THE ROLE OF FINANCIAL SECTOR DEVELOPMENT IN ECONOMIC GROWTH

Case Study of Botswana

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The Role of Financial Sector Development in Economic Growth- Case Study of Botswana

List of Corrections

- Inclusion of 'in' instead of "ön" in the title
- Page 2 and 4- Correction of "Southern African Development Coordination" to "Southern African Development Community"
- Page 3, para 2, last sentence– Replacement of "we are however" with "the analysis in this paper"
- Page 5, para 3, last sentence – Replacement of "I" with "This analysis" or "The paper"
- Page 8, para 2, sentence 5 – Replaced "savings rates" with "saving rates"
- Page 8,para2, sentence 8 – Inclusion of "in savings
- Page 33, para 2, last sentence – Inclusion of "Generally, one would expect ……"
- Pages 37,38,41,42 – replacement of "I use" with "the paper uses or the method uses"
- Page 44", para 2, sentence 1 – Replacement of "our" with "the
- Page 46-Inclusion of year for the Bank of Botswana Annual Reports

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ABSTRACT

The relationship between financial development and economic growth has received a lot of attention in economic literature. Most of the findings indicate a positive impact of financial development on economic growth. Despite its under developed financial sector since independence, Botswana has been experiencing a steady economic growth. This has been mainly attributed to mineral deposits which may not be sustainable in the long run. As is Government policy to diversify the economy away from mining, this paper analyses the contribution of financial sector development to economic growth in Botswana using econometric techniques such as the cointegration vector autoregression approach. The use of such techniques takes into consideration the possibility of economic growth impacting on financial sector development and therefore introducing simultaneity bias. The econometric model used relates financial indicators to economic growth, controlling for other factors which have an impact on growth such as inflation, government expenditure and openness. The findings demonstrate that financial sector development has positive long run effects on economic growth whilst in the short run it does not seem to have an impact. The relationship is more evident when using private sector credit and money stock as financial indicators.

ABBREVIATIONS

BSE	Botswana Stock Exchange
Bots	Botswana
DOMCRED	Net Domestic Credit by Banks
FAP	Financial Assistance Policy
GDP	Gross Domestic Product
GYP	Real per Capita Growth Rate
INV	Ratio of Investment to GDP
OLS	Ordinary Least Squares
LDCs	Least Developed Countries
Mad	Madagascar
Maur	Mauritius
Moz	Mozambique
PDSF	Public Debt Service Fund
PRIV	Private Sector Credit
RSA	Republic of South Africa
RSF	Revenue Stabilisation Fund
SADC	Southern African Development Community
SMME	Small Medium and Micro Enterprises
VAR	Cointegrating Vector Autoregression
Zim	Zimbabwe

The Role Of Financial Sector Development On Economic Growth: Case Study Of Botswana

1. INTRODUCTION

Financial markets have been found to play a crucial role in the growth of the real economy by channelling finance from savers to borrowers, particularly investors who would invest in productive assets. The general findings of empirical literature reveal that a well developed financial sector is positively related to economic growth (Allen and Ndikumana, 2000; Mavrotas and Kelly, 1999; King and Levine, 1993). As a result, the belief is that economic growth along with real per capita income is higher in countries with liberalised financial sectors than those which are repressed (Ghatak and Siddiki, 1999).

However, the causal relationship between economic growth and financial development still remains a controversial issue, with some of the authors indicating that the causality may run from both directions (Greenwood and Jovanovic, 1990). It is believed that financial development leads to increased economic growth by increasing the level of savings and therefore investment. Thus, availability of financial services stimulates the demand for these services by entrepreneurs resulting in increased economic growth. Economic development on the other hand, creates demands for particular types of financial arrangements and the financial system responds automatically to these demands (et al Levine, 1996). According to this view, the higher the growth of real national income, the greater the demand by enterprises for external funds (savings) and therefore financial intermediation. Nevertheless, there has been a consensus with regard to the positive relationship existing between the two variables regardless of the direction of causality. However, the analysis in this paper is mainly focused on an investigation of the former argument and therefore analyse the contribution of financial development to economic growth.

Most of the developing countries such as those in the Southern African Development Community (SADC) region are faced with the challenge of having to attract investment to accelerate economic development even though they have limited financial resources that restrict them from undertaking such ambitious development programmes. Lack of an appropriate and efficient financial sector[1] has been a serious drawback, contributing to the already low levels of savings in such countries. This in turn has impeded economic growth in that investors have limited access to credit – both in terms of the lack of funds, and secondly in terms of the cost of available funds. However, in recent years, there has been a remarkable shift in the financial policy stance of developing countries especially with most of them undertaking financial reforms supported by the World Bank and International Monetary Fund. These include among others, strengthening prudential regulation and supervision, limited government intervention in directing credit and/or setting interest rates. As a result, both short term and long term international capital have been allowed to fly across countries, though most of the developing countries are still lagging behind in terms of economic growth. Some of the reasons for the low savings/investment rates include real or perceived macroeconomic mismanagement, political instability, and other commercial as well as non-commercial risks, thereby rendering such countries unattractive for investment[2].

Botswana has been an exception in that it has experienced a steady economic growth even prior to implementation of the reforms. It has been an outstanding nation among developing countries through its successful economic management. Despite the stable growth of the economy, the financial sector has not been contributing much to this progress. Most of the country's growth

[1] This includes, among others, enhanced competition, diversified range of financial instruments and well regulated banks and other financial institutions.

performance has been attributed to mining sector output which, according to Bank of Botswana reports, would not be sustainable in the long run. Given the growing economy, the available mineral deposits would not be able to provide enough revenues to the same extent as it is currently, hence the need for a more diversified economy away from mining.

In the 80s and early 90s, Botswana's financial sector[3] was not really diversified in that it was characterised by lack of competition and a limited range of financial instruments. During this period, the Government, through its lending to parastatals[4], has been a larger lender than commercial banks. After the introduction of financial sector reforms, there has been a significant structural change with commercial banks dominating the financial sector. However, there has been a concern that stock and bond markets are still small and illiquid and therefore investment funds are mostly made in the form of loans. As a result, the financial sector remains underdeveloped especially with its contribution to boost private savings which of now remain a concern due to their low levels in the economy.

To this end, apart from being grouped with other developing countries[5], not much has been done in terms of analysing the role of financial sector development in economic growth for Botswana. Using an econometric model that relates financial indicators to economic growth, this paper examines the role which has been played by the financial sector in Botswana's economic growth. This analysis controls for other factors of economic growth such as inflation, government expenditure and openness. The paper uses econometric

[2] These risks are well documented in, Development Report 2003, Financing Africa's Development: Enhancing the Role of Private Finance, published by the Development Bank of Southern Africa (DBSA).
[3] Currently comprises five commercial banks, two merchant banks, government owned financial institutions, stock exchange, stock broking firms, insurance companies, pension funds and asset management companies, bureaux de change and micro lenders.
[4] These are institutions with a combined ownership of the private sector and government. It should however be noted that the proportion of ownership differs from one parastatal to the other with some of them being mainly owned by government.
[5] See for example Allen and Ndikumana (2000)

techniques including among others the cointegration vector autoregression approach[6] through which we are able address the problem of simultaneity between economic growth and financial indicators.

2. FINANCE AND GROWTH: A LITERATURE REVIEW

2.1 FUNCTIONS OF THE FINANCIAL SYSTEM

As indicated by Creane, Goyal, Mobarak and Sab(2004), a well developed financial system promotes investment by identifying and funding good business opportunities, mobilises savings, monitors the performance of managers, enables trading, hedging and diversification of risk, and facilitates the exchange of goods and services.

Assessing the role of financial systems in economic growth, King and Levine, 1993, concluded that

"a more developed financial system fosters productivity improvement by choosing higher quality entrepreneurs and projects, by more effectively mobilising external financing for these entrepreneurs, by providing superior vehicles for diversifying risk of innovative activities, and by revealing more accurately the potentially large profits associated with the uncertain business of innovation. In these ways, financial systems stimulate economic growth by accelerating the rate of productivity enhancement."

Augmenting the same argument, Levine (1997) highlights the two channels through which financial development increases growth as capital accumulation and technological innovation. According to the argument, the financial system affects capital accumulation by altering savings rate or by reallocating savings

[6] This enables one to assess the long run relationship among variables. In this case the relationship between a measure of economic growth, financial sector development and control variables such as

among different capital producing technologies. Further, the financial system affects growth by altering the rate of technological innovation. The remainder of this section therefore explains the channels through which the financial sector affects economic growth.

2.1.1 Facilitating and Diversifying Risk

Given that a well developed financial sector should be characterised by not only enhanced competition but should also be transparent and well regulated, investors are able to diversify their portfolio and therefore the risk associated with such investments. To accommodate both risk averse and risk neutral savers, high return projects tend to be riskier than low return projects. Therefore, savers are able to make a choice depending on the level of risk and expected returns. For instance, one would be in a position to choose between investing in shares or equities or just using the available banking options such as call accounts and savings accounts, taking into consideration the returns and risks involved. As a result of these diversified services provided by the financial sector, saving rates would, in the long run, be expected to increase thereby increasing credit allocation by financial institutions and therefore enhanced capital accumulation.

