

**FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH IN NAMIBIA**

**BY**

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## **DEDICATION**

I wish to dedicate this thesis to my late father, Mr Lutombi Mushendami and my late daughter Nakwezi Mushendami.

## **DECLARATION**

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## **ABSTRACT**

The objectives of this paper are to: examine whether there is a long-run relationship between financial development and economic growth in Namibia and hence determine the direction of causality as well as the implications of such results for a financial sector policy- oriented growth in the economy. In order to test for the existence of long run relationship between the variables, the study employs a cointegration and error correction modeling (ECM) technique.

The study uses quarterly data on the following variables: broadly defined money supply (M2); gross domestic product (GDP); credit to the private sector; commercial bank branches; inflation; and the openness index for the period 1993 to 2005. The degree of correlation between the financial sector development and growth does not necessarily mean the existence of a causal relationship among them; it may simply be attributed to the association of a third variable. Accordingly, a formal procedure called Granger-Causality test was applied to the variables to test for the direction of causation between variables.

An empirical model for determinants of output growth with financial sector development as one of the explanatory variables is then estimated. The empirical results indicate that financial sector development is positively correlated with real GDP growth. The Granger causality test shows that the direction of causality runs from the financial development variables to GDP. Thus it is concluded that financial sector development have a positive effect on economic growth in Namibia. The study is organised as follows, Chapter 1 is the introduction, Chapter 2 reviews the recent economic developments, Chapter 3 looks closely into the Namibian financial sector, Chapter 4 explores the theoretical and literature review, Chapter 5 presents the methodology, Chapter 6 contains the empirical analysis and interpretations, while Chapter 7 comprises of the conclusions, policy implications and recommendation.

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## LIST OF ACRONYMS

AALS	:	Affirmative Action Loan Scheme
AGRIBANK	:	Agricultural Bank of Namibia
ATM	:	Automatic Teller Machine
BOP	:	Balance of Payments
CBS	:	Central Bureau of Statistics
CDM	:	Consolidated Diamond Mine
CMA	:	Common Monetary Area
CSIB	:	City Savings and Investment Bank
DBN	:	Development Bank of Namibia
DCO	:	Barclays Dominion, Colonial and Overseas
DFI	:	Development Finance Institution
DFID	:	UK-Department For International Development
DKG	:	Deutsche Kolonialgesellschaft
DW	:	Durbin -Watson
ECM	:	Error Correction Model
EU	:	European Union
FNB	:	First National Bank of Namibia
GDP	:	Gross Domestic Product
GIPF	:	Government Institution Pension Fund
IMF	:	International Monetary Fund
JB	:	Jarque-Bera
LCD	:	Least Developed Country
M2	:	Broad Money Supply
NACP	:	National Agricultural Credit Programme
NAMPOST	:	Namibia Post Office and Telecommunication
N\$	:	Namibia Dollar
NSX	:	Namibia Stock Exchange
OLS	:	Ordinary Least Squares
POSB:	:	Post Office Savings Bank
SACU	:	South African Customs Union
SARB:	:	South African Reserve Bank
SBCGT	:	Small Business Credit Guarantee Trust
SIDA	:	Swedish International Development Agency
SMEs	:	Small and Medium Enterprises
STANBIC	:	Standard Bank Investment Corporation
STANSWA	:	Standard Bank South West Africa
SWABANK	:	Die Bank Van Suidwes-Africa.
SWABOU	:	South West Africa
SWAPO	:	South African People's Organization
VECM	:	Vector Error Correction Model

## **CHAPTER 1: INTRODUCTION**

### **1.1 Background**

There is abundant evidence in recent economic literature supporting the view that finance is essential for economic growth (Levine 1997). Financial sector development aids the process of economic growth in the following ways: mobilizing savings, reducing the liquidity risks, risk diversification and reducing the costs associated with investments. The theoretical channels through which finance aid economic growth have been advanced in many studies, (Levine 1997).

It is argued that savings mobilization is one of the most important functions of the financial sector. Through this function the financial sector enables households to store their money in a secure place. Moreover, it allows this money to be borrowed by either other individuals or enterprises and latter put to productive use, thus encouraging capital accumulation and promoting private sector development. Credit may also be availed to finance investments in education or health and thus improve the accumulation of human capital, (De Gregorio 1996, as quoted in DFID 2004). In this way, savings mobilization can have a significant impact on growth by increasing investment, productivity and human capital. Lack of access to safe savings facilities instead would lead to people saving in physical assets such as livestock or stored under the mattress in their own homes. Therefore, as the financial sector evolves, it will increase the amount of money held as savings, which in turn can be lent to individuals and entrepreneurs thereby affecting investments and economic growth.

Most enterprises require medium to long-term capital commitment, whereas savers have preference to have the option to draw on their savings as the need arise. Banks and other financial intermediaries therefore collects the savings of households and simultaneously providing medium to long-term capital for investment as well as liquidity for savers (Levine, 1991 and DFID 2004). In this way the financial sector ensures that liquidity risk

is managed. This function is made possible by the fact that savers usually do not withdraw their money at the same time.

Investing in a single project is riskier compared to investing in a wide range of projects whose expected returns are divergent. Financial intermediaries such as banks and stock exchanges, facilitate investments into riskier project, which might offer higher expected returns, (Saint-Paul, 1992, Obstfeld, 1994 and DFID 2004). Moreover, risk diversification may facilitate investment into innovation based enterprises. Therefore, as the financial system develops, it might offer diversified investment portfolios to enterprises which might increase the overall investment returns, improve the formation of capital and subsequently impacting on economic growth.

The financial sector collects information about investment projects before choosing to invest. Moreover, because of the high cost as well as time inherent in collecting such information, individual savers might not be in possession of time nor capacity to collect, process and compare such information about the different enterprises. The financial sector collects and evaluates information more effectively and in less costly manner than individual investors because of economies of scale. Moreover, these intermediaries facilitate the selection between projects on the basis of informed judgments about expected returns, thus weeding out the weakest project and ensuring that capital is allocated optimally (Greenwood and Jovanovic, 1990). Consequently, the cost of investment declines and therefore stimulates economic growth, this may also increase the rate of technological progress by identifying and thus allocating capital towards those innovations with the best chances of succeeding (King and Levine, 1993).

## **1.2 Statement of the problem**

The financial sector in Namibia is very sophisticated, well developed and offers a wide range of services. This assertion can be supported by the ratio of broad money supply (M2) to gross domestic product (GDP), which grew from 33 per cent in 1994 to 43 per cent in 2004 and the ratio of credit to the private sector to GDP, which expanded to 40

per cent in 2004, from 31 per cent in 1994. Despite the observed level of financial sector development, real economic growth in Namibia has been stagnant growing at around 3 per cent during the past 12 years. The low level of economic growth could be attributed to the fact that, a significant proportion of credit to the private sector from financial intermediaries is used for importation of consumer goods and services (trade and commerce) and only a small fraction of it is used to finance business transactions or real sector development.

In addition, given the country's membership of the Common Monetary Area (CMA) which allows the free flow of capital between Namibia and other CMA countries, large amounts of the country's excess savings always flow out of the economy for investment in South Africa and elsewhere, leaving the country's major investment projects under funded.

Moreover, the majority of the population in Namibia are still excluded from the mainstream financial sector because they lack properties which they could cede as collateral to lending institutions, and the concentration of bank branches in Windhoek and a few commercial centres mostly in the central, western and southern parts of the country (Biwa et al 2005). Consequently, a disproportionate per centage of the population in Namibia does not have access to financial services and capital.

The above fact implies that there might not be a strong link between financial sector development and economic growth. Therefore, policy initiatives designed to increase savings in the economy with the intention that the latter will increase the level of investment, or lower the spread in the financial system might not actually produce the intended results. If the financial sector predates real growth in the economy, policies that are designed to promote the efficiency of the sector will induce growth. Given the above background, an establishment of a strong causal link between finance and growth might help policy makers to focus on the reasons why finance has not been able to induce growth in the economy.

### **1.3 Objectives of the study**

Given the above background, the objectives of the study are:

- To examine whether there is a long-run relationship between financial development and economic growth in Namibia and hence determine the direction of causality.
- To examine the implications of such results for financial sector policy- oriented growth in the economy.

### **1.4 Significance of the study**

If the link between financial sector development and growth exists, finance can be used to boost the real sector and reduce poverty by fostering growth. It is also important for policy makers and regulators of the financial sector who are responsible for the implementation of policies that are designed to develop the sector. In Namibia however, such a linkage have not been empirically tested using the data for Namibia.

### **1.5 Hypothesis of the study**

The hypothesis tested in this thesis is that there is a long run relationship between financial sector development and economic growth in Namibia.

### **1.6 Scope and limitations**

Due to data limitations the study will only be confined to the period from 1993 to 2005. This entails a short sample size which might affect the robustness of the study in explaining the long run effects of the financial intermediation variables on real GDP growth.

## **1.7      Organisation of the study**

The rest of the study is organised as follows:. Chapter 2 reviews macroeconomic developments, Chapter 3 looks into the Namibian financial sector, Chapter 4 presents the theoretical and literature review, Chapter 5 is the methodology, Chapter 6 contains the empirical analysis and interpretations, and Chapter 7 entails the conclusions, policy implications and recommendations.

## **CHAPTER 2: MACROECONOMIC DEVELOPMENTS**

### **2.1 Introduction**

This section attempts to provide a schematic view of the changes in the macroeconomic indicators which are also relevant to this study. The essence of doing this is the fact that macroeconomic and financial sector variables are interlinked. Therefore structural changes in the financial sector have implications on monetary aggregates which in turn have an impact on prices. Moreover, stable macroeconomic environment is a prerequisite for a healthy financial sector.

### **2.2 Recent macroeconomic developments**

Namibia's monetary policy stance since independence in 1990 has been poised to support the fixed exchange rate system between the Namibia Dollar and the South African Rand, under the common monetary area (CMA<sup>1</sup>). The CMA has characteristics of a monetary union, given the fact that in addition to the exchange rate between member states which is fixed vis a vis the South African Rand; the movement of capital is also free. Consequently, save for South Africa, individual states cannot directly influence interest rates within the CMA. Monetary policy in the CMA is therefore subordinated to the exchange rate policy, as domestic credit creation must be kept within agreed parameters to ensure sufficient volume of net foreign assets in the banking system.

The main instrument of monetary policy used by the Bank of Namibia is the bank rate. The Bank of Namibia adjusts the bank rate in line with the monetary policy stance of the South African Reserve Bank. This arrangement has been working quite well over the past years in achieving relatively stable prices in Namibia. Commercial banks are required to uphold a minimum of 1 per cent of their net demand and time liabilities as deposits with the Bank of Namibia. More over, commercial banks are allowed to keep their excess balance with the Bank of Namibia through the call deposit facility. The central bank also

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<sup>1</sup> Other countries in the CMA are Lesotho, Swaziland and South Africa.

accommodates the commercial banks with an overdraft facility, after they have exhausted other sources of short-term fund in the market.

