1997	131373.40	34.07	n.a.	n.a.	16368.70	4.25	237808.40	61.68	385550.50
1998	146761.60	53.78	n.a.	n.a.	29770.20	10.91	96363.70	35.31	272895.50
1999	667091.80	52.69	n.a.	n.a.	76568.80	6.05	522323.80	41.26	1265984.40
2000	798395.40	44.46	n.a.	n.a.	98110.50	5.46	899262.40	50.08	1795768.30
2001	1140868.90	40.80	n.a.	n.a.	115408.00	4.13	1539835.30	55.07	2796112.20
2002	1410885.80	39.12	n.a.	n.a.	111768.50	3.10	2083574.80	57.78	3606229.10

B.MERCHANT BANKS

	Production		Services		General Commerce		Others		Total
Years	Nmillion	%	Nmillion	%	Nmillion	%	Nmillion	%	Nmillion
1986	1615.40	58.29	100.00	3.61	387.70	13.99	668.40	24.12	2771.50
1987	224.50	10.46	112.60	5.25	718.40	33.49	1089.80	50.80	2145.30
1988	2878.50	63.44	138.40	3.05	1286.40	28.35	233.80	5.15	4537.10
1989	3797.90	67.00	130.10	2.30	1286.40	22.70	453.80	8.01	5668.20
1990	4724.30	64.13	127.90	1.74	1740.10	23.62	774.50	10.51	7366.80
1991	6666.50	69.10	239.30	2.48	1842.90	19.10	898.60	9.31	9647.30
1992	8227.20	73.53	205.30	1.83	1917.00	17.13	839.30	7.50	11188.80
1993	13086.50	32.20	755.50	1.86	25866.90	63.65	928.60	2.29	40637.50
1994	19408.20	58.35	916.00	2.75	9860.90	29.65	3074.90	9.25	33260.00
1995	19061.40	62.27	n.a.	n.a.	3387.90	11.07	8162.90	26.67	30612.20
1996	20562.00	49.98	n.a.	n.a.	3902.90	9.49	16674.60	40.53	41139.50
1997	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1998	33087.30	57.84	n.a.	n.a.	5137.50	8.98	18977.30	33.18	57202.10
1999	131566.60	57.74	n.a.	n.a.	21251.10	9.33	75024.80	32.93	227842.50
2000	138412.50	52.26	n.a.	n.a.	13866.00	5.24	112571.80	42.50	264850.30

Source: Central Bank of Nigeria Statistical Bulletin vol.14, 2003 and author's own calculations

Note: the reporting format changed in 1995, as a result only data on agricultural, manufacturing, solid minerals and export secotrs were specified, while other sectors are specified under miscellaneous

Table 7.9 shows the sectoral distribution of loans and advances by banks after financial liberalisation. The system of reporting changed in 1995 and this makes it difficult to pin-point specific sectors that credit was lent to. Prior to 1995, however, we see that there was still a disproportionate percentage of bank credit going to the production sector after liberalisation. This is despite the fact that selective credit allocations have been gradually abolished since 1985.

With the proliferation of banks in the aftermath of financial liberalisation, Table 7.10 shows that there was an increase in the amount of loans granted by banks. Bank loans and advances increased from ₦46.9 billion in 1987 to ₦57.6 billion in 1990, and then jumped considerably and had reached over ₦650 billion by 2000. The table also shows that the composition of bank loans between the private and public sectors has been fluctuating since liberalisation. The credit provided by banks to the private sector was greater than credit to the public sector immediately after liberalisation from 1987 to 1991. This was reversed from 1992 to 1995 when credit to the public sector exceeded private sector credit, but this again changed from 1996 and private sector credit has since been greater than public sector credit.

One of the main reasons for financial liberalisation as advanced by the McKinnon-Shaw school is that decontrolling interest rates should result in positive real deposit rates of interest which would then attract savings and the increased savings can be channelled into more productive investments. Table 7.11 shows the real deposit and lending rates and we see that financial liberalisation has not had the predicted impact on the real deposit rate of interest. For the 15 years after liberalisation to 2001, real savings

deposit rates were negative in 11 years while real time deposit rates were negative in 10 years. This is despite the fact that nominal deposit rates increased. This has largely been due to higher inflation rates after liberalisation.

TABLE 7.10:BANKING SYSTEM CREDIT TO THE ECONOMY

YEAR	BANKING SYSTEM CREDIT (N MILLION) TO:			GROWTH OF CREDIT (%) TO:		
	Economy	Private Sector	Public Sector	Economy	Private Sector	Public Sector
1980	10787.5	7190.9	3596.6	21.7	32.8	4.4
1981	16268.5	9654.2	6614.3	50.8	34.3	84.1
1982	21906.8	11371.5	10535.3	34.7	17.8	59.3
1983	28182.1	12353.9	15828.2	28.7	8.6	50.3
1984	31141.6	12942	18199.6	10.5	4.8	15
1985	32680.3	13700.2	18980.1	4.9	5.9	4.3
1986	36820.3	17365	19455.3	12.7	26.7	2.5
1987	46926.4	25476.1	21450.3	27.4	46.7	10.3
1988	57326.3	29773.6	27552.7	22.2	16.9	28.4
1989	49259.1	30942.8	18316.3	-14.1	3.9	-33.5
1990	57674.9	36631	21043.9	17.1	18.4	14.9
1991	83823.7	45325.2	38498.5	45.3	23.7	82.9
1992	171071.1	79958.9	91112.2	65	4	136.7
1993	280657.6	95489.7	185167.9	74.7	19.7	103.2
1994	439113.8	151000.3	288113.5	8.1	47.5	-8.7
1995	474361.4	211358.6	263002.8	8.1	47.5	8.7
1996	332301.2	221835.6	110465.6	-25.4	21.8	-58
1997	321216.8	274958.4	46258.4	-3.3	23.9	-58
1998	485689.7	351760.7	133929	51.2	27.9	188.9
1999	632010.1	455205.2	176804.9	30	29.19	32.01
2000	667621.7	596001.5	71620.2	-23.1	30.9	-162.3
2001	848992.9	854999.4	-6006.5	79.89	43.5	95.16
2002	1394422.7	1023783.5	373639.2	64.6	19.7	-6320.6

Source: Central Bank of Nigeria Major Economic, Financial and Banking Indicators, 2004

TABLE 7.11: NOMINAL AND REAL INTEREST RATES IN NIGERIA: 1986-2001

Years	Inflation Rate	Minimum Rediscount Rate (nominal)	Minimum Rediscount Rate (real)	Savings Deposit Rate (nominal)	Savings Deposit Rate (real)	Time Deposits Rate (3-6months) (nominal)	Time Deposits Rate (3-6months) (real)	Prime Lending Rate (nominal)	Prime Lending Rate (real)	Maximum Lending Rate (nominal)	Maximum Lending Rate (real)
1986	5.72	10	4.05	9.5	3.58	9.5	3.58	10.5	4.52	12	5.94
1987	11.29	12.75	1.31	14	2.44	15.3	3.60	17.5	5.58	19.2	7.11
1988	54.51	12.75	-27.03	14.5	-25.90	12.1	-27.45	16.5	-24.60	17.6	-23.89
1989	50.47	18.5	-21.25	16.4	-22.64	21.6	-19.18	26.8	-15.73	24.6	-17.19
1990	7.36	18.5	10.37	18.8	10.65	20.5	12.23	25.5	16.89	27.7	18.94
1991	13.01	14.5	1.32	14.29	1.14	17.09	3.61	20.01	6.20	20.8	6.90
1992	44.59	17.5	-18.74	16.1	-19.70	22.3	-15.42	29.8	-10.23	31.2	-9.26
1993	57.17	26	-19.83	16.66	-25.77	23.26	-21.57	36.09	-13.41	18.32	-24.72
1994	57.03	13.5	-27.72	13.5	-27.72	15	-26.77	21	-22.95	21	-22.95
1995	72.81	13.5	-34.32	12.61	-34.84	13.65	-34.23	20.18	-30.46	20.79	-30.10
1996	29.29	13.5	-12.21	11.69	-13.61	13.21	-12.44	19.74	-7.39	20.86	-6.52
1997	8.21	13.5	4.89	4.8	-3.15	7.49	-0.67	13.54	4.93	23.32	13.96
1998	10.32	14.31	3.62	5.49	-4.38	10.5	0.17	18.29	7.23	21.34	9.99
1999	4.76	18	12.63	5.33	0.54	12.75	7.62	21.32	15.80	27.19	21.41
2000	14.53	13.5	-0.90	5.29	-8.06	10.27	-3.72	17.98	3.02	21.55	6.13
2001	12.96	14.31	1.20	5.49	-6.61	10.5	-2.18	18.29	4.72	21.34	7.42

Sources:interest rate data from taken from Central Bank of Nigeria Statistical Bulletin vol.14, 2003

inflation data taken from World development Indicators(WDI) 2004

Notes: real interest rates calculated using the formula: (((1+R)/(1+INF))-1)*100

where R=nominal interest rates, INF=inflation rate and R and INF are expressed as proportions

Lewis and Howard (2002) identify two major factors that induced the increase in the number of banks operating in the country after liberalisation. The factors are the liberalisation of the capital account and the abolition of import licensing. These two policies limited the degree of rent-seeking in the economy, but with liberalisation came the dual foreign exchange mechanism where only banks were allowed to buy foreign currency at an official rate which they then sold at the autonomous/premium rate. This resulted in a shift in the pattern of rent seeking from trade to financial services. Bank licenses were granted based on political connections and the CBNs role was reduced to just granting licenses. The banks increased at a pace that exceeded the regulatory capacity of the CBN and consequently, monitoring of the banks by the CBN became extremely difficult.

The government's privatisation programme in 1989 saw the privatisation of 14 insurance companies and development finance institutions (DFIs). 1989 also witnessed the establishment of People's Banks for supplying credit to small-scale enterprises, and Community Banks were established in 1990 for the similar role of providing indigenous businesses with credit. By 1993, there were over 250 People's Banks in existence while Community Bank's had reached 1000. Despite their great number, these institutions accounted for less than 1% of total loans to the private sector by 1993 (Lewis and Howard, 2002). This period also witnessed an expansion in the operations of non bank financial institutions (NBFIs) and bureaux de changes. Unlike the banks, the NBFIs were not subject to CBN regulation and did not have to publish their statement of accounts. Consequently, most of them were used as avenues for round-

tripping and the dealing of foreign exchange. Despite the fact that there were over 300 NBFIs operating by 1993, their total assets were only 5% those of the banks. It was also in this year that the Federal Government divested its share in the leading banks (7 commercial and 5 merchant) under pressure from the international finance institutions.

