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# Financial liberalisation in Sri Lanka: an econometric analysis

Ramsh Chandra Paudel  
University of Wollongong

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# **Financial Liberalisation in Sri Lanka: An Econometric Analysis**

**A Thesis Submitted In Partial Fulfilment Of The Requirements  
For The Award Of The Degree**

**Master by Research**

**From**



**University of Wollongong  
School of Economics and Information Systems  
Faculty of Commerce  
New South Wales, Australia**

**by**

**Ramesh Chandra Paudel**

Master of Economics (Tribhuvan University, Nepal)

Master of Business Administration (Tribhuvan University, Nepal)

Bachelor of Business Administration (Tribhuvan University, Nepal)

**March 2007**

## **CERTIFICATION**

I, Ramesh Chandra Paudel, hereby declare that this thesis, submitted in fulfilment of the requirements for the award of Master by Research, in the School of Economics and Information Systems of the Faculty of Commerce, University of Wollongong, is my own original work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

---

Ramesh Chandra Paudel

25/03/2007.

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## **ABBREVIATIONS**

ADB	: Asian Development Bank
ARDL	: Auto Regressive Distributed Lag
BMR	: Bond Market Reform
BO	: Bank Ownership
BOP	: Balance of Payments
BPR	: Banking Policy Reform
CAAL	: Capital Account Liberalisation
CAL	: Current Account Liberalisation
CEPP	: Centre for Economic and Public Policy
DRR	: Real Deposit Rate
ECM	: Error Correction Model
ECS	: Easing Credit Supply
ED	: Economic Development
EG	: Economic Growth
EPZ	: Export Processing Zones
FCBUs	: Foreign Currency Banking Units
FD	: Financial Development
FEECS	: Foreign Exchange Entitlement Certificate System
FIR	: Financial Interrelations Ratio
FL	: Financial Liberalisation
FLI	: Financial Liberalisation Index

FP	: Financial Performance
FSA	: Financial Service Agency
GDP	: Gross Domestic Products
GMM	: Generalised Method of Moments
GNI	: Gross National Income
IMES	: Institute for Monetary and Economic Studies
IMF	: International Monetary Fund
IPN	: Introduction of Prudential Norms
IR	: Institutional Reforms
IRD	: Interest Rate Deregulation
IRR	: Real Interest Rate
JVP	: Janatha Vimukthi Peramuna
LBCBR	: Log of Real Borrowing by Banks from Central Bank
LBMR	: Log of Real Broad Money
LCDR	: Log of Credit Deposit Ratio
LDCs	: Least Developing Countries
LERP	: Liberal Exchange Rate Policy
LFD	: Log of Financial Deepening
LGDPP	: Log of Per Capita Gross Domestic Product
LG DPR	: Log of Real Gross Domestic Product
LL	: Liquid Liabilities
LNMR	: Log of Real Narrow Money
LPBB	: Log of Average Population per Bank Branch
LRR	: Real Lending Rate
LTBCR	: Log of Real Total Bank Credit
LTDR	: Log of Real Time Deposits

LTTE	: Liberation Tigers of Tamil Eelam
LVBTP	: Log of Per Capita Volume of Banking Transaction
LVBTR	: Log of Volume of Banking Transaction
MMR	: Money Market Reform
NI	: National Income
NRFC	: Non Resident Foreign Currency
OECD	: Organisation for Economic co- operation and Development
OLS	: Ordinary Least Square
PA	: People Alliance
RFC	: Resident Foreign Currency
RFR	: Real Refinance Rate
RR	: Reserve Requirements
SACU	: Southern African Customs Union
SADC	: Southern African Development Community
SLFP	: Sri Lanka Freedom Party
SMR	: Share Market Reform
TL	: Trade Liberalisation
UNDP	: United Nations Development Programme.
UNF	: United National Front
UNP	: United National Party
VAR	: Vector Auto Regressive Model
WAEMU	: West African Economic and Monetary Union
WB	: World Bank

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## **ABSTRACT**

This study examines the impact of financial liberalisation on macroeconomic issues such as saving, investment, financial performance, financial sector widening, gross domestic product, and the money demands of Sri Lanka over the time series annual data from 1963 to 2005. Financial liberalisation in Sri Lanka commenced in since 1977 with most of the effort being made up to 1995. This study is based on empirical analysis using the Ordinary Least Square (OLS) base Auto Regressive Distributed Lag (ARDL) approach of cointegration, and includes a causality test.

This study contributes primarily where an evaluation of financial liberalisation impacts the financial liberalisation index as a proxy of financial liberalisation. The financial liberalisation index has been constructed with 13 policy instruments for its phase of implementation in the Sri Lankan economy.