Apart from diversifying risk, Levine (1997) highlights the importance of financial systems in reducing liquidity risk[7]. According to the argument, information asymmetries and transaction costs may hinder liquidity[8] and therefore increase liquidity risk. Thus, since financial institutions are able to provide relatively cheaper trading of instruments and little uncertainty with regard to the timing and settlements of the trades, they reduce the associated risk. In addition, liquid stock markets enable savers to hold assets which can be sold easily and quickly if they need access to their savings whilst firms have

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inflation, government expenditure and openness.

[7] Arises due to uncertainties associated with converting assets into a medium of exchange.

access to capital from the other shareholders. This therefore enhances investment which in turn would accelerate the pace of economic development.

2.1.2 Savings Mobilisation

Since savings accumulation has been regarded as an important requirement for economic development, savings mobilisation has for quite some time been recommended for development strategies. This is based on the view that with increased savings, loanable funds are increased and therefore investment and growth will be stimulated. The main c oncern has been the low saving rates particularly in developing countries. As indicated in Table 1, most of the savings experienced by some of the SADC countries have been relatively low except for Mauritius and Botswana. Apart from Madagascar and Mozambique, in most of the countries there has been a decline in savings, particularly between 2000 and 2001.

Table 1: Gross Domestic Savings (% of GDP) for a sample of SADC Countries

Year	Mad	Malawi	Moz	RSA	Zim	Bots	Maur
1980	-1.4	10.8	-10.56	31.4	13.78	26.69	14.54
1990	5.54	13.4	-12.31	17.58	17.45	42.63	23.47
1995	3.36	-0.32	-1.89	19.09	16.98	37.52	23.38
2000	7.74	0.45	11.87	17.7	14.84	39.04	23.7
2001	12.34	-1.00	19.22	17.5	8.96	38.2	25.0

Source: World Development Indicators

Amongst the commonly mentioned reasons for such low saving rates are real and/or perceived macroeconomic mismanagement, political instability for some of the countries and lack of deep or dynamic financial systems. The latter would help countries to mobilise savings domestically by providing attractive and diversified instruments and therefore growth, thereby reducing the

[8] The ease and speed with which agents can convert assets into purchasing power at agreed prices.

dependence of such countries on foreign aid. However, as Wachtel (2001) indicates, a well developed financial sector does not only ensure increased saving rates, but also their effective allocation. Similarly, Bencivenga and Smith (1991) emphasise the importance of financial intermediation in an economy to reduce the fraction of its savings held in the form of unproductive liquid assets, and to prevent misallocations of invested capital due to liquidity needs. For instance, by providing liquidity, banks enable risk averse savers to hold bank deposits instead of liquid (unproductive) assets. At the same time firms are able to acquire credit from the funds obtained by banks for investment in productive capital. Consequently, financial intermediaries such as banks may tend to alter the composition of savings in a way that is favourable to capital accumulation thereby promoting growth.

Even though it is believed that financial sector development mobilises savings, empirical evidence seems to be unclear with regard to the positive relationship between financial sector development and savings. Using a panel integration and cointegration tests[9] to analyse the impact of financial sector development on private savings for 17 African countries, Kelly and Mavrotas (2003) found inconclusive evidence. Contrary to expectations, the results indicate that the positive relationship between financial sector development and private savings does not hold for all the countries in the sample. Khan (1993) on the other hand, found a significant impact of financial intermediation on both aggregate and financial savings in Pakistan. Such ambiguous results raise significant policy issues particularly with regard to the contribution of the existing financial structures in mobilising savings.

[9] These are tests with which one can analyse long run relation among variables.

2.1.3 Acquiring Information About Investments and Resource Allocation

Financial sector development encourages saving and investment through reduction of information asymmetry and transaction costs (King and Levine 1993, Boyd and Prescott, 1986). Individual savers may not have the time, capacity or means to collect and process information on enterprises and economic conditions. Consequently, they will be reluctant to invest in activities which have limited information thereby keeping capital to flow to its highest use. Due to economies of scale, financial systems collect and evaluate information more effectively and less expensively than individual investors, thereby encouraging them to invest more. This in turn results in a more efficient allocation of resources, a more rapid accumulation of capital, and faster technological progress leading to an increase in economic growth. Similarly, stock markets may influence the acquisition and dissemination of information about firms. As stock markets become larger and more liquid, market participants may have greater incentives to acquire information about firms and therefore increase investment.

Further, by lowering transaction costs, financial arrangements promote specialization, technological innovation and growth (Levine, 1997). This is based on the argument that specialization involves more transactions and therefore relatively higher costs. Hence, given reduced transaction costs, firms are able to improve their productivity, and therefore profitability, through increased specialization.

2.1.4 Monitoring Managers

Given that it is costly to monitor the performance of firm managers, it is not always possible for stakeholders (such as shareholders, equity and bond holders) to fully verify whether the managers run the firm in accordance with the interest of the stakeholders. For instance, managers have an incentive to

give misleading information to shareholders with regard to project returns. Due to monitoring costs it would not be easy for shareholders to verify the correct project returns. The use of financial contracts (such as debt contracts) and intermediaries enable stakeholders to minimise monitoring costs. In addition, financial intermediaries such as banks mobilise savings and lends resources to project owners. Thus, monitoring costs are minimised in that the borrower is being monitored only by the intermediary but not all the individual savers (Diamond, 1984 et al). It is important to point out that monitoring costs can impede investment decisions and reduce economic efficiency. Creditors would be unwilling to lend to firms if it involves high monitoring costs (to avoid default) and therefore this constrains firms from borrowing to expand investment.

It is quite evident from the above analysis that financial sector development plays a crucial role in accelerating the growth of an economy by channelling resources from savers to investment projects. The important question therefore is what policies can be used for financial sector development or conversely what impedes financial sector development. To this end, the main impediments to financial sector development, which have been highlighted in the literature are particularly with regard to fiscal policy; government imposed restrictions and price distortions such as high inflation taxation, high required reserves, ceilings on deposit and loan interest rates (Crean, Goyal, Mobarak, Sab , 2004). Such conditions are referred to as financial repression and a large body of research has shown that such policies undermine economic growth.

2.2 FINANCIAL REPRESSION MODELS

The McKinnon (1973) and Shaw (1973) hypotheses favours financial liberalisation and argues that financial repression in the form of ceilings on interest rates, causing real interest rates to be negative distorts the economy. According to the argument, low levels of interest rates encourage consumption

and lead to a reduced level of savings which in turn reduce the supply of loanable funds and credit rationing. Further, they encourage investment in low yielding projects rather than in the accumulation of financial savings resulting in investment being constrained by savings.

Contrary to the neoclassical monetary growth theory, McKinnon's arguments are based on the assumption that monetary holdings and capital accumulation are complementary in the development process. According to the argument, since agents need to accumulate money balances before investment takes place, positive interest rates would assist them in the accumulation of money balances and therefore result in increased investment and therefore growth. Testing this hypothesis, that is, complementarity of real money demand and real investment, McPherson and Rakovski (1999) found strong support for the hypothesis only for Mauritius. Whilst for Botswana the complementarity has been between real money demand and real savings. According to the authors, this may reflect the pattern and financing of investment in Botswana where the resource base was potentially rich that the necessary resources were provided from abroad during the initial stages of mine development.

Shaw (1973) on other hand emphasises financial deepening and financial liberalisation, arguing that these would contribute to the stability of growth in output and employment. Financial deepening which requires financial liberalisation and elimination of distortions in financial prices, would according to the argument, ease the strain on taxation, reduce dependency on foreign savings and obstruct capital flight. As a result of financial liberalisation which entails higher real interest rates, financial assets would grow relative to income causing financial institutions to extend and be able to provide more credit and give savers increased incentive to save. Generally, the McKinnon/Shaw school argues that financial intermediation contributes to growth through savings mobilisation and then efficiently allocating the resources across projects.

Historical events have indicated developing countries as being characterised by financial repression. This has been as a result of intervention by governments in allocating and pricing credit, controlling what banks and other intermediaries are able to do, using intermediaries as tax collection devices and limiting competition, particularly from foreign institutions. As argued by Mavrotas and Kelly (1999), some of these are unintentional in that they result from policies of financial restriction, in which ceilings are placed on interest rates by the government to provide firms with cheap capital, to facilitate expansion. Further, the belief that government knew better than the private sector what the optimal allocation of savings was or what kind of investment were required, led to the restrictive measures undertaken by governments. It is argued therefore that such policies reduced individual's incentives to save in the form of monetary assets and impacted negatively on economic growth.

Another school of thought by 'financial structuralists' led by (Goldsmith,1969 et al) attributes the low savings, investment and growth in developing countries to the relatively less developed financial structures in terms of financial assets, institutions and markets. Unlike 'financial repressionist', the argument does not include the impact of interest rates but instead postulates that financial intermediation affects savings directly.

Some studies are in support of the view that financial repression is detrimental to economic growth (Roubini and Sala-i-Martin, 1992; Murdock and Stiglitz, 1993) as postulated by financial repression models. However, even though they admit that a major financial repression is damaging to the economy, Murdock and Stiglitz also argue that a mild financial restraint including deposit rate controls and limitations on competition in the financial sector may be beneficial to growth. Financial repression is in most cases associated with high (volatile) inflation rates and low growth whilst mild financial restraint requires low inflation with slightly positive and predictable real rates. Murdock and Stiglitz (1993) therefore point out that by lowering cost of borrowing, the

government increases profitability of firms and therefore their investment, although lower interest rates may slightly lower household savings. Further, according to the authors, lower interest rates mean that banks will attract a safer mix of applicants, thus lowering the probability of default and increasing the safety of banks. The resulting increase in their franchise value may lead to more prudent behaviour by banks and thus a more efficient financial system (Caprio and Summers, 1996 et al). Consequently, the greater safety may induce more savings more than offsetting the small direct effect.