TABLE 7.12: NUMBER OF DEVELOPMENT AND SPECIALISED BANKS/INSTITUTIONS

BANKS/INSTITUTIONS	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Development Banks	4	4	4	4	4	4	4	4	4	4	4
Specialised Banks:	169	287	629	1150	1246	1633	1649	1296	1296	1295	1162
Community Banks		66	401	879	970	1355	1368	1015	1015	1014	881
Peoples Bank (Branches)	169	221	228	271	275	275	278	278	278	278	278
Educational Bank						1	1	1	1	1	1
Urban Development Bank					1	1	1	1	1	1	1
Maritime Bank						1	1	1	1	1	1
Specialised Financial Institutions:	82	126	871	673	679	656	563	476	538	539	539
Finance Houses			618	310	290	279	279	270	279	280	280
Insurance Companies (Reporting)	80	100	105	105	103	90	90	83	57	57	57
Discount Houses				3	4	4	5	5	5	5	5
Primary Mortgage Institutions		23	145	252	279	280	186	115	194	194	194
NERFUND	1	1	1	1	1	1	1	1	1	1	1
NEXIM		1	1	1	1	1	1	1	1	1	1
NSITF (NPF)	1	1	1	1	1	1	1	1	1	1	1

Source: Central Bank of Nigeria Statistical Bulletin vol.14, 2003

7.3.2 The Banking Crises

The new financial institutions being created needed staff and so there was a massive recruitment drive into the financial sector. New graduates with little or no experience were being employed in management positions in these institutions, experienced bankers and accountants were also lured from accounting firms. All these new staff were paid extremely high wages. The net result of this was that there were a large number of financial institutions which were poorly capitalised, did not offer any retail banking but only dealt in foreign exchange, and had inexperienced and fraudulent

employees in management positions. All these institutions also had the additional characteristic of offering very high deposit rates of interest to attract depositors.

But the new privately owned banks were not the only ones perpetrating these fraudulent activities. The state-owned banks were also guilty of inappropriate conduct. Most of the state-owned banks were older than the private-sector banks because many of them had been established by the state governments in the 1970s with the main objective of advancing their respective developmental goals. Many of them were joint ventures between the state governments and local people. These banks accounted for about 20% of total commercial bank assets in 1994 (Brownbridge and Harvey, 1998). These banks were also badly managed and the problems that plagued them included political interference in the appointment of the management board, which ultimately resulted in inexperienced and unqualified people appointed to key management positions. The banks were used by the various governments to fund political campaigns and as a source of cheap credit to family and friends, and so they (banks) accumulated a substantial amount of bad debts. Table 7.13 shows the proportion of insider loans to total loans and this proportion was as high as 70 percent for some banks. Brownbridge and Harvey (1998) note that 60% of the total loan portfolios of state-owned banks were non-performing in 1994. The banks were also subject to high operating costs with the state-owned banks incurring costs of 76% of net earnings as against 49% for other banks (Brownbidge and Harvey, 1998). We also get an idea of the extent of fraud in the banks from Table 7.14 where we see that over N1 billion had been involved in frauds and forgeries in banks since 1993.

TABLE 7.13: EXTENT OF INSIDER LOANS IN LIQUIDATED BANKS

LIQUIDATED BANK	TOTAL LOANS (N MILLION)	LOANS TO INSIDERS (NMILLION)	PROPORTION OF INSIDER LOANS TO TOTAL LOANS (%)
Financial Merchant Bank	577.5	363.1	62.9
Kapital Merchant Bank	246.8	140	56.7
Alpha Merchant Bank	2837.2	647.2	22.8
United Commercial Bank	1735	1183.6	68.2
Republic Bank	308.5	219.1	71
Total	5705.1	2552.9	44.7

Source: Alashi (2002)

TABLE 7.14: EXTENT OF FRAUDS AND FORGERIES IN BANKS

YEAR	AMOUNT INVOLVED (NMILLION)	ACTUAL/EXPECTED LOSS (NMILLION)	NO.OF STAFF TERMINATED/RETIRED/ DISMISSED FOR FRAUDS
1989	105	15.3	313
1990	804.2	55.8	417
1991	388.6	26.7	514
1992	411.8	73.1	436
1993	1419.1	246.4	516
1994	3399.4	950.7	737
1995	1011.4	229.1	625
1996	1600.7	375.3	552

Source: Alashi (2002)

By 1992 the financial sector was in a mess. The new Prudential Guidelines introduced in 1991 made sure banks adequately classified non-performing loans and this provided the first indication of the extent of decay in the industry. State-owned commercial banks' ratio of classified loans (i.e. bad or doubtful debts) to shareholders funds was 2300 per cent, while for the private commercial banks, the ratio ranged between 151 per cent and 282 per cent. Merchant banks had a ratio of over 200 per cent. Classified loans for the whole industry were 45 per cent of total loans and advances (Brownbridge

and Harvey, 1998). We see from Table 7.15 that classified loans of banks had reached ₦72 billion by 1996.

By 1993, 28 banks were identified as insolvent and a further 26 were in the early stages of distress and the CBN took over six state-owned banks. The political instability with the annulment of elections and the taking-over of power by a military regime did not help matters and bank runs were clearly evident by 1994. This further exacerbated the crisis and interbank rates were over 100% in 1994. In a bid to restore some stability in the financial system the government re-introduced interest rate and exchange controls in 1994.

TABLE 7.15: ASSET QUALITY OF BANKS

Year	Loans and Advances (Nbillion)		Classified Loans and advances (Nbillion)		Proportion of classifed loans and advances to total loans and advances	
	Industry	Distressed	Industry	Distressed	Industry	Distressed
1989	23.1	4.3	9.4	2.9	40.8	67.1
1990	27	6.4	11.9	4.7	44.1	72.8
1991	32.9	5.4	12.8	4.1	39	76.5
1992	41.4	15.7	18.8	6.8	45.4	43
1993	80.4	25.3	32.9	14.7	41	58
1994	109	45.6	46.9	29.5	43	64.6
1995	175.9	51.1	57.8	35.2	32.9	68.9
1996	213.6	51.8	72.4	40.9	33.9	79

Source: Alashi (2002)

The licences of two banks were suspended in 1994 and in 1995 17 private banks had been taken over by the CBN, while in the period from 1992 to 1995, 10 state banks had been taken over. In 1995, the CBN estimated that 60 out of 115 (effectively half the number of banks in the country) were distressed. Overall, 30% of total deposits and 20% of total assets of the banking system were held by the insolvent banks.

Signs of the unstable and volatile nature of the financial sector started to emerge in the late 1980s when it came to the attention of the authorities that 8 banks (out of 66 banks operating then) were technically insolvent. The government took some steps to bolster regulation and the Nigeria Deposit Insurance Corporation (NDIC) was created in 1988 to complement the CBN's efforts in banking supervision. The NDIC was charged with insuring deposits and also with bank inspection. Other prudential initiatives were the increase in the minimum paid-up share capital for all banks in 1991.[6] This period also saw varying degrees of reversals of the financial liberalisation policy. Interest rate controls were re-introduced in 1991 but were again de-controlled in 1992.

The CBN also stopped further bank licensing in early 1991 coupled with new Prudential Guidelines on asset quality that were put in place which required better and more transparent accounting and loan classification from banks. The CBN Decree and the Banks and Other Financial Institutions Decree (BOFID) were promulgated in June 1991 which strengthened the CBNs regulatory powers and granted the CBN more power in licensing banks and dealing/punishing failing banks. Despite these new steps however, the CBN was still effectively answerable to the Presidency and the lack of independence hampered it in effective prudential regulation and supervision of banking. The CBN was used more by the government to service its excessive budget deficits which exceeded 10% of GDP between 1991 and 1993.

The Failed Banks (Recovery of Debts) and Financial Malpractices Decree was promulgated in 1994. This marked the first serious attempt by the government to deal

[6] This was increased from N20million to N50million for commercial banks and N12million to N40million for merchant banks.

with the crises. Special tribunals were created under this decree and they were charged with investigating and prosecuting banking malpractices. The operation of these tribunals brought hundreds of arrests of various people ranging from bank workers to individuals that had not repaid their loans.

7.3.3 Impact of Liberalisation on Financial Deepening and Economic Variables

We have plotted some financial and economic variables in Figures 7.1 to 7.15 to provide a more detailed view of how the economy has fared under financial liberalisation. Figures 7.1 to 7.10 are the graphs for financial variables while Figures 7.11 to 7.15 are the graphs for macroeconomic variables. We see from Figure 7.1 that there was a massive jump in the interest rate spread immediately after liberalisation, and this follows directly from the increase in both nominal lending and deposit interest rates. However, we see that this increase in nominal interest rates did not transfer into increased real rates of interest as Figure 7.11 shows that inflation increased by a larger proportion than the increase in interest rates.

Figures 7.4 to 7.8 show the graphs for the indicators of financial deepening commonly employed in the literature. It would be expected that the financial sector would deepen after liberalisation but the evidence we see from the figures is that the financial depth in the Nigerian financial sector actually decreased in the immediate aftermath of financial liberalisation. All the monetary ratios – M3/GDP, M2/GDP, and Quasi Liquid Liabilities/GDP – fell in the immediate aftermath of liberalisation while the bank credit ratios also fell. Financial depth only started increasing around 1996, which was after the authorities had put measures in place to cope with the banking crises.

Figures 7.9 and 7.11 show that there was a jump in the growth of M2. This further exacerbated the inflation rate which as we saw previously increased after liberalisation. Figure 7.11 shows that inflation not only increased, but also became more volatile after liberalisation.

From Figures 7.12 and 7.13 we see that savings – both national and financial – did not change drastically after liberalisation. Both national and financial savings were quite volatile before liberalisation, and this remained the case after liberalisation. Financial saving is particularly interesting since the McKinnon-Shaw proposition is that the beneficial impact of financial liberalisation starts with increased financial saving and these increased deposits can then be transferred into the most productive investments. The investment ratio also did not experience any major changes after liberalisation. The high investment rates attained in the late 1970s have not been realised and investment has been largely fluctuating, albeit above 10% after financial liberalisation. Figures 7.15 shows that there was an initial spike in economic growth after liberalisation but this then petered out within two years. The main difference in growth performance pre- and post-liberalisation is that growth seems to have been less volatile since liberalisation.