The unit root tests were conducted by applying the DF (Dickey-Fuller), ADF (Augmented Dickey-Fuller) and PP (Phillips-Perron) methods. The cointegration tests were conducted to find out the long-run relationship among the variables concerned, and the ECM (Error Correction Model) version of ARDL was applied to test the speed of adjustment to equilibrium.

The empirical test results suggest that financial liberalisation in Sri Lanka has a mixed impact in the short term. The average population per bank branch, real interest rates, and real gross domestic product are key variables for widening the financial sector, while real gross domestic product was also a significant contributor towards widening the financial sector, which shows that economic growth fosters the country's financial sectors. The results showed that financial liberalisation did not widen the financial sector in the long term although it did in the short term through income led interest rates, savings, and investments. The results also show that financial liberalisation did not improve the financial performance of the economy, as was expected.

Our results reveal that financial liberalisation cannot by itself enhance economic growth in Sri Lanka unless followed by proper strategies with suitable sequential

procedures. The relationship between real narrow money and real broad money demand is studied with the conclusion being that the real lending rate has a significantly positive association while financial liberalisation has a significantly negative association within the narrow money demand over the long term. With broad money, the real gross domestic product and real lending rate are the key variables that have a positive association with the demand for broad money. Financial liberalisation has a significantly negative impact which means that an expansion in the demand for money is possible if economic growth is enhanced, which in turn increases real income, not by financial liberalisation as it has occurred.

This study found that in Sri Lanka the one-way causal relationship between economic growth and financial performance, based on the empirical results, showed that economic growth causes financial development and financial performance.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background**

A wave of financial liberalisation occurred in most developing countries during the 1970s and 1980s where the Central Bank arranged the financial system. This role was criticised by Goldsmith (1969), McKinnon (1973), and Shaw (1973) because the Central Banks focussed on the weakness of interest rate ceilings, directed credit, high reserve requirements and other quantitative restrictions in the financial system of a country; this is called *Financial Repression* which lowers the savings rate, credit ratios, and investments. They argue that this problem leads the whole economy towards recession and countered with a thesis of liberalisation, which emphasised a financial market without government intervention, and a determination of credit allocation by market forces.

Financial liberalisation removes restrictions on domestic financial agents and their access to capital from outside the domestic financial area, removes restrictions on the entry of foreign financial agents and dilutes controls on their operations in the domestic market so that easy access to resources can be established. Financial liberalisation has four major aspects. First, it substantially reduces government intervention in setting interest rates and allocating credit, second, it changes the structure of the financial sector by easing entry conditions and increases the autonomy of financial agents when mobilising resources and making investment in order to encourage competition, third, it creates regulations that are less interventionist but more transparent and which improve the accounting practices of financial institutions, and fourth, it involves policies that increase financial openness (Chandrasekhar 2004).

Since the mid 1980s the World Bank and International Monetary Fund (IMF) started to prescribe financial liberalisation as a basic framework for developing member countries to accelerate economic growth. Sri Lanka has been involved in this process since 1977. Many research studies have been conducted showing the relationship between financial liberalisation, financial development, and economic growth. Financial liberalisation is a process of financial

development which enhances financial performance by adopting market forces. Financial development refers to an increase in the number and performance of financial organisations, an expansion in the financial sector, a higher standard of financial institution, an upgraded quality of services provided by financial organisations, an increase in the ratio of financial assets to income, the quantity and quality of financial intermediaries that provide a better allocation of resources which results in a subsequently higher rate of productivity.

Goldsmith (1969) says financial development is the change in a financial structure over a longer or shorter term. Financial development with a good financial system accelerates the circulation of the factors of production, which provides better opportunities for economic growth; it is part of the economic development of a nation. Proper financial development not only helps discover suitable resources required for development but also guides the optimum utilisation of expenditure for public welfare and development activities. It is said that a well-developed financial system aids economic growth because it accelerates the performance of an economy by reducing the cost of information, transactions, and monitoring.

