THE IMPACT OF FINANCIAL LIBERALISATION IN DEVELOPING COUNTRIES: EXPERIENCES FROM FOUR SADC COUNTRIES

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LIST OF ACRONYMS AND ABBREVIATIONS

ABSA	Amalgamated Banks of South Africa
ADF	Augmented Dickey-Fuller
ARDL	Autoregressive Distributed Lag
BESA	Bond Exchange of South Africa
BIS	Bank for International Settlements
BOT	Bank of Tanzania
BOZ	Bank of Zambia
CMSA	Capital Markets and Securities Authority
CMA	Common Monetary Area
CBL	Central Bank of Lesotho
DSE	Dar-es-Salaam Stock Exchange
DBZ	Development Bank of Zambia
EACB	East Africa Currency Board
ECM	Error-Correction Model
GDP	Gross Domestic Product
GNP	Gross National Product
GLS	Generalised Least Squares
IFC	International Finance Corporation
IMF	International Monetary Fund
JSE	Johannesburg Stock Exchange
LART	Loans and Advances Realisation Trust
LASF	Local Authority Superannuation Fund
LuSE	Lusaka Stock Exchange
LBFC	Lesotho Building Finance Corporation
LMA	Lesotho Monetary Authority
LRT	Likelihood Ratio Trace test
ME	Maximum Eigenvalue test
MFIs	Microfinance Institutions
MFRC	Microfinance Regulatory Council

NHFC	National Housing Finance Corporation
NGOs	Non-Governmental Organisations
NBC	National Bank of Commerce
NMB	National Microfinance Bank
NBFIs	Non-Bank Financial Institutions
NSCB	National Savings and Credit Bank
OECD	Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares
OTC	Over-The-Counter
PBZ	People's Bank of Zanzibar
RHLF	Rural Housing Loan Fund
REPOs	Repurchase Agreements
ROSCAs	Rotating Savings and Credit Associations
RMA	Rand Monetary Area
SUR	Seemingly Unrelated Regression
SAFEX	South African Futures Exchange
SARB	South African Reserve Bank
SCSs	Savings and Credit Societies
SADC	Southern African Development Community
SACU	Southern African Customs Union
SSA	sub-Saharan African
TIB	Tanzania Investment Bank
UK	United Kingdom
US	the United States
VECM	Vector Error-Correction Mechanism
VAR	Vector Autoregression
ZNCB	Zambian National Commercial Bank
ZNBS	Zambian National Building Society
ZNPF	Zambian National Provident Fund
ZCCM	Zambia Consolidated Copper Mines

CHAPTER 1
INTRODUCTION

1.1 Background

Since the widespread acceptance of the ideal of financial liberalisation, many countries have made attempts to liberalise their financial sectors by deregulating interest rates, eliminating or reducing credit controls, allowing free entry into the banking sector, giving autonomy to commercial banks, permitting private ownership of banks, and liberalising international capital flows. However, of these six dimensions of financial liberalisation, interest rate liberalisation has received the main focus of attention. Unfortunately, the countries that embarked on interest rate liberalisation have had mixed experiences. Whether financial liberalisation does indeed impact positively on savings, financial deepening, and economic growth still remains a question for empirical investigation. Although a number of empirical studies have been conducted on the link between financial liberalisation and economic growth, the majority of these studies have concentrated mainly on Asia and Latin America, affording sub-Saharan African (SSA) countries either very little coverage or none at all. Even where such studies have been undertaken, findings on the role of financial liberalisation and its effect on financial deepening, savings, and economic growth are at best inconclusive. For instance, several studies have found little evidence for the positive impact of interest rate liberalisation on economic growth.

Yet, there has been enormous support for the position that even though positive interest rates may not have a direct and significant influence on domestic savings, they do affect economic growth through their effect on financial deepening (Odhiambo 2008). Previous empirical studies on this subject suffer from three major limitations. First, the majority of the previous studies on this subject have attempted to examine the direct relationship between interest rate reforms and economic growth. Yet, it is now becoming clear that the relationship between interest rate reforms and economic growth is an indirect one. Interest rate liberalisation impacts on economic growth *inter alia* through its influence on financial deepening and savings. Secondly, the majority of previous studies have concentrated mainly on the use of a bivariate causality test to examine the causal relationship between financial development and economic growth and may, therefore, suffer from the omission-of-variable bias. Thirdly, some of the previous studies have relied on the cross-sectional data to examine the relationship between interest rate reforms and economic growth. Yet, it is now clear that the cross-sectional method of lumping together data on countries that are at different stages of financial and economic development may not satisfactorily address the country-specific effects.

The current study, therefore, attempts to investigate the dynamic impact of financial liberalisation on financial deepening and economic growth in four SADC countries, namely South Africa, Tanzania, Zambia, and Lesotho. Specifically, the study attempts to answer two critical questions in a step-wise fashion: i) Do positive interest rates that result from financial liberalisation lead to financial deepening in the selected southern African countries? 2) Does financial deepening, which results from interest rate liberalisation, Granger-cause economic growth? The selected countries represent a modest cross-section of the general financial structure prevalent in many southern African countries.

1.2 Organisation of the Study

The study is divided into nine chapters. Chapter 1 (Introduction) provides a brief background and the objectives of the study. A review of the theoretical and empirical literature on the financial liberalisation policy, and the controversies over the efficacy of the financial liberalisation hypothesis are presented in Chapter 2. Issues discussed here include: the origin of the financial liberalisation theory and policy; the controversies over the role of financial liberalisation hypothesis; the dynamic relationship between financial liberalisation, financial deepening, and investment; and the causal relationship between financial development and economic growth. In addition, the relationship between financial development, economic growth, and savings is also presented as a precursor to the trivariate Granger causality test. Throughout this Chapter the theoretical literature is sequentially reinforced by the empirical findings in a step-wise fashion. In Chapters 3, 4, 5 and 6, the experiences of the study countries with financial libralisation are presented in a case-by-case fashion. Chapter 7 presents the methodology and the empirical model specification, while Chapter 8 presents the empirical findings of the study, as well as a discussion on the results. The conclusions, policy recommendations, and the limitations of the study are presented in Chapter 9.

CHAPTER 2
LITERATURE REVIEW

2. Introduction

This Chapter discusses the theoretical and empirical underpinnings of the efficacy of financial liberalisation policy, as well as its misunderstandings within the context of developing countries. It is divided into six sections. The first section presents an overview of the financial liberalisation policy as postulated by the proponents of the policy. The second section highlights some of the controversies over the financial liberalisation in general and interest rate liberalisation in particular. In the third section the relationship between financial liberalisation and financial deepening is presented. The fourth section highlights the effects of financial liberalisation on the quantity and quality of investment, while the fifth section explores causal linkage between financial development and economic growth from both theoretical and empirical fronts. Finally, as a precursor to the relationship between financial deepening, savings, and economic growth, the relationship between financial deepening, savings, and economic growth is reviewed in the sixth section.

2.1 The Financial Liberalisation Hypothesis – An Overview

McKinnon (1973) and Shaw (1973) were, independently, the first to seriously challenge the conventional wisdom of financial repression. In their separate works they argue that the pursuance of policies such as low and administered interest rates, selective credit control, and concessional credit practices, among other practices, leads to widespread financial repression in developing countries (McKinnon 1973; Shaw 1973). According to these authors, a repressed financial market discourages savings, retards the efficient allocation of resources, increases the segmentation of financial markets, and creates financial disintermediation of the banking system (see also Khan and Hassan 1998). The McKinnon and Shaw theses on financial repression and their proposal for financial liberalisation became the new orthodoxy in the 1970s and 1980s. This orthodoxy has brought a shift of emphasis in policy priorities to an extent that it influenced even the thinking of the World Bank and International Monetary Fund (IMF).

Financial liberalisation, broadly defined, can be characterised as the process of allowing markets to determine who gets and grants credit and at what price. Full financial liberalisation involves six main dimensions: the elimination of credit controls, the deregulation of interest rates, free entry into the banking sector, bank autonomy, private ownership of banks, and the liberalisation of international capital flows. Of these six dimensions, interest rate liberalisation has been the main focus of interest and forms the focus of this study.

The main objective of financial liberalisation is to build a more efficient, robust, and deeper financial system, which can support the growth of private sector enterprises. Efficiency in this case relates to two components. The first involves improved credit allocation, i.e. credit allocation to borrowers with higher expected returns for given levels of risk. The second component of efficiency is increased competition, resulting from liberalised entry and/or the removal of regulations that restrict competition.

According to the proponents of financial liberalisation, the liberalisation of financial markets allows a more varied and specialised intermediation between savers and borrowers, using a multitude of institutions, instruments, and products. It also facilitates a freer flow of money to where it can be best invested, i.e. with higher risk-adjusted rates of return. As in other markets of the economy, the "invisible hand" of the financial market is, under financial liberalisation, expected to know how to match supply and demand efficiently. In addition, the "invisible hand" is able to identify who wants to save and/or lend, for what purposes, as well as who wants to borrow and on what terms.

All these arguments in favour of financial liberalisation imply that financial liberalisation has many advantages; that is, they are healthy for the financial sector in particular and for the economic growth of a nation in general. Specifically, financial liberalisation increases savings, improves the efficiency with which resources are allocated among alternative investment projects, and, therefore, raises the rate of economic growth. It also affords banks and other financial intermediaries more freedom to act, which increases their ability to confront risks. It is also worth mentioning that since financial liberalisation is a deliberate attempt to move away from financial repression as a policy to fund fiscal imbalances, it reduces the possibility of governments running a budget deficit all the time (see also Cobbina 1999).

In general, the benefit of financial liberalisation has been that it fosters development and increases long-run growth (Levine 1997; Demirguc-Kunt & Detragiache 1998). Through financial liberalisation, developing countries can stimulate domestic savings and growth, and reduce excessive dependence on foreign capital flows (Demirguc-Kunt and Detragiache 1998).

2.2 Controversies over the Efficacy of Financial Liberalisation

Since the onset of financial liberalisation in the 1970s, several schools of thought have criticised financial liberalisation for a number of reasons. To date, there are at least six criticisms regarding the efficacy of financial liberalisation on economic growth. The most influential of all these criticisms is based on the argument that savings may not necessarily depend on the rate of interest and, if they do, the rate of interest may actually reduce rather than increase the volume of savings. Some of the reasons that have been advanced in the literature to explain this view are as follows:

i) An increase in the interest rate has two effects, namely the positive substitution effect (which promotes savings) and the negative income effect (which deters savings). However, it is likely that the negative income effect will offset the positive substitution effect, thereby leading to a negative overall effect on savings (see Bandiera *et al*. 1999; Warman and Thirwall 1994; Cho and Khatkhate 1990; Arrieta 1988; Giovannini 1983);

ii) An increase in interest rates will only reallocate the existing volume of savings in favour of financial savings and leave the total volume of savings unchanged (see Gupta 1984; Mahambare and Balasubramam 2000; and

iii) At low levels of income, interest rates are unlikely to stimulate savings because the totality of incomes will be devoted to consumption rather than savings (see Ogaki *et al.* 1996; Japelli and Pagano 1989, 1994; and Hall 1978).

The second criticism of financial liberalisation is based on the 'neo-structuralist' critique. The critical difference between the McKinnon-Shaw financial liberalisation hypothesis and the neo-structuralist view is the role accorded to the informal financial sector. The neo-structuralist school argues that because of the reserve requirements of banks, the diversion of funds away from the informal to the formal sector (due to increased interest rates) may lead to the reduction of the total supply of loans to the private sector. However, the validity of this argument depends largely on the relative size of the informal sector in the economy (Gibson and Tsakalotos 1994; Fry 1997).

The third criticism is based on the Keynesian critique. The main distinction between the Keynesian view and the McKinnon-Shaw hypothesis is the transmission mechanism between interest rates and economic growth. Whilst the Keynesian school believes in 'prior investment' policy, the McKinnon-Shaw school believes in 'prior savings'. Consequently, for the McKinnon-Shaw school, high interest rates promote savings, investment, and income while for the Keynesian school, a high interest rates policy discourages savings through its negative influence on investment and income (Khatkhate 1988; 1972).

The fourth financial liberalisation criticism is based on the "post-Keynesian" critique. This criticism has two premises. First, the post-Keynesian school argues that the supply of bank credit is not exogenous as treated by the McKinnon-Shaw school. Therefore, the post-Keynesians argue that if banks can create credit without having to increase their deposits, then an increase in financial savings may make no difference to the total credit given to the private sector. Secondly, the post-Keynesians argue that high interest rates may only result in stagflation (i.e. a combination of high inflation and unemployment). The proponents of this view argue that the financial liberalisation model ignores the adverse

effects that high real interest rates can have on the costs and level of demand in the economy. This view maintains that if there is excess capacity in the economy, higher interest rates will only worsen income distribution, increase inflation, and reduce the rate of economic growth. However, if the economy is at full employment, higher interest rates may improve income distribution and reduce the rate of inflation, but they will not necessarily increase growth (see Asimakopoulos 1986; Davidson 1986; Dutt 1990; Diaz-Alejandro 1985; Akyuz 1995).

The fifth criticism emanates from the Stiglitz and Weiss critique. Stiglitz argues that since financial markets are prone to market failures, there should be some form of government intervention to correct these failures. Specifically, government intervention should keep interest rates below their market clearing levels. The intuition here is that while a moderate increase in lending rates leads to a higher volume of lending, an additional increase in rates beyond a certain level would prompt a lower level of lending activity by adversely changing the quality of borrowers in favour of those in the high risk category (Stiglitz and Weiss 1981; Stiglitz 1994).

The sixth criticism of the McKinnon-Shaw theory of financial liberalisation is based on the argument that financial liberalisation ignores the important role of the stock market in economic development. It is believed that stock markets play a paramount role in external financial liberalisation in developing countries. Yet, the McKinnon-Shaw model fails to incorporate this contribution in their model. The proponents of this view argue that a well-developed stock market may be able to offer other forms of financial services than those available from the banking systems and may, therefore, provide a different kind of impetus to investment growth (Levine and Zervos 1996; Singh 1997).

Overall, it is worth concluding that whilst there is a sufficient body of literature in support of the efficacy of the financial liberalisation theory, the theoretical arguments against financial liberalisation are steadily growing in number and substance and whether financial liberalisation indeed contributes to economic growth remains an empirical issue. Moreover, given that different countries have different financial infrastructures, such an outcome may differ from country to country and over time.

2.3 Financial Liberalisation and Financial Deepening

Until the early 1970s, it was believed that low interest rates would promote investment spending and economic growth in both developed and developing countries alike, in accordance with the Keynesian and neo-classical theories (Molho 1986). The argument that advocates that financial liberalisation leads to financial development and eventually to economic growth is based on the theoretical framework and analytical underpinning by McKinnon (1973) and Shaw (1973). The proposition of McKinnon and Shaw is that a repressed financial sector interferes with economic development in various ways. First, in a repressed economy the savings

vehicles are not well developed and the returns on savings are negative and unstable. Secondly, financial intermediaries that collect savings do not allocate them efficiently amongst competing uses. Thirdly, firms are discouraged from investing because poor financial policies reduce the returns to investment, thus making them uncertain, and, as a result, growth is retarded. Financial repression in this context is defined to entail artificially low deposit and loan rates that give rise to excess demand for loans and to non-price credit rationing (McKinnon 1973; and Shaw 1973). According to the financial liberalisation theory, the liberalisation of the financial sector enables savers to switch some of their savings from unproductive real assets to financial assets – hence expanding the supply of credit in the economy. In this way, financial liberalisation plays a crucial role in financial deepening. According to Ikhide (1992), positive real interest rates favour financial savings over other forms of savings and, therefore, promote financial deepening. In its own right, financial depth contributes to growth by improving the productivity of investment. This linkage further corroborates the positive role played by financial liberalisation on economic growth.

A limited number of studies have been conducted in developing countries to examine the impact of financial liberalisation in general - and interest rate liberalisation in particular - on financial deepening, but with varying results. Mosley (1999), for example, whilst examining the impact of financial liberalisation on the access to rural credit in a number of countries, finds that the impact of financial sector reforms on financial depth, as measured by bank deposits and M2 as a percentage of GDP, varies among countries. There was little change in financial depth in Madagascar and a small decline in Malawi. Although Tanzania suffered a sharp contraction of financial depth in the second half of the 1980s, the country recovered almost half of the fall in the first half of the 1990s. In Uganda a small recovery was achieved in the first half of the 1990s after the collapse in financial depth in the 1980s, but the financial system remained very shallow. In Zambia, the reforms were unable to prevent a continued rapid decline in financial depth, which began in the first half of the 1980s. Ikhide (1992) also conducts a study on financial deepening, credit availability, and the efficiency of investment in 17 African countries. His analysis uses three variants to test the aspect of financial deepening in these countries. The results of this study show that the real rate of interest turned out to be positive and significant in 12 out of the 17 countries in the sample. The variable was significant in Kenya, Ghana, Nigeria, Cameroon, Burundi, Rwanda, Sierra-Leone, Ethiopia, Niger, Zambia, Malawi, Cote d'Ivoire, and Mauritius. Although the real interest rate was positive in Tanzania, in Botswana and Lesotho it was not statistically significant.

2.4 Financial Liberalisation and Investment

2.4.1 Financial Liberalisation and Investment Quantity

The positive impact of financial liberalisation on the investment level has received support from a number of studies. Fry (1981a), for example, having conducted a study on 12 Asian developing countries, found that the ratio of domestic credit to nominal GNP is positively and significantly related to real interest rates. Similar results were obtained for seven Pacific Basin developing countries in Fry (1981b). In another related study, Fry (1980) found strong support for the positive and significant relationship between the availability of domestic credit and investment in a pooled time-series study of 61 developing countries. Similar conclusions were reached by Fry (1986) in a study of 14 Asian developing countries. Shrestha and Chowdhury (2005), while examining the financial liberalisation hypothesis in Nepal, found that higher interest rates generate higher savings and investment. This finding is consistent with the World Bank (1987), which reports that liberalisation of interest rates generates more savings and investment (see Shrestha and Chowdhury 2005,20). Agrawal (2004), in a study entitled "Interest Rates and Investment in East Asia", found that for all of the four countries studied, higher real interest rates up to 9% were associated with higher investment ratios. However, as interest rates increased above 9%, the positive association between interest rates and investment vanished in two of the four countries.

Contrary to the above studies, there are numerous studies whose findings contradict the positive role of financial liberalisation on investment level. Lewis (1992), for example, argues that when the interest rate paid to depositors is increased, the borrowing rate from the bank must also be increased in order to avoid large operating losses in the banking sector. The increase in the borrowing rate results in a decline in the desired real investment. The author argues that, overall, the negative response of investment to higher borrowing rate offsets the positive effect of a higher deposit rate on savings. Morisset (1993), while estimating a model for Argentina over the 1961-1981 period, found that the quantity of private investment in Argentina was less responsive to movements in interest rates. The author concluded that the positive effect on the domestic credit market might have been offset by the negative effect of a portfolio shift from capital goods to public bonds and monetary assets. The study also found that the financial liberalisation policy could increase the demand for credit by the public sector, thereby limiting the funds available to the private sector. Bascom (1994) also argues that, under a deregulated environment, higher real interest rates become a disincentive to domestic investment. Banks are prone to extend credit to productive enterprises or projects resulting in large and unstable bad debt portfolios, bank failures, and business bankruptcies. Eventually, government intervention is necessary to protect depositors and to provide assistance to the distressed banks and their borrowers.

2.4.2 Financial Liberalisation and Investment Efficiency

One question which has recently emerged from the literature is whether the mechanism through which financial liberalisation affects economic growth is based on the efficiency or volume of investment. Theoretical studies such as Greenwood and Jovanovic (1990), Bencivenga and Smith (1991), Renelt and Levine (1992), and Saint-Paul (1992) present models in which the gains from increased financial development stem from increased efficiency in the allocation of investment rather than from a larger volume of investment. De Gregorio and Guidotti (1995) also estimate that some 75% of the positive correlation between financial intermediation and growth is due to increased investment efficiency rather than an increased volume of investment. Gelb (1989) finds that most of the positive association between real interest rates and growth stemmed from the efficiency effect rather than the level of investment. Cho (1988) argues that financial reform has led to an increase in allocative efficiency of investment because the cost of borrowing in different sectors and industries has narrowed sharply since 1980. The author argues that, abstracting from risk and uncertainty, an economy can be said to allocate capital efficiently if the marginal return on investment across sectors is equalised. Nyagetera (1997) concludes that, on the one hand, an increase in the real rate of interest tends to raise the real loan rate, given a fixed intermediation cost margin. A rising real loan rate, therefore, raises the firms' operating costs and lowers profitability, which then lowers their investment efficiency or productivity. On the other hand, an increase in real deposit rate may have a positive influence on investment efficiency if it increases the supply of financial savings and real credit availability from the financial system, which facilitates capacity utilisation of existing investments and, in the process, improves firms' profitability and capital productivity (see Nyagetera 1997, 342-343).

The gains in investment efficiency after financial liberalisation have also been documented in a number of individual country studies using firm level data. In the case of Ecuador, Jaramillo *et al*. (1992) found that, after controlling for firms' other characteristics, there was an increase in the flow of credit to technologically more efficient firms after financial liberalisation. Specifically, the author found that the flow of credit moved from smaller to larger firms after liberalisation. This shows that the small-scale firms had been subsidised during the period prior to reform in Ecuador. The shift in credit toward large firms was, therefore, a case in which credit shifted to the area that had been discriminated against under the system of financial repression. In Korea, Atiyas (1992) presents evidence that small firms gained improved access to external finance after liberalisation. Credit flows in this case moved from light industrial/manufacturing firms to services, utilities, and construction. In a similar study, Gelos (1997) provides econometric evidence that financial constraints were eased for small firms in the Mexican manufacturing sector following financial liberalisation. Likewise, Morisset (1993) finds that although the effect of financial liberalisation on the quantity of investment

was weak in Argentina (and even negative in some instances), the effect on the quality of investment was consistently positive.

Although the bulk of the evidence seems to argue that financial liberalisation has contributed towards more efficient credit allocation, this argument is not unanimous. De Gregorio (1992), for example, argues that credit to the private sector was negatively related to growth in the 1970s and 1980s in Latin America. The author attributes this negative correlation to inefficient lending by banks in the light of poor regulatory incentives. Following liberalisation in Australia, firms increased their debt levels and banks took on more risky loans. Even though these outcomes do not in themselves mean that loans were inefficiently allocated, the evidence presented by Lowe (1992) indicates that Australian banks under-invested in effective screening methods in the 1980s and, therefore, lacked the capacity to engage prudently in high-risk lending. Capoglu (1990), while examining the effect of reforms in Turkey, found that the reforms had made very little difference to the functional efficiency of the financial sector (as measured by the spread between lending and deposit rates). The author argues that even when Cho's (1988) method of assessing the quality of investment was used, there was still no evidence that financial reforms in Turkey had led to a rise in investment efficiency[1].

2.5 Financial Development and Economic Growth

The direction of causality between financial development and economic growth has recently received emphasis from numerous empirical works in sub-Saharan African countries. Patrick (1966) distinguishes between supply-leading and demand-following responses. According to the demand-following phenomenon, lack of financial growth is a manifestation of a lack of demand for financial services. In other words, according to this view, it is the real sector of the economy that determines the level of financial development. In the second view, called the supply-leading phenomenon, the financial sector precedes and induces real growth by channelling scarce resources from small savers to large investors according to the relative rate of return (see also Jung 1986). According to Patrick's hypothesis, the direction of causality between financial development and economic growth changes over the course of development. In his view, financial development is able to induce real innovation of investment before sustained modern economic growth gets underway, and as modern economic growth occurs, the supply-leading impetus gradually becomes less and less important as the demand-following response becomes dominant. As Patrick puts it, this sequential process is also likely to occur within and among specific industries or sectors. For instance, one industry may initially be encouraged financially on a supply-leading basis and as, it develops, may have its financing shift to demand-following, while another may remain in the supply-leading phase. This would be more related to the timing of the sequential development of industries, particularly in cases

where the timing is determined more by governmental policy than by private demand forces (Patrick 1966, 177).

On the empirical front, there exist three groups in the literature (see Odhiambo 2004a; 2008). The first group argues that financial development leads to economic growth (supply-leading response). The second group maintains that it is economic growth that leads to the development of the financial sector (demand-following response). The third group, however, contends that both financial development and economic growth granger-cause each other (i.e., they have a bi-directional causal relationship).

The empirical work that is consistent with a distinct supply-leading response includes studies such as Crichton and De Silva (1989), Jung (1986), King and Levine (1993), De Gregoria and Guidotti (1995), Levine (1997), Levine and Zervos (1998), Rajan and Zingale (1998), Choe and Moosa (1999), and, more recently, Rioja and Valev (2004), among others. King and Levine (1993), for example, use an endogenous growth model to examine how financial systems affect economic growth. According to the findings of this study, better financial systems improve the possibility of successful innovation and thereby accelerate economic growth. Similarly, financial sector distortions reduce the rate of economic growth by reducing the rate of innovation. The study, therefore, concludes that financial systems are important for productivity, growth, and economic development (King and Levine 1993). De Gregorio and Guidotti (1995), while examining the empirical relationship between financial development and economic growth, conclude that, by and large, financial development leads to improved growth. However, the authors reiterate that the effects vary across countries and over time. Rajan and Zingales (1998) investigate whether financial development facilitates economic growth by scrutinising the rationale that financial development reduces the costs of external finance to firms.

The result of their study suggests that financial development has a substantial supportive influence on the rate of economic growth. Specifically, the study finds that industrial sectors that are relatively more in need of external finance develop disproportionately faster in countries with more developed financial markets. Choe and Moosa (1999) examined the relationship between the development of financial systems and economic growth in Korea and concluded that financial development in general leads to economic growth and that financial intermediaries are more important than capital markets in this relationship. Darrat (1999) finds that financial deepening is generally a necessary causal factor of economic growth, although the strength of the evidence varies across countries and across the proxies used to measure financial deepening. Other empirical studies which conclude that financial development provides a significant contribution to growth include Xu (2000), Suleiman and Abu-Qaun (forthcoming), and Habibubullah and Eng (2006), among others. Xu (2000) finds sufficient evidence for the finance-led growth hypothesis (supply-

leading response) while using the multivariate VAR model. Suleiman and Abu-Qaun (forthcoming) examined the causal relationship between financial development and economic growth in Egypt during the period 1960-2001 and found empirical support for the view that financial development Granger-causes economic growth either through increasing investment efficiency or through increasing resources for investment. Habibullah and Eng (2006) investigated the causal relationship between financial development and economic growth in Asian countries and found support for the finance-led growth – thus giving support to the old Schummpeteria hypothesis and Patrick's supply-leading hypothesis.

Contrary to the above studies, there are a number of studies that contend that economic growth Granger-causes financial development.. Crichton and De Silva (1989) examined the progress of financial intermediation resulting from economic growth in Trinidad and Tobago and found that there was a definite positive correlation between economic growth and financial development, at least from 1973-1982. However, the study concludes that "while changes in the real sector clearly impacted on the financial system, it is not clear to what extent financial intermediaries may in turn have aided the growth process through their ability to allocate savings efficiently to the most productive sectors of the economy". In their investigation of the relationship between financial development and economic growth in nine OECD countries and China, using the VAR framework, Shan *et al*. (2001) found little support for the hypothesis that finance "leads" economic growth and caution against drawing such a general conclusion. Odhiambo (2003) used three proxies of financial development against real GDP per capita, which is a proxy for economic growth, and found the demand-following response (growth-led finance) to dominate in South Africa. Waqabaca (2004) looked into the relationship between financial development and economic growth in Fiji and found a positive relationship between financial development and economic growth - but with the causation running from economic growth to financial development. Agbetsiafa (2003) examined the causal relationship between financial development and economic growth in a sample of eight emerging economies in sub-Saharan Africa (SSA) and found a unidirectional causality from Growth to Finance to dominate in the Ivory Coast and Kenya. In a recent study, Zang and Kim (2007) examined the causal link between financial development and economic growth in East Asian countries using Sims-Geweke causality tests performed on the large panel data set provided by Levine *et al*. (2000). In sharp contrast to Levine *et al.* (2000), the authors found no evidence of any positive unidirectional causal link from financial development indicators to economic growth. On the contrary, Zang and Kim (2007) found substantial evidence that economic growth preceded financial development. They conclude, therefore, that Robinson and Lucas might be right.