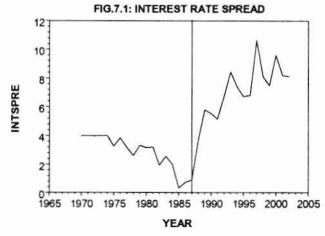


FIG.7.1: INTEREST RATE SPREAD
INTSPRE
YEAR

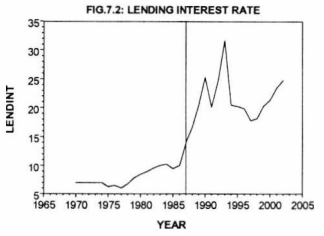


FIG.7.2: LENDING INTEREST RATE
LENDINT
YEAR

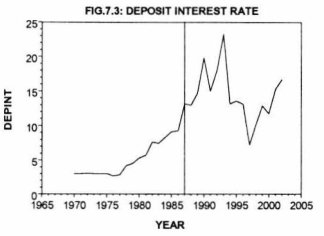


FIG.7.3: DEPOSIT INTEREST RATE
DEPINT
YEAR

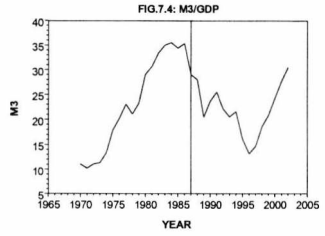


FIG.7.4: M3/GDP
M3
YEAR

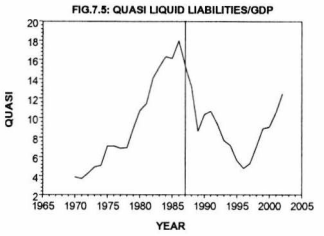


FIG.7.5: QUASI LIQUID LIABILITIES/GDP
QUASI
YEAR

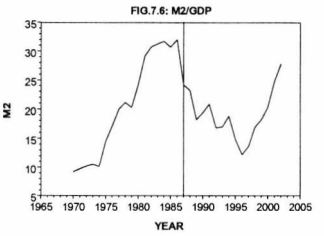


FIG.7.6: M2/GDP
M2
YEAR

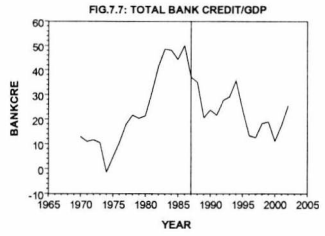


FIG.7.7: TOTAL BANK CREDIT/GDP
BANKCRE
YEAR

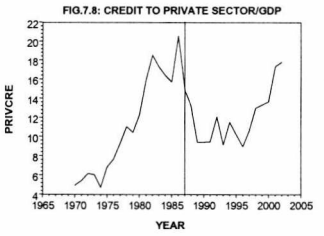


FIG.7.8: CREDIT TO PRIVATE SECTOR/GDP
PRIVCRE
YEAR

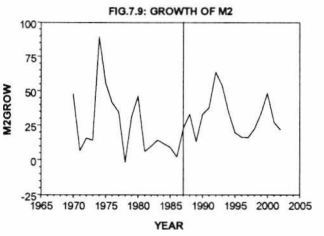


FIG.7.9: GROWTH OF M2
M2GROW
YEAR

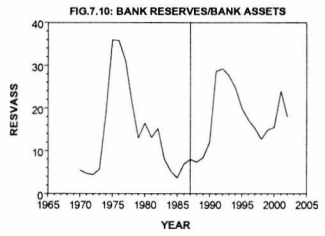


FIG.7.10: BANK RESERVES/BANK ASSETS
RESVASS
YEAR

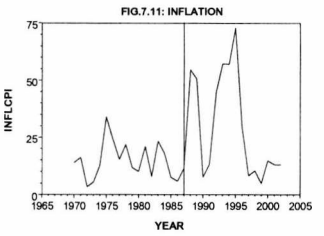


FIG.7.11: INFLATION
INFLCPI
YEAR

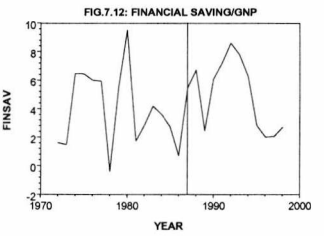


FIG.7.12: FINANCIAL SAVING/GNP
FINSAV
YEAR

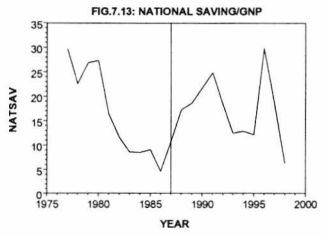


FIG.7.13: NATIONAL SAVING/GNP
NATSAV
YEAR

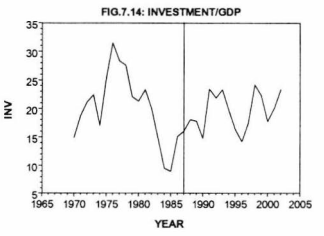


FIG.7.14: INVESTMENT/GDP
INV
YEAR

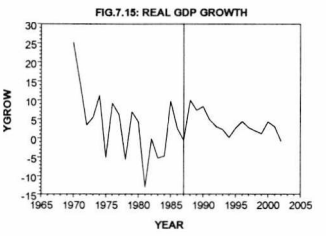


FIG.7.15: REAL GDP GROWTH
YGROW
YEAR

Table 7.16 contains the averages of the economic and financial deepening variables before and after liberalisation. We see that the averages of financial saving, national saving, and growth increased after liberalisation while the average of investment fell marginally after liberalisation. An examination of the financial deepening variables shows that the averages of all variables decreased after liberalisation.

TABLE 7.16: ECONOMIC AND FINANCIAL VARIABLES

Variables	Average pre-liberalisation	Average post-liberalisation
Financial Saving/GNP (%)	4.13	5.51
National Saving/GNP (%)	15.96	19.05
Investment(%)	20.19	19.60
Growth(%)	1.31	3.60
Real Interest Rate(%)	-7.62	-9.52
M3/GDP (%)	26.13	21.82
M2/GDP (%)	23.14	18.84
Quasi-liquid Liabilities/GDP (%)	10.92	8.69
Total Bank Credit/GDP (%)	26.95	22.20
Private Bank Credit/GDP (%)	12.47	11.91

data from 1973 - 2002

Source: World Development Indicators (WDI) CD-ROM 2004

7.4 ECONOMETRIC ANALYSIS

7.4.1 Introduction

In this section we will carry out our econometric analysis of the long-run impact of financial liberalisation on savings, investment, and growth in Nigeria. Annual time series data from the World Development Indicators (WDI) CD-ROM 2000 and 2004 have been used and the data ranges from 1972 to 2002 because we want to estimate

with an equal number of years (15) before and after financial liberalisation[7]. All estimations in this section are carried out using MICROFIT 4.0 (Pesaran and Pesaran, 1997).

7.4.2 Financial Liberalisation and Savings

We saw from the discussions in sections 2.2 and 4.1 that financial liberalisation through interest rate decontrols, denationalisation of banks, strengthening of prudential regulation, and the granting of more bank licences is expected to attract deposits thereby increasing savings. This is illustrated by an upward shift along the SS curve in Figure 2.1 on page 16, and it is expected that the increased savings will be channelled into credit to increase investment. In this section we will attempt to examine the impact of financial liberalisation on savings in the long-run in Nigeria.

The model we will use in this section is based on that developed in section 4.3. Consequently, our analysis makes use of two dependent variables which are financial saving and national saving. The independent variables are the four financial liberalisation proxies, income per capita (measuring the absolute income hypothesis), income per capita growth and population growth (measuring the life cycle hypothesis), and volatility of inflation (measuring macroeconomic uncertainty). All variables are expected to have positive coefficients except inflation volatility, whose relationship with savings could either be positive or negative.

[7] The exception here is gross national saving where the data starts from 1977.

We have first conducted unit root tests on the variables included in our models. The augmented Dickey-Fuller (ADF) unit root tests were carried out for all variables used in the savings equations and the results are presented in Table 7.17.

TABLE 7.17: SAVINGS EQUATIONS AUGMENTED DICKEY-FULLER UNIT ROOT TESTS

Variables	I(0)	I(1)	Conclusion
finsav	-3.7798	-6.0089	I(0)
natsav	-3.0497	-4.5306	I(0)
findex1	-1.1479	-3.0477	I(1)
findex2	-1.4569	-3	I(1)
findummy	-1.1767	-5	I(1)
rr	-3.493	-4.384	I(0)
$(pcgnp)^{-1}$	-1.2808	-3.5998	I(1)
gpcgnp	-3.4861	-4.9327	I(0)
popgrow	-5.2406	-5.8737	I(0)
volinfl	-2.3656	-4.7191	I(1)

Notes: the null hypothesis for each column is the presence of unit roots.
the 5% critical value for the I(0) test is -2.9798 and -2.9850 for the I(1) test
except for natsav which is -3.0115 for I(0) and -3.0199 for I(1)
all variables are constant with no trend

We can see from the table that financial saving, national saving, the real interest rate, growth of per capita income, and population growth are all integrated of order zero; while the two financial liberalisation indexes, the financial liberalisation dummy, inverse of per capita income, and inflation volatility are all integrated of order one.

This situation where we have some variables integrated of order zero and some other variables integrated of order one means that we cannot estimate using the Engle-Granger or Johansen cointegration techniques because they require all variables to be integrated of order one. An alternative technique that does not restrict the order of integration of the variables is the Autoregressive Distributed Lag (ARDL) framework of Pesaran, Shin and Smith (1996), Pesaran and Shin (1999), and Pesaran, Shin and Smith (2001). The ARDL method allows the use of variables that are integrated of different orders in estimating long run relationships. Specifically, variables that are I(0) and I(1) can be included in the same cointegrating equation. This technique is useful for

our analysis because we have a mixture of I(0) and I(1) variables. We have therefore conducted our cointegration estimations using the ARDL method.

The ARDL procedure comprises two steps. The first step involves testing the null hypothesis of no long run relationship between the levels of the variables. In order to do this, an F-test with a non-standard distribution is employed. Pesaran, Shin and Smith (1996) have provided two sets of asymptotic critical values for this test for the cases when all the variables are I(1) and for cases when all variables are I(0). If the computed F-statistic exceeds the upper critical value, then the null hypothesis of no long run relationship can be rejected, otherwise, the null hypothesis cannot be rejected. If a long run relationship exists, then the second step can be implemented. This involves estimation of the ARDL model by OLS using either the Akaike Information Criterion (AIC) or the Schwartz Bayesian Criterion (SBC) to select the maximum order of lags to obtain long run coefficients. This method also involves the simultaneous estimation of the error correction form (ECM) of the ARDL model.

