

Financial Development and Economic Growth in a Small and Open African Economy: Evidence from Lesotho

By

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Abstract

The study uses the Vector Autoregressive Model, Cointegration and the Error Correction Model to determine the contribution of financial intermediation per capita GDP growth and to explore the various macroeconomic determinants of FI in Lesotho. In addition, tests of weak exogeneity, impulse response and variance decomposition analysis were carried out to establish the nature of causality between FI and economic growth in Lesotho. The results overwhelmingly indicate a weak relationship between FI and per capita GDP in Lesotho. Moreover, the econometric analyses suggest very little evidence of the role of macroeconomic variables in explaining FI and per capita GDP in Lesotho.

Key Words: VAR, ECM, Financial Development, Economic Growth

JEL Classification: C22, E44, N27

1. Introduction

The role of financial intermediaries such as banks in economic growth has attracted much interest among academics, policy makers and economists around the world and has resulted in a large body of literature, both at the theoretical and the empirical levels, that addresses the potential links between financial development and economic growth¹.

Financial intermediaries perform several functions in order to ease information, enforcement and transaction costs in financial transactions that might in turn lead to growth. These functions, as listed by Levine (2004: 5) include: production of information *ex ante* about possible investments and the allocation of capital; monitoring investments and exerting corporate governance after providing finance; facilitating the trading, diversification, and management of risk; mobilisation and pooling of savings; and easing the exchange of goods and services. Financial development may be said to occur when financial intermediaries by performing these functions help to ameliorate – though do not necessarily eliminate - the effects of information, enforcement, and transaction costs in financial transactions. Thus, financial development involves improvements in (i) the production of *ex ante* information about possible investments, (ii) monitoring of investments and implementation of corporate governance, (iii) trading, diversification and management of risk, (iv) mobilisation and pooling of savings, and (v) exchange of goods and services (Levine 2004: 5).

Some of the literature (*e.g.* Greenwood and Jovanovic, 1990; Bencivenga and Smith, 1991; Levine, 1991; Boyd and Smith, 1992, and Saint-Paul, 1992) tries to establish the precise mechanism through which financial systems might influence economic development by attempting to model explicitly the services provided by financial intermediaries (such as information collection and analysis, risk reduction and sharing, liquidity provision *etc.*). For example, Greenwood and Jovanovic (1990) develop a model in which both financial development and growth are endogenously determined. With respect to the growth effects of financial development, they demonstrated that by pooling idiosyncratic investment risks and eliminating *ex ante* uncertainty about rates of returns, financial development could lead to faster growth. In the model proposed by Bencivenga and Smith (1991), it was shown that the development of banks increases economic growth by channelling savings to the activity with high productivity, but with risky and illiquid assets, while allowing individuals to reduce the risk associated with their liquidity needs. In their model, Roubini and Sala-i-Martin (1992) show that

¹ See Levine (2004) for a review of such studies.

financial repression reduces the productivity of capital and lowers savings, thereby hampering growth.

Therefore, as Garcia and Liu (1999:32) note, by specializing in collecting information, evaluating projects, reducing and sharing risks and providing liquidity, an efficient financial system increases financial saving, improves the allocation of capital to its most productive uses, provides incentives for the accumulation of physical and human capital, and minimises the amount of resources that are absorbed in the process of intermediation.

The focus of many empirical studies, such as those of Roubini and Sala-i-Martin (1992), Demetriades and Hussein (1996) and Luintel and Khan (1999), is to determine whether or not there is a significant causal link running from financial development to economic growth. In doing this, authors often compute some indicators of financial development which are then used in regression models that either use cross sectional/panel data techniques applied to a number of countries (see, for example Jung (1986), Roubini and Sala-i-Martin (1992), King and Levine (1992, 1993), and Luintel and Khan (1999)) or use country-specific time series techniques, as for example, Odedokun (1989) for Nigeria, Lyons and Murinde (1994) for Ghana, Murinde and Eng (1994) for Singapore, Demetriades and Hussein (1996) for 16 developing countries, Agung and Ford (1998) for Indonesia and Wood (1993) for Barbados.

The evidence from the empirical literature remains largely inconclusive. While some, especially the cross sectional/panel data studies, have found evidence of a significant positive relationship between indicators of financial development and economic growth, others did not. The bulk of the opposing literature consists of time-series country-specific studies, for example Berthelemy and Varoudakis (1996), Demetriades and Hussein (1996), Neusser and Kugler (1996), Arestis and Demetriades (1997), Ram (1999), Sinha and Macri (2001) and Shan *et al.* (2001).

Motivated by such conflicting results, Bloch and Tang (2003) use both time-series country-specific and cross-country methods to provide further evidence on the issue for 75 countries. The majority of those studied are developing countries and some emerging market economies. Bloch and Tang found that only 26 countries out of 75 showed a positive correlation with only one country having a significant relationship at the 5% level; whereas, 49 countries showed a negative correlation, out of which 21 were statistically significant at the 5% level. This casts further doubt on the conclusion that there is a positive correlation between financial development and economic growth. However, when the authors employed cross-country regression techniques, they obtained a highly significant coefficient of the financial indicator as

an explanatory variable of growth in *per capita* GDP. The coefficient was equally significant when a balanced panel data approach was used. Bloch and Tang blamed the contrasting results, among other things, on the weaknesses of the cross-country/panel data methods. As noted by them, ‘these approaches often give all countries, either small or large, an equal weighting since they are assumed to be homogeneous; and the coefficients represent only an average relationship, which may or may not apply to individual countries in the sample’ (Bloch and Tang 2003: 250). Similar criticism of the cross-country/panel data approach was earlier made by Arestis and Demetriades (1997) and Demetriades and Hussein (1996). Specifically, Demetriades and Hussein (1996) noted that a cross-sectional framework cannot satisfactorily be used to test for causality between financial development and economic growth because causality patterns may be different across countries².

Using the time-series country-specific framework as in Arestis and Demetriades (1997), this study provides evidence of the relationship between financial development and economic growth in Lesotho, where such studies are currently lacking. This study further explores the macroeconomic determinants of financial development in the country. The evidence obtained in this study suggests a weak causal link between financial development and economic growth in Lesotho. It also shows that macroeconomic variables, such as changes in the inflation rate, *per capita* GDP, size of government, exchange rate movement and interest rate spread, play a very small role in explaining the development of financial intermediation (FI), as well as economic growth in the country. The results thus suggest that institutional and structural factors and the nature of its external dependence may have played a much greater role in explaining the growth of the Lesotho economy and the development of its FI.

The rest of the paper is organized as follows: section 2 provides an overview of the Lesotho economy; section 3 presents the model and the analytical framework used in the study; section 4 presents the results and section 5 is the conclusion.

2. Overview of the Lesotho Economy

Preamble

The kingdom of Lesotho is a small landlocked country, surrounded by South Africa, with a total land area of approximately 30, 355 sq. km (approximately 2.5% of the size of South Africa). It is situated at a height of more than 1,000 metres above sea level. This makes Lesotho

²In the study by Demetriades and Hussein (1996), where causality was tested for in 16 developing countries, it was found that causality between financial development and economic growth varies across countries.

the coldest country in Africa, but also entirely free from all the tropical diseases that create problems for most other African countries (Braimoh, 1998). Of the total land area, less than 13% is believed to be arable. The total population was estimated at 2.1 million in 2000, which represents about 5% of South Africa's population.

By any standard, Lesotho is a poor nation with a *per capita* income of US\$386 in 2001 and with about 43% of the population living on less than US\$1 a day between 1990 and 2001 (UNDP, 2003). Also according to the UNDP Human Development Report 2003, Lesotho is ranked 137 out of 175 countries in the world, using the human development index (HDI) and 83 out of 94 developing countries using the human poverty index (HPI). Not only is Lesotho a poor nation, but there is also great disparity in the distribution of income, with the share of the poorest 20% of the population in the national income or consumption being only 1.4 % of the total and the richest 10% of the population having over 117 times the income or consumption of the poorest 10% (UNDP, 2003: 284). Lesotho also faces the daunting challenge of an increasing HIV/AIDS pandemic. It is estimated that 24% of individuals aged between 15 and 49 are infected with HIV, amounting to some 240,000 individuals in 1999 (UN AIDS, 1999 estimates, quoted in Genesis Analytics 2003).

Moreover, the overall economy, measured in terms of *per capita* GNP, has performed very poorly in the last decade. As shown in Table 1 below, between 1990 and 2002, the GNP (*per capita*) declined on average by 1.28 percent, whereas during the same period, the country's population grew by about 2 percentage points. Thus there is an urgent need to stimulate the growth of the economy, which is already in decline.

Table 1: Selected Indicators of Macroeconomic Performance in Lesotho

Year	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	Period Average
Growth in Real GNP %	4.8	-3.9	6.8	3.1	1.1	1.3	4.4	5.8	-9.0	-3.9	-3.2	0.6	2.0	0.76
Growth in per capita GNP %	2.8	-6.3	4.3	0.8	-1.1	-0.9	2.3	3.7	-11.0	-6.0	-5.2	-1.5	1.5	-1.28
Pop growth %	1.8	2.3	2.84	2.2	2.2	2.1	2.1	2.0	2.5	1.9	1.9	2.3	0.5	2.05

Source: Bureau of Statistics (2003) *Statistical Report: National Accounts 1982-2002*

External Dependence

Apart from the fact that Lesotho is a small and poor country, it is also heavily dependent on the foreign sector, particularly South Africa. This is largely as a result of its geographical

location within South Africa and some cooperation arrangements (both bilateral and regional) of which Lesotho is a member. These include the Southern African Customs Union (SACU), the Common Monetary Area (CMA) and the Southern African Development Community (SADC). The major arrangements that have the most important implications for Lesotho, in terms of its dependence, are the SACU and the CMA. The SACU³ allows for free movement of goods and services among member countries and a common external tariff. Moreover, the smaller SACU members agreed to maintain a custom duty structure similar to that in South Africa, while South Africa in turn agreed to compensate them for loss of fiscal discretion.

The CMA began as an informal monetary union in 1910 and remained until 1974 with unrestricted flow of capital among member states. In 1974, the Rand Monetary Area agreement was signed and was later replaced by the CMA in 1986. Under the single exchange control territory, there are virtually no restrictions applicable to payments and movement of funds among member countries, Lesotho, South Africa and Swaziland and, lately, Namibia. However, in relation to other countries outside the single exchange control territory, fairly liberal exchange controls are applied (Akano, 1998). Moreover, under this arrangement, the loti, the currency of Lesotho, is pegged to and at par with the South African rand and the rand freely circulates, as legal tender within Lesotho, although, the loti is not legal tender in South Africa.