Real GDP growth has been growing at a very slow pace ranging between -1.9 to the highest of 6.7 per cent within the period under review. During the period 1990 to 1995, the economy recorded favorable growth rate of above 4.0 per cent. These growth rates were on account of the good performance in the mining and fishing sectors. Economic growth however eased to 3.3 per cent during the period 1996 to 2000. The low economic growth during this period is mainly attributed to external factors such as unfavorable climatic and oceanic conditions affecting more specially the sectors such as beef, fish and manufacturing. For the period 2001 to 2005, real GDP growth registered an average growth of 4.7 per cent.

The average real GDP growth for the period was 4.0 per cent. The real gross national income depicts a similar trend averaging at 3.7 per cent during the same period. The major economic activities are mining which account for approximately 24 per cent of GDP and 70 per cent of the export earnings. Agriculture which supports about 70 per cent of the nation's population directly or indirectly, accounts for close to 12 per cent of the exports. The economy is highly dependant on trade with the openness index which is close to 0.98; diversification is very limited with commercial activities concentrated in few urban centers, leaving the vast rural areas underdeveloped.

**Table 2.1 Indicators of macroeconomic performance**

	<b>1990</b>	<b>1993</b>	<b>1995</b>	<b>1998</b>	<b>2000</b>	<b>2003</b>	<b>2005</b>
Inflation %	12.0	8.5	8.9	6.2	9.3	7.3	2.3
Exchange rate N\$:US\$	2.53	3.37	3.55	5.53	7.59	7.52	6.41
Real GDP(N\$ mil)	6.323	7.271	12.706	14.115	15.100	17.069	18.949
Average deposit rate %	13.5	9.8	10.8	12.9	7.63	8.74	6.18
Average lending rate %	21.4	18.4	18.5	20.7	15.11	14.67	10.61
Money supply growth in N\$ millions	- 5	4357. 5	6713.5	10537.8	14231.4	18396.7	17370.2
Credit to private sector growth in N\$ millions	- 2	3954. 2	6262.3	8752.8	10791.7	17065.4	15443.6
Total revenue and grants/GDP %	32.5	34.2	33.7	35.6	37.5	28.3	33.0
Total expenditure/GDP %	36.0	39.5	38	36.6	36.1	35.5	33.3
Budget balance/GDP %	-1.2	-3.7	-3.9	-3.9	-4.5	-6.9	-0.2
Current expenditure/GDP %	27.5	32.2	32.4	34.8	31.6	30.3	29.2
Capital expenditure/GDP %	6.1	5.7	5.2	4.7	4.5	5.2	4.4
Total public debt/GDP %	12.1	15.5	21.0	19.9	21.8	29.1	32.0
Overall BoP balance (N\$mil) <sup>2</sup>	95.2	298.4	87.3	308.5	108.5	-776.0	14
Current account balance (N\$ mil)	71.4	32.2	32.4	34.8	1339.2	1722	2800
Capital and financial Account (N\$ mil)	-415.2	-13.5	-536	-673	-1155	-2229	-3000

Source: Bank of Namibia & Central Bureau of Statistics

Since independence, Namibia's fiscal policy has been poised towards fiscal prudence and discipline with the objective of attaining macroeconomic stability. In this vein, concerted efforts have been made to ensure that the level of government fiscal deficits is kept relatively low while simultaneously ensuring that growth is stimulated through targeted expenditure.

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<sup>2</sup> The overall BoP balance, current account balance and capital and financial account are very insignificant when expressed to GDP, thus expressed as volumes rather than percentages of GDP.

Total revenue and grants grew by 14.0 per cent per year during the first ten years after independence before easing to 8.3 per cent a year from 2001 to 2005. The biggest component of revenue has been Southern African Customs Union (SACU<sup>3</sup>) receipts accounting for 35 per cent of total revenue on average, while the share of direct and indirect taxes was 30 per cent and 19 per cent respectively.

Growth in total expenditure mimics the same trend, expanding by 16 per cent annually during the first ten years, before declining significantly to 8.3 per cent annually for the period 2001 to 2005. Current expenditure grew by 13 per cent over the same period while capital expenditure expanded by 16.8 per cent on a yearly basis.

The national debt has been increasing since independence. The national debt that stood at N\$535 million in 1991 increased to reach N\$2556.0 million in 1995, N\$5718.4 million as at the end of 2000, and further to N\$12844.3 at the end of 2005. The most noticeable trend in government debt is the continuous decline in external public debt due to the strategy to strive to meet government financing obligation through domestic borrowing. The ratio of external to total debt decreased from 93 per cent in 1991, to 19.4 per cent in 1995 and 15 per cent in 2005. With regard to domestic debt government has adopted a strategy of increasing long term borrowing and reducing short-term borrowing. This could be illustrated by the growth in bonds as a percentage of domestic debt which increased from 0.0 per cent in 1991 to 45 per cent in 2000 and 52 per cent in 2005.

The country's balance of payment (BOP) has been in surplus in most years since 1990, due a positive current account balance. The surplus in BOP however, has been offset by a deficit on the capital and financial account, resulting from the persistent excess of savings over investment in the economy. The deficit in the capital and financial account has been mainly due to the outflow of insurance and pension fund money to South Africa. This situation is very rare in most developing countries where the trend is the opposite. Accordingly, the deficits recorded in these years amounted to N\$414 million in 1990, to

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<sup>3</sup> Namibia had been a de-facto member of SACU, even before the country attained independence in 1990, countries forming SACU are the as those of CMA, besides for the inclusion of Botswana in the former.

N\$2600 million in 2005. The level of international reserves has been increasing from N\$171 million in 1991, to reach N\$1985 million in 2000 and N\$1983million in 2005.

The external value of the Namibia dollar weakened against major trading partners during most of the reference period. The Namibia dollar which traded at N\$2.53 against the US dollar in 1990, depreciated to N\$3.64 in 1995. This trend was mainly due to uncertainties surrounding the political transformation in South Africa as well exchange control liberalization. The domestic currency weakened further to reach the level of N\$5.53 to the US dollar, during 1997/98 on account of the South East Asian financial crisis. During the aftermath of the financial crises, there was a recovery in the world economy which also positively affected South Africa. This ultimately led to increase in exports, supported by a low demand for imports as well as an effective monetary policy in the CMA. As a result the external value of the Namibia dollar recovered during the 1999. During 2005, the domestic currency stood at N\$6.41 to the US Dollar.

In the early days following independence, the rate of inflation was very high reaching a peak of 17.8 per cent in 1992. The high inflationary environment by then could be attributed to the increase in money supply due to massive demand for goods and services following expectations during the years that followed independence. Moreover, the decline in the production of cereal crops both in Namibia and South Africa partially accounted for the increase in inflation. From 1993, inflation subsided to record a stable trend. However, increases in inflation began, and this time around it was on the back of increase in the nominal labor cost, municipal charges and the depreciation of the currency against the currencies of its main trading partners.

However, with the implementation of tight monetary stance by the Reserve Bank of South Africa, inflation started to decline. This eventual culminated in the lowest inflation rate of about 6.2 per cent that was registered in 1998, the lowest since 1990. With the increase in oil price in 1999 and the introduction of the value added tax (VAT) in the last quarter of 2000, inflation started to pick up. During 2002, inflation reached 11.4 per cent on the back of shortage in food which affected the whole Southern Africa. Inflation started to ease in 2003 and eventually stood at 2.3 per cent at the end of 2005.

Interest rates mirror similar rates in South Africa as well as the trends in inflation. Declines in inflation have led to similar declines in the interest rates especially since 1998. Despite the fact that the real lending rates have remained positive, the real deposit rates have became negative, a trend that could be attributed to the low level of interest rates charged by commercial banks on deposits. A policy concern emanating from this is the spread between lending and deposit rates which has been widening during the period under review.

The growth in broad money supply increased by 25 per cent annually for the period 1993 to 1996, before decreasing to 12.7 per cent from 1997 to 2005. The average growth for the entire period stood at 17 per cent. Similarly, credit to the private sector increased by 23.4 per cent during 1993 to 1996, before declining to 14.4 per cent annually from 1997 to 2005. Using broad money supply to GDP as a proxy for deepening, the financial sector has widened substantially from 27 per cent in 1991 to 42 per cent in 2005

## **CHAPTER 3:OVERVIEW OF THE NAMIBIAN FINANCIAL SECTOR**

### **3.1 Structure of the financial system**

Similar to, most other developing economies, Namibia inherited a dual financial system comprising of the formal and the informal sector upon the country's independence in

1990. The formal sector includes the central bank, (Bank of Namibia), commercial banks, post office savings bank, insurance companies, pension funds, assets management companies and a stock exchange. There informal sector comprises of micro lenders. In addition, there are a number of development finance institutions in the country. A concise review of these institutions is documented in the next section.

### **3.1.1 Central bank**

Before 1990, Namibia had no central bank of its own. The central banking functions were performed by the South African Reserve Bank (SARB). This was a result of South Africa's occupation of the then South West Africa after the First World War which culminated in Namibia's integration into the South African monetary system. From 1961, SARB operated a branch in Windhoek; whose functions were very restricted and concentrated on: the distribution of SARB issued currency; administering of exchange control; clearing facilities to commercial banks, and serving as a banker to commercial banks.

The Bank of Namibia was only established in 1990, by section 2 of the Bank of Namibia Act, 1990 (Act No.8 of 1990). However, the plans to set up a central bank for an independent Namibia can be traced way back in the early 1988, involving the South West Africa People's Organization (SWAPO), the International Monetary Fund (IMF), and the Swedish International Development Agency (SIDA). The main objectives of the Bank of Namibia are to promote and maintain a sound monetary, credit and financial system in Namibia and sustain the liquidity, solvency and functioning of the system; to promote and maintain internal and external monetary stability and an efficient payment mechanism, to foster monetary, credit and financial conditions conducive to the orderly, balanced and sustained economic development of Namibia; to serve as the government's banker, financial advisor and fiscal agent. Moreover, it is also serve as the regulator of commercial banks. Following the establishment of the Bank of Namibia, the country's

own currency the Namibia Dollar was introduced in 1993<sup>4</sup>. In the early 1990s only the South African rand was used as a legal tender in Namibia.

### 3.1.2 Commercial banks<sup>5</sup>

The banking sector in Namibia is considered to be well developed in terms of institutions and infrastructure. The discussions on the developments of the commercial banking sector in Namibia is split into two phases, phase one discuss the pre-independence development (1902 to 1989), while phase two highlights the post independence period (1990 up to date).