Since all the variables satisfy the conditions of the ARDL method, we can proceed by specifying the equations to be estimated and these are presented below:

$$FINSAV = \chi_0 + \chi_1 FINDEX1 + \chi_2 (PCGNP)^{-1} + \chi_3 GPCGNP + \chi_4 POPGROW + \chi_5 VOLINFL + e1 \quad (7.1)$$

$$FINSAV = \lambda_0 + \lambda_1 FINDEX2 + \lambda_2 (PCGNP)^{-1} + \lambda_3 GPCGNP + \lambda_4 POPGROW + \lambda_5 VOLINFL + e2 \quad (7.2)$$

$$FINSAV = \alpha_0 + \alpha_1 FINDUMMY + \alpha_2 (PCGNP)^{-1} + \alpha_3 GPCGNP + \alpha_4 POPGROW + \alpha_5 VOLINFL + e3 \quad (7.3)$$

$$FINSAV = \delta_0 + \delta_1 RR + \delta_2 (PCGNP)^{-1} + \delta_3 GPCGNP + \delta_4 POPGROW + \delta_5 VOLINFL + e4 \quad (7.4)$$

$$NATSAV = \eta_0 + \eta_1 FINDEX1 + \eta_2 (PCGNP)^{-1} + \eta_3 GPCGNP + \eta_4 POPGROW + \eta_5 VOLINFL + e5 \quad (7.5)$$

$$NATSAV = \psi_0 + \psi_1 FINDEX2 + \psi_2 (PCGNP)^{-1} + \psi_3 GPCGNP + \psi_4 POPGROW + \psi_5 VOLINFL + e6 \quad (7.6)$$

$$NATSAV = \varphi_0 + \varphi_1 FINDUMMY + \varphi_2 (PCGNP)^{-1} + \varphi_3 GPCGNP + \varphi_4 POPGROW + \varphi_5 VOLINFL + e7 \quad (7.7)$$

$$NATSAV = \kappa_0 + \kappa_1 RR + \kappa_2 (PCGNP)^{-1} + \kappa_3 GPCGNP + \kappa_4 POPGROW + \kappa_5 VOLINFL + e8 \quad (7.8)$$

where FINSAV = financial saving ratio

NATSAV = gross national saving ratio

FINDEX1 = index of financial liberalisation derived from principal components

FINDEX2 = a second index of financial liberalisation

FINDUMMY = dummy for financial liberalisation

RR = real rate of interest

GPCGNP = growth of per capita GNP

POPGROW = population growth rate

VOLINFL = the volatility of inflation

e1 – e8 = error terms

In accordance with the ARDL method, we conduct cointegration tests to examine the existence of a long run relationship between the variables by computing the F-statistic for the joint significance of lagged levels of variables. Because annual data are used in this analysis, the maximum lag length was set at two and the AIC was then used to determine the appropriate lag length. The results of the cointegration test are presented

in Table 7.18 and we find evidence of a long-run relationship in only equation 7.4 where the computed F-statistic exceeds the upper critical value at the 90% significance level[8]. We can reject the null hypothesis of no cointegration for equation 7.4 and conclude that there exists a long-run relationship between financial saving and the explanatory variables in equation 7.4. We cannot reject the null hypothesis of no cointegration for the other equations, thus, estimation of long-run coefficients can be carried out for only equation 7.4.

TABLE 7.18: F-STATISTIC FOR COINTEGRATION TEST FOR SAVINGS EQUATIONS

Model	F-statistics
equation 7.1	1.9075
equation 7.2	2.1961
equation 7.3	1.5338
equation 7.4	3.4131**
equation 7.5	1.7377
equation 7.6	1.2598
equation 7.7	0.6762
equation 7.8	2.5191

Notes: the critical value bounds are from Table F in Pesaran and Pesaran (1997) (with an intercept and no trend).
They are 2.262-3.367 at the 90% significance level, 2.649-3.805 at the 95% siginifcance level and 3.516-4.781 at the 99% significance level
* denotes that the F-statistic falls above the 95% upper bound and ** denotes above the 90% upper bound

The long-run coefficients from estimating equation 7.4 using the ARDL method are given in Table 7.19 and we find a positive and significant coefficient for the real rate of interest. This is similar to the result obtained by Seck and El Nil (1993) who found a positive relationship between financial saving and the real interest rate for 9 countries in Africa. The implication of this result is that increases in the real interest rate in Nigeria have been able to induce agents to shift their holdings of wealth from non-

[8] The ARDL method, unlike other cointegration methods such as Johansen, does not give the number of cointegrating relations but simply shows if a long-run relationship exists or not (Pesaran and Pesaran, 1997, p.310-311).

financial to financial assets in the long-run, thus offering support to the financial liberalisation hypothesis. This result differs from that obtained in chapter 4 for 19 countries where financial saving was negatively and significantly related to the real interest rate. Possible reasons for this difference in the results could be that public confidence in banks has been sufficiently raised in the long-run, thereby increasing the appeal of financial saving. This is more so given that prudential regulation was considerably tightened, distressed banks were closed down, and erring bank officials were successfully prosecuted by the government in the aftermath of the banking crisis, thus cleaning the banking sector of unscrupulous elements. The result could also be explained by the fact that the macroeconomic environment was quite uncertain at the initial stages of financial liberalisation and agents would have preferred to save in real assets to hedge against inflation. The uncertainty and volatility has reduced with time and this could have stimulated agents into converting their real assets into financial savings.

TABLE 7.19: LONG - RUN COEFFICIENTS FROM ARDL ESTIMATION OF SAVINGS EQUATIONS

Dependent variables **Explanatory variables**	**financial saving** **equation 7.4**
constant	5.64 (4.73)*
rr	0.11 (1.84)***
$(pcgnp)^{-1}$	264.09 (0.79)
gpcgnp	0.14 (2.39)**
popgrow	-0.23 (-1.07)
volinfl	0.003 (0.05)

Notes:

1. * indicates that a coeffcient is significant at the 1 percent level; ** significant at the 5 percent level; and *** significant at the 10 percent level
2. Figures in parenthesis ( ) are t-ratios
3. All coefficients have been rounded to 2 decimal places

The only other variable in the table which is statistically significant is the growth rate of per capita income with a coefficient of 0.14, which is very similar to the value (0.15), obtained for the full sample of countries and this provides partial support for the LCH. The coefficient is quite low however, and it implies that financial savings will increase by about 1½ percentage points if per capita income grows by 10 percentage points.

It would be interesting to see the short-run dynamics and how quickly equilibrium is restored in the model. This is shown in Table 7.20 which contains the error correction representation of the ARDL model. We see from the table that short-run changes in the real interest rate have had a negative impact on short-run changes in financial saving and this supports the findings of chapter 4 that financial liberalisation has had a negative impact on financial saving in the short-run. These results seem to suggest that in the short-run, financial liberalisation has not contributed positively to financial saving; but in the long-run there has been sufficient time for the benefits of financial liberalisation to be realised and for it to increase financial saving. There are some similarities here with the view that financial liberalisation is distortionary in the short-run but beneficial in the long-run (Kaminsky and Schmukler, 2002; Loayza and Ranciere, 2004; Tornell and Westermann, 2004).

We next turn to the error correction term (ecm-1) which measures the speed of adjustment and this has a value of -1. This means there is a very fast adjustment back to equilibrium and the coefficient implies that all of the previous period's deviation from long-run equilibrium is restored by the next period. The standard error of the error correction term is zero and so it is not possible to obtain the t-ratios since they are

derived from dividing the coefficients by the standard error. A zero standard error means that an estimate is perfectly precise and there is virtually no deviation of the estimates about the regression line. This seems rather optimistic, and we check the diagnostics statistics to see if there are problems with the model.

The F-statistic shows that the explanatory are jointly significant while the coefficient of determination shows that the explanatory variables explain over 50% of the variation in savings rates. Figures 7.16 and 7.17 present the cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) graphs to test for model specification. The null hypothesis of these tests is that the regression equation is correctly specified. The pair of straight lines in each figure indicates the 5 percent significance level and if the plotted CUSUM and CUSUMSQ graphs remain inside the straight lines the null hypothesis of correct specification of the model can be accepted, otherwise the null hypothesis is rejected and it can be concluded that the regression equation is misspecified. We see from the two figures that the CUSUM and CUSUMSQ plots stay within the lines indicating the 5 percent level of significance and we can therefore conclude that equation 7.4 has been correctly specified.

A possible explanation for finding a value of -1 for the error correction term could be due to the opposing impacts of income and substitution effects. It could be that after financial liberalisation, the income and substitution effects are so big and since they work in opposite directions, they cause massive distortions which result in a very fast adjustment back to equilibrium. The result could also be due to the problems with estimating savings equations discussed on pages 129 – 130.

TABLE 7.20: ERROR CORRECTION REPRESENTATION FOR ARDL MODEL OF SAVINGS EQUATIONS

Dependent variables **Explanatory variables**	**Δfinancial saving** **equation 7.4**
Δrr	-0.02 (-0.46)
Δrr(-1)	-0.09 (-1.99)***
$\Delta(pcgnp)^{-1}$	3948.5 (1.45)
Δgpcgnp	0.14 (2.39)**
Δpopgrow	0.12 (1.08)
Δpopgrow(-1)	0.16 (1.44)
Δvolinfl	0.003 (0.05)
Δconstant	5.64 (4.73)*
ecm(-1)	-1 n.a.
	Diagnostic Statistics
R^2	0.71
Adj. R^2	0.54
F	[0.001]

Notes:

1. * indicates that a coeffcient is significant at the 1 percent level; ** significant at the 5 percent level; and ◊ significant at the 10 percent level
2. Figures in parenthesis ( ) are t-ratios, [ ] are p-values
3. All coefficients have been rounded to 2 decimal places

FIGURE 7.16: CUSUM TEST FOR EQUATION 7.4

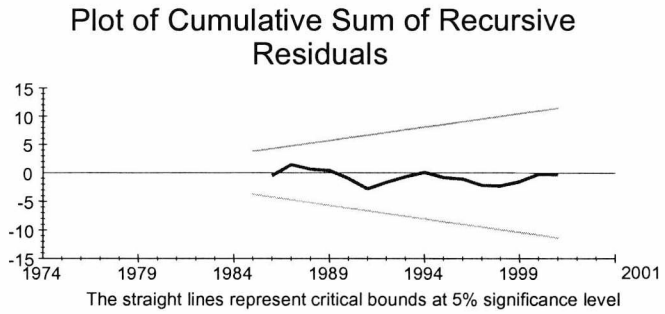
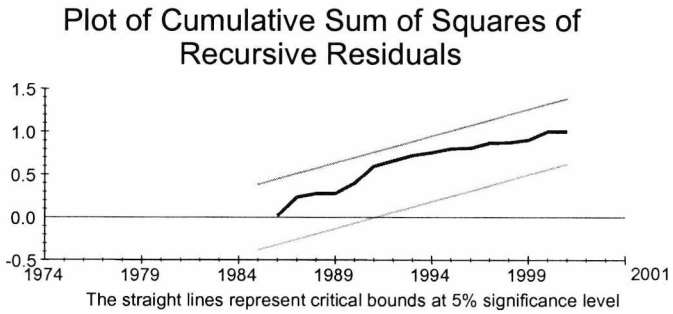


FIGURE 7.17: CUSUM TEST FOR EQUATION 7.4



7.4.3 Financial Liberalisation and Investment

Having found that financial liberalisation has exerted a positive impact on savings in the long-run in Nigeria in the previous section, we turn our attention in this section to investment. Referring back to Figure 2.1 investment is constrained by savings and is on the savings curve (SS). It is expected that after financial liberalisation investment will also increase as savings increases, as indicated by an upward movement along the SS curve.