The location and the integration arrangements have made Lesotho's economy dependent on the foreign sector in several ways. For instance, Lesotho depends on the SACU receipts as a major source of government revenue, on remittances from migrant workers in South Africa as a source of income, and on imports and exports. Besides, Lesotho also depends on official development assistance from foreign countries and institutions, external borrowing and foreign direct investments (FDI). The extent of the dependence of the economy of Lesotho on the foreign sector can be seen from the different indicators provided in Figures 1A and 2A, and Table 1A (all in Appendix A).

The first two rows provide information on the extent to which Lesotho depends on SACU transfer as a source of government revenue. Although, the growth of the SACU receipts has declined over time, it still, on average, represents about 51% of government revenue (excluding grants). Apparently, without that source of revenue, the Lesotho government would have a tough time financing its budgets and meeting its obligations to its citizens. Lesotho also receives large remittances from migrant labour working in South Africa (especially in the mines). Though the

³ The SACU members at present include Botswana, Lesotho, Namibia, South Africa and Swaziland. The first SACU agreement was signed in 1910, later in 1969 and most recently in 2002.

number of Basotho employed in mining has declined over the past decade, the income from this source remains very important to the economy. Without such income from abroad, Lesotho would have been dis-saving at a significant rate, since its aggregate consumption has consistently exceeded its GDP over the past decade.

In terms of trade, Lesotho is more dependent on imports than on exports. On average, between 1991 and 2003, Lesotho's imports exceeded its total GDP (Table 1A). The majority of the imports were from the SACU countries (mainly South Africa). The extent of Lesotho's dependence on imports, though still high, has begun to decline, especially since 1999. Over time, Lesotho's reliance on exports has been minimal; on average, between 1991 and 2003, exports as a percentage of GDP were around 20 % and most of the exports were to South Africa. However, since 2000, exports from Lesotho have recorded a rapid growth with most of the exports going to countries outside the SACU, especially the USA. This is a result of the America Growth and Opportunity Act (AGOA) agreement of 2000 with Lesotho.

Lesotho has also benefited greatly from official development assistance (ODA) from other countries (developed countries) and international donor institutions. For instance, in 1990, ODA constituted about 23% of the total gross domestic products (GDP). There is, however, a rapidly declining trend in the level of ODA received in recent years. From a level of 23% of GDP in 1990, it reached a low level of 6.8 % of GDP in 2001 (UNDP, 2003: 293). Meanwhile the external debt is increasingly becoming a worrisome phenomenon in Lesotho. The total foreign debt as a percentage of GDP has remained very high, averaging about 60% between 1991 and 2003. The external debt burden has also been high. Measuring total debt service as a percentage of the export of goods and services, the external debt burden reveals a very precarious pattern. This indicator shows an increase in the debt burden of about 195 percent between 1990 and 2001 (UNDP, 2003: 293).

Foreign direct investment (FDI) has experienced moderate growth since the late 1990s. From a level of 2.7 % of GDP in 1990, it rose to 14.7 % of GDP in 2001 (UNDP, 2003: 293). This is due mainly to two developments in the economy - the continued investment in the construction of the Lesotho Highlands Water Project (LHWP) and the AGOA agreement of 2000 with Lesotho, which has attracted some direct investments in the textile industries. It is expected that the growth may be short-lived, since the two arrangements are not expected to continue for long.

The Lesotho Financial System and Financial Intermediation

The financial system in Lesotho is made up of the Central Bank of Lesotho, three commercial banks, a few insurance companies / pension funds and some microlending institutions⁴. The Central Bank of Lesotho is responsible for the regulation of the commercial banks. In general the financial system is very underdeveloped. The Lesotho banking sector is dominated by foreign ownership of the banks. At present, three banks operate in the country – Lesotho Bank (1999) Ltd, Standard Bank of Lesotho and Nedbank Lesotho. The latter two are fully owned by South African Banks – Standard Bank Investment Corp. Ltd and Nedcor Group respectively. In addition, 70 % of the shares of the Lesotho Bank (1999) Ltd is owned by Standard Bank Lesotho. The Government of Lesotho and Lesotho Unit Trust (also a part of the Standard Bank Group) each own 15% of the remaining 30% percent of the shares. By virtue of this, one can safely conclude that there are *de facto* two banks in Lesotho at the moment, Standard Bank and Nedbank. As at 2002, the Standard Bank controls about 85% of the assets of the banking industry, while Nedbank controls only about 15% (Genesis-Analytics (2004: 133). This shows how concentrated the banking sector is with little or no competition among the players.

Table 2A and Figure 3A and 4A (all in Appendix A) provide some indicators of financial intermediation in Lesotho. These are the ratio of liquid liabilities of commercial bank to GDP (row 1), where liquid liabilities is the sum of demand deposits, savings and time deposits and government deposits with the commercial banks; ratio of commercial bank credit to the private sector to GDP (row 2); the ratio of private sector credit to liquid liabilities of commercial bank (row 3); commercial bank private sector credit as a percentage of private sector deposit with commercial banks (row 5); Credit to businesses as percentage of total credit to the private sector by the banking system (row 6); credit to households as a percent of total credit to the private sector by the banking system (row 7) and the interest rate spread (row 9).

The ratio of liquid liabilities to GDP is a measure of the size of financial intermediation in an economy. Liquid liability as a percentage of GDP averaged about 50 % between 1991 and 2003. As shown in Figure 3A, except in 1999, when it experienced a sudden rise, the value of this indicator in Lesotho has remained fairly constant over time.

The ratio of private credit to nominal GDP indicates the important role played by the financial sector, especially the commercial banks, in the financing of the economy. It isolates credit issued to the private sector from credit issued to governments, government agencies, and

⁴ For a more detail discussion of the non-bank financial institutions see Genesis Analytics (2003).

public enterprises. Also, it excludes credit issued by the Central Bank⁵ (Levine *et al.*, 2000). The underlying assumption is that credit provided to the private sector generates increases in investment and productivity to a much larger extent than does credit to the public sector. It is also argued that loans to the private sector are given under more stringent conditions and that the improved quality of investment emanating from financial intermediaries' evaluations of project viability is more significant for private sector credit⁶ (Levine and Zervos, 1998 and Levine, 1998). As can be seen from Figure 3A, the value of this indicator has remained very low over time, averaging about 17% of GDP between 1991 and 1997, but most worrisome is the fact that its value plunged to a very low level of less than 5% of GDP on average annually from 1998 to 2003. The sharp decline in the extent to which commercial banks finance the economy may have resulted from the aftermath of the 1998 political crisis in the country. The large-scale destruction of properties and businesses during the crisis may have increased the expected risk of investment by banks in Lesotho, which must have made them seek alternative avenues elsewhere to invest their funds.

The ratio of commercial bank credit to liquid liabilities tries to assess the lending activities in relation to the abilities of commercial banks to extend credit. It shows the extent to which the banks use deposits mobilized from the economy to lend to the private sector. This indicator also reveals a sharp decline since 1998 when it hovers around 10% as compared to an average of more than 40% between 1991 and 1997. Also, up till 1997, this indicator recorded a permanent increase, reaching a peak of 51% in 1997.

Besides the fact that the level of commercial bank credit to the private sector has remained low over time and declined sharply since 1998, the statistics also reflect a general shift of resources from productive investment to consumption. As can be seen from row 6 (Table 2A), between 1991 and 1996, credit to businesses dominated the total credit to the private sector, averaging about 70%, however this has continued to decline, reaching a low level of 35% in 2003. It is disturbing to note that the recorded decline has persisted throughout the past decade. Moreover, the few business credits are distributed in a highly disproportionate manner. As shown by CBL (2002: 11), the bulk of this credit is concentrated in the hands of a few large businesses, often the foreign-owned resident companies rather than local entrepreneurs.

⁵ A general finding is that Central Banks lose relative importance as one moves from low to high-income countries, and other financial institutions gain relative importance. Thus, by excluding central bank credit, private credit provides a measure of relative size of financial intermediaries (Beck *et al.*, 1999).

⁶ However, where private loans are politically influenced, this ratio may not be efficient.

Meanwhile, the credit to household (for consumption) as share of total credit to the private sector has experienced a steady increase over time, except in 1998 when it plunged to a very low level. The extent to which the banks' credit has shifted to households as opposed to businesses for productive investments is further highlighted when one takes into account the fact that most (over 90%) of the mortgage credits are also granted to households rather than corporate investors (CBL, 2003). Mortgage credit as a percentage of total credit to the private sector, which was very low between 1991 and 1997, has recorded a rapid increase since 1998, accounting for over 30% of total private credit on average annually between 1998 and 2003 (see row 8). Thus, while financing of productive investment has decelerated rapidly over time, credit for financing household consumption has increased rapidly. Since most consumer goods are imported from abroad (particularly South Africa), the increasing household credits will have very little positive impact on the economy of Lesotho; instead, the growth effects will be felt abroad where the imported goods are produced.

Lastly, theory suggests that interest rate spread, which represents the cost of financial intermediation in a competitive environment, should fall as the level of financial intermediation increases. It is not surprising therefore that the cost of intermediation has not only remained high, but has widened further in Lesotho, given the low and declining level of intermediation in the country. As shown in Figure 4, the interest rates spread hovered around 7.5% between 1991 and 1997, but by 1999 it had reached a peak of 14 %, while the average remained at about 12.9% between 1998 and 2003. This is by far the highest in all the SACU countries (Aziakpono, 2004). When compared with Lesotho, as shown in Figure 4, the spread in South Africa is not only far lower, but has also remained fairly stable over time. With low deposit rates, savers will continue to find it unattractive to save with banks in Lesotho; on the other hand, high lending rates means that there is little incentive for the borrower who would like to borrow from banks for productive investment. It thus appears that Lesotho is trapped in a vicious cycle of low intermediation and high spread. Because the level of financial intermediation is low, the cost of intermediation is high, which in turn leads to low intermediation as economic agents find few incentives to do business with the banks. This will mean an outward flow of funds both on the part of individuals and banks in search of higher returns and secure investments.

Institutional and Structural Impediments in Lesotho

Institutional and structural problems and the role they play in retarding economic and financial development have gained currency in the literature (Bardhan, 1996, Levine *et al.*, 2000,

Rother, 2001). In Lesotho, concern about these problems has featured prominently in public debates, which culminated in a stakeholder workshop organized by the Central Bank of Lesotho in 2002. In its position paper presented at the workshop, the CBL aptly articulated the institutional and structural problems. A summary of these problems can also be found in Genesis Analytics (2003:9-10). They include:

- The problem of the banking institutions themselves, namely:
 - i. Limited range of financial instruments - mainly limited to cheque and saving deposit accounts which often do not meet the risk and liquidity needs of people and companies;
 - ii. Poor banking practices and corporate governance (which has led to the collapse of the two local banks – the Lesotho Bank and the LADB);
 - iii. Inefficiencies in banking operations – resulting in long queues and time wasted in bank transactions;
 - iv. Low returns on deposits and high charges, due mainly to a lack of competition;
 - v. A limited bank branch network, which makes access to banking services difficult in many parts of the country;

A combination of all or some of these factors makes it more attractive for many individuals and companies to save and invest with banks outside the country where they are assured of better returns, more efficient service and secure investment, which in turn reduces the ability of banks to mobilize deposits within the country.