#### Pre-independence period

The first documented bank in Namibia is the Spar-und Darlehnskasse which was founded in 1902 with the intention of serving the community of Gibeon in the south of the country. The primary reason for setting up of foreign banks in Namibia could be attributed to the discovery of diamonds and latter copper and other <sup>6</sup>minerals. Among the banks that were in the country by then, the three largest banks were the Deutsche-Sudwestafrikanische Genossenschaftsbank, founded in 1907 with branches at Luderitz, Windhoek and Swakopmund; the Bankabteilung der Deutschen Kolonialgesellschaft fur Sudwestafrika and the Deutsche-Afrika Bank which was founded in 1906. The latter was built at Luderitz to primarily serve the diamond industry. Apart from these, other banks that operated in the country were the Sudwest Afkanische Bodenkredit Gesellschaft which was founded in 1912 and the Government Landwirtschaftsbank (Land bank). The latter was established by an Imperial Ordinance in 1913 with an initial capital of 10 million German Marks. What can be deduced from the names of these banks is that they originated from Germany, and were established during the period when the country was under the German colonial rule (1884 to 1915).

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<sup>4</sup> The Rand is also acceptable as a legal tender in Namibia.

<sup>5</sup> This part borrows heavily from Biwa, Mushendami and Nailenga, 2005.

<sup>6</sup> There was a mineral boom in Namibia during the period 1900 to 1910.

Commencing 1916, when the country was given in the control of the Union of South Africa, the diamond assets of Deutsche Kolonialgesellschaft (DKG) were taken over by the Consolidated Diamond Mine (CDM) of South West Africa, a subsidiary of De Beers. Subsequent to the change of ownership in the diamond, as well as other metal industry, the banking system started to develop along the British line<sup>7</sup>. This was due to the fact that South Africa by then had close ties with Britain to the extent that the British Pound Sterling was a legal tender in South Africa. The earliest of such banks was Standard Chartered Bank, which was set in the country in 1918 with the first branch at Luderitz. This branch was part of Standard Bank of South Africa Limited until 1961. A second British bank that established a branch in Namibia was Barclays in 1925, after taking over the business of Deutsche-Afrika Bank. Barclays Bank latter amalgamated with several foreign banks such as the National Bank of South Africa to form Barclays Dominion, Colonial and Overseas (DCO). In the early 1960s and early 1970's, other South African banks such as Nedbank, Trustbank and Die Bank van Suidwes-Africa (SWABANK) established their branches in Namibia.

With the formation of the Barclays Bank international in 1971, the business operations of Barclays Bank DCO were taken over by the new bank. As a result of the creation of this new entity, the banks' business in Namibia and South Africa was designated to a subsidiary called Barclays National Bank; the latter was incorporated in South Africa. During 1986, Barclays Bank (London) decided to disinvest in South Africa and Namibia by selling its 40.4 per cent stake in South Africa's Barclays National Bank to Anglo-American corporation. Subsequently, its name also changed to First National Bank (FNB). Moreover, in 1988, a local Namibian company was FNB of SWA/NAMIBIA was incorporated.

As a result of the merger between Standard and Chartered Banks in 1973, a new bank Standard Bank South West Africa (STANSWA) Ltd was established to conduct its business in Namibia. This new bank was a wholly owned subsidiary of Standard Bank Investment Corporation Ltd (STANBIC), of South Africa.

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<sup>7</sup> The German Banks were either liquidated or taken over.

During the early 1980s, a number of local business people came up with an idea to establish a Namibian controlled bank. These initiatives were brought out by the concerns that foreign banks might not well address the financial needs of an independent Namibia. In this vein consultations were entered into with Volkskas LTD<sup>8</sup> to take over their branches in Namibia. On the 1<sup>st</sup> April 1982 these arrangements culminated in the formation of Bank Windhoek.

In May 1987 another London based bank Standard Chartered, announced the sale of its stake in STANBIC to Liberty Life, Old Mutual and Gold fields, subsequent to the decision of Barclays Bank (London). The decision by both Barclay National Bank and Standard Chartered to withdraw from South Africa and Namibia was prompted by commercial considerations (Hoveka 1988, as quoted in Biwa and others 2005). Accordingly, Barclays cited its interest to enter the United States market. However, the growing mood against apartheid in the United States of America meant that Barclays' strong links with South Africa could jeopardize its future plans. As for Standard Chartered its reasons to disinvest from South Africa was prompted by the need to make substantial provisions against third world debt.

### **Post-independence period**

Following the country's independence a number of developments took place in the country's banking sector. In early 1990, Bank Windhoek merged with the local braches

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<sup>8</sup> There is no information on the operations of Volkskas Ltd, before 1982.

of Trust bank (SWA) and Boland Bank. Furthermore, there was another amalgamation between Bank Windhoek and Namib Building Society which was concluded in 1986.

The major reason of all these mergers was to rationalize the banking sector, given the sentiments then that there were too many banks in Namibia. Moreover, in the early 1990, FNB of SWA/ Namibia changed its name to First National Bank of Namibia LTD, while SWABANK changed to Commercial Bank of Namibia.

With the growing concerns that commercial banks were not catering for the needs of the previously disadvantaged Namibian, a second indigenous bank City Savings and Investment Bank (CSIB) was formed in 1994. In mid-1996<sup>9</sup>, CSIB was recapitalized and taken over by the Bank Industri Malaysia Berhad (a Malaysian bank). In 2002, CSIB amalgamated with SWABOU<sup>10</sup> (South West African Building Society) to form a new institution called SWABOU Bank. The merger between CSIB and SWABOU was due to the need for an even playing field with its competitors, the commercial banks, on the part of SWABOU, while for CSIB; this was on account of losses the entity was making since its inception. Moreover, SWABOU Bank merged with First National Bank in 2003. Presently there are four commercial banks operating in Namibia, namely Bank Windhoek, First National Bank, Nedbank and Standard Bank.

### **3.1.3 Development finance institutions**

In addition to the efforts of the private sector to increase access to financial services as well as to respond to the plight of the poor and small and medium enterprises (SMEs), the Government of Namibia set up a number of institutions. Due to operational inefficiencies

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<sup>9</sup> Information regarding the ownership of this bank before 1996 is not available.

<sup>10</sup> SWABOU was formed in April 1979.

that characterize most of the development finance institutions (DFIs), some of such entities collapsed or merged to form new companies. This section briefly discuss existing DFIs such as the Development Bank of Namibia (DBN), which was formed from the Namibia Development Corporation and the Development Fund of Namibia, the Agricultural Bank of Namibia (AGRIBANK), National Housing Enterprise (NHE), the Post Office Savings Bank (POSB) and the Small Business Credit Guarantee Trust, SBCGT).

The DBN was established in 2004 to substitute the Development Fund of Namibia and the Namibia Development Corporation, which were financially distressed. The objectives of the DBN is to fill the existing gap in financing the major medium and long term development projects of both the private and public sector. It provides funding to these projects either directly or through lines of credit to other financial institutions, such as commercial banks.

AGRIBANK was founded by the Agricultural Amendment Act of 1991, nonetheless it origin dates as far as 1922, when it was established as the Land and Agricultural Bank of South West Africa. AGRIBANK issues agricultural loans of different tenors and a variety of purposes. Long term loans are granted for the purchase of farmland, farm improvements, and repayment of bonds. Medium-term loans are given for the acquisition of stocks, farming vehicles and irrigation equipments, while short-term loans are extended for crop production. Moreover, it also grants loans through special schemes including affirmative action programs (AALS), national agricultural credit program (NACP) and the government tractor scheme.

The NHE was established in 1993 by the NHE Act (Act No. 5 of 1993) to replace the National Building Corporation which was established in 1982. The NHE is charged with the responsibility of being a developer and financier of affordable housing. Consequently, NHE builds houses and issue loans for their purchase. Moreover, it provides serviced land, advice and support to people in need of low cost housing.

The POSB is a department of the Namibia Post and Telecommunication (NamPost). The POSB offer services such as savings accounts and other banking products to a large spectrum of the population through 120 post offices located in the country. Moreover, it provides other products such as money and postal orders, certificates, fixed-term deposits and save as you earn accounts. In 2006, the POSB introduced smart cards in order to improve service efficiency.

The SBCGT was established in 2000 with a view to assist small business entrepreneurs with security required to access commercial bank loans. It was funded by donations from the GTZ and the EU. SBCGT provides guarantees to participating lending banks of up to 80 per cent of the loan of which the maximum limit is N\$250,000. In terms of the qualifying criterion the business must have less than 5 employees, less than N\$1 million in annual turnover, and less than N\$500, 000 in capital. The only exception to this is in the case of manufacturing business where all the criteria double. The Trust has thus far provided guarantees to about 700 businesses to the tune of N\$65 million. The average loan guarantees ranges between N\$1500.00 – N\$200.000, with a repayment period of 3 years.

### **3.1.4 Capital markets**

The capital market refers to an institution where long term securities, i.e longer than one year are issued and traded. Conventionally, capital market instruments are issued by the corporate sector and government, which require long term financing to cover their

operations. The Namibian Stock Exchange (NSX) was established in 1992<sup>11</sup>. A number of financial instruments such as equity, interest bearing securities and long term loans are listed and traded on the exchange. The NSX is a dual listed stock exchange, implying that companies listed on the NSX can list on other stock markets as well.

### **3.1.5 Insurance companies**

Insurance companies provide financial benefits to policy holders and their beneficiaries in the event of accident, illness, death or any form of tragedy. The major source of capital for these companies is premiums which are collected from individuals, employers or societies. Moreover, they supplement their premium income with investment proceeds. There are two main types of insurance companies operating in Namibia, namely the long term insurance and the short term insurance. The key difference between these institutions is that the long term insurance are those that offers life insurance, while short term insurance refer those that provide financial benefits in events such as accident, funeral cover, flood, fire, property loss or damage, or claims incurred on account of ill health. As at the end of 2005, there were 16 long-term insurers, 14 short-term insurers and one reinsurer.

### **3.1.6 Pension funds**

Pension and provident funds are non-profit oriented institutions, which administer employees and employer's provisions against the day they are physically or mentally unable to work. Pension funds source their finances from (a) employees and employers' contributions, (b) investment income and (c) cash generated through the sale of assets. In

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<sup>11</sup> Prior to 1992 there was a stock exchange in the early 1900's in Luderitz, following the discovery of diamonds in that part of the country.

terms of numbers, the pension fund sector comprised of over 500 funds in 2005, which grew from 179 at the end of 1992. Pension funds are the largest institutional investors, whose assets under management was N\$21 billion in March 2004. The Government Institution Pension Fund (GIPF) is by far the largest pension fund accounting for over 70 per cent of the total pension fund assets or N\$15.1 billion as in March 2004. The remaining N\$5.6 billion was held by various smaller funds, on defined contribution plans. The small pension funds are administered by external fund administrators proving record keeping, legal and actuarial services. The largest pension administrator is Alexander Forbes which accounts for 60 per cent of the market share.

