THE IMPACT OF FINANCIAL DEVELOPMENT ON ECONOMIC GROWTH IN ZAMBIA.

BY

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MA DISSERTATION

In partial fulfilment for the requirements for the degree of Master of Art (Economics)

Declaration

I, Mukuka Andygean Chileshe, do hereby declare that the contents of this dissertation are my work and that they have not been previously submitted to any University for the award of a degree or any other qualification.

Signature

June 9, 2003

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Approval

This dissertation of Mukuka Andygean Chileshe is approved as fulfilling the requirements for the award of the degree of Master of Art in Economics of the University of Zambia.

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Abstract

This study examines the impact of financial development on economic growth process for the period 1964 to 1998. The study explores financial developments in Zambia and the channels of influence by which financial development is related to growth. The study also looks at which financial intermediaries are doing the intermediation and to whom the financial system is allocating credit. Chapter 2 describes discusses the political and economic developments the evolved after independence, Policy reforms and implications and the features of the banking industry as well as the non-bank financial intermediaries in Zambia.

Chapter 3 discusses theoretical and empirical literature for the purpose of highlighting existing body of knowledge on this topic. Chapter 4 estimates an error correction model of financial development indicators to investigate the channel through which the allocation of a higher proportion of assets to the non-financial private sector by the financial intermediaries affects economic growth in Zambia. Chapter 5 gives policy implications and recommendations.

The main findings of this study are that the development of a financial system has an indirect effect on economic growth. Specifically, the size of the financial system is not statistically significantly related to economic growth through the direct channel (per capita income) while the relationship is negative and remains weak through the indirect (investment) part. The fraction of credit allocated to the private sector by financial intermediaries has no direct relationship with economic growth. Moreover, the measure of assets distributed to the private sector has an indirect effect on economic growth.

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Table of contents

List of Tables

Chapter 1

Introduction

1.0 Background

For a long time now economists have debated the nature and empirical importance of the relationship between financial systems and economic growth. The predominance of theoretical reasoning and empirical evidence suggests a positive relationship between financial development and economic growth. There is evidence that the level of financial development is a good predictor of future rates of economic growth, capital accumulation and technological change. Theory suggests that financial instruments markets and institutions arise to mitigate the effects of information and transaction costs.

Furthermore, differences in how well financial systems reduce information and transaction costs influence savings, investment decisions, technological innovation and long-run economic growth.

The nature of the connection between financial development and economic growth may be perceived from the relationship between the financial system and growth-producing factors. The most important is the relationship of the stock of financial assets and liabilities to the real capital stock[1]. The growth objective of the financial system is to achieve the structure and rate of growth of various financial assets and liabilities that can induce the optimal characteristics of the real capital stock.

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[1] Its optimal composition and rate of growth and its efficient allocation and utilisation.

There are three major ways in which the financial system can influence the capital stock for growth purposes. First financial institutions can encourage more efficient allocation of a given total amount of tangible wealth[2] by bringing about changes in its ownership and its composition, through intermediation among various types of asset-holders. Second, financial institutions can encourage a more efficient allocation of new investment[3] from relatively less to relatively more productive uses, by intermediation between savers and entrepreneurial investors. Third they can induce an increase in the rate of capital accumulation of capital, by providing increased incentives to save, invest and work. There is a considerable difference of opinion about the importance of the financial system for economic growth.

Moreover, it is believed in certain instances that economic development creates demand for particular types of financial systems. A particular case in point is the instance where well functioning banks induce technological advancement by identifying and funding entrepreneurs with the best choices of successfully implementing innovative products and production processes.

Notwithstanding, the relationship between financial development and economic growth remains a matter of controversy ever since the contributions of Goldsmith (1969), Mckinnon and Shaw (1973).

Following the Mckinnon-Shaw financial intermediation hypothesis (Mckinnon, 1973; Shaw, 1973) which states that, underdevelopment is characterised by market imperfections that reinforce each other, many developing countries have adopted

[2] Capital in a broad sense.
[3] Additions to capital stock.

programmes to restructure their economies. Development could only be realised if these imperfections were overcome. The solution to this development problem therefore was the liberalisation of the financial system.

1.1.Statement of the Problem

Zambia is one of the countries in Africa, which has liberalised its financial sector. However from the literature reviewed, one may conclude that theory does not yet provide clear predictions on the impact of financial development on economic growth and the particular policies influencing economic growth in Zambia. The issue at hand is whether financial development has affected growth positively through increased volumes of investment, improved efficiency or both.

It is not clear how financial development has influenced capital accumulation and factor productivity. Moreover, the transmission mechanism through which the equilibrium behaviour of competitive intermediaries affects resource allocation in ways that have implication for economic growth remains uncertain. Thus it is against this background that I wish to embark on this study.

1.2. Objectives

1. To examine financial development in Zambia since 1965.
2. To establish the relationship between financial structure and economic growth measured by the growth rate of per capita gross domestic product over the 1965-95 period.
3. To explore the channels of influence by which financial indicators are related to growth.
4. Depending on the results, make policy recommendations.

1.3 Hypotheses

This section specifies the various hypotheses that are empirically tested to find out the relationship between financial development and economic growth in Zambia from 1965-1995. Financial indicators measure financial development.

Thus the study tests the following null hypotheses:

1) Financial size indicators do not influence economic growth.

2) Financial size indicators do not influence investment.

3) Financial asset distribution does not explain economic growth.

4) Financial asset distribution does not influence investment.

5) Financial repression does not influence economic growth.

6) Financial repression does not explain investment.

1.4 Significance of the Study

The main reason of carrying out this study is to provide necessary input and guidance to decision-making process in this country. There is need for empirical input to guide economic decisions since few or no empirical studies have been done in the field of financial economics in Zambia.

The findings will also provide more insights into the interactions between the financial and the real sector and will therefore provide a basis for monetary policy formulation. Further the study findings will contribute to the body of knowledge on Zambia.

Chapter Two

The Financial Sector In Zambia

2.0. Introduction

Zambia's post independence political and economic developments have evolved through three transformations. These have generally been characterised as the First Republic (1964-72); the Second Republic (1972-91) and the Third Republic (1991-Present) each phase had its distinctive political ideology and preferred approach to managing the national economy.

Owing to the fact that the colonial system was discriminatory towards blacks the government undertook major reforms to improve the economic and social status of the people by investing in both social and physical infrastructure. As a starting point to major policy reforms, the Zambian government nationalised most of the large commercial and industrial companies in the country. The major international banks resisted the move to nationalise the financial sector. As such the government only managed to nationalise smaller banks, insurance companies and building societies.

The advent of the Third Republic heralded the return of a market oriented economic system. During this period, notions and practices of centralised planning and state participation were replaced by those of privatisation and liberal economic policies. The major policy reforms included monetary and fiscal policies, competition-enhancing policies to eliminate controls on key prices such as the exchange rate and interest rates, the liberalisation of the financial sector leading to the proliferation of financial institutions and insurance companies.

The rest of the chapter is organised as follows. Section 2.1 presents the brief country profile while section 2.2 gives an overview of the banking industry in Zambia. Section 2.3 outlines the features of the commercial bank credit market. Development of the non-bank financial intermediaries in Zambia is presented in section 2.4 Policy reforms and implications are presented in section 2.5. Section 2.6 concludes the chapter.

2.1 A brief country profile

Zambia is a landlocked country, which became politically independent from British colonial rule in 1964. It is divided into nine administrative provinces and has a vast physical territory relative to its population. The population density stands at 9 people per square kilometre (see 1997 development report). This population however, is unevenly distributed. According to the 1997 Human development report, in the urbanised provinces of Lusaka and Copperbelt where a third of the total population resides, the densities are higher than 45 persons per square kilometre. In the predominantly rural provinces such as the Western, Eastern, Northern, Luapula and Southern provinces, the population densities are below 5 persons per square kilometre.

The country has a multicultural and multireligious population. The population is highly youthful, with children aged 14 years and below constituting 44.5%. A total Fertility Rate of 6.5 contributes to the population growth of over 3% (see 1997 Human development Report).

The Zambian economy has for a long time depended on copper production for national output, employment and government revenue as well as export earnings. As Mwansa (1998) shows, the mining sector has also dictated government policy since independence to the detriment of other sectors. The country's heavy reliance on the mining industry therefore rendered it vulnerable to fluctuations on the copper market. The financial system in Zambia is characterised by the existence of several basic financial institutions such as commercial banks, merchant banks, savings banks, mortgage banks, and insurance companies. Financial instruments include scriptural (non-metallic) money in the form of bank notes, bills of exchange, accounts receivable and payable, bank deposits, loans made by financial institutions, life insurance and pension contracts, mortgages, government and corporate bonds and corporate stock.

2.2 A Profile of the Banking Industry in Zambia

At independence in 1964 Zambia had four commercial banks operating in the country, namely Barclays Bank DCO, Standard Bank, the National and Grindlays Bank and the Netherlands Bank of South Africa. In addition to these commercial banks there was the Merchant Bank of Central Africa as well.

As Musokotwane (1985) shows, new additions to the commercial banking industry since 1964 were the Zambia National Commercial Bank, Citi Bank and the Bank of Credit and Commerce. Zambia National Commercial Bank limited was the only Zambian owned commercial bank in the country. It was incorporated on 21 August 1968. The state owned more than 99% of share holding in the bank. Private Zambian individuals owned the rest of the shares.

Barclays Bank only became incorporated in Zambia in 1971 while the Bank of Credit and Commerce Bank was incorporated in Zambia on 27 May 1980. This was the smallest commercial bank in Zambia. It was a wholly owned subsidiary of the Bank of Credit and Commerce International Holdings. Having been incorporated in 1979, Citi Bank was a subsidiary of the holding company CITICORP. Citi bank was the only American bank in the country where until the 1980's British interests mainly dominated the commercial banking industry. In addition, it was the only commercial bank in Zambia that concerned itself entirely with wholesale banking. On account of this, only business accounts were usually entertained.

In 1971 the Zambia National Commercial bank had only one branch. By 1977 there were 19 branches and one sub-branch. As at 31st March 1982, there were 29 domestic branches and one external branch in London. As Musokotwane (1985) indicates, numerically this compared favourably with older banks like Barclays bank with 31 branches and 9 agencies; Standard Chartered bank with 23 branches and 11 agencies, and Grindlays Bank international with 7 branches in 1982.

By 1996, the banking system in Zambia comprised of the central bank, 17 commercial banks, 2 specialised banks, and a number of financial intermediaries and non-bank financial institutions. The structure of commercial banks was of a branch network type. In 1992, bureaux de Change system was introduced as an extension to commercial banks. By July 1996, 35 Bureaux de Change were operating, 15 of which were linked to commercial banks. Between 1992 and 1994, seven new banks were also opened.

Moreover, certain features were perceptible in the operations of commercial banks in Zambia. One of the most noticeable characteristics was that the industry was overwhelmingly foreign owned, with very little or no local ownership in the expatriate commercial banks. The Standard bank with the highest percentage in local ownership for instance was 90% owned by the Standard Chartered Bank of London. The remaining 10% was owned by indigenous firms. The local banks represented only a tiny fraction of the mother bank's international activities. Additionally, the expatriate commercial banks were the dominant banks that controlled between 86.7% and 87% of the total commercial bank deposits loans and advances.

Furthermore, commercial banks were concentrated in the more urban areas and only responded to existing economic opportunities. The implication of this was that a bank or branch might only open if there were immediate profitable prospects for it. As Joan Robinson (1952), states commercial banks displayed the demand-following principle in the sense that they could only respond to the need for banking services. In addition, the African population's participation in the banking business was rather insignificant.

As a result of following this principle certain negative traits were eminent in the functions of commercial banks in Zambia. First, as Musokotwane, (1985) shows, most bank branches were found in relatively more developed areas than others, as such accessibility to commercial banks was limited in most parts of the country. More over, the absence of commercial banks in rural areas implied that saving, through bank deposit was not available to the people in these areas.

Since the operation of commercial banks was concentrated in urban areas the beneficiaries from loans were few. The rural areas, with the least concentration of bank branches received little in loans even to this day. Musokotwane, (1985) notes that this situation was attributed to the conception that banks were averse to the administrative costs that arose with increased lender-borrower physical distance.
Thus it was with the view of overcoming these problems that the Zambia National Commercial Bank was established in 1968. Musokotwane, (1985) points out that the bank was expected to expand its branch net work on a more even spatial distribution than that of the other banks.

In addition, the bank was anticipated to provide more credit to the rural and semi-rural areas neglected by the foreign owned banks. In so doing, the bank was likely to help in the monetization process as well as introduce the banking habit in the rural areas. Further, the opening of the bank was expected to introduce an element of competition among the already existing commercial banks.

2.3 Features of Commercial Bank Credit Market during 1964-83 Period

Liabilities Side

According to Musokotwane (1985), demand deposits were the largest component of the banks total liabilities in the period 1964-83. The other liability items on the bank balance sheet included amounts commercial banks owed the bank of Zambia, the banks abroad and fellow domestic commercial banks. But by mid eighties, demand deposits had declined in relative importance, as the time deposits became more preferable. Depositors had the choice of holding demand deposits, savings deposits or time deposits.

Consequently, the Zambian commercial banks became excessively liquid due to the growth in time deposits. This could also be explained by the inability of many firms to import industrial inputs by mid eighties due to shortages of foreign exchange as well as the subsequent decline of demand for transaction money in the form of demand deposits that followed the shortage. The only alternative form of financial investment was securities issued by the government in the eighties. But the yield on the securities was lower than the return on the time deposits and hence the public's preference for the latter.

2.3.1 The Asset Side

Loans and advances made by commercial banks comprised an integral part of the bank assets. Musokotwane (1985) reveals that the loans and advances were meant for meeting temporal shortfalls in cash by borrowers. Consequently, most of the credit was short term in nature. Among the big borrowers from the commercial banks was the mining industry, especially after the slump in the copper prices and production in 1975. The credit requirements from this industry were sometimes so substantial that sporadically the bank of Zambia had to take the unusual step of supplying credit in addition to what it obtained from the commercial banks.

The mining industry credit requirement was prompted by a number of factors among which included price trends for metals, controls over the mines' operational costs and the efficiency in the transportation of the metals to the ports.

Institutions responsible for marketing agricultural crops such as the National Agricultural marketing Board as well as Provincial Co-operative Unions constituted another group of borrowers from commercial banks. Since the profitability of these institutions was uncertain banks demanded guarantees from government before they could advance any credit.

The manufacturing sector also required substantial amounts of credit. Mwansa (1998) indicates that such credit was commonly used to finance the importation of raw materials. When there was a shortage of foreign exchange the manufacturing sector's demand for credit also declined and in fact contributed to the accumulation of time deposits in the commercial banks.

Demand for credit included credit requirements of the small-scale industries as well as the non-commercial farmers. Although the majority of the Zambian population fell in this category, it was normally difficult for them to borrow from commercial banks. This was a serious shortcoming especially for the agricultural sector, which was considered to be the long-term solution to the nation's underdevelopment problem.

2.3.2 Liquid Assets

Commercial banks invested in liquid assets to meet the minimum liquidity ratio requirements as well as portfolio considerations. Mwenda (1996) points out that a number of items were accepted for minimum liquidity ratio purposes. These included balances that commercial banks held with the bank of Zambia, external liquid assets, Treasury bills issued by the Government and bills of exchange. Additionally, promissory notes that were eligible for discount at the bank of Zambia and the local registered stock issued by the Government were also accepted. But the government stock that was eligible was one with maturity not exceeding six years. Other assets of the commercial banks included cash in vaults, balances with overseas banks and acceptances.

Musokotwane (1985) asserts that by mid eighties, a notable development in the commercial banks was the large amounts of deposit balances that were held at bank of Zambia. A large portion of these balances was intended for externalisation. According to regulations that time the deposits were to be made at the bank of Zambia pending the availability of foreign exchange. However, these funds were not considered as part of the commercial bank's liquidity.

Additionally, commercial banks held high liquidity ratios over and above the official minimum requirement. The liquidity ratio for instance was highest for the year 1977 when the banks were obliged to purchase treasury bills with funds awaiting externalisation. Such funds were supposed to be deposited by the commercial banks at the bank of Zambia. Musokotwane (1985) explains that the commercial bank's holding of excess liquid assets was caused by several factors among which were: Substantial amount of primary liquidity[4] being generated into the economy. The generation of primary liquidity was associated with the openness of the economy. Until 1974 the high primary liquidity creation was often associated with high earnings from copper. Thereafter, primary liquidity creation resulted from excess borrowing of the government and the mining industry from the Bank of Zambia. This development came about as a result of the unprofitable nature of the mining industry upon which government relied for revenue.

The inability of other uses of primary liquidity to absorb a critical part of the created liquidity. At the same time the bank's holding of excess liquidity was a reflection of some basic features of the credit market in Zambia. Firstly it conformed to the theory that economic activity given the controls of the foreign exchange rates was dependant on the availability of foreign exchange. When there was a shortage of this commodity the demand for credit by the traditional borrowers also declined. Secondly, it indicated to some degree that the commercial banks were rather conservative in making loans and advances. Thirdly, it was an indicator of the inappropriateness of some financial policies that the government had pursued thus far. These included the excessive government borrowing and controls of interest and exchange rates.

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4 Defined as the net foreign assets of monetary authority, monetary authority's net claims on government and the private sector and the treasury bills outside the Bank of Zambia.

2.4 Development of the Non-Bank Financial Intermediaries in Zambia

The difference between the non-bank financial intermediaries and the commercial banks is that only commercial banks are capable of generating a multiple expansion of credit, given the inflow of reserves. Musokotwane (1985) indicates that by the late 1980s, Non-bank financial intermediaries in Zambia included the Zambia National Building Society (ZNBS), Zambia National Provident Fund (ZNPF), Zambia State Insurance Corporation (ZSIC) and National Savings and Credit bank (NSCB) as well the Zambia Agricultural Development Bank and the Credit Union movement.

The Zambia National Building Society was the only institution in Zambia that specialised in the construction and purchasing of buildings for both commercial and residential purposes. According to Musokotwane (1985), ZNBS was established by the Building Societies (amendment) Act of 1970. It took over the operations of foreign controlled building societies that had just been nationalised. These were the First Permanent Building Society, the Security Building Society and the Zambia Mutual Building Society. The Zambia National Building Society derived its funds from shares and fixed deposits. The bulk of these funds were invested in mortgagees, with only a small proportion being invested in liquid assets.

The Zambia Nation Provident Fund came into existence after the enforcement of the Zambia National Provident Fund Act on 10th January 1966. Musokotwane (1985) notes that it was the only financial Intermediary that specialised in collecting forced savings from employees and their employers for the benefit of the worker after retirement from active work or in the event of any unforeseen circumstances that may make them unemployable.

Further, the most distinguishing quality of this institution was that the savings it collected were by legislation involuntary and contractual. The accumulated sum of such contributions plus the accrued interest paid on it by the ZNPF formed the security benefit for the employee when circumstances qualified him to claim the benefit.

According to Musokotwane (1985), the National Savings and Credit bank had its origins in the defunct Post office and Savings Bank that was first established in Zambia in 1926. The bank's objective was to tap the humble savings of the less affluent members of society. The bank had the most extensive national network since it was part of the general post office.

After independence, the government policy towards the bank was that it should be more active in the development process. This led to the formation of the National Savings and Credit Bank in 1972, to replace the post office and savings bank. Its main objective was to create a wide spread bank with less legislative restrictions. The bank's important task was to lend money to private individuals.

The Zambia State Insurance Corporation, (ZSIC) the country's only insurance company at the time was incorporated on the 8th January 1968. Musokotwane (1985) affirms that its immediate task was to create a state owned insurance company and one that would be cheaper than the foreign owned companies. For some time, Zambia State Insurance Company competed against many insurance companies that operated in Zambia. On 1st January 1971 foreign owned companies were ordered to stop insurance business. This move was part of the measures to bring the vital economic institutions under Zambian control. ZSIC with hardly any experience was asked to take over all the insurance business that had previously been conducted by other insurance companies.

Until 1983, Zambia National Insurance Brokers (ZNIB) was one of the subsidiaries of ZSIC. The ownership of ZNIB was later transferred to Zambia Industrial and Mining Corporation Limited (ZIMCO). Since 1983 ZSIC expanded its business in terms of volume and areas of specialisation. The major areas of its business were both life and non-life divisions.

According to Musokotwane (1985) the portfolio outlook of the Zambian Non-Bank financial intermediaries was a reflection of the kind of liabilities they had. Most of these liabilities were long term in nature. Subsequently, these institutions preferred to invest in long term assets, such as government and private sector stock and securities, buildings and long term loans. Investment in government securities was especially high in the early 1970s. In 1974 for example, they comprised 39.4% and 26.4% of the ZNPF and ZSIC portfolios respectively but declined in importance since then. The ZNPF and ZSIC only bought share investment. Such investment remained a tiny proportion of these intermediarie's portfolios.

Within the category of loans, the most significant development over the period has been the growth in shares that go to the government. In 1973, the loans to the government accounted for 0.5% of the ZSIC portfolio. In 1983 it amounted to 20.8%. The corresponding proportions for ZNPF were Zero percent and 30% respectively. Apart from limited working balances, the government borrowed most of the National Savings and Credit Bank's funds. It was only the ZNBS that had a lower percentage share of loans to the government in its portfolio. The other recipients of loans were parastatal companies. It was usually difficult for the private sector to obtain loans from non-bank financial intermediaries.

2.5 Policy Reforms and Implications

This section is divided into two parts. The first part covers the period 1964-83 before the country embarked on the IMF -World Bank Structural Adjustment Program. The second part is the 1984-98 period when government started implementing a series of stabilisation and structural adjustment programs. Essentially, the main focus is on changes in the financial system over the two periods. This is provided by information in the flows of financial transactions and the comparison of structures at different points of time. Attention is given to the impact of policy reforms on financial instruments, the trend and factors that may have influenced them.

2.5.1 The Pre Adjustment Period

According to Mwansa (1998) during the 1964-82 period policy making was guided by five-year development plans and was Socialist in orientation. In 1968 the main reforms pertaining to the non-mining sector were announced in what later came to be known as the Mulungushi Declaration.

The main policy changes included the government taking control of major foreign companies. Mwansa (1998) shows that the new economic policies drawn at Mulungushi were further reinforced with the Matero reforms in August 1969. Government announced the bid to nationalise mineral rights, State participation in the mining industry, the relaxation of credit restrictions to business with substantial

Zambian participation. However, these policy changes resulted in massive involvement of the government in the economic activities of the country.

Nonetheless, as Mwansa (1998) indicates, copper prices were increasing between 1964 and 1974 and contributed to high mining profits and government revenues. Consequently, the growth rate of GDP in real terms was favourable in the first ten years after independence. This was indicated by an increase in all the financial size indicators[5] M1Y, LLY, QLLY and DCPY (See table 2.1.a). These indicators grew favourably in the first ten years after independence conforming to the theory that periods of more rapid growth have been accompanied by an above average rate of financial development.

According to Goldsmith (1969), a correlation exists between real income and the size of a financial system. As real income and wealth increased, the size and complexity of the financial structure grew. However, there is no possibility of establishing with confidence at this point the direction of the causal mechanism[6].

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[5] Where M1Y is the ratio of M1 to GDP and M1 is the sum of currency held outside the banking system plus demand deposits at commercial banks and is used to measure monetary depth; LLY is the ratio of liquid liabilities of the financial system to GDP. Liquid liabilities equal M1 plus interest bearing liabilities of the banking system, plus demand and interest bearing liabilities of "non-bank" financial intermediaries and it measures the overall financial depth; QLLY is the ratio of Quasi -Liquid Liabilities of the financial system to GDP, where Quasi-Liquid Liabilities equals Liquid Liabilities minus M1 and is used as a measure of non-monetary financial depth; DCPY is the ratio of claims on the private sector by the Central Bank and commercial banks to GDP and it is used as a measure of both financial size.

[6] That is of deciding whether financial factors were responsible for the acceleration of economic development.