Also, there is still some controversy with regard to whether interest rates lead to increased savings as argued by financial repression models. Analysing the impact of real interest rates and financial intermediation on savings for Latin America and Asia, Gupta (1987) does not find much support for "financial repressionist" hypothesis. Instead, the findings indicate the most important determinant of savings as income growth, thereby supporting the permanent income hypothesis.

Similarly, Arestis, Demetriades, Fattouh and Moratidis (2000) find ambiguous results with regard to contribution of financial liberalisation on financial development. Out of the six countries[10] they were analysing, real interest rate is found to have a significant impact on financial development in four countries whilst for the remaining two countries the results are insignificant. Even for sub-Saharan Africa, it has been indicated that financial liberalisation, in most cases as part of the structural adjustment programmes, had very little impact on improving the size and allocation of savings (Nissanke, 1990 et al).

An explanation given as to why real interest rates may not have an impact on total saving is with regard to financial saving. According to Warman and Thirlwall (1994), financial saving is only one type of saving and as interest rates are raised there may simply be a substitution between financial assets and

other assets leaving total saving unchanged. Analysing the impact of financial liberalisation in Mexico, Warman and Thirlwall (1994) find real interest rates to be positively related to financial saving whilst total savings were invariant with respect to real interest rates. Similarly, Ghatak and Siddiki (2000) found that, for Bangladesh, a rise in real interest rates raises returns on financial saving and encourages people to divert funds from non-financial to financial assets.

Further, it is argued that, since any price change has both substitution effects and income effects, one can offset the other and therefore the effect on total saving will be limited. Another critic on financial repression models emanates from Keynesian's theory which indicates that it is investment which determines savings but not the other way round. Consequently, so the argument goes, high interest rates may discourage total saving by discouraging investment.

It has also been suggested that in the presence of information asymmetries, liberalisation may not necessarily lead to financial deepening as argued by 'financial repressionists'. Instead, the combination of information asymmetries and deposit insurance may lead to excessively high risky lending strategies and therefore an increase in bad debts (Caprio, 1994 et al) and potential for banking crisis. In addition, it is important to note that it is not only supply of loans by banks that matters, but also demand, that is, the decision to invest. Hence, availability of loans does not necessarily lead to increased investment unless there are other policies in place to boost investment decisions.

2.3 FINANCIAL REFORMS

In an attempt to avoid financial repression, most of the developing countries are now pursuing financial sector reforms aimed at promoting growth and financial stability as supported by the World Bank. These reforms mostly aim

[10] Greece, Thailand, Korea, Philippines, India and Egypt.

at improving credit allocation and higher quality financial services for a given level of inputs. One of the suggested approaches in improving credit allocation is limited government intervention in directing credit and/or setting interest rates and therefore enabling banks the freedom to set credit according to commercial criteria. Further, the use of reforms such as removal of interest rate controls is supposed to encourage competition resulting in improved quality and lower cost of services provided to the public by financial intermediaries such as banks.

However, even though increased competition can be beneficial by stimulating financial services, it can also be detrimental particularly to new entrants. Although incumbent banks may in the process of entry of new banks lose some of the market share, they may still retain enough share to exercise a certain degree of oligopoly. Consequently, as indicated by Brownbridge and Gayi (1999), such banks are able to maintain large interest rate spreads needed to cover their costs and therefore continue to be profitable. Further, foreign banks, particularly in developing countries, are able to dominate the market as they have the capacity to serve large corporate customers

To this end, the main concern has been whether the implementation of such reforms has been able to meet its intended objectives given that some of these countries are still lagging behind in terms of economic growth. For instance, the main concern in the Sub Saharan countries has been that the economic growth rates are not high enough to reduce the pervasive poverty facing such countries and are therefore not able to catch up with other developing nations. With such countries undertaking financial reforms, expectations are that they will boost financial depth (commonly measured by M2 and bank deposits as a percentage of GDP) and therefore economic growth. Analysing the performance of reforms in eight least developed countries (LDCs), Brownbridge and Gayi (1999) find that only the Asian LDCs (Bangladesh, Laos and Nepal) experienced an increase in financial depth whilst the

remaining sub Saharan[11] countries either experienced a decline or fluctuating financial depth (see Table 2) . This contrast according to the authors can be attributable to i) macroeconomic stability in the Asian countries as they experienced a relatively moderate inflation rates (see table 3) ii) removal of foreign exchange controls[12] in the African countries which allowed residents access to foreign assets whilst depreciation of their currencies made foreign assets even more attractive. Also, not all the countries in the study benefited in terms of increased credit allocation. However, according to the findings, all the countries were able to increase competition in the financial sector and therefore improvement in service provision.

[11] Malawi, Tanzania, Uganda, Madagascar, Zambia

[12] Restrictions on international capital flows such as direct quantitative constraints on external assets and liability positions of domestic residents.

Table 2: Indicators of Financial Depth: 1985, 1990, and 1995

(Percentage of GDP)

	1985	1990	1995
Bangladesh			
Bank Deposits	20.8	24.5	28.9
M2	24.5	28.1	33.8
Lao PDR			
Bank Deposits*	n.a	4.1	10.8
M2	n.a	7.2	13.8
Nepal			
Bank Deposits	15.9	19	23.8
M2	23.4	27.6	33.6
Madagascar			
Bank Deposits	12.4	11.5	13.6
M2	18.8	16.2	19.2
Malawi			
Bank Deposits	16.2	15	14
M2	19.7	18.9	18.5
Tanzania			
Bank Deposits	23.8	12.9	25.1
M2	35.1	19.9	25.1
Uganda			
Bank Deposits	5.9	4.2	6.1
M2	10.2	n.a	9.8
Zambia			
Bank Deposits*	24.8	17.6	12.8
M2	29.7	21.7	15.3

Table 3: Consumer Price Inflation and Real Deposit Rates: 1991-95

Country	Inflation (%)	Real Deposit Rates* (%)
Bangladesh	4.2	4.3
Laos	11.2	4.1
Nepal	11.3	2.8
Madagascar	24.2	n.a
Malawi	34.6	7.1
Tanzania	27.5	1.3**
Uganda	21	0.1
Zambia	113.1	4.8***

Source: Brownbridge and Gayi (1999)

Similarly, the Gockel and Brownbridge (1996) study indicates that even though the implementation of financial reforms in Ghana were to improve the institutional structure of the banking system, it still remained shallow and performed very little intermediation between savers and borrowers. This according to the authors is attributed to the high inflation rates which prevented the attainment of positive real interest rates. It is therefore quite evident from the above analysis that it is not only the implementation of financial reforms that matters for financial sector development and its contribution to economic growth but also macroeconomic and political stability. It is believed that the interaction of macroeconomic instability and inadequate bank supervision often results in an increase in real interest rates to risky levels (Stiglitz and Weiss, 1981 et al). Consequently, according to the argument, if deposit insurance is not properly priced, the unstable macroeconomic environment intensifies adverse selection and moral hazard problems as both banks and customers transact risky loans at higher interest rates. Customers would, in the long run, not be able to repay the loans due to, among others, high interest rates resulting in financial breakdown with bank failures and bankruptcies.

For instance, in an economy characterised by high inflation levels, banks are likely to experience difficulties in evaluating credit worthiness and therefore exacerbating the moral hazard and adverse selection problems. Also, it may cause banks to lend against unrealistic collateral, which in the event of asset prices becoming more realistic could leave financial institutions with inadequately secure assets. As indicated by Brownbridge and Gayi (1999), in a high inflation environment banks are not always able to maintain deposit rates at positive real rates resulting in a reduction in savings.

Given the importance of macroeconomic stability, Ikhede and Alawode (2001) argue that it is not only the implementation of the reforms that matters, but also the sequencing. This, according to the argument, is to avoid the moral hazard and adverse selection problems, and the resultant bank insolvency that may arise in an unstable macroeconomic environment leading to a general economic downturn. Hence they suggest the following sequence of implementation:

i) Preceding financial reforms with stabilization measures. Pursuing macroeconomic stability which involves dampening inflationary pressures through among others reduction in fiscal deficits, tightening monetary policy, stabilising balance of payments and restoring appropriate exchange rates.

ii) Restructuring and liquidating defunct financial institutions and strengthening regulatory and supervisory activities before granting new licences in an attempt to enhance competition in the system.