Despite the arguments in favour of a supply-leading and a demand-following response, the empirical results from a number of studies have shown that financial development and economic growth can Granger-cause each other. Odhiambo (2005a), for example, examining the causal relationship between financial development and economic growth in Tanzania using a dynamic specification model, found that, on the whole, a bi-directional causality response predominates. Chuah and Thai (2004) also investigated the causal relationship between financial development and economic growth in six GCC countries, using ECM and VAR models, and found that there was evidence of bi-directional causality in five of the six study countries. Likewise, Calderon and Liu (2003), using the Geweke decomposition test on pooled data of 109 countries, found some evidence of bi-directional Granger-causality. Kar and Pentecost (2000) also examined the causal relationship between financial development and economic growth in Turkey. The authors used five alternative proxies for financial development in order to determine the impact of different aspects of financial development in Turkey. The Granger-causality test was then carried out in the context of the co-integration and vector error-correction mechanism. The empirical results of the study showed that the direction of causality between financial development and economic growth was sensitive to the choice of measurement of financial development in Turkey. Although this study found that the strength of the causality between financial development and economic growth was much weaker than that between economic growth and financial development, the authors concluded that "…it would be inconsistent with the results obtained to argue that for all intents and purposes, in Turkey, economic growth leads financial development" (Kar and Pentecost 2000, 9). Akinboade (1998) also probed into the direction of causality between financial development and related growth in Botswana during the period 1972-1995 and found evidence of a bi-directional causality between financial development and per capita income. The author concluded that economic growth and financial development in Botswana appeared to complement each other. Wood (1993) examined the causal relationship between financial development and economic growth in Barbados during the 1946-1990 period. Using Hsiao's (1979) test procedure, the author found a bi-directional causal relationship between financial development and economic growth. However, the study found no support for the Patrick's hypothesis. Jung (1986) investigated the international evidence on the causal relationship between financial development and economic growth using annual data from 56 countries. Using both simple and unidirectional concepts of causality, the author found that, while the less developed countries were characterised by the causal direction running from financial development to economic growth, the developed countries were characterised by the reverse causal direction, regardless of which causality concept was employed.

2.6 Financial Deepening, Savings, and Economic Growth

The impact of financial deepening on savings has not been investigated extensively in developing countries. Some of the studies which have attempted to examine the impact of financial depth on savings include Ozcan *et al*. (2003), Edwards (1995), Baliamoune and Chowdhury (2003), Cook (2003), Kelly and Mavrotas (2003), and Chirwa (2001), among others. Ozcan *et al*. (2003), for example, having conducted a study on the determinants of private savings in Turkey, found financial market development to be one of the core policy instruments in Turkey. The authors, therefore, concluded that countries with deeper financial systems would tend to have higher private saving rates. Edwards (1995), in an attempt to analyse the determinants of savings using panel data for 36 countries, found that the degree of financial development was one of the most important determinants of private savings. Baliamoune and Chowdhury (2003) examined the trend on private savings in Morocco in the presence of financial sector development. Using a co-integration and error-correction modelling framework, the authors found the financial reform index (measured by financial depth) to have a positive impact on the level of private savings. However, Cook (2003) examined whether financial depth could encourage savings, using data from 122 countries, and concluded that although financial depth had a positive influence on savings, its strength continued to be open to question. Kelly and Mavrotas (2003) also examined the impact of financial sector development on private savings in 17 African countries. Using dynamic heterogeneous panel data, the authors found empirical results between financial development and private savings to vary considerably among countries on the panel. However, the authors found evidence of a positive relationship between the two variables to hold in most of the countries in the sample. In a study entitled "Market Structure, Liberalisation, and Performance in the Malawian Banking Industry", Chirwa (2001) found financial liberalisation in Malawi to have significantly increased financial depth and savings mobilisation in Malawi. However, contrary to the financial liberalisation hypothesis, the author found that there had been a significant increase in the spread between lending and deposit rates leading to an increase in intermediation margins.

The empirical studies on the direction of causality between savings and economic growth are diverse and have conflicting results. Studies which have attempted to examine this linkage include Konya (2004), Anoruo and Ahmad (2001), Agrawal (2000), Agrawal (2001), Mavrotas and Kelly (2001), and Sahoo *et al.* (2001), amongst others. Konya (2004) investigated the possibility of Granger-causality between the saving ratio (the proportion of gross domestic savings in GDP) and the growth rate (annual percentage change of real per capita GDP) in 84 countries from 1961 to 2000. Using a new panel-data approach based on SUR systems and Wald tests, the study found a two-way causality from savings to growth in Ireland, Trinidad & Tobago, and the Central African Republic, while it found a one-way

causality from growth to savings in Finland, France, Japan, Sweden, Switzerland, and Niger. However, the support for the causality from savings to growth was found in Mauritania, while that from growth to savings was found in Saudi Arabia. In all the other cases there was no empirical evidence of Granger-causality between savings and growth in either direction. Anoruo and Ahmad (2001) conducted a study on the causal relationship between domestic savings and economic growth in seven African countries and found savings to Granger-cause growth in Congo, while in Ghana, Kenya, Nigeria, and Zambia it was economic growth which Granger-caused savings. In the remaining countries a bi-directional causality pattern was found to prevail. Agrawal (2000), in an attempt to investigate the relationship between savings, investment, and growth in South Asia, examined the direction of causality between savings and growth using data from five South Asian countries, but the results were inconclusive. Using the vector autoregression (VAR) procedure, the author found causal evidence from savings to growth in Pakistan and Bangladesh while the causality from growth to savings was found in India and Sri-Lanka. The causality in either direction was, however, rejected in the case of Nepal. In a separate study, Agrawal (2001) examined the direction of causality between savings and growth in seven Asian countries using the Engle and Granger VECM and VAR procedures. The results of this study indicate that, by and large, the direction of causality runs primarily from growth to savings, although in some countries there is also evidence of a feedback effect from savings to income and growth. The study, therefore, concluded that the development policy should focus less on promoting high saving rates and more on promoting high growth rates. Mavrotas and Kelly (2001) examined the causal relationship between gross national product, gross domestic savings, and private savings using time series data from India and Sri-Lanka. Using the methodology of Toda and Yamamoto, the authors found no causality between GDP growth and private savings in India, while in Sri-Lanka there was a bi-directional causality between private savings and growth. Sahoo *et al.* (2001), in an attempt to investigate the causal nexus between savings and economic growth in India using data from 1950/1951 to 1998/99, found evidence of a unidirectional causality from economic growth to savings, thereby repudiating the classical view that savings have been the engine of economic growth.

CHAPTER 3
FINANCIAL LIBERALISATION IN SOUTH AFRICA

3.1 An Overview of Financial Liberalisation in South Africa

Financial liberalisation in South Africa was initiated shortly after the De Kock Commission Reports (De Kock 1978, 1985). Interest and credit controls were removed in 1980, while liquidity ratios of banks were reduced substantially between 1983 and 1985. Credit ceilings were in effect in the 1960s and 1970s. The South African Reserve Bank placed a maximum limit on the amount of loans that banks were permitted to extend in 1967. In 1968 credit ceilings were extended to cover bank investment in private sector securities. The ceilings were later extended even to non-monetary banks in 1970 in order to curb competition. Although credit ceilings were abandoned in 1972, bank credit ceilings to the private sector were later re-imposed in 1976. Between 1977 and 1979 further credit ceilings were tightened at various points. However, in September 1980 the credit ceilings were abolished. The Register of Cooperation, which limited bank competition, was also eliminated in 1983. Although South Africa rapidly liberalised its financial sector in 1980, capital controls were later tightened in 1985 in response to capital flight following the worldwide imposition of economic sanctions against the country. For similar and related reasons, foreign exchange controls were maintained throughout the 1980s and early 1990s. Exchange controls only saw change in 1995 when controls on non-residents were eliminated, and those on residents were relaxed (Williamson and Mohar 1998).

In comparison with other developing countries - and even by world standards - South Africa is considered to have a highly developed and sophisticated financial system. The Johannesburg Stock Exchange (JSE), which was formed in 1887, is ranked as the 18th largest stock exchange in the world in terms of market capitalization (Bureau of African Affairs 2000). The South African Reserve Bank (SARB), which is one of the oldest central banks in the world, performs all traditional central banking functions. The bank is independent and operates in the same way as Western central banks, influencing interest rates, and controlling liquidity through the interest rates on funds provided to the private banks. By 1997, South Africa had about 51 licensed banks. In addition, there were five mutual (or community) banks. Out of the 51 licensed banks, eight were branches of foreign banks, while 11 were subsidiaries of foreign banks. Today, there are about 60 banks in South Africa, including 13 branches of foreign banks, and four mutual banks.

3.2 The De Kock Commission

The De Kock Commission of enquiry was first appointed by the State President of the Republic of South Africa on 16 August 1977. The Commission was appointed as a result of the rapid development of financial institutions and markets during the preceding two decades; the changes which had occurred in the role of gold in the international exchange rate system; and the problems which had arisen in South Africa's money and foreign exchange markets. The overall task of the Commission was to inquire into and submit recommendations regarding the monetary system and monetary policy in South Africa, with special reference to: i) the money market; ii) interest rate policy, including public debt management and open-market operations; iii) credit ceilings, cash reserves, and liquidity asset requirements; iv) the 'grey market'; v) the position of smaller banks; vi) exchange rate and forward exchange policies and practices, and the development of a foreign exchange market in South Africa; vii) the changed role of foreign capital; and viii) the interaction between monetary policy and the balance of payments (De Kock 1985).

However, following turmoil in the world's foreign exchange markets, including the sharp depreciation of the US dollar, to which the rand was linked, the Commission was asked to give priority to the exchange rate question. An interim report entitled "Exchange Rates in South Africa" was, therefore, submitted in November 1978 and was accepted by the Government in January 1979. This report resulted in a number of changes in South Africa's exchange rate practices and policies. The report was followed by a second interim report entitled "The Building Societies, the Financial Markets, and Monetary Policy", which was submitted in November 1982, and which was followed by a final report entitled "The Monetary System and Monetary Policy in South Africa", which was submitted in 1984. The De Kock Commission recommended lifting prudential requirements on credit and interest rate ceilings, and proposed a 'risk-based' approach to the capital adequacy of banks, thereby shifting the regulation of bank activities from the state to the market. The deregulation of interest rates was especially critical because of its perceived link with the exchange rate. The argument here is that since interest rates compensate investors over time for capital losses from currency devaluation (or depreciation), maintaining higher interest rates is likely to support the domestic currency by making it more attractive to hold and more expensive to borrow. The De Kock Commission, in its final report, also supported the need for well-developed and efficient financial markets. According to the Commission, efficient financial markets can make a significant contribution to the growth and general soundness of the economy. For this reason, the Commission recommended measures of monetary policy that do not undermine the efficient operation of the financial markets or hinder them from their important function of allocating resources. The Commission's argument is that 'direct or non-market-oriented' policy measures are simply not effective in the South Africa's well developed and innovative financial

markets. In their view, financial markets and the institutions operating in them always have little difficulty in finding ways around direct credit or interest rate policy controls. The Commission, therefore, underscored the need for realistic market-related interest rates. The Commission, in its final report, supports the conventional wisdom that financial markets will function best in the national interest only if they are reasonably free, competitive, active, broad, and if they produce realistic market-related interest rates (see De Kock, 1985, 31). The Commission reiterates that with or without the use of money supply targets, monetary policy in South Africa can only be effective if realistic, market-related, and appropriately aligned interest rates can be attained in the various financial markets. According to the Commission, if the effective control is to be exercised over the monetary aggregates and total money demand, then interest rates must be free to reflect accurately the varying degrees of tightness in the financial markets (see De Kock 1985, 11).

Because the liberalisation of interest rates was expected to lead to high levels of interest rates, the Commission recommended that, if deemed necessary, the government could grant relief by way of open subsidisation to mitigate the social effects of higher interest rates in sensitive areas such as housing or agriculture – but not by restraints on general interest rates or by direct controls on certain deposits or lending rates. Such restraints and controls, according to the Commission, would greatly reduce the effectiveness of the monetary policy. On financial intermediation, the Commission found that the main cause of the large scale intermediation, which occurred in South Africa between 1976 and 1980, was the application of direct and indirect instruments of monetary policy such as bank credit ceilings, deposit rate control, and high liquidity asset requirements (De Kock 1985, 5). According to the Commission's report, the direct quantitative restrictions or ceilings on bank credit to the private sector applied by the Reserve Bank between 1965 and 1972, and again from 1976 until 1980, forced the banks into sub-optimally small lending portfolios and correspondingly large holdings of liquidity assets and prescribed investments. Because the use of direct credit control method was also accompanied by a low level of interest rates, and therefore stronger demand for credit, the inevitable outcome, according to the report, was that unsatisfied borrowers turned to alternative sources of short-term credit. This resulted in large-scale disintermediation and a sharp rise in the velocity of money circulation, which greatly reduced the effectiveness of the monetary policy (De Kock 1985, 5).

Although the De Kock Commission report was largely accepted by the government, the report was criticised by a number of scholars for various reasons. Rogers (1986), for example, argues that the report is not very helpful as no comprehensive statement of the theoretical framework employed is provided. According to the author, by simply describing the theoretical structure employed by the Commission as a 'market-oriented blend of conservative Keynesian demand and pragmatic monetarism', the

report gives a rather elliptic description, which obscures more than it reveals (Rogers 1986,39). The author's argument is that since the Commission has been influenced by both Keynesians and monetarists, a clear understanding of the debate between Keynesians and monetarists ought to have been included in the report. From a monetarist perspective, Kantor (1986) argues that the De Kock Commission's report is not a monetarist's document. This is because, whilst the monetarists argue for rules to bind economic policies, the Commission argues for discretion of the Reserve Bank over interest rates, exchange rates, exchange controls, and money supply. According to the author, the 'market-oriented' interest rate argued for in the report is not the market-determined rate in the usual sense of the term. The De Kock Commission report recommends an interest rate that is closely aligned with the short-term interest rate controlled directly by the Reserve Bank. De Wet (1986), in assessing the monetary control as seen by the De Kock Commission, argues that the control measures recommended by the Commission will not enable the monetary authorities to effectively control money stock. The author argues that the Commission's demand approach will simply hurt the economy. Specifically, the author argues that the monetary authorities' attempts to set the level of interest rate through the bank rate may simply drive up the interest rates and in the process hurt the economy until the whole system is disrupted (De Wet 1986, 12). Botha (1986) accuses the Commission of taking a static view of interest rate policy instead of a dynamic one. According to the author, it is possible that more credit can be created at a higher rate of interest, especially if business sentiments favour expansion and banks have unused overdraft facilities (Botha 1986, 28). This, among other factors, according to the author, makes the outcome of interest rate manipulation very uncertain. In a strong statement, the author argues that the report of the Commission has ignored "the two-hundred-year-old literature on interest rates" and that its views on interest rates are "less than those expressed by, for example, the successful banker and author Henry Thornton in 1802" (Botha 1986, 28). The author argues that the Commission gives no evidence of having been influenced by the analyses in the various articles, symposia, and Commission of enquiry into money and monetary policy over the past fifty years. According to the author, there are three questions concerning the interest rates that should be clarified to those in the authority, which seem to have been only skimmed over by the Commission. These are: i) the level of interest rates; ii) the structure of interest rates; and iii) the vital question of the dynamics of interest rates, i.e., the effects of change in the level of interest rates.

3.3 Interest Rate Liberalisation in South Africa

During the 1960s and 1970s the South African interest rates, just like other financial prices, were quantitatively controlled. For example, the deposit rate control, which was in the form of maximum deposit interest rates payable on deposits with banks and building societies, was introduced in 1965, with the first upper limits being imposed in March 1965. This

measure resulted from the need to protect building societies, which were by then competing with banks for funds. In 1970, the upper limits imposed on deposit rates payable on banks and deposits of building societies were dropped and the government later decided to subsidize certain interest rates. However, in 1972 these controls were reintroduced. Interest rate controls were not only applicable to deposit rates but also to lending rates. In terms of the Limitation and Disclosure of Finance Charges Act, Act No. 73 of 1968 (as amended), finance charges on money loans and hire-purchase credit were subject to a certain maximum. Even though the main purpose of this legislation was to prevent the exploitation of the public by money-lenders, it effectively imposed a ceiling on the price of credit in the financial markets[2].

South Africa liberalised both its lending and deposit rates in 1980. The rationale for this rapid interest rate liberalisation was to allow banks greater flexibility and to encourage competition. After the liberalisation of interest rates, banks were able to vary rates charged to borrowers according to their cost of funds and according to creditworthiness of different borrowers. Although the monetary authorities expected interest rates to be positive in real terms after their deregulation, interest rates generally remained negative in real terms. It was not until the 1990s that a distinct positive interest rate was attained. After 1990, the rates remained fairly and consistently positive over and above inflation, except in 1992, when rates fell drastically. High interest rates became necessary in order to attain the twin objectives of curbing inflation and maintaining a current account surplus.

3.3.1 Interest Rate Behaviour in South Africa Before and After Liberalisation

During the 1960s and 1980s, interest rates in South Africa were largely controlled. The South African Reserve Bank was responsible for determining maximum and minimum deposit and lending rates, respectively. Between 1967 and 1975, the minimum deposit rate and prime overdraft lending rates were set at 2% and 2.5%, respectively, above the bank rate. As of 1975, banks were allowed to set their lowest overdraft rates within the margins of 2.5 - 3.5% above the bank rate. This continued until 1980 when interest rate controls were dropped. The deposit rate, on the other hand, had its first upper limits imposed in 1965. Although this restriction was dropped in 1970, it was re-introduced in 1972. It was maintained until 1980, when the deposit rates were fully liberalised. Figure1 shows the trends of the selected interest rates, as well as the inflation rate, in South Africa during the period 1969-1979.

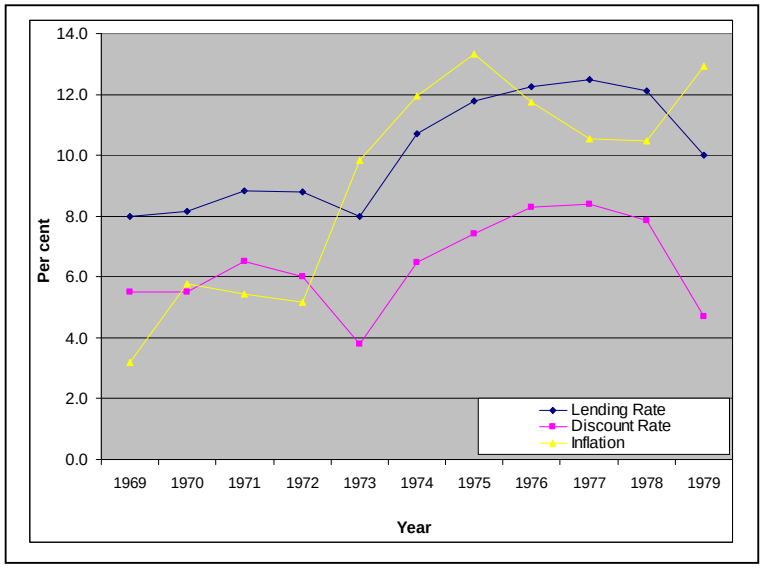

Figure 1. Trends of Interest Rates and Inflation Rate in South Africa (1969-1979)

SOURCE: Computed from IMF IFS Yearbook 1999

Following the liberalisation of interest rates in 1980, nominal interest rates increased significantly, although real interest rates remained negative until the mid-1980s. The nominal deposit rate, for example, increased immediately after the adoption of financial liberalisation from 5.54% in 1980 to 18.29% in 1984 before declining during 1984 to 1987. During 1988 to 1990, the nominal deposit rate increased again, with the highest rate (18.86%) recorded in 1990. However, this high deposit rate did not last for long. During 1991 to 1994 the nominal deposit rate showed another declining trend. Although the rate increased during 1995 to 1998, it later declined in 2000. By 2001, the nominal deposit rate was 9.37%. Despite this high and generally increasing rate, the real deposit rate exhibited a number of negative values. The real deposit rate remained negative during the first four years after liberalisation, despite the rapid financial reforms adopted in 1980. The lowest rate was –10.12%, recorded in 1987. However, the rate thereafter remained positive in most cases, with the highest rate (7.98%) recorded in 1997. But between 1997 and 2001, the rate showed a continuously declining trend. By 2001, for example, the real deposit rate was estimated at 4.03%.

As in the case of the deposit rate, the lending rate also showed a general upward trend following the liberalisation of interest rates in 1980. The nominal lending rate increased from 9.50% in 1980 to 19.33% in 1982 before declining slightly to 16.67% in 1983. The rate later increased to 22.33% in 1984. During 1985 to 1987 the nominal lending rate showed a

declining trend. Although the rate improved during 1988 to 1990, it later declined during 1991 to 1994. During 1995 to 1998 the rate showed an increasing trend. However, since 1998, it has been declining. It is worth noting that throughout the period from 1980-2001 the nominal lending rate maintained a double-digit level, except in 1980, when a lending rate of 9.50% was recorded. Unlike other rates, the real lending rate remained positive in most cases, with the following exceptional rates recorded in specific years: -3.43% in 1980, -1.86% in 1986, -6.32% in 1987, and -0.80% in 1988. The highest real rate was 13.22%, recorded in 1998. This persistent positive real lending rate was attributed to the high and increasing nominal lending rate, which in most cases was above the prevailing inflation rate. Figure 2 gives the trends of the selected interest rates, as well as the inflation rate, in South Africa during the period 1990-2006, as compared with those of 1980.

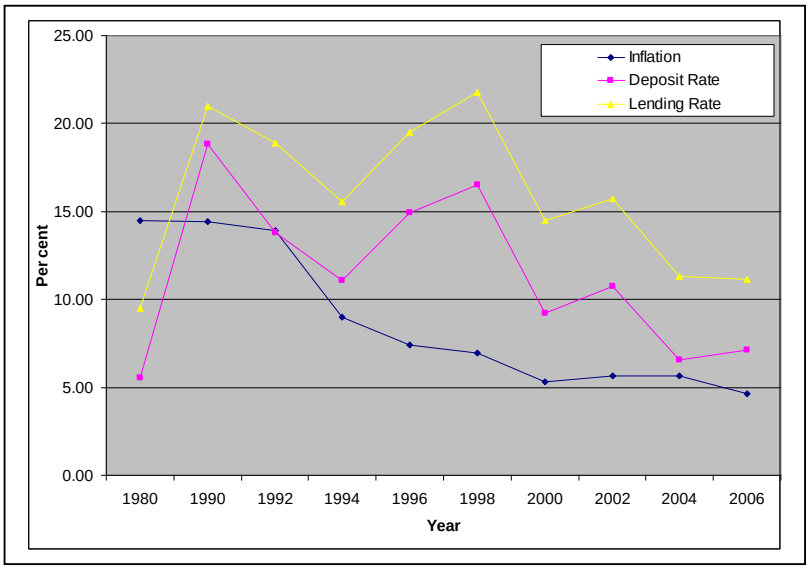

Figure 2. Trends of Interest Rates and Inflation Rate in South Africa during the Period 1990-2006 as Compared with those of 1980

SOURCE: Computed from IMF IFS Yearbook (1999; 2007)

3.3.2 Financial Sector Development in South Africa

According to standards of developing countries, South Africa has a well-established and sophisticated financial sector. The South African financial sector is thus more developed than the financial sectors in Tanzania, Zambia, and Lesotho. The South African financial sector comprises the South African Reserve Bank, commercial banks, insurance companies, micro-lenders, Development Bank of Southern Africa, Land Bank, unit trusts, the Post Bank, and Johannesburg Stock Exchange, among others.

From the mid-1960s to 1980s, private banking activities in South Africa and the development of the securities markets were restricted by the extensive use of direct monetary control instruments. Credit ceilings were increasingly implemented by the Reserve Bank to curtail the overspending of credit and to dampen inflation. During this period, high cash-reserve requirements were also instrumental in the development of 'grey' markets. However, following the implementation of the De Kock Commission recommendations in the mid-1980s, South African banks were faced with the increasing adherence to free market principles by the monetary authorities. Deregulation and rationalisation took place on a major scale, and most of the direct control instruments were no longer used by the end of the 1980s. The banks' previously high cash-reserve and liquid-asset requirements were also reduced. The cash-reserve requirement was, however, subsequently increased in 1985 in order to tighten liquidity and to restrain the high level of credit extension. Several new banks were registered and competition intensified, both among banks and between banks and other financial service providers. As a result, the assets held in the banking sector expanded rapidly. Profit margins were significantly reduced towards the end of the 1980s when intensified competition coincided with a relatively tight monetary policy. Consequently, the industry consolidated and rationalised, and several institutions merged with other banks. Considerable costs were incurred in connection with this rationalisation, and a large amount of non-performing debt was written off or provided for because of the recession between 1989 and 1993. By the 1990s, nearly all the building societies were transformed from mutual societies into banking institutions and, later, merged into larger banking groups. By the mid-1990s, more than 95% of the total assets of banks were held by only four banking groups, namely, the Amalgamated Banks of South Africa (ABSA), Standard Bank, First National Bank, and Nedbank. The remaining 5% of the banks' assets were, however, spread among some 27 local banks, 9 foreign-controlled banks, and a few branches of foreign banks as well as some mutual banks. Although for many years the policy of the South African authorities was to ban the entry of new foreign banks into the country, this policy was reversed during the financial liberalisation era by the Deposit-Taking Institutions Act of 1990. During this period, the shareholding restrictions on foreign banks operating in South Africa were removed. In addition, other restrictions on the entry of new foreign banks were lifted (Falkena *et al*. 1995; South Africa Financial Sector Forum

1997). By 2000, South Africa had about 60 banks, out of which 13 were branches of foreign banks. In addition, about 57 foreign banks had authorised representative offices in South Africa during the same period.

The South African capital market is also robust, liquid, and well-developed. Financial markets in South Africa can be conveniently divided into two broad markets, namely the money market and the bond market. As in other countries, the money market in South Africa issues and trades in investments with a maximum tenure of only one year, while the bond market issues and trades in long-term securities. Money market instruments in South Africa include treasury bills, government bonds, negotiable certificates of deposit, and repurchase agreements, among others. The Johannesburg Stock Exchange (JSE), which was formed in 1887 and is a member of the Federation of International Stock Exchanges since 1963, is in terms of market capitalisation, one of the largest stock exchanges in the world. The JSE is included in the Morgan Stanley Index and the International Finance Corporation (IFC) Emerging Markets Indices. It has also been a key role player in the African Stock Exchanges Association since its formation in 1993. Currently, South African securities are traded simultaneously in Johannesburg, London, New York, Frankfurt, and Zurich. In 1990, the South African Futures Exchange (SAFEX) was also established. SAFEX consists of two divisions. The first is the financial markets division, which covers equity and interest rate futures and options markets. The second is the agricultural markets division, which covers soft commodities futures and options on maize, sunflower, and wheat. In 1996, more than four million futures contracts, valued at US $62 billion, were traded, and in 1999 SAFEX moved from being the 22nd to the 18th largest volume exchange in the world. The Bond Exchange of South Africa (BESA) was also licensed to trade in 1996. BESA was licensed as an exchange under the Financial Markets Control Act of 1989 (Act No. 55) for the listing, trading, and settlement of interest bearing loan stock or debt securities. In 1996/97, the same year it was registered, more than 430,000 stocks with a nominal value in excess of US $704 billion changed hands in BESA By 2001, the bond exchange enjoyed an annual liquidity of more than 38 times the market capitalisation. This made it one of the most liquid emerging bond markets in the world (South African Financial Sector Forum 2001). For more than a century the securities stock industry in South Africa was highly regulated through practices that were enforced by the JSE. The JSE was conventionally based on a strict ‘single-capacity’ rule. Member firms were either brokers or principals in securities trading (e.g. equities and bonds) but could not be both simultaneously. Membership was also limited to South African citizens with unlimited liability. Banks, as limited liability companies, were thus excluded from membership. However, in November 1995, structural changes were imposed on the JSE that resulted in a ‘Big Bang’ in 1996[3]. By 2003, the number of listed companies on the JSE had risen to 472 and the market capitalisation was estimated at US $182.6 billion, while the average monthly traded value was

US $6,399 million. Until September 2006, the market capitalisation of the JSE was US $579.1 billion. Currently, the JSE is the 16th largest stock exchange in the world.