Table 2.1.a: Financial Size Indicators In The Pre-Adjustment Period

Year	RGrowth	Investment	M1Y	LLY	QLLY
1965		25.383	12.72	17.498	4.7777
1966	-0.06575	30.768	14.501	19.622	5.1208
1967	0.023484	34.231	15.078	20.411	5.3327
1968	0.023629	33.965	17.66	23.591	5.9315
1969	-0.02717	19.201	15.538	23.621	8.0824
1970	0.038461	28.238	18.769	32.03	13.262
1971	-0.06248	37.294	16.494	26.456	9.9618
1972	0.027198	35.619	15.082	25.549	10.467
1973	-0.00019	28.884	14.92	25.234	10.314
1974	0.021817	36.944	13.954	23.143	9.1896
1975	-0.02386	40.86	20.347	31.19	10.843
1976	-0.03331	31.544	19.411	32.122	12.711
1977	-0.08546	24.668	19.095	34.52	15.425
1978	-0.00196	23.859	17.34	28.305	10.965
1979	-0.04559	14.133	19.297	31.286	11.989
1980	0.028944	23.283	16.625	29.605	12.98
1981	0.010249	19.318	16.184	28.092	11.908
1982	-0.05803	16.769	19.166	36.412	17.246
1983	-0.04158	13.752	19.015	34.776	15.762

Source: IMF International Financial Statistics and BOZ annual reports

Furthermore, there was a notable increase in the financial size indicators owing to an expansion in money supply in 1968. M1Y rose from 12.7 percent in 1965 to 17.6 percent in 1968 while LLY increased by 25 percent from an annual rate of 17.4 percent to 23.5 percent. It may be argued that the change in the ratios over the period was a reflection of an improvement in the financial system resulting from the development of the new financial institutions and differences in the growth rates of the existing types of institutions. It may also reflect an increase in economic activity following an improvement in investment and efficiency.

Still on financial size indicators, there was a remarkable increase in all indicators as well as the share of investment in GDP in 1975. M1Y increased from 16.4 percent in 1971 to 20.3 percent in 1975, while LLY rose from 26.4 percent in 1971to 31.2 percent in 1975 and QLLY increased from 9.9 percent in 1971 to 10.8 percent in 1975.

However, from 1975 up to 1981 the economy was subjected to continuous stagnation. Higher oil prices coupled with the world economic recession led to losses in export earnings and government revenue. Losses in government revenue due to declining export earnings led to government deficit from 1975. This was reflected in the sharp increase in Fstance (See table 2.1.b) from 3.4 percent in 1974 to -21.5 percent in 1975 and remained negative ever since then.

Mwansa (1998) reveals that lack of foreign exchange severely limited the capacity to import spare parts, fuel and machinery whose value had increased dramatically compared with Zambia's traditional exports. This implied a reduction in capacity utilisation to low levels leading to some industries closing down. This further led to a decline in the financial indicators depicting low economic activity.

Table 2.1.b: Budget Deficits and Asset Distribution in the Pre-Adjustment Era

Year	DCPY	Inflation	Credit	Fstance	Exrat	D2
1965	6.541	7.9457	-0.9066	3.6	0.7143	1
1966	8.5619	10.233	-3.46667	3.8	0.7143	0
1967	10.812	5.0489	3.341393	-4.3	0.7143	1
1968	9.3497	10.775	1.703163	-9.9	0.7143	0
1969	9.0912	2.4493	-17.6901	2.7	0.7143	1
1970	10.751	2.7322	-5.06694	1.9	0.7143	1
1971	15.208	5.984	0.782857	-16.4	0.7143	1
1972	12.387	5.1	0.547158	-13	0.7143	1
1973	10.862	6.3452	0.480584	-16.7	0.6516	1
1974	17.713	8.4726	0.8434	3.4	0.6435	1
1975	24.912	10.011	0.477849	-21.5	0.6435	0
1976	20.67	18.8	0.354435	-14.2	0.707	0
1977	23.32	19.781	0.280483	-13.2	0.7897	0
1978	18.858	16.374	0.20495	-14.4	0.7999	0
1979	18.252	9.7222	0.233274	-9.1	0.7933	0
1980	16.602	11.6	0.232611	-18.5	0.7885	0
1981	22.181	13.0	0.275665	-12.9	0.8684	0
1982	25.591	13.6	0.243592	-18.6	0.9282	0
1983	25.161	19.657	0.252302	-7.8	1.2506	0

Source: IMF international Financial Statistic and BOZ annual reports.

Financial size indicators stagnated during the period 1975-82 except for the year 1977 when the liquid liabilities of the banking system stood at 34.52 percent, the highest figure since independence. The growth in liquid liabilities resulted from a rapid growth in time deposits due to inability of many firms to import industrial inputs because of foreign exchange shortages

2.5.2 The Adjustment Period

Zambia embarked on a course of IMF/World Bank stabilisation and structural adjustment program during the 1982-83 period. This was due to the fact that the copper prices had deteriorated with no sign of improving. Thus the IMF gave out the first conditional assistance to help restructure the economy and curb the balance of payment problems. In order to meet the conditions, government introduced the Economic Reform Program in 1982.

The main aim of the Economic Reform Program was to diversify the economy so as to reduce dependency on the mining industry. As Mwansa (1998) shows, the diversification program entailed rapid promotion of the non-traditional exports, boosting of the local industry, promotion of domestic savings so as to reduce dependency on foreign investment. Additionally, the program also involved increasing efficiency in resource allocation. The IMF program set out to restore financial discipline and improve government's debt servicing capacity through demand management.

To correct the overvaluation of the Kwacha, government instituted a number of measures. First the government effected a devaluation of 20 percent in January 1983. Secondly, the link with the SDR was broken In July 1983 and the Kwacha was left to crawl against a basket of 6 currencies of major trading partners. Consequently, the Kwacha depreciated from K1.24 per US dollar in July 1983 to K2.22 in September

1985. Finally, in October the same year, the auction system for foreign exchange allocation was introduced.

Nevertheless, it was hoped that demand management and export expansion measures would improve the country's balance of payment position, restore growth and bring about diversification of the economy. Instead the balance of payment account continued to deteriorate while the growth rate of GDP in real terms kept fluctuating. Consequently, the budget deficit as a percentage of GDP (Fstance) continued to deteriorate rapidly. It rose from 7.8 percent in 1983 to 21.4 percent in 1986 (see table 1.c). However, the share of investment in GDP increased steadily from 14.8 percent in 1983 to 23.8 percent in 1986.

Mwansa (1998) points out that in an attempt to stabilise the value of the Kwacha the Bank of Zambia was selling more foreign exchange than it possessed and ended up making losses. In the process of monetizing these losses base money increased substantially resulting in the rise of inflation.

With inflation rising above the bank interest rate, the real interest rate was steeply negative during this period giving rise to what is known as financial repression. The negative real interest rates in a financial sector discouraged saving. The concept underlying financial repression was that as the government intervened in the financial market, financial prices were subject to price controls and were not allowed to reach equilibrium levels. The real interest rate remained negative from 1975 up to 1993 as indicated by D2[7] (see table 2.1b and 2.1d).

[7] D2 is a dummy variable for financial repression.

As indicated by King and Levine, (1993) financial repression functioned as a corporate sector tax on innovative activity. Further, these taxes which were in the form of high reserve requirements, interest and credit ceilings, reduced the net returns that financial intermediaries gained from financing successful entrepreneurs thereby retarding financial development.

Therefore, it may be argued that these taxes led to fluctuations in the growth rate of the economy as exemplified by RGrowth (see table 2. 1.a) in the period 1983-1991. Further, high reserve requirements and credit ceilings may have reduced the services provided by financial systems to savers, entrepreneurs and producers, thereby impeding economic activities and slowing economic growth.

Moreover, it may be argued that since the government intervened in the financial market, credit was not allocated according to the expected productivity of the investment projects, but according to political pressure. As Fry (1988) shows, this discouraged financial institutions from taking risks, leading to a large part of high yielding investments being rationed out.

Consequently, the central Bank was forced to raise interest rate ceiling in a bid to increase saving and efficiency of aggregate investment, as well as encourage investors to undertake high yielding investments. In addition, it was hoped that increased investment efficiency and higher marginal productivity of capital would raise the rate of economic growth.

However, the implementation of extensive policy reforms started when the MMD government came to power after winning the elections in 1991. The new government embarked on the new program called the Economic Recovery Program (ERP). The ERP covered the period 1991-95 and had the primary objective of stabilising the economy. In order to achieve this objective the new government set out policies, which included sustained positive real economic growth, efficient allocation and utilisation of available resources and improving the living standards of the people. This entailed continued liberalisation and stabilisation strategy to achieve economic efficiency.

Essentially, the liberalisation of the economy covered the reform of the domestic money market, the foreign exchange market, fiscal policy and changes in the regulation as well as supervision of the financial system. Monetary policy reforms commenced with the liberalisation of interest rates. In October 1992, interest rates were decontrolled as a first step to indirect monetary policy instruments[8]. The rationale for the adoption of a market based interest rate policy was to remove the high costs associated with direct instruments of monetary policy and to increase effectiveness in determining monetary conditions.

The transition to indirect monetary control was therefore a shift towards increased reliance on market forces and economic liberalisation. Mwenda (1996) points out that three types of indirect monetary control instruments were introduced in March 1995. The first involved primary auctioning of treasury bills and bonds, discounting of

[8] Indirect monetary instruments are the tools of monetary policy, which include Open Market Operations Rediscount Facilities and Reserve Requirements. Open Market Operations may be either outright or repurchase order sells and purchases of debt securities, foreign exchange, credit and deposits. Reserve requirements include uniform or differential core liquid assets and statutory reserves

treasury bills in three maturities of 28, 91 and 182 days. The amount raised at each auction was determined at weekly tender committee meetings of the Bank of Zambia and Ministry of Finance.

The second indirect instrument was the credits and deposits with commercial banks. The auction of this instrument was based on the Dutch pricing system where successful commercial banks received credit from Bank of Zambia at offer interest rates. Thirdly, reserve requirements and rediscount facilities were used to supplement other instruments in sterilising the massive liquidity overhang inherited from the direct control monetary regime.

Domestic debt obligations were met by issuance of treasury bills. Mwansa (1998) points out that the move allowed the authorities to determine how much funds government required to meet its obligations and only issued enough bills to that effect. Since the Treasury bill rate was a leading indicator of other interest rates, it may be argued that the Treasury bill auction was established to bring real market determined interest rates to the economy. In order to meet the portfolio mandate of foreign investors, 28 days and 182 days treasury bills were introduced in March and August 1993 respectively. Thus Lusaka Stock Exchange was established on 21st February 1994 to intensify the Treasury bill operations.

Zambia's economic policy reforms only began to pay dividends in 1994. The prospects for economic stability began to look brighter than at any other time since the early 1970s. The country's adherence to tight monetary and fiscal policies led to a deceleration in the rate of inflation and a drop in interest rates[9]. Consequently, financial repression was eradicated as shown by D2 (see table 2.1d) which changed from zero in 1993 to one in 1994 after real interest rates became positive. It may be

Table 2.1.c: Financial Size Indicators in The Adjustment Period

YEAR	Rgrowth	Investment	M1Y	LLY	QLLY
1984	-0.04775	14.683	17.643	34.557	16.913
1985	-0.03127	14.89	17.407	29.709	12.302
1986	-0.03846	23.81	17.786	31.357	13.571
1987	-0.01306	12.714	17.837	34.657	16.82
1988	0.041632	11.074	17.468	33.73	16.262
1989	-0.04508	10.807	14.402	30.311	15.913
1990	-0.03715	17.278	11.067	21.519	10.453
1991	-0.091476	11.016	10.194	22.045	11.852
1992	-0.03802	11.892	9.0027	16.884	7.8811
1993	0.044421	15.043	6.565	13.872	7.3072
1994	-0.05705	13.413	6.2927	15.486	9.1936
1995	-0.04667	13.929	7.5943	18.014	10.419
1996	0.040163	14.886	6.8296	18.34	11.51
1997	0.008616	15.043	6.8893	17.477	10.588
1998		15.92	6.6168	18.387	11.771

Source: *IMF International Financial Statistics and Bank of Zambia annual Reports*

argued that this came about as a result of raising interest rate ceilings and reducing taxes[10] borne by financial institutions that had kept yields at negative real levels.

[9] Treasury Bill yield rate, commercial banks' base lending rates savings rate and deposit rates.

Table 2.1.d: Budget Deficits and Asset Distribution in the Adjustment Era

YEAR	DCPY	Credit	Inflation	Fstance	Exrat	D2
1984	24.741	0.156572	20.013	-8.4	1.7944	0
1985	19.104	0.145122	37.425	-15.2	2.7137	0
1986	15.038	0.188053	51.621	-21.4	7.3046	0
1987	14.027	0.233983	43.46	-12.9	8.8889	0
1988	15.086	-0.138513	55.74	-8.7	8.2237	0
1989	16.482	0.15283	127.9	-4.3	12.903	0
1990	12.711	0.118648	117.5	-6.7	28.986	0
1991	10.941	0.085081	93.2	-17.5	61.728	0
1992	10.097	0.50827	197.4	-3.1	156.25	0
1993	6.8821	0.129914	188.08	-0.7	434.78	0
1994	6.3105	0.115309	53.613	-1.2	769.23	1
1995	8.5015	0.124931	46.0	2.9	857.23	1
1996	9.5226	0.150667	35.2	-2.541	1203.7	1
1997	8.0298	0.166626	18.6	-2.289	1394	1
1998	7.0823	0.099086	30.6		2374.5	1

Source: IMF International Financial Statistics and Bank of Zambia Annual Reports.

Despite the growth in financial services and the relative decline in interest rates, investment in fixed capital remained low. High levels of existing debt, corporate taxes, poor infrastructure and the scarcity of long-tern finance were largely responsible for the low levels of domestic capital formation as well as investment despite the removal of restrictions on the capital account.

[10] These taxes are in the form of reserve requirements and directed credit

During 1994, the Zambian financial system continued to experience a transition towards market based structure with the abolition of the Exchange Control Act in February 1994. To ensure the economic health of both commercial banks and other financial institutions in a liberalised environment, the Banking and Financial services Act was introduced in December 1994.

According to BOZ (1994) the domestic money market in Zambia was dominated almost entirely by primary activities that mainly involved the issue of new government securities by the Bank of Zambia. However, during 1994 the market saw an increase in secondary market activities, which took place between commercial banks as well as non-bank financial institutions. During this period, a number of commercial banks started rediscounting government bonds while purchase agreements on Treasury bills between some commercial banks and their clients also increased. Inter-bank market transactions increased in 1994 with the amounts traded overnight reaching up to K40 billion in some weeks. However at the wholesale and large corporate levels, money market remained relatively low.

In line with the efforts to develop a full market-based financial system, the bank of Zambia ceased operating a system of issuing government bonds on a daily basis in December 1994 with the view of introducing a bond auction system. The bond auction was supposed to allow the market determined long-term interest rates and contribute to the growth of inter-mediation[11] activities where professional bidders would be selling smaller parcels of bonds to retail customers.

[11] The purchase of primary securities from ultimate borrowers and to issue indirect debt for the portfolios of ultimate lenders.

The foreign exchange market was deepened further in 1994 with the introduction of the foreign exchange dealing system on 23 December 1993. In this system the bank of Zambia had dealing sessions with commercial banks three times a week. In addition, the Exchange control Act was repealed on 29 January 1994 to liberalise the foreign exchange transactions (see BOZ, 1994). The repeal of the Act also allowed commercial banks to incorporate their foreign exchange bureaux activities into normal banking operations.

The Open General License system was removed towards the end of November in 1994, marking a further step in the liberalisation process. By the end of the year all foreign exchange transactions with the private sector were conducted through the dealing system. As a result, the Bank of Zambia moved to be a wholesale foreign exchange market leaving foreign exchange bureaux to serve the retail market.

All restrictions on both current and capital account transactions were removed completely in February 1994 when the Exchange Control Act was repealed and the capital account liberalised. Additionally, the Banking and Financial Services Act was enacted. The retention rate of export earnings was increased from 50 percent to 100 percent. The implication of these reforms was that money could be held in local or foreign currency and at the same time could be moved freely in and out of the country. Consequently, commercial banks were allowed to open foreign exchange accounts.

Government introduced a market determined exchange rate regime and immediately adopted a policy of rapid depreciation of the exchange rate to correct the overvalued exchange rate and improve external competitiveness. The bureau de change system was established to determine the market exchange rate. Furthermore, in December 1994 the official exchange rate system was unified with the parallel exchange rate and was to be determined by the bureau de change system.

During 1994, the commercial banks increased trading between themselves in foreign exchange. This practice had previously involved fewer banks as most of them looked only to Bank of Zambia for their supply and demand of foreign exchange. In an effort to encourage a broad-based foreign exchange trading, the bank of Zambia increased the ZCCM foreign exchange retention of copper proceeds from 43 percent to 60 percent in May 1994. Despite the developments in both the money and foreign exchange markets during 1994 some rigidities stemming from under-capitalization of commercial banks and the stability of the financial sector continued. As a result some commercial banks remained reluctant to deal with certain commercial banks even on a cash basis.

The liberalisation policies adopted by the government contributed to the growth of the banking sector in Zambia. Of the twenty-six banks that were registered towards the end of 1994, eighteen were operating (see BOZ, 1994). Between 1975 and 1980, there were only five banks operating in Zambia. By 1985 this figure had risen to nine while in 1990 it stood at twelve. Towards the end of 1994, the number of operating banks increased to eighteen. This increased competition in the financial market.

The quality of loan portfolios in the banking system remained generally poor, with a persistent high level of non-performing loans. This was attributed to poor loan repayments by state-owned companies. In addition, depreciation of the Kwacha increased the amounts of loan commitments denominated in foreign currency. Further, as more banks were opened in 1994, in their quest to attract more customers, many disregarded prudent loan procedures and the basic premise of security arrangements.

Nevertheless, loans and advances increased from K 91 billion in 1993 to K99.4 billion in 1994. Currency in circulation increased from K47.2 billion on 31 December 1994. The increase gave rise to the need to have higher denomination notes in order to reduce the number of bank notes in circulation, time spent on processing redemptions from financial institutions and the costs of processing and transporting currency. Hence in 1995, contracting for the production of higher denomination notes with face values of K1000, K5000 and K10, 000 was done.

During 1995, the financial sector suffered a banking crisis that led to the closure of three commercial banks due to severe liquidity problems (see BOZ,1995). Efforts by the government to save the banks by providing billions of Kwacha in liquidity support failed to achieve the desired results. Eventually, Meridien BIAO Bank limited was placed under receivership in May 1995 as Africa Commercial Bank and Commerce Bank followed at the end of the year.

The closure of the three commercial banks led to loss of public confidence in the banking system and consequently, rapid depreciation of the exchange rate as firms and individuals now decided to hold their investments in dollars instead of Kwacha. The attempt to bail out the commercial banks led to an injection of substantial liquidity that caused a build up of inflation in the economy.

However, the number of operating banks increased marginally in 1996. One commercial bank was registered, bringing the number of operating banks to 19 in 1996 from 18 in 1995, while the number of operating bureaux remained the same at 36. This was evidenced by the increase in all the indicators of financial size except MIY that fell marginally from 7.5 percent in 1995 to 6.8 percent. LLY increased from 18.0 percent to 18.3 percent, QLLY rose from 10.4 percent to 11.5 percent while DCPY rose from 8.5 percent to 9.5 percent (see tables 2. 1.c and 2.1.d). These are the base measures of the size of the financial system in the study and according to these indicators there was an increase in the size of the financial system in 1996 compared to the past three years.

Total industry assets fell by 22.7 percent to US$ 790 million from US$ 969.1 million in 1995. This was due to the closure of 3 commercial banks in 1995. However, a number of banks diversified and restructured their income generating activities in 1996. Against this background, the structure of assets and liabilities changed to reflect these efforts as shown in the increase in credit from about 12.5 percent in 1995 to 15 percent in 1996.

On the whole, traditional lending activities of banks increased significantly during the year. Performing loans increased by 48 percent to K238 billion in 1996 from K160.7 billion in 1995. In addition, investments in government securities increased by 14.4 percent to K211 .2 billion in 1996 compared to K190.4 billion in 1995.

However, banks diversified into off-balance sheet activities[12] despite the increase in their traditional lending activities (see BOZ, 1996). Total balance sheet commitments in the form of guarantees, acceptances and endorsements increased to K55 billion from K1 billion in 1995. The shift to non-traditional activities is partly shown by the increase in balances with correspondent banks, which increased to K165 billion compared to K113 billion in 1995.

To increase credit availability, to the private sector, the government and the bank of Zambia reduced domestic debt through the application of accumulated budget surpluses and reduced the core liquid asset ratio. These measures were aimed at improving the liquidity position of the commercial banks for them to provide more credit.

Significant developments unfolded in the interbank money market. Commercial banks relied more on each other for liquidity needs than they did in the previous year. Confidence in the interbank transactions firmed up during the year as trades became more evenly distributed among the large and small banks.

Trading of equity on the stock market continued to grow steadily with foreign-investor interests becoming more significant. Over the year, two more firms were added to the list of companies listed on the stock exchange. Secondary trading of shares also registered an increase, thus improving the liquidity of the market. This was reflected in the turnover that went up by 238 percent while he volume of shares traded rose by 11 percent.

[12] Non-traditional activities such as commitments in the form of guarantees, acceptances and endorsements.

The government continued to make efforts to promote the development of the capital market. These included the launching of trading of government bonds in March 1998 (see BOZ, 1998). In addition, steps were taken to strengthen the legislative framework governing the rule and regulations of the securities market so as to harmonise the Securities Act with the Companies Act and the Banking and Financial Services Act. Further initiatives were commenced to harmonise the LUSE Listing Rules with those of the Johannesburg Stock Exchange under the SADC initiative to promote cross border investment, dual listings as well as the attractiveness of the regional capital market as a whole.

2.6 Conclusion

This chapter described the institutional framework of the financial sector in Zambia. It also gave a brief outline of policy reforms implemented since independence and financial developments in relation to economic growth.

The objective of the financial reform was to increase the size, improve the efficiency and raise the diversity of the financial system of the country. At the time reforms were being implemented, the financial market was poor and quite thin. As such measures such as open market operations could not be implemented effectively. Given the fact that the money market was thin, there was need to be cautious against a complete shift to OMO. The share of OMO in the monetary policy was to be increased in accordance with the development in the money market

In addition, the securities market was underdeveloped and extremely narrow. The thinness of the financial market led to disorderly conditions in the market and large movements in interest rates with little impact on excess reserves and credit. Efforts to influence bank lending indirectly were not proficient due to excess liquidity inherited from the direct monetary policy regime. Thus, indirect monetary control proved ineffective while large movements in the interest rates were allowed to achieve the targets.

Furthermore, pure OMO (through sell of debt instruments) proved difficult to manage due to the fact that commercial banks were not willing to deal in such transactions. The absence of an active and deep secondary factor that guarantees government debt securities discouraged banks from participating in pure open market operations.

Moreover, liquidity programming system was an ineffective tool of controlling reserve money supply in the sense that the ceiling was not adjusted frequently. Further, the liquidity ceiling was not related to SAP monetary and inflation targets.

However, financial liberalization was supposed to promote the banking in the country as well as increase the demand for credit and cut on excess reserves held by commercial banks. As the money market developed, government was to draw funds for deficit financing from the money market and in so doing reduce the fiscal deficit.

Since 1994, the monetary authorities succeeded in reducing the growth of money supply. As can be discerned from M1Y, the ratio fell from 10.1percent in 1991 to 6.2 percent in 1994 and has remained small since then. On the whole LLY and QLLY have shown no discernible trend between 1991 and 1998, but have fluctuated widely over the years. The share of investment in GDP has shown a declining trend over the years. There was a slight improvement in 1997 when it rose to 15.0 percent from 14.8 percent in 1996.

However it would only be possible to state with certainty the effect of policy reforms and financial development on economic growth after econometric analysis. Hence the next chapter is devoted to theoretical and empirical literature review to help understand existing body of knowledge pertaining to this subject matter.