- A lack of bankable projects arising from the generally limited entrepreneurial culture and the low level of education of most entrepreneurs, which makes it difficult for them to prepare good proposals that would be attractive to banks.
- Legal system - often very slow because of limited resources (especially qualified and experienced personnel) and a bureaucratic judicial system that is weak in terms of capacity to enforce its judgements.
- Property rights problems – often non-existent or ill-defined, which make it difficult for many individuals to supply the needed collateral for a loan contract.
- A poor loan repayment culture, encouraged by the ease with which individuals can change or use a different identity.

- Weak contractual capacity, especially among women entrepreneurs, who may not be able to sign loan contracts because the law does not give them the right to do so without the permission of their husbands.
- The bad terrain and poor infrastructure, which limit the ability of banks to expand their branch network and thus increase access. It also limits the types and location of assets that can be used as collateral for a loan contract. For instance, banks may be unwilling to accept as collateral a property in the mountainous area because of the difficulties that might arise with regard to resale or trade in, in the event of default by the borrower.

Apparently, these problems make lending by banks to local entrepreneurs in Lesotho relatively unattractive⁷, hence limiting the volume of credit extension within the economy.

- The 1998 political crisis, which created a sense of insecurity of life, property and investments, and caused many individuals, companies and the banks to invest offshore as a precaution against losses in the event of a similar crisis.

In the light of all of these problems it is clear why the level of FI has remained very low and its contribution to economic growth may be insignificant. The problems emanating from the weak institutions and structural impediments are further exacerbated and reinforced by some negative externalities as a result of being a member of the CMA and SACU. The CMA agreement, which permits the free flow of funds among member countries, coupled with the fact that most banks are branches of South African banks, makes it easy for economic agents to invest their funds wherever they want to within the CMA. With relatively better opportunities – higher returns, better services, less risky options - elsewhere, it is only natural to expect that rational economic agents (in this case, individuals, banks and companies) will prefer to invest in the other CMA countries, rather than investing in Lesotho. Thus, given the relatively weak

⁷ There is also the problem of restrictive government policies, which may have inadvertently discouraged the advancement of credit to the private sector for productive investments. As noted in the paper presented by the Central Bank of Lesotho (CBL) in 2002, such policies include the use of credit ceilings by the CBL for controlling money supply between 1988 and 1996, which restricted the growth of the banks' loan portfolios. Such restrictions on aggregate lending constrain banks to lend only to the best clients and established companies, especially the foreign-owned resident companies. As the paper further noted, following the imposition of the Minimum Local Assets Requirement (MLAR) in 1981, the CBL adopted a policy of paying interest on commercial banks' surplus funds. This provided banks with a relatively risk-free investment opportunity compared to lending to private investors.

financial systems, coupled with low returns and other institutional and structural problems, Lesotho will continue to lose the advantages of financial intermediation to other members of the union, especially South Africa.

Similarly, with the relatively easy movement of people and goods across the border, by virtue of the SACU and SADC arrangements, Lesotho residents have increasingly developed a taste for shopping in South Africa. To facilitate the importation of goods, both firms and individuals increasingly tend to operate dual bank accounts, one with South African banks across the border and the other with domestic banks. Moreover, it is the case that as the income of people and companies grows, they tend to open offshore accounts (with South African banks). It is likely that the larger part of their funds is held across the border, not only to finance their purchases, but in many instances, to carry out other financial transactions, given the better services and higher interest rates offered in South Africa.

The exact extent of contribution of financial intermediation to economic growth will be analysed in section 4, but first the method of analysis and the model specification are discussed in section 3.

3. Analytical methods and Model Specification

3.1 Growth Model

The empirical analysis of the effects of FI on economic growth is often accomplished using regression analysis, which is either explicitly or implicitly based on a theoretical framework of endogenous growth models (*e.g.* King and Levine, 1992, 1993b, 1993c and Odedokun, 1998). Following the practice in most studies (*e.g.* Levine, Loayza and Beck, 2000; Allen and Ndikumana, 1998) this study will estimate a growth model of the following form, which incorporates an index of FI as part of the explanatory variables:

$$g_i = \alpha + \beta X_i + \Phi Z_i + u_i \quad (1)$$

where g = growth rate of real income *per capita* or growth in real GDP.

X = financial intermediation variable

Z = vector of variables added to control for effects of other growth determining factors

α = the intercept

β = vector of the coefficient of X

Φ = vector of the coefficient of Z .

Variables often added to control for the possible effects of other growth determining factors include inflation, size of government, a measure of openness to trade, exchange rate and human capital variable (Levine, 1997: 707).

The inflation rate and extent of government expenditure are commonly used as indicators of macroeconomic stability (Easterly and Rebelo, 1993; Fischer, 1993; Allen and Ndikumana, 1998 and Levine *et al.*, 2000). High inflation distorts economic activity and reduces investment in productive enterprises, thus reducing economic growth. As noted by Garcia and Liu (1999), while a stable inflation rate may not represent much instability, a volatile - “inflation rate that bounces around a lot”- represents an unstable macroeconomic environment. Following Garcia and Liu (1999), this study uses the change in inflation rates. Government expenditure could reduce economic growth because of the crowding out effect on private investment and the inflationary pressures it can lead to (Allen and Ndikumana, 1998). The study employs the ratio of government expenditure to nominal GDP as a measure of the size of government.

The effect of international trade on growth is captured by the openness variable, which is measured as the sum of imports and exports as a percentage of nominal GDP (Levine *et al.*, 2000). Theoretically, the effects of trade can be negative or positive; as such, the net effects can be determined only empirically. The exchange rate variable has been introduced to capture the price distortion effects it may have on the economy. The rate of change in the nominal exchange rate of the loti to the US\$ is used. A rapidly changing or fluctuating exchange rate should, in theory, hinder economic growth. Growth theory suggests a positive relationship between education and economic growth (see Barro, 1991). In determining the variables that will finally enter the model, consideration is given not only to the economic theory, but also to the time series properties of the data to be used.

3.2 *Determinants of Financial Intermediation*

In order to assess the determinants of FI, the study estimates an equilibrium model of FI as specified in equation 4 below. Following Rother (2001) and Aziakpono (2004), the demand for financial intermediation (*FID*) can be specified as follows:

$$FID = f(GY, IRD, DR, INF, ER, X^s) \quad (2)$$

$\begin{matrix} + & - & + & - & -/+ & \end{matrix}$

Where *GY* is the growth in *per capita* income (GDP); *IRD* is the differential between interest on credit and deposit. *DR* is the interest rate on savings deposits, *INF* is the inflation rate and *ER* is the exchange rate. The expected signs of the partial derivatives are indicated below the

variables. X^s represents other variables - including institutional/ structural and other macroeconomic variables. Similarly, the supply of financial intermediation (FIS) can be described by the following equation:

$$FIS = h(GY, IRD, LR, INF, ER, X^s) \quad (3)$$

$\begin{matrix} + & & -/+ & + & - & -/+ \end{matrix}$

where LR is the lending interest rate. The equilibrium level of (FI) combines the demand and supply factors as follows:

$$FI = g(GY, IRD, INF, ER, X^s) \quad (4)$$

$\begin{matrix} + & & -/+ & - & -/+ \end{matrix}$

The equation (4) omits other variables influencing separately the demand for and supply of FI. The expected signs are as shown below each variable.

3.3 *Measuring financial intermediation and economic growth*

For the purpose of this study, three indexes of FI are employed because of data availability and to conform to the practice in many studies. These are FIC i.e. the ratio of credit extended to the private sector by commercial banks as a percentage of GDP; FIL i.e. the ratio of liquid liabilities of commercial banks to nominal GDP (Liquid liabilities equal demand deposit plus time and savings deposits); FICL i.e. the ratio of commercial bank private sector credit as a percent of their liquid liabilities. The variables are used in log form, where LFIC, LFIL and LFICL are the corresponding log form of each of the three measurements of FI.

The measure of economic growth in the literature is less controversial than that of FI, but nonetheless not the same across studies. The measures of economic growth used in the literature include: growth rate of real *per capita* GDP (King and Levine, 1992; Jung, 1996), real GDP growth (Wood, 1993), the average rate of growth in the capital stock per person and total productivity growth⁸ (King and Levine, 1993b, 1993c), real GDP (Murinde and Eng, 1994; Kadhikwa, 2002) and the index of industrial production (Gupta, 1984). In general, empirical growth literature tends to support the use of growth in *per capita* GDP. For the purposes of this study, both the *per capita* GDP growth and the log of *per capita* real GDP are employed.

3.4 **Econometrics procedures**

This study employs cointegration and vector error correction, using the Johansen (1988) and Johansen and Juselius (1992) approach. The estimation begins with a unit root test to

⁸ This is a “Solow residual” defined as real *per capita* GDP growth minus (0.3) times the growth rate of the capital stock per person.

confirm that all the variables of the model are suitable to be included for cointegration. The next step is to formulate and estimate the appropriate VAR model. Thereafter, suitable trace tests and maximum eigenvalues tests are undertaken to identify the number of cointegrating vectors in the model. Then the long-run estimation (cointegrating regression) is obtained from the normalized coefficients of the model generated from the cointegrating vector. Lastly, the short run VECM model is estimated. Since, the cointegration and error correction methodology has been extensively used, a full description of the methods will not be given here.

In order to address the question of causality between financial intermediation and economic growth, exogeneity test, impulse responses and variance decomposition analyses were carried out. A variable is said to be weakly exogenous if the error correction term is statistically insignificant in its relevant equation, in which case the variable is not adjusting to the long-run equilibrium path (Boulila and Trabelsi, 2003:12). The weak exogeneity test will be carried out following the method suggested in Johansen (1992).

Impulse response is the time paths of one or more variables as a function of a one-time shock to a given variable or set of variables (Ramos, 1995). An impulse response function traces the effect of a one-time shock to one of the innovations on current and future values of the endogenous variables through the dynamic lag structure of the VAR. Unlike the impulse response, which traces the effects of a shock to one endogenous variable to the other variables in the VAR, variance decomposition provides information about the relative importance of each random innovation in affecting the variables in the VAR (E-view 5 manual). If other variables in the model cannot be used to predict a particular variable in the system, a large proportion of that variable's error variance would be explained by its own innovations (Ramos, 1995:22). In that case, the variable is exogenous in the Granger sense.