3.3.3 Micro-Lending in South-Africa

Although micro lending has existed for years, the official options available to people wanting access to small amounts of bank credit were minimal prior to 1992. During this period, banks were not offering micro-credit and, as a result, borrowers had to resort to pawnbrokers or operators in the informal sector (e.g. the *mashonisas*) or other informal systems such as *stokvels*, burial societies, and Rotating Savings and Credit Associations (ROSCAs). The rules governing the provisions of micro-credit laid in 1992. It then became legal to extend loans at rates greater than those capped by the Usury Act and, as a result, two separate programmes expanded their operation in South Africa. These programmes are the independent cash loan operators who make one-month loans and the term lenders who base their payments on payroll deductions. Both facilities grew extensively during 1992 to 1999.

Although the micro-lending industry has grown steadily in terms of the value of loans outstanding over the past decade as new large players entered the market, the introduction of new regulations in June 1999 forced smaller and less efficient operators to close their business, consolidate their assets, or drop out of the formal market into the informal and unregulated market.

To-date there are three segments of micro-lenders in South Africa. The first segment is known as the formal micro-lenders, comprising registered firms, which include commercial banks, financial institutions, Section 21 (not-for-profit) enterprise lenders, developmental lenders, and the large short-term lenders. The second segment is known as semi-formal money lenders, which include small-unregistered money lenders and pawnbrokers, who are not formally included in the money lending statistics. The third segment consists of purely informal money lenders such as the township money lenders (*mashonisas*) and *stokvels*; burial societies; and Rotating Savings and Credit Associations (ROSCAs).

3.3.3.1 Formal Micro-Lenders

Broadly defined, there are eight types of formal micro-lenders operating in South Africa. These include short-term cash lenders, medium-term cash lenders, term lenders, housing lenders, furniture lenders, retail lenders, enterprise lenders, and developmental lenders. It is worth noting that this grouping is based solely on the type of lending offered. The first six lenders focus mainly on consumption lending and lend only to customers with bank accounts and regular salaries. The other two lenders, which are either developmental or enterprise lenders, generally base their repayments on cash flow from the productive activity (see Finance and Enterprises Report 2000).

Short-Term Cash Lenders

These are lenders whose focus is mainly on loans of up to 32 days or the next pay period. The average interest rate charged on this type of lending is about 32% per month, which also applies to loans of less than 30 days. These are the largest micro-lenders in South Africa. The targeted market for these lenders consists of clients with a net income of up to R2000 per month. Unfortunately, the default rate on these loans has increased recently following the elimination of bank cards and pin numbers, which were previously used as a security.

Medium-Term Cash Lenders

These are micro-lenders whose focus is mainly on loans for a period of between one and six months. The nominal interest rates charged on these loans vary largely according to the loan period. For example, the interest rates charged on 30-day loans are usually 30%, as in the case of short-term lending. However, clients borrowing for longer than 30 days usually pay between 12.5% and 20% or more per month for the period. Since these loans are given to better-known clients, the default rate, compared to short-term loans, has been generally low, even without the use of bank cards as a security.

Term Lenders

These are lenders who make loans for periods of between 6 months and 36 months. This is the most rapidly growing segment of the micro-lending industry, although it is often restricted by available cash to lend out. This industry started through the use of persal code. The lenders usually utilise the government's central payroll system to arrange repayment from the source, before the borrower has a chance to access the money. This micro-lending segment has recently attracted the involvement of many commercial banks, who buy out large term micro-lenders with a view to develop their access to the market, while reducing the financial constraints on their lending partners.

House Lenders

Although house lenders are closely associated with the term lenders, most long-term mortgage loans are greater than the ceiling set for micro loans. There are a lot of micro loans made in the name of housing, since it is the basis for access to a persal code, which greatly facilitates repayment. Housing loans can also be secured to provident funds, effectively reducing the risk to near zero. A number of large banks and small specialised lending boutiques are now involved in housing finance. The National Housing Finance Corporation (NHFC) has a facility which assists retail lenders to access finance to lend to borrowers for housing improvements. The major lenders in this industry include: micro lenders, small banks, social housing programmes, non-bank financial institutions, as well as NGOs.

Some of the methods of securitisation in this segment include provident fund, payroll, and mortgage. While the NHFC promotes housing in both urban and rural areas, the Rural Housing Loan Fund (RHLF) mainly promotes housing in rural areas. The RHLF works with lenders, facilitating housing in the rural areas with unsecured bans, for which interest rates of 40% (on a declining balance) are commonly charged. For provident backed loans, margins above the cost of money are typically between 4-5%.

Furniture and Retail Lenders

The furniture industry in South Africa is estimated to be around R15 billion per year, with about R10 billion being sold on credit. Traditionally, furniture sales have been made under the Credit Agreement Act, which restricted interest rates to the ceiling of the Usury Act, while allowing the seller to retain ownership of the goods sold as collateral.

Furniture/retail lending is still a very new segment of the micro-lending market and has yet to develop. The market is expected to replace a number of credit markets as well as making additional small loans to their customers. Since the arrival of the MFRC and the clearer regulatory environment for micro-lending, many of the furniture lenders, as well as other retail stores have entered the market. They have registered branches as micro lenders and are actively promoting micro loans to their regular and well-known clients. These lenders have a solid credit history on their clients and rely on a credit scoring methodology to assess risk. As a result, they do not require debit orders or other deductions at the source, although most of their clients are salaried employees. The MFRC has placed many objections to furniture lenders entering the micro-lending market because this can serve as a means of bypassing ceilings under the Credit Agreement Act. The argument here is that, since the furniture lenders are in control of the price of the items they sell, they can adjust the price of the goods to cover the cost of the lending.

Micro-Enterprise Lenders

Micro enterprise lenders are special groups in the micro-credit industry. In South Africa, these institutions account for a very small portion of the micro-credit market. Though some "consumption" lending may go towards financing productive activities, micro-enterprise finance comes largely from NGOs and Trusts. There is little micro-enterprise finance from the commercial banking sector in South Africa. Micro-enterprise lenders are generally new institutions and they are still in their growth phase. They are still investing in their operations and are restricted to lending only.

Developmental Lenders

Developmental lenders are similar to the enterprise lenders, except that they have a far greater existing investment and base to build from. Some developmental lenders have savings as a resource while others have institutional investors, which provide them with cheaper access to capital.

Some of the largest developmental lenders include: Land Bank, Ithola, and the Eastern Cape banks.

3.3.3.2 Informal Micro Lenders

Township lenders / Mashonisas

These are informal sector lenders who operate completely outside of the formal sector lending. *Mashonisas* usually specialise in short-term loans generally for 30 days. Interest on these loans runs in the range of 50% per month. However, there is no additional interest charged if the borrower is late. *Mashonisas* are often women with no other means of support trying to earn a living wage out of this business. They have on average about 15-20 clients, borrowing an average of R150-250 at a time. There are many *mashonisas* and their number is increasing. By the year 2000, about 25,000-30,000 *mashonisas* were estimated to be operating around the country. Monthly earnings by *mashonisas* are often quite small, in the range of R2,000-R3,000 per person. Most *mashonisas* are very close to their clients and in most cases their clients are loyal to them.

Rotating Credit Associations (Stokvels)

Rotating Credit Associations are also known as *stokvels* in South Africa. *Stokvels* originated in the black townships of the Witwatersrand in the early 1920s. To earn a living, women brewed and sold beer illegally, which caused them to be arrested time and again. In order to support each other, small groups were formed, members of which undertook to care for the home, children, and the husband of any member who had to spend time in jail. These groups were called *stokvels*. The original *stokvels* gradually developed into the rotating credit associations of today. A *stokvel* consists of about 12 members who pool their resources so that each member has access to a large amount of money should there be a sudden need for it. No interest is paid on this money. The unique characteristics distinguishing *stokvels* from formal bank institutions is the communal tie between members, which ensures that the prerequisites for success are maintained, namely, discipline, a high degree of trust, and a low default rate in contribution payments. By 1993, it was estimated that some 24,000 *stokvels* were operating in urban areas alone with a total turnover of R84 million per month.

Pawnbrokers

Pawn broking is one of the oldest industries in South Africa. Pawnbrokers mainly use durable and semi-durable goods as collateral against money that they advance to individuals in need of short-term funds, generally for less than 30 days. These are mainly used to finance emergencies or short-term cash-flow deficiencies in their daily lives and business. The advances are made against the pledged items at a rate of 25-30% per month, and the borrower has up to three months to reclaim his items by paying off the advance, or else he forfeits the items that he has pledged. The pawnbroker

is obliged to store and maintain the client's items in their original condition until the time the client comes to reclaim the items. However, if the client forfeits the items, they then belong to the pawnbroker and he is free to sell same as second hand goods. It is estimated that about 35% of all pawned items are not paid off and collected.

Pawnbrokers are registered under the Second Hand Goods Act and are obliged to pay VAT on all transactions. The cost structure for pawnbrokers differs radically from that of micro lenders. Their costs include storing the item for up to three months, and if the item is not collected, selling the second hand goods may take several months depending on the demand for the item. By 2000, about 5,000 pawnbrokers were estimated to be operating in South Africa (for a detailed analysis of micro-lending in South Africa, see Finance and Enterprises Report 2000; South African Communications Services 1993; 1999; 2000).

3.3.4 Financial Liberalisation, Financial Deepening, and Economic Growth in South Africa

Although the financial sector in South Africa is relatively deep when compared to that of Zambia, Tanzania, Lesotho, and most of the other SSA countries, the M_2/GDP ratio maintained after the liberalisation of interest rates in 1980 is slightly lower than the average M_2/GDP ratio maintained before the liberalisation. For example, during the period 1972 to 1980, the average M_2/GDP ratio was 0.613. During 1981 to 1989, the average M_2/GDP decreased to 0.549. In 1993, the M_2/GDP ratio reached about 0.469, the lowest since 1973. However, since then, the ratio increased phenomenally. The ratio was 0.490 in 1994 and 0.500 in 1995 before increasing further to about 0.540 in 1997 and 0.570 in 1998. In 1999, the M_2/GDP ratio increased to 0.579 and in 2001 the M_2/GDP ratio reached 0.597, the highest since 1980.

Although South African financial depth has improved considerably since 1993, economic growth has consistently shown a mixed trend since the 1980s. For example, during the period 1975 to 1984, the average annual percentage growth in GDP in South Africa was 2.4%, with the highest growth rate of about 9.2% being recorded in 1980. However, this rate decreased dramatically to an average of about 1.4% during the period 1985-989 (see World Bank 2000). This dramatic decline in economic growth was mainly attributed to trade, on the one hand, and financial sanctions, political unrest, and debt crisis, on the other, which dumped prospects for substantial capital inflows. During 1990 to 1992, the GDP growth rate remained negative and systematically declined until it reached 2.1% in 1992. It was only in 1993 that the downward slide in the South African economy was reversed. During 1993 to 1996, the GDP growth rate maintained a more or less increasing trend (except in 1995). In 1994, the GDP growth rate significantly increased to about 3.2% from about 1.2% in 1993. Although the rate declined slightly to about 3.1% in 1995, the country had a record high GDP growth rate of 4.2% in 1996. However, the

rate later declined in 1997 and 1998 to 2.5% and 0.7%, respectively. Despite the dwindling economic growth, which affected South Africa in the 1980s and 1990s, a modest recovery in economic growth was maintained in 1999 and 2000.

CHAPTER 4
FINANCIAL LIBERALISATION IN TANZANIA

4.1 The Origin of Financial Liberalisation in Tanzania

Tanzania, like many other developing countries, has implemented a number of reforms since the widespread acceptance of the ideal of financial liberalisation. Although Tanzania started pursuing financial reforms as early as the 1980s, it was only in the 1990s that fully-fledged financial reforms were implemented. This was because the country wanted to avoid a rapid or 'big bang' financial liberalisation situation (Odhiambo 2004a). Moreover, it was necessary for the country to attain some level of macro-economic stability before fully liberalising its financial sector. For example, it was only in 1992 that the Bank of Tanzania (BOT) lifted its responsibility of setting interest rates (except for the maximum lending rate). In the same year, the Foreign Exchange Act of 1992 was passed and replaced the Exchange Control Ordinance. In 1993 the lending interest rate ceiling of 31% was abolished and the 91-day Treasury Bill Auction commenced. During the same year, a number of foreign exchange reforms were undertaken. A bureau-de-change market was introduced in April 1993 in an effort to liberalise foreign exchange, and, in July 1993, the BOT began auctioning foreign exchange. This had the joint effect of liquidity management and market-based exchange rate determination. In August 1993, bureaus and official exchange rates were unified and, thereafter, forex auctions were extended to include commercial banks. In 1994 the requirement of a positive real deposit rate was abolished. A year later, the liquidity asset ratio was also abolished, and in 1996 the credit ceiling on the lending of commercial banks was also abolished[4].

Unfortunately, the implementation of the financial liberalisation policy in Tanzania, just as in many other developing countries, resulted in a number of challenges. These include high interest rates, a wide and expanding spread between lending and deposit rates, a systematic decline in domestic credit to the private sector, an unstable exchange rate, and mixed trends in financial depth. For example, since the liberalisation of interest rates in 1994, the spread between the lending and deposit rates has widened significantly. The general trend of domestic credit to the private sector has also declined dramatically from 28.62% in 1991 to 6.98% in 1998. Although savings and investment have shown positive trends since 1998, the pre-reform average savings and investment levels generally exceed the post-reform levels.

4.2 Interest Rates Behaviour Before and After Liberalisation

During the period 1961-1967, the Tanzanian interest rate policy was largely controlled by the East African Currency Board (EACB) – a board that was established in December, 1919. The EACB was mainly concerned with the interest rates on government securities. There was no concern with interest rates charged by commercial banks. The emphasis at this time was on keeping the local Treasury Bill rate at approximately 12.5% below the UK Treasury Bills. The so-called 'big three' commercial banks in Tanzania tied their interest rates to money market rates in London. However, during this period the interest rate on saving deposits did not show any significant change. For example, the deposit rate decreased from 3.5% per annum in 1961 to 3% per annum in 1962 and remained unchanged until 1964. The interest rate later increased to 3.5% in 1965, which prevailed until 1966. The small variations in the deposit rate could be attributed to the cartel nature of commercial banks that operated in the country during this period.

Following the Arusha Declaration in April 1967, the interest rate policy was changed substantially. This marked the beginning of an era of administratively-fixed interest rates in Tanzania. In 1969, for example, the government lowered the Treasury Bill rate to 4.3% per annum from 4.6% in 1968, a rate that was maintained for 14 years. The rationale for this move was to lower the cost of government borrowing from the banking system. However, the rate was later adjusted upward to 5.00% in 1983 and 5.70% in 1985. Although the nominal Treasury Bill rate remained more or less fixed during the period 1967-1985, the real rate remained virtually negative throughout this period, with the lowest rate (-26.95%) being recorded in 1981. The negative real interest rate is attributed to the high and persistent inflation that prevailed during this period.

As in the case of Treasury Bills, the bank rate was administratively fixed throughout this period. The nominal bank rate remained fixed at 5.00% during 1967 to 1977. The rate was later adjusted to 6.00% in 1979, a rate that was maintained until 1986. Although the nominal rate remained fixed during this period, the real bank rate followed a different trend. The rate remained negative during 1973 to 1985, with the lowest rate (-28.88%) being recorded in 1985.

The deposit rate also remained fixed at 4% per annum over the period 1967 to 1984. It was then adjusted to 4.5% in 1985, reflecting an increase of only 50 basis points after a period of almost 20 years. However, the real deposit rate remained largely negative throughout the pre-reform period. Likewise, the nominal lending rate followed a similar trend. The lending rate was lowered from 7% per annum in 1967 to 6.5% in 1968, and thereafter remained unchanged until 1977. It was then adjusted upwards to about 6.54% in 1978 and reached 13% in 1984. The real rate, on the other hand, remained negative throughout this period. Since 1986, there has been a reversal of interest rate policies. This is evidenced in the upward trend of

interest rates recorded since 1986. Figure 3 shows the trends of selected interest rates and the inflation rate in Tanzania during 1978 to 1989.

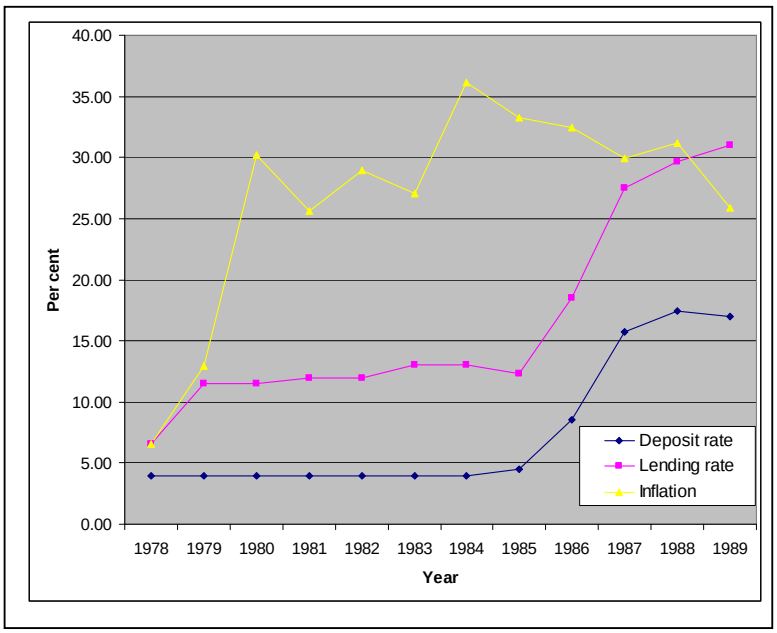

Figure 3. Trends of Interest Rates and Inflation Rate in Tanzania (1978-1989)

SOURCE: Compiled from IFS Yearbook 2007; World Bank 2006

Following the liberalisation of interest rates in 1992 and 1993, Tanzania suffered sharp increases in both nominal and real interest rates. For example, during 1993 to 2001, nominal discount and lending rates remained at a double-digit level, except in 2001. During the same period, the Treasury Bill rate reached 40.33% in 1995 while the deposit rate reached 26% in 1994. The real lending rate, which was largely low and negative before interest rate liberalisation, persistently remained positive and high throughout the period. Figure 4 shows the trends of selected interest rates and the inflation rate in Tanzania during 1995 to 2005.

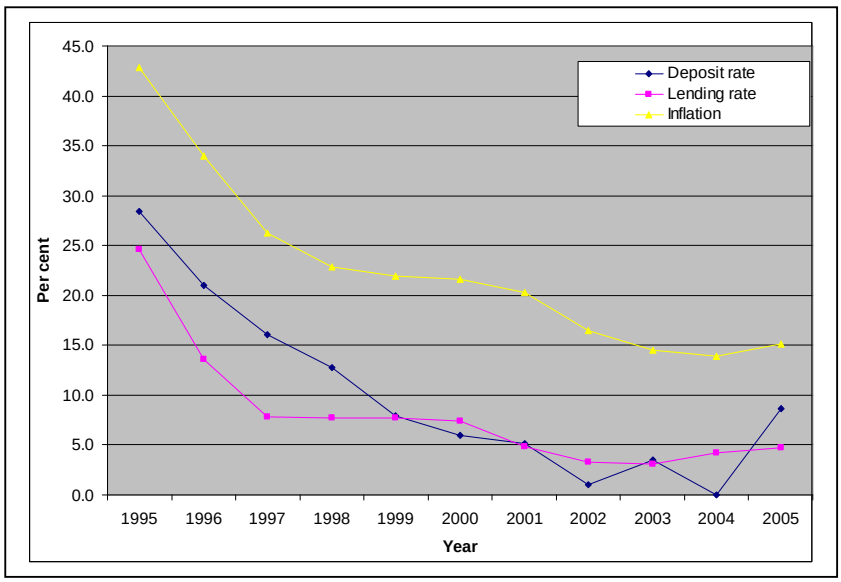

Figure 4. Trends of Interest Rates and Inflation Rate in Tanzania (1995-2005)

SOURCE: Compiled from IFS Yearbook 2007; World Bank 2006

4.3 Financial Sector Development in Tanzania

The financial system in Tanzania, unlike in South Africa, is still in its infancy. The system is mainly bank-centred. The financial deepening and widening has not reached the expected level. The financial market is under-developed. There is no significant development of leasing institutions; housing finance institutions; and hire purchase and retail credit companies. The long-term end of the market remains under-developed with small and weak contractual saving institutions and a relative small stock exchange, which was only established in 1996 and became operational in 1998. As a result, money and capital intermediaries such as dealers, brokers, discount houses, and merchant banks have not developed to the level expected. However, the government of Tanzania attaches great importance to financial institutions and instruments. Within the Tanzanian economic context, financial institutions perform a number of roles. The most significant of their roles is that they mobilise financial resources from the public, keep custody of the mobilised financial resources, finance activities of the economy through credit extension, participate in economic activities through equity, and offer advisory services on financial activities of the economy. The key players in the Tanzanian financial sector are the BOT (which is the Central Bank), commercial banks, development banks, Postal Bank, contractual savings institutions (e.g. National Insurance Corporation, National Social Security Fund, etc), hire purchase companies, savings and

credit societies, informal deposit and credit groups, and the Dar-es-Salaam Stock Exchange (DSE).

The central bank of Tanzania, which is popularly known as the Bank of Tanzania (BOT), was established in 1965 following the decision to dissolve the East-Africa Currency Board (EACB). The BOT was formed by the Bank of Tanzania Act of 1965. The Act empowered the BOT to perform all the traditional central banking functions. However, within eight months of its inauguration in February 1967, the Arusha Declaration was proclaimed, and with it, the BOT had to re-orient its policies. Most of the traditional instruments of indirect monetary policy stipulated in the Act became inoperative, as there was no longer an effective environment for indirect instruments. Currently, the BOT is empowered by the Bank of Tanzania Act of 1995, with the primary objective of formulating and implementing monetary policy, which is directed towards the economic objective of maintaining price stability and soundness of the financial system over time[5]. In addition, the Bank has other subsidiary functions that include issuing currency; serving as the bank of, banker and the government; advising the government; serving as the guardian of the country's international reserves; supervising banks and financial institutions; and promoting of financial development. The BOT is currently using three main instruments to implement its monetary policies. These include the discount rate, minimum reserve requirements, and open market operation.

The banking sector in Tanzania is relatively small and less developed when compared to that of South Africa. A number of factors have contributed to the current underdevelopment of the Tanzanian banking sector. The main constraint is financial repression although a weak and unclear institutional framework also has its own contribution to this effect. The key elements of financial repression include restrictions on entry into the banking sector, and these were often combined with public ownership of major financial institutions. Other restrictions were high reserve requirements on deposits, statutory ceilings on bank lending and deposits, quantitative restrictions on credit allocation, restrictions on capital transaction, and foreign exchange transactions. Before the financial reform in the 1990s, state-owned banks dominated the Tanzanian banking sector. For example, in 1980 the National Bank of Commerce (NBC) expanded its operations to most parts of the country. By 1990, the bank had, apart from the head office in Dar-es-salaam, 25 regional offices, district offices in all mainland districts, 182 branches, and 220 agencies. The main purpose of this was to try to reach as many people as possible in an effort to mobilise domestic savings.

Since the 1990s, the government has implemented a number of policy and institutional reforms in order to strengthen the development of financial institutions in Tanzania. For example, the Banking and Financial Institutions Act of Tanzania was passed in 1991 in order to modernise the legal and regulatory framework so as to allow for competition in the delivery of financial services. A law was also passed by the Parliament in 1991, which led to the establishment of the Loans and Advances Realisation Trust (LART). The main aim of this law was to address the large portfolio of non-performing loans. In 1997 the government began restructuring NBC, which by then had a market share of 90%. The move was aimed at scaling down bureaucracy and building an efficient, modern, and highly competitive banking institution. The effects of restructuring resulted in the splitting of the NBC into three institutions, namely, NBC (1997) Limited, the National Microfinance Bank (NMB) Limited, and the NBC holding corporation. These institutions began operations on 1st October 1997 under the ownership of the government, pending their privatisation. The government later appointed a transitional management committee to handle the transitional issues and arrangements. In order to improve the efficiency of these institutions and enhance the stability of the financial system at large, the government also committed itself to restructuring the remaining state-owned banks and financial institutions. These were the People's Bank of Zanzibar (PBZ), the Tanzania Investment Bank (TIB), the Karadha Company, and the Tanzanian Postal Bank. Currently there are about 18 banks, 11 non-bank financial institutions, and 80 foreign exchange bureaus operating in Tanzania. The directorate of banking supervision of the BOT is responsible for licensing the commercial banks in Tanzania.

Tanzania's financial market is under-developed with a relatively small stock exchange, which was established in 1996 and only became operational in 1998. As a result, money and capital intermediaries such as dealers, brokers, discount houses, and merchant banks have not developed to the level expected. The establishment of money and capital markets in Tanzania was done in phases. For example, in 1993 the Treasury Bills market was introduced. In 1994, the Capital Markets and Securities Act of 1994 was enacted, thereby providing an enabling environment for the establishment of a stock market to provide long-term capital. By 1998, the inter-bank money market and the Dar-es-Salaam Stock Exchange (DSE) were operational.

The Tanzanian money market is not yet fully developed. At present, dealings in the money market by the BOT are mainly dominated by Treasury Bills and repurchase agreements (REPOs)[6]. Open market operations have been undertaken exclusively in 91-day Treasury Bills (liquidity papers), the proceeds of which are sterilised in a blocked BOT account, while 182-day and 364-day Treasury Bills (in the form of financing papers) are used for financing the governments' deficits. Treasury Bills are sold in the primary market through auctions, which

started in August 1993, to commercial banks, other financial institutions, official entities, businesses, and individuals. The bills can be discounted at the BOT at the prevailing discount rate, at the discretion of the Bank. The secondary market in Tanzania is still at an early stage of development.

Until the 1990s, capital markets in Tanzania were almost non-existent. The development of capital markets only began in the 1990s, after financial reforms. The country decided to develop its capital market because of the transition from a 'planned' economy dominated by parastatal enterprises to a 'market' economy, where the private sector is expected to play an increasingly important role. In 1994, the Capital Markets and Securities Authority (CMSA) were established and became operational as a unit of the BOT. The unit later became autonomous in July 1995. The CMSA's vision, as expressed in section 10 of the CMSA Act of 1994, is to develop and regulate a sustainable capital market that is efficient, transparent, orderly, fair, and equitable to all. Since its creation, the CMSA has initiated several activities aimed at strengthening the capital market development of Tanzania. Following the establishment of the CMSA Act of 1994, the Dar-es-Salaam Stock Exchange (DSE) was incorporated in September 1996. The establishment of the Dar-es-Salaam Stock Exchange, which was a government initiative, was an important milestone in the effort toward the development of a well-functioning capital market for the mobilisation and allocation of long-term capital to the Tanzanian private sector. Trading operations of the DSE started in April 1998 with the listing of the first company, the Tanzania Oxygen Limited. The second company to be listed was the Tanzania Breweries Limited, and one of the latest listing is the Tatepa. By December 1999, four companies had been listed on the DSE. Three of these companies raised a combined equity capital of 28.57 billion shillings in the primary capital market. There are presently five stock broking firms licensed to deal in exchange. There are also a number of pending listings of large companies, and trading is expected to pick up once the government authorises the participation of foreign firms in the market.