CHAPTER 3

LITERATURE REVIEW

3.0.Introduction

This chapter discusses the theoretical and empirical literature review. Although various authors have tackled a number of issues, there has been no consensus on the effect of financial development[13] on economic growth. Therefore we review the available literature to enable us understand the existing body of knowledge on this topic.

The rest of the chapter is organised as follows. Section 3.1 presents the theoretical literature review. Measures of financial intermediation are presented in section 3.2. Section 3.3 presents empirical literature review. Section 3.4 presents the critique on the existing theory. Section 3.5 concludes the chapter.

3.1 THEORETICAL LITERATURE

Economists have different views regarding the importance of financial system to economic growth. Walter Bagehot (1873) and John Hicks (1969) argue that financial systems played a critical role in igniting the industrialisation in England by facilitating the mobilisation of capital for extensive production processes. Joseph Schumpeter (1912) contends that well functioning banks spur technological innovation by identifying and funding those entrepreneurs with the best chances of successfully implementing innovative production process.

Schumpeter (1912) stresses that the entrepreneur who actualises development by trying out new techniques requires credit. He can only become an entrepreneur by

13. According to Goldsmith (1969), financial development is the change in financial structure.

initially becoming a debtor. Further Schumpeter (1912) suggests that financial institutions are important to development due to the role they play in evaluating and funding innovative activity. In this case innovative activity is taken to include literal inventions of new products, enhancement of existing technology, costly adoption of technology from other countries, and producing an existing product using business methods.

In contrast, Joan Robinson (1952) suggests that where enterprise leads finance follows. This implies that economic development creates demands for particular types of financial arrangements and the financial system responds automatically to those demands. Many economists support Robin's (1952) view that finance was the handmaiden to industry, responding passively to other factors that produced cross-country differences in growth.

In traditional development economics there are two schools of thought with a divergent view on the importance of financial markets. Economists like Goldsmith (1969), Mckinnon (1973) and Shaw (1973) on one hand saw financial markets as playing a key role in economic activity. According to them differences in the efficiency of financial institutions partly explained why economies grew at different rates. On the other hand, development economists simply ignore the role of financial system as a way of showing scepticism about the issue. A collection of essays by the pioneers of development economics does not mention finance (see Gerald Meir and Dudley Seers 1984). Nicholas Stern's (1989) review of development economics does not discuss the financial system even in a section that lists omitted topics.

Goldsmith (1969) presents a positive correlation between financial development and the level of real per capita GNP. He attributes this correlation to the positive effect that financial development has in encouraging more efficient use of capital stock. In addition Goldsmith (1969) argues that the growth process has feedback effects on financial markets by creating incentives for further financial development.

Mckinnon (1973) and Shaw (1973) both develop models of economic development in which financial liberalisation and development accelerate the rate of economic growth. They highlight some of the detrimental effects of financial repression[14] on economic growth. Mckinnon (1973) and Shaw (1973) oppose low controlled interest rates and financial repression.

Moreover, Mckinnon (1973) and Shaw (1973) extend the earlier argument by showing that financial deepening implies higher productivity of capital and a higher savings rate and therefore a higher volume of investment. Unlike Goldsmith (1969) where growth and financial intermediation are both taken to be endogenous, the focus of Mckinnon (1973) and Shaw (1973) is on the effects of public policy on savings and investment. In particular Mckinnon (1973) and Shaw (1973) argue that policies that lead to financial repression reduce incentive to save thereby reducing investment and economic growth.

[14] Financial repression is the term used to describe indiscriminate distortions of financial prices. According to Fry (1995) this includes interest and foreign exchange rates. It is characterised by the prevalence of ceilings on deposit and loan rates of interest. The extraction of an inflation tax from the banking system through high reserve requirements is another form of financial repression.

Theoretical work done later incorporates the role of financial factors in models of endogenous growth in an attempt to analyse the connection between financial markets and long run economic growth. Greenwood (1990) and Jovanovic (1990) present a model in which both financial intermediation[15] and growth are endogenous. In their setting the role of financial institutions is to collect and analyse information, channel investible funds to the investment activities that yield the highest return.

As financial intermediation involves costs Greenwood (1990) and Jovanovic (1990) indicates that there is a positive two-way causal relationship between economic growth and financial development. First the process of growth stimulates higher participation in financial markets thereby facilitating the creation and expansion of financial institutions. Second by collecting and analysing information from potential investors, financial institutions allow investment projects to be undertaken more efficiently and hence, stimulate investment and growth.

Bencivenga (1991) and Smith (1991) reveal that individuals face uncertainty about their future liquidity needs. They can either invest in a liquid asset that is safe but has low productivity or an asset that is riskier and not liquid, but has high productivity. The presence of financial institutions therefore augment economic growth by directing savings into the business with high productivity at the same time enabling individuals to reduce the risk associated with their liquidity needs.

While individuals face uncertain liquidity needs, banks by law of large numbers face a predictable demand for liquidity and can allocate investment funds more efficiently.

[15] According to Fry (1995), financial intermediation is the process of obtaining funds from lenders to pass on to borrowers.

In the absence of financial intermediaries individuals may be forced to liquidate their investment if liquidity needs arise. The presence of financial institutions provides the benefit of eliminating unnecessary liquidations. In addition Bencivenga (1991) and Smith (1991) indicate that growth increases even when aggregate savings reduces as a result of financial development. This goes to show the dominant effect financial development has on efficiency of investment.

Nevertheless, the prominent feature of contemporary literature on economic growth has been a renewed interest in the links between financial institutions and the kind of economic development. Pagano (1992) emphasises that financial markets enable small savers to pool funds and allocate investment to the highest return use. They also partially overcome the problems of adverse selection in credit markets.

King (1992) and Levine (1992) show the relationship between financial institutions and three aspects of public policy interventions. First they examine how financial indicators respond to government interventions made to liberalise the financial markets. Second, they look at how the level of financial development is related to the success of World Bank structural lending programs. Third, they review evidence on the effects of financial sector reforms in two developing countries. They find that reforms produced a reallocation of credit toward more efficient firms.

King (1992b) and Levine (1992b) develop an endogenous growth model that features connections between finance and economic growth as suggested by Frank Knight (1951) and Joseph Schumpeter (1912). Accordingly, entrepreneurs play a key role in initiating economic activities while innovations are driven by the extent of the temporary monopoly profits that they secure.

In their analysis, King (1992b) and Levine (1992b) link financial institutions to innovative activity by two mechanisms: Financial institutions evaluate prospective entrepreneurs and lend to finance innovative activity. The evaluation and sorting of entrepreneurs lowers the social costs of investing in intangible capital productivity thereby stimulating economic development.

3.1.1. Roles of financial intermediaries.

1. Entrepreneurial Selection.

According to King (1992b) and Levine (1992b) financial intermediaries evaluate prospective entrepreneurs, deciding which individuals in a pool of candidates are capable of effecting a project of adequate economic value to justify investment of resources. King, (1992) and Levine (1992) assume that there is some fraction of individuals in society who intrinsically posses the skills to be potentially capable entrepreneurs. Each potential entrepreneur has the endowment of a project and the skill to capably manage the project.

These capabilities are unknown both to the entrepreneur and the intermediary. The actual capacity of an individual to manage a project can be ascertained at a cost of "f" units of labour input. Consequently, there is an economic demand for a "rating" activity that will sort potential entrepreneurs.

2. Financing of Innovative Activity

King, (1992) and Levine (1992) emphasise that Intermediaries also lend to finance innovative activity. These innovative activities are assumed to be bundled together so much so that the first stage in the innovative activity creates information that has notable proprietary value formerly unknown to both the borrower and the lender.

According to King, (1992) and Levine (1992) each rated entrepreneur requires a total of x labour units, including his own time to realise a marketable innovation with π. They argue that production innovation takes time, as such it is important to put in "x" labour units and pay wages prior to the realisation of the outcome. This generates demand for some form of lending to finance the innovation. Further, they assume a positive relationship between the size of the labour allocation to an innovative firm and its probability of success π (x). The value of a successful innovation implies that one captures a stream of profits when the innovation is realised. This reward is given by the stock market value of the incumbent firms.

Moreover King, (1992) and Levine, (1992) highlight two economic roles of a stock market. First, it pools risks and establishes a present value of the stream of rents associated with industry leadership. Secondly, it provides a vehicle by which the "venture capitalist "[16] units of our economy can reap the rewards to innovation. King, (1992) and Levine, (1992) stress that where firms grew into industry leadership, the stock market might also play a role in providing external finance necessary for expansion of the scale of production by successful innovators.

[16] The combination of a financial intermediary and an innovation entrepreneur

Similarly, King (1992b) and Levine (1992b) argue that the rate of productivity growth is determined by the rational investment decision in intangible capital goods. Productivity growth is therefore influenced by the standard consideration of costs and benefits. As such the efficiency of financial institutions is one factor that is particularly important.

King, (1992) and Levine, (1992) presume an economy with a continuum of products, indexed by ω on the interval $0 \leq \omega \leq 1$ and are subject to technical improvement. Likewise, innovations move a particular product's technology one step along a ladder with steps j = 0,1,......... realising Λ^j with $\Lambda>1$. Inventions are cost reducing and apply to an intermediate product.

The production technology for the leading firm in industry ω at ladder position j is

$$Y_t(\omega) = A_t(\omega)\, n_t(\omega) = \Lambda^j\, n_t(\omega)$$

Where $Y_t(\omega)$ is physical output of intermediate product ω, $A_t(\omega)$ is the level of productivity at date t in industry ω, and $n_t(\omega)$ is the level of labour input. Hence, at a given wage rate w_t, unit cost is

$$w_t n_t(\omega) / y_t(\omega) = w_t / A_t(\omega) = w_t / \Lambda^j$$

The goods which are subject to technical innovation are assumed to be intermediate inputs in the production of a single final good, C. If we denote z (ω) as the quantity of input ω demanded, the production technology for the final good is

$$\text{Log}(C) = \int \log(z(\omega))\, d\omega$$

King, (1992) and Levine, (1992) show that the continuum is analogous to the standard Cobb Douglas production function with constant return to scale restrictions imposed. In this production function time is invariant so that all technical progress is embodied in intermediate products. Consequently the consumption good becomes a natural numeraire in the economy. They assume a unique lead firm in the industry ω that prices the product at rival's unit cost leading to a "gross" mark-up M= Λ over the lead firm's unit cost:

$$P_t = M\, w_t / A_t(\omega)$$

The producer of intermediate product ω earns a stream of profits $d_t(\omega) = P_t(\omega)\, y_t(\omega) - w_t n_t(\omega)$. In product market equilibrium, labour allocations are invariant across product sectors. Therefore profits are identical in all sectors.

Likewise, King, (1992) and Levine, (1992) introduce a technology aggregate and its dynamics as follows;

$$\Lambda_t = \mathrm{EXP}\,(\int \log\,(\Lambda_t(\omega))\, d\,\omega$$

Individual components in the aggregate obey the dynamic equations

$$\Lambda_{t+\Delta t}(\omega) = \Lambda_t(\omega)\, fl \text{ with probability } \Pi$$

$$\Lambda_t(\omega) \quad \text{with probability } 1 - \Pi$$

For small time intervals the technology obeys

$$d\Lambda_t / dt = \Lambda_t\, \Pi\, \lambda$$

Where $\lambda = \log(\Lambda)$ and λ is the maximum continuously compounded growth rate of technology. This only occurs if the probability of innovation is unity in each industry. King, (1992) and Levine, (1992) allege that the actual growth rate of technology $\gamma = [d\Lambda/dt]/[\Lambda_t]$ is linearly related to the aggregate innovation probability for each of the identical industries. In this set up the actual growth rate of technology is linearly related to the allocation of innovative talent and the scale of resources allocated to the activity. This growth rate is shared by other key quantities in the model such as consumption, wages, profits and the stock market value of the firm.

King, (1992) and Levine, (1992) emphasise three market equilibrium conditions that determine the supply side of relationship between growth and returns: the financial intermediation equilibrium condition (FI), the stock market equilibrium condition (SM) and the labour market equilibrium condition (LM). These market equilibrium conditions are given by the requirement that

(FI) $\pi v_t = a(\tau) wt$ (I)

(SM) $d v_t / dt = \Pi v_t - d_t + r_t v_t$ (II)

(LM) $n_t + a(0) e = N$ (III)

where, r_t is the real interest rate prevailing between t and Δt,

and $n_t = \int n_t(\omega) d\omega$

which is the total quantity of labour allocated to production of intermediates, a (0) e is the quantity of labour evaluated to intermediation and innovation, N is the stock of available labour. Combining these conditions together with the aggregate innovation probability, King, (1992) and Levine, (1992) induce a "production side" relationship between the growth rate and the real interest rate in the steady state. The stock market equilibrium has the implication that an increase in growth boosts the stock value since it increases the stream of future dividends. But in the general equilibrium setting this is moderated by two other considerations. First the probability of a capital loss, Π and the growth rate are positively correlated, as each is a manifestation of innovation. Second the extent of profits earned by intermediate goods producers is negatively related to the growth rate in general equilibrium.

Given the labour market equilibrium condition as well as the link between entrepreneurship and the growth rate, King, (1992) and Levine, (1992) find a negative relationship between profits and the growth rate. Consequently the overall effect of the growth rate on the value of the stock market can be ambiguous. However, in the preference side relationship King, (1992) and Levine, (1992) show a positive relationship between the rate of return and the growth rate. The strength of this relationship is determined by the intertemporal elasticity of substitution.

Equating (GE) and (F) yields the growth rate in the market equilibrium. According to King, (1992) and Levine, (1992) this market equilibrium growth rate depends on aspects of preferences and technology. They point out that it is higher if individuals discount the future less (lower ν) or if individuals are more willing to substitute through time (lower σ). The growth rate is also higher if the economy is more productive (in the sense of a higher maximum feasible growth rate). It also depends positively on the extent of mark-ups and negatively on the extent of capital losses that are inflicted on investors by technical progress.

Along similar lines, Levine (1992) investigates the effects of alternative financial structures[17] on economic growth. He reveals that financial institutions increase the fraction of total savings devoted to investment and escape untimely liquidation of capital. Banks, stock markets, mutual funds and investment banks enhance growth by enforcing the efficient allocation of investment through various channels. In another approach De Gregorio (1993), Jappelli and Pagano (1994) examine the effects of financial market development on the saving rate. They focus on the effect of

[17] Financial structure is the mix of financial instruments, markets and institutions.

borrowing constraint[18] on economic growth. This viewpoint centres the effects of financial markets on the household behaviour rather than on the production side of the economy.

A common result emanating from these studies is that full or partial inability of individuals to borrow against future income induces them to increase savings. This can be explained by the fact that when individuals are incapable of borrowing they fortify their wealth by increasing savings. Therefore financial deepening on the side of the consumer credit is unlikely to increase savings. But this does not imply that such a form of financial deepening will result in lower growth.

De Gregorio (1993) in fact suggests that the relationship between borrowing constraints and growth will ultimately depend on the importance of the effect of borrowing constraints on the marginal productivity of capital relative to their effect on the volume of savings. De Gregorio (1995) and Guidotti (1995) show that a relaxation of borrowing constraints increases the incentives for human capital accumulation.

This effect enhances marginal product of capital thereby leading to higher growth despite the reduction in savings.

3.2 Measures of Financial Intermediation

Two issues arise regarding the use of proxies for the level of financial intermediation.

3.2.1 Interest rates, financial intermediation and growth

According to the Mckinnon-Shaw hypothesis the level of financial intermediation should be closely related to the prevailing level of interest rate. Since the level of the

[18] The inability of individuals to borrow freely against their future income.

real interest rate, when held below their normal competitive levels indicate the extent of financial repression. According to this view a positive real interest rate stimulates financial savings and financial intermediation thereby increasing the supply of credit to the private sector. This in turn stimulates investment and growth.
While the main channel of transmission emphasised by the Mckinnon-Shaw hypothesis is the effect of real interest rates on the volume of savings, it is also recognised that positive real interest rates make the allocation of investible funds more efficient, hence providing an additional positive effect on economic growth.

However, De Gregorio (1995) and Guidotti (1995) argue that though interest rates may be good indicators of efficiency of investment they are a poor indicator of financial intermediation and more generally of financial development. A number of studies support the view that economic growth is positively related to the level of interest rates. But most of these studies do not establish the precise channel of transmission from real interest to growth.

3.2.2 Monetary Aggregates and financial intermediation

De Gregorio (1995) and Guidotti (1995) indicate that monetary aggregates provide an alternative set of variables to measure the extent of financial development. As in the case of real interest rates the use of monetary aggregates as a proxy for the degree of financial intermediation poses problems. As noted by King (1993a) and Levine (1993a) though different definitions of monetary aggregates may act as proxies of financial intermediation in certain cases monetary aggregates may be poor indicators of financial development.

The more liquid monetary aggregates such as M1and the broader measure such as M2 are likely to give significant problems. De Gregorio (1995) and Guidotti (1995) show that in principle the Mckinnon-Shaw hypothesis implies that a monetised economy reflects a highly developed capital market. Consequently, a high degree of monetisation should be positively related to growth performance. But the problem is that financial markets perform two main functions: to channel funds from agents willing to save to those requiring funds (credit allocation or portfolio management), and to provide liquidity services. More importantly the ability of the financial sector to allocate credit efficiently and provide a medium of exchange are not related. While the aspect of financial intermediation related to investment and growth is that which relates to the ability of financial markets to allocate credit, a liquid aggregate such as M1 or M2 is mainly related to the ability of the financial system to provide liquidity, or a medium of exchange.

De Gregorio (1995) and Guidotti (1995) indicate that situations arise where a high level of monetisation measured by the ratio of M1 to GDP is the result of financial underdevelopment, while a low level of monetisation is the result of a high degree of sophistication of financial markets which allows individuals to economise on their money holdings. To overcome these problems a less liquid monetary aggregate is used to proxy for the degree of financial intermediation. Gelb (1989) uses the ratio of M3 to GDP as a proxy for financial depth, and the change in M3 divided by GDP as a measure of Financialisation. Similarly the indicator of King (1993a) and Levine (1993a) focus on liquid liabilities of the financial system (When M3 and M2 are not available).

Although these measures may be more related to the degree of credit market development than narrower definitions of money, they may still be influenced by other factors other than financial depth. De Gregorio (1995) and Guidotti (1995 use the ratio of domestic credit to private sector to GDP as a proxy for the degree of financial intermediation. It corresponds to credit granted to the private sector by the central bank and commercial banks. The main advantage is that it excludes credit to the public sector and represents more accurately the role of financial intermediaries in channelling funds to private market participants. Hence this definition of financial intermediation is more closely related to the level of efficiency of investment as well as economic growth.

Further, as Montiel (1995) shows, identification of policies that can achieve an acceleration of growth in Zambia is crucial, in view of the country 's poverty levels and recent dismal economic performance. Moreover, the debt crisis and ever-dwindling foreign capital inflow calls for a more suitable and robust development strategy in Zambia.

Moreover, it may be argued that the stage of financial development is one where the net worth and collateral availability among borrowers is such that external finance continues to be tied to evaluating and monitoring functions on the lenders. Financial intermediation therefore may be linked to economic growth through two distinct roles:

i) Financial institutions identify the most promising investment projects and monitor the behaviour of entrepreneurs.

ii) As financial institutions channel resources from savers to investors they are able to attract resources from savers since their liabilities offer attractive combination of expected return, risk, and return. All these features arise from liability pooling.

Further, Montiel, (1995), points out that through liability pooling, financial institutions make it possible for high return projects to increase in volume. The resulting increases in total investment and improvements in its allocation would, with a given state of technology, result in a boost to the rate of investment undertaken and enhances its efficiency. The theory postulated by Montiel (1995) relates to this study on Zambia in the sense that it outlines the channel of influence by which financial development is related to growth. Financial institutions such as the Bank of Zambia, commercial banks, investment banks, merchant banks, and brokerage houses use a variety of financial instruments[19] to facilitate trade in goods and services and to transfer resources from savers to investors.

By providing payment services, mobilising savings, allocating credit and allowing participants to pool, trade and price risk, financial systems may improve the flow of information, the allocation of resources and the management of firms in ways that promote economic growth in Zambia.

De Gregorio, (1995) and Guidotti, (1995) contend that traditional literature on growth emphasise the dynamic process that would lead the economy to a steady-state equilibrium in which output growth would eventually cease. The assumption of decreasing marginal productivity of capital plays a crucial role in ensuring

[19] Currency, demand deposits, stocks and bonds.

convergence to such a steady-state equilibrium. The new literature on endogenous growth in contrast considers a mechanism in which the marginal productivity of capital does not converge to zero as capital grows. According to De Gregorio, (1995) and Guidotti, (1995) emphasis is placed on situations where it is possible for per capita real output to grow endogenously even in the absence of exogenous productivity growth.

Financial development has a dual effect on economic growth. De Gregorio, (1995) and Guidotti, (1995) show that the development of domestic financial markets may enhance the efficiency of capital accumulation. On the other hand financial intermediation can increase the saving rate and hence the investment rate.

Furthermore, financial markets may resolve problems caused by information and transaction frictions. Levine (1997) shows that different types and combinations of information and transaction costs motivate the emergence of particular financial contracts, markets and institutions. In arising to lower transaction and information costs financial systems facilitate the allocation of resources across space and time in an uncertain environment.

Levine (1997) splits the primary function of financial systems into five basic utilities. Specifically, financial systems facilitate the trading of goods and services, hedging, diversifying and pooling of resources. They also monitor managers and exert corporate control. Furthermore, they mobilise savings and facilitate the exchange of goods and services.

Where specific information and transaction costs exist, financial institutions may ease the trading, hedging and pooling of risks. Levine (1997) points out two types of risk: Liquidity risk and risk associated with individual projects, firms, industries and countries. Liquidity risk arises due to the uncertainties associated with converting assets into medium of exchange. Informational asymmetries and transaction costs may inhibit liquidity and augment liquidity risk. These problems warrant the emergence of financial markets and institutions that enhance liquidity.

According to Levine (1997) the link between liquidity and economic development arises because some high return projects require long-run commitment of capital but savers do not like to relinquish control of their savings for a long time. Thus if liquidity is not expanded for long term investment then high return projects are less likely to be undertaken. Levine (1997) asserts that with liquid capital markets savers can hold assets that they can sell quickly and easily.

Risk diversification has an impact on technological change as discussed by Levine (1997). Agents are continuously making technological advances to gain a profitable market niche. In so doing successful innovation accelerates technological change. The ability to hold a well-diversified portfolio of innovative projects reduces risk and promotes investment in growth enhancing activities.

Individual savers find it difficult and costly to evaluate a wide array of enterprises, managers and economic conditions. They lack the capacity and means to collect and process information. As Levine (1997) points out, savers are reluctant to invest in activities without much reliable information. Consequently, high information costs keeps capital from flowing to its highest value use.

Financial contracts, markets and institutions improve monitoring and corporate control. As a result, these financial arrangements influence capital accumulation and long run growth. Levine (1997) notes that where it is costly for outsider investors to verify project returns it creates important frictions that can motivate financial development. Given the verification costs it becomes socially inefficient for outsiders to monitor in all circumstances. With costly state verification, the optimal contract between outsiders and insiders is a debt contract. Specifically, there is an equilibrium interest rate, r, such that when the project return is sufficiently high, insiders pay r to outsiders and outsiders do not monitor. Where project returns are insufficient, the borrower defaults and the lenders pay the monitoring costs to verify the project returns.

Levine (1997) states that these verification costs impede investment decisions and reduce economic efficiency. Verification costs imply that outsiders constrain firms from borrowing to expand investment since higher leverage implies greater risk of default and higher verification expenditures by lenders. Therefore collateral and financial contracts that lower monitoring and enforcement costs reduce impediments to efficient investment.

Mobilising savings involves aggregation of capital from divers savers for investment. Levine (1997) shows that without access to multiple investors, many production processes would be constrained to economically inefficient scales. Moreover mobilisation involves the creation of small denomination instruments. These instruments provide scope for households to hold diversified portfolios, invest in efficient scale firms and increase asset liquidity. Without pooling, households would have to buy and sell entire firms. Expressly, mobilisation entails multiple bilateral contracts between productive units raising capital and agents with surplus resources.