Finally, diagnostic tests of the stochastic properties of the models (residual normality, serial correlation and heteroskedasticity) would be carried out. First, the study uses the multivariate extension of the Jarque-Bera (JB) residual normality test to test the null hypothesis that the residuals are normally distributed. The absence of normal distribution of the residual, however, may not render a cointegration test invalid (Islam and Ahmed, 1999) A more important issue in cointegration analysis is whether the residuals are uncorrelated and homoskedastic (Islam and Ahmed, 1999). In this study, the null hypothesis of no serial correlation in the residual will be tested using the Lagrange Multiplier (LM) test. This will be based on the same lag order as that of the corresponding VAR order (Harris, 1995: 82). The null hypothesis of no

heteroskedasticity will be tested using the White heteroskedasticity test. This is the extension of White's (1980) test to systems of equations as discussed by Kelejian (1982) and Doornik (1995).

3.5 Data Sources

Data for the study is generated from published materials from the Central Bank of Lesotho, the Bureau of Statistics and IMF sources such as the International Financial Statistics. Quarterly data from 1980:1 to 2001:4 is employed in the analysis and where the available data is reported annually, this has been converted into quarterly data using an appropriate interpolation methodology⁹.

4. Empirical Results

4.1 Unit Root Test Results

Insert Table 2

This study uses the Augmented Dickey-Fuller (ADF) and Phillip-Perron (PP) tests as well as the Generalized Least Squares (GLS) detrended Dickey-Fuller (DF-GLS) test proposed by Elliot, Rothenberg and Stock (1996) to test for unit root. Table 2 reports the unit root test results using the ADF, PP and the DF-GLS tests. For each variable, the results of the tests are reported for the conditional hypothesis¹⁰, (whether the variable has a drift and/or a deterministic trend), the values at which the null hypothesis for unit root was rejected and the corresponding test level (whether the variable was in level or first difference) and the lag length at which the SC criterion was satisfied. In using the SC criterion to select the lag lengths, an optimal lag of 4 was chosen since the data are quarterly series.

The results show that, of the 13 variables, the three unit root tests obtained consistent results for 9 variables, while in the remaining three (OPE, OPM, OPN) conflicting results were obtained. Out of the 12 variables with consistent results among the three unit root tests, five (GY, LFIL, CINF, ERV, and IDR) were level stationary, i.e. I (0), and the other four (LY, LFIC, LFICL and GV) were first different stationary, i.e. I (1). Since inflation variability (CINF) and

⁹ The annual series were converted to quarterly series using interpolation methods as provided in the E-views 5. In the choice of an appropriate interpolation method for each series, care was exercised to ensure that the resultant interpolated series reflect as much as possible the pattern of the original series. After careful experimentation, the following pattern of interpolation methods was adopted: For series in rates *e.g.*, inflation, interest, exchange rates etc, the *Quadratic: match average* was used; for stock variables, *e.g.* Money supply or Savings, the *Cubic match last* was used; while in the case of flow variables like GDP, the *Quadratic: match sum* was used.

¹⁰ This was tested using the procedure outline in Seddighi *et al.*, (2000:274-275) and based on the ADF test results for the level series.

exchange rate variability (ERV) are rate of change, which means they have been differenced already, it is not surprising that they are level stationary. Regarding, OPE (ratio of export to GDP), OPM (the ratio of import to GDP) and OPN (ratio of export plus import to GDP), ADF and DF-GLS show that the variables are 2nd different stationary, i.e. I (2), while PP indicates that the variables are weakly (except for OPM, which was strongly) 1st difference stationary.

The results also show that three of the variables (GY, ERV and OPM) have a significant drift. For two variables (OPM and IDR), the coefficient of the trend was significant. Similarly, a visual inspection of the graph of the variables (see Figure 1 in the appendix) lends support to these results.

4.2 *Cointegration Analysis*

Given the nature of the unit root results, the following two empirical VAR models were formulated and estimated:

$$(GY, LFIL, INFV, ERV, IDR) \quad (10)$$

$$(LY, FIC, GV, INFV, IDR) \quad (11)$$

Models (10) and (11) are formulated in such away that both the determinants of economic growth (in line with growth models as specified in equation 1) and the determinants of financial intermediation (in line with equation 4) in Lesotho can be explained. Since all the variables in model 10 are level stationary, I (0), a normal VAR model was estimated and the results along with the residual diagnostic tests are reported in Table 4. In the case of model (11), since three out of the five variables are integrated of order one, i.e. I (1), the Johansen cointegration analysis was carried out¹¹. In this analysis, two indicators of financial intermediation (LFIC and LFICL) were used separately.

The Johansen cointegration test results for two of the alternative forms of model (11) are reported in Table 3. Where Model A included LFIC and Model B used LFICL, and they both excluded ERV. The results include the VAR order (k) by the different selection criteria, the

¹¹ Even though CINF, ERV and IDR are stationary series, they were included in the model 15 since theory suggests that they are important variables in explaining both growth and financial intermediation. As noted in Harris (1995:80), the inclusion of I(0) variables may play “a key role in establishing a sensible long-run relationship between non-stationary variables if theory *a priori* suggests that such variables should be included”. On the other hand, none of the three measures of openness to trade was used in the model since they are I (2) series and they may complicate the analysis (See Harris, 1995: 80).

number of cointegrating vector(s) at which the null hypothesis of r cointegration is rejected at 5 percent level of significance that corresponds to the five deterministic trend assumptions¹².

In models A and B, four of the selection criteria (LR, FPE, AIC and HQ) selected VAR order (2), while the remaining one (SC) selected VAR order (1), out of optimal lag of four since the data are quarterly series. The number of cointegrating vectors obtained from both trace statistic and the maximum eigenvalues did not vary markedly according to the VAR orders. As shown in Table 3 in both models for the VAR order (1) and (2), one cointegrating vector was found under assumption one, two and four, while the results were slightly mixed under assumption three and five.

Insert Table 3

4.3 Estimated Results for the First-Order VAR System

Model 10 was estimated using the normal VAR system since the variables were stationary. An appropriate VAR order was selected using five criteria. These include the Sequential Modified Likelihood Ratio (LR), the Final Prediction Error (FPE), Akaike Information Criterion (AIC), the Schwarz Information Criterion (SC) and the Hannan-Quinn Information Criterion (HQ)¹³. Four of the criteria (FPE, SC, AIC and HQ) selected VAR order (1) while the LR selected VAR order (4) out of a maximum of four lags. The model reported is based on VAR order (1), since that was chosen by the majority of the selection criteria. A constant term was also included since the unit root tests indicate that at levels, most of the variables have intercepts. Thus, the number of parameters estimated in each equation was six. The estimated results are presented in Table 4.

¹² These are: (1) The level data X has no deterministic trend and the cointegrating equations do not have intercepts; (2) The level data X has no deterministic trend and the cointegrating equations have intercepts; (3) The level data X has linear trends, but the cointegrating equations have only intercepts; (4) Both the level data X and the cointegrating equations have linear trends; and (5) The level data X has quadratic trends and the cointegrating equations have linear trends (E-view 5 manual). The choice of the deterministic trend assumption is based on the nature of data generating process (DGP), determined from the unit root test and visual inspection of the graphs of the relevant series. The E-view 5 suggests the following rough guide to choosing the assumption: use case 2, if none of the series appear to have a trend, for trending series; use case 3, if it is believed that all trends are stochastic and case 4 if some of the series are trend stationary. Cases 1 and 5 are rarely used in practice because of their limitations. Case 1 is used if all series have zero mean and case 5 may produce a good fit in-sample, but will produce an implausible out-of-sample forecast (E-view 5 manual).

¹³ These criteria may produce conflicting VAR order selections. Since VAR order (k) chosen can significantly affect the conclusion reached about the number of the cointegrating relations (Seddighi *et al.* 2000), the aim here is to use the criterion that produces the best possible results. As suggested by Seddighi *et al.* (2000:309), this is the number and form of cointegration relation(s) that conform to economic theory and all the *a priori* knowledge that is associated with this theory.

Overall, the diagnostic tests of the stochastic properties of the model are fairly well behaved. The Joint JB statistic rejects the null hypothesis of normal distribution of the residuals and the LM test indicates that the residuals are not serially correlated. Heteroskedasticity was weakly present, as the null of no heteroskedasticity was rejected at the 10% significant level.

In general, the explanatory power of all the equations of the VAR model as reflected in their adjusted R^2 and F statistic is quite low except for IDR. This indicates that other important variables may have been excluded from the model. These may include an openness variable, a measure of human capital development, the share of the informal/ shadow economy in the overall economy and other institutional and structural factors. The weak explanatory power of the equations of the model was more evident in the case of LFIL and ERV. The case of the ERV equation is understandable, since exchange rate movement may hardly be influenced by factors within the Lesotho economy. As a member of the CMA, the Lesotho currency (maloti) is pegged at par to the rand, and, given the relative small size of the economy, it is hard to expect that developments within the Lesotho economy will have any major impact on the exchange rate. However, the exchange rate movement can affect the economy, since it is an open economy. On the other hand, the weak explanatory power of the financial intermediation (LFIL) equation may be a reflection of a stronger influence on FI of institutional and structural factors within the economy and the externality effects of being a member of the SACU/CMA and its proximity to South Africa. This argument may also apply to the weak explanatory power of the growth (GY) equation. Given the aim of the study, the interpretation that follows focuses on the coefficients of the GY and FI equations.

From the first column, which presents the results of the growth equation, it can be observed that besides its lag, the other variables were not statistically significant at the conventional levels of significance. It is also surprising to observe that the coefficient of FI (measured as the log of the ratio of commercial banks' liquid liabilities to GDP) has a negative sign. Similarly, the coefficients of inflation variable, exchange rate and interest rate spread have negative signs.

The second column highlights the results of the determinants of FI. As can be observed, none of the variables is statistically significant and the signs of the variables were also mixed. For instance, contrary to expectation, the coefficient of growth in *per capita* GDP has a negative sign. This implies that growth in *per capita* GDP leads to a decline in FI. The coefficient of interest rates spread, as expected, exacts a negative impact on FI. However, it appears that changes in inflation rates and exchange rate do not inhibit the development of FI.

Insert Table 4

4.4 Estimates of the Long Run Relation and the speed of Adjustments

The results presented in Table 5 correspond to the estimation using the second deterministic trend assumption (see footnote 12). This is justified since almost all the series did not exhibit a statistically significant trend. As shown in Table 3 above, only one cointegrating vector was found corresponding to this assumption. In the first two columns of Table 5, the vector was normalized on the log of *per capita* GDP. In the third and fourth columns, the vector was normalized on the LFIC and LFICL respectively.

Diagnostic tests of the stochastic properties of the models were also fairly well behaved. Though the residuals were not normally distributed, they were serially uncorrelated and no evidence of heteroskedasticity was found. Overall, the ‘goodness of fit’, as reflected in the R^2 and F-statistics, is quite low in all the models, especially the models normalized on the indicators of financial intermediation. The speeds of adjustment though consistent with theory (with negative signs), were all insignificant.