The investment model to be estimated in this section draws heavily from that developed in section 5.3. Because the starting period of the available private investment data is 1980, we have used only total investment as the dependent variable. Explanatory variables are the four financial liberalisation proxies[9], output growth (accelerator theory), volatility of inflation and debt service ratio (macroeconomic uncertainty). From the financial liberalisation hypothesis, it is expected that the proxies for financial

[9] We have included a switching dummy variable showing whether the real interest rate is below or above equilibrium. A trial and error approach was used to determine the equilibrium real interest rate using values from -12% to +12% and we arrived at a value of -9%.

liberalisation will be positive; output growth is expected to be positive from the accelerator theory; while inflation volatility and the debt service ratio are expected to have a negative impact on investment.

Unit root tests have first been carried out for all variables and the results are presented in Table 7.21. The real interest rate and the variable including the switching dummy for the equilibrium interest rate are I(0), while investment, the two financial liberalisation indexes, the liberalisation dummy, GDP growth, volatility of inflation, and the debt service ratio are all I(1). This mixture of I(0) and I(1) variables and means that the ARDL method of Pesaran et.al. (1996, 1999, 2001) is still useful for contegration analysis of the investment equations.

TABLE 7.21: INVESTMENT EQUATIONS AUGMENTED DICKEY-FULLER UNIT ROOT TESTS

Variables	I(0)	I(1)	Conclusion
inv	-2.7172	-4.3489	I(1)
findex1	-1.1479	-3.0477	I(1)
findex2	-1.4569	-3	I(1)
findummy	-1.1767	-5	I(1)
rr	-3.493	-4.384	I(0)
(rr-rre)D*	-3.4828	-4.8119	I(0)
ygrow	-2.8533	-3.1197	I(1)
volinfl	-2.3656	-4.7191	I(1)
debt	-1.3682	-7.7953	I(1)

Notes: the null hypothesis for each column is the presence of unit roots.
the 5% critical value for the I(0) test is -2.9798 and -2.9850 for the I(1) test
all variables are constant with no trend
for * the equilibrium interest rate is -9%

The investment equations to be estimated are:

$$INV = \lambda_0 + \lambda_1 FINDEX1 + \lambda_2 YGROW + \lambda_3 VOLINFL + \lambda_4 DEBT + e9 \qquad (7.9)$$

$$INV = \mu_0 + \mu_1 FINDEX2 + \mu_2 YGROW + \mu_3 VOLINFL + \mu_4 DEBT + e10 \qquad (7.10)$$

$$INV = \nu_0 + \nu_1 FINDUMMY + \nu_2 YGROW + \nu_3 VOLINFL + \nu_4 DEBT + e11 \quad (7.11)$$

$$INV = \alpha_0 + \alpha_1 RR + \alpha_2 (RR - RRE)D + \alpha_3 YGROW + \alpha_4 VOLINFL + \alpha_5 DEBT + e12 \quad (7.12)$$

where INV = gross domestic investment ratio

FINDEX1 = index of financial liberalisation derived from principal components

FINDEX2 = a second index of financial liberalisation

FINDUMMY = dummy for financial liberalisation

RR = real rate of interest

RRE = equilibrium real rate of interest

D = dummy variable which takes on the value of 1 when RR>RRE and 0 otherwise

YGROW = real GDP growth

VOLINFL = volatility of inflation

DEBT = debt service ratio

e9 –e12 = error terms

The next step is to conduct cointegration tests to determine if there is a long - run relationship among the variables in our investment equations. The results of the cointegration tests are shown in Table 7.22, the lag length was set at two and the AIC was used in determining the appropriate lag length. The F-statistics for equations 7.9 to 7.11 are above the 99% upper bound and the F-statistics for equation 7.12 are above the 95% upper bound, and so we can reject the null hypothesis of no cointegration for all

equations. We can conclude that there exists a long - run relationship between investment and the explanatory variables in equations 7.9 to 7.12 and therefore proceed to estimating the long run coefficients of these equations.

TABLE 7.22: F-STATISTIC FOR COINTEGRATION TEST FOR INVESTMENT EQUATIONS

Model	F-statistics
equation 7.9	5.8280*
equation 7.10	7.1893*
equation 7.11	6.5469*
equation 7.12	4.1243*

Notes: the critical value bounds are from Table F in Pesaran and Pesaran (1997) (with an intercept and no trend) They are 2.425-3.574 at the 90% significance level, 2.850-4.049 at the 95% siginifcance level and 3.817-5.122 at the 99% significance level.
* denotes that the F-statistic falls above the 95% upper bound and ** denotes above the 90% upper bound

The long-run coefficients from estimating equations 7.9 to 7.12 are presented in Table 7.23 and we find no significant impact of financial liberalisation on total investment for Nigeria in the long-run. The two liberalisation indexes and dummy have negative coefficients while the real interest rate is positive, but they are all statistically insignificant. A possible explanation for this could be because of insufficient time-series data on private investment the dependent variable employed is total investment. Many authors prefer to use private investment when investigating the impact of economic policies on investment because private investment has more scope to be influenced by economic policies and because it is more susceptible to extensive economic analysis as it is not a policy variable of the government. Also, since private investment has been found to be more important for growth than public investment (Khan and Kumar, 1997; Ghura, 1997; Beddies, 1999; Poirson, 1998), its relationship with financial liberalisation provides for more interesting analysis. The lack of a significant effect of financial liberalisation on investment could also be because

financial liberalisation induced a big increase in the interest rate spread in Nigeria as a result of massive increases in the lending interest rate. Increased costs of borrowing are bound to adversely affect investment. Also, the austerity measures coupled with labour unrest which accompanied the SAP reduced consumer demand and this meant that manufacturing industries had to cut production.

Looking at the other variables in the model, the debt service ratio is the only significant one and as expected the negative coefficient means that macroeconomic uncertainty has resulted in low investment in Nigeria. Output growth is positive as expected, but insignificant.

TABLE 7.23: LONG - RUN COEFFICIENTS FROM ARDL ESTIMATION OF INVESTMENT EQUATIONS

	Dependent variable=investment ratio			
Explanatory variables	**equation 7.9**	**equation 7.10**	**equation 7.11**	**equation 7.12**
constant	22.35 (10.63)*	22.74 (11.77)*	23.33 (13.94)*	27.93 (6.27)*
findex1	-0.24 (-0.57)			
findex2		-0.21 (-0.54)		
findummy			-2.61 (-1.50)	
rr				0.44 (1.23)
(rr-rre)D				-0.79 (-1.23)
ygrow	0.44 (1.15)	0.47 (1.16)	0.27 (0.87)	0.49 (1.04)
volinfl	0.08 (0.69)	0.08 (0.69)	0.11 (0.84)	0.31 (1.35)
debt	-0.31 (-3.31)*	-0.29 (-2.89)*	-0.28 (-3.55)*	-0.36 (-2.80)**

Notes: 1. * indicates that a coeffcient is significant at the 1 percent level; ** significant at the 5 percent level; and *** significant at the 10 percent level

2. Figures in parenthesis ( ) are t-ratios

3. All coefficients have been rounded to 2 decimal places

The results of the error correction model are presented in Table 7.24. The lagged investment ratio is positive and significant in equations 7.9 and 7.10 and this means that investment depends on its past values. Short-run increases in past investment ratios result in short-run increases in future investment ratios. Financial liberalisation negatively affects investment in the short-run as all the proxies for financial liberalisation are negative. The error correction terms (ecm(-1)) are all negative and statistically significant which shows that the long run coefficients are jointly significant. This further supports the existence of a long-run relationship between the variables. The coefficient on the error correction term (the speed of adjustment) of -0.79 for equations 7.9 and 7.10 means that there is a quick adjustment back to equilibrium after a shock. Specifically, the coefficient implies that about 79% of the previous year's deviation from long-run equilibrium will be corrected within a year.

Looking at the diagnostic statistics, the R^2 values of 0.58 in equations 7.9 and 7.10 and 0.71 in equation 7.12 mean that the explanatory variables explain 58 and 71 percent of the variation in investment in the respective equations. The F-statistics suggest the joint significance of the explanatory variables. We have again plotted the CUSUM and CUSUMSQ tests of structural stability. All the graphs are within the bounds of the 5 percent level of significance and we can accept the null hypothesis that all our investment equations are correctly specified.

TABLE 7.24: ERROR CORRECTION REPRESENTATION FOR ARDL MODEL OF INVESTMENT EQUATIONS

Explanatory variables	Dependent variable=Δinvestment ratio equation 7.9	equation 7.10	equation 7.11	equation 7.12
Δinvestment ratio(-1)	0.39 (1.96)***	0.39 (1.96)***	0.38 (1.69)	0.33 (1.55)
Δfindex1	-0.19 (-0.57)			
Δfindex2		-0.16 (-0.54)		
Δfindummy			-8.76 (-2.05)***	
Δfindummy(-1)			7.34 (1.58)	
Δrr				-0.09 (-0.74)
Δrr(-1)				-0.29 (-1.82)
Δ(rr-rre)D				0.14 (0.58)
Δ(rr-rre)D(-1)				0.63 (2.23)**
Δygrow	-0.09 (-0.68)	-0.08 (-0.63)	-0.16 (-1.29)	-0.08 (-0.59)
Δygrow(-1)	-0.19 (-1.42)	-0.21 (-1.43)	-0.21 (-1.54)	-0.18 (-1.21)
Δvolinfl	0.06 (0.69)	0.07 (0.71)	-0.06 (-0.48)	0.21 (1.73)
Δdebt	-0.06 (-0.55)	-0.05 (-0.48)	-0.25 (-2.89)**	-0.12 (-1.05)
Δconstant	17.65 (3.16)*	17.86 (3.19)*	20.87 (3.62)*	18.82 (2.93)*
ecm(-1)	-0.79 (-3.78)*	-0.79 (-3.76)*	-0.89 (-4.17)*	-0.67 (-2.91)*
Diagnostic Statistics				
R^2	0.58	0.58	0.65	0.71
Adj. R^2	0.38	0.38	0.43	0.42
F	[0.008]	[0.009]	[0.006]	[0.011]

Notes: 1. * indicates that a coeffcient is significant at the 1 percent level; ** significant at the 5 percent level; and *** significant at the 10 percent level