Mustering the savings of disparate savers is costly, as it involves overcoming the transaction costs associated with collecting savings from different individuals. Levine (1997) alludes that it entails routing the informational asymmetries allied with convincing savers to give up control of their savings. In light of the transaction and information costs associated with mobilising savings from divers individuals, many financial arrangements exist to ease frictions and facilitate pooling. Financial systems that are more effective at pooling the savings of individuals therefore influence economic development in a big way.

3.3 Empirical Literature Review

In this section we present empirical work done on financial development in various countries.

3.3.1 Interest Rates and Economic Growth.

Goldsmith, (1969), using data on 35 countries for a number of benchmarks showed that periods of great financial growth were associated with price stability and a rapid increase in the growth of time and savings deposits. Conversely, periods of inflation and a financial decline were associated with the shrinkage in time and savings deposits. A rapid rise in bank intermediation, although at higher interest rates, would relieve supply bottlenecks associated in part with the scarcity of working capital.

Investment of higher productivity than the prevailing average would increase as entrepreneurs embark on a number of highly profitable ventures because of access to bank finance. Aggregate output would be pushed upwards without any downward pressure associated with deflationary policies, and financial repression would be reduced.

Mckinnon, (1973), found out that large and fast growing real cash balances, contributed to rapid growth in investment and aggregate output. Emphasis was put on the domestic real rates of interest and money/GNP ratios; particularly the performance of time and savings deposits. In addition the findings showed a high correlation between real cash balances and economic growth on one hand, and the sensitivity of the public's responsiveness to changes in the real return on holding money on the other. Among wealthy countries Japan and Germany gave examples of sustained monetary growth relative to Gross National Product (GNP).

Fry (1978) found a positive significant interest effect on savings rates using a sample of 14 Asian developing countries with the private sector saving contributing the largest component of national saving. National saving exceeds domestic saving by the value of net factor income from abroad. Giovannini (1983) re-estimated the saving function reported by Fry (1978). For the period 1961-1983 he found out that the real deposit rate yielded the same positive and significant coefficient whether actual or expected inflation is used.

It was generally expected that if financial depth promoted economic growth then artificially low real interest rates might reduce growth. The findings of Gelb (1989) supported this view. He estimated the relationship between real interest rates and economic growth for 33 developing counties for the period 1965-85. He found out that higher real interest rates on short-term deposits were associated with faster growth rate. The hypothesised chain ran from interest rates to financial depth and the productivity of investment. The estimates revealed that higher real interest rates are associated with increased financial depth, saving and investment.

3.3.2 Financial Development and Economic Growth

Gupta (1984) used the financial intermediation ratio as a measure for financial development on a sample of ten Asian and Latin American countries for the period of 1960-77. In addition, he used the ratio of aggregate savings to GNP, the ratio of private savings to private disposable income and private fixed capital formation as a ratio of GNP, as an indicator of real development.

Consequently Gupta (1984) found a positive correlation between the financial intermediation ratio and the private investment rate in Asia. In Latin America the study showed a positive correlation between the financial intermediation ratio and the two savings rates. But there was no relationship between financial and real development. He concludes that financial deepening might have had more direct effect on investment in Asia than Latin America.

The World Bank (1989), study involving 80 developing countries between 1965-87 reveals similar findings to Gupta 's study. The study suggested that countries with higher financial depth (M2/GDP) had a higher gross investment to GDP ratio, efficiency of investment and faster GDP growth rate. In another study the World Bank found a positive statistically significant relationship between real interest rates and growth through financial depth on the productivity of investment using a sample size of 33 developing countries over the period of 1974 -85.

Jung (1986) analysed causality between financial development and economic growth. With 56 countries and a minimum of 15 annual observation for each, he found that for high -growth developing countries, causality runs from financial development to economic growth in seven out of eight countries.

3.3.1 Financial Indicators

King (1992) and Levine, (1992) indicate a range of financial indicators that are robustly positively correlated with cross-country indicators of economic growth. They use bi-variate graphs, correlations, cross- country and time series regression analysis to study data for the period 1960-89. They controlled for initial conditions in per capita income, secondary school enrolment and indicators of monetary, fiscal and trade policy. They also used dummy variables for countries in sub-Saharan Africa and Latin America in addition to measures of monetary, fiscal and trade performance. Specifically, King (1992) and Levine, (1992), use:

i) The ratio of M1 to GDP as a measure of monetary depth.

ii) The ratio of liquid liabilities of the financial system to GDP to measure the overall financial depth.

iii) The ratio of claims on the private sector by the financial system to GDP to give financial size and as an indicator of asset distribution.

iv) The ratio of quasi-liquid liabilities of the financial system to GDP, to capture the non-monetary financial depth.

King (1992) and Levine (1992) found out that many financial development indicators are significantly correlated with growth. Additionally, the partial correlation between growth and the measures of financial system size, the fraction of domestic credit allocated to private enterprises remained statistically significant. They also found out that the basic correlation between financial system indicators and growth was not highly dependent on which financial indicator chosen. Cross-country regressions suggest that financial system indicators tend to be correlated with growth only through the ratio of national investment to GDP. However, time series analysis suggests that financial indicators and growth are linked through both the investment and efficiency channels.

The measures and definitions used by King and Levine, (1992) are adopted in this study on financial development and economic growth in Zambia. However, different control variables are used.

In another cross-country study, King and Levine (1993) looked at the relationship between the financial system and economic growth and their channels of influence. They pooled data that captured 119 developed and developing countries. The financial indicators used were found to be strongly and robustly correlated with economic growth, the rate of physical capital formation and the improvements in the efficiency of capital allocation.

King and Levine (1993) discovered that the basic correlation between financial system indicators and growth were not highly dependent on which financial indicator used. Their cross-country regressions suggest that financial system indicators tend to be correlated with growth only through the ratio of national investment to GDP. Their findings show that financial indicators and growth are linked through both the investment and efficiency channels. The study of Seck and El-Nil (1993) using different set of data confirmed this conclusion.

Seck and El-Nil (1993) using pooled cross-sectional and time series data on 21 African countries regressed real deposit rate on economic growth. They found out that there was an indirect effect between real deposit rates and economic growth as postulated by Mckinnon-Shaw hypothesis. They arrived at this conclusion when they regressed growth rate on the real deposit rate, gross investment relative to GDP, gross savings relative to GDP and the growth in M2 relative to GDP. They found out that gross investment relative to GDP was significant only in the absence of the two other explanatory variables.

Further, Seck and El-Nil (1993) found a strong impact of the growth rate in M2 relative to GDP on the level of investment. This was discovered when they regressed the real deposit rate, inflation rate, current account relative to GDP and the growth rate in M2 relative to GDP (FinSav) on the gross investment relative to GDP (InvGDP). The nominal deposit rate was supposed to have a direct effect on the level of investment but instead there was a negative effect on InvGDP. The direct effect was therefore only through FinSav.

3.4 Critique

However, some economists do not believe that the finance-growth relationship is important. Robert Lucas (1988) argues that the role of financial elements in economic growth is badly overstated, while development economists simply ignore the role of financial system as a way of showing scepticism about the issue. A collection of essays by the pioneers of development economics including three Nobel Laureates does not mention finance (Gerald Meir and Dudley Seers 1984). Nicholas Stern's (1989) review of development economics does not discuss the financial system even in a section that lists omitted topics.

The Stiglitz-Weiss analysis (1981) and information asymmetries challenges the works on financial development and reform. The two show that with asymmetric information some credit seekers would be rationed out even in fully liberalised markets, contrary to the Mckinnon-Shaw view. Financial markets in the real world are characterised by high information costs across economic agents leading to adverse selection and moral hazard problems. Banks might not be able to distinguish between loan applicants with different default probabilities due to high information costs.
This leads to banks fixing a uniform interest rate that is fairly high. As a result good projects with lower rate of risks remain not funded at the expense of high yield return projects carrying very high risks. Moreover, high interest rate pose a danger of default by borrowers, which in turn reduces the expected rate of return.

3.5 Conclusion

This chapter has examined the theoretical and empirical literature on the relationship between financial development and economic growth. The review of theoretical and empirical literature suggests that financial development lead to improved growth performance. This effect varies across countries and over time. A growing body of empirical analyses, including firm-level studies, industry-level studies, individual country- studies and broad cross-country comparisons, demonstrate a strong positive link between the functioning of the financial system and long run economic growth. There is consensus on the fact that the main channel of transmission from financial development to economic growth is the effect on the efficiency of investment rather than its level.

Empirical and theoretical literature suggests that the nature of the connection between financial development and economic growth may be perceived from the relationship between the financial system and growth-producing factors. The most important is the relationship of the stock of financial assets and liabilities to the real capital stock The growth objective of the financial system is to achieve the structure and rate of growth of various financial assets and liabilities, which are consistent with the optimal characteristics of the real capital stock as well as induce the optimal characteristics of the real capital stock.

The model captures the idea that the efficiency of financial institutions is a key determinant of the rate of productivity growth, which is the basis of the long run growth rate. The variable GYP (the indicator of economic growth) incorporates the efficiency effect in the model.

Moreover, the review of literature shows that there are three major ways in which the financial system can influence the capital stock for growth purposes. First financial institutions can encourage more efficient allocation of a given total amount of tangible wealth by bringing about changes in its ownership and its composition, through intermediation among various types of asset-holders. The model in this study uses the variable DCPY to measure asset distribution. Additionally, a number of monetary aggregates are used to capture the different roles of financial intermediation. M1Y captures monetary depth while LLY measures the overall financial depth and LLQY depicts non-monetary financial depth.

Second financial institutions may encourage a more efficient allocation of new investment from relatively less to relatively more productive uses, by intermediation between savers and entrepreneurial investors. The variable DCPY is used to identify sectors to which the financial system is allocating resources. Third financial institutions may induce an increase in the rate of capital accumulation, by providing increased incentives to save, invest and work. The variable GINV (the share of investment) reflects this aspect in the model.

Based on the factors identified in this chapter, an econometric analysis shall be done to investigate the contribution of these factors to explaining financial development and its impact on economic growth in Zambia.

Chapter 4

Empirical Analysis

4.0 Introduction

In this chapter an error correction model of financial development indicators is estimated to investigate the channel through which the allocation of a higher proportion of assets to the non-financial private sector by the financial intermediaries affects economic growth. The model incorporates a measure of the size of a financial system (DCPY) and is the variable of interest. DCPY captures the impact of the overall financial depth on economic growth. The model also includes control variables such as exchange rate (Exrat), fiscal stance (Fstance) and the lagged dependent variable to capture the delayed reaction of the dependent variable to changes in the explanatory variables.

The rest of the chapter is organised as follows: section 4.1 presents the model formulation. Data description is given in section 4.2. In section 4.3 order of integration and cointegration analysis is presented.

4.1 Model Formulation

As a starting point we present the specification of the long run relationships that might affect financial development and economic growth. From Literature review, we can identify several financial indicators that are used by various researchers. Fry (1978) uses interest rate as a measure of financial development. Where as Gupta (1984) uses the financial intermediation ratio as a measure of financial development, Neal (1988) uses the ratio of quasi-liquid liabilities to GDP (QLLY) as a measure of non-monetary financial depth. By eliminating the purely monetary component of financial size, quasi-liquid liabilities may more accurately capture the size of financial intermediation.

King and Levine (1993) emphasise liquid liabilities (M3) of the financial system and when this was not available M2 is used as a measure of financial development. To capture the size of a financial system they used: (a) the ratio of M1 to GDP to capture monetary depth (M1Y), (b) the ratio of liquid liabilities of the financial system to GDP to measure the overall financial depth (LLY), (c) the ratio of claims on the private sector by the financial system to GDP to measure asset distribution, (DCPY) and (d) the ratio of quasi liquid liabilities of the financial system to GDP to depict non-monetary financial depth.

It may be argued that as the ratio of credit to private sector excludes financial credit to the government and publicly owned enterprises, DCPY in essence is used to identify the sector to which the financial system is allocating resources. Gregorio and Guidotti (1995) use the ratio of bank credit to the private sector to GDP as a measure of financial development.

Following King and Levine (1992a) the long run relationships that might affect financial development and economic growth are the financial size indicators relationship and the financial asset distribution relationship.

4.1.1. Financial Size Indicators and Growth

The empirical specification of the relationship of financial size indicators to economic growth is as follows:

$$LogRGrowth_t = \beta_0 + \sum_{i=1}^{k} \beta_{1i} LogFI_{t-1} + \sum_{i=0}^{k} \beta_{2i} Fstance_t + \sum_{i=0}^{k} \beta_{3i} LogExrat_t + \beta_{4i} D1_t$$
$$+\sum_{i=0}^{k} \beta_{5i} LogRGrowth_{t-1} + U_t \qquad (1)$$

$$LogInvestment_t = \eta_0 + \sum_{i=1}^{k} \eta_{1i} LogFI_{t-1} + \sum_{i=0}^{k} \eta_{2i} Fstance_t + \sum_{i=0}^{k} \eta_{3i} LogExrat_t + \eta_{4i} DI_t$$
$$+\sum_{i=0}^{k} \eta_{5i} LogInvestment_{t-1} + \varepsilon_t \quad (2)$$

Where FI is a financial size indicator, which is proxied by M1Y in the first equation, LLY in the second, and DCPY in the third equation.

M1Y: The ratio of M1 to GDP, where M1 is the sum of currency held outside the banking system plus demand deposits at commercial banks.

LLY: The ratio of Liquid Liabilities of the Financial System to GDP. Liquid liabilities equal Ml plus interest bearing liabilities of the banking system, plus demand and interest bearing liabilities of "non-bank" financial intermediaries.

DCPY: The Ratio of Claims on the Private Sector by the Central Bank and commercial Banks to GDP (Domestic Credit to the Private Sector).

Exrat: Nominal Exchange rate defined as Kwacha per unit of US dollar (end of period)

Fstance: Fiscal stance that is measured by government deficit GDP ratio.

D1: Dummy variable for other structural adjustment effects.

U_{it} : the disturbance term.

Investment: The share of gross investment in GDP

4.1.2 Financial Assets Indicators and Growth

Thus the empirical specification of the relationship of the financial asset distribution indicator to economic growth is as follows:

$$LogRGrowth_t = \lambda_0 + \sum_{i=1}^{k} \lambda_{1i} LogFI_{t-1} + \sum_{i=0}^{k} \lambda_{2i} Fstance_t + \sum_{i=0}^{k} \lambda_{3i} LogExrat_t + \lambda_{4i} D1_t + \sum_{i=0}^{k} \lambda_{5i} Logcredit_t + \sum_{i=0}^{k} \lambda_6 \mathrm{LogRGrowth}_{t-1} + U_{3t} \qquad (3)$$

$$LogInvestment_t = \phi_0 + \sum_{i=1}^{k} \phi_{1i} LogFI_{t-1} + \sum_{i=0}^{k} \phi_{2i} Fstance_t + \sum_{i=0}^{k} \phi_{3i} LogExrat_t + \phi_{4i} D1_t + \sum_{i=0}^{k} \phi_{5i} credit_t + \sum_{i=0}^{k} \phi_{6i} \mathrm{Loginvestment}_{t-1} + U_{4t} \qquad (4)$$

Where credit is the ratio of claims on the non-financial private sector by the central bank and commercial banks to total domestic credit. The rest of the variables are as explained above. The Model examines whether the allocation of a higher proportion of asset to the non-financial private sector by financial intermediaries would lead to economic growth.

4.1.3 Financial Repression and Growth.

In this subsection the model is specified which examines the empirical tie between interest rates and economic growth. Variables included in the model are financial size indicators, control variables and D2 that entered as the basic variable in the form of a dummy. The model formulation is as follows:

$$LogRGrowth_t = \alpha_0 + \sum_{i=1}^{k} \alpha_{1i} LogFI_{t-1} + \sum_{i=0}^{k} \alpha_{2i} Fstance_t + \sum_{i=0}^{k} \alpha_{3i} LogExrat_t + + \alpha_{4i} D2_t$$
$$\sum_{i=0}^{k} \alpha_{5i} LOgRGrowth_{t-1} + U_{5t} \qquad (5)$$

$$LogInvestment_t = \psi_0 + \sum_{i=1}^{k} \psi_{1i} LogFI_{t-1} + \sum_{i=0}^{k} \psi_{2i} Fstance_t + \sum_{i=0}^{k} \psi_{3i} LogExrat_t$$
$$+ \psi_{4i} D2_t + \sum_{i=0}^{k} \psi_{5i} LogInvestment_{t-1} + U_{6t} \qquad (6)$$

4.1.4 Combined Tests

In this section the model is specified which examines the combined effect of all financial development indicators on economic growth. The regressions simultaneously include more than one financial indicator unlike the previous models that ignored one indicator or the other. All the control variables are included in each of the equations. Thus the model is specified as follows:

$$LogRGrowth_t = v_0 + \sum_{i=1}^{k} v_{1i} LogFI_{t-1} + \sum_{i=0}^{k} v_{2i} Fstance_t + \sum_{i=0}^{k} v_{3i} LogExrat_t + v_{4i} D2_t$$
$$+ \sum_{i=0}^{k} v_{5i} Logcredit_t + \sum_{i=0}^{k} v_{6i} LogRGrowth_{t-1} + U_{7i} (7)$$

$$LogInvestment_t = \gamma_0 + \sum_{i=1}^{k} \gamma_{1i} LogFI_{t-1} + \sum_{i=0}^{k} \gamma_{2i} Fstance_t + \sum_{i=0}^{k} \gamma_{3i} LogExrat_t + \gamma_{4i} D2_t$$
$$+ \sum_{i=0}^{k} \gamma_{5i} Logcredit_t + \sum_{i=0}^{k} \gamma_{6i} LogInvestment_{t-1} + U_{8t} (8)$$

The model specification is in natural logarithms to reduce the problem of heteroscedasticity that often arises with the estimation of equations in Time series data, (see Gujarati, 1995). A brief description of the variables is as follows: M1Y is the ratio of M1 to GDP, where M1 is the sum of currency held outside the banking system plus demand deposits at commercial banks. M1Y is commonly used to measure monetary depth. LLY is the ratio of Liquid Liabilities of the Financial System to GDP.

Liquid liabilities equal Ml plus interest bearing liabilities of the banking system, plus demand and interest bearing liabilities of "non-bank" financial intermediaries and represents overall financial depth. QLLY is the ratio of Quasi-Liquid Liabilities of the Financial System to GDP, where Quasi-Liquid Liabilities equals Liquid-Liabilities minus M1.This measures the non-monetary financial depth.

DCPY, defined as the ratio of claims on the private sector by the central bank and commercial Banks to GDP (Domestic Credit to the Private Sector) is a measure of both the financial size and an indicator of asset distribution; E is the nominal exchange rate defined as the ratio of domestic currency per one unit of foreign currency; FS is fiscal stance, which is measured by government deficit GDP ratio; Credit is the ratio of claims on the non-financial private sector by the central bank and commercial banks to total domestic credit; GINV is the share of gross investment in GDP; U_{it} is the disturbance term.

4.2 The Data

Annual data for the period 1965 to 1998 is used in this study. The sources are the government financial statistics yearbook and the International Financial statistics yearbook published by the World Bank and IMF. Other sources are the Central Statistical Office and Bank of Zambia publications.

Having identified the long-run relationships, the next step is to consider the short-run relationship between financial development indicators and economic growth. To do this, an error correction model is estimated. Following King and Levine (1992a) the dynamic error correction model of the financial development indicators may be considered as follows:

$$\Delta LogInvestment_{t-i} = \phi_0 + \sum_{i=o}^{k} \phi_i \Delta LogLLY_{t-i} + \sum_{i=0}^{k} \phi_{2i} \Delta Fs\tan ce_t + \sum_{i=0}^{k} \phi_{3i} \Delta\Delta LogExrat_t + \phi_{4i} D1_t + \sum_{i=0}^{k} \phi_{5i} \Delta Logcredit_t + \sum_{i=0}^{k} \phi_{6i} \Delta e_{t-i} + \sum_{i=0}^{k} \phi_{7i} \Delta \text{LogInvestment}_{t-i} + U_{2t} \quad (4.3)$$

The aim is to find out how the increase in the size of a financial system affects the rate of economic growth. Towards this end, we want to establish which financial institutions are intermediating and to whom is the financial system allocating resources. The main advantage of this model is that it separates the short-run effects from the long-run component. The idea behind the error correction mechanism (ECM) is that a proportion of the disequilibrium from one period is corrected in the next period.

Annual data for the period 1965 to 1998 is used in this study. The sources are the government finance statistics yearbook and the International Financial Statistics yearbook published by the International Monetary Fund. Other sources are the Central Statistical Office and the Bank of Zambia publications

Figure 2 in appendix 2 presents the measures of financial development in logs. The plot appears to suggest that there was a notable increase in all the financial size indicators in the first ten years after independence but after 1975 they started showing a declining trend. This may imply a close correlation between real income and the size of the financial system. As real income and wealth increased in the first ten years after independence the size and complexity of the financial structure grew. Conversely, as real income started to decline after 1975 financial size indicators started to decline. Therefore it may be argued that as real income and wealth grow, the size and complexity of the financial structure grows.

Zambia's economic growth has been declining over the years save for the first ten years after independence. Losses in government revenue due to declining export earnings led to government deficits from 1975 as shown by Fstance (Fiscal Stance) in figure 1. Fiscal Stance remained negative for the most part of the period under review. It may be argued that credit (the asset distribution indicator), had been fluctuating from 1971 due to measures introduced by the Bank of Zambia to contain credit expansion.

The measures designed to contain credit expansion included raising minimum liquidity requirements of commercial banks, increasing reserve requirements and restricting commercial bank's lending according to their debt-equity ratio. Massive government involvement in the economy left little activity for the private enterprise resulting in fluctuations in the asset distribution indicator.

From 1975 to 1981 the economy was subjected to continuos stagnation. From 1982 up to 1989 the growth rate of GDP in real terms has been fluctuating. From 1989 until 1991 GDP in real terms remained negative. Higher oil prices coupled with the world economic recession led to losses in export earnings and government revenue. The figure appears to suggest that from 1970 to 1998 assets and liabilities have remained static due to the poor performance of the economy. While the share of investment in GDP either continued getting smaller or kept fluctuating in the period between 1970 and 1998.

Moreover, figure 2 seems to suggest that the rate of growth in all financial indicators was higher in the first years after independence than in the period after 1975. The growth rate of all measures of money supply dropped sharply from 1994 due to fiscal and monetary policies implemented by the government. During this period real GDP growth rate continued to be negative as the share of investment in GDP dropped further due to reductions in government investments.

Despite the growth in financial services and relative decline in interest rates investment in fixed capital remained low in the period 1993-1995. High levels of existing debt, corporate taxes, poor infrastructure and the scarcity of long-term finance were largely responsible for the low levels in domestic capital formation as well as investment (despite the removal of restrictions on the capital account).

Furthermore, the plot in figure 2 shows that the official exchange rate was stable right up to 1985 when it started depreciating sharply. Before 1985 the exchange rate was fixed with occasional adjustments. In October 1985, a foreign exchange auctioning system was adopted which led to the depreciation of the Kwacha against other currencies. The auctioning of foreign exchange was discontinued in 1987 with the relatively flexible exchange rate adopted in 1989.

In 1992, the government introduced a system of bureau de change together with the official crawl to determine the market exchange rate. In December 1992, the exchange rate system was unified, while the Exchange Control Act was repealed in February 1994. The financial system continued to experience a transition toward market based structures.

To ensure the economic health of both the commercial banks and other financial institutions in a liberalised environment, the Banking and Financial services Act was introduced in December 1994. Figure 2 appears to indicate an increase in most financial and growth indicators after 1994. This may be explained by changes that took place in the domestic financial market. The domestic money market that had been dominated almost entirely by primary activities saw an increase in secondary activities between commercial banks and non-bank financial institutions in the period 1995-1998.