Inspection of the results in Table 5 shows that the coefficients of the FI have mixed signs. While the coefficient of LFIC has a positive sign, that of LFICL has a negative sign, but neither were statistically significant. The coefficient of the log of *per capita* GDP also has mixed signs in the models normalized on the indicators of FI (column 3 and 4). Surprisingly, the only significant coefficient (column 4) has a negative sign. These results of the long-run relationship between FI and economic growth are similar to the results of the VAR estimate in Table 4. The inverse relationship between FI and *per capita* GDP is rather surprising since economic theory suggests otherwise. These results are however not unique. As noted earlier, in their analysis of 75 countries, Block and Tang (2003) found that only 26 showed positive relationship with just one country having a significant coefficient between FI and economic growth. On the other hand they found that in 49 countries the coefficient was negative, out of which 21 were statistically significant. Similarly, Arestis and Demetriades (1997) found a non-significant long run impact of real GDP on banking sector development in Germany, whereas, in the case of the United States, their findings led to the conclusion that financial development does not cause real GDP, though real GDP positively contribute to both banking system and capital market development. The size of government exerts a positive impact on both *per capita* GDP and FI. As suggested by theory, interest rate spread is inversely related to both *per capita* GDP and FI, but, contrary to

expectation, a change in inflation exerts a positive and significant influence on both *per capita* GDP and FI.

The foregoing discussion shows that there is a lack of long-run impact between FI and *per capita* GDP, irrespective of the indicator of financial intermediation used. In what follows, the results of the weak exogeneity tests, impulse responses and variance decomposition analysis are presented.

Insert Table 5

4.5 Weak Exogeneity Tests, Impulse Responses and Variance Decomposition Results

4.5.1 Weak Exogeneity Tests

The results of the weak exogeneity tests, impulse responses and variance decomposition analysis further exemplified a lack of any long-run impact between FI and *per capita* GDP. From Table 6, it can be seen that the null of weak exogeneity could not be rejected in all the variables except for the change in inflation rate. Hence, it can safely be concluded that all the variables, except the changes in inflation rate, are weakly exogenous for the long-run parameters. The weak exogeneity of both *per capita* GDP and the indicators of FI clearly show the absence of long-run causality in either direction between the two variables in Lesotho.

Insert Table 6

4.5.2 Impulse response

The impulse responses for models 10 and 11 are presented in Appendix B. Figure 2B is the impulse response for model (10), while Figures 3B and 4B are the impulse responses for model (11), using the alternative indicator of FI *i.e.* LFIC and LFICL respectively. The impulse responses are shown for 1 to 4 lags/periods. For the sake of simplicity, only two of the variables (*per capita* GDP and indicator of FI) will be analysed. On average, the results show that over the forecast horizon, an unexpected increase in *per capita* GDP will lead to a permanent positive increase in itself, but it produces minimal responses with mixed sign on FI. Similarly, the responses in *per capita* GDP to an unexpected increase in FI is virtually zero, but with the sign and magnitude depending on the indicator of FI. In Figures 2B and 3B, which use the LFIL and LFIC indicators respectively, the responses are hardly noticeable throughout the period, while in the case of LFICL, the responses of *per capita* GDP were marginally positive over time.

Figures 2B, 3B and 4B show that both FI and *per capita* GDP have a permanently negative response to a sudden increase in the interest rates spread (IDR). With respect to *per*

capita GDP, the response was not only negative, but the magnitude tends to increase over time, whereas FI indicators (except for LFIL) have a more short-term pronounced response to changes in IDR and then die out with time. The negative responses of both *per capita* GDP and FI to an increase in the spread are quite consistent with economic theory. In an open economy (with easy access to foreign financial markets) like Lesotho, an increase in the spread brought about by a fall in deposit rates will lead to an outflow of funds, which in turn may inhibit economic growth. On the other hand, a high lending rate will discourage domestic borrowing for investment purposes.

Moreover, as shown in the Figures 3B and 4B, the measures of FI responded positively at first to a positive shock in the size of government (GV), but later on become negative. On the other hand, the response of *per capita* GDP to unexpected changes in GV tends to be permanently negative over time.

Unlike the results in Table 5, which indicate a highly significant and positive impact of inflation on FI and *per capita* GDP, the impulse response analysis showed a rather weak response of these variables to a change in the inflation rate. Besides, in most cases the responses seem more manifestly negative than positive. This may be a better representation of the relationship between inflation rate changes on the one hand and FI and *per capita* GDP on the other, than the earlier results in Table 5. A negative response of these variables is consistent with economic theory. The more volatile (as measured by inflation variability) an economy is, the less economic agents will be willing to save and invest within such an economy (Garcia and Liu, 1999).

Finally, in Figure 2, the ratio of liquid liability to GDP (LFIL) as a measure of FI shows a momentary positive response to unexpected changes in exchange rate variability (ERV), but subsequently no noticeable response can be observed. On the other hand, growth in *per capita* GDP has a persistent negative response.

5.5.3 Variance Decomposition

The results of variance decomposition analysis, which provides information about the relative importance of the effects of each random innovation on the variables in the VAR, are presented in Tables 7 and 8, and Figures 5B and 6B (Appendix B). In general, the results reveal the same pattern as in the impulse responses just discussed and they overwhelmingly show a lack of any causal relationship between FI and in *per capita* GDP in Lesotho. As shown in Tables 7 and 8, at a forecast horizon of 4 quarters (one year), between 90 % and 95% of the error variances in the *per capita* GDP and FI respectively, are explained by its own innovations. This

shows that both variables are truly weakly exogenous. In neither case does innovation explain up to one percent in the other's error variances over the four quarter forecast horizon. Among the other variables, interest rate spread accounted for between 4% and 2.5% of the innovations in *per capita* GDP and FI (LFICL), while the rest of the variables accounted for less than one percent each in most cases

Insert Table 7 and 8

5. Conclusion

In summary, in terms of the nature and depth of FI, the descriptive analyses reveal a very low and rapidly declining level of FI, a high and growing intermediation cost, as well as an increasing shift of FI from business finance to household (private consumption) finance. The results of the econometric analyses overwhelmingly indicate a weak relationship between FI and *per capita* GDP in Lesotho. The evidence shows a lack of mutual causality between FI and *per capita* GDP in the country. In other words, there is little or no evidence to suggest that, at present, FI promotes/leads to growth of *per capita* GDP or that growth in *per capita* GDP leads to greater intermediation. Moreover, the econometric analyses suggest very little evidence of the role of macroeconomic variables in explaining FI and *per capita* GDP in Lesotho.

These results do not, however, suggest that there is no role for FI in promoting economic growth, nor do they show that a stable macroeconomic environment is less important in stimulating the development of FI in Lesotho. Rather, the results suggest the following:

- i. While FI remains an important force for economic growth, the current low and declining level of FI in Lesotho has caused a slow down in the economic growth process.
- ii. That given the structure (particularly, the weak institutional and structural impediments and its external relations and dependence) of the Lesotho economy, its growth plays little or no role in stimulating the development of FI in the economy. Instead the growth of the economy appears, at present, to hinder the development of FI.
- iii. Finally, while a stable macroeconomic environment remains a necessary precondition for the growth of any economy and the development of its FI (and very much so in Lesotho's case), the results suggest that institutional and structural factors and the nature of its external dependence may have played a much greater role in explaining the growth of the Lesotho economy and the development of its FI.

The conclusion emerging from the foregoing discussions is that as long as the institutional and structural weaknesses remain, Lesotho's external relations (CMA and SACU) will work to lessen the development of FI and its contribution to Lesotho's economic growth. Should Lesotho therefore pull out of the official integration arrangement as a way of tackling the problem? Certainly that would not be a viable option and it cannot be recommended here. In addition, pursuing more restrictive measures against the prescription of the CMA and SACU will not help matters. Pulling out of these arrangements will not only mean a great loss of government revenue, but also, more importantly, it may erode the economic stability that the country currently enjoys. For instance, leaving the CMA and pursuing independent monetary and exchange rate policies, might result in a volatile exchange rate and a very weak currency, which might in turn lead to further capital flight on the one hand and a high cost of living and poverty on the other. Ultimately, this may result in both economic and political instability that may threaten the sovereign existence of Lesotho as a nation. On the other hand, introducing control measures may at best create illegal transfers and further erode the deposit level in the banks. Thus, it appears that the country has little room for manoeuvre with regard to its external relations.

Instead, emphasis should be focused on removing the institutional and structural impediments in the economy. This calls for a comprehensive and multi-faceted strategy in order to stimulate the development of FI and in turn to promote economic growth in the country. This will entail steps towards strengthening the weak financial system, and resolution of the institutional and structural problems within the economy. For instance, attention must be given to building domestic entrepreneurial capacity, strengthening the legal system and bank supervision. Also, the problems of property rights and titles deserve immediate attention. This will make it easier for individuals to provide the collateral needed to access credit from the banks. The recently established commercial court, the proposed postal bank and credit bureau, if properly managed and implemented, may constitute some solutions to the poor FI in the country.

On the whole, an efficient banking system operating under an efficient legal system, with better-defined property rights and improved entrepreneurial capacity will help to reduce the risks and costs of intermediation. This will in turn increase intermediation through the banks, as economic agents become more indifferent as to whether to invest abroad or domestically. Increased financial intermediation will then lead to economic growth. In conclusion, given the nature of Lesotho's external relations, the development of FI and its contribution to economic growth will continue to depend on the extent to which the institutional and structural problems

are addressed. Other developing countries should take note of the lesson learned from Lesotho's experience.

Table 2: Unit root test results

Variable	Augmented Dickey-Fuller					Philips-Perron		DF-GLS		
	Drift	Trend	level	1 st Diff	Lag	level	1 st Diff	level	1 st Diff	Lag
GY	3.3887a	-	-4.1931a	-	0	-4.257a	-	-3.578a	-	0
LY	1.6158	1.311		-4.099a	0	-0.623	-4.118a	1.018	-4.1188a	0
CINF	0.816	-1.201	-10.227a	-	2	-48.64a	-	-10.305a	-	2
LFIC	2.429	1.113	-2.3417	-10.555a	0	-2.2553	-10.555	-2.2355	-10.6523	0
LFICL	2.4285	1.671	-2.2942	-11.225a	0	-2.1273	-11.225a	-2.1986	-3.4223	2
LFIL	8.519	-2.250	-8.7189a	-	0	-8.728	-	-8.4236	-	0
ERV	2.868b	-	-3.713a	-	2	-7.462a	-	-2.340b	-	2
OPE ²	-0.958	1.633	0.015	-6.541A	3	0.215	-3.1804c	-0.609	-6.618A	3
OPM	3.104c	-3.102b	-3.1004	-7.781A	3	-3.041	-4.262a	-1.397	-7.742A	3
OPN	1.682	-1.168	-1.739	-7.351A	3	-2.093	-3.917b	-1.699	-7.321A	4
IDR	1.856	2.399c	-3.503b	-	0	-3.503b	-	-3.471b	-	0
GV	1.449	-0.642	-1.734	-5.971a	3	-1.754	-5.137a	-1.169	-5.988a	3

Note: a - significant at 1%, b - significant at 5%, c - significant at 10% and A - significant at 1% in second difference.