Creane, Goyal, Mobarak and Sab (2003) say that "financial repression"<sup>1</sup>, the condition of the policies with high inflation taxation, high service ratios, subsidised or direct credit, collusive contracts between public enterprises and banks, credit rationing ceilings on deposits and loan interest rates, are the major obstacles inhibiting the development and performance of the financial sector in developing countries,<sup>2</sup> and because of that there cannot be a substantial effort made for financial development. The supporters of financial liberalisation (FL) say that financial development seems to be a central issue, especially in developing countries, to enhance the quality of life and economic activities because proper financial development helps

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<sup>1</sup> The term "Financial Repression", used by McKinnon (1973) and Shaw (1973) is the economic situation with highly regulated financial sector by the government with interest rate ceilings on bank deposits and loan, directive credit allocation, heavy reserve requirement, all these lead the negative real deposit rates of interest and uncertain foreign exchange rates (McKinnon 1991, pp.11)

<sup>2</sup> Creane, Susan, Rishi Goyal, A. Mahifiq Mobarak and Randa Sab, 2003, Financial Development and Economic Growth in the Middle East and North Africa News letter of the Economic Research Forum for the Arab Countries, Vol.10, No. 2. This article is based on a study related with MENA region to analyse the financial development and economic growth relation. They have used over 100 quantitative and qualitative statistics for 20 MENA countries. They have found that interest rates are freely determined by MENA region, indirect monetary policy tools are applied, banking sector is well developed and public sector banks with government intervention dominate banking sector. Regulation and supervision are strong in most of the countries. Non-bank financial sector such as stock market, corporate bond market, insurance companies etc need further development and these countries have gradually opened up their current and capital accounts. Institutional environment comprising the quality of institution, bureaucracy, law and order, property right is poor.

increase aggregate demand, output, employment, and ultimately, overall economic growth. After the 1970s financial liberalisation became the focus of many scholars, researchers, and organisations arguing about whether financial liberalisation ultimately supports economic growth or not. In that context this study attempts to investigate the impact of financial liberalisation using the ARDL approach of cointegration, on the overall financial performance and economic growth of Sri Lanka. Section 2 of this chapter presents the objectives of the study and section 3 presents the organisation of this study.

## **1.2 Objectives of the Study**

The general objective of this study is to analyse the existing policies and programmes of financial liberalisation in Sri Lanka. The study aims to find out the impact of financial liberalisation on financial performance, and other important issues facing the economy i.e. interest rates, savings and investment, money demand, and how economic growth directly affects the living standards of the people. The following 6 hypotheses have been formed to study these issues:

- Financial liberalisation has helped to widen the financial sector in Sri Lanka
- FL has motivated domestic savings and investments in Sri Lanka.
- Financial Liberalisation has deepened the financial sector in Sri Lanka
- Financial Liberalisation has improved the financial sector in Sri Lanka
- Financial Liberalisation enhanced economic growth in Sri Lanka
- Financial Liberalisation contributed to increase the money demand in Sri Lanka.

These hypotheses have been tested by empirical tests, unit root tests, cointegration tests with the ARDL approach, and causality tests, to evaluate the overall impact of financial liberalisation on macroeconomic issues in Sri Lanka.

## **1.3 Organisation of the Study**

The major objective is to analyse the impact of FL on the major macroeconomic issues in Sri Lanka. Therefore the structure has been designed to present a clear picture of the different aspects of the Sri Lankan economy focusing on the performance of the financial and banking sector, expansion in money demand, and economic growth.

Chapter 1 presents the introductory part including the objectives and organisation of the study.

Chapter 2 presents a comprehensive review of financial liberalisation literature. The review is made in the light of the relationship between financial liberalisation and financial development, financial development and economic growth, and financial liberalisation in the Sri Lankan context.

Chapter 3 presents a brief overview of the Sri Lankan economy including various data and figures in different sub-sections.

Chapter 4 presents an overview of the Sri Lankan financial system including most financial sector scenarios since it began. Some of the indicators of financial liberalisation and the major objectives of financial liberalisation in Sri Lanka are also presented.

Chapter 5 is related with the Methodology used in this study where an aggregated framework has been developed to evaluate the impact of FL policy variables. A financial liberalisation index has been constructed to reflect the level and consequences of financial liberalisation using data from Sri Lanka, and then suitable hypotheses and models with their economic relationship have been set to conduct empirical tests on the impact of financial liberalisation on economic growth and other sectors of the economy. The impact of FL on interest rates, savings, investment, financial performance, money demand, and economic growth has been analysed; also explains the nature and sources of data used in this study.

Chapter 6 presents the empirical tests conducted using time series data of the variables to analyse the impact of financial liberalisation in Sri Lanka. Empirical tests consist of unit root tests, cointegration tests, and causality tests of the variables.

Chapter 7 presents a conclusion and summary of the findings and policy implications, contributions to and limitations of this study and brief direction for future research.