Overall, the Tanzanian capital market is still relatively under-developed when compared to South Africa's. Bank financing and government subsidies have for a long time been the source of finance for public corporations and companies. There is a noticeable absence of public companies (i.e. companies allowed to invite subscriptions from the public). Many companies in Tanzania are private, and their rights to transfer shares are severely restricted. The number of securities is rather limited, with government debt instruments being the only securities in the market (i.e. stocks and Treasury Bills). A secondary market for government securities is now in the process of being established. Pension and provident funds are the only major collective investment schemes.

4.4 Other Financial Intermediaries in Tanzania

Apart from the BOT and the commercial banking sector, there is a wide range of financial intermediaries in Tanzania. These are non-bank financial

intermediaries (for example, institutions offering leasing and hiring services) and the informal financial sector. This last category includes, for instance, informal commercial money-lenders as well as financial associations among neighbours. Each of these sets of financial intermediaries will be discussed separately below.

4.4.1 Non-Bank Financial Institutions in Tanzania

Non-bank financial institutions, as defined within the Tanzanian context, are institutions or persons authorised by law to engage in banking business not involving the receipt of money on current account subject to withdrawal by cheque. The number of non-bank financial institutions in Tanzania has increased from three in the 1980s to 11 in November 2000. Non-bank financial institutions in Tanzania can be divided into deposit-taking and non-deposit-taking institutions. Deposit-taking institutions incur liabilities in forms other than demand deposits (e.g. time and savings deposits). They also mobilise deposits by offering various types of deposit schemes (in Tanzanian shilling and foreign exchange), providing banking services (other than cheque accounts), and by participating in money market operations. Non-deposit-taking institutions, on the other hand, can be grouped as follows:

i) **Institutions offering leasing and hire purchase services:** This service had been monopolised by one state-owned company until 1991, when the Banking and Financial Institutions Act of 1991 was enacted.

ii) **Institutions offering development finance:** These institutions provide long-term finance to the public and private sector in the form of loans for medium- to large-scale investment. Due to stiff competition from commercial banks, these institutions are planning to become merchant banks.

iii) **Institutions offering pension funds and insurance services:** These are the most active of all groups in terms of outreach, volume, and frequency of payments. They include pension funds and insurance companies, among others.

4.4.2 The Informal Financial Sector

Apart from the formal financial institutions highlighted in the preceding sections, there are a number of informal financial institutions operating parallel to formal financial institutions. Informal financial institutions in Tanzania can be broadly classified into four groups. These are:

- Financial arrangements among relatives, neighbours, and friends;
- Commercial money lenders;
- Savings and Credit Societies (SCSs); and

- Rotating Savings and Credit Associations (ROSCAs).
- Each of these four groups will be discussed separately below.

i) Financial arrangements among relatives, neighbours, and friends: These arrangements have a long tradition in Tanzania. No interest is charged on the loans given out to relatives, neighbours, and friends. At present there are no in-depth studies focused on informal financial associations, and so it is not possible to gauge the magnitude of this phenomenon in Tanzania. However, there is evidence that this kind of financial arrangement is substantial. Credit from friends and relatives constitutes an important source of start-up capital for many informal sector enterprises. In 1985, credit from this group constituted up to 55% of total start up investment funds[7].

ii) Savings and Credit Societies (SCSs): This type of financial arrangement consists of groups of people who have ethnic, residential, or occupational bond and adhere to internally set rules and regulations. Most of these groups are formed spontaneously, though in some situations the government has tried to influence their formation. According to the Co-Operatives Societies Act of 1991, primary co-operatives are allowed to raise money from their members through the deposits and shares that the farmers pay when they first enter a society.

iii) Rotating Savings and Credit Associations (ROSCAs): The Rotating Savings and Credit Association (ROSCAs) are popularly known as *Upatu* in Tanzania. These financial associations are owned and controlled by a group of people, and in most cases they offer both credit and saving services. A study done in the 1990s found that *Upatu* groups intermediate a substantial volume of savings among their members. The study also found that members participate in these thrift groups as a response to the economic hardships they face due to increases in the cost of living and the inaccessibility of formal financial credit.

4.5 Financial Liberalisation, Financial Depth, and Economic Growth in Tanzania

Although Tanzania has recorded a dramatic recovery in economic growth since the onset of financial liberalisation in the 1990s, the trend of its financial depth, as measured by M_2/GDP, is mixed and, on average, it is lower than the pre-reform depth. Analogously, this could mean that the real sector is growing faster than the monetary sector in Tanzainia.

For example, during 1969 to 1973, the average M_2/GDP ratio was about 0.260. During 1974 to 1978, the average ratio increased to about 0.287. During 1979 to 1983 the ratio increased further to about 0.408. During 1984 to 1988 the country suffered a sharp contraction of financial depth, and by 1988 the ratio reached a historic low ratio of about 0.174. The ratio later increased to about 0.184 in 1989 and 0.199 in 1990, but later it declined slightly to 0.198 in 1991. Immediately after the interest rate

liberalisation in 1992 and 1993, the M_2/GDP ratio rose considerably. The ratio rose to about 0.248 in 1994 and 0.251 in 1995 from about 0.244 in 1993. However, during 1995 to 1997, the ratio declined considerably. The ratio declined from about 0.251 in 1995 to about 0.218 in 1996 and later to 0.196 in 1997. In 1999 and 2000, the ratio improved to about 0.189 and 0.193, respectively. Although the financial depth ratio has recently shown an upward trend, it is still lower than the average ratio recorded in the 1980s.

However, unlike in South Africa, the Tanzanian economic growth rate has remained either high or modest throughout the post-reform period. For example, during 1991 to 2000 Tanzania recorded an average annual percentage GDP growth rate of about 3% compared to about an average rate of about 1.68% recorded in South Africa. In 1991 and 1992 Tanzania recorded low annual GDP growth rates of about 2.07% and 0.584%, respectively. However, in 1993 the rate increased to 1.21%. Following the liberalisation in 1992 and 1993, the real GDP growth rate increased phenomenally. The rate increased from 1.2% in 1993 to 1.6% in 1994 and thereafter to 3.6% in 1995. By 1996, the Tanzanian annual GDP growth rate reached 4.6%. Although the rate decreased to 3.5% in 1997, it later increased to 3.7% in 1998, before declining slightly to 3.53% in 1999. However, in 2000 the country's GDP growth rate increased significantly to about 5.1%, the highest GDP growth rate recorded in Tanzania since 1990.

On average, the Tanzanian GDP growth rate is by and large higher than that of South Africa – even though the country's financial sector is relatively narrow and less developed. Figure 5 shows the trend of M_2/GDP during 1991 to 2005 while Figure 6 shows the annual growth rate of GDP during the period 1991-2005.

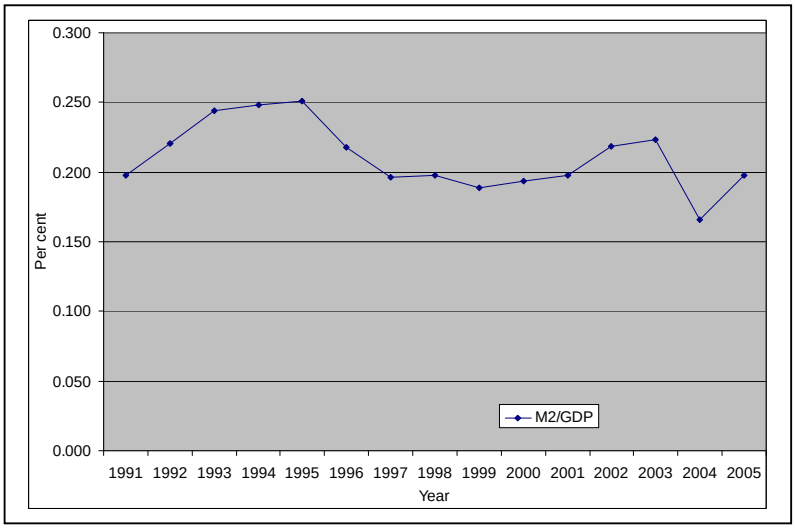

Figure 5. The Trend of M_2/GDP in Tanzania during the Period 1991-2005

SOURCE: World Development Indicators, World Bank (2007)

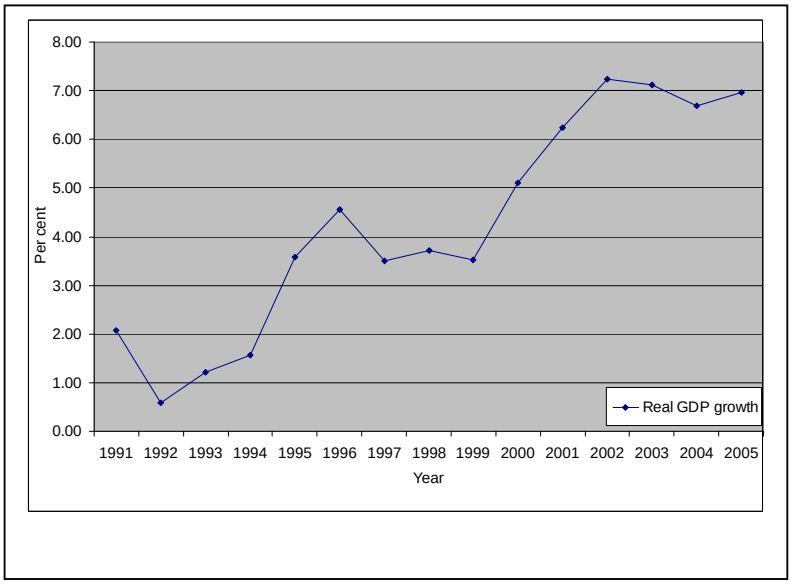

Figure 6. The Trend of Annual GDP Growth Rate in Tanzania during the Period 1991-2005

SOURCE: Author's Own Computations from the World Bank (2007)

CHAPTER 5
FINANCIAL LIBERALISATION IN ZAMBIA

5.1 Interest Rate Liberalisation in Zambia

Before the liberalisation of the financial sector in the 1990s, the Zambian financial sector was riddled with both direct and indirect controls. Some of the controls imposed by the government included directed lending, foreign exchange controls, and controls on interest rates, amongst others. The main aim of these controls was to ensure that private lending was given to the state-determined priority sectors. In the 1970s, for example, both lending and deposit rates were kept low in accordance with the country's monetary policy at that time. This was mainly a Keynesian view which argues that low interest rates bolster investment, which leads to an increase in output. Low interest rates were also meant to keep the government and parastatal debt service costs as low as possible. However, in the 1980s, following the adoption of the structural adjustments programme, the government decided to increase the interest rates set for the financial institutions. For example, during 1980 to 1992, the lending rate increased by about 474%, while the deposit rate increased by about 592%. The interest rates in Zambia were finally liberalised in 1992. Within one year, following the liberalisation of the interest rates, the lending rate rose by over 107 percentage points from 54.57% in 1992 to 113.31% in 1993. Although the rate later declined to 70.56% in 1994 and to 45.53% in 1995, it later increased to 53.78% in 1996, before declining further to 46.59% and 31.80% in 1997 and 1998, respectively. In 1999 the lending rate increased again to 40.52% before decreasing to 38.80% in 2000. However, during 2001 to 2005 the rate declined systematically from 46.23% in 2001 to 28.21% in 2005, the lowest rate since 1990.

As in the case of the lending rate, the nominal deposit rate showed a general upward trend since the liberalisation of the interest rates in 1992. Although the rate decreased from 46.14% in 1994 to 30.24% in 1995, it later increased to 42.13% in 1996. During 1996 to 1998 the deposit rate declined significantly. The rate declined from 42.13% in 1996 to 13.08% in 1998, the lowest rate since 1990. However, during 1999 to 2001 the rate showed a slight increase – with the highest rate of 23.41% being recorded in 2001. The rate, however, later declined systematically during 2001 to 2005 – with the lowest rate of 11.19% being recorded in 2005.

Despite the fact that nominal interest rates increased phenomenally after the liberalisation of interest rates in 1992, only the real lending rate remained positive throughout the post-liberalisation period – with double-digits being recorded throughout the 1992-2005 period, except in 1998 and 2005. The real deposit rate remained largely negative during the post-liberalisation period. A positive real deposit rate was only recorded in 1997, 2001, 2001,

and 2003 during the period 1992-2005. Figure 7 shows the trends of selected interest rates and the inflation rate in Zambia during the period 1972-1994, while Figure 8 shows the trends of interest rates and the inflation rate during the period 1995-2005, when compared with 1986.

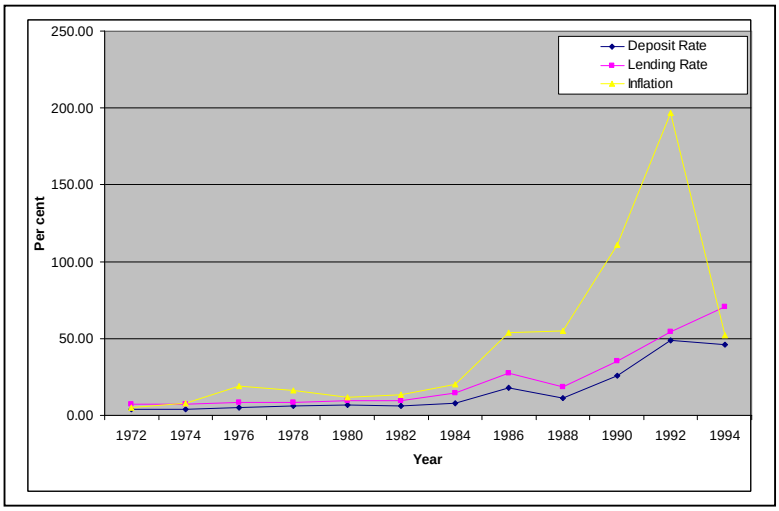

Figure 7. Trends of Interest Rates and Inflation Rate in Zambia (1972-1994)

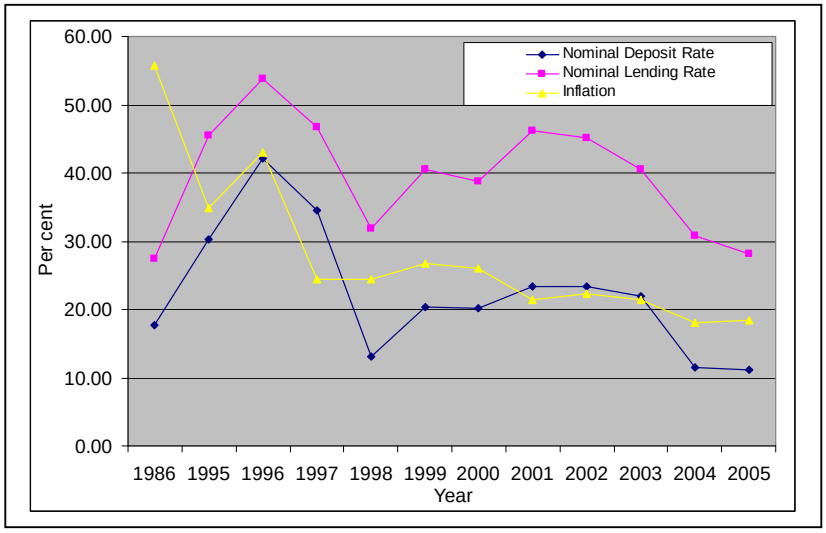

Figure 8. Trends of Interest Rates and Inflation Rate in Zambia during the Period 1995-2005 as Compared with Those of 1986

SOURCE: Complied from World Bank (2007)

From the foregoing, it is clear that financial liberalisation in Zambia was hurriedly and prematurely implemented. Strictly speaking, the liberalisation of the financial sector should have been pursued gradually and sequentially. For example, the lending rate should be liberalised before the deposit rate, and inter-bank interest rates should be liberalised before bank deposit and lending rates.

5.2 Financial Sector Development in Zambia

The financial sector in Zambia, just as in Tanzania and Lesotho, is small and shallow. The activity among commercial banks is limited and the derivatives market is virtually non-existent. The sector is basically a money market sector with a very small capital market. The Zambian financial sector has undergone two major phases since independence in 1964, namely, the pre-reform phase (or the Government's nationalisation phase) and the post-reform phase. During the pre-reform phase, the Government made efforts to nationalise many financial institutions, especially the NBFIs. During this phase, entry into the financial sector in Zambia was restricted. Instead, the government decided to establish financial institutions, such as the DBZ, the Local Authority Superannuation Fund (LASF), and the Zambia Export and Import Bank. This was done by means of various Acts of parliament. Indeed, the direct government involvement in the financial sector in Zambia during the 1960s and 1980s, to a large extent, inhibited the development of the financial institutions of the private sector. According to the government, the old foreign banks mainly specialised in serving the interests of foreign corporate entities. They failed to serve the interests of the local population who were by then in need of small and medium-scale financial services (see Mwenda 2002). This prompted the government to create a number of banks, namely, the Zambia National Commercial Bank (ZNCB) in 1969 and later the National Savings and Credit Bank (NSCB) in 1972. The National Savings and Credit Bank, for example, was opened in order to render services to savers in the lower income brackets. During this period, very few commercial banks were in operation and their credit allocation was highly regulated. In addition, commercial banks were required by law to open branches in rural areas (see Simatele 2004).

However, during the second phase, the liberalisation of the financial sector took place on a large scale. The liberalisation of the financial sector in 1991 led to the entry of new financial institutions into the industry. Since then, the financial sector in Zambia has grown phenomenally. The financial sector currently comprises the central bank, 17 commercial banks, non-bank financial institutions comprising the three building societies, 16 microfinance institutions, the National Savings and Credit Bank (NSCB), the Development Bank of Zambia, the 40 Bureaus de Change, 10 leasing companies, insurance companies, and pension funds. Notwithstanding the new entries into the financial sector since the onset of financial liberalisation, the Zambian financial system has remained relatively small

and under-developed. For example, the monetisation ratio (i.e. the ratio of M_2 to GDP) has been in the range of 15-20% over the last five years compared to about 35% recorded in the 1980s. Apart from the state-owned Zambian National Commercial Bank (ZNCB), the majority of the banks in Zambia are foreign-owned. Table 1 gives a list of commercial banks operating in Zambia, as well as their braches.

Table 1. Commercial Banks in Zambia

No.	Name of Bank	Branch Network
1	Zambia National Commercial Bank Plc	55
2	Barclays Bank Zambia Plc	54
3	Finance Bank Zambia LTD	48
4	Standard Chartered Bank Zambia Plc	21
5	Indo-Zambia Bank LTD	14
6	Stanbic Bank Zambia LTD	13
7	Investrust Bank Plc	13
8	Cavmont Capital Bank LTD	13
9	First National Bank Zambia LTD	4
10	First Alliance Bank (Z) LTD	4
11	Intermarket Banking Corporation (Z) LTD	3
12	Citibank Zambia LTD	2
13	African Banking Corporation (Z) LTD	2
14	African Banking Corporation (Z) LTD	2
15	Access Bank Zambia LTD	1
16	Bank of China Zambia LTD	1
17	Ecobank Zambia LTD	1
18	United Bank for Africa Zambia LTD	1

5.3 The Bank of Zambia

At the apex of Zambia's financial sector is the central bank, which is known as the Bank of Zambia (BOZ). The Bank of Zambia was established in 1964 and was later made stronger by the Bank of Zambia Act of 1965. Like many central banks in developing countries, the Bank of Zambia cannot be regarded as independent as it operates under (the umbrella of) the Minister of Finance and Economic Development. Its powers are vested in the Board of Directors, which is responsible for policy formulation and the general administration of the bank. As in the case of other central banks, the Governor is appointed by the President for a contract period of 5 years (BOZ 1999). While the Central Bank is responsible for the formulation of monetary policy, the Government is responsible for the formulation of fiscal policy. However, the Government and the Central Bank meet three

times a week to harmonize policies. Like other Central Banks, the Bank acts as a banker to banks and to the Government.

The main responsibility of the Bank of Zambia is to protect the value of the country's currency. In addition, the Bank has the primary focus of reducing inflation to a single-digit level and developing a diversified and dynamic financial system. Since 1993, the strategy of the Bank of Zambia has changed from quantitative controls to market-based instruments. The current monetary policy instruments used by the Bank of Zambia are: i) Statutory reserve ratio; ii) Liquid reserve ratio; iii) Treasury Bills auction; and iv) Open market operation (BOZ 1999). Although the ultimate goal of the monetary policy in Zambia, like in other developing countries, was economic growth, the BOZ was also assigned to play the developmental role, which later dominated its monetary policy. Specifically, the Bank of Zambia was given the responsibility of establishing appropriate financial institutions which could develop the financial system in Zambia.

Apart from the Central Bank, the Zambia financial system comprises a number of financial institutions, namely, commercial banks and non-bank financial institutions, which include, *inter alia*, leasing companies, building societies, development banks, savings and credit banks, bureaux de change, and microfinance institutions. All these institutions are regulated and supervised by the bank of Zambia under the Banking and Financial Services Act of 2000.

5.4 Non-Bank Financial Institutions

Unlike in the banking sector where the government opted to establish its own banks rather than nationalise the existing ones, in the non-bank financial sector the nationalisation was done on a large scale, which made the intervention more dominant. This resulted in a small number of government-owned monopoly non-bank financial institutions (NBFIs), namely, the Zambian National Building Society (ZNBS), which was until the early 1990s the only source of long term mortgage finance, and the Zambian National Provident Fund (ZNPF), which served as the sole social security provider in Zambia (see Brownbridge and Harvey 1996; Mwenda 2002). The Zambian National Building Society, for example, actively engaged in savings mobilisation by restricting its loans to the amount of its deposits and shares. In addition, the ZNBS offered easy account opening procedures to its members, which enabled it to attract public deposits from more than 200 branches – even though its deposit rates were below market clearing rates (see Mwenda 2002). The Zambian National Provident Fund (ZNPF), however, benefited from a legislation which required all employers to deduct and remit a monthly contribution from their employees to ZNPF. Although the ZNPF was expected to provide annuity benefits based on the contributions made and an annual interest rate of 6%, no meaningful benefits were provided to the contributors. Instead, the Government used the funds contributed from time to time to finance its low interest rate loans to the public sector[8].

Following the liberalisation of the financial sector in the 1990s, the number of non-bank financial institutions in Zambia increased phenomenally. By 1995, for example, there were a total of 33 non-bank financial institutions (NBFI). Over 60% of non-bank financial institutions are Zambian-owned. Since then, 8 of these institutions have closed. By August 2000, there were only 13 non-bank financial institutions (NBFIs). Many NBFIs were poorly capitalised and had no ability to raise additional capital. Because of this weak capital base, most of them could not operate competitively in a liberalised environment.

5.5 The Foreign Exchange Market

Since independence in 1964, the Zambian foreign exchange market has undergone various changes. During 1964 to the early 1980s, the Zambian foreign exchange market was characterised largely by administrative controls. During this period, the kwacha was first pegged to the US dollar and then later to the special Drawing Rights. But during the 1980s and the 1990s, the Zambian exchange rate was determined by a quasi-market system. The country later changed from a quasi-market system to a Foreign Exchange Management Committee, which later led to the liberalisation of the exchange market in the early 1990s. In 2003, a broad-based inter-bank foreign exchange system was established as the main driver of the foreign exchange market in Zambia. This led to the movement of the wholesale market from the Bank of Zambia (BOZ) to the commercial banks. The motive behind this broad-based inter-bank system was to address the short-comings of using the BOZ dealing window system, especially the multiple exchange rates which emerged in the various segments of the foreign exchange market (Ministry of Finance and National Planning 2004). The current problem facing the Zambian exchange market, however, is the process of dollarisation, which continues to hinder the capacity of the BOZ to conduct its monetary policy appropriately.

5.6 Financial Market Development in Zambia

As in many other SSA countries, Zambia's financial market sector is very thin, and it is mainly dominated by short-term financial assets. The sector has an inter-bank market, which is largely dominated by oversight maturity assets. Although the primary market for government securities has grown rapidly, the secondary market is still very small. The Zambian stock market, which was established in 1994, is still very small. In 2002, for example, the Zambian stock market's capitalisation was only US $220 million (0.8% of the GDP). Currently, the Lusaka Stock Exchange has only 11 listed companies, compared with the seven recorded in 1994, when it was established. Of the few companies listed, very few make more than 10% of their shares available for trading.

The Ministry of Finance and National Planning (2004) highlights the following as the main challenges currently facing the development of financial markets in Zambia:

a) the limited number of effective financial instruments;

b) under-developed secondary markets; and

c) low overall market liquidity.

The private bureaus de change operations were also legalised in Zambia in 1992. During the same period, export retention was extended to 100% for non-traditional exports. The Zambian government also removed the foreign exchange controls. In addition, both current and capital accounts were liberalised. In 1993 the Bank-of-Zambia dealing market was established. This is a wholesale market exclusively for commercial banks where foreign exchange is allocated through a bidding system. Aside from the BOZ dealing market, there is an active interbank market where commercial banks trade amongst themselves. With technical assistance from the International Finance Corporation and the World Bank, the Lusaka Stock Exchange (LuSE) was also established in 1994. The rules and listing requirements of the LuSE are backed by the Securities Act No. 38 of 1993. By 2000, the Lusaka stock market had only nine listed companies and seven quoted companies. Zambia's financial sector policy, however, allows foreign investors to play freely in the secondary bond market without foreign currency controls.

Currently, there are a number of companies that have floated their shares on the stock exchange. These include Chilanga Cement, Farmers House, Zambia Sugar, Rothmans of Pall Mall, Zambia Consolidated Copper Mines (ZCCM), Zambia Breweries, and trans- Zambezi Industries. Other participants are the institutional investors, such as the pension schemes and provident funds that have invested heavily in floated shares. In addition, over-the-counter (OTC) or private trading in shares and bonds has been evident in recent years. Quoted companies in this regard include, Bata Zambia LTD, New Capital Bank, and Standard Bank (Zambia) LTD. In 1994, the Bank and Financial Services Act was passed. The aim of this Act was to ensure a proper framework for regulating the conduct of the financial sector with a view to protecting both the clients and the investors.

5.7 The Informal Financial Sector Development in Zambia

Apart from the formal financial sector, the informal financial institutions also characterise the financial sector development in Zambia. However, as in the case of the formal financial sector, Zambia's microfinance is relatively small when compared to the microfinance sectors in many African countries. The microfinance sector in Zambia comprises two categories, namely, Common Microfinance Institutions (also known as development MFIs) and Credit and Payroll Lending Institutions (also known as Credit MFIs or Moneylenders). Until 2004 there were about 20 registered microfinance institutions in Zambia with a total outreach of about 50, 000 clients. However, according to a survey conducted by the Bank of Zambia in 1998, about 90 microfinance institutions were operating in Zambia. This implies that the majority of the microfinance institutions

are not formally registered. In terms of the value of microfinance assets, it is estimated that by 2004 the registered microfinance institutions in Zambia had an outstanding portfolio of about 15 billion Zambian kwacha or US$ 3 million. Unfortunately, the number of microfinance institutions seems to have recently dwindled somewhat. In 2007, for example, there were only about 12 registered MFIs – even though there were a number of MFIs that were still awaiting registration. Table 2 gives a list of the registered MFIs in Zambia until 2007.