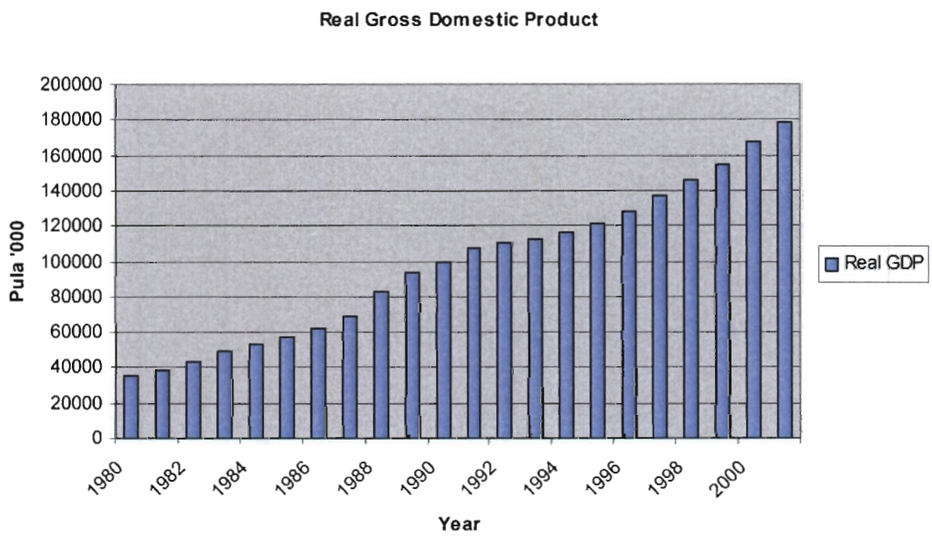
In summary, the current state of knowledge as analysed above, suggests that a well developed financial sector can facilitate growth or conversely a lagging financial sector can drag down growth prospects. Hence, government policy makers should not only facilitate and support the process of financial development but also ensure a stable macroeconomy which is a prerequisite for a well developed financial sector.

3. THE FINANCIAL SECTOR IN BOTSWANA

3.1 *Macroeconomic Overview*

The growth of the Botswana economy transformed it from one of the poorest in the world to a middle-income economy. Over the past three decades, the Botswana economy has recorded impressive growth rates in contrast to the economic stagnation and deterioration in many other parts of Africa. In the first two decades after independence (1966-1986), Botswana experienced GDP annual growth rate of 14.3% whilst in the 90s the economy experienced a growth rate of 13%. According to the Bank of Botswana Annual report (2001), much of the growth was due to the prolonged expansion of the mining sector and of government which has largely been financed by the proceeds of mineral resources. The following illustration indicates increasing growth in real GDP which has been experienced over the period 1980-2001.

Figure 2

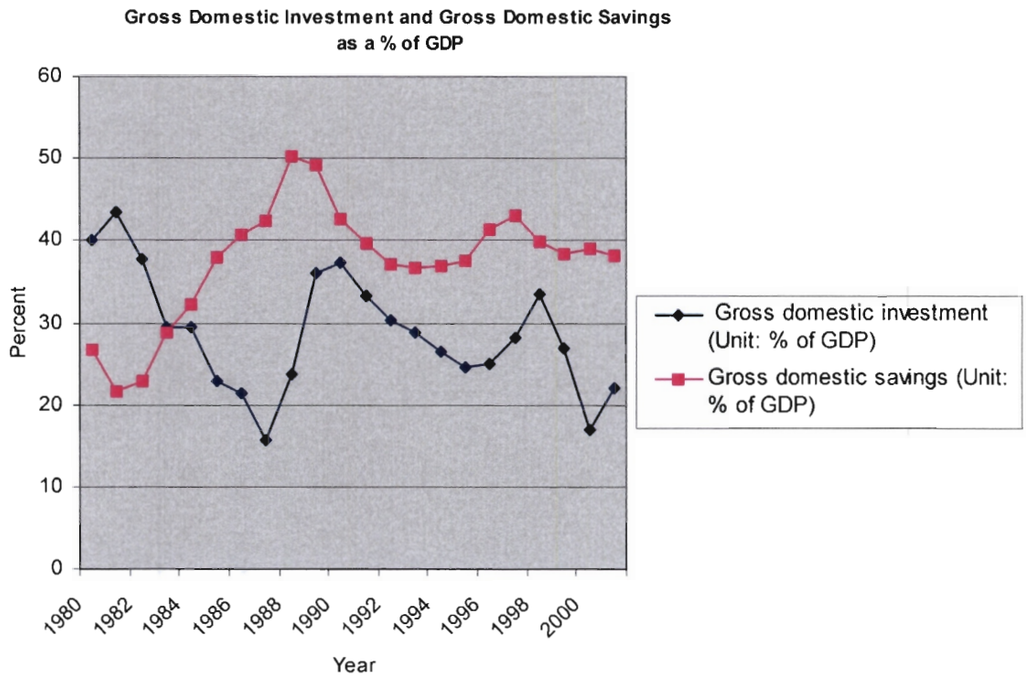


Source: World Development Indicators

However, the main concern has been with regard to the sustainability of mineral output which according to projections is unlikely to show significant growth over the next decade. Given the tremendous expansion and growth of the economy, the sector that has provided the basis of growth in the past is unlikely to do so to the same extent in the future. Projections also indicate that even if new mineral deposits (particularly diamonds which are the main source of revenue) are found and exploited, the proportionate impact of new mines on Gross Domestic Product (GDP) will be less than it was in the earlier years when the economy was small. This therefore poses a challenge for policy makers to accelerate the economic diversification strategy which is already in place.

One of the most noteworthy characteristics in Botswana is the large discrepancy between the savings and investment performance (Figure 3 below). Even though savings were rising and expected to finance the high demands for the expansion and improvement in capital stock, from 1983 investment was consistently declining. The investment rate declined from a high rate of 43% of GDP in 1981 to 7% in 1987 and later recovered to reach 36%. Similarly, the preceding years are characterised by fluctuations, with investment rates reaching a high of 33% and 22% in 1998 and 2001 respectively. These fluctuations were attributable to changes in the mining sector. As a result of expansion of mines, sectors providing services to mining increased their investment and therefore the overall investment levels. Unlike investment, savings rates have remained steady at around 39% since 1998. However, most of the savings have been attributable to public savings with an average annual rate of 16% compared to 13% for the private sector.

Figure 3



Source: World Development Indicators

Botswana has not been an exception with regard to the financial system being repressed in that in the 1980s, there was a significant intervention by the central bank and the government in the operations of the financial sector. As a result, the financial sector was characterised by lack of competition and a limited range of financial institutions and instruments. The central bank during this period exercised direct control over the commercial banks especially with regard to maximum lending and minimum deposit rates. The commercial banks had to set interest rates according to the central bank's directives. In addition, the financial sector was characterised by exchange controls on capital transactions, especially offshore borrowing and overseas investment by residents and capital inflows from non-residents. This therefore acted as a barrier in terms of savers accessing offshore financial assets which may well have offered higher yield than domestic assets.

Even more disturbingly, there was a rapid growth of liquidity in the system mainly due to rapid growth in mineral revenues. Given the excess liquidity, the central bank embarked on an expansionary monetary policy. The growth of deposits could not be absorbed quickly in productive uses at positive real interest rates and at the same time could not be moved offshore due to exchange controls. Hence, the bank initiated interest rate reductions in 1986 which in turn became negative in real terms for most of the period up to 1993. The combination of the low interest rates with exchange controls discouraged the accumulation of financial savings. As a result of negative real returns on monetary assets the economy experienced lack of financial deepening.

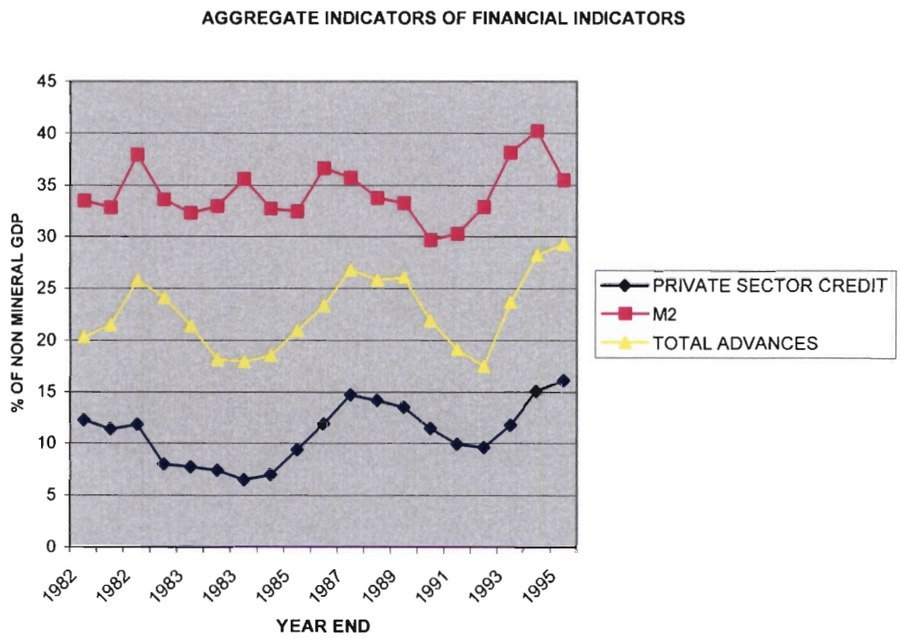
3.2 Indicators of Financial Development

Monetary aggregates are in most cases used to measure the extent of financial development. In the literature, the most commonly used measure of financial development is the ratio of some broad measure of money stock, usually M2/M3, to nominal income (King and Levine, 1993; Pentecost and Kar, 2000; Allen and Ndikumana, 2000). The monetary variable is supposed to indicate the real size of the financial sector in a growing economy in which money provides valuable payment and saving services.

Alternatively, one could either use the ratio of private sector credit or domestic credit to income. The latter represents domestic assets of the financial sector and is expected to increase as an indication of improvement resulting from positive real interest rates. Private sector credit on the other hand is used on the basis that it generates increases in investment and productivity to a larger extent than credits to the public sector. It is also argued that the improved quality of investment emanating from financial intermediaries' evaluation of project viability is more significant for private sector credit (Pentecost and Kar, 2000).