During this period a number of commercial banks started rediscounting government bonds while purchase agreements on treasury bills between some commercial banks and their clients also increased. Inter-bank market transactions grew from 1995 with the amounts traded overnight reaching up to K40 billion in some weeks. With the government meeting all its borrowing needs in the financial market, government bonds and treasury bills became important instruments in the secondary market.

4.3 Order of Integration and Cointegration Tests

In this section we present the results of testing for the order of integration and cointegration. We first look at the order of integration of the data series. This step is necessitated by the fact that time series data is often non-stationary, that is to say their means and variances change over time. A non-stationary series would have a different mean (or variance) at different points in time. If a series must be differenced *d* times before it becomes stationary,[20] then it is said to be integrated of order *d,* denoted ***I (d)***.

Table 4.1: Order of Integration

Variable	LM test for serial correlation in ADF	ADF	No. of Lags in ADF	Order of Integration
Credit	F(2,11)= 1.1492[0.3522]	-2.357	2	I(1)
Δcredit	F(2,26)= 0.30489[0.7398]	-4.088**	2	I(0)
LM1Y	F(2,23)=1.112[0.3460]	-0.13973	1	I(1)
ΔLM1Y	F(2,23)=1.0924[0.3522]	-3.0486*	2	I(1)
LLLY	F(2,23)=2.121[0.1428]	-1.2370	2	I(1)
ΔLLLY	F(2,23)=0.40446[0.6720]	-6.263**	1	I(0)
LQLLY	F(2,23)=1.5644[0.2307]	-3.079 *	2	I(0)
LDCPY	F(2,23)=0.48918[0.6194]	-0.8327	2	I(1)
ΔLDCPY	F(2,23)=0.32956[0.7226]	-3.1454*	2	I(0)
Lexrat	F(2,23)=1.1869[0.3232]	1.283	0	I(2)
ΔLExrat	F(2,23)=1.66929 [0.5218]	-1.686	2	I(1)
ΔΔLExrat	F(2,23)=1.4711[0.2505]	-3.5997*	2	I(0)
Rgrowth	F(2,23)= 0.059262[0.9426]	-4.3024*	2	I(0)
Linvestment	F(2,23)=3.0873 [0.0649]	-1.2289	2	I(1)
ΔLInvestment	F(2,23)=0.60839[0.5528]	-5.7274**	2	I(0)
Fstance	F(2,12)=1.16552[0.2318]	-2.7627	2	I(1)
Δfstance	F(2,11)=1.1492[0.3522]	-5.5049**	1	I(0)

Notes: * indicates significance at 5%, ** indicates significance at 1% and Δ is a difference operator

[20] Before it becomes integrated of order zero.

However, the data set shows a loss of the initial years due to differencing of data to make it stationary. The Dickey-Fuller and Augmented Dickey-Fuller tests were carried out to determine the order of integration of the data. The null hypothesis of these tests is that of a unit root (***I*** (1)). A significant test statistic would reject that hypothesis and suggest that the data series is ***I (0).***

The strategy followed in selecting the lag length in the ADF test is to select the highest lag length with a significant last lag and with no serial correlation. A constant is included in the estimation. Results of the tests are shown in table 4.1.

The next step is to use cointegration analysis to test for the long-run relationship among the variables. Johansen (1988) shows how one may estimate cointegration relationships that exist in a set of variables and test which of these cointegrating vectors are statistically significant. The basic idea behind cointegration analysis is that although macrovariables may tend to move up or down over time groups of variables may drift together. If stationary linear relationships hold among groups of variables over time, then cointegration analysis helps us to find them.

The cointegrating relations are estimated as the eigenvectors corresponding to the r non zero eigenvalues in the system. The statistical problem is to discriminate between the zero and nonzero eigenvalues. The null hypothesis is in terms of the cointegrating rank r and rejection of r=0 is evidence in favour of at least of one cointegrating vector.

Two systems are estimated based on the equations 4.1 and 4.2. The model estimated in equation 4.1 consists of the following variables: the log of the share of gross

Table 4.2: Cointegration Analysis of Financial Indicators Data 1969 to 1986

eigenvalues	Ho: Rank=r	-Tlog (1-μ)	UsingT-nm	95%	-TΣlg(1-μ)	Using T-nm	95%
0.669118	r==0	19.91	11.06	27.1	40.1	22.28	47.2
0.495215	r<=1	12.31	6.836	21.0	20.2	11.22	29.7
0.347985	r<=2	7.698	4.277	14.1	7.892	4.384	15.4
0.0106803	r<=3	0.1933	0.1074	3.8	0.1933	0.1074	3.8

standardized β' eigenvectors

FStance	LInvestment	LM1Y	ΔLExrat
1.000	0.1678	-2.048	-0.5142
-5.219	1.000	-0.2309	2.286
1.455	0.3658	1.000	0.3445
0.1757	0.04539	-0.5605	1.000

standardized adjustment coefficients α'

FStance	-0.02621	0.1208	-0.2079	-0.04265
LInvestment	0.2471	-0.4616	-0.2532	-0.1558
LM1Y	0.2608	0.01722	-0.09327	0.1070
ΔLE xrat	-0.08979	-0.009073	-0.3081	0.02527

Notes: * indicates significance at 5%, ** indicates significance at 1% and Δ is a difference operator

Table 4.3: Cointegration Analysis of Financial Indicators Data 1969 to 1986

eigenvalues	Ho: Rank =r	-Tlog(1-μ)	UsingT-nm	95%	-TΣlg(1-μ)	Using T-nm	95%
0.772543	r==0	26.65	14.81	27.1	45.4	25.22	47.2
0.540891	r<=1	14.01	7.785	21.1	18.75	10.41	29.7
0.230171	r<=2	4.709	2.616	14.1	4.734	2.63	15.4
0.00140724	r<=3	0.02535	0.01408	3.8	0.02535	0.01408	3.8

standardizedβ' eigenvectors

Fstance	LInvestment	ΔLE xrat	LLLY
1.000	-0.005206	0.3238	1.255
-6.999	1.000	4.975	-0.3862
1.728	0.4674	1.000	0.1371
-0.2801	0.2272	-1.384	1.000

standardized α' coefficients

FStance	-0.1175	0.09120	-0.1598	-0.005776
LInvestment	0.1756	-0.3533	-0.1576	-0.04091
ΔLExrat	0.1112	-0.005928	-0.2302	0.007774
LLLY	-0.4716	-0.04290	-0.02936	0.02310

Notes: * indicates significance at 5%, ** indicates significance at 1% and Δ is a difference operator

investment in GDP, the log of the ratio of M1 to GDP (LM1Y), the log of nominal exchange rate and Fiscal stance, which is measured by government deficit GDP ratio. LM1Y is the variable of interest. Table 4.2 reports the standard statistics and estimates for Johansen's maximum likelihood procedure using PCFMIL in PCGIVE 8. The results are as follows:

The null of no cointegration cannot be rejected at the conventional level of significance, implying that the relationship including the four variables may not be stationary. Table 4.2 also reports the standardised eigenvectors, β'(which are read row-wise) and adjustment coefficients, α (which are read column-wise). The first row of the standardised eigenvectors is close to the long run financial size relationship in terms of signs of the parameter estimates. The coefficients in the first column of the standardised adjustment coefficient in table 4.2 measure the feedback effects of the disequilibrium in the cointegrating relation[21] onto the variables in the cointegrating vector.

Table 4.3 reports the standard statistics and estimates for Johansen 's maximum likelihood procedure using PCFMIL in PCGIVE 8. The model being estimated is based on equation 4.1 and consists of the following variables: the log of the share of gross investment in GDP, the log of the ratio of liquid liabilities of the financial system to GDP (LLLY), the log of nominal exchange rate and Fiscal stance. LLLY is the variable of interest. The results are shown in table 4.3

[21] Long run monetary depth relation.

Table 4.4: Cointegration Analysis of Financial Indicators Data 1969 to 1986

eigenvalues	Ho: Rank = r	-Tlog(1-μ)	UsingT-nm	95%	-TΣlg(1-μ)	Using T-nm	95%
0.665339	r==0	19.7	15.32	27.1	35.24	27.41	47.2
0.371078	r<=1	8.347	6.492	21.0	15.54	12.08	29.7
0.2798241	r<=2	5.869	4.565	14.1	7.189	5.591	15.4
0.070688	r<=3	1.32	1.026	3.8	1.32	1.026	3.8

standardized β' eigenvectors

Fstance	L investment	LDCPY	ΔLExrat
1.000	0.02006	0.10 31	-0.1622
0.001692	1.000	0.6535	2.555
-0.1029	-1.936	1.000	-1.388
-0.2006	0.008460	-0.02625	1.000

standardized α' coefficients

FStance	-1.333	-0.016 41	-0.0007023	-0.01889
LInvestment	1.360	-0.3281	0.07885	0.2741
LDCPY	0.4034	-0.2472	-0.04328	-0.4030
ΔLExrat	-0.2280	-0.0006615	0.03262	-0.1611

Notes: * indicates significance at 5%, ** indicates significance at 1% and Δ is a difference operator

The null of no cointegration cannot be rejected at the conventional level of significance, meaning that the relationship involving the four variables may not be stationary. Table 4.3 also reports the standardised eigenvectors, β', and the adjustment coefficients, α'.

Table 4.4 reports the standard statistics and estimates for Johansen 's maximum likelihood procedure using PCFMIL in PCGIVE 8. The model being estimated is based on equation 4.1 and consists of the following variables: the log of the share of gross investment in GDP, the log of the ratio of claims on the private sector by the central bank and commercial banks to GDP (LDCPY), the log of nominal exchange rate and Fiscal stance. LDCPY is the variable of interest. The results are in table 4.4. Here the null of no cointegration cannot be rejected at the conventional level of significance, meaning that the relationship involving the four variables may not be stationary. Table 4.4 also reports the standardised eigenvectors, β' and adjustment coefficients, α.

Table 4.5 reports the standard statistics and estimates for Johansen 's maximum likelihood procedure using PCFMIL in PCGIVE 8 over the sample period 1969 to 1986. The model being estimated is based on equation 4.2 and consists of the following variables: the log of the share of gross investment in GDP, the log of the ratio of M1 to GDP (LM1Y), the ratio of claims on the non-financial private sector by the central bank and commercial banks to total domestic credit (credit), the log of nominal exchange rate and Fiscal Stance. Credit is the variable of interest. The results are shown in table 4.5.

Table 4.5: Cointegration Analysis of Financial Indicators Data 1969 to 1986

eigenvalues	Ho: Rank = r	-Tlog(1-μ)	UsingT-nm	95%	-TΣlg(1-μ)	Using T-nm	95%
0.832102	r==0	32.12	14.28	33.5	68.37	30.39	68.5
0.57663	r<=1	15.47	6.876	27.1	36.25	16.11	47.2
0.47935	r<=2	11.75	5.221	21.1	20.78	9.236	29.7
0.394227	r<=3	9.023	4.01	14.1	9.032	4.014	15.4
0.000547289	r<=4	0.009854	0.00438	3.8	0.009854	0.00438	3.8

standardized β' eigenvectors

Credit	FStance	L1nvestment	LM1Y	ΔLE xrat
1.000	-117.0	4.577	75.08	42.29
0.0003512	1.000	-0.1394	0.1784	-0.3017
0.1328	-6.595	1.000	-2.685	1.460
-0.009155	1.735	0.3837	1.000	0.3030
0.003411	-0.1210	0.05691	-0.5620	1.000

standardized α' coefficients

Credit	-0.2225	-44.92	-4.792	10.26	1.663
FStance	0.001924	-0.7417	0.0001988	-0.1602	0.01281
LInvetsment	-0.006358	2.382	0.1179	-0.6640	-0.0008681
LM1Y	-0.005743	-0.3202	0.002409	0.02865	-0.02360
ΔLE xrat	0.001911	-0.04901	-0.03408	-0.2855	-0.004040

Notes: * indicates significance at 5%, ** indicates significance at 1% and Δ is a difference operator

Table 4.6:Cointegration Analysis of Financial Indicators Data 1969 to 1986

eigenvalues	Ho: Rank=r	-Tlog(1-μ)	UsingT-nm	95%	-TΣlg(1-μ)	Using T-nm	95%
0.930576	r==0	48.02**	21. 34	33.5	86.76**	38.56	68.5
0.67818	r<=1	20.41	9.07	27.1	38.74	17.22	47.2
0.474336	r<=2	11.58	5.145	21.0	18.34	8.149	29.7
0.243153	r<=3	5.015	2.229	14.1	6.761	3.005	15.4
0.0924375	r<=4	1.746	0.7759	3.8	1.746	0.7759	3.8

standardized β' eigenvectors

Credit	Fstance	LInvestment	LLLY	ΔLExrat
1.000	-89.31	12. 69	94.38	49.60
0.005752	1.000	-0.05851	-0.08756	-0.1702
0.08970	2.506	1.000	-0.9890	5.842
0.07616	-5.296	-2.670	1.000	-9.097
0.009892	-1.034	-0.2328	-0.8261	1.000

standardized α' coefficients

Credit	-0.2849	7.573	7.387	-8.540	-2.490
Fstance	0.0002034	-1.200	0.03251	-0.1758	-0.08377
LInvestment	-0.0007231	2.113	-0.2481	0.06425	-0.2906
ΔLExrat	- 0.001875	0.3051	-0.006678	-0.3246	0.009741
LLLY	-0.005238	-0.5533	-0.01868	-0.07083	0.2150

Statistics for testing the significance of a given variable

	Credit	Fstance	LInvestment	LLLY	ΔDLExrat
$\chi^2(1)$	7.1514**	3 .56	5.741*	24.933 **	5.6212*

Notes: * indicates significance at 5%, ** indicates significance at 1% and Δ is a difference operator

The null of no cointegration cannot be rejected implying that the relationship including the five variables may not be stationary. Table 4.5 also reports the standardised eigenvectors, β' and adjustment coefficients, α.

Table 4.6 reports the standard statistics and estimates for Johansen's maximum likelihood procedure. The model being estimated (based on equation 4.2) consists of the following variables: the log of the share of gross investment in GDP, the log of the ratio of liquid liabilities of the financial system to GDP (LLLY), the ratio of claims on the non-financial private sector by the central bank and commercial banks to total domestic credit (credit), the log of nominal exchange rate and Fiscal Stance. Credit is the variable of interest. The results are reported in table 4.6.

The null of no cointegration is rejected in favour of at least one cointegrating relationship at 1 percent level of significance suggesting that the relationship including the five variables may be stationary. Table 4.6 also reports the standardised eigenvectors, β' and the adjustment coefficients, α.

Table 4.7 reports standard statistics and estimates for Johansen's maximum likelihood procedure. The model being estimated is based on equation 4.2 and consists of the following variables: the log of the share of gross investment in GDP, the log of the ratio of claims on the private sector by the central bank and commercial banks to GDP, the ratio of claims on the non-financial private sector by the central bank and commercial banks to total domestic credit (credit), the log of nominal exchange rate and Fiscal Stance. The variable of interest is credit. The results are reported in table 4.7.

Table 4.7: Cointegration Analysis of the financial indicators Data 1969 to 1986

eigenvalues	Ho: Rank=r	-Tlog(1-μ)	UsingT-nm	95%	-TΣlg(1-μ)	Using T-nm	95%
0.70035	r==0	21.89	15.81	33.5	50.68	36.6	68.5
0.636161	r<=1	13.96	10.08	27.1	28.8	20.8	47.2
0.581985	r<=2	8.649	6. 246	21.0	14.84	10.72	29.7
0.350237	r<=3	4.807	3.472	14.1	6.191	4.471	15.4
0.238287	r<=4	1.384	0. 9993	3.8	1.384	0.9993	3.8

standardized β' eigenvectors

Credit	Fstance	LInvestment	LDCPY	ΔLExrat
1.000	-190.5	-1.179	-3.838	19.45
0. 08336	1.000	0.0004815	1.575	-1.702
0.00883	-0.07666	1.000	5.279	2.405
0.2515	-3.806	10.20	1.000	2.212
0.003633	-0.2733	0.06255	-0.2050	1.000

standardized α' coefficients

Credit	0.03560	-11.15	2.159	-0.1238	2.716
Fstance	0.007227	-0.05352	-0.01343	-0.0001872	-0.02465
LInvestment	-0.004061	0.2022	-0.2641	-0.01490	0.2581
ΔLExrat	0.001713	0.01742	0.01009	-0.005840	-0.1785
LDCPY	-0.001673	0.03564	0.2191	0.008954	- 0.4330

Notes: * indicates significance at 5%, ** indicates significance at 1% and Δ is a difference operator

Here the null of no cointegration cannot be rejected at the conventional level of significance, meaning that the relationship involving the four variables may not be stationary. Table 4.7 also reports the standardised eigenvectors, β' and the adjustment coefficients, α.

4.4. ECONOMETRIC RESULTS AND ANALYSIS

This section presents the empirical results (Ordinary Least Square method was adopted to estimate equations). Further, time series data was used for the period 1965-1998 to examine the impact of financial development on economic growth in Zambia. The model used in the study was reformulated to incorporate the unit root tests and cointegration analysis. Moreover, equation results for models where none of the variables are statistically significant are shown in the appendix and therefore do not appear in the text.

In addition to the measures of financial development such as financial size indicators, financial asset distribution indicator and financial repression indicator, other explanatory variables were used as control variables. The fact that other factors different from financial development indicators influence economic growth justifies the use of these control variables.

The empirical results are subdivided into four sets of eight equations each. The first three sets of models seek to explain the impact of financial development indicators on economic growth independent of each other. The four financial size indicators used in the model are M1Y, LLY, QLLY and DCPY. The aim is to establish the extent of the impact of financial size indicators, financial asset distribution and financial repression on economic growth.

Moreover, financial size indicators used in this study are introduced one at a time in order to identify the extent of their influence on economic growth. By using four measures of financial size it may be established whether the financial system indicators give similar results about the relationship between financial development and economic growth.

Therefore both the direct and indirect impact of financial development on economic growth are considered. As such two levels of modelling are maintained throughout the sections, each level comprising four equations, since four financial size indicators are used in the study and have to be introduced one at a time to avoid the problem of serial correlation.

4.4.1 Financial Size Indicators and Economic Growth

This subsection presents findings that identify the way through which financial size indicators may be correlated with economic growth through the direct channel. A series of four equations are estimated based on the following system:

$$\Delta LogRGROWTH_t = \beta_0 + \sum_{i=0}^{k} \beta_{1i}\Delta LogFI_{t-i} + \sum_{i=0}^{k} \beta_{2i}\Delta Fs\tan ce_t + \sum_{i=0}^{k} \beta_{3i}\Delta\Delta LogExrat_t + \beta_4 D1$$
$$+\sum_{i=1}^{k} \beta_{5i}\Delta LogRGROWTH_{t-i} + U_{1t} \qquad (1)$$

Where FI = financial size indicator, which is proxied by M1Y in the first equation, LLY in the second, QLLY in the third and DCPY in the fourth;

M1Y: The ratio of M1 to GDP, where M1 is the sum of currency held outside the banking system plus demand deposits at commercial banks.

Exrat: Nominal Exchange rate defined as Kwacha per unit of US dollar (end of period).

Fstance: Fiscal stance that is measured by government deficit to GDP ratio

D1: Dummy variable for other structural adjustment effects

RGrowth: Economic growth given by the real growth rate per capita GDP

U_{it} : the disturbance term.

However, all the variables included in the model were found not to be statistically significant in explaining economic growth at both 1% and 5% levels of significance (see results in the appendix).

Furthermore, the reported result include coefficient estimates, standard errors (Std. Error), t values, squared partial correlation (Part R^2) the squared multiple correlation coefficient (R^2), F-test; the equation Std. Error (SE), the Durbin-Watson statistic (DW), the residual sum of squares (RSS). Further, the model tests include the residual autocorrelation test (AR), Autoregressive Conditional Heteroscedasticity (ARCH), The normality test for the distribution of residuals and the Regression Specification Test (RESET).

Still on financial size indicators a second regression was run based on the model in equation 1. This time, FI was captured by LLY, which is measured as the ratio of Liquid Liabilities of the Financial System to GDP. Liquid liabilities equal Ml plus interest bearing liabilities of the banking system, plus demand and interest bearing liabilities of "non-bank" financial intermediaries. LLY gives the overall financial depth. The rest of the variables are as explained before. Nevertheless, all the variables included in the model were not statistically and significantly related to economic growth at both conventional levels of significance (see results in the appendix).

Still on financial size indicators, regression 3 was run based on the model in equation1. FI was captured by QLLY, (measured as the ratio of Quasi-Liquid Liabilities of the Financial System to GDP, where Quasi-Liquid Liabilities equals Liquid-Liabilities minus M1.The rest of the variables are as explained before. Still, all the variables included in the model were not found to be statistically and significantly related to economic growth at both conventional levels of significance (see results in the appendix).

Still on financial size indicators, regression four was run based on the model in equation 1. In this case FI was captured by DCPY, (the ratio of claims on the Private Sector by the Central Bank and Commercial Banks to GDP, that is Domestic Credit to the Private Sector). DCPY is also a measure of financial size and an indicator of asset distribution. The rest of the variables are as explained before. However, all the variables included in the model were not statistically significantly related to economic growth at both conventional levels of significance (see results in the appendix).

In the financial size indicators and investment, four equations were again estimated to establish the indirect impact of financial development indicators on economic growth (through investment) based on the following system:

$$\Delta LogInvestment_t = \eta_0 + \sum_{i=0}^{k} \eta_{1i}\Delta LogFI_{t-i} + \sum_{i=0}^{k} \eta_{2i}\Delta Fs\tan ce_t + \sum_{i=0}^{k} \eta_{3i}\Delta\Delta LogExrat_t + \eta_4 DI$$
$$+\sum_{i=1}^{k} \eta_{5i}\Delta LogInvestment_{t-i} + \varepsilon_t \qquad (2)$$

In the first equation FI is proxied by M1Y in the second LLY in the third QLLY and DCPY in the fourth equation. Investment is the gross investment GDP ratio and the rest of the variables are as explained before. The financial size indicators M1Y, LLY QLLY and DCPY were introduced one at a time in the model to avoid the problem of autocorrelation that may arise if all the variables were introduced in the model at the same time. Nevertheless, all the variables included in the model were not statistically and significantly related to investment at both the 1% and 5% levels of significance (see results in the appendix).

The second equation was estimated where FI was captured by LLY and the rest of the variables are as explained before. Yet, all the variables included in the model were not statistically significantly related to investment at both the 1% and 5% levels of significance (see results in the appendix).

Still on financial size indicators, the third equation was estimated in the second level modelling where FI was captured by QLLY and the rest of the variables are as explained before. Thus the results are given in table 4.7

Almost all the variables included in the model were not significantly different from zero in explaining economic growth. Only QLLY and the lagged dependent variable were found to be statistically significant. This means that over the period of study there was a negative relationship between the financial size indicator QLLY and the indirect part of economic growth. The empirical results do not agree with the findings of King and Levine (1992) that financial size indicators are positively and significantly related to economic growth. However, the negative relationship between QLLY and economic growth may be explained by the poor and inefficient nature of the financial market in this country.

Regarding diagnostic test statistics the model has performed satisfactorily, since there is no sign of autocorrelation. Normality of the residuals is accepted.

Table 4.14: Modelling DLInvestment by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	1.0924	0.54326	2.011	0.0568	0.1553
LQLLY	-0.45854	0.21735	-2.110	0.0465	0.1683
DLinvest_1	-0.43075	0.18056	-2.386	0.0261	0.2055

R^2 = 0.292832 F (2, 22) = 4.555 [0.0221] σ = 0.251784 DW = 2.14

RSS = 1.39468945 for 3 variables and 25 observations

AR 1- 2F(2, 20) = 1.4745 [0.2527]

ARCH 1 F(1, 20) = 0.0014441 [0.9701]

Normality $Chi^2(2)$ = 1.735 [0.4200]

Xi^2 F(4, 17) = 0.38674 [0.8151]

Xi*Xj F (5, 16) = 0.39094 [0.8478]

RESET F(1, 21) = 1.5462 [0.2274]

Still on financial size indicators the fourth equation in the second level modelling was estimated where FI was captured by DCPY and the rest of the variables are as explained before. All the variables included in the model were not statistically significantly related to economic growth at both the 1% and 5% levels of significance (see results in the appendix).