Table 2. Microfinance Institutions in Zambia

No.	Registered MFI
1.	Buyport Finance Services LTD
2.	Microfin Africa Zambia LTD
3.	Blue Financial Services Zambia
4.	Nedfin LTD
5.	Bufala Finance LTD
6.	Clpe Finance LTD
7.	Royal Mecrofinance of Zambia
8.	Letshego Financial Service LTD
9.	Capital Solutions LTD
10.	Unity Finance LTD
11.	Mtamla Finance Services LTD
12.	FINCA Zambia LTD

CHAPTER 6
FINANCIAL LIBERALISATION IN LESOTHO

6.1 An Overview of Financial Sector Reforms

Lesotho is a late starter in the financial sector liberalisation, and the reforms are still on-going. The majority of the reforms were implemented in the 1990s. These reforms were aimed at improving the monetary control of the Central Bank by switching from direct to indirect monetary policy instruments with a view to establishing a more market-oriented financial system. Until the 1990s, the financial sector in Lesotho was quantitatively controlled by the government. In particular, the policy of administrative interest rate determination was practiced widely. This practice discouraged bank intermediation and resulted in large spreads between lending and deposit rates. While setting administrative interest rates by the Central Bank of Lesotho, South African interest rates were used as benchmarks. This was done specifically to limit interest rate differentials between the two countries and to discourage cross border capital mobility from Lesotho to South Africa. Even though the Common Monetary Area (CMA) allowed free movement of capital among member countries, some capital controls were exercised in Lesotho (see Matlanyane 2002). Financial institutions were required to hold at least 85% of their local liabilities within the country and no more than 15% abroad. The main aim of this ruling was to ensure that financial institutions invested the bulk of their financial assets domestically.

With the exception of the savings deposit rate, all interest rates in Lesotho were liberalised in 1993. The saving rate, therefore, continued to be set by the Central Bank even after 1993, and commercial banks were expected to set their own saving rates based on the minimum saving rate set by the Central Bank (see Seliali and Tlali 1996). In December 1994, the Central Bank of Lesotho issued its commercial paper with the aim of supplementing the supply of treasury bills by mopping up any excess liquidity in the commercial banking system. However, in 1996 this instrument was withdrawn because many commercial banks resorted to using this instrument as an alternative to direct lending. In 1998, a number of financial reforms were undertaken culminating in the liberalisation of deposit interest rates and the use of indirect monetary policy. In 1999, the Government of Lesotho repealed and replaced the Financial Institutions Act of 1973 with the Financial Institutions Act of 1999. The main aim of this move was to strengthen the supervision and regulation of banks and non-bank financial institutions, following the liberalisation of the financial sector in 1998. Specifically, the act paved the way for the enforcement of prudential banking standards and practices in Lesotho based on internationally accepted standards such as the Basel core principles for effective bank supervision (see Central Bank of Lesotho, Supervision

Department Annual Report 2002). Currently, the Central Bank of Lesotho, through its Supervision Department, monitors the activities of the licensed financial institutions countrywide. In 2003, further financial reforms were undertaken leading to some limited capital account liberalisation (see Central Bank of Lesotho 2003). Although the main aim of financial reforms in Lesotho was to enhance financial intermediation through broadening the range of money market instruments, evidence shows that, by and large, the performance of the banking sector deteriorated significantly following the implementation of the financial reforms (see also Matlanyane 2002). This trend was especially manifested in a series of bank failures. For example, Lesotho Bank, which had been experiencing some signs of distress since the 1990s, had to be liquidated. Likewise, the Agricultural Development Bank had to be closed in 1998, following its poor performance due to high operating costs (for more details see Matlanyane 2002). Figures 9 and 10 show the trends of selected interest rates and the inflation rate in Lesotho, during the period 1981-1996 and the period 2000-2005, respectively.

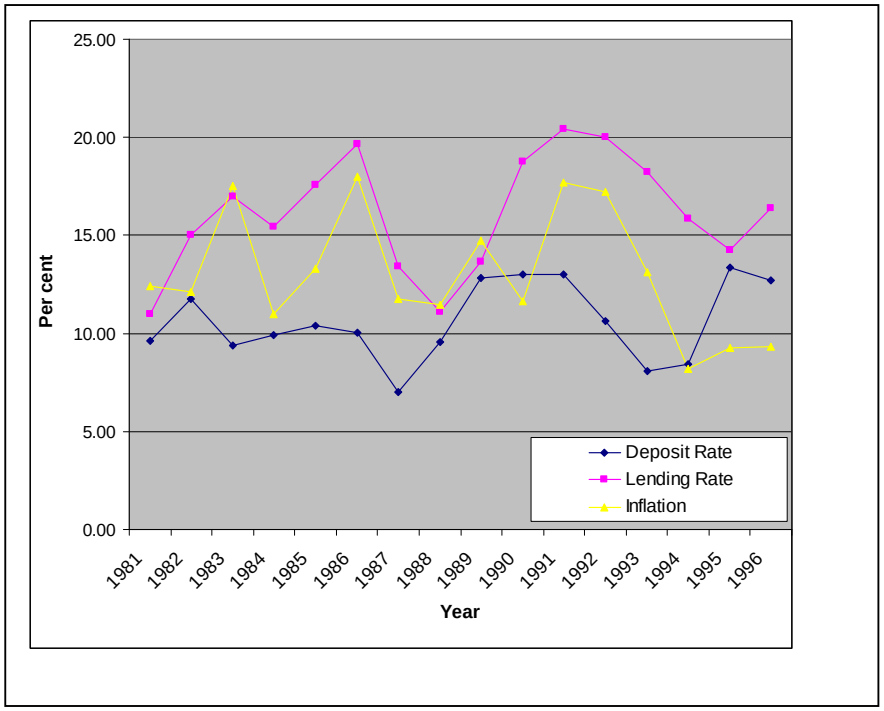

Figure 9. Trends of Interest Rates and the Inflation Rate in Lesotho (1981-1996)

SOURCE: World Bank (2006)

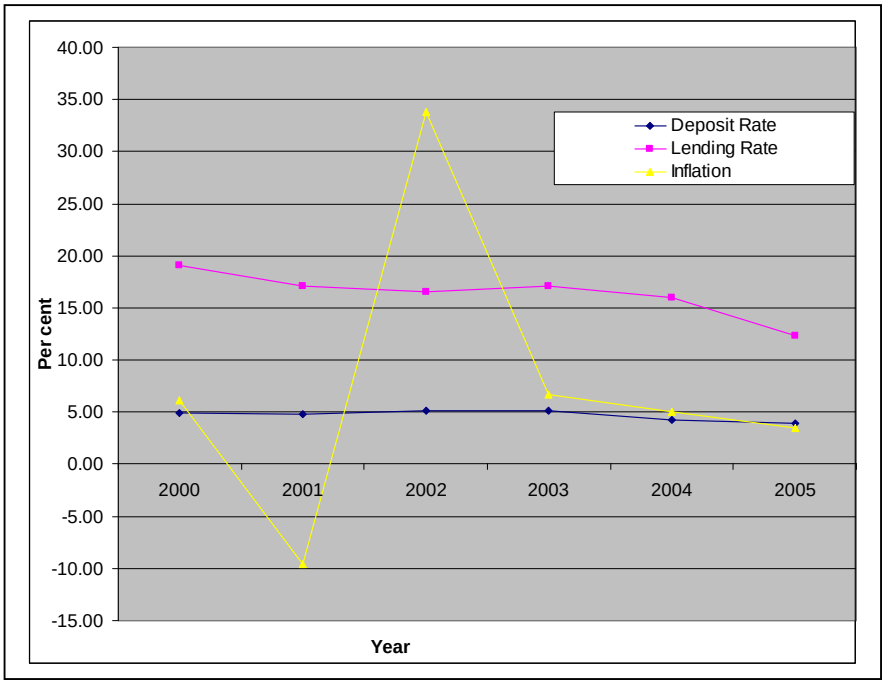

Figure 10. Trends of Interest Rates and the Inflation Rate in Lesotho (2000-2005)

SOURCE: World Bank (2006)

6.2 Financial Development in Lesotho

The financial sector of Lesotho comprises the Central Bank of Lesotho, which is the apex of the sector, the bank-based financial institutions, the non-bank financial institutions, a small number of foreign exchange bureaux, and a post office savings bank, amongst others. The financial system in Lesotho is influenced largely by the Central Bank of Lesotho. The Central Bank of Lesotho was first established as Lesotho Monetary Authority (LMA) by the Act of Parliament in 1978 and became operational in January 1980. At the time of its establishment, the main objectives of the Lesotho Monetary Authority (LMA) were to: issue and redeem currency; ensure solvency and proper functioning of a sound monetary and financial system; and foster monetary credit and financial conditions conducive to the orderly, balanced, and sustained economic development of Lesotho, among others (see Central Bank of Lesotho Annual Report 2004a).

However, in 1982 the Lesotho Monetary Authority was renamed 'the Central Bank of Lesotho' (CBL), and the Bank assumed the roles of the previous lender as well as being banker to the government. This was done

through the amendment of the LMA Act of 1978. In 2000, the old Act was replaced by the Central Bank of Lesotho Act (CBL Act of 2000). Since then, the primary objective of the Bank has been to achieve and maintain price stability. The active trading in treasury bills in Lesotho started in April 1992. By using an English auction system, the Bank employed two markets to sell these treasury bills to the public, namely, the competitive market and the non-competitive market. In the competitive market, securities were sold to the highest bidders, who were mainly commercial banks and large companies, while in the non-competitive market a price at which the treasury bills were sold was pre-determined and all participants, who were largely individuals and small-to-medium companies, were compelled to buy these securities for the same price. In most cases, securities were first sold to the public in the non-competitive market and then to the competitive market if there were any certificates left. Although the auctions were initially carried out on a quarterly basis, in December 1993 the frequency of auctions was increased from quarterly to monthly. Although the English auction system implemented in Lesotho succeeded in broadening the participation in the short-term financial instruments, it failed to achieve other key government objectives. The system proved to be somewhat complicated and confusing to first-time participants in the securities market. This forced the government to consider the Dutch auction system, which is considered to be simpler than the English system. This also led to the restructuring of the securities market by introducing three types of instruments, namely, the 91-Day Treasury Bills, the 182-Day Treasury Bills, and the 365-Day Treasury Bills, with each of these instruments aiming at attaining a particular objective (see Central Bank of Lesotho 2007 - History of Treasury Bills). Although the financial Sector in Lesotho is not as developed as those of other SADC countries, it has improved significantly in both quantitative and qualitative terms. This has been partly due to the decisive steps taken by the Lesotho Government in the 1990s to develop the money markets in Lesotho. The main aims of these initiatives were to: i) improve financial intermediation by expanding and creating alternative investment and borrowing instruments; ii) broaden participation in short-term financial instruments; and iii) create a vehicle through which monetary policy decisions of the Central Bank could be effected (Central Bank of Lesotho 2007). More recently, the monetary authorities in Lesotho have embarked on the promotion of the non-bank financial sector development. This policy has partly resulted from the inability of the existing bank to offer a wide range of financial services to cater for the non-formal sector of the economy. The government of Lesotho has also strengthened the link between the formal and informal financial institutions. For example, in 1995 the Central Bank of Lesotho established a Rural Finance Unit to serve as a link between rural savings and credit groups (see Seliali and Tlali 1996).

Unfortunately, Lesotho's scope for implementing an independent monetary policy is limited because of its membership in the Common Monetary Area

(CMA). The Central Bank of Lesotho, like other CMA Central Banks (except that of South Africa), cannot implement its monetary policy independently of the policy adopted by the South African Reserve Bank. For example, if the South African Reserve Bank decides to increase interest rates at a time when the economic conditions in Lesotho dictate otherwise, the Central Bank of Lesotho will have no choice but to intervene in the domestic money market in order to push interest rates in the same direction. Should the Central Bank of Lesotho decide to unilaterally lower its interest rates, capital would flow from Lesotho to South Africa, which will ultimately force Lesotho to also raise its interest rates[1]. Notwithstanding this challenge, the gains that accrue to Lesotho due to its membership in the CMA outweigh the losses, especially given the strength of economic links with South Africa and the benefits of low inflation. The rand has been relatively strong during the past few years.

6.3 The Banking Sector Development in Lesotho

The financial system in Lesotho is largely dominated by banks. The capital market is almost non-existent. The banking sector is the main channel through which monetary policy is transmitted to ensure macro-economic stability (see also Matlanyane 2002). By December 2002, there were 4 commercial banks, 6 insurance companies, 11 insurance brokers, and 27 money lenders (non-bank financial institutions). Although the number of insurance companies increased from 6 in 2002 to 7 in 2003, the number of money lenders decreased from 27 to 25, while the number of commercial banks and insurance brokers remained the same during the same period. In 2004, the number of banks increased to 6 while the number of money lenders and insurance companies decreased from 25 and 7 to 24 and 6, respectively. By 2005 there were only 5 banks, following the liquidation of 1 bank, 5 insurance companies, 14 insurance brokers, and 43 money lenders. Table 3 gives a list of commercial banks operation in Lesotho together with the number of their branches by June 2007.

Table 3. Financial Institutions in Lesotho

Name of Institution	Branch Network
1. Lesotho Bank Ltd (1999)	14
2. Nedbank Lesotho Ltd	3
3. Standard Bank Lesotho Ltd	5
4. Lesotho Bank	(Under Liquidation)
5. First National Bank (Lesotho Branch)	1
6. Lesotho Post Bank	11

Although one of the main objectives of financial liberalisation in Lesotho, just like in other developing countries, was to boost the financial depth of the country through increased intermediation, the experience in Lesotho

shows that, by and large, the performance of the banking sector deteriorated significantly following the implementation of the financial reforms, which led to a series of bank failures during the reform period (see also Matlanyane 2002). For example, in the late 1970s, the Lesotho Building Finance Corporation (LBFC) suffered serious management problems that originated from bad lending practices (Matlanyane 2002; World Bank 1990). This eventually led to a merger of LBFC with the government development bank, Lesotho Bank, in 1993. Notwithstanding this merger, the performance of Lesotho Bank remained unimpressive as the signs of distress continued to manifest within the bank. In 2001, the bank, which had been operating under a special license since 1999, was placed under liquidation. Similar problems were reflected in the Agricultural Development Bank, which led to its closure in 1998. This resulted in only three banks operating in the country, although an on-site examination conducted during this time found that the three surviving banks were well capitalised, highly liquid, properly managed, and generally compliant with the requirements of the Financial Institutions Act. The main reason for the widespread financial distress in Lesotho was high operation costs and poor repayment record of customers (for more details see Matlanyane 2002).

6.4 Capital Account Reforms in Lesotho

Lesotho introduced some limited liberalisation of capital account in 2003 following an improvement of the macro-economic and political environment (see Central Bank of Lesotho Economic Review 2004b). This move was further driven by the fact that other Common Monetary Area (CMA) countries had implemented some limited capital account liberalisation, which left Lesotho in a less competitive position. Before 2003, Lesotho's financial sector was subject to a service of quantitative controls. The main aims of these controls were to: i) preserve the level of foreign currency reserve; ii) guard against sudden and unexpectedly large savings in capital flows, which may adversely affect confidence in the country's ability to honour its foreign currency obligations; iii) facilitate domestic savings and investment by encouraging those with excess funds to invest domestically; and iv) harmonise Lesotho's exchange control regime with those prevailing in the rest of Common Monetary Area countries (see Central Bank of Lesotho Economic Review 2004b, Progress on 2003 Reforms). However, the government has recently implemented a number of reforms in the foreign capital market. Some of the reforms implemented include allowing residents/citizens to invest in non-CMA countries and to hold foreign currency account. The reforms also included increasing the limits on capital transfers and foreign investments outside the CMA. The main aim of these reforms was to boost investors' confidence in Lesotho. Moreover, the relaxation of some capital controls was expected to improve Lesotho's competitiveness and to bring the country in line with other CMA countries. Due to the relaxation of the controls, residents' ability to hedge against local currency depreciation or political risk was improved. However, it is worth noting that Lesotho's membership in the Common

Monetary Area (CMA), the fixed parity between the *maloti* (Lesotho's currency) and the rand (R), as well as the joint circulation of the two currencies within Lesotho but not in South Africa, limit Lesotho's ability to implement an independent monetary policy (see also section 3.4.6). According to Matlanyane (2002), the financial sector in Lesotho is vulnerable to external shocks for various reasons. First, the dual currency system between South Africa and Lesotho means that the South African rand (R) circulates alongside the local currency (loti) as a legal tender on a one-to-one basis. Yet, the quantity of the rand circulating in Lesotho is unknown. Secondly, there is a cross-border trade in financial services between Lesotho and South Africa. However, since the South African financial sector is relatively more developed and sophisticated than Lesotho's and because of its close proximity, many residents of Lesotho end up performing the banking and other financial activities in South Africa. This is further encouraged by the absence of capital controls within the Common Monetary Area (CMA) agreement and the unstable political climate experienced in Lesotho towards the end of the 1990s. In addition, there exists a strong competition for corporate lending between Lesotho and South Africa's satellite companies in Lesotho, whose parent companies guarantee coverage against risk. Although there is no formal record of the magnitude of this trade, it is believed to be very significant (see Matlanyane 2002 for more details).

6.5 The Common Monetary Area (CMA)

Lesotho is a member of the Common Monetary Area (CMA) alongside South Africa, Swaziland, and Namibia. The Common Monetary Area (CMA) is the counter side of the Southern African Customs Union (SACU). The formalisation of monetary integration occurred after the signing of the Rand Monetary Area Agreement in 1974 by South Africa, Lesotho, and Swaziland. Botswana had opted out of the negotiations and introduced its own currency in 1976. In 1986, following the Trilateral Monetary Agreement, the Rand Monetary Area (RMA) became the CMA. The Trilateral Monetary Agreement was later replaced by the Multilateral Monetary Agreement of 1992 to accommodate independent Namibia as a formal member. In addition to the Multilateral Monetary Agreement of 1992, there are bilateral agreements between South Africa and each of its partners *to vary the precise terms* of monetary integration. Under the CMA agreement, Lesotho, just like other CMA countries, is supposed to maintain a fixed nominal exchange between the *maloti* (Lesotho's currency) and the rand (South Africa's currency). In addition, capital is allowed to move freely between Lesotho and other CMA countries, but not with the rest of the world. Under the CMA arrangement, the CMA countries are expected to issue their own currencies, which are expected to circulate simultaneously with the South African rand. In addition, each currency has to be pegged at par with the rand. According to this agreement, the South African rand is regarded as legal tender in Lesotho and co-circulates with the *maloti* in Lesotho but not the vice versa. The CMA agreement,

however, allows member countries to retain a certain percentage of foreign exchange acquisition for their own use. For example, Lesotho was allowed to retain up to 35% of foreign exchange acquisition for use within the country as deemed appropriate. In 1989 further adjustments were made in the CMA agreement. The backing of the local countries could be either in rand or any of the major currencies. This means that Lesotho could back its *maloti* in either rand or any other major international currency. In addition, Lesotho could now retain 100% of its exchange earnings (see Seliali and Tlali 1996).

The benefits that arise from the CMA to Lesotho include: easy availability of the rand to the citizens of Lesotho, the elimination of exchange rate risk between Lesotho and South Africa, and macro-economic stability. However, the main challenge of the CMA arrangement for Lesotho hinges largely on the synchronisation of fiscal and monetary policies between the two countries (see Central Bank of Lesotho 2003). In particular, the fixed parity between the *maloti* and the South African rand, on the one hand, and the joint circulation of the two currencies within Lesotho (but not in South Africa), on the other, make it extremely difficult for the Central Bank of Lesotho to effectively execute its independence.

CHAPTER 7

EMPIRICAL MODEL SPECIFICATION AND ESTIMATION TECHNIQUES

In this chapter, the empirical model specification and the estimation techniques used in the current study are presented. The chapter is divided into four sections. In section 7.1, the empirical model specification of the financial deepening model and the multivariate Granger-causality are presented. In section 7.2, the techniques used in the estimation of the financial deepening model and the trivariate Granger-causality model are presented. In section 7.3, the definitions of variables used in the empirical analysis are presented.

7.1 Empirical Model Specification

7.1.1 A Note on Flexible Interest Rate as a Proxy for Financial Liberalisation

In this study interest rate liberalisation has been used as a proxy for financial liberalisation. Although some studies have attempted to construct a financial liberalisation variable based on observed policy changes, this strategy is not without its own difficulties (see Demirguc-Kunt & Detragriache 1998). The main limitations of constructing a single financial liberalisation variable emanate from the following arguments. First, there is no available database that records all policy changes. In most cases, researchers resort to case studies, IMF country reports, and other miscellaneous sources of information. Secondly, the process of financial liberalisation takes on different forms in different countries. For example, among the countries investigated in this study, Tanzania adopted a gradual approach, while South Africa adopted a relatively more rapid approach. In addition, there were policy reversals in some cases. All these different forms and levels of financial liberalisation make it difficult to use observed policy changes as a proxy for financial liberalisation. This is why many studies on financial liberalisation have continued to use the interest rate rather than observed policy changes as a proxy for financial liberalisation. Further motivation for using the interest rate as a proxy for financial liberalisation is the fact that financial reforms in many developing countries are still at an early stage. They have not gone the full distance towards attaining external liberalisation. As a result, the only liberalisation that can be measured in many SSA countries is domestic (internal) financial liberalisation. Moreover, for all the countries studied, interest rate liberalisation has been considered the most important part of financial liberalisation. It is against this background that the current study opted to use interest rate changes as a proxy for financial liberalisation.

7.1.2 The Financial Deepening Model

The financial deepening model used in this study can be expressed as follows (see Odhiambo 2009b):

(1) $\text{Log } (FD)_t = \beta_0 + \beta_1 \log y + \beta_2 \log d + \beta_3 \log Pe + \beta_4 \log (FD)_{t-1} + Et$

Where: $(FD)_t$ = Financial depth variable proxied by M2/GDP; y = real income;

d = deposit rate (nominal); Pe = expected inflation; $(FD)_{t-1}$ = financial depth lagged once.

The rationale for including different variables in the financial deepening model is based on the following theoretical arguments. The inclusion of deposit rate is expected to capture the impact of interest rate liberalisation on financial deepening. The coefficient of deposit rate in the financial deepening model is, therefore, expected to be positive and statistically significant. A positive relationship between real interest rate and financial depth will inevitably corroborate the positive role of interest rate liberalisation on economic growth. The inclusion of the inflation rate is meant to capture the impact of inflation on the various components of money. There has been an argument that inflation adversely affects the holding of all classes of financial assets and not just a narrow class. In addition, it has been argued that inflation will tend to encourage the holding of currency and discourage the holding of quasi-money (see also Odhiambo 2005b; Ikhide 1992). According to English (1999), a higher inflation rate encourages households to substitute purchased transactions services for money balances, thereby boosting the financial sector. The coefficient of inflation in this study is, therefore, expected to be positive and statistically significant. The inclusion of real GDP is supported by the life cycle hypothesis, and the coefficient of the variable is expected to be positive and statistically significant.

7.1.3 A Multivariate Granger-Causality Model

The Granger-causality test based on error-correction model between financial development and economic growth can be expressed as follows:

$$(2)\Delta y/N_t = a_0 + \sum_{i=1}^{n} a_{1i} \Delta y / N_{t-i} + \sum_{i=0}^{n} a_{2i} \Delta M2 / GDP_{t-i} + a_3 EC_{t-1} + u_t$$

$$(3)\Delta M2/GDP_t = b_0 + \sum_{i=0}^{n} b_{1i} \Delta y / N_{t-i} + \sum_{i=1}^{n} b_{2i} \Delta M2 / GDP_{t-i} + b_3 EC_{t-1} + \varepsilon_t$$

Where:

$M2/GDP_t$ = financial depth variable

y/N_t = per capita income - economic growth variable

EC_{t-1}= one period lagged error correction term captured from the cointegration regression

μ, ε = mutually uncorrelated white noise residuals

The error-correction model has an interesting temporal causal interpretation in the sense that a bivariate cointegrated system must have a causal ordering in at least one direction (see Granger 1988). Although cointegration indicates presence of Granger-causality, at least in one direction, it does not indicate the direction of causality between variables. The direction of the Granger-causality in this case can only be detected through the error-correction model (ECM) derived from the long-run cointegrating vectors. In addition to indicating the direction of causality amongst variables, the ECM also enables us to distinguish between the short-run and the long-run Granger-causality. The F-test and the explanatory variables indicate the "short-run" causal effects, whereas the "long-run" causal relationship is implied through the significance of the t-test of the lagged error-correction term. For example, the financial development (M2/GDP) is said to Granger-cause economic growth (y/N) in the long-run if $a_{2i} \neq 0$ and $a_3 \neq 0$. Likewise, economic growth (y/N) is said to Granger-cause financial development (M2/GDP) if $b_{1i} \neq 0$ and $b_3 \neq 0$.

Unfortunately, causality tests based on a bivariate framework have been found to be very unreliable as the introduction of a third important variable in the causality model can change both the causal inference and the magnitude of the estimates (see Caporale and Pittis 1997; Caporale *et al*. 2004; Loizides and Vamvoukas 2005; Odhiambo 2008; Odhiambo 2009a). Given this weakness, the current study uses a trivariate causality framework to examine the causality between financial development, savings, and economic growth in the study countries. The trivariate Granger-causality test based on error-correction model can be expressed as follows:

(4)
$$y/N_t = \lambda_0 + \sum_{i=1}^{m} \lambda_{1i} y/N_{t-i} + \sum_{i=0}^{n} \lambda_{2i} M2/GDP_{t-i} + \sum_{i=0}^{n} \lambda_{3i} S/Y_{t-i} + \lambda_4 ECM_{t-1} + \mu_t$$

(5)
$$M2/GDP_t = \varphi_0 + \sum_{i=0}^{m} \varphi_{1i}\ y/N_{t-i} + \sum_{i=1}^{n} \varphi_{2i} M2/GDP_{t-i} + \sum_{i=0}^{n} \varphi_{3i} S/Y_{t-i} + \varphi_4 ECM_{t-1} + \varepsilon_t$$

(6)
$$S/Y_t = \delta_0 + \sum_{i=0}^{m} \delta_{1i} y/N_{t-i} + \sum_{i=0}^{n} \delta_{2i} M2/GDP_{t-i} + \sum_{i=1}^{n} \delta_{3i} S/Y_{t-i} + \delta_4 ECM_{t-1} + \nu_t$$

Where

S/Y_t = savings variable (a third important variable affecting finance-growth relationship)

ECM_{t-1} = error-correction term lagged one period

μ, ε and ν = mutually uncorrelated white noise residuals

The main difference between a bivariate model presented in equations (2)-(3) and a trivariate model presented in equations (4)-(6) is the introduction of a third important variable affecting both financial development and

economic growth (in this case savings variable). Based on the model presented in equations (4)-(6), it is possible that the causal link between financial development (M2/GDP) and economic growth (y/N) estimated from equations (1) and (2) could be due to the omission of the investment variable. With the introduction of the savings variable, the model can now capture the causal relationship between financial development (M2/GDP) and economic growth (y/N) with respect to changes in savings. In this way, it is possible that the savings variable could alter not only the direction of causality between financial depth and economic growth but also the magnitude of the estimates (see also Loizides and Vamvoukas 2005; Odhiambo 2008; Odhiambo 2009a).

7.2 Estimation Techniques

7.2.1 Stationarity Test

It is now a well-known fact that most macro-economic time-series data are non-stationary. When time-series data are non-stationary, spurious correlation is likely to occur and in such a case, further inference is meaningless (Granger and Newbold 1974). The purpose of a unit root test is to statistically test the data generating process for difference stationary (trend non-stationarity) against trend-stationarity. A trend stationarity in this case refers to a stationary time series process, which has been derived by removing the linear or exponential trend from the non-stationary series. A difference stationary series, on the other hand, refers to a stationary time series process, which has been derived by differencing a non-stationary series. The most frequently used unit root test is based on the Augmented Dickey-Fuller test - a parametric approach originally proposed by Dickey and Fuller (1979; 1981). Unfortunately, it has been proved, using Monte Carlo simulations, that the power of the ADF test is very low. The ADF test is unable to discriminate clearly between non-stationary and stationary series with a higher degree of autocorrelation (West 1988) and it is sensitive to structural breaks. To overcome this problem, the DF-GLS and Philip-Perron tests have been used.

7.2.2 Cointegration Tests

The basic idea behind cointegration is that if the dependent variable is integrated of order d>0, and if at least one regressor is also integrated of the same order, then cointegration leads to stationary residual (Hall 1986). The lack of cointegration means that the residual has the same stochastic trend as the dependent variable. This means that the integrated properties of the dependent variable will, in the absence of cointegration, pass through the equation to the residual. Specifically, the theory of cointegration states that, if X (t) and Y (t) are both integrated of order one, I (1), but their linear combination Z (t) = Y (t) – AX (t) is stationary or I (0), then X (t) and Y (t) are said to be cointegrated.