### **3.1.7 Unit trusts**

A unit trust is an investment mechanism that allows a large number of investors to participate in a diversified investment portfolio. The first unit trust in Namibia was only established in August 1994 by Sanlam. Since then, this industry has grown quite tremendously. As at the end of 2000, there were eight registered Unit Trust Management companies in Namibia. These are Sanlam Unit Trust Management Company, Old Mutual Unit Trust Management Company, Commercial Bank of Namibia Unit Trust Management Company, Standard Bank Unit Trust Management Company, Investec Namibia. The principal advantage of membership of a unit trust is the mutual pooling of resources for investment under professional management.

### **3.1.8 Microlenders**

The microlending sector in Namibia is one of the fast growing sectors, increasing from only 34 operators in 2002 to 170<sup>12</sup> in 2005. There are two types of specialized microlending institutions in Namibia: term lenders and cash lenders. The main difference

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<sup>12</sup> 167 of these are cash lenders.

between the two groups is that term lenders offer term loans up to a maximum of 48 months, while cash lenders extend credit for a period of only 30 days. Microlenders are not authorized to take deposits from the public; their services are mainly centered on the provision of small loans to a variety of customers. The loans from both the term and cash lenders are mostly used for consumption purposes such as funeral, health and education expenses. The main clients of micro lenders are civil servants and people employed in the private sector. Microlenders require no collateral from borrowers; however they use payroll deduction in the case of term lenders and the retention of ATM cards and pins in the case of cash lenders as security for the loans. The average size of loans from term and cash lenders is N\$8,000 and N\$1,000 respectively. In 2004, total loan disbursements amounted to 1.1 per cent of GDP.

## **CHAPTER 4: THEORETICAL FRAMEWORK AND LITERATURE REVIEW**

### **4.1 Introduction**

This chapter reviews both the theoretical framework and literature on finance and economic growth. The theoretical framework starts by documenting the work of Robert Solow, proceeding to the endogenous growth model (AK) model popularised by Rebelo, and concludes by introducing financial intermediation into the growth model.

The literature review section highlights some of the recent theoretical and empirical studies that have investigated the financial development and economic growth nexus. Some of these include the work of Levine, King, Rousseau, Odedokun and Wachtel etc.

## **4.2 Theoretical framework<sup>13</sup>**

The modern literature on economic growth starts with Robert Solow's work, (Solow, 1956). The early growth literature emphasised on the role of capital and labour resources and the usage of technology as sources of growth, thus excluding any specific role for the financial sector. Accordingly, growth is exogenously determined. However, during the past twenty years, new theories developed that moved away from the view that growth is exogenously determined and therefore governments cannot influence it. Accordingly, economic growth depends on the quantity and quality of national factors and, thus, institutions and policies matter for economic growth. The section below will briefly review the evolution in theories with great emphasis on those that have implications for financial markets.

### **4.2.1 Solow growth model**

This is one of the earliest models of economic growth and was developed by Solow in 1956. It is set in a neo-classical frame work, assuming that all prices adjust to clear all markets (supply is equal to demand). The Solow growth model concentrates on explaining the behaviour of potential output, that is output achieved with a given technology and full employment of other factors<sup>14</sup>. The focus is on the effect, over time, of the changes in labour, capital and technology. Changes in labour can be induced by changes in the population or proportion of the people available for work, while changes

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<sup>13</sup> This section borrows to a large extent from Dominique M.Gross 2001

<sup>14</sup> Full employment is achieved when measured unemployment is equal to the natural rate and capital utilization rate is around 90-95 %.

in capital depend on net investment (gross investment minus depreciation of existing capital). As long as net investment is positive, capital grows and production growth follows suit. Technology combines the other inputs, labour and capital, to produce output. Therefore, in the absence of changes in one of the two inputs, growth is assumed to come from change in technology. Better technology will thus increase the total factor productivity.

The Solow growth model is based on an aggregate production function, which exhibit constant return to scale and diminishing marginal returns. Therefore, output per worker ( $y = Y/L$ ) depends only on capital per worker ( $k = K/L$ ), such that,

Following from equation 1, for output per worker to change, the ratio of capital per worker must change. This will only take place if capital accumulation is larger than labour force growth, (i.e. capital grows faster than labour and  $k$  increases). In the model above, financial markets do not explicitly feature. In the macroeconomic framework however, gross capital accumulation is equal to investment, the latter is equal to domestic saving in a closed economy. Therefore, savings in the economy feeds into investment and net capital accumulation. Growth in capital ( $g_k$ ) and growth in output ( $g_y$ ) are defined as,

Where  $n$  is the rate of growth of population

The main feature of Solow's model is that in the long run, total saving is used to make capital grow exactly at the same rate as population. Alternatively, the rate of growth of capital and labour converge to the same value ( $sAk^{\alpha-1} = n$ ) and there is a steady state value of the capital labour ratio. Once the level of capital per worker is stabilised, output

per worker is also stabilised and, both capital and output grow at the same rate. The latter is referred to as the balanced growth argument.

The implication of the above model on the financial sector is that in the long run, the rate of growth of output per worker is equal to that of the labour force, regardless of the saving rate. Hence, improvements in the collection of savings or financial innovations that stimulate savings have no effect on economic growth. Other models developed from the Solow's model focus on the role of technological changes, TFP calculation (Total Factor Productivity calculations). The following formula can be derived from the Solow's model

Total output growth is the weighted average of the growth rates of the three factors: capital ( $gK$ ) labour ( $gL$ ) and technology( $gA$ ). The above equality is known as the growth accounting framework. In this model it is possible to determine the contribution of labour, capital and technical changes to economic growth, even if the economy has not reached the steady state.

To summarise, only exogenous shocks in the form of technology or changes in demographic factors that affect growth can generate sustained growth. There is no growth in steady state, which implies that there is no mechanism for government policies or savings to influence the growth process. These predictions tend to go against the evidence, which suggest that fast growing developing economies have higher savings rate than middle and low growth countries. These inconsistencies led to the development of the endogenous growth theory.

### 4.2.2 Endogenous growth theory

Unlike Solow's model, the endogenous growth theories relax the exogeneity assumption of the determinants of growth. Endogenous growth models are based on two broad approaches, the first one sees all inputs as reproducible, and the second one is based on externalities. Externalities in the latter approach take the form of human capital. In both approaches, the savings rate plays a key role in the growth of capital and output per worker.

The first approach is called the AK- model which is based on the work of Rebelo (1991). It assumes that all inputs are reproducible and in particular, the state of knowledge through research and development. The diminishing marginal productivity of capital, which in the neo-classical model leads to constant steady state values of capital and output per worker, is compensated by an increasing quality of machinery. Using the same investment and saving hypotheses as in the neo-classical model, the steady rate of growth of capital per worker in the AK- model is,

$$g_y = g_k = sA - n, \dots \quad (4)$$

Equation 4 implies that, for constant saving rate and population growth, if ( $sA > n$ ) capital per worker can grow without bound. Therefore, an increase in the savings rate permanently raises the rate of growth of capital and output per worker.

The second approach is based on the assumption that externalities in the production process such as increase in the output level by one firm positively affects factor productivity in another firm. The type of externalities which is of particular interest in this regard is labour. In this model, labour is endogenously determined and it is not just the quantity of labour which is relevant, but the quality of such labour. Households can save by investing in human capital in addition to investment in physical capital. In this way households produce labour with skills, that will create ideas needed to handle sophisticated technologies. The theoretical set up of this model is similar to that of the Solow model save for human capital which is endogenous. Therefore production per worker in this model can be represented by

$$y = k^\alpha h^{1-\alpha}, \dots \quad (5)$$

Where  $y$  and  $k$  are the same as in the Solow model that is output and capital per worker and  $h$  is human capital per worker. In the Solow model, the quantity of labour available to the economy is determined by population growth and there is no quality of skill effect. In the model above output is consumed and saved as before, however there are now two ways to save. A fraction  $s$  is saved for capital accumulation ( $?k = sy$ ) as before and another fraction  $q$  is saved to increase human capital quality ( $?h = qy$ ). In this case, in the steady state,  $y, k$  and  $h$  grow at the same rate which is determined by the two savings rates such that

The major implications of equation 6, is that both savings rates have effects on the growth rates and not just level effects. As a result, growth is no longer determined by the arbitrary technological changes, but is endogenous and determined by decision to invest in physical or human capital. These conclusions leave room for policies that stimulate savings in either factor of production to affect growth of the economy. Without introducing financial markets explicitly, there are grounds to believe that incentives for the population to save and more efficient channelling of saving can affect growth. The latest developments in endogenous growth theory have shown how financial intermediaries also affect the growth process directly. The next section reviews briefly the model with explicit introduction of financial intermediation.

#### 4.2.3 Financial intermediation and economic growth

Growth models discussed thus far do not have the financial sector intermediation explicitly modelled. It only states that the share of aggregate output saved by the economy is available for investment. The problem inherent with this assumption is that they do not take into account the leakages or costs associated with the financial intermediation process. Despite the fact that financial intermediation improves efficiency in the distribution of capital it does so at a cost.

Financial transactions are affected by three categories of problems: uncertainty, information asymmetries and transaction costs. All the three are linked back to information that prices are unable to reflect. However, financial intermediation can reduce some of the inefficiencies resulting from three sources of imperfect information in the following ways. Economies of scales allow financial intermediaries to gather information and decrease uncertainty at a relatively low cost. Financial intermediaries can set up special arrangements and contracts, such as collateralisation of credit, to generate the correct incentives in order to deal with asymmetric information. The third cost, transaction costs can be reduced by intermediating between a large number of small savers and big borrowers for example. Taking into account the cost aspect of intermediation, it can be assumed in the context of the AK- model that a proportion of savings ( $1 - f$ ) is lost such that only ( $f s Y$ ) is available for investment. The growth rate of capital and output is

Equation 7, above differs from 4, in the sense that only a fraction  $f$  of collected savings contributes to the growth rate of capital and output per worker. This introduction of financial intermediation in the endogenous growth model, leads to a direct effect on the growth rates as only savings collected through financial intermediaries matters. Furthermore, financial sector development affects the social marginal productivity of capital,  $A$ , and the savings rate,  $s$ . The higher the leakage ( $1 - f$ ), the smaller the growth rate ( $gk, gy$ ). It can therefore be concluded that policies which are directed at reducing such leakages or increase the savings rates will thus be growth enhancing.

Financial intermediaries thus affect growth in various ways: Financial intermediation affect marginal productivity of capital through its ability to allow for investments into high returns projects. Financial intermediaries mobilize savings into investments. Different production processes require different scales of production and without access to a large number of small investors; some production could not take place. The financial

system reduces liquidity risk and therefore facilitates the management of risks both for the savers and investors and in this way allows both the savers and investors to diversify their portfolio. The financial sector collects information about investment projects. It is argued that the financial sector collects and evaluates information more effectively and less costly than an individual investors because of economies of scale and thus lead to growth.