## **CHAPTER 2**

### **LITERATURE SURVEY**

#### **2.1 Introduction**

Since the 1970s Financial Liberalisation has become an important part of the financial system of most countries in the worldwide economy. McKinnon (1973) and Shaw (1973) criticised the financial systems of that period, particularly directed credit, interest rate ceilings, and entry barriers to the banking system as a repressive system responsible for the low performance of the financial sectors of the economy. Since then various organisations and individuals have carried out research and empirical studies using various methodologies and shown through their published materials the relationship between financial liberalisation, financial development, and economic growth. Some have shown the relationship between financial development and economic growth, some concentrated on financial liberalisation and economic growth; some were concerned with financial liberalisation, financial development, and economic growth. In this context some of the works are related to Sri Lanka but they are not current, did not use modern econometric methodologies and the data are not updated and coverage is narrow. This scenario motivates us to analyse the impact of financial liberalisation in Sri Lanka using current data and methodology.

This chapter presents a survey of financial liberalisation literature, which helps us to form a theoretical base, and is as follows:

- Section 2 presents different views and opinions contributing to the financial system on economic growth;
- Section 3 presents the different aspects of financial liberalisation in different subsections;
- Section 4 explores the link between financial development and economic growth;
- Section 5 presents empirical evidence for financial liberalisation through available literature;

- Section 6 reviews the literature of financial liberalisation in the context of Sri Lanka; and
- Section 7 presents brief concluding remarks.

## **2.2 Role of Financial System on Economic Growth**

The general assumption is that an appropriate financial system results in a better financial performance and contributes to economic growth. This is because it links household savings and corporate sector investment, which facilitates smooth consumption for the individual. It also generates varieties of investment opportunities and helps develop the risk bearing capacity of firms and industry. In short an appropriate financial system provides suitable financial intermediaries through institutions suited to the economy, mobilises resources and saving, and helps manage other factors of production by supplying funds and services. Proper development of a financial system enhances production as well as market activities and creates employment opportunities in the nation.

Allen and Oura (2004) examined how a financial system could achieve an optimal allocation of risk and then argued that it helps produce information and allocate capital for the advancement of an economy by the proper efforts of financial intermediaries.

Monnet and Quintin (2005, pp.7-8) have shown that different financial systems may be applied during similar stages of economic development. As an example they showed how banks play a leading role in Germany's financial system whereas the financial market is the leading player in the United States. They said "economies with different initial financial systems may continue to differ even if their fundamental characteristics become forever identical"<sup>3</sup> Bank intermediation was discouraged and financial intermediation was encouraged in the U. S. In the same situation Germany imposes legal barriers to entry into financial market while the U.S. has a longer history of financial markets with a more cost effective source of fund lending.

Controversial views are found not only on the role of a financial system but also the contribution of financial development to economic growth. How can a financial system

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<sup>3</sup> The authors mention the short history of two countries, which adopted different financial system. Bank activities have been regulated by states since 1836 in U.S. and the importance of the banks have been declined in 19<sup>th</sup> century but the banks become the major sources of funds in Germany. p. 7-8

contribute to economic growth? Does the financial system of a country affect its economic growth? Is the financial system a primary or secondary factor of growth? These are the major questions being debated among economists, of which there are three different schools of thought. The first is that a financial system plays an important role in economic growth; the second is that it plays a neutral role, while the third is that it plays a negative role. Robinson (1952), Lucas (1988), Stern (1989) states that economic development results in a good financial system and concludes that economic growth is the major one and financial development and a good financial system automatically follow economic growth. Another view emphasises financial development and financial performance for economic growth. Prominent economists such as Bagehot (1873), Schumpeter (1934) say that a financial system and financial development must be constructed and then the economic growth occurs automatically.

Some scholars have made remarkable impressions on the financial and economic sectors. Bagehot (1873) argued that emphasising the financial system helps mobilise capital in a nation while Schumpeter (1934) stated that well run banks and financial institutions identify entrepreneurs and encourage the technological innovations that make positive contributions to the economy.

Schumpeter clearly outlines the positive role of financial systems on economic growth. Hicks (1969) has pointed out the experience of England saying that financial development played a crucial role in igniting industrial development.

Patrick and Park (1994) have strongly argued the positive role of financial systems on economic growth. The financial market seems to lubricate the economy by providing liquid funds and the expertise required for investment and growth. A sentence by Levine (1997, p 692.), which is similar to Hicks, shows the significance of a financial system, “*The industrial revolution required large commitments of capital for long periods, The industrial revolution may not have occurred without this liquidity transformation.*” Indeed the role of the financial system on economic growth in this era of capital mobilisation in the global economy cannot be rejected.