Therefore, the conclusion for this subsection is that the size of the financial system is not significantly related to economic growth through per capita income channel while the effect is negative and not so strong through the indirect part (investment). This may be explained by the poor and inefficient nature of the financial market in the country. The diversity of the financial sector has not been improved sufficiently. As such the null hypothesis that financial size indicators do not influence economic growth can not be rejected.

Efforts to improve the size of the financial sector have not yielded desirable results if the spurt of bank failures experienced in 1995/96 period is anything to go by. The thinness of the financial market led to large movements in interest rates with little impact on excess reserves and credit. As Mwenda (1996) points out, measures to influence bank lending indirectly were not proficient due to excess liquidity inherited from the direct monetary policy regime.

4.4.2 Financial Asset Distribution and Economic Growth

This section analyses whether the asset distribution of the financial system is related to economic growth. Thus we examine whether the allocation of a higher proportion of assets to the non-financial private sector by financial intermediaries will lead to economic growth through both the direct and indirect channels. Consequently, the first four equations were estimated based on the following model:

$$\Delta LogRGROWTH_t = \lambda_0 + \sum_{i=0}^{k} \lambda_{1i} \Delta LogFI_{t-i} + \sum_{i=0}^{k} \lambda_{2i} \Delta Fstance_t + \sum_{i=0}^{k} \lambda_{3i} \Delta\Delta LogExrat_t + \lambda_4 D1 + \sum_{i=0}^{k} \lambda_{5i} Logcredit_t$$
$$+ \sum_{i=1}^{k} \lambda_6 \Delta \mathrm{LogRGROWTH}_{t-i} + U_{3t} \qquad (3)$$

Where FI is proxied by M1Y and credit is the ratio of claims on the non-financial private sector by the central bank and commercial banks to total domestic credit (domestic credit to the private sector). The rest of the variables are as explained before. However, all the variables included in the model were not statistically significant in explaining economic growth at both 1% and 5% levels of significance (see results in the appendix).

Still on financial asset distribution the second equation was estimated where FI was captured by LLY and the rest of the variables were as explained before. The variable of interest is credit. However, all the variables included in the model were not statistically significantly related to economic growth at both the 1% and 5% levels of significance (see results in the appendix).

The third equation was estimated where FI was captured by QLLY and the rest of the variables are as explained before. The variable of interest is credit. However, all the variables included in the model were not statistically significant in explaining economic growth at both 1% and 5% levels of significance (see results in the appendix).

Finally, the fourth equation was estimated where FI was captured by DCPY and the rest of the variables are as explained before. The variable of interest credit. However, all the variables included in the model were not statistically significant in explaining economic growth at both 1% and 5% levels of significance (see results in the appendix).

In the second level modelling of financial asset distribution and economic growth four equations were estimated based on the following system:

$$\Delta LogInvestment_t = \phi_0 + \sum_{i=0}^{k} \phi_{1i}\Delta LogFI_{t-i} + \sum_{i=0}^{k} \phi_{2i}\Delta Fstance_t + \sum_{i=0}^{k} \phi_{3i}\Delta\Delta LogExrat_t + \phi_4 D1$$
$$+\sum_{i=0}^{k} \phi_{5i} Logcredit_t + \sum_{i=1}^{k} \phi_{6i}\Delta \mathrm{LogInvestment}_{t-i} + U_{4t} \qquad (4)$$

Table 4.20: Modelling DLInvestment by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	-0.0083680	0.051893	-0.161	0.8732	0.0010
DDLExrat	-0.29150	0.12273	-2.375	0.0255	0.1841

R^2 = 0.184106 $F(1, 25)$ = 5.641 [0.0255] σ = 0.269634 DW = 2.49

RSS = 1.817565485 for 2 variables and 27 observations

AR 1- 2F (2, 23) = 1.2035 [0.3184]

ARCH 1 F(1, 23) = 0.27288 [0.6064]

Normality Chi ^{2} (2) = 0.29971 [0.8608]

Xi^2 F(2, 22) = 0.28003 [0.7584]

Xi*Xj F(2, 22) = 0.28003 [0.7584]

RESET F(1, 24) = 0.49465 [0.4886]

Where FI was captured by M1Y and the rest of the variables are as explained before. The basic variable is credit. The results are given as follows:

Table 4.21: Modelling DLInvestment by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	-0.14609	0.078471	-1.862	0.0761	0.1361
DFstance	0.0069699	0.0031605	2.205	0.0382	0.1810
DDLExrat	-0.33532	0.10176	-3.295	0.0033	0.3305
credit	0.47673	0.23235	2.052	0.0523	0.1606
ecm_1	-0.73938	0.21283	-3.474	0.0022	0.3542

R^2 = 0.515776 F(4, 22) = 5.8584 [0.0023] σ = 0.221432 DW = 1.97

RSS = 1.078704208 for 5 variables and 27 observations

AR 1- 2F (2, 20)	=	0.078279	[0.9250]
ARCH 1 F(1, 20)	=	0.69745	[0.4135]
Normality Chi^2 (2)	=	4.9135	[0.0857]
Xi^2 F(8, 13)	=	0.15495	[0.9936]
Xi*Xj F(14, 7)	=	0.11067	[0.9997]
RESET F(1, 21)	=	0.10883	[0.7447]

Of the variables included in the model only the Exchange rate variable was statistically different from zero in explaining the indirect part of economic growth. This implies that over the period of study the distribution of assets by financial intermediaries to the non-financial private sector had no statistically significant impact on economic growth. This is at variance with the findings of King and Levine (1992) that the distribution of assets by financial intermediaries to the non-financial private sector was positively related to economic growth.

Table 4.22: Modelling DLInvestment by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	1.1159	0.54218	2.058	0.0506	0.1500
LQLLY	-0.47336	0.21920	-2.159	0.0410	0.1627
credit	0.13500	0.050343	2.682	0.0130	0.2305
DLinvest_1	-0.41240	0.16559	-2.491	0.0201	0.2054

R^2 = 0.367052 F(3, 24) = 4.6393 [0.0107] σ = 0.258367 DW = 2.11

RSS = 1.602079784 for 4 variables and 28 observations

AR 1- 2F(2, 22)	=	1.5386	[0.2369]
ARCH 1 F(1, 22)	=	0.042026	[0.8395]
Normality Chi^2(2)	=	0.9202	[0.6312]
Xi^2 F(6, 17)	=	0.3151	[0.9202]
Xi*Xj F(9, 14)	=	0.27582	[0.9711]
RESET F(1, 23)	=	1.5449	[0.2264]

The results may be explained by the fact that the distribution of assets by financial intermediaries to the non-financial private sector was not proficient enough to influence economic growth through the investment share (see Levine, 1997).

Regarding diagnostic test statistics the model has performed satisfactorily, since there was no sign of autocorrelation. Residuals were normally distributed, homoscedastic and serially uncorrelated.

Still on financial asset distribution, the second equation was estimated where *FI* was captured by LLY and the rest of the variables are as explained before.

The coefficient of the error correction term had a negative sign while the coefficient for credit was positive. This implies that a higher allocation of assets to the non-financial private sector by the financial intermediaries had a significant positive effect economic growth through the investment share.

Regarding diagnostic test statistics the model has performed satisfactorily, since there is no sign of autocorrelation. Normality of the residuals is accepted.

Still on financial asset distribution, QLLY (the proxy for FI) was introduced in regression 15 based on the model in equation 4. The basic variable was still credit. Thus the results are given in table 4.22.

LQLLY, the lagged dependent variable and credit were statistically different from zero in explaining economic growth. What this means is that during the period of the study the asset distribution to the non-financial private sector had a statistically significant positive impact on economic growth. Further, the results agree with the findings of King and Levine (1992) that asset distribution to the non-financial private sector is significantly related to economic growth.

Regarding diagnostic test statistics the model has performed satisfactorily, since there is no sign of autocorrelation and residuals are normally distributed and homoscedastic.

Still on financial asset distribution, regression 16 was run based on the model in equation 4. In this regression FI was captured by DCPY and the rest of the variables are as explained before. The variable of interest is still credit. Thus the results are given in table 4.23.

Table 4.23: Modelling DLinvestment by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	$PartR^2$
Constant	-0.28956	0.083935	-3.450	0.0029	0.3980
DLDCPY_2	-0.59285	0.19629	-3.020	0.0074	0.3363
DLDCPY_4	-0.58366	0.21783	-2.679	0.0153	0.2851
DFStance	0.010028	0.0028995	3.458	0.0028	0.3992
DDLExrat	-0.34030	0.089307	-3.810	0.0013	0.4465
credit	0.86952	0.27134	3.205	0.0049	0.3633
DLInvest_1	-0.55961	0.15492	-3.612	0.0020	0.4203
DLInvest_2	-0.59131	0.15180	-3.895	0.0011	0.4574

R^2 = 0.697249 F (7, 18) = 5.9221 [0.0011] σ = 0.18639 DW = 2.37

RSS = 0.6253430011 for 8 variables and 26 observations

AR 1- 2F(2, 16)	=	2.6197	[0.1037]
ARCH 1 F(1, 16)	=	1.1293	[0.3037]
Normality $Chi^2(2)$	=	1.1059	[0.5753]
Xi^2 F(14, 3)	=	0.17679	[0.9906]
RESET F(1, 17)	=	0.0014353	[0.9702]

Four lags of the variable DCPY were included in the model due to autocorrelation problem and heteroscedasticity. However, DCPY, credit, Exchange rate variable

(Exrat) and the lagged dependent variable were statistically different from zero in explaining economic growth. This means that during the period of study asset distribution by financial intermediaries to the non-financial private sector had a significant positive impact on economic growth, while the financial size indicator had a significant negative impact on economic growth.

Regarding diagnostic test statistics the model has performed satisfactorily, since there is no sign of autocorrelation. The residuals are normally distributed, homoscedastic and serially uncorrelated.

Thus we conclude that when credit allocation to the private sector is not restricted it has a significant positive influence on economic growth through the investment part. Moreover, empirical results show that asset distribution by the domestic financial system has no impact on economic growth through per capita income channel.

Empirical results seem to indicate that liberalisation per se has failed to improve the performance of banking institutions in savings mobilisation and financial intermediation in a sustainable manner. Difficulties in performing effective intermediation continue to impede further advancement in saving mobilisation. In advancing liberalisation measures little attention has been paid to the fact that motivation for increased financial savings at the formal financial institutions is closely related to accessibility to credit facilities offered. At the same time limited lending opportunities considerably dampen efforts for active savings mobilisation by the formal institutions.

There is a persistent lack of a system to effectively intermediate funds between surplus and deficit units. Financial liberalisation has hardly addressed the issue of high credit risks and transaction costs- which is the key constraint facing the banking institutions in their lending operations.

4.4.3 Financial Repression and Economic Growth

In this subsection we examine the empirical tie between interest rates and economic growth through both the direct and indirect channel. Therefore the second level modelling is still maintained even in this section. Thus a series of four equations is run in the first level of modelling based on the following model:

$$Log\Delta RGROWTH_t = \alpha_0 + \sum_{i=0}^{k} \alpha_{1i}\Delta LogFI_{t-i} + \sum_{i=0}^{k} \alpha_{2i}\Delta Fstance_t + \sum_{i=0}^{k} \alpha_{3i}\Delta\Delta LogExrat_t + \alpha_4 D2$$
$$\sum_{i=1}^{k} \alpha_{5i} Log\Delta RGROWTH_{t-i} + U_{5t} \qquad (5)$$

Where D2 is a dummy variable capturing financial repression and is the variable of interest. FI is proxied by M1Y in regression 17, LLY in Regression 18, QLLY in regression 19 and DCPY in regression 20.The rest of the variables are as explained before. However, all the variables included in the model were not statistically different from zero in explaining economic growth (see results in the appendix).

Still on financial repression, regression 18 was run based on the model in equation 5. The variables included in the model were LLY (financial indicator), D2 (dummy variable depicting financial repression), control variables Exrat, FStance, D1 and the lagged dependent variable. D2 is still the basic variable. Nevertheless, all the variables included in the model were not statistically significantly related to economic growth at both the 1% and 5% levels of significance (see results in the appendix)

Still on financial repression regression 19 was run based on equation 5. The variables included in the model were QLLY (financial size indicator), control variables Fstance, Exrat, D1and the lagged dependent variable, as well as D2 (the basic variable). However, all the variables included in the model were not statistically and significantly related to economic growth at both the 1% and 5% levels of significance (see results in the appendix)

Still on financial repression and economic growth regression 20 is run to test the validity of the hypothesis. The variables included in the model are DCPY, control variables Fstance, Exrat and the lagged dependent variable as well as the basic variable D2. However, all the variables included in the model were not statistically and significantly related to economic growth at both the 1% and 5% levels of significance (see results in the appendix)

Still on financial repression and economic growth, empirical support is sought for the financial repression hypothesis through the indirect effect (Investment). Thus regression 21 is run based on the model in equation 6 as follows:

$$\Delta LogInvestment_t = \psi_0 + \sum_{i=0}^{k} \psi_{1i}\Delta LogFI_{t-i} + \sum_{i=0}^{k} \psi_{2i}\Delta Fs\tan ce_t + \sum_{i=0}^{k} \psi_{3i}\Delta\Delta LogExrat_t$$
$$\psi_4 D2 + \sum_{i=1}^{k} \psi_{5i}\Delta LogInvestment_{t-i} + U_{6t} \qquad (6)$$

Variables included in this regression were the financial size indicator M1Y, control variables Fstance, and D2 (the basic variable) which entered the regression in the form of a dummy.

In order to identify the extent of their influence on Growth the financial size indicators M1Y, LLY, QLLY and DCPY are introduced one at a time in regressions 21, 22, 23 and 24 respectively. The results are as given in table 4.28

Table 4.28: Modelling DLinvestment by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	-0.035595	0.052116	-0.683	0.5014	0.0199
DDLExrat	-0.29095	0.11860	-2.453	0.0222	0.2074

R^2 = 0.207378 F(1, 23) = 6.0176 [0.0222] σ = 0.26057 DW = 2.81

RSS = 1.561626733 for 2 variables and 25 observations

AR 1- 2F(2, 21) =	2.5122	[0.1052]
ARCH 1 F(1, 21) =	0.13509	[0.7169]
Normality Chi^2(2) =	0.9292	[0.6284]
Xi^2 F(2, 20) =	0.23575	[0.7921]
Xi*Xj F(2, 20) =	0.23575	[0.7921]
RESET F(1, 22) =	0.18135	[0.6744]

However, of the variables included in the model only the exchange rate variable (Exrat) was negatively and significantly related to economic growth. The empirical results do not agree with the findings of King and Levine (1992) that between repressed interest rates are negatively and significantly related to economic growth.

With regard to diagnostic test statistics the model performed satisfactorily, since there was no sign of autocorrelation. Normality of the residuals is accepted.

Still on financial repression, regression 22 was run based on equation 6.

Table 4.29: Modelling DLinvestment by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	-0.0075882	0.051799	-0.146	0.8847	0.0009
DLLLY_2	0.049665	0.023830	2.084	0.0475	0.1480
DDLExrat	-0.29462	0.12242	-2.407	0.0238	0.1881

R^2 = 0.28569 F(2, 25) = 4.9994 [0.0149] σ = 0 .268925 DW = 2.58

RSS = 1.808017478 for 3 variables and 28 observations

AR 1- 2	F (2, 23)	=	1.1803	[0.3251]
ARCH 1	F (1, 23)	=	0.19159	[0.6657]
Normality Chi^2 (2)		=	0.34602	[0.8411]
Xi^2	F (4, 20)	=	0.38504	[0.8167]
Xi*Xj	F (5, 19)	=	0.29556	[0.9094]
RESET	F(1, 24)	=	0.41668	[0.5247]

The variables included in the model were LLY, control variables FStance, Exrat and the lagged dependent variable Growth. D2, the basic variable entered the regression as a dummy. The results for the regression are given in table 4.29.

Of the variables included in the model only LLY and Exrat were statistically different from zero in explaining economic growth. This implies that financial repression had no effect on economic growth. However, the overall financial depth had a positive impact on economic growth. This agrees with the findings of King and Levine (1992) that several financial development indicators were positively related to economic growth.

As for the diagnostic test statistics the model performed satisfactorily, since there was no sign of autocorrelation. Normality and homoscedasticity of the residuals were accepted.

Still on financial repression, regression 23 was run based on equation 6. The variables included in the model were QLLY, control variables Fstance, Exrat and the lagged dependent variable Growth. D2, the variable of interest entered the regression as a dummy. However, none of the variables included in the model were statistically significant in explaining economic growth (see results in the annex)

Still on financial repression, regression 24 was run based on equation 6. The variables included in the model were credit, control variables Fstance, Exrat and the lagged dependent variable Growth. D2, the basic variable entered the regression as a dummy. The results for the regression are given in table 4.31.

All variables included in the model were not statistically different from zero in explaining economic growth except for the exchange rate variable (Exrat). Since the basic variable D2 was not statistically significant in explaining economic growth this means that financial repression had no statistically significant effect on economic growth.

Table 4.31: Modelling DLinvestment by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	$PartR^2$
Constant	-0.035595	0.052116	-0.683	0.5014	0.0199
DDLExrat	-0.29095	0.11860	-2.453	0.0222	0.2074

$R^2 = 0.207378$ $F(1, 23) = 6.0176\ [0.0222]$ $\sigma = 0.26057$ $DW = 2.81$

RSS = 1.561626733 for 2 variables and 25 observations

AR 1- 2 F (2, 21)	=	2.5122	[0.1052]
ARCH 1 F (1, 21)	=	0.13509	[0.7169]
Normality Chi^2 (2)	=	0.9292	[0.6284]
Xi^2 F (2, 20)	=	0.23575	[0.7921]
Xi*Xj F (2, 20)	=	0.23575	[0.7921]
RESET F (1, 22)	=	0.18135	[0.6744]

As for the diagnostic test statistics the model performed satisfactorily, since there was no sign of autocorrelation. Normality and homoscedasticity of the residuals were accepted.

In conclusion it can be said that the empirical evidence indicates that financial repression was not an important variable in explaining economic growth. Financial repression had no statistical significant effect on economic growth both through the direct (Growth) and indirect (Investment) channels alike. The results are contrary to the findings of King and Levine (1992) which show a negative relationship between repressed interest rates and economic growth and this relationship runs primarily through the indirect channel. These results may be explained by fact that government had created a policy induced innovation in financial intermediation by the removal of regulations, that is by the adoption of financial liberalisation

4.4.4 The Combined Effect of Financial Development Indicators on Economic Growth

This section examines the combined effect of all financial development indicators on economic growth through the direct and indirect channels. The models incorporate all the financial development indicators unlike other sets of models which excluded some indicators. However, the financial size indicators M1Y, LLY, QLLY and DCPY are introduced one at a time in the model to avoid the problem of serial correlation (autocorrelation). Thus the two level modelling system is still maintained in this section.

Consequently, a model is estimated based on equation 7 (to give the combined effect

$$\Delta LogRGROWTH_t = v_0 + \sum_{i=0}^{k} v_{1i}\Delta LogFI_{t-i} + \sum_{i=0}^{k} v_{2i}\Delta Fs\tan ce_t + \sum_{i=0}^{k} v_{3i}\Delta\Delta LogExrat_t + v_4 D1 + v_5 D$$
$$+\sum_{i=0}^{k} v_{6i} Logcredit_t + \sum_{i=1}^{k} v_{7i}\Delta LogRGROWTH_{t-i} + U_{7i} \quad (7)$$

through the direct channel) as follows:

Where FI is M1Y in regression 25, LLY in regression 26, QLLY in regression 27 and DCPY in regression 28. The rest of the variables are as explained before in the preceding sections. Nevertheless, all the variables included in the model were not statistically different from zero in explaining economic growth (see results in the appendix).

Still on combined effect of financial development indicators on economic growth, regression 26 was run based on the model in equation 7. In this case the financial indicator was captured by LLY while the rest of the variables are as explained in the preceding sections. However, none of the variables included in the model were statistically different from zero in explaining economic growth (see results in the appendix)

Still on combined effect of financial development indicators on economic growth via the direct channel, regression 27 was run based on the model in equation 7. In this case the financial indicator was captured by QLLY while the rest of the variables are as explained in the preceding sections. However, none of the variables included in the model were statistically different from zero in explaining economic growth (see results in the appendix).

Still on combined effects of financial development indicators on economic growth through the direct channel, regression 28 was run based on the model in equation 7. In this case the financial indicator was captured by DCPY while the rest of the variables were as explained in the preceding sections. However, all the variables included in the model were not statistically significant in explaining economic growth (see results in the appendix).

Finally a series of four equations were estimated in the second level of the modelling system maintained so far to establish the combined effects of financial development indicators on economic growth through the indirect channel (Investment). These equations are based on the following model:

$$\Delta LogInvestment_t = \gamma_0 + \sum_{i-0}^{k} \gamma_{1i}\Delta LogFI_{t-i} + \sum_{i=0}^{k} \gamma_{2i}\Delta Fs\tan ce_t + \sum_{i=0}^{k} \gamma_{3i}\Delta\Delta LogLExrat_t + \gamma_4 D1$$
$$+\gamma_5 D2 + \sum_{i=0}^{k} \gamma_{6i}\Delta Logcredit_t + \sum_{i=1}^{k} \gamma_{7i}\Delta LogInvestment_{t-i} + U_{8t} (8)$$

Thus, in this model FI was captured by M1Y in regression 29, LLY in regression 30, QLLY in regression 31 and LDCPY in regression 32. Therefore the results for regression 29 are as follows:

Table 4.36: Modelling DLinvestment by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	-0.038250	0.050785	-0.753	0.4584	0.0222
credit	0.10762	0.050028	2.151	0.0413	0.1562
DDLExrat	-0.29655	0.12185	-2.434	0.0224	0.1916

R^2 = 0.292531 F(2, 25) = 5.1686 [0.0132] $\sigma = 0.267634$ DW = 2.63

RSS = 1.790702253 for 3 variables and 28 observations

AR 1- 2 F (2, 23) = 1.5785 [0.2278]

ARCH 1 F (1, 23) = 0.14854 [0.7035]

Normality Chi^2(2) = 0.29245 [0.8640]

Xi^2 F (4, 20) = 0.26909 [0.8944]

Xi*Xj F (5, 19) = 0.21796 [0.9504]

RESET F (1, 24) = 0.17805 [0.6768]

Of the variables included in the model credit and the exchange rate variable were statistically different from zero at 5% level of significance in explaining economic growth through the investment channel. Moreover the coefficient of credit had the correct sign which agrees with the findings of King and Levine (1992) that the measure of asset distribution by the financial intermediaries to the non-bank private sector was positively and significantly related to economic growth.

Therefore when the financial development indicators are taken together, credit has a significant positive effect on economic growth while the exchange rate has a negative effect on economic growth through the indirect channel. Thus once more there is some evidence that the way assets are distributed by the financial intermediaries to the private sector may have a positive effect on the efficient utilisation of resources and in so doing improve economic growth (see King and Levine, 1992).

Regarding the diagnostic test statistics the model performed satisfactorily, since there was no sign of residual autocorrelation. Normality and homoscedasticity of the residuals were accepted.

Still on combined effects of financial development indicators on economic growth, the second equation is estimated where FI is captured by LLY and the rest of the variables are as explained in the preceding sections. The results are shown in table 4.37.

With an exception of DLLY and the exchange rate variable (Exrat), all the variables included in the model were not statistically significantly different from zero in explaining economic growth. The coefficient sign for the change in LLY is positive implying that the financial size indicator had a positive effect on economic growth. This agrees with the findings of King and Levine (1992) that financial size indicators are positively and significantly related to economic growth.

As for the diagnostic test statistics the model performed satisfactorily, since there was no sign of residual autocorrelation. Normality and homoscedasticity of the residuals were accepted.