There exist at least four alternative approaches for testing cointegration in the literature. These include the two-step procedure developed by Engle

and Granger (1987); the dynamic OLS procedure to multivariate framework developed by Stock and Watson (1988); the maximum likelihood tests developed by Johansen (1988; 1991) and Johansen and Juselius (1990); and the newly developed autoregressive distributed lag (ARDL) bounds test approach proposed by Perasan *et al*. (2001). However, in this study we employ the standard Johansen-Juselius maximum likelihood test to examine the long-run relationships between the variables used in the financial deepening model and the causality model. The multivariate cointegration test proposed by Johansen (1988) can be expressed as[9]:

(7) $X_t = \Gamma_0 + \Gamma_1 \Delta X_{t-1} + \Gamma_2 \Delta X_{t-2} + \ldots\ldots\ldots\ldots + \Gamma_{p-1} \Delta X_{t-p} + \Pi X_{t-p} + \varepsilon_t$

Where:

For Model 1: Financial Deepening Model

X_t = [M2/GDP, y-growth, D, Pe]

X = a 4x 1 vector of variables that are integrated of order one [i.e. I(1)]

Γ = a 4x4 matrix of coefficients

Π = a 4x4 matrix of parameters

ε_t = a vector of normally and independently distributed error term

The presence of r cointegrating vectors between the elements of X implies that Π is of the rank r ($0<r<4$) and hence Π can be decomposed as:

(8) $\Pi = \alpha \beta'$

where:

α = the matrix of cointegrating vectors

β = the adjustment matrix

α and β = 4xr matrices

For Model 2: Trivariate Granger-Causality Model

(9) X_t = [y/N, M2/GDP, S/Y]

X = a 3x 1 vector of variables that are integrated of order one [i.e. I(1)]

Γ = a 3x3 matrix of coefficients

Π = a 3x3 matrix of parameters

ε_t = a vector of normally and independently distributed error term

The presence of r cointegrating vectors between the elements of X implies that Π is of the rank r ($0<r<3$) and hence Π can be decomposed as:

(10) $\Pi = \alpha \beta'$

where:

α = the matrix of cointegrating vectors

β = the adjustment matrix

α and β = 3 x r matrices

It is worth noting that the rows of β in the above equations are interpreted as distinct cointegrating vectors such that $\beta' X_t$ form linear stationarity process, while αs are vector error-correction coefficients. The problem with the βs presented in the above equations is that they are unrestricted, and hence these systems cannot identify standard long-run economic relationships. Each vector, therefore, requires at least r restrictions, one of which is the normalisation restriction. These normalisation restrictions should be motivated by economic theory in order for the identified cointegrating vectors to be interpreted as long-run economic relationships.

Trace Test and Maximum Eigenvalue Test

The Johansen and Juselius method uses two tests to determine the number of cointegrating vectors, namely, the "Likelihood Ratio Trace Test - LRT" and the "Maximum Eigenvalue Test - ME".

The likelihood trace statistics can be expressed as:

(11) $\mathbf{LRT = -T \sum_{i \leftarrow i+1}^{n} In\,(1-\mu_i)}$

The null hypothesis in this case is that the number of cointegrating vectors is less than or equal to r, where r is 0, 1, or 2, etc. In each case, the null hypothesis is tested against the general hypothesis. That is, the full rank r = n.

The maximum eigenvalue test, on the other hand, is expressed as:

(12) $\mathbf{ME = -T\ In\ (1-\hat{\mu}_r)}$

In this case, the null hypothesis of the existence of r cointegrating vector is tested against the alternative of r+1 cointegrating vectors. If there is any divergence of results between the trace test and the maximum eigenvalue test, it is advisable to rely on the evidence based on the maximum

eigenvalue test because the latter is more reliable in small samples (see Dutta and Ahmed 1997; Banerje *et al*. 1993).

7.3 Definitions of Variables

i) Financial Depth

Financial depth = M2/GDP

where:

M2 = broad money stock

GDP = gross domestic product

ii) Nominal deposit rate (d) = interest rate on a 6-to-12-month deposit in commercial banks.

iii) Expected inflation (P^e): The unobservable expected inflation is generated from the actual inflation rate using the adaptive expectations theory.

iv) Real GDP per capita

The real per capita GDP is computed as follows:

Real GDP per capita (y/N) = Real GDP (y)/Total Population (N)

v) Savings (S/Y) = Gross Domestic Savings/GDP

CHAPTER 8
EMPIRICAL ANALYSIS

8. Introduction

In this chapter, we present the econometric analysis and a discussion of the empirical results. The empirical model specification, as well as the derivation of the models used in this study, have been presented in Chapter 7 and will not be duplicated in this chapter. The chapter is divided into two sections. In section 8.1, the empirical results of the financial deepening model in the four study countries are presented and discussed. In section 8.2, the dynamic causal relationship between financial development and economic growth is analysed. In this analysis, the savings ratio has been included as an intermittent variable in the finance-growth nexus, thereby creating a simple trivariate model.

8.1 Empirical Analysis of the Financial Deepening Model

In this section, we examine the relationship between interest rate liberalisation and financial deepening in the study countries by regressing the financial depth variable on real income, deposit rate, expected inflation, and the lagged value of financial depth. The research question in this case is whether real interest rates positively or negatively affect financial depth. We first conduct the unit root test to find out whether the variables used in this study are integrated of the same order. Upon confirmation of a unit root, we proceed to perform the cointegration analysis in order to establish the existence and the number of cointegration vectors. If the variables in the financial deepening model are found to be cointegrated, the lagged error-correction term derived from the cointegrating vector must be included in the set of the explanatory variables (for more details, see Chapter 7).

8.1.1 Stationarity Tests

The results of the stationarity tests in levels are presented in Tables 4 and 5.

Table 4. Stationarity Tests of All Variables in Levels: DF-GLS Tests

Variable	NO TREND	TREND	Stationarity Status
South Africa			
LM2/GDP	-1.26861	-1.61303	I(1)
Ly	-5.17356***	-5.768131***	I(0)
LD	-1.63107	-1.70598	I(1)
LPe	-1.23884	-1.45562	I(1)
Tanzania	**NO TREND**	**TREND**	**Stationarity Status**
LM2/GDP	-1.39632	-1.788879	I(1)
Ly	-3.80292***	-4.326556***	I(0)
LD	-1.33107	-1.346324	I(1)
LPe	-1.75530	-1.854155	I(1)
Zambia	**NO TREND**	**TREND**	**Stationarity Status**
LM2/GDP	-1.361065	-1.754055	I(1)
Ly	-5.503325***	-5.532755***	I(0)
LD	-1.534855	-1.785533	I(1)
LPe	-1.378996	-1.381778	I(1)
Lesotho	**NO TREND**	**TREND**	**Stationarity Status**
LM2/GDP	-0.912830	-1.848750	I(1)
Ly	-3.407025***	-3.582836**	I(0)
LD	-0.350132	-0.902230	I(1)
LPe	-0.862100	-1.750757	I(1)

Note: ** and *** denote statistical significance at the 5% and 1% levels, respectively.

Table 5. Stationarity Tests of Variables in Levels - Philip-Perron (PP) Tests

Variable	NO TREND	TREND	Stationarity Status
South Africa			
LM2/GDP	-1.55326	-1.532110	I(1)
Ly	-5.99681***	-5.854258***	I(0)
LD	-1.69511	-0.933379	I(1)
Lpe	-1.71196	-1.899130	I(1)
Variable	**NO TREND**	**TREND**	**Stationarity Status**
Tanzania			
LM2/GDP	-1.41835	-1.72696	I(1)
Ly	-4.52091***	-4.56529***	I(0)
LD	-1.52717	-1.45411	I(1)
Lpe	-1.16069	-1.84560	I(1)
Variable	**NO TREND**	**TREND**	**Stationarity Status**
Zambia			
LM2/GDP	-1.38391	-1.893301	I(1)
Ly	-5.44719***	-5.362906***	I(0)
LD	-1.73327	-1.728880	I(1)
Lpe	-0.44990	-1.309945	I(1)
Variable	**NO TREND**	**TREND**	**Stationarity Status**
Lesotho			
LM2/GDP	-1.71668	-1.73014	I(1)
Ly	-4.260590***	-4.33793***	I(0)
LD	-1.84453	-1.89012	I(1)
Lpe	-1.01667	-1.94100	I(1)

Note: The truncation lag for the PP tests is based on Newey and West's (1987) bandwidth.

*** denotes 1% level of significance.

The results presented in Tables 4 and 5 show that, with the exception of real GDP growth rate, all the variables from the four countries are non-stationary in levels. The variables are, therefore, differenced once in order to perform stationary tests in first difference. The results of the stationarity tests of variables in first difference are presented in Tables 6 and 7.

Table 6. Stationarity Tests of all Variables in first Difference: DF-GLS Tests

Variable	NO TREND	TREND	Stationarity Status
South Africa			
DLM2/GDP	-4.784804***	-4.897775***	I(1)
DLD	-5.148092***	-5.469941***	I(1)
DLPe	-5.278650***	-5.867863***	I(1)
Tanzania	**NO TREND**	**TREND**	**Stationarity Status**
DLM2/GDP	-5.008280***	-5.044571***	I(1)
DLD	-3.96833***	-4.015401***	I(1)
DLPe	-6.058669***	-6.845467***	I(1)
Zambia	**NO TREND**	**TREND**	**Stationarity Status**
DLM2/GDP	-5.009366***	-6.063585***	I(1)
DLD	-6.258379***	-6.346896***	I(1)
DLPe	-5.59195***	-5.649025***	I(1)
Lesotho	**NO TREND**	**TREND**	**Stationarity Status**
DLM2/GDP	-3.280076***	-3.636900***	I(1)
DLD	-4.975361***	-5.047449***	I(1)
DLPe	-7.470870***	-8.004169***	I(1)

Note: *** denotes statistical significance at the 1% level.

Table 7. Stationarity Tests of Variables in first Difference - PHILIP-PERRON (PP) TEST

Variable	NO TREND	TREND	Stationarity Status
South Africa			
DLM2/GDP	-7.084879***	-6.64727***	I(1)
DLD	-3.398460**	-3.92393**	I(1)
DLpe	-4.685923***	-7.11595***	I(1)
Variable	**NO TREND**	**TREND**	**Stationarity Status**
Tanzania			
DLM2/GDP	-7.084879***	-6.64727***	I(1)
DLD	-3.911214***	-3.909925**	I(1)
DLpe	-7.996155***	-7.844934***	I(1)
Variable	**NO TREND**	**TREND**	**Stationarity Status**
Zambia			
DLM2/GDP	-7.084879***	-6.64727***	I(1)
DLD	-6.169547***	-6.18361***	I(1)
DLpe	-5.904565***	-5.80536***	I(1)
Variable	**NO TREND**	**TREND**	**Stationarity Status**
Lesotho			
DLM2/GDP	-6.878438***	-5.55267***	I(1)
DLD	-6.683662***	-7.028552***	I(1)
DLpe	-7.832116***	-7.906827***	I(1)

Note: The truncation lag for the PP tests is based on Newey and West (1987) bandwidth.
** and *** denote 5% and 1% level of significance, respectively.

The results reported in Tables 6 and 7 show that after differencing the variables once, all the variables were confirmed to be stationary in all the study countries. The DF-GLS and Philip-Perron tests applied to the first difference of the data series reject the null hypothesis of non-stationarity for all the variables used in the study countries. It is, therefore, worth concluding that the variables from the four countries are integrated of order one.

8.1.2 Cointegration Analysis

Having established that the variables are of the same order of integration (order one), the next procedure is to test the possibility of cointegration among the variables used in the model. The results of the cointegration test using Johansen and Juselius maximum likelihood procedure are presented in Table 8.

Table 8. Johansen-Juselius Maximum Likelihood Cointegration Tests

Trace Test				Maximum Eigenvalue Test			
Null	**Alternative**	**Statistics**	**95% Critical Value**	**Null**	**Alternative**	**Statistics**	**95% Critical Value**
South Africa							
$r = 0$	$r \geq 1$	58.480	47.2	$r = 0$	$r = 1$	35.00	27.1
$r \leq 1$	$r \geq 2$	23.480	29.7	$r \leq 1$	$r = 2$	13.94	21.0
$r \leq 2$	$r \geq 3$	9.545	15.4	$r \leq 2$	$r = 3$	7.75	14.1
$r \leq 3$	$r = 4$	1.793	3.8	$r \leq 3$	$r = 4$	1.79	3.8
Tanzania							
$r = 0$	$r \geq 1$	60.37	47.2	$r = 0$	$r = 1$	43.35	27.1
$r \leq 1$	$r \geq 2$	22.12	29.7	$r \leq 1$	$r = 2$	18.89	21.0
$r \leq 2$	$r \geq 3$	5.452	15.4	$r \leq 2$	$r = 3$	5.051	14.1
$r \leq 3$	$r = 4$	0.9951	3.8	$r \leq 3$	$r = 4$	1.128	3.8
Zambia							
$r = 0$	$r \geq 1$	73.00	47.2	$r = 0$	$r = 1$	43.11	27.1
$r \leq 1$	$r \geq 2$	27.89	29.7	$r \leq 1$	$r = 2$	12.73	21.0
$r \leq 2$	$r \geq 3$	14.16	15.4	$r \leq 2$	$r = 3$	10.62	14.1
$r \leq 3$	$r = 4$	2.534	3.8	$r \leq 3$	$r = 4$	2.534	3.8
Lesotho							
$r = 0$	$r \geq 1$	70.00	47.2	$r = 0$	$r = 1$	40.83	27.1
$r \leq 1$	$r \geq 2$	29.16	29.7	$r \leq 1$	$r = 2$	17.51	21.0
$r \leq 2$	$r \geq 3$	11.65	15.4	$r \leq 2$	$r = 3$	9.11	14.1
$r \leq 3$	$r = 4$	2.54	3.8	$r \leq 3$	$r = 4$	2.54	3.8

Note: -r stands for the number of cointegrating vectors

-The Akaike and Schwarz criteria were used to determine the number of lags for the cointegration test.

The results of the trace tests indicate that for all the four countries, there is at most one cointegrating vector. The Trace statistics reject the null hypotheses of r=0 in South Africa, Tanzania, Zambia, and Lesotho in favour of the general alternative hypothesis of $r \geq 1$. However, the null hypothesis of $r \leq 1$, $r \leq 2$, and $r \leq 3$ could not be rejected at the 5% level of significance.

On the side of maximum Eigenvalue tests, the null hypothesis of no cointegrating vector (r=0) is rejected at 5% level of significance in South Africa, Tanzania, Zambia, and Lesotho in favour of a specific alternative hypothesis that there is one cointegrating vector (r=1). But, the null hypothesis of $r \leq 1$, $r \leq 2$, and $r \leq 3$ could not be rejected at the 5% level of significance. It is, therefore, worth noting that both the Trace test and maximum Eigenvalue test reject the null hypothesis of no cointegration at 5% level of significance. This confirms that there is at least one cointegrating vector in each study country.

8.1.3 Error-Correction Modelling of the Financial Deepening Equation

The results presented in the preceding section indicate that cointegration of the financial deepening model has been accepted in the four study countries – South Africa, Tanzania, Zambia, and Lesotho. The next procedure in this case is to estimate an error-correction model by including an error-correction (ECM-1) term in the set of explanatory variables, where ECM-1 term is the residual from cointegration regression (lagged once) and is estimated together with the first differences of the non-stationary variables. This enables the study to capture both long-run and short-run information.

Over-Parameterised (General) Model for Financial Deepening Model

The results of the general (over-parameterised) error-correction model for the four countries are presented in Appendix 1. As expected, the results of this model are difficult to interpret and many variables are not significant. The model is, therefore, reduced until a preferred model is obtained. Table 9 gives a summary of the preferred (parsimonious) model for South Africa, Tanzania, Zambia, and Lesotho.

Table 9. Modelling of Financial Deepening Equation (DLM2/GDP)

SOUTH AFRICA			
Variable	**Coefficient**	**t-value**	**t-prob**
Constant	-0.023124	-1.688	0.1120
DLM2/GDP-2	0.59065	2.251	0.0398
DLD-rate -1	0.075985	2.056	0.0576
y-growth	0.0071540	2.340	0.0335
y-growth-4	0.0053183	1.585	0.1337
DLPe	0.074129	1.180	0.2565
DLPe-1	0.11004	2.041	0.0593
DLPe-2	0.14391	2.172	0.0463
ECM-1	-0.70550	-3.813	0.0017
$R^2 = 0.565588$			
F(8, 15) = 2.4412 [0.0648]			
$\delta = 0.0329749$ DW = 1.52			
AR 1- 2F(2, 13) = 0.93553 [0.4173]			
ARCH 1 F(1, 13) = 0.48685 [0.4976]			
Normality $X^2(2)$= 0.15024 [0.9276]			
RESET F(1, 14) = 0.032712 [0.8591]			
TANZANIA			
Variable	Coefficient	t-value	t-prob
Constant	-0.061341	-2.335	0.0329
y-growth-1	0.013873	2.214	0.0417
y-growth-3	0.015023	2.960	0.0092
y-growth-4	0.0083038	1.674	0.1135
DLD-2	0.19109	2.227	0.0406
DPe-3	0.010189	2.809	0.0126
DPe-4	0.010314	2.763	0.0139
DLM2/GDP-1	0.24776	1.129	0.2755
DLM2/GDP-3	0.27557	1.563	0.1377
DPe-5	0.0044899	1.358	0.1933
y-growth	-0.0080364	-1.453	0.1654
y-growth-5	0.0089637	1.730	0.1028
y-growth-2	-0.012761	-2.148	0.0474
ECM-1	-0.40878	-2.635	0.0180
$R^2 = 0.732819$			
F(13, 16) = 3.3757 [0.0118]			
$\delta = 0.101639$			
DW = 2.36			
AR 1- 2F(2, 14) = 0.80654 [0.4661]			
ARCH 1 F(1, 14) = 0.27311 [0.6094]			
RESET F(1, 15) = 0.38682[0.5433]			

ZAMBIA

Variable	Coefficient	t-value	t-prob
Constant	0.00674	0.216	0.8319
DLM2/GDP-3	0.44039	2.090	0.0540
DLM2/GDP-4	0.15778	0.659	0.5200
DLM2/GDP-5	0.79947	2.705	0.0163
y-growth	-0.00715	-1.699	0.1100
y-growth-1	0.00427	1.190	0.2527
y-growth-2	0.00243	0.570	0.5774
y-growth-4	-0.00706	-1.997	0.0643
DLD-1	0.26688	2.156	0.0477
DLD-2	0.15114	1.296	0.2146
DLD-3	-0.12760	-1.138	0.2728
DLD-4	0.19419	1.591	0.1325
DLPe-1	-0.25402	-2.380	0.0310
DLPe-2	0.19714	1.959	0.0689
DLPe-3	-0.36323	-2.944	0.0100
ECM-1	-0.35953	-2.207	0.0433

$R^2 = 0.676634$ F(15, 15) = 2.0925 [0.0821] δ= 0.15176 DW = 2.07
AR 1- 2F(2, 13) = 0.1898 [0.8294]
ARCH 1 F(1, 13) = 0.0147 [0.9053]
Normality $X^2(2)$ = 4.9974 [0.0822]
RESET F(1, 14) = 4.4957 [0.0523]

LESOTHO

Variable	Coefficient	t-value	t-prob
Constant	-0.0037118	-0.136	0.8941
DLPe-1	-0.11359	-1.963	0.0755
y-growth-4	-0.010537	-1.926	0.0803
DLM2/GDP-4	0.32589	1.883	0.0864
DLM2/GDP-5	0.47594	2.770	0.0182
DLD-1	0.21068	2.336	0.0394
DLD-3	0.13810	1.804	0.0987
DLD-5	0.068192	2.007	0.0699
ECM-1	-0.74178	-6.011	0.0001

$R^2 = 0.816494$
F = 6.1179 [0.0037]
$\delta = 0.0599411$
DW = 1.92
AR 1- 2F(2, 9) = 1.5276 [0.2684]
ARCH 1 F(1, 9) = 0.026263 [0.8748]
RESET F(1, 10) = 1.9317 [0.1947]

In this section the hypothesis that financial liberalisation leads to financial deepening in Southern African countries is tested. The financial deepening equation was estimated by regressing the financial depth variable (M2/GDP) on the growth rate of real income (y), deposit rate (d), and the expected inflation (P^e). The results of the financial deepening show that there is a positive relationship between financial deepening and deposit rate in all the four study countries. As shown in Table 9, the lagged values of the deposit interest rate are positive and statistically significant in South Africa, Tanzania, Zambia, and Lesotho. Likewise, the error-correction terms lagged once are negative and statistically significant as expected. The significant coefficients of error-correction terms indicate a strong feedback effect of deviation of financial deepening function from its long-run growth path in the study countries. The error-correction terms lagged one period (i.e. ECM1-1) indicate that about 71%, 41%, 36%, and 74% of the discrepancy between the actual and equilibrium values of the financial depth are corrected each period in South Africa, Tanzania, Zambia, and Lesotho, respectively. The results of the expected inflation and economic growth, however, differ from country to country – and over time. Although the impact of the real GDP growth rate on financial deepening is positive and statistically significant in South Africa and Tanzania, it is negative in Zambia and Lesotho. The impact of the expected inflation on financial deepening, on the other hand, is positive and statistically significant in South Africa and Tanzania, negative in Lesotho, and mixed in Zambia. Finally, the impact of lagged financial depth on financial deepening is found to be positive and statistically significant in South Africa, Zambia, and Lesotho, as expected. Although the variable is positive in Tanzania, it failed to reach the traditional level of significance expected.

8.2 Empirical Analysis of the Long-Run Causality Test

In this section, we examine the causal relationship between financial development and economic growth using a trivariate model. Specifically, the study incorporates the savings rate in the finance-growth nexus, thereby creating a simple trivariate causality model. As in the case of the financial deepening analysis, we begin by first conducting the unit root test on the variables included in the causality equation in order to find out whether the variables used in this study are integrated of the same order. Upon confirmation of a unit root, we proceed to perform the cointegration analysis in order to establish the existence and the number of cointegrating vectors. The existence of a cointegrating vector, however, shows that there is a causality in, at least, one direction, but it does not indicate the direction of the causality. In order to examine the direction of causality, we conduct an error-correction-based causality test (for more details, see Chapter 7).

8.2.1 Stationarity Tests

As in other time-series data, the variables per capita income (y/N), financial development (M2/GDP), and savings (S/Y) were tested for stationarity before running the causality test. The results of the stationarity test of variables in levels for all the countries are reported in Tables 10 and 11.

Table 10. Stationarity Tests of All Variables in Levels - Causality Model - DF-GLS Tests

Variable	NO TREND	TREND	Stationarity Status
South Africa			
LM2/GDP	-1.268608	-1.613025	I(1)
Ly/N	-1.267716	-1.564092	I(1)
LS/Y	-0.682944	-1.8257190	I(1)
Tanzania	**NO TREND**	**TREND**	**Stationarity Status**
LM2/GDP	-1.396321	-1.788879	I(1)
Ly/N	-0.758162	-1.578612	I(1)
S/Y	-1.169286	-1.519275	I(1)
Zambia	**NO TREND**	**TREND**	**Stationarity Status**
LM2/GDP	-1.115793	-1.574215	I(1)
Ly/N	-1.752702	-1.811335	I(1)
LS/Y	-1.401040	-1.382299	I(1)
Lesotho	**NO TREND**	**TREND**	**Stationarity Status**
LM2/GDP	-1.198119	-1.611068	I(1)
Ly/N	-0.343136	-1.728328	I(1)
S/Y	-0.149193	-1.727144	I(1)

Table 11. Stationarity Tests of All Variables in Levels – Causality Model – Philip-Perron (PP) Tests

Variable	NO TREND	TREND	Stationarity Status
South Africa			
LM2/GDP	-1.553264	-1.532110	I(1)
Ly/N	-1.099000	-0.961432	I(1)
LS/Y	-1.069174	-1.899336	I(1)
Tanzania	**NO TREND**	**TREND**	**Stationarity Status**
LM2/GDP	-1.493480	-1.806039	I(1)
Ly/N	-0.067577	-1.493498	I(1)
S/Y	-1.198761	-1.848671	I(1)
Zambia	**NO TREND**	**TREND**	**Stationarity Status**
LM2/GDP	-1.448440	-1.903306	I(1)
Ly/N	0.266101	-1.897430	I(1)
LS/Y	-1.699126	-1.808868	I(1)
Lesotho	**NO TREND**	**TREND**	**Stationarity Status**
LM2/GDP	-1.428404	-1.860080	I(1)
Ly/N	-1.342178	-1.804785	I(1)
S/Y	-0.719704	-2.811366	I(1)

Note: The truncation lag for the PP tests is based on Newey and West's (1987) bandwidth.

The results of the stationarity tests in levels presented in Tables 10 and 11 show that all the variables are non-stationary in levels. Having found that the variables are not stationary in levels, the next step is to difference the variables once in order to perform stationary tests in first difference. The results of the stationarity tests of variables in first difference are presented in Tables 12 and 13.

Table 12. Stationarity Tests of All Variables in First Difference – Causality Model – DF-GLS Tests

Variable	NO TREND	TREND	Stationarity Status
South Africa			
DLM2/GDP	-4.784804***	-4.897775***	Stationary
DLy/N	-3.511141***	-3.873013***	Stationary
DLS/Y	-5.559724***	-4.821765***	Stationary
Variable	**NO TREND**	**TREND**	**Stationarity Status**
Tanzania			
DLM2/GDP	-5.008280***	-5.044571***	Stationary
DLy/N	-2.748075***	-3.431382***	Stationary
DS/Y	-4.593778***	-4.947112***	Stationary
Variable	**NO TREND**	**TREND**	**Stationarity Status**
Zambia			
DLM2/GDP	-5.009366***	-6.063585***	Stationary
DLy/N	-3.889196***	-3.922138***	Stationary
DLS/Y	-3.533349***	-5.494544***	Stationary
Variable	**NO TREND**	**TREND**	**Stationarity Status**
Lesotho			
DLM2/GDP	-3.280076***	-3.636900***	Stationary
DLy/N	-5.344708***	-5.326939***	Stationary
DS/Y	-5.047751***	-5.066709***	Stationary

Note: *** denotes statistical significance at the 1% level.

Table 13. Stationarity Tests of All Variables in First Difference – Causality Model – Philip-Perron (PP) Tests

Variable	NO TREND	TREND	Stationarity Status
South Africa			
DLM2/GDP	-4.886242***	-4.848050***	Stationary
DLy/N	-4.195999***	-4.237787***	Stationary
DLS/Y	-6.119280***	-6.124414***	Stationary
Variable	**NO TREND**	**TREND**	**Stationarity Status**
Tanzania			
DLM2/GDP	-9.662230***	-11.53350***	Stationary
DLy/N	-4.863562***	-6.817800***	Stationary
DS/Y	-5.113022***	-5.065056***	Stationary
Variable	**NO TREND**	**TREND**	**Stationarity Status**
Zambia			
DLM2/GDP	-8.269032***	-8.461279***	Stationary
DLy/N	-3.921162***	-3.895423**	Stationary
DLS/Y	-7.187218***	-8.640993***	Stationary
Variable	**NO TREND**	**TREND**	**Stationarity Status**
Lesotho			
DLM2/GDP	-6.878438***	-5.55267***	Stationary
DLy/N	-5.312602***	-5.228121***	Stationary
DS/Y	-8.362440***	-7.972497***	Stationary

Note: The truncation lag for the PP tests is based on Newey and West's (1987) bandwidth.

** and *** denote 5% and 1% level of significance, respectively.

The results displayed in Tables 12 and 13 show that after differencing the variables once, all the variables were confirmed to be stationary. The DF-GLS and Philip-Perron tests applied to the first difference of the data series reject the null hypothesis of the non-stationarity for all variables in all the four countries. It is, therefore, worth concluding that the variables from the four countries are integrated of order one.