Other economists have either rejected or ignored the role of a financial system in growth, while many authors and researchers argue that a financial system and financial development

are neutral and do not affect economic growth. Robinson (1952) argues that financial development primarily follows economic growth, the financial system does not matter, that economic growth develops entrepreneurship, and other variables of development bring financial development.

Lucas (1988) concludes that financial matters are over emphasised in economic growth and has ignored the financial system in his model of economic growth, only including physical and human capital and technological advancement as the major factors. A similar version is found with Stern (1989) in his review of development economics in that it does not include the financial system. Andres, Hernando & Lopez-Salido (1999) did not find any positive link between growth and financial development using the data of OECD countries. Their study revealed that the finance-growth link in industrialised countries is insignificant.

Another extreme view states that a financial system plays a negative role on economic growth. Wijnbergen (1982) and Buffie (1984) have explored this area where a formal financial system attracts funds from the market, basically the informal sector, but due to bank requirements cannot supply more credit than the informal sector, which ultimately reduces the supply of credit. That is why these authors argue that the financial system reduces the supply of domestic credit and is therefore harmful to the economy.

In spite of these different views most of the studies accept either a positive or neutral role for the financial system on economic growth. The view given by Allen & Oura (2004) is important in understanding the role of a financial system in the economic development and overall growth of a nation. In this regard the authors mention the discontinuous nature of growth i.e. booms with rapid growth and financial crisis, and urge that the role of the financial system is crucial within these various stages of growth. This paper suggests that for sustained economic growth, policy should be devoted to avoiding bubbles, contagion, and financial fragility. The authors stated that traditional growth literature concentrated on factor accumulation and innovation as the engine of growth while recent literature focused on the financial system as an important tool for economic growth and national development.

## **2.3 Financial Liberalisation**

Financial Liberalisation (FL) is a process of liberalising the financial system of an economy by reducing controls in interest rates, financial intermediaries, and markets. It emphasises the leading role of market forces in the financial sector. Since the 1970s FL has been one of the debatable issues with a variety of thoughts. Its supporters accept FL as a tool for financial development, better financial performance and financial system in a country. FL refers to a series of packages that allow the free entry and exit of foreign capital through investments, deregulation of interest rates, easy access of foreign financial institutions, removal or reduction in commercial bank's reserve requirements. Furthermore it is assumed that a foreign investor will buy domestic assets to help make more advanced domestic security markets integrate with the world capital market. Indeed it is a way to support the concept of an open economy. These statements assist our understanding of FL.

“Financial Liberalisation refers to a series of regulatory changes that allow foreign investors to buy domestic assets and domestic citizens to invest in foreign assets, which makes the domestic securities market an integral part of the world capital markets. The process is mainly defined as a series of regulatory changes that open up the capital markets to foreign investors with the introduction of depository receipts, country funds or equity capital flows to the emerging economy,” (Taskin & Muradoglu 2003, p. 1). FL has concerned with many aspects of economy and growth. Some of the fundamental things of FL have been presented in the next sub-sections.

### **2.3.1 Financial Liberalisation Thesis**

Many economists have examined the role of financial liberalisation on development and economic growth and drawn different conclusions. McKinnon (1973) and Shaw (1973), enhancing the work of Schumpeter (1934), made the foundation for the thesis of financial liberalisation. Their thesis argues that government restriction on the banking system obstructs the flow of investments and degrades its quality and quantity. Pagano (1993) suggests that financial intermediaries can positively contribute to the economy. King & Levine (1993) clearly say that government intervention in the financial system has a negative effect on the growth rate equilibrium. Gold Smith (1969), McKinnon (1973) and Shaw (1973) presented their views saying that the poor performance of developing economies is due to interest rate

ceilings, high reserve requirements, and quantitative restrictions in the credit allocation mechanism which causes financial repression that leads to low savings, credit rationing and low investment. They put forward a thesis of financial liberalisation suggesting a free financial market without intervention and a major role for market forces to allocate credit and other related factors.

Alternatively some other works have either ignored or opposed the financial liberalisation thesis. Arestis (2005) has evaluated the financial liberalisation thesis in the relationship between financial development and growth. He has reviewed some of the related issues, i.e. thesis, theory and policy implications, problems with financial liberalisation, the relationship between financial liberalisation and growth, and savings and investments. This paper concluded that there was no convincing empirical evidence to support the proposition of a financial liberalisation hypothesis. Bayoumi (1993) has examined the effects of financial deregulation on personal savings and argued that deregulation results in an exogenous short-run fall in savings but it increases the sensitivity of saving to wealth, income, real interest rates, and demographic factors.