### **4.3 Review of empirical works**

Studies to determine whether the financial system is important for economic growth began with Walter Bagehot (1873), Joseph Schumpeter (1912) and John Hicks (1969). Bagehot and Hicks contend that the financial system played a very important role of facilitating capital during the industrialisation process in England. Moreover, Schumpeter states that well functioning banking systems stimulate technological innovation by identifying and financing entrepreneurs who show the likelihood of successful implementation of new products and production methods. In spite of the earlier arguments, some economists argue that the link is the other way round or unimportant at all. For example, Joan Robinson (1952) argued that it is economic development that creates demand for finance, thus the financial system responds automatically to the demand. Moreover, Robert Lucas (1988) states that the role of financial variables in economic growth has always been overstated.

Despite the fact that a number of studies question the direction of causality between financial development and economic growth, most studies suggests a positive first order relationship running from finance to growth (Levine, 1997). The financial sector is important to economic growth by identifying creditworthy firms, pooling risks, mobilizing savings, reallocating capital without loss. Levine (1997) categorizes the functions of a financial system into five basic tasks: “financial system 1) facilitate the trading, hedging, diversifying, and pooling of risk, 2) allocate resources, 3) monitor managers and exert corporate control, 4) mobilize savings, and 5) facilitate the exchange of goods and services.”

Empirical work on financial development and economic growth began with Goldsmith (1969), who estimated the correlation between the size of the financial systems and economic growth for 35 countries using data for the period 1860 to 1963. As a measure of financial development, he used the ratio of the value of financial intermediaries asset expressed over GDP. He reports a positive correlation between finance and economic growth. The only problem with his analysis is the time span which is very long, the small sample and the causality which is ambiguous.

King and Levine (1993a), in a study involving 80 countries found that the level of financial development is a good predictor of economic growth. Using the financial development relative to GDP, real GDP per capita, average growth rate of capital stock per capita and a measure of total factor productivity on cross country analysis for data spanning 1960 to 1989, they concluded that high level of financial development is correlated with capital accumulation and efficiency in capital. Moreover, they assert that, “the initial level of financial development at the start of the period in 1960 predicts growth in the subsequent thirty years”. In another study, King and Levine (1993b) employed an endogenous growth model in which financial intermediaries obtain information about the quality of individual projects that is not easily available to private investors, and conclude that this information advantage enable financial intermediaries to fund innovative products and productive processes, thereby inducing economic growth.

Demetriades and Hussein (1996) adopted a time series approach for a large set of countries. Using data for 16 counties considered not highly developed in the 1960s for the period 1960 to 1990, they found a long run relationship between financial development and real per capita GDP in 14 countries. Despite the existence of a stable relationship, the direction of causality differs from country to country. In seven countries, they found bi-directional causality, as well as reverse causality in six countries, El Salvador, Greece, Pakistan, Portugal, South Africa and Turkey. However, these results compared better than those of De Gregorio and Guidotti (1995) who found a negative

relationship between financial development and growth in twelve countries in Latin America using data for the period 1950 to 1985.

Rousseau and Wachtel (1988) examined the link between financial intermediation and real sector for five countries that became industrialised over the period 1870-1929. Their study used a vector error correction model (VECM) on data such as assets of commercial banks, combined assets of commercial banks, savings institutions, a composite that includes assets of commercial banks, savings institutions, insurance companies, credit cooperatives and pension funds to measure financial intermediation for countries such as the United States of America, United Kingdom, Canada, Norway and Sweden. Despite some minor differences in the results, they found that intermediation causes real output. Thus it was concluded that rapidly growing financial systems can play a significant role in improving the allocation of resources as well as the performance of the economy.

While most of the studies cited above have mainly used the ratio of the ratio of liquid liability or private sector credit to GDP as the measure of financial development, some studies incorporate broad measures of financial sector development. Levine and Zervos (1998), in a study which used cross country growth regressions concluded that stock markets have significant effects on growth. Their study employed the ratio of market capitalization to GDP and value traded as a proportion of GDP and bank credit. The study covered 40 countries and found that both the stock market measured by the total value of shares traded relative to market capitalisation and the banking sector development have a positive impact on growth. However, it was difficult to determine the direction of causality in the study. This weakness led to some authors employing time series methods to test the causality between stock markets and real GDP. One of such study is by Arestis, Demetriades and Luintel (2001), which focused on the most advanced economies such as UK, USA, Germany, France and Japan. Amongst other things, it was found that the stock market have significant contribution effect to GDP despite that the magnitude being small. Moreover, for the USA and UK the link was found to be weak and showed reverse causality.

Rajan and Zingales (1998), used three measures of financial development such as the ratio of market capitalisation to GDP, domestic credit to the private sector as a proportion of GDP and accounting standards. Moreover, they included the amount of external finance raised by firms in different industries as a measure of financial dependence of firms, on industry data for the United States of America. They found a strong correlation between economic growth in various industries and the financial dependence measure. Moreover, they reported a strong relationship when accounting standard is treated as a measure of financial development. They therefore concluded by suggesting that financial development, spur economic growth by reducing the cost of external finance for firms.

Similarly, the study by Demirgur-Kunt and Maksimovic (1988b) renders support to the argument that external financing may aid economic growth. They used the amount and maturity of debt of firms as a relation of stock market turnover, bank assets to GDP ratio, measures of shareholder and creditor rights as well as measures of law and order for 30 countries and data between 1980 to 1991. They observed that stock market turnover is associated with financing of long-term debt, while bank financing is correlated with long term debt of small firms. They concluded that banks are more interested in funding small firms, while the stock market is particularly important for large firms.

Despite the fact that most of the studies cited above confirm the existence of a strong link between financial development and economic growth, they focused on developed countries with little emphasis on developing countries, more particularly on the Africa continent. In this regard it becomes imperative to consider some studies undertaken in developing countries, given the fact that they might share similar characteristics with the country under study. A few studies on the African continent include that of Odedokun, Allen and Ndikumana, Aziakpono and Al- Mashat etc.

Odedokun (1994) analysed the effects of financial intermediation on the growth of real GDP in 71 least developed countries (LDCs) of which 24 were from the African continent. Using annual data spanning 1960 to 1980, he found that financial intermediation promotes economic growth in about 85 percent of the countries.

Moreover, he found that financial intermediation, is at par with export expansion and capital formation ratio, and even superior to the labour force growth as promoter of economic growth.

Allen and Ndikumana (1998) investigated the role of financial development in stimulating economic growth in Southern Africa. The study used four measures of financial intermediation employing panel data for the period 1972 to 1996. The study reported the existence of a positive and significant correlation between economic growth and the size of the financial sector.

Aziakpono (2004) assessed the relevance of national financial intermediaries within an integrated financial market of the South African Customs Union (SACU). Their study employed two indicators of financial intermediation namely the ratio of private credit to nominal GDP and the ratio of liquid liabilities of commercial banks to nominal GDP. A panel data method of estimation was used on quarterly data spanning from 1980 to 2000. The study found that for South Africa, financial intermediation plays a role in supporting growth. For Botswana and Lesotho evidence of the finance-growth nexus was however weak, while in Swaziland financial institutions did not seem to be correlated with economic growth.

Al-Mashat (2003) analyzed the relationship between financial development and growth in Egypt using the period 1960 to 1999. His study used the ratio of M2/GDP and the ratio of reserve money to total deposits and reserve money to quasi-money as proxies of financial development and efficiency. He established that improvements in financial intermediation stimulated non government saving as well as on real GDP growth rates.

#### **4.4 Conclusions**

It can be concluded from the theoretical and empirical literature review that there exists a positive correlation between financial sector development and economic growth both in industrialised as well developing economies. In Namibia however, such an empirical

investigation was not undertaken, as far as we know. Thus the significance of this study to Namibia cannot be emphasised.

## **CHAPTER 5: METHODOLOGY**

### **5.1 Introduction**

The preceding chapter reviewed the theory and literature on the relationship between financial development and economic growth. This chapter explains the methodology used in the study.

### **5.2 Model formulation**

#### **5.2.1 Model specification**

At the onset, an empirical model for determinants of output growth with financial sector development as one of the explanatory variables has to be specified. From the endogenous growth theory, the model in this thesis is specified as follows.

However, given the high correlation between money supply and private sector credit of about 98 per cent, equation 11 above, has to be re-specified by dropping one of the two correlated variables as in equation 12 and 13.

$$\ln GDP_t = \beta_1 + \beta_2 \ln M2_t + \beta_3 INFL_t + \beta_4 InBRA_t + \beta_5 \ln OPEN_t + u_t \dots \quad (12)$$

where  $u_t = NID(0; S^2)$

Where, GDP represents real economic activities, PSC is the private sector credit, M2 is the real money supply, BRA is the commercial bank branches, INFL is the inflation , while OPEN is the openness index.

**Table 5.1 Definitions of Variables.**

<b>LnM2</b>	log of the money supply
<b>LnPSC</b>	log of the private sector credit to nominal GDP
<b>LnGDP</b>	log of the real GDP
<b>INFL</b>	the inflation rate
<b>InBRA</b>	the log of commercial bank branches
<b>LnOPEN</b>	the log of the openness index

According to equation (11), GDP is a function of money supply, credit to the private sector and bank branches, inflation and the openness of a country to international trade. Equation 12 and 13 are similar to equation 11, except that private sector credit and money

supply are excluded in the respective equations to avoid multicollinearity that they might cause when estimated in one single equation, given the fact that they are highly correlated.

M2 is an indicator of the deepening of the financial sector. Thus an increase in financial deepening is expected to be positively related to savings and real economic activities through increased investments. Private sector credit emphasizes the role of the financial sector in financing the private economy. Accordingly, it separates credit issued by the private sector by the deposit money banks from private sector credit issued to government, government agencies and private enterprises. Moreover, it excludes credit issued by central banks. The rationale is that credit issued to the private sector generates investment and productivity to a larger extent than credit to the public sector.

Bank branch is a proxy of bank outreach. It is expected that an increase in bank branches might lead to an increase in credit to the private sector credit, and ultimately lead to increase in investment and economic activities. In addition the equation includes openness and inflation as control variables. Openness takes into account the effects of international trade. For example, exports may positively affect growth if it increases the market for domestic products and generate foreign exchange reserves necessary to import capital goods. On the other hand imports can positively affect growth if increases in imports increase the stock of capital goods.

Inflation rate is a measure of macroeconomic stability (Easterly and Rebelo 1993, Fisher 1993, Allen and Ndikumana 1998 and Levine and others 2000). Accordingly, high inflation distorts economic activities and reduces investment in productive enterprises, thus reducing economic growth. Both M2 and PSC are expressed as ratios of nominal GDP. The openness index was calculated as a sum of total imports and exports as a percentage of nominal GDP. Bank branches were computed as a total of commercial bank branches. Since the variable rarely change, in most cases it was expressed as the total number of bank branches at the end of each period divided by four quarters to arrive at the quarterly figures. For the inflation rate, the nominal rate was used. All the

variables were expressed in log linear function to determine the growth rates with the exception of inflation rate which is already a growth rate. It is expected *a priori* for money supply, credit to the private sector and bank branches variable to be positively correlated to the dependent variable GDP in the long run. Inflation on the other hand is expected to be negatively related to GDP. The coefficient of the openness index is however ambiguous, as it depend on the net effects of exports and imports.