It is quite evident from Figure 4 below that Botswana's economy has been characterised by limited financial depth measured by the use of money (M2)[13], total outstanding advances of domestic institutions including government, commercial banks' credit to private sector all expressed as a percentage of non mining GDP. In an economy, these ratios would be expected to rise as an increasing proportion of resources flow through the formal financial system. As indicated in figure 4, the M2/Nonmining GDP ratio has not risen significantly over the observed period. The rise observed between 1996 and 1999 is not sustained as indicated by the downturn in the following year. This in turn may be an indication that even though the economy has been growing, the financial system has not contributed much to this economic growth.

Figure 4



Source: Bank of Botswana Annual Reports

[13] Which comprises of M1(currency outside banks plus demand deposits) plus call, savings, notice and time deposits.

Similarly, the ratio of total outstanding advances to non mining GDP shows significant fluctuations over the period. The most notable is the upward growth between 1989 and 1992 which may be due to increased bank lending and government credit to parastatals during this period. The increase is however followed by a sharp decline from 1992 which may be a reflection of government's intentions to reduce its lending to parastatals and also the lack of capacity of private financial institutions to sustain the lending. From 1997 the ratio standardises at an average of around 40%.

The third ratio of private sector credit is an indication of the extent to which the private sector financial institutions are allocating credit to businesses. One would therefore expect the ratio to rise as a reflection of increased role played by financial institutions in economic development and diversification. For most the period, the ratio hovers around 10% after which it rises gradually. Even though this may be a reflection of limited contribution of financial institutions in terms of delivering finance to deserving projects (supply constraints), it may also be due to lack of viable projects seeking bank finance (demand constraints). Hence one would not argue that it is entirely due to limitations of financial institutions. However, given the limited diversification of the financial system during this period, one would therefore argue that it may be a bit of both.

3.3 Government as a financial intermediary

This section is an overview of the pattern of government involvement in Botswana's financial sector. The government has been for quite some time the largest credit provider in the economy by providing loans to parastatals, through the Public Debt Service Fund (PDSF) and Revenue Stabilisation Fund (RSF). The initial establishment of the funds were to finance future public debt obligations of the government. However, they later expanded and became a source of credit to parastatals and to a lesser extent local authorities since

domestic financial institutions were not able to provide much of this finance. During the 1980s, government lending to parastatals increased at a higher rate than commercial bank lending. Table 4 clearly indicates that there was a significant growth of outstanding PDSF loans to parastatals. By 1995, government share of total lending had increased to 57% from 52% in 1992. Commercial banks, on the other hand, had a lower share of lending to parastatals.

Table 4: Parastatal Loans from Commercial Banks and PDSF

	PDSF Loans (P'million)	**Interest Rates (%)**	**Commercial Bank Loans (P'million)**
1982	123.3	10.0	7.8
1990	797.5	8.0	56.8
1994	2053.6	14.6	148.4
1997	2483.9	14.6	61.4
1999	2131.0	14.6	527.6
2000	2083.5	16.25	458.1
2001	1987.3	16.25	479.9
2003	2773.4	15.75	448.3

Source: Bank of Botswana Annual Reports

Further, the government lent at rates slightly below the commercial bank prime lending rate and almost all government lending was longer term than commercial bank credit. By 1993 the rates were raised to a maximum of 14.6% but were still below that of commercial banks. Even though the PDSF loans were criticised for not being able to properly match the financing needs for parastatals[14], the lower rates served as a subsidy. Consequently, commercial banks complained against government lending at lower rates

[14] Most of the financial needs were of shorter periods since their capital assets were normally depreciated over a shorter time span or their on-lending was of a much shorter period (BOB 1999 annual report)

arguing that it excluded them from a significant part of the loans and partly explained their loss of market share.

Given the lower interest rates and inadequate supervision of some projects financed by PDSF loans, most of the parastatals were faced with difficulties due to reduced financial discipline. For instance, some of them had overwhelming levels of bad debts which were attributed to among others, mistaken policies and inadequate management. Consequently, they had to be reorganised and restructured in the early 1990s, though not all of them were able to avoid insolvency. However, even though most of the parastatals were not performing well, only one was recognised as having performed relatively successfully with impressive profits. Most of this success was attributed to limited government interference in day-to-day management.

Recommendations made by the Botswana government, the central bank and the World Bank (1989) included among others reducing the role of government in the financial sector. Government's policy therefore aimed at shifting parastatal funding towards commercial sources of finance. As a result, the outstanding amounts of PDSF loans declined. By 1990, government lending through PDSF amounted to 50% of total lending, whereas by the end of 2000, its share was only 26%. There remains, however, a significant amount of outstanding PDSF loans which may be due to the fact that they have to mature over the long term (see Table 4). Even though by 2003 commercial banks were the largest lenders in the economy, their lending to parastatals was still relatively low.

Further, the government provided grants to approved and new expanding enterprises through the Financial Assistance policy (FAP), which was established in 1982. Given the inexperience of most entrepreneurs in Botswana and the high risk of financing new businesses especially with loans, the government preferred grants rather than loans. The programme later proved to

be less cost effective due to increasing bu e of the scheme and was therefore wound up in 2001. It was later decide ' ,) use another scheme to provide subsidised loans (Small, Medium and Mic,) Enterprises (SMME)). The scheme also raised concerns with regard to its effectiveness given the rapid drawdown of its initial capital and substantial arrears. Consequently, the two schemes were replaced by a newly established agency (Citizen Entrepreneurial Development Agency) which provides loans to commercially viable enterprises.

3.4 Financial Reforms

Recognising the dangers of repression of financial sector operations on economic growth, the government undertook financial sector reforms. As with financial sector programmes elsewhere in Africa, they have several interrelated objectives including among others strengthening techniques of monetary control, stimulating competition in financial markets, enhancing the efficiency with which financial services are provided and financial resources allocated. The reforms therefore involved: abolition of exchange controls, promotion of efficient operations of commercial banks and other private sector financial institutions and strengthening prudential regulation and supervision.

i) Promotion of Efficient Operations of Commercial Banks

In an attempt to encourage competition within the financial sector, additional banks were licensed and regulating bank tariffs by the central bank was abolished. By increasing competition the quality and services in the financial sector were expected to improve. Further, more competitive financial services and more competition in the setting of deposit and lending rates of interest are expected to give consumers a wider range of choice thereby leading to increased financial savings.

Not until the 1980s, the banking market comprised of only two foreign banks. However, from 1982, additional banks were licensed with some of them not being able to compete with the incumbent banks. Additional banks brought diversity in the banking sector in that they brought in new approaches to business. For instance, some decided to compete for retail banking business through rapid expansion of branches and provision of new and better services whilst others focused on corporate finance. As a result, entrance of the commercial banks in the market added a different flavour to competition in that the incumbent banks had to improve the quality and also add new banking services. However, some of the incumbent banks were at the same time forced to close down some of their branches resulting in reduced employment. By the end of 2003, the private banks serving the Botswana market comprised five commercial banks and two merchant banks.

ii) Establishment of the Stock Exchange

With the aim of further diversifying the financial sector, the Botswana Stock Exchange (BSE) was established in 1989. Due to the instruments (corporate equities and bonds) issued and traded on the BSE which have different characteristics[15] as compared to loans and deposits offered by the banks, savers and borrowers tend to have extended range of choice. Irrespective of the increase in the number of listed companies (from 5 to 16 by 2000), the limited liquidity[16] of the stock exchange has been a concern since it may be a reflection of lack of alternative investment opportunities. Consequently, the deepening of the stock market may be retarded resulting in a reduction in its contribution towards economic growth. Table 5 presents the trends in turnover and turnover ratio in BSE trading since 1989-2003. The turnover ratio (column 3) which is

[15] Risk, return, liquidity and maturity.
[16] Liquidity of the market depends on both transaction costs and investor willingness to dispose of securities frequently. These in turn influence both the availability of shares and attractiveness of investing in shares of listed companies relative to alternative investment opportunities.

used as a measure of liquidity of the stock exchange is quite low and has been fluctuating over the period indicating the limited liquidity over the period.

Table 5: Trends in Turnover and Turnover Ratio in BSE

Year	Value of Traded Shares (Turnover) (P million)	Market Capitalisation as % of non-mining GDP	Liquidity (total value of stocks traded as % of market capitalisation)
1992	31.9	12.6	4.9
1996	103.3	12.7	8.7
2000	277.4	31.2	5.3
2002	345.2	45.5	3.7
2003	745.6	39.8	7.9

Source: Bank of Botswana Annual Reports

iii) Abolition of Exchange Controls

With the abolition of exchange controls in 1999, the government intentions were to increase integration into international financial markets. Consequently, this would enable the country to tap global financial resources since firms and households would take the opportunities to diversify both their investment portfolios and sources of funds. However, it should be noted that there may be downside risks that accompany increased integration in the global market. As indicated by Crook (2003), financial markets are more prone to error[17] and therefore may result in, among others, currency crisis, bank failures and stock markets crash. This presents a challenge for policy makers in the implementation of monetary policy and also in coming up with strategies which can prevent financial crises. The International Monetary Fund has suggested (particularly for developing countries) among others proper bank

[17] These markets are prone to error because decision making is mainly based on expectations and therefore uncertainties.

regulation, reduced corruption, improved transparency and macroeconomic stability.

iv) Strengthening Prudential Regulation and Supervision

Strengthening the legislative and institutional framework for the prudential regulation of financial markets has involved enacting new legislation to replace the existing Act. The main concern was that the Act had become outdated and its provisions were deficient in many respects. For instance, the authority to license banks laid with the government rather the central bank which at the same time was excluded in the supervision of some of the parastatals. The revised Banking Act rectified most of these legislative defects by bringing in more flexibility in the system of banking regulation and supervision. Through the Act, the central bank was given the responsibility of granting banking licences.