Table 3: Johansen cointegration test results

Model	No of VAR order (k) by Selection Criteria	No of Cointegrating Vector by tests stat. and Assumption					
			1	2	3	4	5
Model A	LR 2	λ_{trace}	1	1	1	1	2
		$\lambda_{max E}$	1	1	1	1	1
	FPE 2	λ_{trace}	1	1	1	1	2
		$\lambda_{max E}$	1	1	1	1	1
	AIC 2	λ_{trace}	1	1	1	1	2
		$\lambda_{max E}$	1	1	1	1	1
	SC 1	λ_{trace}	1	1	1	1	1
		$\lambda_{max E}$	1	1	1	1	1
	HQ 2	λ_{trace}	1	1	1	1	2
		$\lambda_{max E}$	1	1	1	1	1
Model B	LR 2	λ_{trace}	1	1	1	1	2
		$\lambda_{max E}$	1	1	0	1	1
	FPE 2	λ_{trace}	1	1	1	1	2
		$\lambda_{max E}$	1	1	0	1	1
	AIC 2	λ_{trace}	1	1	1	1	2
		$\lambda_{max E}$	1	1	0	1	1
	SC 1	λ_{trace}	1	1	1	1	1

		$\lambda_{\max E}$	1	1	1	1	1
	HQ	2	λ_{trace}	1	1	1	2
			$\lambda_{\max E}$	1	1	0	1

Note: the null hypothesis of r cointegration is rejected at 5 percentage level of significance

Models A and B correspond to equation 5.2 with LFIC and LFICL respectively.

Table 4: Estimated results for first-order VAR system 1980:1 to 2001:4

Variable	GY	LFIL	CINF	ERV	IDR
C	2.2417 (1.3831)	4.4459 (7.472)	0.6019 (0.2449)	8.7934 (1.2196)	2.3268 (1.6147)
GY	0.6487 (7.6967)a	-0.0027 (-0.0856)	-0.0053 (-0.0419)	-0.1052 (-0.2805)	-0.0451 (-0.6026)
LFIL	-0.0863 (-0.2847)	0.1190 (1.069)	-0.1157 (-0.2517)	-0.9968 (-0.7392)	-0.2700 (-1.0019)
CINF	-0.0384 (-0.5928)	0.0081 (0.3389)	-0.4855 (-4.942)a	0.1504 (0.522)	0.0172 (0.2993)
ERV	-0.0219 (-0.793)	0.0071 (0.6996)	-0.0312 (-0.745)	0.0907 (0.7376)	0.0771 (3.1376)a
IDR	-0.08461 (-1.3008)	-0.01249 (-0.5232)	0.01129 (0.1145)	-0.0339 (-0.117)	0.8478 (14.659)
R2	0.4644	0.0230	0.23623	0.0186	0.7515
F- STAT	1.7808	0.6538	2.701	7.9222	1.5833
Residual Diagnostic test					
Normality Test	$\chi^2(5) = 2952.09 (0.0000)$				
Serial Correlation	$\chi^2(1) = 23.75 (0.5338)$				
Heteroskedasticity	$\chi^2(10, 75) = 165.36 (0.076)$				

Note: a – significant at 1%, b – significant at 5% and c – significant at 10%.

Values in parenthesis are the t -values for coefficients and P . values for the diagnostic tests

Table 5: Estimates of the long-run relation and speed of adjustment

Model/Variable	Model A- LY	Model B - LY	Model C LFIC	Model D LFICL
C	-8.66379 (-0.4959)	0.0514 (0.0099)	-5.1121 (-0.6169)	-0.03677 (-0.0135)
LY			0.5901 (0.6738)	-0.7148 (-2.5084)
LFIC	1.6947 (0.3895)			
LFICL		-1.3989 (-1.5252)		
GV	0.02235 (0.0725)	0.02111 (0.2207)	0.0132 (0.0632)	0.0151 (0.2201)
CINF	9.2602 (10.3500)	2.5493 (10.709)	5.4641 (10.3528)	1.8222 (10.6857)
IDR	-0.0046 (-0.1318)	-0.0698 (-0.7897)	-0.00278 (-0.0117)	0.04982 (0.6911)
Speed of Adj.	-0.00012 (-0.4535)	-0.00026 (-0.2874)	-0.00038 (-0.1791)	-0.0015 (-0.2678)
OBS	85	85	85	85
R2	0.4697	0.4714	0.05518	0.1307
F. STAT	6.5533	6.5992	1.0378	1.1134

Residual Diagnostic tests				
Normality Test (Jarque-Bera χ^2)	$\chi^2(5) = 401.58$ (0.0000)	$\chi^2(5) = 305.122$ (0.000)	$\chi^2(5) = 400.8$ (0.000)	$\chi^2(5) = 305.14$ (0.000)
Serial Correlation Test	$\chi^2(2) = 32.05$ (0.0587)	$\chi^2(2) = 32.05$ (0.1565)	$\chi^2(2) = 36.92$ (0.0587)	$\chi^2(2) = 32.05$ (0.1565)
Heteroskedasticity	$\chi^2(22,62) = 346.4$ (0.256)	$\chi^2(22,62) = 391.8$ (0.111)	$\chi^2(22,62) = 346.4$ (0.256)	$\chi^2(22,62) = 391.82$ (0.111)

Note: a – significant at 1%, b – significant at 5% and c – significant at 10%.

Values in parenthesis are the t- values for coefficients and P. values for the diagnostic tests.

The results are based on estimation of model 5.2. Models A and B use LFIC and LFICL respectively, normalised on LY; Model C and D are normalised on LFIC and LFICL respectively.

Table 6: Weak exogeneity tests results

Weak exogeneity tests on restricted system: $\chi^2(6)$	LR test	P- value
Model A:		
LY weakly exogenous to system	0.4051	0.5244
LFIC weakly exogenous to system	1.3803	0.2401
GV weakly exogenous to system	1.6809	0.1948
IDR weakly exogenous to system	0.3841	0.5354
CINF weakly exogenous to system	16.713	0.0000
Model B:		
LY weakly exogenous to system	0.0831	0.7731
LFICL weakly exogenous to system	0.0756	0.0783
GV weakly exogenous to system	0.4875	0.4850
IDR weakly exogenous to system	0.0005	0.9982
CINF weakly exogenous to system	60.069	0.0000
Model C:		
LFIC weakly exogenous to system	0.0329	0.8560
LY weakly exogenous to system	0.2035	0.6519
GV weakly exogenous to system	0.3172	0.5733
IDR weakly exogenous to system	0.0003	0.9859
CINF weakly exogenous to system	57.104	0.0000
Model D:		
LFICL weakly exogenous to system	0.0756	0.7833
LY weakly exogenous to system	0.0831	0.7731
GV weakly exogenous to system	0.4875	0.4850
IDR weakly exogenous to system	0.00005	0.9981
CINF weakly exogenous to system	60.069	0.0000

Note: The results are based on estimation of model 5.2. Models A and B use LFIC and LFICL respectively, normalised on LY; Models C and D are normalised on LFIC and LFICL respectively

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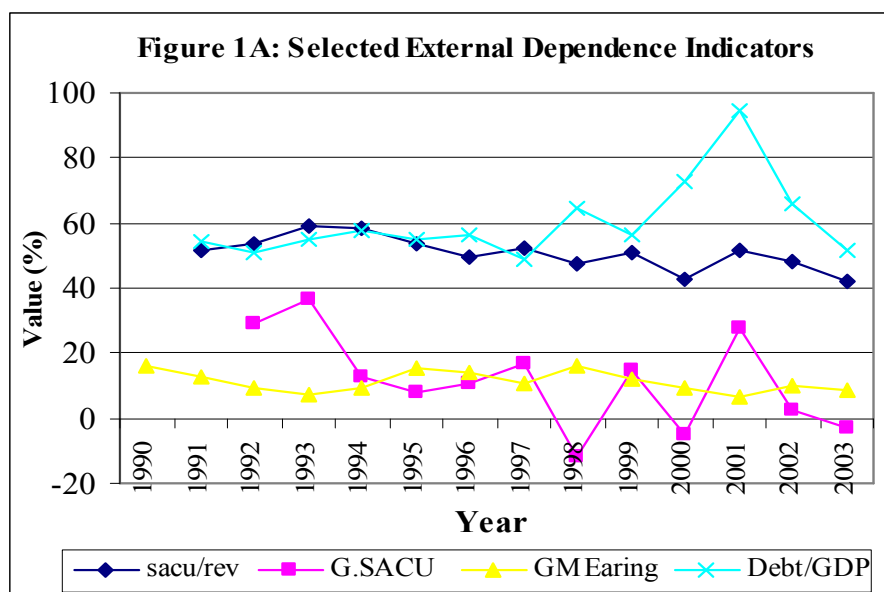
Appendix A

Table 1A: Selected Indicators of External Dependence

Year	No	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
SACU Receipt														
• Growth	1		29.17	36.37	12.59	7.80	10.98	16.51	-11.8	14.50	-4.8	27.7	2.19	-3.29
• % of Total Rev	2	51.7	53.7	59.1	58.5	53.9	49.4	52.1	47.6	51.2	42.9	51.6	48.4	42.2
Mineworks														
• No	3	122188	119596	116129	112722	103744	101262	95913	80445	68604	64907	61412	62158	61415
• % Changes	4	-2.9	-2.1	-2.9	-2.9	-8.0	-2.4	-5.3	-16.1	-14.7	-5.4	-5.4	1.2	-1.2
Earnings (M mil.)	5	11350	12440	13359	14562	16801	19186	21193	14678	17657	30131	32030	35326	38333
% Change	6	12.7	9.6	7.4	9.0	15.4	14.2	10.5	16.4	12.1	9	6.3	10.3	8.5
GNP GAP %	7	55.7	51.5	49.6	45.7	33.7	35.0	32.7	27.8	27.9	25.5	22.8	21.9	21.2
Trade/GDP %	8	132.2	126.5	126.9	122.4	135.2	138.8	130.5	128.2	114.0	118.7	133.6	157.7	138.9
Exp/GDP %	9	9.8	13.2	16.4	17.2	17.2	20.0	19.2	22.5	18.9	24.6	36.7	48.1	41.3
Imp/GDP %	10	122.4	113.3	110.4	105.2	118.1	118.8	111.3	105.7	95.0	94.1	96.8	109.6	97.7
SACU/Exp %	11	39.6	49.1	45.9	50.8	51.6	48.5	64.2	65.5	53.9	49.5	37.0	22.9	19.4
SACU/Timp %	12	94.1	83.8	82.1	81.8	90.2	92.2	89.2	88.7	89.5	86.8	82.8	73.5	86.0
EXT Debt (m)	13	1032.3	1202.1	1478.7	1704.4	1861.5	2283.6	2313.4	3185.1	3121.9	4319.6	6246.5	5130.5	4432.0
EDebt/GDP %	14	54.2	51.0	55.3	57.5	55.0	56.3	49.0	64.7	56.1	72.4	94.5	66.0	51.4