Equations, 11,12 and 13 implies that GDP adjusts instantly to changes in money supply, private sector credit and bank branches. However, in the actual sense there is a lagged response between GDP and financial sector development variables. The above observation leads the model specification that take into account the adjustment mechanism. Moreover, the introduction of the first difference specification arises from the need to avoid “spurious regression”. The approach of determining the lag structure in economic models has been criticised as being overly restrictive and abstracts. Accordingly, the imposition of lag structures on economic models may lead to models with simple lag structures that may not fit the actual data generation process, lead to false results. In order to avoid this problem, an error correction or dynamic model specification is used.

The error correction function for GDP in this case can be specified in this form.  $\Delta$

$$\ln \text{GDP} = \sum b_1 \Delta \ln m_{2t-1}^b - b_2 \Delta IFL_{t-i} + b_3 \Delta \ln BRA_{t-i} + b_4 \Delta \ln OPEN_{t-i} + b_5 \ln GDP - \ln GDP_{t-i} + b_0 \quad (14)$$

$$\Delta \ln \text{GDP} = \sum b_1 \Delta \ln psc_{t-1}^b - b_2 \Delta IFL_{t-i} + b_3 \Delta \ln BRA_{t-i} + b_4 \Delta \ln OPEN_{t-i} + b_5 \ln GDP - \ln GDP_{t-i} + b_0 \quad (15)$$

In equations 14 and 15 the subscripts attached to the variables refer to lagged values. The term with the coefficient  $b_5$  represents the deviations from the long run equilibrium or the error correction term.

## **5.3 Model estimation**

### **5.3.1 Estimation method**

To estimate and test for the existence of a long run relationship between financial sector development and economic activities, this study employs the method of cointegration test and the error correction modeling (ECM). This will be done by initially estimating the log run relationship between the variables, testing the residuals from the long run relationship for stationary, hence establishing cointegration, and finally estimating a dynamic model by including the error correction term from the long run static model. At the onset, it is important to explain briefly the ECM estimation method before using it.

ECM uses the Engle-Granger methodology to capture both the long run and short run dynamics of the variable under study. The model works as follows. If two time series are both integrated of order I ( $d$ ), therefore, any linear combination of these two series will also be I ( $d$ ). The economic interpretation of cointegration is that if two or more series are linked to form an equilibrium long run relationship, even though the series may be non-stationary, they will move closely together with time and their differences will be stationary. In this case the long run relationship is the equilibrium to which the system converges over time, and the error term can be interpreted as the disequilibrium error or the distance that the system is away from equilibrium.

The ECM therefore takes into account both the short run and long run effects. When disequilibrium exists, the speed of adjustment term is non zero and measures the distance that the system is away from equilibrium at time  $t$ . It is expected for the speed of adjustment to be negative, so that it boosts the change in the dependant variable by forcing it back to its long run path. Thus the first stage in the Engle-Granger framework is to run the long run equation and test whether the variables are co integrated. The latter is done by testing the residuals from the long run equations. The second stage of the Engle-Granger comprises of estimating the short-run model including the residuals from

the regression in the first stage. A dynamic model of short run adjustment can be parameterised to give the error correction formulation (ECM).

## **CHAPTER 6: EMPIRICAL ANALYSIS AND INTERPRETATION**

After identifying the methodology, this chapter attempts to test the Namibian data for the validity of this relationship. The research problem at hand is to estimate the long run and the short run relationship between financial sector development and economic activities. After testing for this link, the direction of causality of such a relationship is also examined.

### **6. 1 Data analysis**

#### **6.1.1 Data sources**

The data used are quarterly data covering the period quarter 1, 1993 to quarter 4, 2005 or a total of 53 time series variables. The data on M2 and PSC were obtained from the Bank of Namibia while data on GDP, inflation as well as import and export data used to

compute the openness index was obtained from the Central Bureau of Statistics. Data on commercial bank branches was obtained from the Bank of Namibia for the period 1999 to 2005, except for the years 1993 to 1998 which was extracted from various annual reports of commercial banks. All data are in million Namibia dollars, unless stated otherwise.

**Table 6.1      Dummy Variables**

D98	Asian financial crises of 1998
D2003	Monetary policy tightening of 2003

In addition to the variables indicated in equation 11, 12 and 13 two dummy variables D98 and D2002 were included. The dummy variable (D98) was included to capture the effects of the East Asian financial crises of 1998 which led to a reduction in money supply and credit to the private sector. Accordingly, D98 assumes a value of 1 from the second to the last quarter of 1998 and zero for all other periods. The dummy variable (D2003) was included to take into account of the significant decrease in inflation which began in 2003, on account of monetary tightening in the previous year. Accordingly, D2003 takes a value of 1 from 2003 up to 2005 and zero for the rest of the period.

### 6.1.2 Statistical properties of data

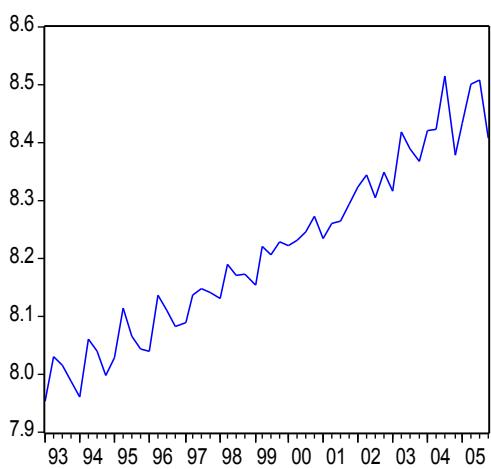
Time series data that shows a trend or which are non stationary, may lead to spurious correlation which may imply the existence of a significant relationship between the independent and dependent variables such as Equation 11. Two or more unrelated series may therefore provide significant but spurious results and thus applying Ordinary Least Squares (OLS) methodology yields biased and inconsistent results. To overcome this problem, the variables should be integrated. A variable which is stationary without differencing is said to be integrated of order zero, I (0). A variable that is non stationary may become stationary after differencing, such a variable is said to be integrated of order one or I (1), if it is stationary after differencing once, or of order two, I (2) if differenced twice. A general characteristic of our data is that they are all I (1), and the time series is very short given the fact that Namibia only attained independence in 1990. Thus some earlier data are not available. Given this constraint, this thesis is restricted to the period between 1993 and 2005.

### **6.1.3 Data trends**

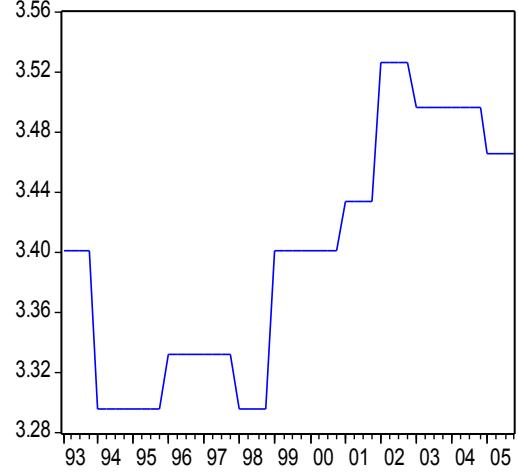
Initially the data was analyzed to determine the trend before undertaking any empirical investigation. Data series are plotted under Figure 6.1. Accordingly, the logarithm of money supply depicts an increasing trend with significant declines in 1998. The decline trend in M2 is also mirrored in the logarithm of private sector credit. The observed spikes was due to the contagion effect of the East Asian financial crisis which significantly reduced money supply and credit to the private sector. The East Asian financial crises resulted in significant outflow of capital from emerging markets including South Africa to the developed economies. Given the high level of financial integration between Namibia and South Africa, there was also significant outflow of capital from Namibia.

As a policy response to attract capital, interest rates were raised and consequently reduced credit available for on lending and subsequently money supply. The logarithm of real GDP displays an increasing trend during the review period without major spikes. It should be noted however that the growth rates observed in quarterly real GDP, does not reconcile with the annual GDP growth rates due to some technical discrepancies on the side of the Central Bureau of Statistics (CBS). The logarithm of CPI shows a trend characterized by increases and declines with significant declines observed from 2003 to 2005. Figure 6.2 on the other hand depicts the growth rates in the variables after differencing.

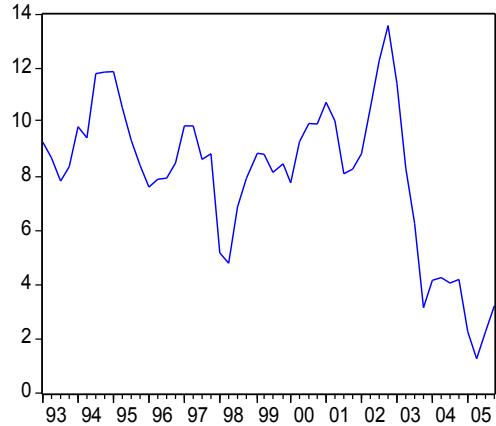
**Figure 6.1 Graphic representations of variables in levels**