From the above analysis, it is quite evident that the Botswana government has made some effort to improve the financial system. To this end, there has been an improvement in terms of increasing competition. However, the economy seems to be lagging behind in deepening the financial system and therefore its contribution to economic growth. This may be an indication that the contribution of financial reforms would probably be experienced in the long run. To further analyse the contribution of the financial system to Botswana's economic growth, in the following section we use an econometric model relating economic growth to financial indicators.

4. ECONOMETRIC ANALYSIS

4.1 Data Sources

To test the effect of policy on growth, one would prefer to use a long time series. However, due to limitations in availability of data, especially since reliable data are available after the establishment of the central bank, this paper employs data from 1976-2002. The primary sources of data are Bank of Botswana reports, Botswana Statistical Bulletin and World Bank Development Indicators.

4.2 Econometric Growth Model

Since we are interested in examining the contribution of financial sector development in economic growth, the econometric analysis uses a reduced-form equation relating the growth rate of real per capita gross domestic product (GDP) to an indicator of financial development, controlling for other factors that affect economic growth. We use the following model:

$$lny_t = \rho + ßlnFin_t + \delta lnX_t + u_t$$

where y is real per capita GDP at time t, Fin is an indicator for financial development, X is a vector of control variables, ρ is an intercept term and u_t is a white noise error term which captures the effect of other variables not included in the estimation. Given that the development of the financial sector has several dimensions and does not have a single variable to capture all its aspects, we use three indicators; namely; M2 which is a measure of money stock, private sector credit and domestic credit provided by the banking sector all expressed as a percentage of GDP. Generally, one would expect all the financial indicators to be positively correlated to economic growth. As a preliminary test for this positive relationship, we estimate correlation

coefficients between three financial indicators net domestic credit by banks (DOMCRED), M2, private sector credit (PRIV) and three growth indicators; real GDP per capita (RGDP), ratio of investment to GDP (INV) and real per capita growth rate (GYP) for Botswana.

Contrary to expectations, the correlation between financial development and growth is neither consistently high nor consistently positive (see table 6). The only financial indicator which has a positive correlation to growth is DOMCRED. Such ambiguous results may be a reflection of the low contribution of the financial sector to economic performance which has been highly dependent on mining. However, one would expect low positive correlation coefficients to indicate the low contribution rather than negative coefficients. The negative signs do not make economic sense and may be as a result of flaws in the data used to generate the coefficients.

Table 6: Correlations of Growth and Financial Indicators (1976-2001)

	RGDP	INV	GYP	DOMCRE	M2	PRIVATE
RGDP	1	0.53	0.51	0.93	-0.81	-0.81
INV	0.53	1	0.12	0.57	-0.44	-0.46
GYP	0.51	0.12	1	0.34	-0.28	-0.35
DOMCRE	0.93	0.57	0.34	1	-0.83	-0.79
M2	-0.81	-0.44	-0.28	-0.83	1	0.98
PRIVATE	-0.81	-0.46	-0.35	-0.79	0.98	1

The following control variables, except for human capital, are included in the regressions:

Inflation

Theoretical arguments regarding the impact of inflation on growth appear to be contradictory. The Tobin-Mundell hypothesis states that anticipated inflation causes portfolio adjustments that reduce the real interest rate and raise

investment and therefore growth. Contrary to this argument, it is believed that since prices are an indication of vital information regarding resource allocation, any disruption in the price system causes misallocation of resources with the corresponding loss of efficiency. Even though it is not clear that high inflation will induce such distortions, the general belief is that the volatility of inflation rises with its level. Empirical evidence seems to suggest that inflation is detrimental to economic growth especially in the long run (Stock, 1981 et al; Barro, 1997). As a result, central bankers view price stability as a worthy objective under the general idea that businesses and households tend to perform poorly when inflation is high and unpredictable. We therefore include inflation on the basis of the latter argument and therefore expect a negative sign.

Openness

Export promotion has been considered as an important investment for growth. Through an export oriented strategy, a country can raise factor productivity, efficiently use its resources and increase its technological innovations. Also, as a country expands and becomes integrated to international markets, it can increase its capacity utilisation. Similarly, imports can positively impact on economic growth if they are associated with capital goods. For instance, by importing higher quality intermediate inputs and incorporating them in the production process, countries would be able to improve production and therefore increase growth. It should however be noted that openness can have a negative impact on economic growth especially if a country imports more than it exports, that is, net importer, which is generally the case with developing countries. To capture the notion of openness, we average the imports and exports. We expect this variable to have a positive impact on economic growth.

Government Consumption

An increase in government expenditure may be detrimental to economic growth by among others crowding out private capital accumulation or increasing inflation. Also, unbalanced fiscal policy might be a symptom of problems such as lack of good governance which could adversely affect a country's productivity growth. To test this effect, we use the general government expenditure and expect a negative impact on growth.

Human Capital

Finally, it is important to point out that human capital also plays a crucial role in increasing growth. It is believed for example that human capital is a major component to research and development that innovates technology (Romer, 1990). As a result countries with larger initial human capital stock are likely to have more new products and therefore grow at a relatively higher pace. However, due to data limitations, the model we use does not include human capital variable. It is therefore important to point out that this is one of the limitations of my analysis.

4.3 Regression Results

Even though the interest here is on the impact of financial indicators on growth, one cannot rule out the possibility of simultaneity between the finance variable and economic growth in the estimation, which may distort the econometric results. As mentioned previously, apart from the contribution of financial sector development to economic growth, rich countries might have well developed financial sectors because the income elasticity of demand for financial services is large. That is, unlike in poor countries, wealthy people have the capacity to demand for banking services, thereby leading to increased

competition and diversity in the financial sector. In such a case, it is economic growth which impacts on financial sector development. Estimation of models with such variables may be affected by simultaneity bias and as a result lead to distorted results. Botswana for example, has been performing well in terms of economic growth, which may contribute to financial sector development and therefore the impact of simultaneity can not be ruled out. Amongst the commonly used methods to address simultaneity bias is the instrumental variable estimation and vector autoregression approaches. The results are therefore presented using two approaches: I) standard ordinary least squares (OLS); ii) Cointegrating Vector Autoregression Approach (VAR). Also, given the small size of our sample due data limitations, we use two sets of data: 1) annual data for the whole period (1976-2002) quarterly data from 1993-2002 which mostly represents the period after introduction of financial reforms.

4.3.1 Effects of Financial Indicators on Growth

The analysis is commenced by estimating a correlation matrix of the explanatory variables, which indicates both the direction and level of relationship between variables and the results are reported in Table A1. It is quite evident that some of the variables are correlated which may distort the results due to multicollinearity[18]. For instance, openness and inflation seem to be correlated to M2. For instance, openness and inflation seem to be correlated to M2 as reflected by the correlation coefficients which are high (more than 50%). Also, since OLS requires that the variables should be stationary[19], Augmented Dickey Fuller test is used to determine whether they are stationary (see Table A2). All the variables have been found to be nonstationary and therefore rendered stationary by taking first differences. Hence, they are said to be integrated of order 1, I(1). Having established the stationarity of the

[18] This indicates a situation in which variables are linearly related. We will examine the impact of the correlated variables by re-estimating the regression excluding one of the variables (see Table A3).
[19] A variable is said to be stationary if it does not vary overtime, that is, its mean, variance and covariance remain the same.

variables, the model is estimated using OLS and the results are reported in Table 7[20] below.

[20] Figures in the parenthesis are t-statistics. The symbol * and ** indicate statistical significance at the 5 and 10% level of significance.

Table 7: Ordinary Least Squares Results

Explanatory variables	1)With Private sector Credit	2)With Domestic Credit by banks	3) With M2
Annual data			
Constant	0.41003	1.6677	-60.3394
	(1.3716)	(4.5969)*	(-3.1276)*
Openness	0.89172	0.49512	5.5892
	(15.1418)*	(4.5126)*	(0.49152)
Inflation	0.015926	0.021706	0.14093
	(1.6429)	(2.4941)*	(0.24703)
Gov Exp	-8.8233	-11.9415	-9.9382
	(-1.7583)**	(-3.0137)*	(-2.886)*
Financial Indicator	0.00385	-0.0069836	31.3635
	(0.43452)	(-3.3784)*	(3.2506)*
R^2	0.92518	0.94727	0.91207
Quarterly data			
Constant	4.2810	5.2369	3.9472
	(6.7375)*	(7.0203)*	(5.5569)*
Openness	0.11974	-0.34933	0.092964
	(0.77744)	(-2.7102)*	(0.58740)
Inflation	-0.0322	-0.02202	-0.017264
	(-3.9928)*	(-1.3329)	(-1.72)**
Govt Exp	-34372	-0.17102	-0.25084
	(-1.7072)**	(-0.69924)	(-1.2228)
Financial Indicator	0.004	-0.4145	0.00323
	(4.4730)*	(-1.5249)	(4.1286)*
R^2	0.73700	0.60897	0.72173

As indicated in the results, the effect of the private sector credit is positive in both the annual and quarterly data as expected. However, it is only statistically significant under the quarterly data. Domestic credit on the other hand has not performed well under both sets of data in that the corresponding coefficients are both negative. Therefore, the significant impact portrayed by the regression with annual data does not make much economic sense since it implies that, contrary to expectations, financial sector development leads to a decline in economic growth. The only financial indicator, which performs well in both regressions, is the monetary stock, M2. That is, it is positive and significant under both sets of data. Also, the results do not seem to change even after excluding variables which are correlated to the financial indicators. Both M2 and private sector credit remain positive and significant whilst domestic credit is negative and insignificant (see Table A3 in the appendix). The regressions seem to have a good explanatory power as reflected by the R^2. For instance, the R^2 value 0.737 implies that the explanatory variables (financial indicator, inflation, openness and government expenditure) explain about 74% of the variation in economic growth, that is, their contribution to economic growth.