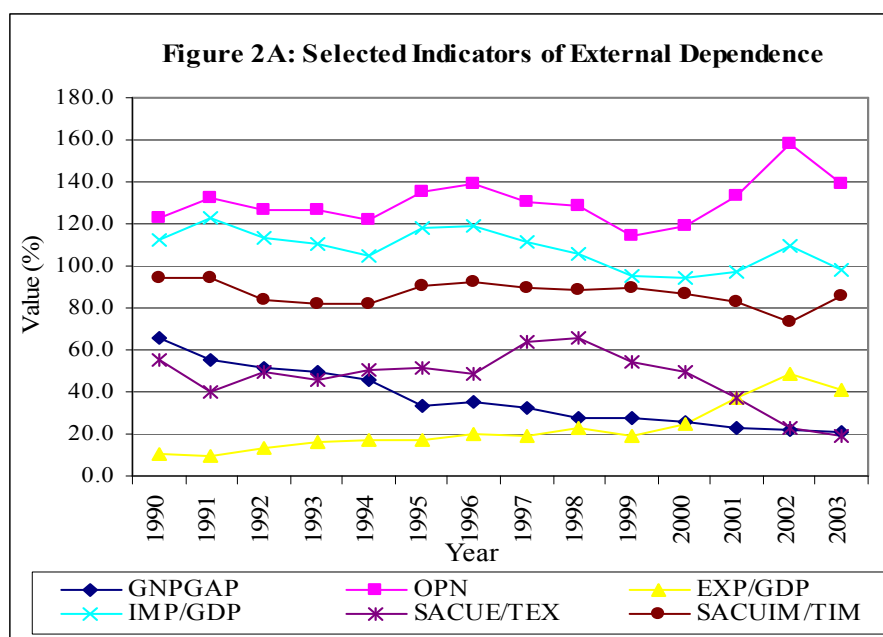
Note: $GNP\ GAP = (GNP - GDP) / GDP$, $Earnings\ (M\ mil) = earnings\ of\ mineworkers\ in\ million\ Maloti$, $Trade = Imports\ plus\ Exports$, $Exp. = Exports$, $Imp. = Imports$, $SACU/Exp = Lesotho\ exports\ to\ SACU\ as\ percentage\ of\ total\ Exports$, $SACU/Timp = Lesotho\ imports\ from\ SACU\ as\ a\ percent\ of\ total\ imports$, $Ext.\ Debt = Lesotho\ external\ Debt\ in\ million\ Maloti$, $EDebt/GDP = External\ Debt\ to\ GDP$.

Source: Central Bank of Lesotho, Annual Reports



Note: The variables are as defined in Table 2 above.

Source: Central Bank of Lesotho, Annual Reports.



Note: The variables are as defined in Table 2 above.
Source: Central Bank of Lesotho, Annual Reports.

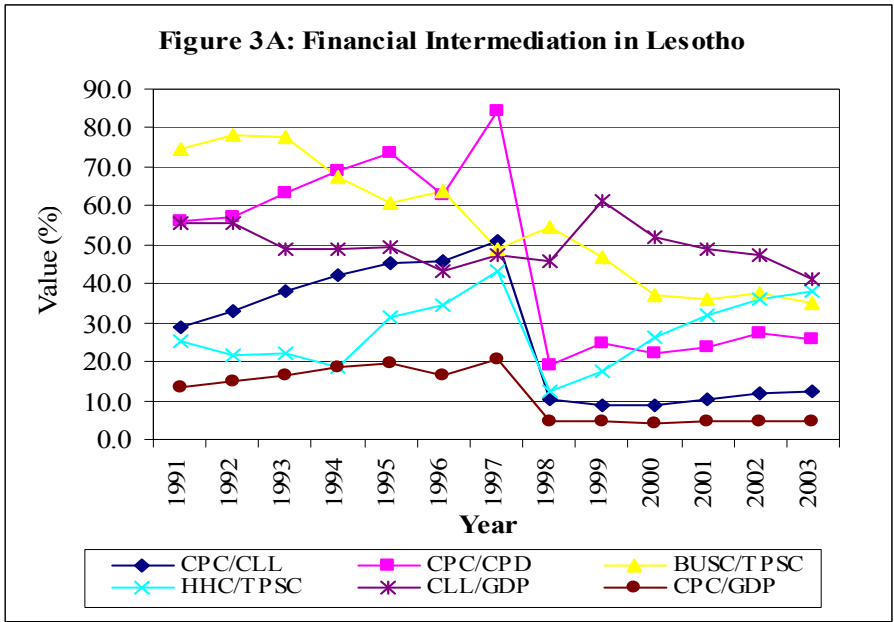
Table 2A: Financial Intermediation in Lesotho

Year	NO	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
CLL/GDP	1	55.6	55.3	48.9	48.8	49.5	43.3	47.3	45.9	61.2	51.8	48.8	47.5	41.4
CPC/GDP	2	13.6	14.7	16.5	18.7	19.7	16.5	20.8	4.6	4.9	4.3	4.6	4.8	4.7
CPC/CLL	3	28.9	32.9	38.2	42.4	45.3	45.6	51.1	10.5	9.0	9.0	10.4	11.9	12.5
CPC/CPD	4	55.95	56.93	63.1	68.98	73.8	62.9	84.4	19.1	24.8	22.1	23.5	27.1	25.7
CPC/TPSC	5	105.6	100.0	107.4	100.0	98.7	98.7	98.9	95.2	95.7	94.9	95.7	96.5	96.4
BusC/TPSC	6	74.7	78.3	77.9	67.4	60.6	63.9	49.0	54.5	46.9	36.8	36.0	37.6	35.0
HHC/TPSC	7	25.3	21.7	22.1	18.6	31.5	34.5	43.0	12.4	17.4	26.1	31.7	36.1	38.0
MortC/TPSC	8	0.0	0.0	0.0	14.0	7.9	1.6	7.9	33.1	35.7	37.1	32.3	26.3	27.0
Int R. Spread	9	7.5	7.4	7.3	7.5	6.2	8	8.3	11	14	13	12.3	12.9	13.9
Int. R. Spread RSA*	10	3.01	5.13	4.66	4.47	4.36	4.61	4.62	5.29	5.76	5.3	4.4	4.98	5.2

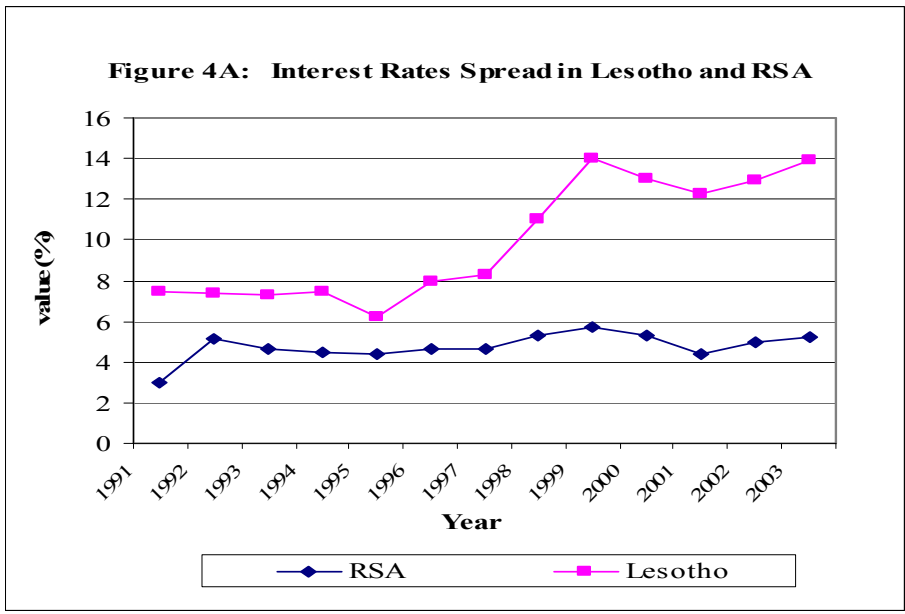
Note: CLL/GDP = Commercial Bank liquid liabilities as a percentage of GDP, CPC/GDP = Commercial Bank private sector credit as a percentage of GDP, CPC/CLL = Commercial Bank private sector credit as a percent of Commercial Bank liquid Liabilities, CPC/CPD = Commercial Bank private sector credit as a percentage of private sector deposits with commercial banks, CPC/TPSC = Commercial Bank private sector credit as a percentage of total credit to the private sector by banking systems, Bus C/TPSC = Credit to the businesses as percent of total credit to the private sector by banking systems, HHC/TPSC = Credit to households as percent of total credit to the private sector by banking systems, Mort C/TPSC = Mortgage Credit as percentage of total credit to the private sector by banking systems, Int. R. Spread = Different between Commercial Bank Prime lending rate and 31 day deposit rate, and Int. R. Spread RSA = Different between prime lending rate and deposit rates.

Source: Central Bank of Lesotho: Annual Reports.

- IMF International Financial Statistics Year Books.