2. Figures in parenthesis ( ) are t-ratios, [ ] are p-values

3. All coefficients have been rounded to 2 decimal places

FIGURE 7.18: CUSUM TEST FOR EQUATION 7.9

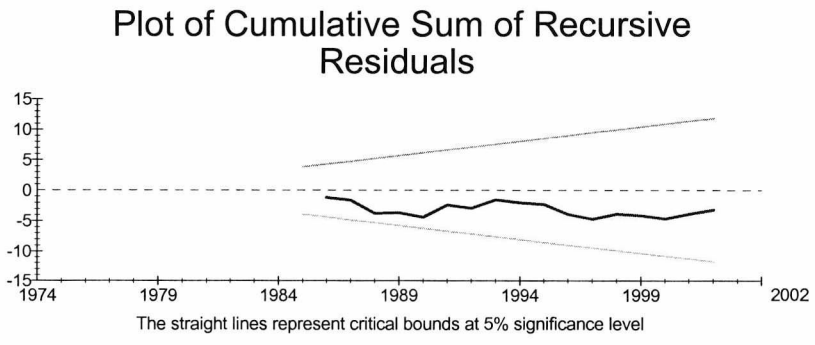


FIGURE 7.19: CUSUMSQ TEST FOR EQUATION 7.9

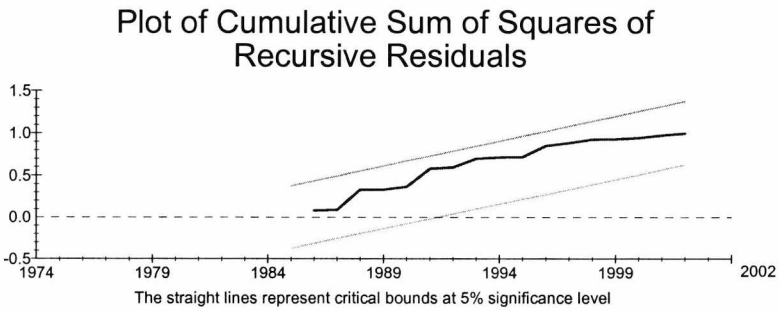


FIGURE 7.20: CUSUM TEST FOR EQUATION 7.10

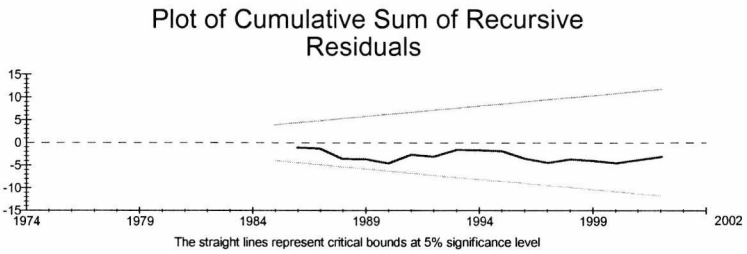


FIGURE 7.21: CUSUMSQ TEST FOR EQUATION 7.10

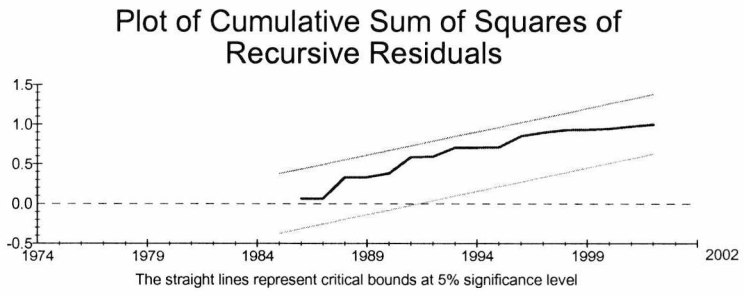


FIGURE 7.22: CUSUM TEST FOR EQUATION 7.11

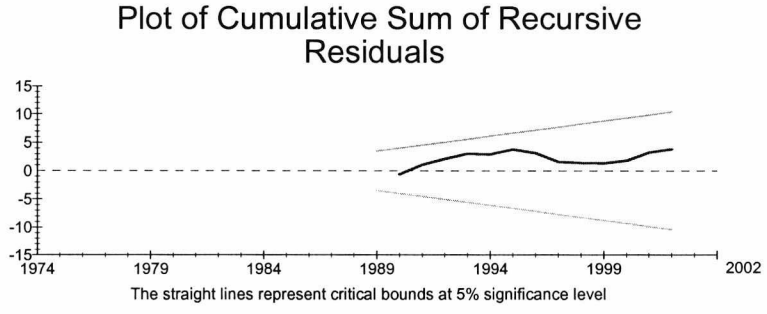


FIGURE 7.23: CUSUMSQ TEST FOR EQUATION 7.11

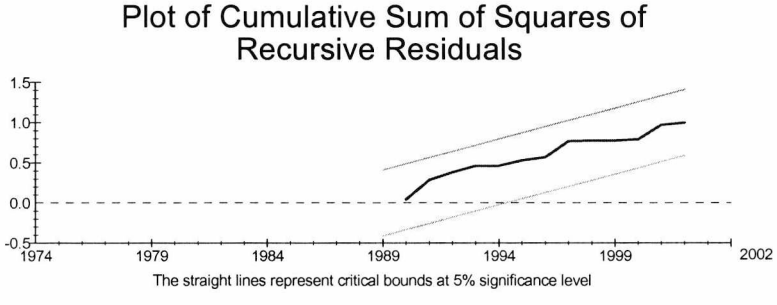


FIGURE 7.24: CUSUM TEST FOR EQUATION 7.12

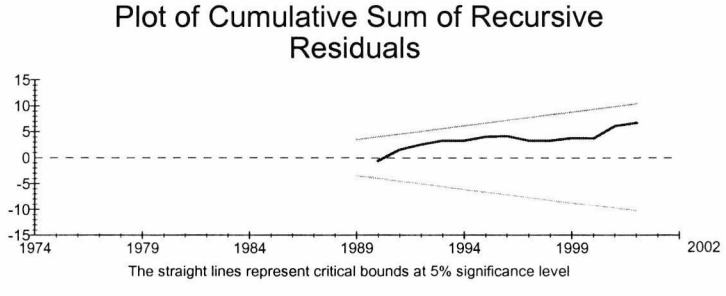
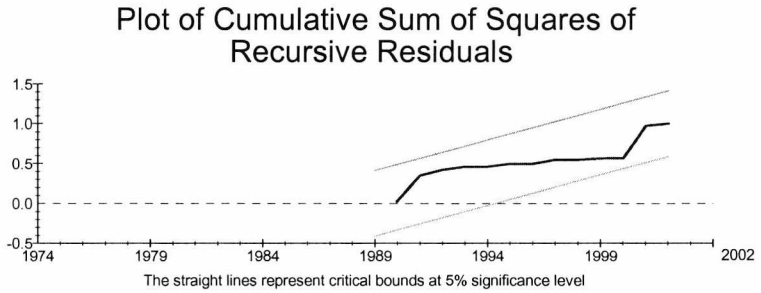


FIGURE 7.25: CUSUMSQ TEST FOR EQUATION 7.12



7.4.4 Financial Liberalisation and Economic Growth

We have seen from sections 7.4.2 and 7.4.3 that for the long-run in Nigeria, financial liberalisation has had a positive impact on savings while it has had a negative, albeit insignificant impact on investment. This means that the increased savings cannot be transferred into growth through the investment quantity channel. However, as discussed on pages 181 to 182 it can still be transferred through the investment quality channel. We therefore proceed in this section to examine the long-run impact of financial liberalisation on economic growth in Nigeria.

The growth model to be estimated is similar to the one developed in section 6.4.1 and we will not provide another detailed outline here. The dependent variable is the growth rate of real GDP. The explanatory variables are the four financial liberalisation proxies, export growth as a measure of macroeconomic policy, government consumption ratio to measure fiscal policy, and the debt service ratio to measure macroeconomic uncertainty. As discussed in section 6.4.1 it is expected that the liberalisation proxies

and export growth have positive coefficients while government consumption and debt are expected to be negative.

The ADF unit root tests for the variables are presented in Table 7.25 and we see that all variables are either I(0) or I(1). Specifically, the variables integrated of order zero are the real interest rate, export growth, and government consumption; while the variables integrated of order one are output growth, the two financial liberalisation indexes, the dummy for financial liberalisation, and debt.

TABLE 7.25: GROWTH EQUATIONS AUGMENTED DICKEY-FULLER UNIT ROOT TESTS

Variables	I(0)	I(1)	Conclusion
ygrow	-2.8533	-3.1197	I(1)
findex1	-1.1479	-3.0477	I(1)
findex2	-1.4569	-3	I(1)
findummy	-1.1767	-5	I(1)
rr	-3.493	-4.384	I(0)
exgrow	-5.4073	-5.3674	I(0)
govcon	-3.9703	-4.231	I(0)
debt	-1.3682	-7.7953	I(1)

Notes: the null hypothesis for each column is the presence of unit roots.
the 5% critical value for the I(0) test is -2.9798 and -2.9850 for the I(1) test
all variables are constant with no trend

This means the ARDL method is still useful for estimating our growth equations and the growth equations are specified below:

$$YGROW = \pi_0 + \pi_1 FINDEX1 + \pi_2 EXGROW + \pi_3 DEBT + \pi_4 GOVCON + e13 \quad (7.13)$$

$$YGROW = \varpi_0 + \varpi_1 FINDEX2 + \varpi_2 EXGROW + \varpi_3 DEBT + \varpi_4 GOVCON + e14 \quad (7.14)$$

$$YGROW = \vartheta_0 + \vartheta_1 FINDUMMY + \vartheta_2 EXGROW + \vartheta_3 DEBT + \vartheta_4 GOVCON + e15 \quad (7.15)$$

$$YGROW = \rho_0 + \rho_1 RR + \rho_2 EXGROW + \rho_3 DEBT + \rho_4 GOVCON + e16 \quad (7.16)$$

where FINDEX1, FINDEX2, FINDUMMY, RR are as defined previously

EXGROW = the rate of growth of exports

GOVCON = the ratio of government consumption to GDP

DEBT = debt service ratio

e13-e16 = error terms

We can go on to the next stage by testing for the existence of cointegration in the growth equations. The results of the cointegration test are presented in Table 7.26 and the maximum lag length was set at three, while the AIC was still used in determining the appropriate lag length. The F-statistic for equations 7.13 and 7.14 is above the upper bound at the 99% significance level. This suggests the existence of a long-run relationship between the variables included in these models. For equations 7.15 and 7.16, the F-statistic falls below the upper bound at the 90% significance level and we cannot reject the null hypothesis of no cointegration for these equations. We can now proceed to estimate the long run coefficients for equations 7.13 and 7.14.

TABLE 7.26: F-STATISTIC FOR COINTEGRATION TEST FOR GROWTH EQUATIONS

Model	F-statistics
equation 7.13	5.4194*
equation 7.14	5.1976*
equation 7.15	2.4064
equation 7.16	3.0869

Notes: the critical value bounds are from Table F in Pesaran and Pesaran (1997) (with an intercept and no trend). They are 2.425-3.574 at the 90% significance level, 2.850-4.049 at the 95% siginifcance level and 3.817-5.122 at the 99% significance level.