8.2.2 Cointegration Analysis

Having established that the variables from the four study countries are integrated of the same order (order one), the next procedure is to test the possibility of cointegration among the variables used in the study countries. For this purpose, the study uses the Johansen-Juselius (maximum likelihood) cointegration test. If cointegration is detected between these variables, then the existence of Granger-causality in either way cannot be ruled out. The results of the Johansen-Juselius cointegration tests in the four study countries are presented in Table 14.

The results of Johansen-Juselius cointegration tests reported in Table 14 indicate the existence of a stable long-run relationship between financial development, savings, and economic growth in all the countries under study. Both the trace test and the maximum eigenvalue statistics reject the null hypothesis of no cointegration in South Africa, Tanzania, Zambia, and Lesotho. For all four countries, the trace test and eigenvalue test reveal that there exists a unique cointegration vector between M2/GD, S/Y, and y/N.

Table 14. Johansen-Juselius Maximum Likelihood Cointegration Tests

Trace Test				**Maximum Eigenvalue Test**			
Null	**Alternative**	**Statistics**	**95% Critical Value**	**Null**	**Alternative**	**Statistics**	**95% Critical Value**
South Africa							
$r = 0$	$r \geq 1$	50.79	29.7	$r = 0$	$r = 1$	34.94	21.0
$r \leq 1$	$r \geq 2$	13.85	15.4	$r \leq 1$	$r = 2$	12.6	14.1
$r \leq 2$	r= 3	0.2435	3.8	$r \leq 2$	$r = 3$	0.2435	3.8
Tanzania							
$r = 0$	$r \geq 1$	43.23	29.7	$r = 0$	$r = 1$	33.13	21.0
$r \leq 1$	$r \geq 2$	7.094	15.4	$r \leq 1$	$r = 2$	6.902	14.1
$r \leq 2$	$r \geq 3$	0.1916	3.8	$r \leq 2$	$r = 3$	0.1916	3.8
Zambia							
$r = 0$	$r \geq 1$	110.7	24.3	$r = 0$	$r = 1$	91.76	17.9
$r \leq 1$	$r \geq 2$	11.99	12.5	$r \leq 1$	$r = 2$	10.11	11.4
$r \leq 2$	$r \geq 3$	2.875	3.8	$r \leq 2$	$r = 3$	2.875	3.8
Lesotho							
$r = 0$	$r \geq 1$	29.62	24.3	$r = 0$	$r = 1$	25.84	17.9
$r \leq 1$	$r \geq 2$	3.777	12.5	$r \leq 1$	$r = 2$	3.534	11.4
$r \leq 2$	$r = 3$	0.2426	3.8	$r \leq 2$	$r = 3$	0.2426	3.8

Note: -r stands for the number of cointegrating vectors
-The Akaike and Schwarz criteria were used to determine the number of lags for the cointegration test.

8.2.3 Analysis of the Causality Test Based on the Error-Correction Model

The results presented in the preceding section indicate that cointegration among financial development, savings, and economic growth has been accepted. The next step in this analysis, therefore, is to estimate an error-correction model by including error-correction term (ECM$_{-1}$) lagged once in the trivariate causality model. In this section, Hendy's general-to-specific method is employed to estimate the trivariate causal relationship among financial development, savings, and economic growth. The advantage of using Hendry's general-to-specific modelling method is that it allows for the re-estimation of the basic model by sequentially dropping the lagged variables with insignificant parameters from the system, until the preferred model is obtained (see also Loizides and Vamvoukas 2005; Odhiambo 2005b). The results of the general (over-parameterised) causality tests among financial development, savings, and economic growth presented in Appendix 2 are difficult to interpret and many variables are not significant, as expected. The economic growth (y/N), financial depth (M2/GDP), and savings (S/Y) equations are, therefore, reduced until the preferred models are obtained. The results of the preferred causality models are displayed in Tables 15-18.

Table 15. Causality Test among DLy/N, DLS/Y, and DLM2/GDP – South Africa

			Dependent variables
Variables in equation	**ΔLy/N**	**ΔLM2/GDP**	**ΔLS/Y**
ΔLy/N-1	0.46915(2.995)***	1.1401(4.209)***	-
ΔLy/N-3	-	0.54575(2.154)**	-
ΔLy/N-4	-	-	0.63580(0.746)
ΔLM2/GDP	-	-	0.32068(0.579)
ΔLM2/GDP-1	-	-	0.34918(0.712)
ΔLM2/GDP-2	-0.050028(-0.561)	-	0.05682(0.116)
ΔLM2/GDP-3	0.03441(0.385)	0.2740(2.019)*	-
ΔLM2/GDP-5	-	-	0.6765(1.791)*
ΔLM2/GDP-6	-	0.21135(2.047)**	-
ΔLS/Y	0.036725(0.907)	0.15302(2.587)**	-
ΔLS/Y-1	0.10984(2.549)**	-	-
ΔLS/Y-2	-	-0.2333(-3.556)***	0.092996(0.466)
ΔLS/Y-3	0.02365(0.678)	-	-
ΔLS/Y-4	0.05657(1.630)	-	-
ΔLS/Y-6	-	-0.1804(-3.272)***	0.36605(1.849)*
ECM $_{-1}$	-0.17553(-1.136)	-0.21996(-2.775)***	0.02647(0.229)
F-Test	3.4934 [0.0094]	5.1472 [0.0011]	1.2435 [0.3213]
R^2	0.56	0.65	0.31
DW	1.87	2.24	2.14

Notes: *, **, and *** denote 10%, 5%, and 1% level of significance, respectively. The numbers in parentheses represent t-statistics.

Table 16. Causality Test among DLy/N, DS/Y, and DLM2/GDP - Tanzania

			Dependent variables
Variables in equation	**ΔLy/N**	**ΔLM2/GDP**	**ΔS/Y**
ΔLy/N-1	0.64264(2.342)**	-	0.051696(0.322)
ΔLy/N-2	-	-	0.083662(0.502)
ΔLy/N-4	0.041814(0.178)	0.4530(2.422)**	-
ΔLM2/GDP	-	-	0.12683(0.921)
ΔLM2/GDP-2	0.10403(0.473)	-	-0.099558(-0.508)
ΔLM2/GDP-3	-	0.2715(1.714)*	-0.071067(-0.572)
ΔLM2/GDP-4	0.28206(0.925)	0.2879(1.106)	-
ΔS/Y-1	-	0.4383(1.513)	0.16954(0.595)
ΔS/Y-2	0.41967(1.050)	-	0.29975(1.242)
ΔS/Y-3	-	-	0.21150(0.765)
ΔS/Y-5	-0.30679(-0.753)	0.3806(1.224)	0.47871(2.207)**
ECM $_{-1}$	-0.013790(-0.461)	-0.5449(-3.220)***	-0.21047(-0.918)
F-Test	1.6296 [0.1818]	5.4342 [0.0013]	0.83291 [0.6041]
R2	0.35	0.59	0.30
DW	1.97	1.80	1.99

Notes: *, **, and *** denote 10%, 5%, and 1% level of significance, respectively. The numbers in parentheses represent t-statistics.

Table 17. Causality Test among DLy/N, DLS/Y, and DLM2/GDP - Zambia

ZAMBIA	**Dependent variables**		
Variables in equation	**ΔLy/N**	**ΔLM2/GDP**	**ΔLS/Y**
ΔLy/N	-	-	1.9115(2.186)**
ΔLy/N-1	0.76153(3.554)***	-	-
ΔLy/N-3	0.42982(2.135)**	0.48326(2.546)**	-
ΔLy/N-5	0.32286(1.558)	0.16529(1.558)	-
ΔLM2/GDP-2	-0.28638(-1.568)	-	1.6160(1.557)
ΔLM2/GDP-3	-0.24992(-1.387)	-	2.3175(2.144)**
ΔLM2/GDP-4	-	-	0.99062(1.071)
ΔLM2/GDP-5	0.28744(1.985)*	0.071272(0.499)	-
ΔLS/Y	0.050023(1.750)*	-	-
ΔLS/Y-1	0.055291(1.578)	0.11743(3.517)***	-
ΔLS/Y-2	0.033072(0.965)	0.062326(2.038)**	0.12492(0.689)
ΔLS/Y-3	-	-	0.23164(1.209)
ΔLS/Y-4	0.057514(1.908)*	0.046006(1.645)	-
ECM $_{-1}$	-0.63164(-3.774)***	-0.21458(-1.549)	-0.90627(-4.509)***
F-Test	3.184 [0.0147]	2.934 [0.0250]	3.5237 [0.0109]
R^2	0.69	0.48	0.53
DW	2.40	2.07	1.91

Notes: *, **, and *** denote 10%, 5%, and 1% level of significance, respectively. The numbers in parentheses represent t-statistics.

Table 18. Causality Test among DLy/N, DLM2/GDP, and DS/Y – Lesotho

			Dependent variables
Variables in equation	**ΔLy/N**	**ΔLM2/GDP**	**ΔS/Y**
ΔLy/N-1	0.48805(1.969)*	0.36553(1.616)	-
ΔLy/N-2	0.9201(3.911)***	-	0.58148(1.839)*
ΔLy/N-3	0.22397(1.092)	-	-
ΔLy/N-4	-0.35184(-1.681)	0.41360(2.560)**	-0.33378(-1.220)
ΔLM2/GDP-1	0.10044(0.494)	0.50940(3.162)***	0.12473(0.658)
ΔLM2/GDP-2	0.30473(1.466)	-	0.31930(1.380)
ΔLM2/GDP-4	0.25833(1.393)	0.32768(2.271)**	0.096497(0.598)
ΔS/Y-1	-	0.64318(2.588)**	-
ΔS/Y-2	0.7689(3.147)***	0.35794(1.517)	0.81412(1.993)*
ΔS/Y-3	0.60201(2.847)**	-	0.40979(1.557)
ΔS/Y-4	0.13610 (0.667)	0.74089(5.090)***	0.12425(0.715)
ECM_{-1}	-0.5370(-3.103)***	-0.42990(-3.415)***	-0.5484(-2.494)**
F-Test	4.5762 [0.0194]	5.7267 [0.0058]	4.2987 [0.0343]
R^2	0.87	0.83	0.54
DW	1.70	2.40	1.81

Notes: *, ** and, *** denote 10%, 5%, and 1% level of significance, respectively. The numbers in parentheses represent t-statistics.

8.2.3.1 Causality Test between y/N and M_2/GDP

The results reported in Tables 15-18 show that there is a distinct causal flow from economic growth to financial development in South Africa, Tanzania, and Lesotho. This finding is supported by the lagged error-correction term and the lagged values of the economic growth variable in the financial development, which are all statistically significant in South Africa, Tanzania, and Lesotho. The causality from financial development to economic growth is, however, rejected by the lagged values of the financial development variable in the economic growth function, which are all statistically insignificant in the three countries. This shows that for South Africa, Tanzania, and Lesotho, the causality between financial development and economic growth takes a demand-following response. However, for Zambia, there is a distinct causal flow from financial development to economic growth and a prima-facie (short-run) causal flow from economic growth to financial development. A distinct causal flow from financial development to economic growth in Zambia is supported by the lagged value of the financial development variable and the lagged error-correction term in the economic growth function, which are both statistically significant. A prima-facie (short-run) causal flow from economic growth to financial development is, however, supported by the lagged value of the economic growth variable and the F-statistic, which are both statistically

significant. Overall, a demand-following response seems to predominate in South Africa, Tanzania, and Lesotho, while in Zambia a supply-leading response tends to predominate.

8.2.3.2 Causality Test between M_2/GDP and S/Y

The causality tests between financial development and savings show that, for South Africa, the causality runs from savings to financial development. This is evidenced by the lagged error-correction term, the coefficients of the savings variable, as well as the F-statistic in the financial development equation, which are all statistically significant. Although the lagged value of the financial development variable in the savings function is statistically significant, both the lagged error-correction term and the F-statistic in the savings function are statistically insignificant. This shows that in South Africa, it is the level of savings that Granger-causes financial development. For Tanzania, the results reject any causal relationship between financial development and savings. Although the lagged values of the savings variable in the financial development function are positive, they failed to reach the level of significance expected. This, therefore, shows that there is no firm causal relationship between financial development and savings in Tanzania. For Zambia, the causality between the two variables runs from financial development to savings. This finding is supported by the lagged value of the financial development variable and the lagged error-correction term in the savings function, which are both statistically significant. Although there is evidence of a short-run causality from savings to financial development, the long-run causal relationship is rejected by the lagged error-correction term, which is statistically insignificant. Finally, for Lesotho, the causality runs from savings to financial development – as supported by the lagged values of savings variable and the lagged error-correction term in the financial development function, which are all statistically significant. The causality from financial development to savings has been rejected by the lagged values of financial development in the savings function, which are all statistically insignificant.

8.2.3.3 Causality Test between y/N and S/Y

Like the causality between financial development (M2/GDP) and economic growth (y/N), and between financial development (M2/GDP) and savings (S/Y), the results of the causality between savings and economic growth differ from country to country. For South Africa, there is a prima-facie (short-run) causal flow from savings to economic growth. This finding is supported by the lagged value of the savings variable and the F-statistic in the economic growth function, which are both statistically significant. This shows that in South Africa, it is the level of savings that drives the level of economic growth in the short run. For Tanzania, the results reject any causal relationship between savings and economic growth – both in the short run and in the long run. For Zambia, there is a bi-directional causal relationship between savings and economic growth. This finding is supported by the coefficients of the savings variable in the economic

growth function and the lagged economic growth in the savings function, as well as the lagged error-correction terms, which are all statistically significant, as expected. This shows that both savings and economic growth in Zambia Granger-cause each other – both in the short run and in the long run. Likewise, for Lesotho, there is a bi-directional causality between savings and economic growth. The causality from savings to economic growth, for example, is supported by the lagged values of the savings variable and the lagged error-correction term in the economic growth function, which are all statistically significant. The causality from economic growth to savings is also supported by the lagged economic growth variable and the lagged error-correction term in savings function, which are both statistically significant. A summary of the causality test between the three variables in the four study countries is presented in Tables 19-22.

Table 19. Summary of Causality Test – South Africa

Variables	Long-run Causality	General Conclusion
ΔLy/N and ΔLM2/GDP	There is a unidirectional causality from economic growth to financial development.	Economic growth Granger-causes financial development.
ΔLS/Y and ΔLM2/GDP	There is a unidirectional causality from savings to financial development.	Savings Granger-cause financial development.
ΔLy/N and S/Y	There is only a prima-facie causal flow from savings to economic growth.	Savings Granger-cause economic growth only in the short run.

Table 20. Summary of Causality Test - Tanzania

Variables	Long-run Causality	General Conclusion
ΔLy/N and ΔLM2/GDP	There is a unidirectional causal flow from economic growth to financial development.	Economic growth Granger-causes financial development.
ΔS/Y and ΔLM2/GDP	There is no causal relationship between savings and financial development.	No long-run causal relationship between savings and financial development is detected.
ΔLy/N and ΔS/Y	There is no causal relationship between savings and economic growth.	No long-run causal relationship between savings and economic growth is detected.

Table 21. Summary of Causality Test - Zambia

Variables	Long-run Causality	General Conclusion
ΔLy/N and ΔLM2/GDP	There is a long-run causal flow from financial development to economic growth.	Financial development Granger-causes economic growth.
ΔLS/Y and ΔLM2/GDP	There is a unidirectional causality from financial development to savings.	Financial development Granger-causes savings.
ΔLy/N and ΔLS/Y	There is bi-directional causality between economic growth and savings.	Economic growth and savings Granger-cause each other.

Table 22. Summary of Causality Test – Lesotho

Variables	Long-run Causality	General Conclusion
ΔLy/N and ΔLM2/GDP	There is a unidirectional causality from economic growth to financial development.	Economic growth Granger-causes financial development.
ΔS/Y and ΔLM2/GDP	There is a unidirectional causality from savings to financial development.	Savings Granger-cause financial development.
ΔLy/N and ΔS/Y	There is a bi-directional causality between savings and economic growth.	Both savings and economic growth Granger-cause each other.

CHAPTER 9
CONCLUSION AND POLICY IMPLICATIONS

9.1 Summary of the Study

In this study, the dynamic impact of financial liberalisation on economic growth in four SADC countries has been examined. The selected countries, namely, South Africa, Tanzania, Zambia, and Lesotho represent a modest cross-section of the general financial structure prevalent in many SADC countries. The study attempts to answer two critical questions: i) Does financial liberalisation have a positive impact on financial deepening in the study countries? ii) Does the financial development that results from financial liberalisation lead to economic growth? In other words, which comes first in the process of economic development, financial development or economic growth? In order to provide answers to these critical questions, two hypotheses have been tested. The first hypothesis states that financial liberalisation impacts positively on financial deepening. The second hypothesis states that financial development that results from financial liberalisation leads to economic growth. The study uses two models in a step-wise fashion to examine the dynamic relationship between financial liberalisation, financial deepening, and economic growth. In the first model, the role of interest rate liberalisation on financial depth is examined by regressing financial depth on interest rate, real income, expected inflation, and the lagged value of financial depth variable. In the second model, the direction of inter-temporal causality between financial depth and economic growth is examined by including a third variable – savings ratio as an intermittent variable - thereby forming a simple trivariate model. The choice of savings ratio as an intermittent variable in the trivariate framework has been largely influenced by the theoretical links between savings and economic growth, on the one hand, and savings and financial development, on the other (see Odhiambo 2008; 2009a).

On the econometric front, the study has used a dynamic specification model associated with cointegration and error-correction modelling (ECM) – subject to some time series properties. The error-correction procedure used in this study is based on Hendry's general-to-specific procedure, while the cointegration method used will be based on the Johansen-Juselius maximum likelihood test. The regression results from the four countries have been compared for differences and similarities. However, the overall conclusions in this study have been largely informed by the empirical results obtained from each country. In addition, the study has critically discussed the challenges associated with financial liberalisation in the study countries. Specifically, the experiences of the study countries with financial liberalisation have been reviewed in order to relate these experiences to the presumptions of the theoretical literature, on the one hand, and to serve as a precursor to the econometric investigations, on the other.

9.2 Summary of Empirical Findings and Conclusions

The overall empirical findings of this study reveal that:

1. There is a strong support for the positive impact of financial liberalisation (proxied by flexible interest rate) on financial deepening in the four study countries. The lagged deposit rate in the financial deepening function is found to be positive and statistically significant in South Africa, Tanzania, Zambia, and Lesotho. This applies irrespective of whether financial deepening model is estimated in a static or dynamic regression. The study, therefore, concludes that positive real deposit rates that result from financial liberalisation unambiguously lead to financial deepening. This finding, therefore, lends more support for the positive impact of financial liberalisation on financial deepening. The results also reveal that there is a positive relationship between the real GDP growth and financial deepening in South Africa and Tanzania, but not in Zambia and Lesotho. Likewise, the impact of the expected inflation on financial deepening is mixed. The impact of the expected inflation on financial deepening is positive and statistically significant in South Africa and Tanzania, negative in Lesotho, and mixed in Zambia.
2. The causality between financial development and economic growth differs from country to country. Although a distinct demand-following response is found in South Africa, Tanzania, and Lesotho, a unidirectional causality from financial development to economic growth predominates in Zambia. This shows that for South Africa, Tanzania, and Lesotho, it is the growth sector which drives the development of the financial sector in the process of economic development, while in Zambia it is the financial development that drives the real sector growth. The study, therefore, recommends that for South Africa, Tanzania, and Lesotho, the real sector of the economy should be developed further in order to sustain the development of the financial sector, while for Zambia there is a need for further development of the financial sector in order to make the economy more monetised.
3. The empirical results on the direction of causality between financial development and savings reveal that: i) savings Granger-cause financial development in South Africa and Lesotho; ii) there is no causal relationship between financial development and savings in Tanzania; and iii) financial development Granger-causes savings in Zambia – although there is a short-run feedback relationship from savings to financial development.
4. Finally, the results of the causality between savings and economic growth show that: i) there is a prima-facie (short-run) causal flow from savings to growth in South Africa; ii) no causal relationship between savings and economic growth is detected in Tanzania; and iii) there is a

bi-directional causality between savings and economic growth in Zambia and Lesotho.

The above findings show that although financial liberalisation leads to financial development in all the study countries, it Granger-causes economic growth only in Zambia. In other words, in the remaining three countries, namely, South Africa, Tanzania, and Lesotho, it is the economic growth which induces the development of the financial sector. This finding shows that the relationship between financial liberalisation and economic growth is at best ambiguous, and may be sensitive to a country's level of financial development.

The results also reiterate the need for further mobilisation of savings in South Africa and Lesotho – in order to support the development of the financial sector. Although South Africa is currently regarded as the economic powerhouse in Africa, with a GDP of approximately 25% of the entire continent, its saving rate, especially personal saving, is considered to be too low to finance and sustain the level of investment required to sustain a 6% GDP growth rate targeted by the year 2010 (see Odhiambo 2007). For Zambia, there is a need for further deepening of the financial sector in order to mobile and transfer savings from surplus units to deficit units, while in Tanzania, both financial development and savings mobilisation policies need to be implemented in order to make the economy more monetised.

It is worth noting that, even though the empirical results of this study support the policy of interest rate liberalisation in particular, the study in its entirety does not support the *laissez-faire* version of interest rate liberalisation. While it is undeniable that the negative real interest rates, which were prevalent in many developing countries during the era of financial repression, were detrimental to economic growth, the extremely high interest rates that have been recorded in many developing countries in recent years are equally damaging and can easily deter investment by attracting risky borrowers. This, therefore, calls for a moderate positive real interest rate that will be neither too high to discourage physical investment, nor too low to discourage financial savings. In other words, for every economy there is a threshold level of interest rate – above which further increases deter investment and dampen any prospects for further economic growth – but below which savings, investment and economic growth can be encouraged. This threshold rate, however, differs from country to country and over time. Although an interest rate threshold analysis was beyond the scope of this study, it is recommended in this study that countries contemplating fully-fledged financial liberalisation should consider implementing interest rate restraints policy alongside financial liberalisation in order to ensure that their interest rates remain below the threshold. Such a policy will certainly deter financial institutions from engaging in risky lending activities and from accumulating toxic debts from insolvent agents. A case in point is the recent global financial crisis, which could have been averted had the requisite financial restraints been put in

place right at the beginning. A crisis that began in the mortgage market, and which was largely caused by the sub-prime mortgage lending, spread into the banking sector and later into the stock market, resulting in a global financial crisis. Although the recent rescue package of +/- US$700 was probably the right policy move at the right time, we caution that unless that package is accompanied by sound financial restraints in the form of prudential regulations, such a stimulus may only create a moral hazard problem in the future. This is because when a stimulus package of this magnitude is issued without any preconditions, it is likely that financial institutions may become accustomed to such a stimulus package, thereby making them more vulnerable to financial crisis (see Odhiambo 2009c, 31).

9.3 Limitations of the Study

Although all efforts have been made to make this study analytically defensible, like many other scientific research studies, it suffers from a number of weaknesses:

First, the study used annual data for empirical investigation, which could have reduced the precision of the parameter estimates. Under normal circumstances, quarterly data is more desirable. However, given that quarterly data for most of the variables in the study countries was not readily available, annual data was resorted to.

Secondly, while conducting the empirical investigation between financial liberalisation and other macroeconomic variables, interest rate liberalisation was used as a proxy for financial liberalisation. Although the interest rate is the most appropriate proxy in this case, it is not the only proxy for financial liberalisation. There are other proxies that could be used as well, such as constructing a financial liberalisation variable based on observed policy changes. However, given the difficulties associated with the use of policy changes as a proxy for financial liberalisation, the interest rate still remains the most appropriate proxy for financial liberalisation. Even though these limitations could have had undesirable effects on the empirical results and evidence adduced in this study, it is assumed that their effects are minimal and may not significantly influence the theoretical and empirical findings of this study.

Endnotes

1. For more details, see Odhiambo (2003)
2. See McCarthy (1983).
3. For more details, see South Africa Financial Sector Forum (1997); South African Communications Services (1993; 1999; 2000); Falkena *et al.* (2001).
4. For more details, see Odhiambo (2004a).
5. The previous role of allocating foreign exchange and directing credit and administering interest rates was relinquished.
6. Open market operations under repurchase agreement (REPOS) refer to the sale of specified bills and securities with a commitment by the seller to buy the securities back at a specified price and designated future date.
7. See Sabai et al (1989), URT (1991).
8. For more details, see Mwenda (2002)
9. See also Kar and Pentecost (2000); Kogar (1995).

DEDICATION

This book is dedicated to all my relatives and family members in the USA, South Africa and Kenya, who have made tremendous contributions towards my academic carrier. To all of them I say: THANK YOU VERY MUCH - *ASANTE SANA- ERO KAMANO*.