Table 4.37: Modelling DLinvestment by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	-0.0075882	0.051799	-0.146	0.8847	0.0009
DLLLY_2	0.049665	0.023830	2.084	0.0475	0.1480
DDLExrat	-0.29462	0.12242	-2.407	0.0238	0.1881

R^2 = 0.28569 F (2, 25) = 4.9994 [0.0149] σ = 0.268925 DW = 2.58

RSS = 1.808017478 for 3 variables and 28 observations

AR 1- 2 F (2, 23) = 1.1803 [0.3251]

ARCH 1 F (1, 23) = 0.19159 [0.6657]

Normality Chi^2 (2) = 0.34602 [0.8411]

Xi^2 F (4, 20) = 0.38504 [0.8167]

Xi*Xj F (5, 19) = 0.29556 [0.9094]

RESET F(1, 24) = 0.41668 [0.5247]

The third equation in the series was estimated, where the financial size indicator was proxied by QLLY. The rest of the variables in the model are as explained previously. Thus the results are shown in table 4.38.

Table 4.38: Modelling DLinvestment by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	1.1159	0.54218	2.058	0.0506	0.1500
LQLLY	-0.47336	0.21920	-2.159	0.0410	0.1627
credit	0.13500	0.050343	2.682	0.0130	0.2305
DLinvest_1	-0.41240	0.16559	-2.491	0.0201	0.2054

R^2 = 0.367052 F(3, 24) = 4.6393 [0.0107] σ = 0.258367 DW = 2.11

RSS = 1.602079784 for 4 variables and 28 observations

AR 1- 2F(2, 22) =	1.5386	[0.2369]
ARCH 1 F(1, 22) =	0.042026	[0.8395]
Normality Chi^2(2)=	0.9202	[0.6312]
Xi^2 F(6, 17) =	0.3151	[0.9202]
Xi*Xj F(9, 14) =	0.27582	[0.9711]
RESET F(1, 23) =	1.5449	[0.2264]

The lagged dependent variable, QLLY, and credit were statistically different in explaining economic growth. The coefficients for the lagged dependent variable and QLLY are negative while that of credit has a positive sign. This means that the joint effect of the non-monetary financial depth (QLLY) and lagged dependent variable on economic growth is negative. Empirical results also shows that the distribution of assets by financial intermediaries to the private sector had a positive effect on the efficient utilisation of resources and in so doing enhanced economic growth.

As for the diagnostic test statistics the model performed satisfactorily, since there was no sign of residual autocorrelation. Normality and homoscedasticity of the residuals were accepted.

Finally, the last equation was estimated, where the financial size indicator was captured by LDCPY.

Table4.39: Modelling DLinvestment by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	$PartR^2$
Constant	-0.038250	0.050785	-0.753	0.4584	0.0222
DDLExrat	-0.29655	0.12185	-2.434	0.0224	0.1916
credit	0.10762	0.050028	2.151	0.0413	0.1562

R^2 = 0.292531 F(2, 25) = 5.1686 [0.0132] σ = 0.267634 DW = 2.63

RSS = 1.790702253 for 3 variables and 28 observations

AR 1- 2 F (2, 23) = 1.5785 [0.2278]

ARCH 1 F (1, 23) = 0.14854 [0.7035]

Normality Chi^2(2) = 0.29245 [0.8640]

Xi^2 F (4, 20) = 0.26909 [0.8944]

Xi*Xj F (5, 19) = 0.21796 [0.9504]

RESET F (1, 24) = 0.17805 [0.6768]

The rest of the variables in the model were as explained previously. Thus the results are shown in table 4.32.

Except for the exchange rate variable Exrat and the asset distribution indicator credit all the variables included in the model were not statistically different from zero in explaining economic growth. Moreover the coefficient of credit had a positive sign while that of the exchange rate variable was negative. This means that when exchange rate effects are accounted for, the measure of assets distributed by the financial intermediaries to the non-bank private sector and devoted to investment has a significant positive effect on economic growth.

4.5 Conclusion

In conclusion, it can be said that most financial size indicators were significant in most regressions on the investment part while there was no statistically significant relationship with economic growth via the per capita income channel. We may therefore conclude that over the period of study M1Y, LLY, QLLY and DCPY were important measures of the financial size of the economy through the investment channel but could not influence economic growth through per capita income.

Empirical evidence sheds more light on the channels linking economic growth with the financial indicators. Unlike the findings of King and Levine (1992) that several financial size indicators are positively and significantly related to economic growth, M1Y was not statistically significant in explaining economic growth at both 1% and 5% levels of significance via per capita income channel. Similarly, LLY, QLLY and DCPY could not influence economic growth through per capita income share. Therefore we may conclude that developments in the size of a financial system have no direct impact on economic growth.

Moreover, empirical results seem to suggest that during the period of study asset distribution by financial intermediaries to the non-financial private sector had no direct significant impact on economic growth. This is contrary to the findings of King and Levine (1992) that several financial size indicators are significantly related to economic growth. The relationship seems to run primarily through investment implying that asset distribution by financial intermediaries to the non-financial private sector had an indirect impact on economic growth.

Unlike the findings on the size of the financial system and asset distribution, financial repression had no statistical significant effect on economic growth both through the direct (RGrowth) and indirect (Investment) channels alike. The results are contrary to the findings of King and Levine (1992) which show that the relationship between repressed interest rates and economic growth run primarily through the indirect channel (Investment).

In addition, empirical results seem to suggest that information concerning the size of the financial system, institutions performing intermediary services and the recipients of credit by the financial system have independent explanatory power for economic growth.

Thus there is some evidence that once we account for which financial intermediaries are conducting financial intermediary services and to whom the financial system is allocating credit, overall financial system size is statistically and significantly related to the efficient use of resources and the share of resources devoted to investment.

Chapter 5

Summary and Policy Implications

5.0 Introduction

The study explored the empirical relationship between financial development indicators and long-run growth. Empirical results show that the development of a financial system has an indirect effect on economic growth. There was no direct link between the indicators of financial and economic growth. The study findings are at variance with the common assertion in the development literature. Thus, four broad findings emerge:

1. The size of a financial system is not statistically significantly related with economic growth through the direct channel (per capita income) while the relationship is negative and weak through the indirect part (investment).

2. The fraction of credit allocated to the private sector by financial intermediaries is not significantly related to economic growth through the direct part though there is a positive and significant impact through the indirect route.

3. Financial repression had no statistically significant impact on economic growth both through the direct and indirect routes alike.

4. The measure of assets distributed to the private sector (credit) was not significantly related to economic growth through the direct part even when

measures of the size of the financial system are included in the model. But the relationship to economic growth remained strong through the indirect part.

However, the aim of any financial development strategy is to encourage savers to hold their saving in the form of financial assets rather than unproductive tangible assets and in so doing ensure that investment is allocated efficiently to the socially most productive uses. The key is to provide incentives to induce increased saving, investment and production. To achieve these objectives there is therefore need to lay a proper foundation and facilitate the expansion of the financial system.

5.1. Recommendations

In order to develop a financial system that can finance the private sector efficiently and boost economic growth, certain measures need to be put in place. First there is need for adequate prudential supervision and regulation over financial institutions and transactions. This is to avoid a situation whereby even with a higher level of financial intermediation the effect on growth performance is seen to be negative due to a poor regulatory environment.

Therefore the following items are recommended:

1. Establishment of a wide financial market. Monetary authorities must facilitate the establishment of a wide array of financial institutions and assets which would allocate saving competitively to the most productive investors. One way of doing this is to encourage the private development of the financial system and motivate demand for its services by doing away with impeding institutional and other

obstacles of a legal or customary nature. The financial authorities should create an environment that is conducive to growth of both the economy and the financial system. Reliance is placed upon the market incentives to achieve an efficient allocation of resources.

2. Development of financial institutions with special functions. To ensure that a full spectrum of financial services are available, the central bank could assist in the development of financial institutions with special functions such as long-term credit development banks, agricultural and industrial credit co-operatives and saving institutions as well as regular commercial banks. Moreover, government could establish its own financial institutions or subsidise private financial functions. Alternatively, the monetary authority may encourage financial institutions to undertake a wide variety of functions. The deliberate creation of the supply of financial services may have positive and incentive effects. However, this supply -leading approach needs to be handled with caution and with the view of primarily eliminating bottleneck areas in the provision of financial services.

3. Proactive policies to ease intermediation constraints. The issue of high credit risks and transaction costs in dealing with small borrowers and savers calls for more proactive policies to ease constraints facing financial institutions in the intermediation function. Measures such as the decentralisation of lending and fragmentation of borrowing groups to optimise screening and monitoring of loans can reduce the overall intermediation costs and increase investment efficiency. The high opportunity cost of investible funds determined by the market rates prevailing in the curb market (informal sector) keeps the average efficiency of

aggregate investment high and deters entrepreneurs from undertaking lower yielding investments even when they had access to cheap bank funds.

4. Make informal financial institutions more productive. The general weakness of these informal institutions is that their loans are used to finance consumption rather than investment expenditures. They transfer the net saving of one group to finance dis-saving of other groups. Therefore monetary authorities need to work out possible ways of making these informal financial institutions more productive or use them for productive purposes while reducing their monopolistic powers through increased competition.

5. Development of linkages between formal and informal financial sectors. Consideration should go into developing linkages between the formal and informal financial sectors so that the latter becomes a conduit of loan-able funds of the formal institutions to reach borrowers otherwise rationed out. Such programs may lead to improved repayment rates as informal lenders screen and monitor a smaller group of borrowers on the basis of personal relationships. The development of better linkages could also lead to a financial system where the formal and informal markets could specialise and function complementarily as well as reinforce each other 's strengths.

6. Provision of divisible and convenient financial assets. In most cases a considerable portion of saving is used unproductively by large numbers of the poor in society. So to relocate such saving more productively requires provision of financial assets which can be denominated in smaller units, simple and convenient

to use. Bank offices may be too expensive to handle such deposits attracted in rural areas, in which case postal saving programs may be for some time the cheapest and most practical way to translate small rural saving into financial asset form.

7. Promote efficiency of financial intermediaries. It is also important to promote efficiency of financial intermediation and the allocation of scarce capital to its most productive uses. The monetary authorities may do this by encouraging financial institutions to allocate their funds into the type of investment activities where social marginal productivity is relatively high. Industrial plant and equipment investment, productive agricultural investment and land improvements are typical examples. Therefore there is need for providing long-term funds to finance such fixed investment.

8. The central bank could also take steps to make financial assets more attractive to individuals. The main thing is to develop and maintain full public confidence in the financial system. Additionally financial authorities need to encourage the creation of those financial assets that will compete effectively with unproductive real assets.

9. Improve inter-bank operations. There is need to improve the inter-bank money markets to eradicate the persistent mismatch of liquidity and portfolio positions of different financial institutions. This move would facilitate rapid and easy realignment of liquidity positions. Treasury bills dominate the inter-bank operations and other government short-dated stock issued as government's short-

term deficit financing instruments. Government stocks and bills are treated as almost 'risk-free' assets and often constitute a major component of their liquidity holdings. Use of other financial instruments such as commercial paper and inter-bank lines should be encouraged.

10. Effective interest rate policy. The competitive power of financial assets depends not only on their safety and liquidity but most importantly on their yield as well. So it is important to implement interest rate policies which will effectively enhance competition between financial assets and real assets as well as encourage capital-intensive techniques of production.

11. Adopt broad economic policies. In order to encourage financial intermediation as a means of obtaining more resources for economic growth and of allocating resources efficiently the monetary authorities have to pursue broad economic policies which not only promote growth directly but enhance public confidence in the financial system.

Finally, while economists have made important strides in the field of finance, there is still need for more research on financial development. More work is needed to help establish if there are long-run economic growth advantages to adopting legal and policy changes that create one type of financial structure vis-à-vis another. Furthermore, more light must be shed on the determinants and implications of financial structure. Such analytical work would move the world closer to a comprehensive view of financial development and economic growth.

References

1. Bagehot Walter, (1873), "Lombard Street", Homewood, IL: Richard D. Irwin
2. Bank of Zambia, *Annual Reports* (Lusaka: Bank of Zambia 1968-1998).
3. Bencivenga, V.R. and B. D. Smith (1991), "Financial Intermediation and Endogenous Growth", *The Review of economic Studies*, April, 195-209
4. De Gregorio J, (1992), "Economic Growth in Latin America", Journal of Development Economics Vol.39, No1, pp 59-84
5. DE Gregorio J and P. E. Guidotti (1995) " Financial Development and Economic Growth", *World development*, vol.23 No.3, pp.433-448, 1995.
6. DE Gregorio J and P. E. Guidotti (1995) "Public Policies and Private Savings and Investment in Sub-Saharan Africa, An Empirical Investigation; *IMF Working Paper.*
7. Fry (1997), "In Favour of Financial Liberalisation. "*The Economic Journal, Vol. 107.*
8. Gelb Alan, "Financial Policies, Growth and Efficiency, World Bank Working Paper No.202, 1989.
9. Gertler, M. and A. Rose (1991) "Finance, Growth, and Public Policy" Mimeo. New York University.
10. Greenwood, Jeremy, and Boyan, Jovanovic. (1990)." Financial development, Growth and the Distribution of income." *Journal of Political Economy*, 98 (5,I,October):1076-1107
11. Goldsmith, R. W. (1969) "Financial Structure and Development", (New Haven: Yale University Press). New Haven: Yale University Press.

12. Gupta, K. L (1984), "Finance and Economic Growth in Developing Countries", Groom Helm, London

13. Gujarati D.N. (1995) " Basic econometrics", McGraw-Hill Book Co.

14. Hicks J (1969) " A Theory of Economic History", Oxford Claredon Press.

15. Jappelli T and Pagano M (1994) "Saving, Growth and Liquidity Constraints," Quarterly journal of Economics, Feb. pp 83-110.

16. Johasen S.(1988) " Statistical Analysis of Cointegration Vectors", *Journal of Economic Dynamics and Control,* Vol. 1, No. 1.

17. Kalyalya, D and Lushinga. J (1996), "Development of Domestic Money Market in Zambia": Lusaka.

18. Kani, F. (1996), "Central Banking and Macro Economic Stability", Lusaka.

19. King, R. G. and Levine, R (1992) " Financial Indicators and Growth", *IMF Working Paper.*

20. King, R. G. and Levine, R (1992)"Finance and Entrepreneurship and Growth: Theory and Evidence", 32 (3), *Journal of Monetary Economics*, pp. 513-42.

21. King, R. G. and Levine, R (1993a)" Financial Intermediation and Economic Development in *Financial Intermediation in the Construction of Europe*", Eds.: COLIN MAYER AND XAVIER VIVES. London: Centre for Economic Policy Research, pp156-89.

22. Knight Frank., "Economic Organisation". New York Harper Torch Books, Harper and ROW, 1951.

23. Levine R (1997) " Financial Development and Economic Growth":

24. Jung, W. S. (1986), " Financial Development and Economic Growth: *International Evidence, Economic Development and Cultural Change*

25. Lawrence Harris, (1996), "International Financial Liberalisation Policies", Lusaka.

26. Lucas, Robert E, JR, (1988), pp3-42 " On the Mechanics of Economic Development", *Journal of Monetary Economics*

27. Mathieson, Donald, J. (1980), "Financial Reform and Stabilisation Policy in a Developing Economy", *Journal of Development Economics.*

28. McKinnon, R. I. (1973), "Money and Capital in Economic Development, Washington, D C: Brookings Institution.

29. Meier, GM and Seers, D. (1984), *Pioneers in Development.* New York: Oxford U. Press

30. Montiel, P. J. (1986), "Financial Policies and Economic Growth: Theory, Evidence and country-specific Experience from sub-Saharan Africa", *African Economic Research Consortium Special paper* 18, April.

31. Musokotwane S, (1985), "Financial Institutions and Economic Development in Zambia".

32. Mwansa L, (1998), Determinants of Inflation in Zambia, Goteborg Sweden.

33. Mwenda A, *(1993)*, "Credit Rationing and Investment Behaviour under Market Perfection: Evidence from Commercial Agriculture in Zambia, Gothenburg, Sweden.

34. Mwenda A, (1996), "Foreign Exchange Liberalisation in Zambia Nature, Performance and Prospects.

35. Neal C.R. (1988) “Macro-Financial Indicators For One Hundred Seventeen Developing and Industrial Countries” Background Paper for the *World Development Report,* 1989, World Bank.

36. Owusu - Boachie, K. (1996), "An analysis of The Impact of Financial Development on Economic Growth in Ghana". A Dissertation for Master of Arts (Economics).

37. Pagano, M. (1993), Financial Markets and Growth: An Overview, *European Economic Review.*

38. Robison, J. (1952), " the Generalisation of the General Theory", in *The rate of interest and other essays.* London: Macmillan, pp 67-142.

39. Seck, D and El-Nil, Y. H. (1993) " Financial Liberalisation in Africa", *World Development* Vol. 21 No11 1867-1881, Pergamon Press, U.K

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

41. Schumpeter Joseph A. (1911), "The Theory of Economic Development" Cambridge, MA, Harvard University Press.

42. Stern, N. (1989), The Economics Development: A Survey, *Economic Journal.*

43. Stiglitz J. (1993), "The role of state in financial markets", *In proceedings of the World Bank Annual Conference on Development* Washington D.C. World Bank.

44. Stiglitz, Joseph E, and Andrew Weiss, (1981) "Credit Rationing in Markets with imperfect Information", *American Economic Review*, June 1981,71(3), pp 393-410

45. Taylor, L. (1983), Structuralist Macroeconomics: Applicable Models for the Third World, New York: Basic Books.

46. Tobin, J, (1969), "A General Equilibrium Approach to Monetary Approach, *Essays in Economics*, Chicago.

47. Tobin, J, (1965), "Money and Economic Growth," *Econometrica*, October, pp 671-84.

48. WORLD BANK,(1989) *World_Development Report*, Washington DC: Oxford University Press.

Appendix 1

Table 4.8: Modelling RGROWTH by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	Part R^2
Constant	-0.014206	0.011129	-1.277	0.2151	0.0690
DLM1Y	-0.071911	0.056151	-1.281	0.2136	0.0694
DLM1Y_2	-0.094443	0.061559	-1.534	0.1392	0.0966
DFstance	0.00092472	0.00055688	1.661	0.1110	0.1114
DDLExrat	0.0060442	0.019750	0.306	0.7625	0.004
D1	-0.013749	0.017143	-0.802	0.4311	0.0284
RGROWTH_1	-0.32135	0.19334	-1.662	0.1107	0.1116

R^2 = 0.250313 F 6, 22) = 1.2243 [0.3317] σ = 0.0406077 DW = 1.96

RSS = 0.03627773497 for 7 variables and 29 observations

AR 1- 2F(2, 20) = 0.025392 [0.9750]

ARCH 1 F(1, 20) = 1.4734 [0.2389]

Normality $Chi^2(2)$= 0.74136 [0.6903]

Xi^2 F(11, 10) = 0.29551 [0.9712]

RESET F(1, 21) = 1.3073 [0.2658]

Table 4.9: Modelling RGROWTH by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	-0.019623	0.012617	-1.555	0.1356	0.1079
DLLLY	-0.067881	0.054649	-1.242	0.2286	0.0716
DLLLY_2	-0.0061329	0.0039145	-1.567	0.1329	0.1093
DFStance	0.00093815	0.00060503	1.551	0.1367	0.1073
DDLExrat	0.0040870	0.020613	0.198	0.8448	0.0020
D1	0.0034859	0.016294	0.214	0.8328	0.0023
RGROWTH_1	-0.22596	0.20298	-1.113	0.2788	0.0583
RGROWTH_2	0.075095	0.21629	0.347	0.7321	0.0060

R^2 = 0.284328 F (7, 20) = 1.1351 [0.3811] σ = 0.0415246 DW = 1.91

RSS = 0.03448581155 for 8 variables and 28 observations

AR 1- 2F (2, 18) = 1.5973 [0.2298]

ARCH 1 F (1, 18) = 1.0182 [0.3263]

Normality Chi^2(2) = 0.78611 [0.6750]

Xi^2 F (13, 6) = 0.68993 [0.7306]

RESET F (1, 19) = 1.9902 [0.1745]

Table 4.10: Modelling RGROWTH by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	0.086660	0.067819	1.278	0.2135	0.0637
LQLLY	-0.070413	0.043543	-1.617	0.1189	0.0983
LQLLY_1	0.028491	0.036637	0.778	0.4444	0.0246
DFStance	.00060335	0.00054549	1.106	0.2797	0.0485
DDLExrat	0.010537	0.020751	0.508	0.6163	0.0106
RGROWTH_1	-0.31673	0.19542	-1.621	0.1181	0.0987

R^2 = 0.224787 F (5, 24) = 1.3918 [0.2626] σ = 0.0400657 DW = 1.91

RSS = 0.03852627209 for 6 variables and 30 observations

AR 1- 2F (2, 22) = 0.51587 [0.6040]

ARCH 1 F (1, 22) = 2.0618 [0.1651]

Normality Chi^2 (2) = 1.3707 [0.5039]

Xi^2 F (10, 13) = 0.48172 [0.8739]

Xi*Xj F (20, 3) = 0.17191 [0.9950]

RESET F (1, 23) = 3.6439 [0.0688]

Table4.11: Modelling RGROWTH by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	-0.012563	0.012831	-0.979	0.3386	0.0437
DLDCPY	-0.017960	0.046609	-0.385	0.7039	0.0070
DLDCPY_1	-0.039579	0.039700	-0.997	0.3301	0.0452
DLDCPY_2	-0.038577	0.048156	-0.801	0.4320	0.0297
DFStance	0.00076572	0.00058444	1.310	0.2043	0.0756
D1	-0.0095090	0.019405	-0.490	0.6292	0.0113
RGROWTH_1	-0.31477	0.21290	-1.478	0.1541	0.0943

R^2 = 0.192493 F (6, 21) = 0.83433 [0.5570] σ = 0.0430454 DW = 1.83

RSS = 0.03891102673 for 7 variables and 28 observations

AR 1- 2F (2, 19) = 0.12462 [0.8835]

ARCH 1 F (1, 19) = 1.5693 [0.2255]

Normality Chi^2 (2) = 2.2217 [0.3293]

Xi^2 F (11, 9) = 0.49037 [0.8679]

RESET F (1, 20) = 3.0477 [0.0962]

Table 4.12: Modelling DLInvestment by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	$PartR^2$
Constant	-0.11796	0.099020	-1.191	0.2499	0.0771
DLM1Y	-0.27604	0.50366	-0.548	0.5908	0.0174
DLM1Y_2	-0.43095	0.44412	-0.970	0.3455	0.0525
D1	0.047692	0.12732	0.375	0.7126	0.0082
DDLExrat	-0.066351	0.15093	-0.440	0.6658	0.0112
DFstance	-0.0029428	0.0044256	-0.665	0.5150	0.0253
DLinvest_1	-0.58948	0.27351	-2.155	0.0458	0.2146
DLinvest_2	-0.30366	0.25900	-1.172	0.2572	0.0748

R^2 = 0.311789 F (7, 17) = 1.1002 [0.4062] σ = 0.282562 DW = 2.15

RSS = 1.357302261 for 8 variables and 25 observations

AR 1- 2F (2, 15) = 1.5011 [0.2545]

ARCH 1 F (1, 15) = 0.33881 [0.5692]

Normality Chi^2 (2) = 0.26738 [0.8749]

Xi^2 F (13, 3) = 0.087828 [0.9994]

RESET F (1, 16) = 0.0035371 [0.9533]

Table4.13: Modelling DLInvestment by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	-0.060080	0.10046	-0.598	0.5573	0.0195
DLLLY	-0.86687	0.47875	-1.811	0.0869	0.1541
DLLLY_1	0.064473	0.49098	0.131	0.8970	0.0010
DLLLY_2	-0.077325	0.41215	-0.188	0.8533	0.0020
D1	0.020367	0.12838	0.159	0.8757	0.0014
DDLExrat	0.026648	0.14874	0.179	0.8598	0.0018
DFstance	-0.0035844	0.0052530	-0.682	0.5037	0.0252