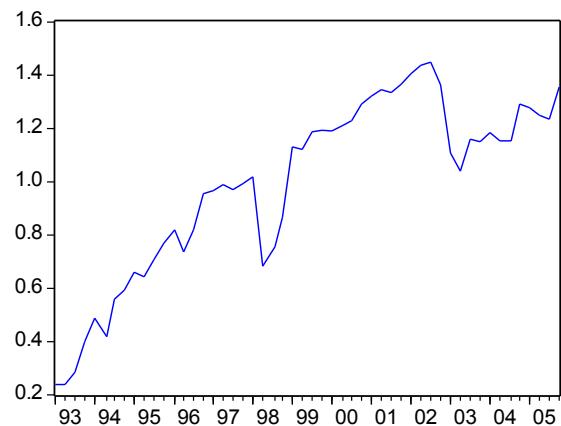
— LNGDP



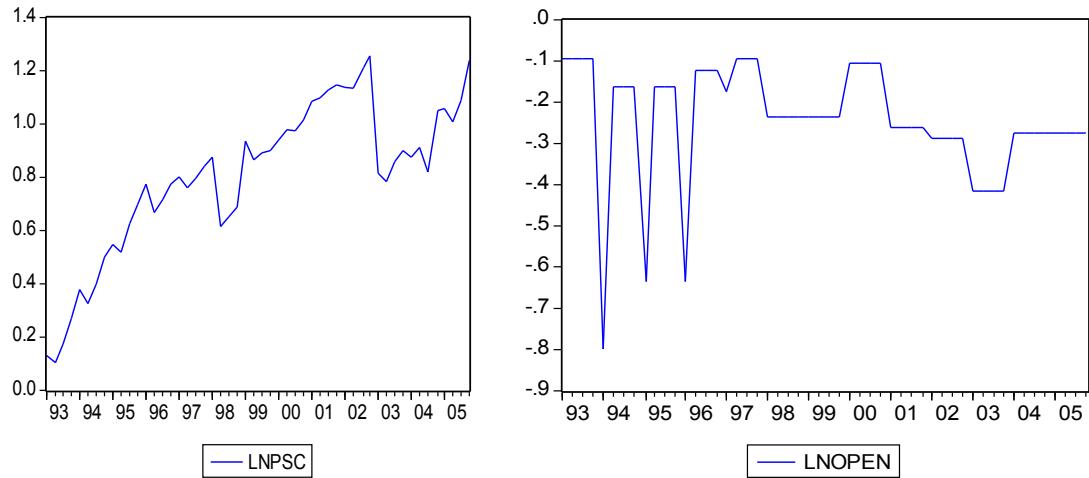
— LNBRA



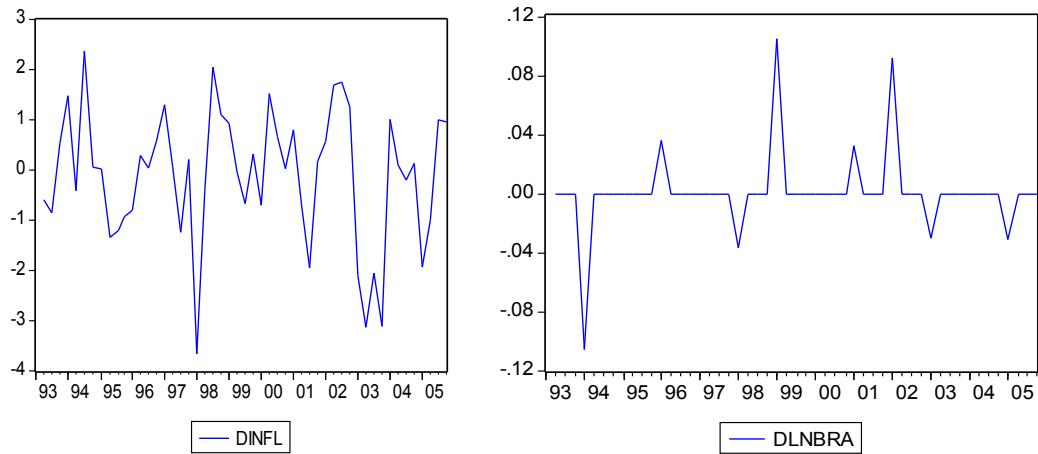
— INF

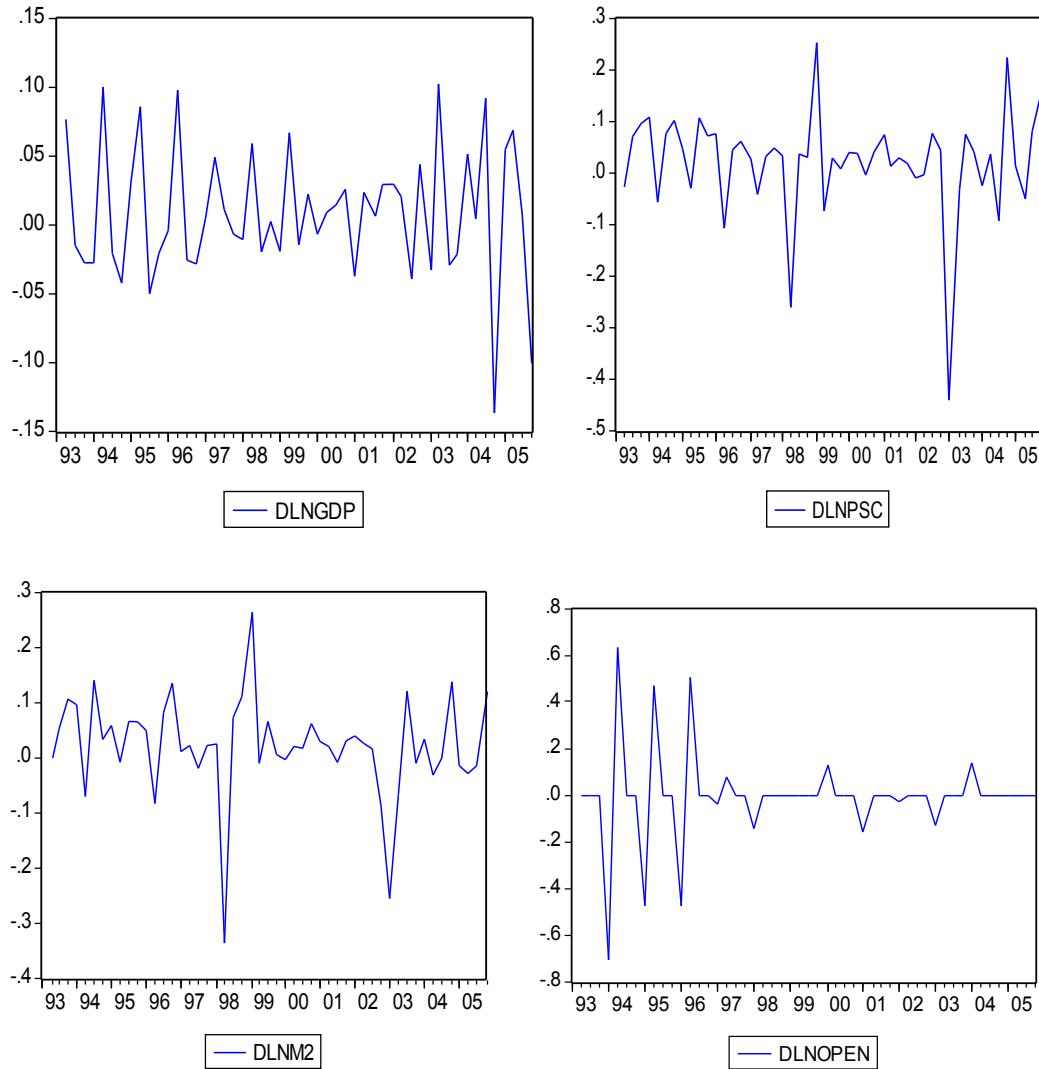


— LNM2



**Figure: 6.2 Graphic representation of variables in first differences**





#### 6.1.4 Stationarity tests

After the visual inspection of the trend in data, a formal test for stationary using the Augmented Dick Fuller or ADF test was used. The motivation for undertaking this test is to ensure that, the estimation results obtained from the data series are not spurious. The results of the ADF test are reported in Table 6.2. The test was conducted both in the levels as well as in first differences. Moreover, the critical value against which the null hypothesis of unit root was tested is also included.

**Table 6.2      Unit Root tests for the variables in levels and differences.**

Variables	Test Statistic	1% critical values	5% critical values	10% critical values	Order of integration
LNGDP	-2.354589	-4.165756	-3.508508	-3.184230	
DLNGDP	-8.225708	-4.165756	-3.508508	-3.184230	I (1)
LNM2	-2.235389	-4.148465	-3.500495	-3.179617	
DLNM2	-6.564246	-4.152511	-3.502373	-3.180699	I (1)
LNPSC	-2.684252	-4.148465	-3.500495	-3.179617	
DLNPSC	-7.45938	-4.165756	-3.508568	-3.184230	I (1)
LNOOPEN	-2.612771	-4.165756	-3.508508	-3.184230	
DLNOPEN	-6.730965	-4.165756	-3.508508	-3.184230	I (1)
INFL	-2.946009	-4.165756	-3.500495	-3.180699	
DINF	-8.494744	-4.152511	-3.502373	-3.1804230	I (1)
LNBRA	-2.717608	-4.148465	-2.500495	-3.179617	
DLNBRA	-6.932064	-3.152511	-2.502373	-2.180699	I (1)

The result of the ADF test results above indicate that the calculated t-statistics obtained from the variables in the levels are lower in absolute terms than the correspondent critical values both at 99 per cent, 95 per cent and 90 per cent level of significance. To cite an example -2.354589 (ADF test result for LnGDP) is lower in absolute terms than -4.165756, -3.508508 or -3.184230. Thus the null hypothesis of the presence of a unit root in these variables cannot be rejected. By implication the variables are non stationary in levels. The ADF test however rejects the null hypothesis for the presence of a unit root for all variables in first differences. Thus the null hypothesis for the presence of a unit root is rejected in first differences of these variables. This means that all the variables are I (1).

### 6.1.5 Cointegration

In this section an empirical test to determine whether the variables are cointegrated or not is undertaken. If the linear combination of the variables in the model which are all I (1) is stationary, then it implies that the variables are cointegrated. If cointegration is present, not only do we avoid spurious regression in spite of their non-stationarity, but also

equilibrium exists and thus error correction modeling can be applied. Cointegration therefore refers to the existence of a long-run equilibrium to which the system converges with time. To test for cointegration, the long run regression equations 12 and 13 were estimated to obtain the residuals which were then tested for the presence of a unit root. The Augmented Dickey Fuller Test or ADF test with two lags was used. If the errors (residual term) does not possess a unit root, it implies that the variables are cointegrated.

The equations 12 and 13 including the dummy variables D98 and d2003 were estimated. The results from such long run equations are reported in Table 6.3 and 6.4 respectively. All the elasticities from the estimated equations 12 and 13 displays the expected signs and significant (except for openness index whose t values were below 2 and was thus omitted from the preferred model). The high R-squared of 91 per cent and 89 per cent indicates the high degree to which variations in GDP are explained by changes in the explanatory variables. More particularly, the coefficients of the financial development variable (M2) and private sector credit were correctly signed and according to economic theory which postulates a positive relationship financial development and economic growth. The coefficient of the bank branches is also positive and significant in both equations.

**Table 6.3 OLS estimation of the preferred model long run model, Money Supply (M2) and Bank Branches as indicators of financial sector development.  
Dependent Variable: LNGDP**

Variable	Coefficient	Std Error	T stats	Probability
C	6.743873	0.5432215	12.41474	0.0000***
INFL	-0.014357	0.002729	-.5.261642	0.0000***
INBRA	0.394538	0.164745	2.394836	0.0000***
D98	0.056883	0.018771	3.030376	0.0040**
D2003	0.065413	0.028503	2.294938	0.0263**

LNM2	0.210689	0.027347	7.704268	0.0000***
$R^2$ 0.9126				
DW: 1.67				

\*\*\* Significant at 1 per cent level \*\* Significant at 5 per cent level \* Significant at 10 percent level

Despite the observed significant coefficients in the financial development variables, it is too early to conclude on the existence of a long run relationship between the variable taking into account that cointegration is yet to be established.