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APPENDICES

APPENDIX 1 – GENERAL MODEL

Financial Deepening Model – South Africa

Modelling DLM2/GDP by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	Partial R^2
Constant	0.026873	0.061520	0.437	0.6918	0.0598
DLM2/GDP-1	-0.27449	0.66984	-0.410	0.7095	0.0530
DLM2/GDP-2	0.24470	0.52939	0.462	0.6754	0.0665
DLM2/GDP-3	0.53976	0.47207	1.143	0.3359	0.3035
DLM2/GDP-4	0.15703	0.49754	0.316	0.7730	0.0321
y-growth(re	-0.0037213	0.011223	-0.332	0.7620	0.0353
y-growth-1	-0.0023633	0.0056544	-0.418	0.7041	0.0550
y-growth-2	-0.0084700	0.0062876	-1.347	0.2707	0.3769
y-growth-3	-0.00034854	0.0063282	-0.055	0.9595	0.0010
y-growth-4	0.0081673	0.0053220	1.535	0.2224	0.4398
DLD-rate	0.11586	0.10974	1.056	0.3686	0.2709
DLD-rate-1	0.073663	0.096989	0.760	0.5028	0.1613
DLD-rate-2	-0.0031171	0.10717	-0.029	0.9786	0.0003
DLD-rate-3	-0.075968	0.12357	-0.615	0.5822	0.1119
DLD-rate-4	-0.054695	0.10539	-0.519	0.6396	0.0824
DLPe	0.0055482	0.14495	0.038	0.9719	0.0005
DLPe-1	0.066181	0.13333	0.496	0.6537	0.0759
DLPe-2	-0.025364	0.20692	-0.123	0.9102	0.0050
DLPe-3	-0.042669	0.12386	-0.344	0.7532	0.0381
DLPe-4	-0.14164	0.16227	-0.873	0.4470	0.2025
ECM-1	-0.088817	0.76846	-0.116	0.9153	0.0044

R^2= 0.888114
F-Statistic = 1.1906 [0.5120]
δ = 0.0374202
DW = 1.6

Financial Deepening Model – Tanzania

Modelling DLM2/GDP by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	Partial R^2
Constant	0.11983	0.17594	0.681	0.5212	0.0718
DLM2/GDP-1	-0.076873	0.39486	-0.195	0.8521	0.0063
DLM2/GDP-2	-0.53586	0.63721	-0.841	0.4326	0.1054
DLM2/GDP-3	0.20613	0.36047	0.572	0.5882	0.0517
DLM2/GDP-4	-0.45834	0.40530	-1.131	0.3013	0.1757
DLM2/GDP-5	-0.20287	0.32198	-0.630	0.5519	0.0621
y-growth	-0.011172	0.0077966	-1.433	0.2019	0.2550
y-growth-1	0.0022213	0.013160	0.169	0.8715	0.0047
y-growth-2	-0.029019	0.016885	-1.719	0.1365	0.3299
y-growth-3	0.0061784	0.0071410	0.865	0.4202	0.1109
y-growth-4	0.0055130	0.0082510	0.668	0.5289	0.0693
y-growth-5	0.019760	0.011835	1.670	0.1460	0.3172
LD	-0.16167	0.19337	-0.836	0.4351	0.1043
LD-1	0.22753	0.37686	0.604	0.5681	0.0573
LD-2	0.080342	0.31302	0.257	0.8060	0.0109
LD-3	-0.15514	0.34563	-0.449	0.6693	0.0325
LD-4	-0.074078	0.42207	-0.176	0.8665	0.0051
LD-5	0.0098059	0.26111	0.038	0.9713	0.0002
DPe	-0.023226	0.018927	-1.227	0.2657	0.2006
DPe-1	-0.018489	0.014425	-1.282	0.2472	0.2150
DPe-2	-0.020769	0.014531	-1.429	0.2029	0.2540
DPe-3	-0.0048633	0.011680	-0.416	0.6916	0.0281
DPe-4	0.0056621	0.0072465	0.781	0.4643	0.0924
DPe-5	0.0011774	0.0053085	0.222	0.8318	0.0924
ECM-1	0.13501	0.53877	0.251	0.8105	0.0104

R^2= 0.822307
F-Statistic = 1.1569 [0.4652]
δ = 0.135387
DW = 1.85

Financial Deepening Model – Zambia

Modelling DLM2/GDP by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	Partial R^2
Constant	0.014786	0.048747	0.303	0.7705	0.0130
DLM2/GDP-1	0.17605	0.39116	0.450	0.6663	0.0281
DLM2/GDP-2	0.054707	0.40188	0.136	0.8956	0.0026
DLM2/GDP-3	0.24016	0.37255	0.645	0.5397	0.0560
DLM2/GDP-4	0.12572	0.39538	0.318	0.7598	0.0142
DLM2/GDP-5	0.69015	0.38882	1.775	0.1192	0.3104
y-growth	-0.0093328	0.0072423	-1.289	0.2385	0.1917
y-growth-1	0.0041883	0.0064701	0.647	0.5381	0.0565
y-growth-2	0.0015320	0.0072569	0.211	0.8388	0.0063
y-growth-3	-0.0028355	0.0064328	-0.441	0.6727	0.0270
y-growth-4	-0.0056295	0.0056991	-0.988	0.3562	0.1223
y-growth-5	-0.0033362	0.0050501	-0.661	0.5300	0.0587
DLD	-0.091682	0.24636	-0.372	0.7208	0.0194
DLD-1	0.29294	0.32233	0.909	0.3936	0.1055
DLD-2	0.11906	0.26339	0.452	0.6649	0.0284
DLD-3	-0.13287	0.19613	-0.677	0.5199	0.0615
DLD-4	0.12157	0.23824	0.510	0.6256	0.0359
DLD-5	-0.097165	0.21776	-0.446	0.6689	0.0277
DLPe	-0.039410	0.19050	-0.207	0.8420	0.0061
DLPe-1	-0.21736	0.17456	-1.245	0.2531	0.1813
DLPe-2	0.20599	0.18079	1.139	0.2920	0.1564
DLPe-3	-0.31270	0.21634	-1.445	0.1916	0.2299
DLPe-4	0.092803	0.20696	0.448	0.6674	0.0279
DLPe-5	0.0089982	0.14718	0.061	0.9530	0.0005
ECM-1	-0.65477	0.42473	-1.542	0.1671	0.2535

R^2= 0.769979
F-Statistic = 0.97634[0.5600]
δ = 0.187371
DW = 2.28

Financial Deepening Model – Lesotho
Modelling DLM2/GDP by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	Partial R^2
Constant	0.19312	0.10570	1.827	0.1417	0.4549
DLM2/GDP-1	-0.18159	0.52472	-0.346	0.7467	0.0291
DLM2/GDP-2	-0.40492	0.44513	-0.910	0.4145	0.1714
DLM2/GDP-3	0.34433	0.40458	0.851	0.4427	0.1533
DLM2/GDP-4	0.79523	0.39578	2.009	0.1149	0.5023
DLM2/GDP-5	1.0229	0.49228	2.078	0.1063	0.5191
y-growth	-0.013504	0.012063	-1.119	0.3256	0.2386
y-growth-1	-0.014392	0.010261	-1.403	0.2334	0.3297
y-growth-2	-0.022514	0.012607	-1.786	0.1487	0.4436
y-growth-3	-0.0016424	0.011955	-0.137	0.8974	0.0047
y-growth-4	0.012404	0.0098912	1.254	0.2781	0.2822
y-growth-5	-0.0046315	0.0080696	-0.574	0.5967	0.0761
DLD	0.20842	0.12144	1.716	0.1613	0.4241
DLD-1	0.26302	0.15304	1.719	0.1608	0.4248
DLD-2	0.15576	0.14869	1.048	0.3540	0.2153
DLD-3	0.083157	0.11182	0.744	0.4984	0.1215
DLD-4	-0.0048738	0.10277	-0.047	0.9644	0.0006
DLD-5	-0.010715	0.095830	-0.112	0.9164	0.0031
DLPe	0.13028	0.16382	0.795	0.4710	0.1365
DLPe-1	-0.13587	0.13876	-0.979	0.3829	0.1933
DLPe-2	0.075941	0.17159	0.443	0.6809	0.0467
DLPe-3	0.30715	0.18091	1.698	0.1648	0.4188
DLPe-4	0.38600	0.19181	2.012	0.1145	0.5031
DLPe-5	0.24400	0.20508	1.190	0.2999	0.2614
ECM-1	-0.86781	0.36238	-2.395	0.0748	0.5891

R^2= 0.815542
F-Statistic = 0.73688 [0.7218]
δ = 0.109362
DW = 1.88

APPENDIX 2 – CAUSALITY RESULTS

General Model – South Africa

Modelling DLy/N by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	Partial R^2
Constant	0.0077009	0.0063171	1.219	0.2508	0.1294
DLy-N-1	0.42917	0.42815	1.002	0.3398	0.0913
DLy-N-2	-0.046493	0.43534	-0.107	0.9171	0.0011
DLy-N-3	0.13948	0.44102	0.316	0.7583	0.0099
DLy-N-4	-0.30177	0.44729	-0.675	0.5152	0.0435
DLy-N-5	-0.10398	0.30103	-0.345	0.7369	0.0118
DLM2/GDP	0.051268	0.16027	0.320	0.7556	0.0101
DLM2/GDP-1	-0.037246	0.20207	-0.184	0.8574	0.0034
DLM2/GDP-2	-0.051603	0.19216	-0.269	0.7937	0.0072
DLM2/GDP-3	0.086146	0.20078	0.429	0.6770	0.0181
DLM2/GDP-4	0.012070	0.15105	0.080	0.9379	0.0006
DLM2/GDP-5	0.15033	0.12635	1.190	0.2616	0.1240
DS/Y	0.30397	0.29893	1.017	0.3332	0.0937
DS/Y-1	0.61314	0.37650	1.629	0.1345	0.2096
DS/Y-2	-0.035184	0.39289	-0.090	0.9304	0.0008
DS/Y-3	0.053237	0.39413	0.135	0.8952	0.0018
DS/Y-4	0.12765	0.35018	0.365	0.7231	0.0131
DS/Y-5	0.33918	0.34813	0.974	0.3529	0.0867
ECM-1	-0.048908	0.35029	-0.140	0.8917	0.0019

R^2= 0.708085
F-Statistic = 1.3476[0.3216]
δ = 0.0220768
DW = 1.95

Modelling DLM2/GDP by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	Partial R^2
Constant	0.0064972	0.013022	0.499	0.6286	0.0243
DLM2/GDP-1	0.41492	0.40326	1.029	0.3278	0.0957
DLM2/GDP-2	-0.29322	0.34596	-0.848	0.4165	0.0670
DLM2/GDP-3	0.43089	0.37283	1.156	0.2747	0.1178
DLM2/GDP-4	0.25429	0.28014	0.908	0.3854	0.0761
DLM2/GDP-5	0.010278	0.27215	0.038	0.9706	0.0001
DLy-N	0.33958	0.61104	0.556	0.5906	0.0300
DLy-N-1	0.55284	0.73444	0.753	0.4690	0.0536
DLy-N-2	-0.12579	0.76831	-0.164	0.8732	0.0027
DLy-N-3	0.78664	0.81329	0.967	0.3562	0.0856
DLy-N-4	-0.61364	0.81063	-0.757	0.4665	0.0542
DLy-N-5	-0.28517	0.64209	-0.444	0.6664	0.0193
DS/Y	0.60769	0.64235	0.946	0.3664	0.0821
DS/Y-1	0.87270	0.94062	0.928	0.3754	0.0793
DS/Y-2	-0.37725	0.87512	-0.431	0.6755	0.0182
DS/Y-3	0.075929	0.78340	0.097	0.9247	0.0009
DS/Y-4	0.083971	0.64796	0.130	0.8995	0.0017
DS/Y-5	0.50994	0.68127	0.749	0.4714	0.0531
ECM-1	-0.44983	0.48480	-0.928	0.3753	0.0793

R^2= 0.607381
F-Statistic= 0.85944 [0.6263]
δ = 0.0417328
DW = 2.01

Modelling DS/Y by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	Partial R^2
Constant	-0.031837	0.011863	-2.684	0.0229	0.4187
DS/Y-1	-2.2587	0.84411	-2.676	0.0233	0.4173
DS/Y-2	-1.3243	0.73008	-1.814	0.0998	0.2476
DS/Y-3	-1.0380	0.70373	-1.475	0.1710	0.1787
DS/Y-4	-0.73216	0.38914	-1.881	0.0893	0.2614
DS/Y-5	-0.91536	0.34214	-2.675	0.0233	0.4172
DLy-N	0.64423	0.28867	2.232	0.0497	0.3325
DLy-N-1	0.39078	0.43162	0.905	0.3866	0.0758
DLy-N-2	-0.059407	0.40209	-0.148	0.8855	0.0022
DLy-N-3	-0.47649	0.42438	-1.123	0.2878	0.1120
DLy-N-4	0.20017	0.38466	0.520	0.6141	0.0264
DLy-N-5	-0.17408	0.35810	-0.486	0.6374	0.0231
DLM2/GDP	0.36411	0.18605	1.957	0.0788	0.2769
DLM2/GDP-1	0.21334	0.14175	1.505	0.1632	0.1847
DLM2/GDP-2	0.43093	0.20791	2.073	0.0650	0.3005
DLM2/GDP-3	0.15994	0.20581	0.777	0.4551	0.0570
DLM2/GDP-4	0.23087	0.20637	1.119	0.2894	0.1112
DLM2/GDP-5	0.20059	0.14763	1.359	0.2041	0.1559
ECM-1	1.2325	0.55410	2.224	0.0503	0.3310

R^2= 0.758278
F-Statistic = 1.7428 [0.1857]
δ = 0.0193647
DW = 1.82

General Model – Tanzania [Modelling DLy/N by OLS]

Variable	Coefficient	Std.Error	t-value	t-prob	Partial R^2
Constant	0.13828	0.052924	2.613	0.0227	0.3626
DLy/N-1	0.24039	0.22159	1.085	0.2993	0.0893
DLy/N-2	0.012558	0.26040	0.048	0.9623	0.0002
DLy/N-3	-0.00090622	0.23551	-0.004	0.9970	0.0000
DLy/N-4	0.13185	0.22976	0.574	0.5767	0.0267
DLy/N-5	-0.081619	0.22307	-0.366	0.7208	0.0110
DLM2/GDP	-0.43327	0.20764	-2.087	0.0589	0.2662
DLM2/GDP-1	0.063679	0.19825	0.321	0.7536	0.0085
DLM2/GDP-2	0.28968	0.25345	1.143	0.2754	0.0982
DLM2/GDP-3	-0.041551	0.28199	-0.147	0.8853	0.0018
DLM2/GDP-4	0.30091	0.30441	0.988	0.3424	0.0753
DLM2/GDP-5	-0.13474	0.23921	-0.563	0.5836	0.0258
DS/Y	-0.17443	0.31495	-0.554	0.5899	0.0249
DS/Y-1	-0.43411	0.29355	-1.479	0.1650	0.1541
DS/Y-2	0.16198	0.29423	0.551	0.5921	0.0246
DS/Y-3	-0.38190	0.34904	-1.094	0.2954	0.0907
DS/Y-4	-0.33647	0.34119	-0.986	0.3435	0.0750
DS/Y-5	-0.15821	0.44958	-0.352	0.7310	0.0102
ECM-1	-0.040058	0.019308	-2.075	0.0602	0.2640

R^2= 0.803877
F-Statistic = 2.7326 [0.0402]
δ = 0.0950608
DW = 1.79

Modelling DLM2/GDP by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	Partial R^2
Constant	-0.052114	0.076767	-0.679	0.5101	0.0370
DLM2/GDP-1	0.82033	0.35738	2.295	0.0405	0.3051
DLM2/GDP-2	0.19186	0.34809	0.551	0.5916	0.0247
DLM2/GDP-3	0.84097	0.34105	2.466	0.0297	0.3363
DLM2/GDP-4	0.49024	0.40538	1.209	0.2498	0.1086
DLM2/GDP-5	0.23989	0.35616	0.674	0.5134	0.0364
DLy/N	-0.12865	0.27794	-0.463	0.6518	0.0175
DLy/N-1	0.034798	0.25331	0.137	0.8930	0.0016
DLy/N-2	-0.047889	0.28372	-0.169	0.8688	0.0024
DLy/N-3	0.13873	0.25123	0.552	0.5909	0.0248
DLy/N-4	0.34728	0.24570	1.413	0.1829	0.1427
DLy/N-5	0.093248	0.27877	0.334	0.7438	0.0092
DS/Y	-0.039157	0.33690	-0.116	0.9094	0.0011
DS/Y-1	-0.47160	0.49511	-0.953	0.3596	0.0703
DS/Y-2	-0.87093	0.47121	-1.848	0.0893	0.2216
DS/Y-3	-0.22065	0.46029	-0.479	0.6403	0.0188
DS/Y-4	-0.84043	0.40852	-2.057	0.0621	0.2607
DS/Y-5	0.099482	0.50167	0.198	0.8461	0.0033
ECM-1	-1.1860	0.47906	-2.476	0.0292	0.3381

R^2= 0.787021
F-Statistic = 2.4635[0.0577]
δ = 0.103718
DW = 2.10

Modelling DS/Y by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	Partial R^2
Constant	0.031749	0.052774	0.602	0.5586	0.0293
DS/Y-1	0.43119	0.25870	1.667	0.1214	0.1880
DS/Y-2	0.42548	0.25428	1.673	0.1201	0.1892
DS/Y-3	0.47908	0.27676	1.731	0.1091	0.1998
DS/Y-4	0.022397	0.27254	0.082	0.9359	0.0006
DS/Y-5	0.91433	0.28238	3.238	0.0071	0.4663
DLM2/GDP	0.19560	0.17648	1.108	0.2894	0.0929
DLM2/GDP-1	-0.047622	0.15667	-0.304	0.7664	0.0076
DLM2/GDP-2	-0.19117	0.19824	-0.964	0.3539	0.0719
DLM2/GDP-3	-0.039747	0.21326	-0.186	0.8553	0.0029
DLM2/GDP-4	-0.71723	0.21540	-3.330	0.0060	0.4802
DLM2/GDP-5	-0.060558	0.19346	-0.313	0.7596	0.0081
DLy/N	-0.059688	0.18521	-0.322	0.7528	0.0086
DLy/N-1	-0.028233	0.17302	-0.163	0.8731	0.0022
DLy/N-2	0.31405	0.18066	1.738	0.1077	0.2012
DLy/N-3	0.0012080	0.17362	0.007	0.9946	0.0000
DLy/N-4	-0.35775	0.16840	-2.124	0.0551	0.2733
DLy/N-5	-0.10714	0.18819	-0.569	0.5797	0.0263
ECM-1	-0.70374	0.26815	-2.624	0.0222	0.3647

R^2= 0.671725
F(18, 12) = 1.3642 [0.2957]
δ = 0.070949
DW = 2.13

Causality Model – Zambia [Modelling DLy/N by OLS]

Variable	Coefficient	Std.Error	t-value	t-prob	Partial R^2
Constant	0.016761	0.028117	0.596	0.5622	0.0288
DLy/N-1	0.94816	0.23340	4.062	0.0016	0.5790
DLy/N-2	0.12651	0.26807	0.472	0.6454	0.0182
DLy/N-3	0.76804	0.26389	2.911	0.0131	0.4138
DLy/N-4	-0.31664	0.27981	-1.132	0.2799	0.0964
DLy/N-5	0.66633	0.25215	2.643	0.0215	0.3679
DLM2/GDP	-0.14367	0.24506	-0.586	0.5686	0.0278
DLM2/GDP-1	0.14900	0.23553	0.633	0.5388	0.0323
DLM2/GDP-2	-0.52279	0.22829	-2.290	0.0409	0.3041
DLM2/GDP-3	-0.32705	0.20469	-1.598	0.1361	0.1754
DLM2/GDP-4	-0.10271	0.20887	-0.492	0.6318	0.0198
DLM2/GDP-5	0.24372	0.20400	1.195	0.2553	0.1063
DLS/Y	0.022430	0.042920	0.523	0.6108	0.0223
DLS/Y-1	0.086648	0.048498	1.787	0.0993	0.2101
DLS/Y-2	0.0074984	0.043774	0.171	0.8668	0.0024
DLS/Y-3	-0.0080435	0.045121	-0.178	0.8615	0.0026
DLS/Y-4	0.070459	0.047910	1.471	0.1671	0.1527
DLS/Y-5	-0.032225	0.041716	-0.772	0.4548	0.0474
ECM-1	-0.81836	0.26911	-3.041	0.0103	0.4352

R^2= 0.749585
F-Statistic = 1.9956 [0.1124]
δ = 0.147338
DW = 1.92

Modelling DLM2/GDP by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	Partial R^2
Constant	0.0023780	0.028894	0.082	0.9358	0.0006
DLM2/GDP-1	0.25190	0.25726	0.979	0.3468	0.0740
DLM2/GDP-2	-0.0012694	0.24976	-0.005	0.9960	0.0000
DLM2/GDP-3	0.34838	0.20840	1.672	0.1204	0.1889
DLM2/GDP-4	0.17541	0.21107	0.831	0.4222	0.0544
DLM2/GDP-5	0.37389	0.20951	1.785	0.0996	0.2097
DLy/N	-0.11697	0.21858	-0.535	0.6023	0.0233
DLy/N-1	0.19067	0.22266	0.856	0.4086	0.0576
DLy/N-2	-0.52289	0.19871	-2.631	0.0219	0.3659
DLy/N-3	0.48350	0.21530	2.246	0.0443	0.2959
DLy/N-4	-0.54259	0.26678	-2.034	0.0647	0.2563
DLy/N-5	0.24726	0.24357	1.015	0.3301	0.0791
DLS/Y	-0.11117	0.036545	-3.042	0.0102	0.4354
DLS/Y-1	0.028675	0.053716	0.534	0.6032	0.0232
DLS/Y-2	-0.015413	0.048040	-0.321	0.7539	0.0085
DLS/Y-3	-0.044304	0.047821	-0.926	0.3725	0.0668
DLS/Y-4	0.021644	0.052747	0.410	0.6888	0.0138
DLS/Y-5	-0.031549	0.042669	-0.739	0.4739	0.0436
ECM-1	-0.29018	0.15256	-1.902	0.0814	0.2317

$R^2 = 0.746556$
F-Statistic = 1.9638[0.1178]
$\delta = 0.150212$
DW = 1.55

Modelling DLS/Y by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	Partial R^2
Constant	-0.16432	0.19341	-0.850	0.4122	0.0567
DLS/Y-1	0.17934	0.38258	0.469	0.6476	0.0180
DLS/Y-2	0.020875	0.30087	0.069	0.9458	0.0004
DLS/Y-3	-0.016707	0.31013	-0.054	0.9579	0.0002
DLS/Y-4	0.059221	0.33239	0.178	0.8616	0.0026
DLS/Y-5	-0.15549	0.25717	-0.605	0.5567	0.0296
DLM2/GDP	-2.5093	1.3961	-1.797	0.0975	0.2121
DLM2/GDP-1	1.1163	1.4864	0.751	0.4671	0.0449
DLM2/GDP-2	0.39954	1.5001	0.266	0.7945	0.0059
DLM2/GDP-3	1.9985	1.3306	1.502	0.1590	0.1582
DLM2/GDP-4	0.56185	1.4032	0.400	0.6959	0.0132
DLM2/GDP-5	1.3033	1.4111	0.924	0.3739	0.0664
DLy/N	0.24973	1.3630	0.183	0.8577	0.0028
DLy/N-1	0.70528	1.3933	0.506	0.6219	0.0209
DLy/N-2	-1.6904	1.3405	-1.261	0.2313	0.1170
DLy/N-3	2.1947	1.4127	1.554	0.1463	0.1674
DLy/N-4	-2.8268	1.6426	-1.721	0.1109	0.1980
DLy/N-5	1.0356	1.5293	0.677	0.5111	0.0368
ECM-1	-0.54778	0.38064	-1.439	0.1757	0.1472

R^2= 0.688038
F-Statistic= 1.4703[0.2506]
δ = 0.923738
DW = 1.96

Causality Model – Lesotho

Modelling DLy/N by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	Partial R^2
Constant	0.080130	0.060827	1.317	0.3184	0.4646
DLy/N-1	-1.3878	1.0161	-1.366	0.3053	0.4826
DLy/N-2	-1.0625	0.98800	-1.075	0.3947	0.3664
DLy/N-3	0.20258	0.65134	0.311	0.7852	0.0461
DLy/N-4	-1.1866	0.62777	-1.890	0.1993	0.6411
DLy/N-5	-1.2103	0.85494	-1.416	0.2925	0.5005
DLM2/GDP	1.5048	0.90156	1.669	0.2370	0.5821
DLM2/GDP-1	0.18471	0.39577	0.467	0.6866	0.0982
DLM2/GDP-2	-0.26923	0.44482	-0.605	0.6065	0.1548
DLM2/GDP-3	0.16460	0.46590	0.353	0.7576	0.0587
DLM2/GDP-4	-0.88397	0.60984	-1.450	0.2842	0.5123
DLM2/GDP-5	-0.67235	0.35349	-1.902	0.1975	0.6440
DS/Y	1.1072	0.82331	1.345	0.3109	0.4749
DS/Y-2	-0.47053	0.75213	-0.626	0.5955	0.1637
DS/Y-3	1.0822	0.86627	1.249	0.3380	0.4383
DS/Y-4	-0.27751	0.42691	-0.650	0.5824	0.1744
DS/Y-5	-0.41471	0.40134	-1.033	0.4100	0.3481
ECM-1	0.30076	0.58662	0.513	0.6592	0.1162

R^2= 0.863839
F-Statistic= 0.74638[0.7118]
δ = 0.0502462
DW =1.77

Modelling DLM2/GDP by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	Partial R^2
Constant	-0.026901	0.044850	-0.600	0.6561	0.2646
DLM2/GDP-1	-0.37217	0.52597	-0.708	0.6080	0.3336
DLM2/GDP-2	0.079946	0.25056	0.319	0.8034	0.0924
DLM2/GDP-3	-0.37510	0.35471	-1.057	0.4822	0.5279
DLM2/GDP-4	0.54308	0.14704	3.693	0.1683	0.9317
DLM2/GDP-5	0.40593	0.26789	1.515	0.3714	0.6966
DLy/N	0.39738	0.36127	1.100	0.4697	0.5475
DLy/N-1	0.79645	0.24054	3.311	0.1867	0.9164
DLy/N-2	0.47016	0.36842	1.276	0.4231	0.6196
DLy/N-3	-0.40765	0.28451	-1.433	0.3879	0.6725
DLy/N-4	0.82615	0.54636	1.512	0.3720	0.6957
DLy/N-5	1.0609	0.66393	1.598	0.3560	0.7186
DS/Y	-0.71034	0.29916	-2.374	0.2538	0.8493
DS/Y-1	-0.28158	0.71842	-0.392	0.7622	0.1332
DS/Y-2	0.029154	0.82818	0.035	0.9776	0.0012
DS/Y-3	-1.1044	0.88718	-1.245	0.4308	0.6078
DS/Y-4	-0.056027	0.39543	-0.142	0.9104	0.0197
DS/Y-5	0.33464	0.24908	1.344	0.4073	0.6435
ECM-1	-0.026901	0.46465	0.166	0.8954	0.0268

$R^2 = 0.991013$
F-Statistic= 6.1259[0.3091]
$\delta = 0.0355621$
DW = 1.86

Modelling DS/Y by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	Partial R^2
Constant	-0.057835	0.054947	-1.053	0.4837	0.5256
DS/Y-1	0.096489	0.88817	0.109	0.9311	0.0117
DS/Y-2	0.58771	0.93641	0.628	0.6432	0.2826
DS/Y-3	-0.73171	1.1952	-0.612	0.6503	0.2726
DS/Y-4	0.19521	0.55620	0.351	0.7851	0.1097
DS/Y-5	0.35707	0.25546	1.398	0.3953	0.6614
DLM2/GDP	-1.1513	0.37888	-3.039	0.2024	0.9023
DLM2/GDP-1	-0.21205	0.47046	-0.451	0.7304	0.1688
DLM2/GDP-2	0.16399	0.22713	0.722	0.6019	0.3427
DLM2/GDP-3	-0.29345	0.36672	-0.800	0.5704	0.3904
DLM2/GDP-4	0.61480	0.27670	2.222	0.2692	0.8316
DLM2/GDP-5	0.37029	0.38026	0.974	0.5085	0.4867
DLy/N	0.43380	0.43329	1.001	0.4996	0.5006
DLy/N-1	0.92764	0.38366	2.418	0.2497	0.8539
DLy/N-2	0.72694	0.39115	1.858	0.3143	0.7755
DLy/N-3	-0.38754	0.41067	-0.944	0.5184	0.4711
DLy/N-4	0.71064	0.57697	1.232	0.4341	0.6027
DLy/N-5	0.90570	0.80916	1.119	0.4642	0.5561
ECM-1	-0.22708	0.50885	-0.446	0.7328	0.1661

$R^2 = 0.971666$
F-Statistic= 1.9052[0.5219]
$\delta = 0.0424589$
DW = 2.49

ABOUT THE AUTHOR

Nicholas M. Odhiambo is a Professor of Economics at the University of South Africa (UNISA) and an NRF-rated Researcher. He holds a PhD (Economics) degree from Stellenbosch University (South Africa) and a Master's degree in Economics from the University of Dar-es-salaam (Tanzania). Prof Odhiambo's research areas are broad and mainly revolve around macroeconomic modelling and policy analysis in developing countries. During the past ten years, Prof Odhiambo has published numerous articles in various internationally recognised journals. Prof Odhiambo is listed in a number of international bibliographies and databases, and is currently a member of the Editorial Board of a number of prominent journals.

ABOUT THE BOOK

Since the origin of the new orthodoxy of financial liberalisation, many developing countries have implemented far-reaching financial reforms. Unfortunately, the experiences of many countries regarding the efficacy of financial liberalisation have been, at best, inconclusive. While the beneficial effects of the financial liberalisation policy are undeniable, the theoretical arguments against financial liberalisation are steadily increasing in number and substance. In fact, some economists now believe that the beneficial effects of financial liberalisation were either oversold to the developing countries, or were grossly misunderstood by the developing countries. Others have also argued that the efficacy of financial liberalisation differs from country to country and over time. Whether financial liberalisation positively impacts on economic growth, as postulated by the proponents of financial liberalisation policy, therefore, remains an empirical issue. This book re-enforces this debate by examining the impact of financial liberalisation in four SADC countries, namely South Africa, Tanzania, Zambia and Lesotho – using novel empirical techniques. Specifically, the book attempts to answer two overarching questions: i) Does financial liberalisation (proxied by a flexible interest rate) lead to financial deepening? ii) Does financial deepening which results from financial liberalisation Granger-cause economic growth? The empirical findings of this book show that

there is strong support for the positive impact of financial liberalisation on financial deepening in the four study countries. However, the financial depth which results from financial liberalisation only Granger-causes economic growth in one country, i.e. Zambia. The book, therefore, concludes that the relationship between financial liberalisation and economic growth is at best ambiguous, and may be sensitive to a country's level of financial development.