Further, the results do not indicate any improvement in terms of the contribution of the financial sector even after the introduction of financial reforms. The impact of the two financial indicators seems to be limited in that it ranges between 0.3 and 0.4%. For instance, according to the quarterly data, a 1% increase in money stock leads to a 0.4% increase in economic growth. This may be indication that the effects of the financial reforms would probably be observed in the long run.

With regard to the control variables, the results indicate that openness has a positive impact on economic growth, though not significant with quarterly data. This in turn is an indication of how the economy would benefit from trade, with demand of locally produced goods increasing and also domestic producers

having access to capital and technology. Also, the results indicate that government expenditure can adversely affect economic growth, although not significant with two of the regressions in quarterly data. The findings are also in support of the view that inflation is detrimental to growth as indicated by the negative significant coefficients, particularly when using quarterly data. Annual data on the other hand seem to support the Tobin-Mundell school that inflation may be beneficial to economic growth. Such ambiguous results require a more detailed analysis particularly on the determinants of economic growth.

Further, an econometric framework based on cointegration and error correction mechanism is used in the estimation. In the first step, Johansen's approach is used to determine if there is a long run relationship among the variables in the model. However, the short run structure of the model is important in terms of the information it conveys, which is associated with the short run adjustment of the variables. This paper therefore uses the error correction mechanism to identify the short run impact of the variables.

Given that domestic credit does not seem to perform very well, the analysis is only done for money stock and private sector credit as financial indicators. As indicated in Table A4, the maximal eigenvalue test approach suggests the existence of only cointegrating vector in both cases.

Table A5 reports the coefficients and standard errors obtained from the Johansen technique to test for existence of long run relationship among the variables (cointegration). According to the results with quarterly data, both money stock and private sector credit have, in the long run, a significant positive impact on economic growth. In both cases, the coefficients are more than double the standard errors indicating that they are statistically significant. Further, all the control variables with quarterly data have the expected signs but

are not all significant[21]. However, regressions with annual data do not indicate any long run impact of the financial indicators. Instead, some of the indicators have negative insignificant coefficients. One possible explanation for such results would be that quarterly data reflects the long run impact of financial reforms, particularly on investment and therefore growth.

Having established the long run relationship among the variables, the error correction mechanism is used to identify whether GDP per capita is able to adjust to changes in the explanatory variables in the short run. The results are reported in Table 8 and suggest that GDP per capita does not adjust to changes in the explanatory variables in the same period. This is indicated by the significant random error terms suggesting that we reject the null hypothesis that they take the value zero. Also, in both cases the coefficient of the error terms is positive. This therefore implies that if economic growth happens to be below its equilibrium value, it will start increasing in the next period to correct the error.

Table 8: Error Correction Mechanism Results for LRGDP

	With Private Sector Credit	**With M2**
Constant	64.6235 (7.2825)*	108.4394 (6.0896)*
LRGDP(-1)	0.46850 (2.9557)*	0.24687 (1.5559)
LRGOV(-1)	-7.9562 (-1.9156)**	2.1944 (0.48602)
LOPEN(-1)	12.4754 (3.2849)*	9.9947 (2.4305)*
INFL(-1)	-0.25517 (-0.50731)	-0.34032 (-0.59723)
Financial Indicator(-1)	0.22252 (2.6381)*	-8.9850 (-1.2072)
ECM(-1)	1.2935 (7.2154)*	1.2580 (6.0183)*

Further, the results indicate a positive significant impact of financial sector development measured by lagged value of private sector credit. All the other

[21] In the regression with M2, government expenditure is insignificant whilst that of private sector credit openness is insignificant.

explanatory variables have the expected signs and are significant except for inflation. The coefficient on money stock is not significant and has the wrong sign. In this regression, only openness is significant and has the expected sign. On the other hand, economic growth does not seem to be contributing positively to financial sector development. This is indicated in the results reported in Table A6, which indicate negative significant coefficients for GDP per capita. Given that one would expect an increase in economic growth to lead to increased demand for financial services and therefore financial development, the negative sign does not give any economic sense. However, the diagnostic tests in all the regressions indicate the absence of autocorrelation, heteroscedasticity, normally distributed residuals and that the equation is correctly specified.

Overall, the findings suggest that there is evidence supporting the hypothesis that financial sector development has a positive effect on Botswana's economic growth in the long run. It should however be noted that the results are in most cases sensitive to the choice of the financial indicator. This is reflected in the better performance of regressions with M2 and private sector credit as compared to that of domestic credit. Also, as mentioned previously, demand for credit does not only depend on supply but also demand. Hence, the poor performance of the credit variables may be as a result of the low demand of finance or limited investment opportunities. However, private sector credit seems to have an impact on growth after the introduction of financial reforms. This may be due to an improvement in credit allocation as a result of among others, strengthening prudential regulation and supervision. The results are however consistent with Allen and Ndikumana (2000) findings in which financial development is found to have a positive effect to growth in the SADC region. And of course Botswana is a member of the SADC region. The study used liquid liabilities (M3) as a measure of the size of financial sector.

5. CONCLUSION

It has been evident that developing countries, particularly in Africa, are lagging behind in terms of economic growth not only due to macroeconomic instability and other non-commercial factors, but also because of relatively underdeveloped financial sectors. In such countries, funds are not allocated to worthwhile investments which in turn would boost economic growth. This paper therefore, using Botswana as a case study, provides an assessment of the impact of financial sector development on economic growth. Specifically, we use time series techniques relating GDP per capita to measures of financial sector, controlling for other factors, which have an impact on economic growth.

The empirical findings have demonstrated that financial sector development has a positive long run effect on economic growth whilst in the short run it does not seem to have an impact. This therefore suggests that government policies toward financial systems would, in the long run, have an important effect on growth. However, the contribution of the financial sector seems to be limited as reflected by the low coefficients obtained. The results also differ from one financial indicator to another with money stock and private sector credit performing much better than domestic credit.

One possible explanation for the limited contribution of the financial sector would be with regard to the model's capacity to fully capture the channels through which the financial system contributes to growth. For instance, through the use of financial indicators such as private sector credit, we are not able to observe the quality of projects financed. Hence, the model may not have captured the actual contribution of the financial sector. However, with most of Botswana's growth having been mineral led, one would not expect much contribution from the financial sector. This therefore poses a challenge for policy makers not only to consider the implementation of financial reforms

as a way of improving the financial sector, but also the proper sequencing of such reforms as suggested by Ikhede and Alawode (2001). An important approach suggested by the paper is to ensure macroeconomic stability afterwhich other reforms can follow.

Also, to capture the channel through which financial development may be linked to long run growth, one could consider the decomposition of the variables. For instance, per capita GDP may be disaggregated into components such as the rate of physical capital accumulation. This in turn would enable one to identify how well the financial sector is doing in contributing to growth through capital accumulation. Further, given that the stock exchange has just been recently established, we were not able to capture the role played by stock markets. Hence, it would be beneficial to include it for future analysis.

REFERENCES

Arestis, Demetriades, Fattouh, Mouratidis (2000) "The Impact of Financial Liberalisation Policies on Financial Development: Evidence from Developing Economies",
http://www.le.ac.uk/economics/research/RePEc/lec/leecon/econ02

Bank of Botswana Annual Reports (1993-2004)

Barro R (1996) "Determinants of Economic Growth: A Cross Country Empirical Study", London School of Economics, MIT Press.

Bencivenga V R and Smith B D "Financial Intermediation and Endogenous Growth" Review of Economic Studies, 58 pp. 195-209.

Brownbridge M (1996) "Financial Repression and Financial Reform in Uganda", IDS Working Paper no. 30
http://www3.ntd.co.uk/ids/bookshop/details.asp?id=21.

Brownbridge M and Gockel A (1996) "The Impact of Financial Sector Policies on Banking in Ghana", IDS working paper no. 38, www.ids.ac.uk/ids/bookshop/wp/wp38.

Boyd J H and Prescott E C (1986) "Financial Intermediary Coalitions", Journal of Economic theory, vol.38,no.2, pp 211-232.