Note: The variables are as defined in Table 3 above.
 Source: Central Bank of Lesotho, Annual Reports



Note: The variables are as defined in Table 3 above.
 Source: Central Bank of Lesotho, Annual Reports

Appendix B

Figure 1B: Graphical representation of variables

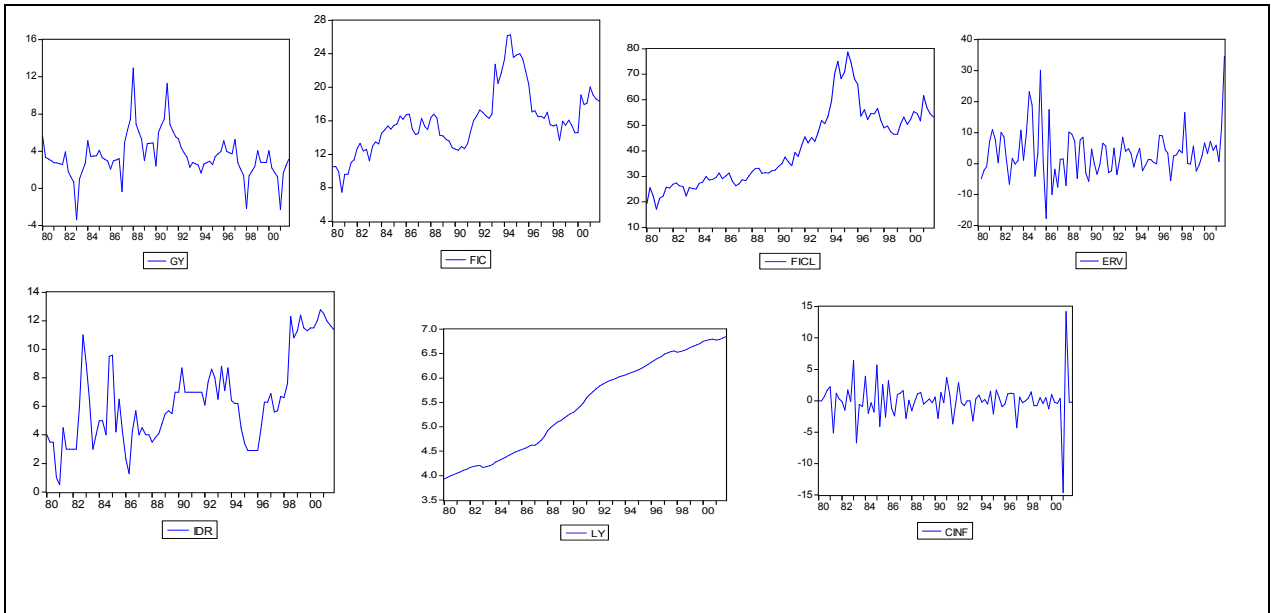


Figure 2B: Impulse Responses: Model 10 (GY, LFIL, CINF, ERV, IRD)

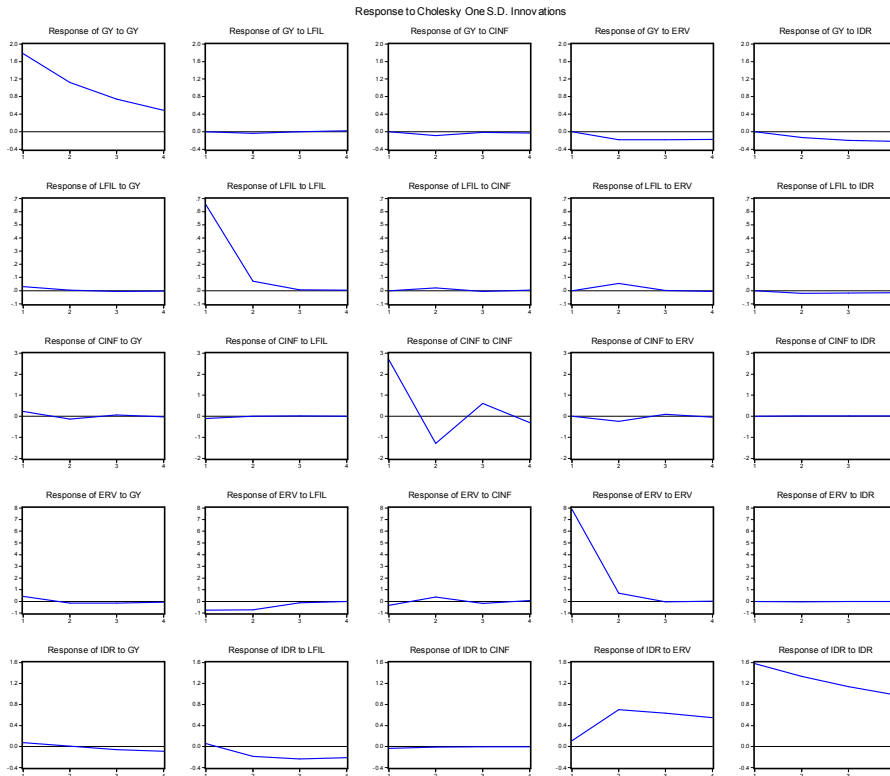


Figure 3B: Impulse Response: Model 11 (LY, LFIC, GV, IDR, CINF)

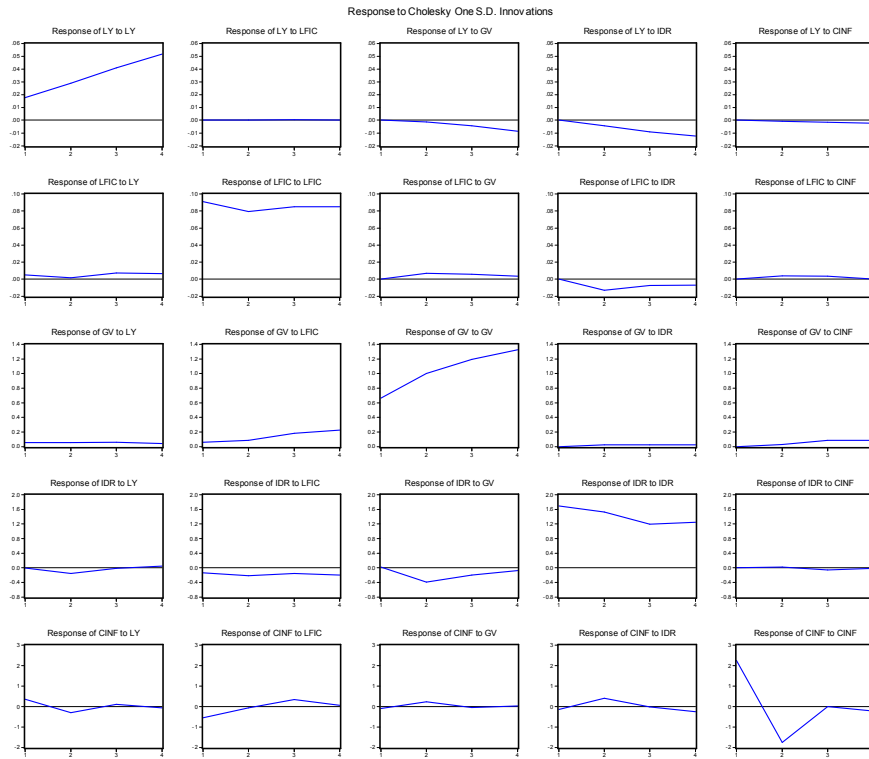


Figure 4B: Impulse Responses: Model 11 (LY, LFICL, GV, IDR, CINF)

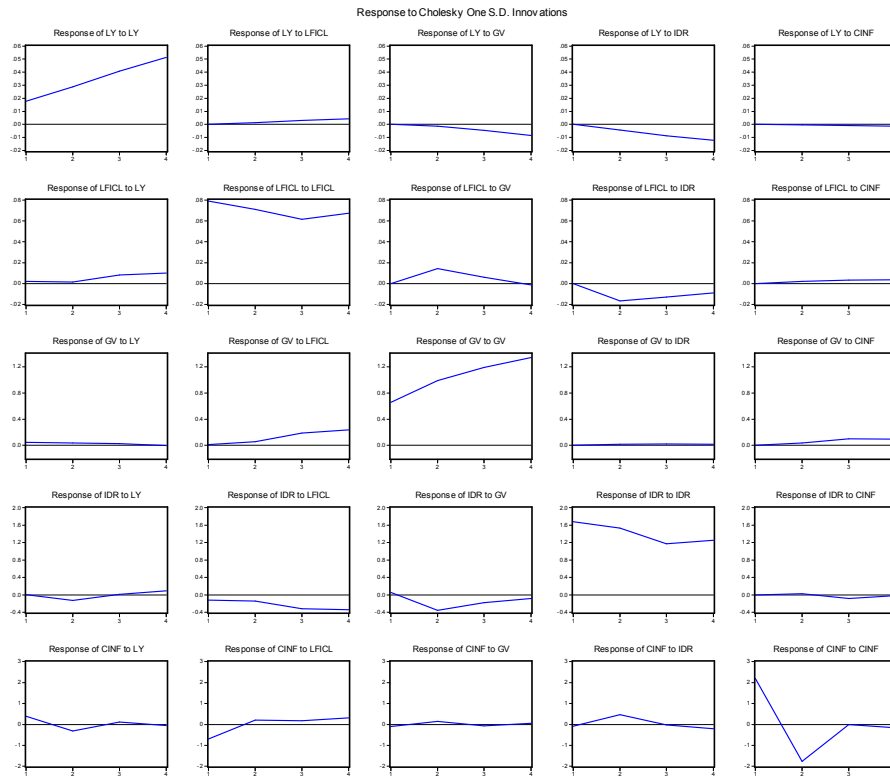


Figure 5B: Variance Decomposition: Model 11 (LY, LFIC, GV, IDR, CINF)

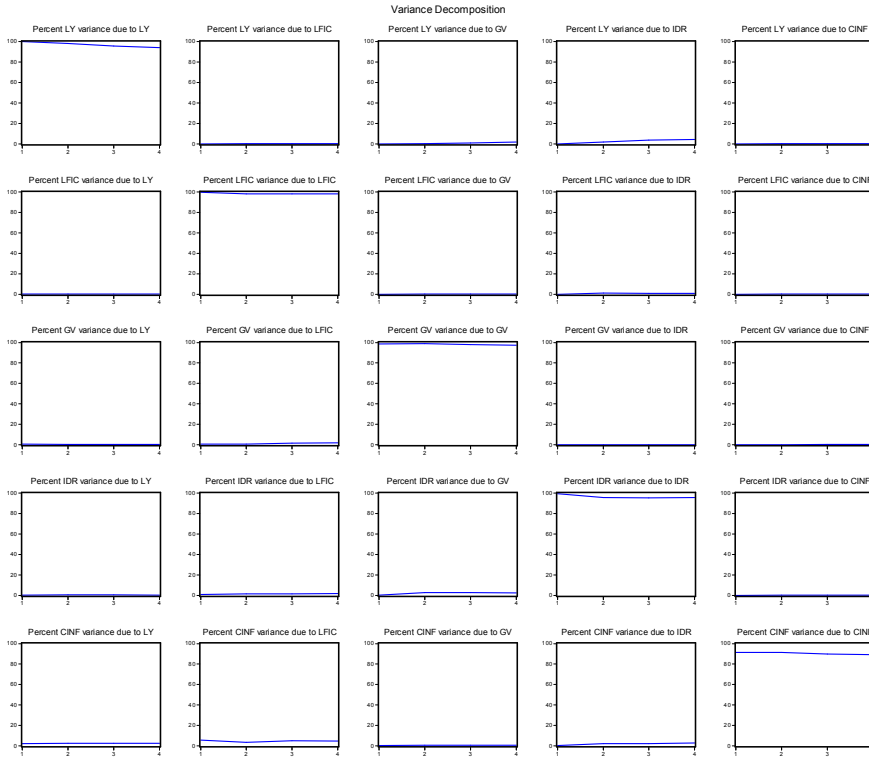


Figure 6B: Variance Decomposition: Model 11 (LY, LFICL, GV, IDR, CINF)