**Table 6.4 OLS estimation of the preferred long run model PSC and Bank Branches as the measure of financial development**

**Dependent Variable: LNGDP**

Variable	Coefficient	Std Error	T stats	Probability
C	5.516192	0.385313	14.31613	0.0000***
INF	-0.015055	0.002860	-.6.264001	0.0000***
INBRA	0.767398	0.117194	6.548102	0.0000***
D98	0.076591	0.019843	3.859868	0.0003**
LNPSC	0.242620	0.031530	7.694910	0.0000***
$R^2$ 0.897011				

DW: 1.690509				
*** Significant at 1 per cent level	** Significant at 5 per cent level	* Significant at 10 percent level		

As explained in section 6.1.5, the errors from the estimated equations 12 and 13 were saved and tested for stationary, through the ADF test. The results from the ADF test are reported in table 6.5

**Table: 6.5 ADF Test for Cointegration**

Variable	ADF Test	Decision
$e_t$ from equation 12 in Level	-5.817298	Cointegration Exists
$e_t$ from equation 12 in Level + Constant & Linear trend	-5.793742	Cointegration Present
$e_t$ from equation 13 in Level	-5.914614	Cointegration Present
$e_t$ from equation 13 in Level + Constant & Linear	5.889195	Cointegration exist

trend		
Critical values in the ADF test, Level 10 % = -3.5654; 5 % = -2.9199; 1% = 3.5654		
Critical values in ADF test, Level, Constant & Linear trend 10% = -4.1611; -3.5063, -3.1830.		

Accordingly, the ADF test rejects the null hypothesis for the presence of a unit root in the errors, given that the ADF test results are greater in absolute values than the critical values in both tests. Therefore the results in Table 6.5 indicate the null hypothesis of a unit root in the residuals can be rejected at both levels, thus leading to the conclusion that the residuals are stationary and integrated of order zero or I (0). From the foregoing, it can be concluded that a long run relationship exist between financial sector development and GDP in Namibia. Moreover, it can be assumed that an error correction exists.

These results are consistent with the study of Aziakpono (2004) which found credit to the private sector and money supply to be statistically significant in Lesotho and South Africa. For Swaziland and Botswana he found that both credit to the private sector measure and money supply measure to be negatively correlated with GDP. Similarly, Allen and Ndikumana (2000) found the coefficient of the money variable (M3) measure to be statistically significant, however the coefficients of the private sector credit measure was found to be statistically insignificant for Southern Africa countries. In concluding therefore, the financial sector development does have a positive effect on growth in Namibia, in the long run.

### 6.1.6 Error correction modelling

After establishing the existence of a long run relationship between financial development and economic growth, an ECM models was then estimated using ordinally least square method (OLS). Accordingly “overparamaterised” models with several regressors and their lags were estimated, using a distributive lag model with three lags and then simplified through testing. This was done by estimating equations 14 and 15 and testing for insignificant variables which were then left out of the model one by one. Through this way two parsimonious models whose results are discussed here-under were established.

From Table 6.6 and 6.7, both the money supply and the private sector credit indicators were significant in the respective ECM models, however, the bank branches indicator was only significant in the private sector credit ECM model only. The ECM terms came out with the expected negative coefficient and significant. The coefficients of the error terms is -68, and -66 respectively, indicating that approximately 68 per cent and 66 percent of the deviations from equilibrium are corrected in the next quarter. The R<sup>2</sup>s are not significant enough, suggesting that about 46 percent (M2: ECM) and about 49 percent (PSC: ECM) of the deviations in GDP are explained by changes in the explanatory variables. This is indicative of the fact that key variables that explains GDP could have been left out in the estimation. Inflation was also significant in all the short run equations. All the dummy variables were insignificant in both the ECM models and were thus dropped.

**Table 6.6 OLS estimation of the Preferred ECM model: M2 as measure of financial development**

**Dependent Variable: DLNGDP**

Variable	Coefficient	Std Error	T stats	Probability
C	0.005266	0.005644	0.932922	0.3561
DINFL	-0.008326	0.004094	-2.033624	0.0482**
DLNBRA	0.303784	0.214485	1.441643	0.1566
DINM2 (-3)	0.134328	0.063166	2.126591	0.0392*
ERROR (-1)	-0.687572	0.119111	-5.772527	0.0000*
<i>R</i> <sup>2</sup> 0.464010				
DW: 2.208193				

After the empirical estimation, it is imperative to test the results to ensure whether the equations estimated conform to the classical linear assumptions, namely, the disturbance

term has a zero mean, errors are not correlated with each other, the variance is homoscedastic and the model is correctly specified. To undertake the above checks, the results from the estimated ECM equation 14 were tested and the results of the diagnostic tests are reported below. The diagnostic tests for serial correlation LM test reveals that the  $F(5, 42) = 0.613964$  is less than the critical  $F(5, 42) = 2.45$  at 5 percent, implying that the errors term are not serial correlated. The white heteroscedasticity test  $F(5, 42) = 0.613964$  is less than the critical  $F(5, 42) = 2.45$  both at 5 per cent and 1 per cent. Thus the errors are assumed to be homoscedastic. The Ramsey Reset Test  $F(5, 42) = 1.470644$  is less than the critical  $F(5, 42) = 2.00$  at 10 per cent this attest that the equation is correctly specified. The normality test shows that the Jarque-Bera Test (JB)  $\chi^2(2)$  is 0.720285 with the probability of 0.697577. This can be interpreted to mean that the error term from equation 14 is normally distributed.

**Table 6.7 OLS estimation of the preferred ECM model: PSC as a measure of financial development**

**Dependent Variable: DLNGDP**

Variable	Coefficient	Std Error	T stats	Probability
C	0.005348	0.005348	0.990961	0.3272
DINFL	-0.011187	0.004066	-2.751603	0.0086*
DINBRA	0.399971	0.201210	1.987823	0.0532**
DINPSC (-3)	0.164583	0.054761	3.005488	0.0044*
ERROR (-1)	-0.665442	0.109653	-6.068638	0.0000*
$R^2$	0.497472			
DW:	2.079924			

The diagnostic testing was also performed to the ECM equation 15 and the results are reported as follows: The Breusch Godfrey LM test reveals that the  $F(5, 42) = 0.435080$  is less than the critical  $F(5, 42) = 2.45$  at 5 percent, implying that the error term is not serial correlated with the next period error. The white heteroscedasticity test  $F(5, 42) = 0.771101$  is less than the critical  $F(5, 42) = 2.45$  both at 5 per cent and 1 per cent

respectively. Thus the errors are homoscedastic. The Jarque-Bera Test (JB)  $\chi^2$  (2) is 3.167186 with the probability of 0.205236, implying that the error term is normally distributed. The Ramsey Reset test  $F(5, 42) = 1.09$  is less than the critical  $F(5, 42) = 2.00$  at 10 per cent, implying that the equation (15) is correctly specified.

### 6.1.7 Granger causality

Correlation test does not tell anything about the causal relation between the financial sector variables and GDP. Thus the Granger Causality test is used to examine the relationship that exists between variables. According to Granger (1969) a variable X Granger causes Y if present Y can be predicted with better accuracy by the past values of X rather than not doing so, while other relevant information are the same. This test is very vital to policy makers in Namibia because from it can be concluded whether changes or shocks to financial development variables will affect real economic activity or not. The test was carried to all six variables and the results and decisions are as reported in Table, 6.8. The result from the Granger causality tests (Table 6.8) points out that all the financial development variables, private sector credit and money supply and bank branches variables Granger causes GDP. Thus the direction of causality runs from financial sector development variables to GDP and not the other way around

**Table 6.8 Pair wise Granger causality test**

Variable	F-statistics	Probability	Level	Decision
INPSC ▶ LNGDP	0.89577	0.47574	0.10	Reject
LNGDP ▶ LNPSC	3.03646	0.02848	0.10	Accept
LNGDP ▶ LNM2	3.87105	0.00964	0.10	Accept
LNM2 ▶ LNGDP	0.51994	0.72154	0.10	Reject
INFL ▶ LNGDP	2.55590	0.05391	0.10	Accept
LNGDP ▶ INFL	1.61244	0.19051	0.10	Reject
LNBRA ▶ LNGDP	0.43299	0.78392	0.10	Reject
LNGDP ▶ LNBRA	2.52423	0.05624	0.10	Accept
LNOOPEN ▶ LNGDP	0.87206	0.48938	0.10	Reject
LNGDP ▶ LNOOPEN	0.80620	0.52877	0.10	Reject

With regard to inflation it is GDP that Granger cause inflation. The causal direction of international trade however remains ambiguous. It can be concluded based on the money

supply, bank branches and credit to the private sector variables that the direction of causality runs from financial sector development to GDP in Namibia. Thus current levels of financial sector development predict future economic activities in Namibia.

## **CHAPTER 7: CONCLUSIONS, POLICY IMPLICATIONS AND RECOMMENDATIONS.**

### **7.1 Introduction**

This chapter draws from the empirical findings in the preceding chapter to conclude and points out policy implications of the study. The conclusion is therefore presented in section 7.2, while section 7.3 contains policy implications. 7.4 outline areas for future research/recommendations.

### **7.2 Conclusions**

The main objectives of this study was to examine whether there is a long-run relationship between financial development and economic growth in Namibia and hence determine the direction of causality as well as to examine the implications of such results for the financial sector policy- oriented growth in the economy. If the link between financial sector development and growth exists, finance can be used to boost the real sector and reduce poverty by fostering growth. This question is of prime importance for policy makers and regulators of the financial sector who are responsible for the implementation of policies designed to develop the sector.

To answer the question above, the study employed a cointegration and error-correction modelling techniques. Before embarking on the empirical tests, the augmented dickey fuller test was employed to test for the stationarity of the variables. To test for

cointegration, a two-stage Engle-Granger method was used. An error correction model was therefore set to capture both the long run and the short run dynamics of the model. The results indicated that both financial sector development indicators are positively correlated with real GDP in the long run. Upon the confirmation of the relationship, the study proceeded with establishing the direction of causality between the financial development and real GDP. The results indicated that the direction of causality runs from the financial development variables to GDP. This implies that the development of the financial sector in Namibia has a positive effect on growth as the theory suggests.

### **7.3 Policy Implications for Namibia**

Having established that financial development is positively correlated with GDP, and that the direction of causality runs from financial development to economic growth, the study proposes a number of policies for enhancing the role of the financial sector in this regard. Policies that enhance the efficiency by which commercial banks allocates credit such as a strong legal system should be encouraged. Moreover, efforts by the financial sector to increase access to financial services are commendable, given the primacy of financial sector for economic growth.

### **7.4 Recommendations for future Research**

This study used an error correction model and cointegration to examine the link between financial development and economic growth. It used credit to the private sector, broad money supply and bank branches to test such a relationship. The study did not however, take into account other relevant variables such as the effect of human capital and interest rates on GDP. Moreover, the impact of financial variables on poverty alleviation was also not tested, thus providing room for future research. It is therefore recommended that future studies in this area should take into account the effects of variable such as human capital, interest rates on economic growth in addition to the variables under study. Moreover, the impact of financial sector development of poverty in Namibia should also be investigated in future.

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