Brownbridge M and Gayi S K (1999) "Progress, Constraints and Limitations of Financial Sector Reforms in the Least Developed Countries", http://www.devinit.org/findev/Working%20Paper7.htm

Creane S, Goyal R, Mobarak A M and Sab R (2004) "Financial Sector Development in the Middle East and North Africa"IMF Working Paper,WP/04/201 www.imf.org/external/pubs/ft/wp/2004/wp04201

Crook C (2003) "A Survey of Global Finance",
www.economic.jku.at/kohler/tueb/economist-survey/

Development Report (2003) "Financing Africa's Development: Enhancing the Role of Private Finance"Development Bank of Southern Africa (DBSA) and The New Partnership for Africa's Development (NEPAD)

Ghatak S and Siddiki J U (1999) "Financial Liberalisation and Endogenous Growth:The Case of Bangaladesh, www.kingston.ac.uk/economics/research/9908.

Greenwood J and Jovanovic B (1990) "Financial Development, Growth and the Diastribution of Income"Journal of Political Economy 98(5) pp 1076-1107

Gupta K L (1987) "Aggregate Savings, Financial Intermediation and Interest Rate", The Review of Economics and Statistics, Vol. 69(2), pp 303-311.

Harvey (1996) "Banking Policy in Botswana: Orthodox but Untypical", IDS Working Paper No. 39, www3.ntd.co.uk/ids/bookshop/details.asp?id=330.

Ikhede S I and Alawode A A (2001) "Financial Sector Reforms, Macroeconomic Stability and the Order of Economic Liberalisation: The Evidence from Nigeria", African Economic Research Consortium, paper 112, www.aercafrica.org/documents/rp112.pdf.

Khan A, H (1993) "Analysis of Savings Behaviour Pakistan", Journal of Savings and Development, Vol. 2

King and Levine (1993) "Finance, Entrepreneurship and Growth", Journal of Monetary Economics, 32, pp 513-542.

Levine R (1997) "Financial Development and Economic Growth", Journal of Economic Literature, Vol.35, pp 688-726.

Mavrotas G and Kelly R (1999) "Financial Sector Development and Savings Mobilisation: An Assessment", Institute for Development Policy and Management, Working Paper No. 10, University of Manchester.

Mavrotas and Kelly (2003) "Savings and Financial Sector Development: Panel Cointegration Evidence from Africa", United Nations University, World Institute for Development Economics Research.

Mckinnon R (1973) "Money and Capital in Economic Development",Washington DC, Brookings Institution.

McPherson M F and Rakovski T (1999) "Financial Deepening and Investment In Africa: Evidence from Botswana and Mauritius", Harvard Institute for International Development, Discussion Paper No. 727.

Murdock K and Stiglitz J (1993) "The Effects of Financial Repression in an Economy with Positive Real Rates", Background Paper for World Bank, http://www.ecofuente.freeservers.com/eco/eco3.htm.

Pentecost E J and Kar M (2000) "Financial Development and Economic Growth in Turkey: Further Evidence on the Causality Issue", Loughborough University, Research Paper No. 00/27, UK, www.econturk.org/mushinkar.pdf.

Roubini N and Sala-i-Martin (1992) "Financial Repression and Economic Growth", Journal of Development Economics, vol.39, pp. 5-39.

Shaw E (1973) "Financial Deepening in Economic Development",New York, Oxford University Press.

Wachtel P (2001) "Growth and Finance:What Do We Know and How Do We Know It?",International Finance 4:3,pp. 335-362.

Warman and Thirlwall (1994) "Interest Rates, Savings, Investment and Growth in Mexico 1960-90:Tests of the Financial Liberalisation Hypothesis", The Journal Development Studies, Vol.30, No.3, pp 629-649.

APPENDIX

Econometric Methodology

Table A1: Estimated Correlation Matrix Of Variables

	INFL	LOPEN	LRGOV	LRM2	PRIVCRED	DOMCRED
INFL	1					
LOPEN	0.3817	1				
LRGOV	0.3009	-0.0353	1			
M2	-0.6687	-0.6931	-0.0874	1		
PRIVCRED	-0.4407	-0.7894	0.0593	0.8908	1	
DOMCRED	0.8448	0.4073	0.2834	-0.8039	-0.5485	1

INFL – Inflation LRGOV – Government Expenditure
LOPEN – Openness M2 – Money Stock as a % of GDP
PRIVCRED – Private Sector Credit as a % of GDP
DOMCRED – Domestic Credit by Banks as a % of GDP

Table A2: Augmented Dickey Fuller Test

	At Levels		**First Difference**	
	ADF Statistic	**5% Critical Value**	**ADF Statistic**	**5% Critical Value**
LRGDP	-0.3708	-2.9399	-8.6043	-2.9422
LOPEN	-1.5597	-2.9399	-6.9359	-2.9422
INFL	-2.2378	-2.9399	-4.8178	-2.9422
LRGOV	-1.0241	-2.9399	-4.6167	-2.9422
PRIVCRED	-1.4468	-2.9399	-4.9076	-2.9422
M2	-0.4222	-2.9399	-7.0627	-2.9422
DOMCRED	-0.9449	-2.9399	-4.2505	-2.9422

To avoid the problem of spurious regression, that is, a situation in which we obtain a very high R^2 even though there is no meaningful relationship between the variables, we tested all the variables for stationarity[22]. All the variables were found to be nonstationary and therefore rendered stationary by differencing. Having been differenced once to be rendered stationary, they are said to be integrated of order 1, I(1). Since for all the variables, the ADF statistic is less than the critical value indicating that they are nonstationary at levels, we difference them once to render them stationary. As indicated in Table A2 above the variables are I(1) as indicated by the ADF statistics which are now more than the critical values.

Table A3: Ordinary Least Squares Results Excluding Variables Correlated to Financial Indicators

	With M2	**With Domestic Credit**	**With Private Sector Credit**
Constant	4.2278 (9.2766)*	4.9099 (6.8270)*	4.5460 (10.1140)*
LRGOV	-0.34531 (-1.7400)**	-0.16648 (-0.68611)	-0.32723 (-1.5574)
LOPEN	_	-0.33823 (-2.6420)*	_
Inflation	_	_	-0.25536 (-3.2708)*
Financial Indicator	0.0034662 (8.6023)*	-0.7014 (-4.5198)*	0.0036618 (5.6088)*
R^2	0.68365	0.58664	0.70004

One of the requirements of a good performing model is that there should not be autocorrelation, heteroscedasticity and the residuals should be normally distributed. Apart from the regression with domestic credit, the diagnostic tests of the regressions indicate the absence of autocorrelation, heteroscedasticity and that the residuals are normally distributed. However, even though the results with domestic credit indicate no autocorrelation after excluding inflation, there seem to be no improvement with regard to the significance and signs of the variables.

[22] A time series is said to be stationary if its mean , variance and covariance remain the same no matter at what point they are measured, that is, they are time invariant.

Table A4: Cointegration LR Test Based on Maximal Eigen Value

With M2

null	alternative	Statistic	95% Critical Value
r=0	r=1	58.4783	37.8600
r<=1	r=2	23.8746	31.7900
r<=2	r=3	16.3119	25.4200
r<=3	r=4	9.1235	19.2200
r<=4	r=5	3.1764	12.3900

With Private Sector Credit

null	alternative	Statistic	95% Critical Value
r=0	r=1	39.8082	31.0200
r<=1	r=2	18.5432	24.9900
r<=2	r=3	8.8959	19.0200
r<=3	r=4	5.5894	12.9800
r<=4	r=5	0.0032986	6.5000

r represents the number of cointegrating vectors. Given that, in both cases, for H_0: r=0 the test statistic is more than the critical value, we reject the null hypothesis and move on to H_0: r<=1. Since the test statistic is less than the critical value we do not reject the null and therefore conclude that there is only one cointegrating vector.

Table A5: Estimated Cointegrating Vector by Johansen Technique

	Annual Data	Quarterly Data
LRGDP	1.0000	1.0000
INFL	0.2798(0.4517)	0.0627(0.0207)*
M2	4.4023(7.2773)	0.1090(0.0137)*
LOPEN	0.4843 (1.4061)	0.6738(0.2426)*
LRGOV	-2.4312(5.0254)	-0.3654(0.3359)
Trend	-0.5465(0.9369)	0.0232(0.0035)*

	Annual Data	Quarterly Data
LRGDP	1.0000	1.0000
INFL	-0.0759(0.0261)	0.00498(0.0087)
PRIVCRED	-0.0405(0.01591)	0.0078(0.8981E-3)*
LOPEN	-1.0875(0.4863)	0.3988(0.21771)
LRGOV	1.8839 (0.5071)	-3.157(0.36114)*
Trend	-0.74353 (0.0329)	0.0884(0.1042)

Note: The standard errors are given in parenthesis and * represents statistical significance. A coefficient is said to be significant if its absolute value is more than double the standard error.

Table A6: Error Correction Mechanism Results for Financial Indicator as a Dependent

	With Private Sector Credit	With M2
Constant	-53.0664(-2.5474)	-310.3408 (-4.1540)*
LRGDP(-1)	-0.82739 (-2.2235)*	-1.5870 (-2.3510)*
LRGOV(-1)	-2.0826 (-0.21359)	-17.8909 (-1.0059)
LOPEN(-1)	0.46982 (0.052695)	-11.2952 (-0.69657)
INFL(-1)	1.5994 (1.3545)	2.0270 (0.91439)
Financial Indicator(-1)	-0.51444 (-2.5981)	-0.34517 (-1.7892)
ECM(-1)	-1.1379 (-2.7038)	-3.1912 (-4.1995)