### **2.3.2 Objectives of Financial Liberalisation**

Financial Liberalisation was introduced as a policy to improve the overall financial system in many of developing countries during the 1970s. It is basically aimed at providing better financial performance by increasing the supply of funds with proper allocation, improving efficiency in the financial system i.e. banking and other lending and borrowing institutions. One of the major objectives of financial liberalisation is to increase the savings and investment required for economic growth. It aims to improve the monetary transmission mechanism. For this reason a financial system should be open and have its major elements fixed by the market because real interest rate increases tend to boost savings so that investment increases. McKinnon (1973), Shaw (1973) clearly presented that the main objective of financial liberalisation is to increase the supply and improve the allocation of funds for investment so that the national economy can be boosted. They emphasise that the removal of interest rate ceilings would increase real interest rates and stimulate savings, and more savings will push more investment in the economy so that better financial and economic performance is possible.

Reinhart & Tokatlidis (2001), and Leaven (2003) stated that the explicit objective of FL is to increase interest rates from the low levels found in many developing economies that are substantially negative in real terms.

The objectives of financial liberalisation may differ country to country but some of the common objectives are summarised as follows:

- To increase supply and improve the allocation of funds for investment.  
(McKinnon 1973)
- To reduce directed credit programmes and make a competitive environment (Laeven 2003).
- To make strong financial intermediaries and financial market based on open economy (Weller 1999).
- To promote economic development by increasing savings, investment, and the productivity of capital and resources (Kaminsky and Schmukler 2003).
- To increase employment by mobilising savings and investment; and developing financial intermediaries (McKinnon 1973; Shaw 1973).

### **2.3.3 Sequencing of Financial Liberalisation**

Sequencing of financial liberalisation refers to the steps to be followed in liberalising a financial system. Many scholars have emphasised financial liberalisation with some sequential process. They argue that financial liberalisation should be forwarded with some sort of basis that facilitate its success and have suggested some sequential procedures. McKinnon (1973) mentioned the critical role of the sequence and explained that the optimal order of liberalisation depends upon the phases of the economy which may differ from country to country. McKinnon explores the condition of balancing government finance, opening the domestic capital market with stable price levels, a free banking system, and interest rates set to a minimum reserve before liberalising foreign exchanges. Similarly he suggested liberalising the current account first then capital account last as an optimal order of liberalisation so the economy should be capable of controlling unwanted flights of capital at the same time.

Some economists emphasised the proper speed of FL to grab the opportunity of enhancing an economy created by a FL policy. Mehran and Laurens (1997) share this view, they say that if it is too fast its dangerous and if too slow, it harms financial reform. Therefore to determine appropriate sequencing, the relevant authorities should analyse the overall economy i.e. interest rates on loans and deposits, volume of transactions providing safe guards to the banks, and sufficient time for firms and individuals to adjust so that they could implement FL policy easily.

Macroeconomic stability is very important for an economy because inflation affects real interest rates at the beginning of FL policy. Inflation may be controlled through Government policy on monetary expansion using various measures. The principle of sequencing financial reform emphasises that control of international capital should be relaxed only after the domestic financial market has been reformed, with the most important aspect being to increase the domestic interest rate to an internationally competitive level. Furthermore, liberalisation of capital and current accounts to be made by removing capital controls and reducing tariffs (Bascom 1994).

Weller (1999) focused on the need for setting up institutions necessary for stabilisation purposes before opening their economies; liberalising without them may cause a banking and currency crisis. According to Weller these are essential tasks which must be done before any country liberalises its economy.

In the sequential process of FL Arphasil (2001) focuses on threats to financial stability caused by movements of capital that allows financial intermediaries to make risky investment and misallocate resources through frequent entry and exit from many institutions.

In relation to the speed of FL Schmidt- Hebbel and Serven (2002) focused on the same vision and said that excessively rapid financial reform leads to unsustainable credit and boom activities that ultimately cause a financial crisis. That is why prudential regulation and strong supervision of banks and financial institutions as well as other liberalised capital market segments are essential.

Andersen and Tarp (2003) focused on the sequential process if liberalisation is to be successful as a financial system. The author mentions that government involvement in the

capital market has resulted in inefficiencies and gives negative implications. A smoothly functioning financial system has a vital role in economic growth, but it should be applied in a suitable sequential order with sufficient time and an appropriate middle way for financial sector reform rather than haphazardly applying liberalisation.

Kaminsky and Schmukler (2003) also have an almost similar vision to McKinnon (1973). They conclude that liberalisation may be different because the phases of economic development vary from country to country. They mention that developed countries have to liberalise their stock market while developing countries have to liberalise their domestic financial sector.