R^2 = 0.175001 F (6, 18) = 0.63637 [0.6999] σ = 0.300655 DW = 2.69

RSS = 1.627078755 for 7 variables and 25 observations

AR 1- 2F (2, 16) = 2.2404 [0.1387]

ARCH 1 F (1, 16) = 0.31979 [0.5796]

Normality Chi^2 (2) = 0.32132 [0.8516]

Xi^2 F (11, 6) = 0.64413 [0.7506]

RESET F (1, 17) = 0.25492 [0.6201]

Table 4.15: Modelling DLInvestment by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	-0.048703	0.054463	-0.894	0.3805	0.0336
DLinvest_1	-0.38720	0.19237	-2.013	0.0560	0.1498

R^2 = 0.149769 F(1, 23) = 4.0515 [0.0560] σ = 0.270011 DW = 2.18

RSS = 1.676841189 for 2 variables and 25 observations

AR 1- 2 F (2, 21) = 2.2717 [0.1279]

ARCH 1 F (1, 21) = 0.0039978 [0.9502]

Normality Chi^2 (2) = 0.30267 [0.8596]

Xi^2 F (2, 20) = 0.0029549 [0.9970]

Xi*Xj F (2, 20) = 0.0029549 [0.9970]

RESET F (1, 22) = 1.5147 [0.2314]

Table 4.16: Modelling RGROWTH by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	-0.016667	0.011309	-1.474	0.1547	0.0899
DLM1Y	-0.077375	0.055205	-1.402	0.1750	0.0820
DLM1Y_2	-0.10065	0.060205	-1.672	0.1087	0.1127
D1	-0.011830	0.016732	-0.707	0.4869	0.0222
DFstance	0.00097004	0.00055117	1.760	0.0923	0.1234
credit	-0.0020586	0.0023376	-0.881	0.3880	0.0340
RGROWTH_1	-0.33106	0.18593	-1.781	0.0888	0.1260

$R^2 = 0.272757$ $F(6, 22) = 1.3752$ [0.2682] $\sigma = 0.0399953$ DW = 2.08

RSS = 0.03519167726 for 7 variables and 29 observations

AR 1- 2F (2, 20) = 0.20072 [0.8198]

ARCH 1 F (1, 20) = 1.235 [0.2796]

Normality $Chi^2(2)$ = 0.77461 [0.6789]

Xi^2 F (11, 10) = 0.23717 [0.9868]

RESET F (1, 21) = 1.3626 [0.2562]

Table 4.17: Modelling RGROWTH by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	-0.034055	0.014743	-2.310	0.0307	0.1952
DLLLY	-0.080194	0.048873	-1.641	0.1150	0.1090
DLLLY_2	-0.028658	0.019050	-1.504	0.1467	0.0933
DFstance	0.0010049	0.00054803	1.834	0.0803	0.1326
credit	0.048192	0.040071	1.203	0.2419	0.0617
RGROWTH_1	-0.31723	0.18821	-1.686	0.1060	0.1144

$R^2 = 0.322335$ $F(5, 22) = 2.0929$ [0.1047] $\sigma = 0.0385265$ DW = 1.89

RSS = 0.03265439418 for 6 variables and 28 observations

AR 1- 2F (2, 20) = 0.18731 [0.8306]

ARCH 1 F (1, 20) = 0.95777 [0.3394]

Normality $Chi^2(2)$ = 0.058222 [0.9713]

Xi^2 F (10, 11) = 0.88537 [0.5723]

RESET F (1, 21) = 2.3628 [0.1392]

Table 4.18: Modelling RGROWTH by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	0.066976	0.10585	0.633	0.5341	0.0196
LQLLY	-0.070129	0.049038	-1.430	0.1681	0.0928
LQLLY_1	0.036347	0.041539	0.875	0.3920	0.0369
DFstance	0.00072031	0.00058758	1.226	0.2345	0.0699
DDLExrat	0.0092778	0.022155	0.419	0.6798	0.0087
D1	0.0043381	0.016606	0.261	0.7966	0.0034
credit	-0.010633	0.0090798	-1.171	0.2553	0.0642
RGROWTH_1	-0.25357	0.21103	-1.202	0.2436	0.0673

R^2 = 0.275169 F (7, 20) = 1.0847 [0.4091] σ = 0.0417894 DW = 1.88

RSS = 0.03492715231 for 8 variables and 28 observations

AR 1- 2F(2, 18) = 0.80558 [0.4623]

ARCH 1 F(1, 18) = 1.3755 [0.2562]

Normality Chi^2(2)= 1.1616 [0.5594]

Xi^2 F(13, 6) = 0.26794 [0.9779]

RESET F(1, 19) = 2.4198 [0.1363]

Table4.19: Modelling RGROWTH by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	-0.011826	0.013036	-0.907	0.3751	0.0395
DLDCPY	0.0087242	0.046338	0.188	0.8526	0.0018
DLDCPY_1	-0.033224	0.040634	-0.818	0.4232	0.0323
DLDCPY_2	-0.020934	0.046293	-0.452	0.6560	0.0101
DFstance	0.00095805	0.00060553	1.582	0.1293	0.1112
DDLExrat	-0.0094766	0.020342	-0.466	0.6464	0.0107
D1	0.000042408	0.019269	0.002	0.9983	0.0000
credit	-0.012937	0.0085831	-1.507	0.1474	0.1020

R^2 = 0.207373 F (7, 20) = 0.74751 [0.6358] σ = 0.0437001 DW = 2.34

RSS = 0.03819399125 for 8 variables and 28 observations

AR 1- 2F (2, 18) = 0.43121 [0.6563]

ARCH 1 F (1, 18) = 2.2205 [0.1535]

Normality Chi^2(2) = 1.9268 [0.3816]

Xi^2 F (13, 6) = 0.46251 [0.8851]

RESET F(1, 19) = 3.5957 [0.0732]

Table 4.24:Modelling RGROWTH by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	-0.030017	0.010365	-2.896	0.0086	0.2854
DLM1Y	-0.076904	0.056070	-1.372	0.1847	0.0822
DLM1Y_2	-0.076487	0.056986	-1.342	0.1939	0.0790
DFstance	0.00092326	0.00054520	1.693	0.1052	0.1202
DDLExrat	0.0070654	0.019434	0.364	0.7198	0.0063
D2	0.023648	0.016452	1.437	0.1653	0.0896
RGROWTH_1	-0.35902	0.19522	-1.839	0.0801	0.1387

$R^2 = 0.30377$ F(6, 21) = 1.5271 [0.2180] $\sigma = 0.0399696$ DW = 2.08

RSS = 0.03354895901 for 7 variables and 28 observations

AR 1- 2F (2, 19) = 0.26522 [0.7698]

ARCH 1 F (1, 19) = 0.77093 [0.3909]

Normality Chi^2(2) = 0.669 [0.7157]

Xi^2 F (11, 9) = 0.32931 [0.9568]

RESET F (1, 20) = 0.016213 [0.9000]

Table 4.25: Modelling RGROWTH by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	-0.026474	0.0097380	-2.719	0.0129	0.2603
DLLLY	-0.084711	0.052119	-1.625	0.1190	0.1117
DLLLY_2	-0.0046721	0.0037665	-1.240	0.2285	0.0683
DFstance	0.00084269	0.00054731	1.540	0.1386	0.1014
DDLExrat	0.0068714	0.019369	0.355	0.7263	0.0060
D2	0.022376	0.017104	1.308	0.2049	0.0754
RGROWTH_1	-0.28874	0.18743	-1.541	0.1384	0.1015

R^2 = 0.333088 F(6, 21) = 1.7481 [0.1591] σ = 0.039119 DW = 2.08

RSS = 0.03213624393 for 7 variables and 28 observations

AR 1- 2F (2, 19) = 0.30313 [0.7420]

ARCH 1 F (1, 19) = 1.4371 [0.2453]

Normality Chi^2 (2) = 0.83548 [0.6585]

Xi^2 F (11, 9) = 1.4 [0.3118]

RESET F (1, 20) = 1.4398 [0.2442]

Table 4.26: Modelling RGROWTH by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	0.019911	0.13036	0.153	0.8801	0.0012
LQLLY	-0.068650	0.049308	-1.392	0.1791	0.0884
LQLLY_1	0.034952	0.049329	0.709	0.4868	0.0245
LQLLY_2	0.015833	0.044306	0.357	0.7246	0.0063
DFstance	0.00056375	0.00058545	0.963	0.3471	0.0443
DDLExrat	0.010659	0.022134	0.482	0.6353	0.0115
RGROWTH_1	-0.32612	0.21092	-1.546	0.1377	0.1068
D2	0.027149	0.024745	1.097	0.2856	0.0568

R^2 = 0.267968 F(7, 20) = 1.0459 [0.4318] σ = 0.0419965 DW = 1.93

RSS = 0.03527414746 for 8 variables and 28 observations

AR 1- 2F (2, 18) = 0.4239 [0.6609]

ARCH 1 F (1, 18) = 1.7212 [0.2060]

Normality Chi^2 (2) = 0.95482 [0.6204]

Xi^2 F(13, 6) = 0.31983 [0.9598]

RESET F(1, 19) = 1.0223 [0.3247]

Table 4.27: Modelling RGROWTH by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	$PartR^2$
Constant	-0.025996	0.011919	-2.181	0.0420	0.2002
DLDCPY	-0.044076	0.051001	-0.864	0.3983	0.0378
DLDCPY_1	-0.027084	0.041002	-0.661	0.5168	0.0224
DLDCPY_2	-0.038940	0.043754	-0.890	0.3846	0.0400
DFstance	0.00083889	0.00060803	1.380	0.1837	0.0911
DDLExrat	0.0053741	0.021660	0.248	0.8067	0.0032
D2	0.029050	0.019378	1.499	0.1503	0.1058
RGROWTH_1	-0.34826	0.22463	-1.550	0.1376	0.1123
RGROWTH_2	0.093215	0.24423	0.382	0.7069	0.0076

R^2 = 0.274634 F(8, 19) = 0.89921 [0.5365] σ = 0.0428909 DW = 2.02

RSS = 0.03495295313 for 9 variables and 28 observations

AR 1- 2F (2, 17) = 2.2867 [0.1320]

ARCH 1 F (1, 17) = 0.28641 [0.5995]

Normality Chi^2 (2) = 1.4079 [0.4946]

Xi^2 F (15, 3) = 0.59416 [0.7868]

RESET F (1, 18) = 2.2608 [0.1500]

Table 4.30: Modelling DLinvestmen by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	$PartR^2$
Constant	-0.028211	0.054911	-0.514	0.6121	0.0109
DLinvest_1	-0.29044	0.18768	-1.548	0.1348	0.0907

R^2 = 0.0907357 F (1, 24) = 2.395 [0.1348] σ = 0.279741 DW = 2.20

RSS = 1.87812077 for 2 variables and 26 observations

AR 1- 2F (2, 22) = 1.9774 [0.1623]

ARCH 1 F (1, 22) = 0.15797 [0.6949]

Normality Chi^2 (2) = 0.19757 [0.9059]

Xi^2 F (2, 21) = 0.1909 [0.8276]

F (2, 21) = 0.1909 [0.8276]

RESET F (1, 23) = 0.76735 [0.3901]

Table 4.31: Modelling RGROWTH by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	-0.026790	0.010592	-2.529	0.0199	0.2423
DLM1Y	-0.060933	0.057000	-1.069	0.2978	0.0541
DLM1Y_2	-0.085570	0.056857	-1.505	0.1479	0.1017
DFstance	0.0010768	0.00055391	1.944	0.0661	0.1589
DDLExrat	0.0061938	0.019235	0.322	0.7508	0.0052
D2	0.019204	0.016680	1.151	0.2632	0.0622
credit	-0.0097534	0.0080490	-1.212	0.2397	0.0684
RGROWTH_1	-0.31515	0.19644	-1.604	0.1243	0.1140

R^2 = 0.35139 F(7, 20) = 1.5479 [0.2083] σ = 0.0395312 DW = 2.10

RSS = 0.03125433776 for 8 variables and 28 observations

AR 1- 2F (2, 18) = 0.15453 [0.8579]

ARCH 1 F (1, 18) = 0.63644 [0.4354]

Normality Chi^2 (2) = 0.66295 [0.7179]

Xi^2 F (13, 6) = 0.18498 [0.9947]

RESET F (1, 19) = 0.41045 [0.5294]

Table 4.34: Modelling RGROWTH by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	-0.069561	0.14134	-0.492	0.6283	0.0126
LQLLY	-0.057385	0.048662	-1.179	0.2529	0.0682
LQLLY_1	0.048579	0.048972	0.992	0.3337	0.0492
LQLLY_2	0.027433	0.043902	0.625	0.5395	0.0201
DFstance	0.00072252	0.00058082	1.244	0.2286	0.0753
DDLExrat	0.0067521	0.021730	0.311	0.7594	0.0051
D2	0.034101	0.024581	1.387	0.1814	0.0920
credit	-0.013111	0.0090956	-1.441	0.1657	0.0986
RGROWTH_1	-0.25995	0.21052	-1.235	0.2320	0.0743

R^2 = 0.340129 F (8, 19) = 1.2242 [0.3377] σ = 0.0409087 DW = 2.15

RSS = 0.03179693359 for 9 variables and 28 observations

AR 1- 2F (2, 17) = 0.4705 [0.6326]

ARCH 1 F(1, 17) = 1.3735 [0.2574]

Normality Chi^2 (2) = 1.7067 [0.4260]

Xi^2 F (15, 3) = 0.14733 [0.9959]

RESET F (1, 18) = 1.2126 [0.2853]

Table 4.35: Modelling RGROWTH by OLS

Variable	Coefficient	Std.Error	t-value	t-prob	PartR^2
Constant	-0.023517	0.012072	-1.948	0.0672	0.1741
DLDCPY	-0.035561	0.051331	-0.693	0.4973	0.0260
DLDCPY_1	-0.023937	0.040892	-0.585	0.5656	0.0187
DLDCPY_2	-0.043762	0.043751	-1.000	0.3304	0.0527
DFstance	0.00095302	0.00061381	1.553	0.1379	0.1181
DDLExrat	0.0035447	0.021613	0.164	0.8716	0.0015
D2	0.024217	0.019778	1.224	0.2366	0.0769
credit	-0.0094665	0.0086506	-1.094	0.2882	0.0624
RGROWTH_1	-0.31691	0.22530	-1.407	0.1766	0.0990
RGROWTH_2	0.067843	0.24408	0.278	0.7842	0.0043

R^2 = 0.319882 F (9, 18) = 0.94067 [0.5154] σ = 0.0426697 DW = 1.96

RSS = 0.03277258862 for 10 variables and 28 observations

AR 1- 2F (2, 16) = 1.7619 [0.2034]

ARCH 1 F (1, 16) = 0.65081 [0.4317]

Normality Chi^2 (2) = 0.62714 [0.7308]

RESET F (1, 17) = 0.23448 [0.6344]

Appendix 2

Figure1: Indicators of Financial Development and Economic Growth

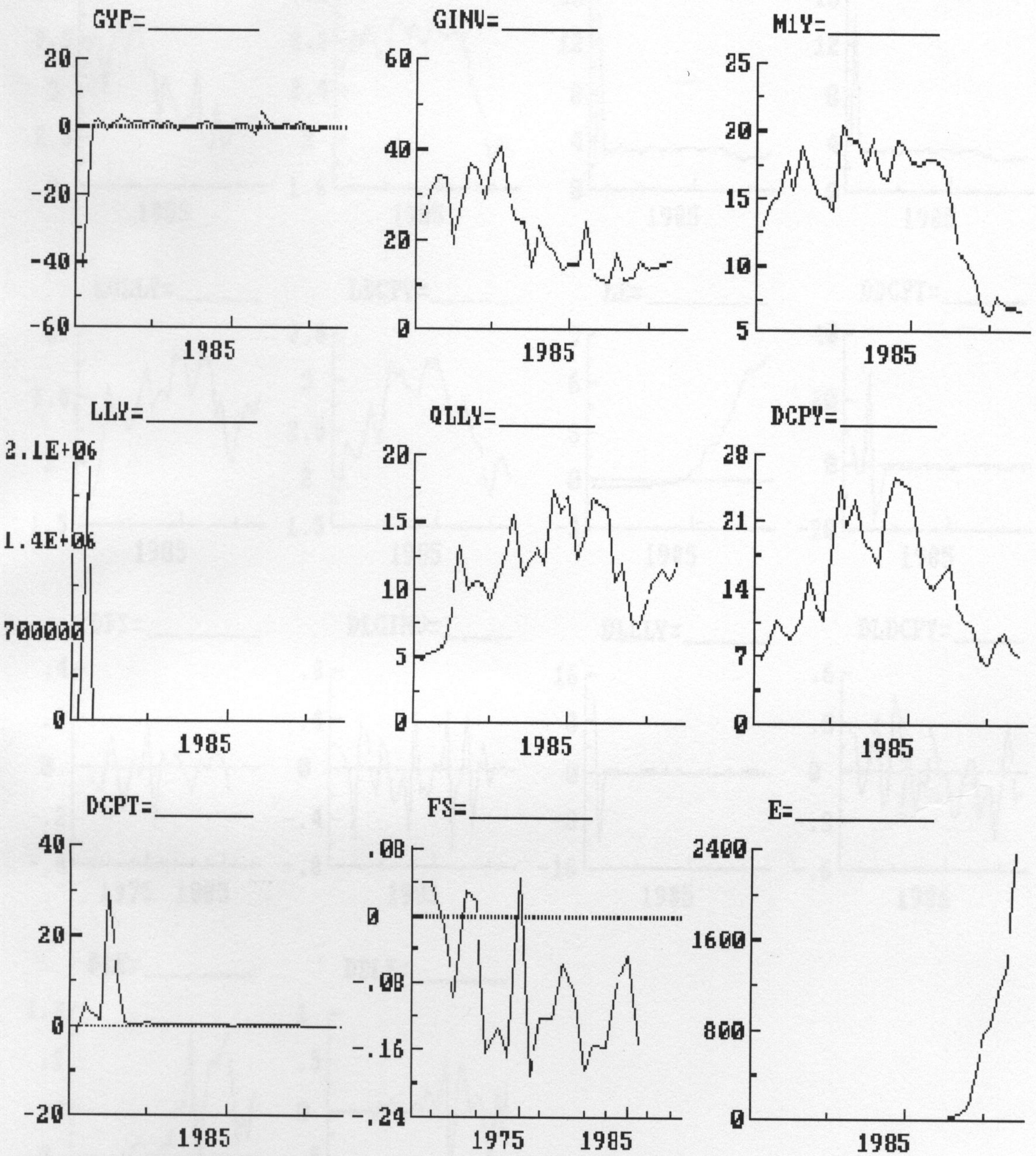
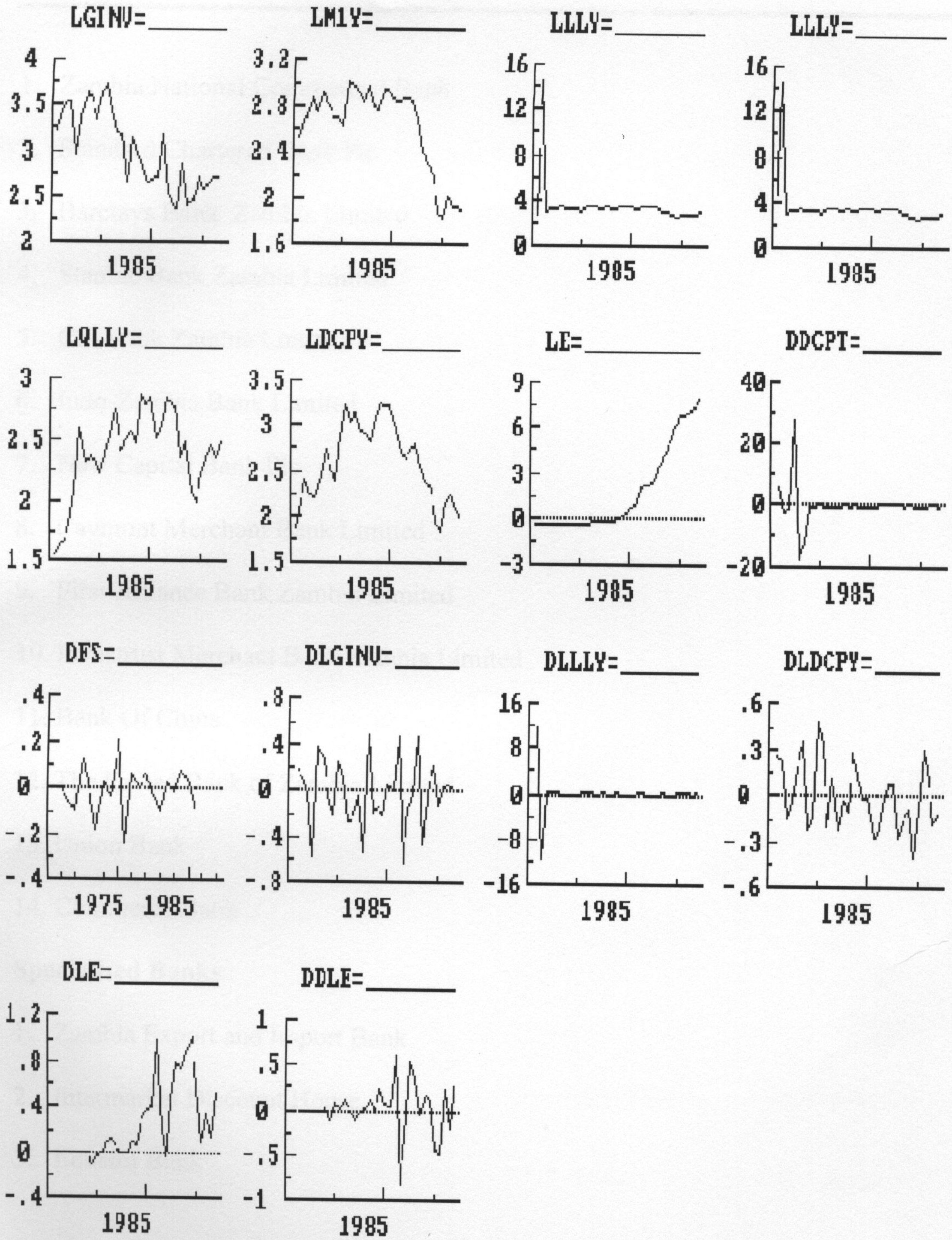


Figure 2: Indicators of Financial Development and Economic Growth



Appendix 3

Financial Institutions in Zambia as at December 1998

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1. Zambia National Commercial Bank
2. Standard Chartered Bank Plc
3. Barclays Bank Zambia Limited
4. Stanbic Bank Zambia Limited
5. Citi Bank Zambia Limited
6. Indo-Zambia Bank Limited
7. New Capital Bank Plc
8. Cavmont Merchant Bank Limited
9. First Alliance Bank Zambia Limited
10. Investrust Merchant Bank Zambia Limited
11. Bank Of China
12. The United Bank of Zambia Limited
13. Union Bank
14. Commerce Bank

Specialised Banks

1. Zambia Export and Import Bank
2. Intermarket Discount House
3. Equator Bank

Other Financial Intermediaries

1. Development Bank of Zambia

2. Zambia National Savings and Credit Bank
3. Finance Building Society
4. Lima bank
5. Small Industries Development Organisation
6. Zambia State Financing Company Limited
7. Zambia Venture Capital Fund Limited
8. Equator Advisory Services Limited
9. Industrial Credit Company Limited
10. ALS Capital Limited

Non-Bank Financial Intermediaries

1. IMS Financial Services
2. Credit Management Services
3. Christian Enterprise Trust of Zambia
4. Zambia National Provident Fund
5. Zambia State Insurance Corporation
6. Zambia National Insurance Brokers
7. Professional Insurance Company
8. Madison Insurance Company
9. Leasing Companies

Source: Bank of Zambia Supervision Report-1998, BOZ International Conference on Economic Liberalisation-1996.