* denotes that the F-statistic falls above the 95% upper bound and ** denotes above the 90% upper bound

The long run coefficients are presented in Table 7.27 and we see that financial liberalisation has had a positive impact on economic growth in the long run in Nigeria. The coefficients imply that financial liberalisation has improved growth by as much as six-tenths of a percentage point. This means that the increase in savings as a result of financial liberalisation as seen from section 7.4.2 has been channelled into growth through an improvement in investment efficiency. This result is different from that obtained from the full sample of countries where financial liberalisation had a negative but insignificant effect on growth. There are two possible reasons for this. Firstly, the negative coefficient for financial liberalisation in chapter 6 could be reflecting the higher incidences of moral hazard behaviour by banks after financial liberalisation, which is caused by inadequate or lax prudential regulation, coupled with the establishment of deposit insurance schemes. Secondly, financial liberalisation can result in excessively high interest rates which coupled with increased lending devoid of proper screening especially to insolvent agents can cause financial fragility in the short-run. In the long-run, it is expected that banking supervision would have been tightened up, interest rates would have stabilised to discourage insolvent agents, and the banks' ability to screen potential borrowers would have improved, thereby improving allocation of funds to productive investment. Our results in this section supports the findings of Kaminsky and Schmukler (2002), Loayza and Ranciere (2004), and Tornell and Westermann (2004) who found that financial liberalisation increases the incidence of financial fragility in the short run. In the long run however, financial liberalisation increases the stability of financial markets and enhances economic growth.

TABLE 7.27: LONG - RUN COEFFICIENTS FROM ARDL ESTIMATION OF GROWTH EQUATIONS

Explanatory variables	Dependent variable=economic growth equation 7.13	equation 7.14
constant	-1.53 (-0.39)	-2.81 (-0.69)
findex1	0.54 (1.53)	
findex2		0.59 (1.92)***
exgrow	0.33 (2.52)**	0.33 (2.21)**
debt	0.09 (0.72)	0.08 (0.56)
govcon	0.03 (0.18)	0.02 (0.12)

Notes:

1. * indicates that a coeffcient is significant at the 1 percent level; ** significant at the 5 percent level; and *** significant at the 10 percent level
2. Figures in parenthesis ( ) are t-ratios
3. All coefficients have been rounded to 2 decimal places

TABLE 7.28: ERROR CORRECTION REPRESENTATION FOR ARDL MODEL OF GROWTH EQUATIONS

Explanatory variables	Dependent variable=Δeconomic growth equation 7.13	equation 7.14
Δeconomic growth(-1)	-0.52 (-2.42)**	-0.48 (-2.04)***
Δeconomic growth(-2)	-0.43 (-3.09)*	-0.4 (-2.69)**
Δfindex1	4.11 (2.48)**	
Δfindex2		2.08 (2.02)***
Δexgrow	0.15 (3.69)*	0.15 (3.53)*
Δdebt	0.07 (0.85)	0.06 (0.65)
Δgovcon	0.03 (0.18)	0.02 (0.12)
Δconstant	-1.23 (-0.43)	-2.21 (-0.81)
ecm(-1)	-0.81 (-2.97)*	-0.79 (-2.62)**
Diagnostic Statistics		
R^2	0.89	0.89
Adj.R^2	0.83	0.81
F	[0.000]	[0.000]

Notes:

1. * indicates that a coeffcient is significant at the 1 percent level; ** significant at the 5 percent level; and *** significant at the 10 percent level
2. Figures in parenthesis ( ) are t-ratios, [ ] are p-values
3. All coefficients have been rounded to 2 decimal places

The error correction models are presented in Table 7.28. The results for financial liberalisation are in line with those obtained in Table 7.27 and changes in financial liberalisation have had a positive impact on changes in growth. Short-run changes in export growth have also resulted in increased changes in growth. The error correction terms are negative and statistically significant and have values of -0.81 and -0.79 for equations 7.13 and 7.14 respectively. These values further corroborate the cointegration tests and indicate a high speed of adjustment to equilibrium after a shock. The coefficients imply that for equations 7.13 and 7.14 respectively, about 81% and 79% of the previous year's deviation from long-run equilibrium will be corrected within a year.

The diagnostic statistics show that the model performs well. The R^2 is 0.89 for both equations and we see from the F statistic that the explanatory variables are jointly significant. Also, the CUSUM and CUSUMSQ graphs in figures 7.26 to 7.29 indicate that our growth equations are correctly specified.

FIGURE 7.26: CUSUM TEST FOR EQUATION 7.13

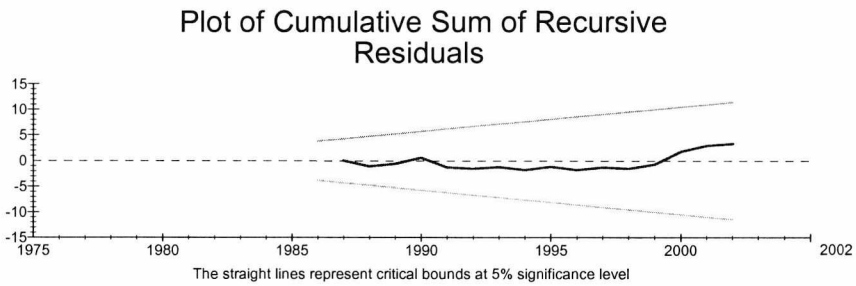


FIGURE 7.27: CUSUMSQ TEST FOR EQUATION 7.13

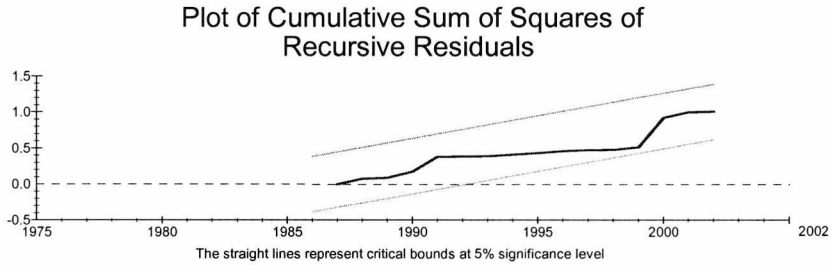


FIGURE 7.28: CUSUM TEST FOR EQUATION 7.14

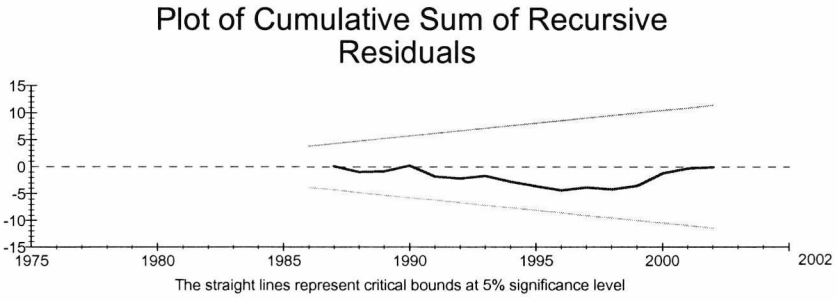
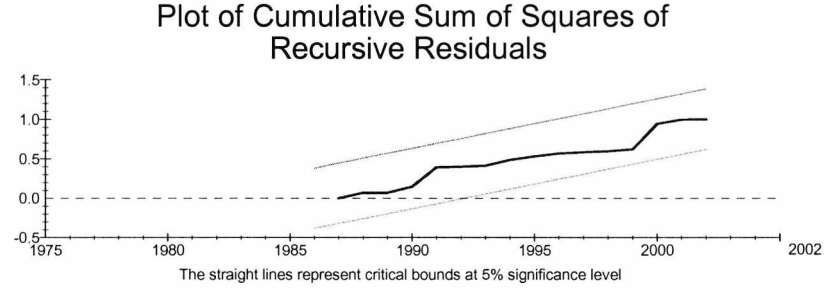


FIGURE 7.29: CUSUMSQ TEST FOR EQUATION 7.14



7.5 CONCLUSION

In this chapter we have conducted an evaluation of financial liberalisation in Nigeria. We first examined the evolution of banking in Nigeria and the various policies and

banking laws that were in existence before financial liberalisation in 1987. We found that the financial sector prior to liberalisation was characterised by a few banks with very few differentiated products. There were considerable restrictions to entry, interest rate ceilings were in place, and there were rules on directed credit to preferential sectors. In short, the financial sector was repressed.

The liberalisation of the financial sector was incorporated into the Structural Adjustment Programme in 1987. Financial liberalisation was supposed to deepen the financial sector and enhance economic growth in accordance with the McKinnon-Shaw framework. Upon examining the data, we found that liberalisation did not improve financial deepening, savings, investment, and economic growth. There was also no major influence of financial liberalisation on the sectoral distribution of credit by banks and on the branch-to-population ratio as these did not register big changes after liberalisation. Real interest rates were still negative for a considerable number of years after liberalisation. Also, the inflation rate increased and became very volatile after liberalisation. There was also a systemic banking crisis in the aftermath of financial liberalisation.

We then conducted econometric tests to examine the impact of financial liberalisation on savings, investment, and economic growth in the long run. Our results showed that financial liberalisation has improved savings and growth in the long-run in Nigeria, but we found no significant impact of financial liberalisation investment. Our results are in line with the views that though financial liberalisation could cause financial fragility in the short-run, in the long-run, it will improve economic performance.

APPENDIX7A

Series: Bank liquid reserves to bank assets ratio (FD.RES.LIQU.AS.ZS)
Ratio of bank liquid reserves to bank assets is the ratio of domestic currency holdings and deposits with the monetary authorities to claims on other governments, nonfinancial public enterprises, the private sector, and other banking institutions.
Series: Deposit interest rate (%) (FR.INR.DPST)
Deposit interest rate is the rate paid by commercial or similar banks for demand, time, or savings deposits.
Series: Domestic credit provided by banking sector (% of GDP) (FS.AST.DOMS.GD.ZS)
Domestic credit provided by the banking sector includes all credit to various sectors on a gross basis, with the exception of credit to the central government, which is net. The banking sector includes monetary authorities and deposit money banks, as well as other banking institutions where data are available (including institutions that do not accept transferable deposits but do incur such liabilities as time and savings deposits). Examples of other banking institutions are savings and mortgage loan institutions and building and loan associations.
Series: Domestic credit to private sector (% of GDP) (FS.AST.PRVT.GD.ZS)
Domestic credit to private sector refers to financial resources provided to the private sector, such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment. For some countries these claims include credit to public enterprises.
Series: Exports of goods and services (annual % growth) (NE.EXP.GNFS.KD.ZG)
Annual growth rate of exports of goods and services based on constant local currency. Aggregates are based on constant 1995 U.S. dollars. Exports of goods and services represent the value of all goods and other market services provided to the rest of the world. They include the value of merchandise, freight, insurance, transport, travel, royalties, license fees, and other services, such as communication, construction, financial, information, business, personal, and government services. They exclude labor and property income (formerly called factor services) as well as transfer payments.
Series: GDP growth (annual %) (NY.GDP.MKTP.KD.ZG)
Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 1995 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.
Series: General government final consumption expenditure (% of GDP) (NE.CON.GOVT.ZS)
General government final consumption expenditure (formerly general government consumption) includes all government current expenditures for purchases of goods and services (including compensation of employees). It also includes most expenditures on national defense and security, but excludes government military expenditures that are part of government capital formation.
Series: Gross capital formation (% of GDP) (NE.GDI.TOTL.ZS)
Gross capital formation (formerly gross domestic investment) consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Fixed assets include land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings.