Girma (2003) focuses on the matured liberalisation of the financial sector using financial crisis in East Asian countries as an example, otherwise FL could be dangerous for the economy. Therefore a gradual and cautious FL policy should be adopted.

Kwon (2004) has analysed the process in South Korea and concluded that due to wrong sequencing caused by pressure from the United States of America and international financial institutes, FL caused the financial crisis in 1997.

Gibson and Tsakalotos (1994) have presented one figure to make the process and chronological order of FL clear. They say that domestic financial liberalisation is to be made after the industrial & real sector liberalisation and before the external financial sector's liberalisation; otherwise credit flows from the banking sector to the protected industrial sector. If protection of the industrial sector is removed it suffers in many ways. Table 2.1 clearly shows that the domestic financial sector is to be freed before the external financial sector to control the flight of capital from the national economy.

Please see print copy for figure 2.1

Hagen and Zhang (2006) concluded that financial liberalisation causes domestic lenders and financial institutions to suffer from the negative effect of wealth over a long term, but domestic borrowers benefit by acquiring more productive resources over the long term. Therefore financial liberalisation should be implemented gradually to allow sufficient time for domestic agents and institution to adjust.

#### **2.3.4 Problems with Financial Liberalisation**

As other branch of literature FL also has its limitations and problems. Some scholars have explored these problems by focusing on its different sectors of weakness i.e. a reduction in welfare that reduces employment opportunities, removes the package to lower classes and creates problems in financial sector in different ways. The basic problems are due to weak institutions in developing countries, wrong order of implementation, and lack of strong commitment by government and policy makers.

Edward (1986) says that while the over all impact on welfare is positive there are possibilities that some sectors of the economy can lose by FL. He claims that the production of exportable and non-tradable goods will increase due to trade liberalisation (TL), and wages will increase with welfare in a segment of the labour market. On the other hand some imported products that are beneficial for the economy will be cut off or stopped, so this particular sector will lose welfare and suffer.

Kahkonen (1987) mentioned that a partial liberalisation of the financial sector may harm welfare. Mesa-Lago (1997) says that only the capital and Business sector may get major benefits from FL while labour and the poorer classes are compelled to suffer from a negative impact of FL that may create unemployment, reduce minimum wage rates and pensions, and increase the general market price of consumer goods whilst reducing social services, etc., all of which ultimately extends the inequality and poverty in a nation

Battle (1997) says that FL helps to increase the deposit rate with varieties of positive things to increase savings. A higher deposit rate causes a transfer of income from expenditure to savings that reduces the demand for non-traded goods. This means the excess supply of goods is cut off from employment which is why FL has a negative affect on welfare.

Critics of FL claim it creates a much more competitive market, removes subsidies and government no longer provides protection to the manufacturer and deprived sectors so they remain out of the main financial and credit facility stream which results in greater deprivation.

Wyplosz (2002) explores the possibility of increasing inequality at least at the initial stage of FL and suggests setting up sufficient and suitable mechanism for welfare before starting the process. Wyplosz used the data of 27 developed economies for the period of 1977-99 to examine whether FL is hazardous to the national economy and found it more destabilising in developing countries that pass through a boom-bust cycle than in developed countries. As an example of the fragility of FL the author cites those European and Asian countries that have grown fast over decades while retaining heavy handed financial restraints.

Daitoh (2003) argues that liberalisation in a developing economy may worsen welfare unless reform in the labour market is made in advance or simultaneously. The theory behind this is that if wage rates remain artificially high and interest rates artificially low that ultimately

leads to a decline in unemployment in a repressed financial system. Liberalisation on the other hand, tends to increase interest rates but does not reduce artificially high wage rates, a scenario that leads towards unemployment.

Morrison and White (2004) have stressed the importance of institutions in emerging markets, and suggested that if they are weak that means low ability to regulate the financial sector which causes welfare to decrease in the local market.

In this context Demirguc-Kunt and Detragiache (1998) concluded that FL increases the probability of a banking crisis but this varies depending on the strength of the institutional environment. They used the data of 53 countries for the period of 1980-95 to reach this conclusion and suggest a cautious approach to FL.

Arestis & Demetriades (1999) emphasised the need for strong institutions for FL because their absence allowed FL to create more problems than benefits in most of developing countries.