Inventories are stocks of goods held by firms to meet temporary or unexpected fluctuations in production or sales, and "work in progress." According to the 1993 SNA, net acquisitions of valuables are also considered capital formation.

Series: Gross national savings, including NCTR (% of GNI) (NY.GNS.ICTR.GN.ZS)

Gross national savings, including net current transfers is equal to gross domestic savings plus net income and net current transfers from abroad.

Series: Inflation, consumer prices (annual %) (FP.CPI.TOTL.ZG)

Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a fixed basket of goods and services that may be fixed or changed at specified intervals, such as yearly. The Laspeyres formula is generally used.

Series: Interest rate spread (lending rate minus deposit rate) (FR.INR.LNDP)

Interest rate spread is the interest rate charged by banks on loans to prime customers minus the interest rate paid by commercial or similar banks for demand, time, or savings deposits.

Series: Lending interest rate (%) (FR.INR.LEND)

Lending interest rate is the rate charged by banks on loans to prime customers.

Series: Liquid liabilities (M3) as % of GDP (FS.LBL.LIQU.GD.ZS)

Liquid liabilities are also known as broad money, or M3. They are the sum of currency and deposits in the central bank (M0), plus transferable deposits and electronic currency (M1), plus time and savings deposits, foreign currency transferable deposits, certificates of deposit, and securities repurchase agreements (M2), plus travelers checks, foreign currency time deposits, commercial paper, and shares of mutual funds or market funds held by residents.

Series: Money and quasi money (M2) (current LCU) (FM.LBL.MQMY.CN)

Money and quasi money comprise the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central government. This definition of money supply is frequently called M2; it corresponds to lines 34 and 35 in the International Monetary Fund's (IMF) International Financial Statistics (IFS). Data are in current local currency.

Series: Money and quasi money (M2) as % of GDP (FM.LBL.MQMY.GD.ZS)

Money and quasi money comprise the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central government. This definition of money supply is frequently called M2; it corresponds to lines 34 and 35 in the International Monetary Fund's (IMF) International Financial Statistics (IFS).

Series: Quasi-liquid liabilities (% of GDP) (FS.LBL.QLIQ.GD.ZS)

Quasi-liquid liabilities are the sum of currency and deposits in the central bank (M0), plus time and savings deposits, foreign currency transferable deposits, certificates of deposit, and securities repurchase agreements, plus travelers checks, foreign currency time deposits, commercial paper, and shares of mutual funds or market funds held by residents. They equal the M3 money supply less transferable deposits and electronic currency (M1).

Series: Total debt service (% of exports of goods and services) (DT.TDS.DECT.EX.ZS)

Total debt service is the sum of principal repayments and interest actually paid in foreign currency, goods, or services on long-term debt, interest paid on short-term debt, and repayments (repurchases and charges) to the IMF. Exports of goods and services includes income and workers' remittances.

CHAPTER EIGHT: CONCLUSION

8.1 SUMMARY

In this thesis we have examined the impact of financial liberalisation policies on the economic performance of nineteen countries in Sub-Saharan Africa (SSA). We developed two indexes which take account of the gradual progression with financial liberalisation policies to measure financial liberalisation thereby providing a better measure of financial liberalisation than earlier studies that have used only the real interest rate as a proxy for liberalisation. This is the first study that has constructed such indexes to measure financial liberalisation for countries in Sub-Saharan Africa (SSA).

The thesis was divided into six main chapters. In chapters 2 and 3 we provided the theory of financial liberalisation and surveyed the structures of the financial systems of the countries included in the study. In chapters 4, 5, and 6 we conducted econometric tests using data for 19 SSA countries to examine the impact of financial liberalisation on economic performance as measured by savings, investment, and economic growth. Chapter 7 contained econometric tests of how financial liberalisation has affected savings, investment, and growth in the long-run using Nigeria as a case study.

In chapter 4 we examined the impact of financial liberalisation on savings for the 19 countries in our sample. Savings equations were estimated using the financial saving and national saving ratios as dependent variables. Our results revealed conflicting effects of financial liberalisation on financial and national saving. We found that financial saving is negatively related to financial liberalisation, while national saving is

positively related to liberalisation. The conflicting results reflect the lack of consensus in the literature on the estimates of savings equations. Unreliable savings data which make estimates prone to measurement errors have been identified as a major cause of such conflicting results (Gibson and Tsakalatos, 1994, p.594; Balassa, 1990, p.112; Arrieta, 1988, p.603; Fry, 1995, pp.160-161; Giovannini, 1983, pp.603-604). This discrepancy could also be caused by increased uncertainty following financial liberalisation which causes agents to reduce savings in financial assets and increase savings in real assets to hedge against inflation. We also found evidence supporting the absolute income and life cycle hypothesis of saving.

We examined the impact of financial liberalisation on investment in chapter 5. Gross private and gross domestic investment ratios were used as dependent variables and we found evidence of a robust negative relationship between investment and financial liberalisation. Possible reasons for this negative relationship range from excessive lending interest rates after liberalisation, to the destabilising effects of currency devaluations and import restrictions inherent in structural adjustment programmes (SAP). The accelerator theory is supported, as well as the negative impact of uncertainty on investment.

Although we did not find a positive effect of financial liberalisation on the quantity of investment, it is possible that liberalisation improved the quality of investment and this could have led to growth. Consequently, we proceeded to examine the impact of financial liberalisation on economic growth in chapter 6. For all 19 countries, we found a negative, though insignificant, relationship between economic growth and financial

liberalisation. Combining these results with those from chapters 4 and 5 we can conclude that financial liberalisation has not had the expected effect of improving economic performance in SSA. Our results are different from those obtained by some other studies (Seck and El Nil, 1993; Allen and Ndikumana, 2000) who found a positive and significant impact of financial liberalisation on economic growth. Those studies modelled financial liberalisation using the real interest rate and the broad money ratio but such measures do not cover all the policy thrusts involved in financial liberalisation and so suffer from omitted variable bias. The indexes we use correct for such problems. The reasons why financial liberalisation has not had the predicted effect of improving growth could be as a result of conflicting polices in the broad SAPs; increased lending by financial intermediaries to risky borrowers because of deposit insurance schemes; and ineffective prudential regulation.

In chapter 7, we provided a detailed description of Nigeria's experience with financial liberalisation and saw that the liberalisation of the financial sector was not initially part of the objectives of the SAP. Financial liberalisation increased opportunities for rent seeking and resulted in a massive increase in the number of banks coupled with imprudent banking practices, all of which resulted in a banking crisis in the early 1990s. We isolated Nigeria from the other countries and used cointegration techniques to investigate the impact of financial liberalisation on savings, investment, and economic growth. We found that in the long-run, financial liberalisation has improved savings and economic growth in the Nigeria. These results highlight the importance of strong and effective prudential regulation, improved screening by banks, and patience

with the financial reforms on the part of policy makers, all of which are realisable in the long-run.

8.2 POLICY IMPLICATIONS

The results we obtained in this thesis from chapters 4 to 7 have a number of implications for financial liberalisation policy in SSA. It is evident that financial liberalisation has not had the effect predicted by McKinnon and Shaw of raising savings and investment and thereby improving economic growth through these channels. On the contrary, we find no positive effect of financial liberalisation on savings, investment, and economic growth, and liberalisation seems to have resulted into financial crises in some countries. The question then arises as to the need for financial liberalisation.

There is hardly any disputing the fact that finance is good for growth. A well developed and functioning financial system ameliorates risk; helps in raising capital for investment; and ensures smooth transactions by operating a payments mechanism. Empirical evidence also abounds as to the significantly positive relationship between economic growth and financial development (King & Levine, 1992, 1993a; Arestis & Demetriades, 1997; Allen & Ndikumana, 2000; Beck, Levine, & Loayza, 2000a, 2000b). It is also clear that the financial systems in many Sub-Saharan African (SSA) countries are fragmented and not well developed. The question for policy makers is

then how to develop the financial systems and structures in SSA without all the problems associated with orthodox financial liberalisation.

A first step in this direction is that financial liberalisation should be carried out independently of structural adjustment programmes (SAPs). It is clear that the objectives of SAPs (such as improving the balance of payments position, lowering inflation, reducing budget deficits, trade liberalisation, exchange rate adjustment) do not necessarily lead to a deepening of the financial sector. Financial reforms need to be carried out independently of SAPs and we see examples of this from our sample in Mauritius, South Africa, and Botswana. We see that these countries had high financial deepening indicators and were able to maintain high savings and investment ratios which could have been due to the fact that the financial reforms were carried out under macroeconomic stability and were accorded full attention by the government, unlike the financial liberalisation in other countries which were treated as appendages to SAPs.

Fry (1995, pp.454-460) identifies two crucial factors that should be in place before financial reforms are embarked upon which are (i) macroeconomic stability; and (ii) effective prudential regulation. Comparing the evidence from successful financial liberalisation episodes to failures, the author attributes success with financial liberalisation as down to three factors: (i) price stability; (ii) fiscal discipline; and (iii) policy credibility.

Mkandawire (1999) has suggested that financial liberalisation should include specific measures to reduce consumption so that savings will increase. This is based on the fact that in most countries in SSA increased credit after liberalisation was used for

importing luxury goods, and the credit boom was responsible for the financial fragility that came after liberalisation. The author suggests that financial reforms in SSA should be modelled after the East Asian countries who imposed taxes on luxury goods and prevented mortgage markets and other instruments of credit from developing; thereby forcing households to save.

The experiences of the East Asian countries also prompted Gibson and Tsakalatos (1994) to advocate for some measure of government control over interest rates and credit allocation. This view is supported by Stiglitz (1994) and Stiglitz and Uy (1996) who argue that due to the special nature of financial markets, the government cannot completely withdraw from the financial sector but needs to exercise some measure of restraint to guard against fragility.

Based on the discussions above, we can conclude that financial liberalisation will improve growth only if it is embarked upon in a stable macroeconomic and political environment. This should be complemented by strengthening of bank supervision with tough sanctions for unscrupulous banks and a long-term commitment to effectively pursuing the reforms.

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