Some of the studies in this literature mentioned that FL had ambiguous effects on FD. Because the effects of FL policy vary from country to country Arestis, Demetriades and Fattouh 2002 argued that it is a complex process

It is generally assumed that financial liberalisation creates more competitive pressure for domestic banks due to global competition. Many emerging economies are bearing more risk because they have to face the problem of a currency and banking crisis after FL (Weller 1999). Weller used the data of 27 countries for the period of 1973 to 1998 to reach his conclusion. Demirguc-Kunt and Detragiache (2001) made almost similar findings and concluded that FL increases financial fragility as it makes banks and other financial intermediaries freer to deal with the risks that may lead to a banking crisis in the economy.

Dow (1996) suggests that abandoning financial repression as a tool to reduce costs may lead to high real interest rates that brings more government deficits. Therefore FL must be followed by fiscal reforms so that government debt will not explode, while simultaneously supervision and regulation of the banking sector must be effective. This paper agrees with the role of FL but suggests implementing financial liberalisation with some extra precautions and

preparations. This paper concludes that the transition phase of financial liberalisation without fiscal reform i.e., increased traditional tax revenue, high or constant government expenditure etc., may lead toward high government debt, economic instability and lower economic growth. The author presents the scenario of the failure of FL indicating goodbye financial repression, hello financial crash very attractively.

Some researchers emphasised the bank experienced in the international financial market due to FL. Wade (2001) is one of them, who argues that liberalising the financial sector and opening the capital account may be dangerous where there is a lack of experience dealing with international financial institutions. Wade further mentions the dangerous situation of a bank based financial system and a high burden of debt by the corporate sector in case of pegged exchange rate, and suggests that a bank and currency crisis may occur if the financial sector is regularly unsupervised.

Bascom (1994) explores the difficulties faced trying to implement a financial reform program in the case of a bank and financial crisis. Bascom says that financial reform causes a high and volatile interest rate that can lead towards corporate difficulties,<sup>4</sup> but on the other hand promoters of the new financial institutes may be motivated by easy financing for their business, which is not a positive thing for a nation's economy.

Khor (2000) evaluates financial liberalisation and concludes that FL without appropriate preparation is the major cause of the East Asian economic crisis, where now many of the affected countries are reviewing their approach to financial openness. The author suggests that developing nations need to urgently review financial and trade liberalisation.

Weller (2001) has used the data of 27 emerging economies for the period of 1973 to 1998 to analyse the banking and currency crisis before and after financial liberalisation. Using the univariate<sup>5</sup> and multivariate<sup>6</sup> analysis method the paper concluded that the probability of a currency crisis declines and the chances of a banking crisis increases after FL because it provides more liquidity so that many productive and speculative projects are possible. This

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<sup>4</sup> Corporate difficulties have been defined here as the problems to be faced by corporate sector i.e. problem of financing their operation, capital formation, extension of project with bank credit etc. in the economy.

<sup>5</sup> Univariate method is a tool to analyse the data using one variable of the economic event in econometrics.

<sup>6</sup> Multivariate method uses two or more than two variables for the analysis in econometrics.

situation may ultimately lead to borrower default and the outflow of international capital resulting in over valuation of the currency and a banking crisis.

Jappelli and Pagano (1994) analysed the role of the capital market on aggregate saving and growth due to financial deregulation. The authors concentrated on OECD countries using panel data for the period of 1960 to 1987 and concluded that financial deregulation in the 1980s has caused a decline in the national savings and growth rates of these countries.

Hoshi & Ito (2004) have made a critical review of the role of the Financial Services Agency<sup>7</sup> (FSA) for 6 years i.e. 1998 to 2004 in the state of failure of banking and insurance industries. The paper shows that the problem of the FSA not working aggressively may be because of political pressure and could not deal with non-performing loans, which was one of the major targets of the FSA, and could not control the ratio of failure of financial industries in Japan.

Demirguc-Kunt & Detragiache (1998) analysed the financial liberalisation and financial fragility covering 53 different countries. The study covers the period of 1980-1995 and uses econometric techniques to draw their conclusions. The paper emphasises institutional development either earlier or in the initial phase of liberalisation and suggests that with effective law enforcement, an efficient bureaucracy, corruption and any adverse effects could be controlled.

Chandrasekhar (2004) argues that financial policies in FL may lead to weak monitoring that results in greater financial fragility in a financial system because efforts to reduce poverty would be adversely affected. FL makes intermediaries free to allocate credit and creates an environment where credit facilities can be provided to the top echelon and corporate sector whilst restricting credit to the lower echelons of society. FL increases the urban bias of the financial sector in terms of access to financial resources and increases the fragility of the financial sector with possible bankruptcy and large-scale financial crisis.

These works generally represent the dark side of the financial liberalisation, which makes us favour a cautious approach to FL, albeit financial liberalisation is contributing to a growing economy in different ways, as other researchers highlight in another section of this chapter.

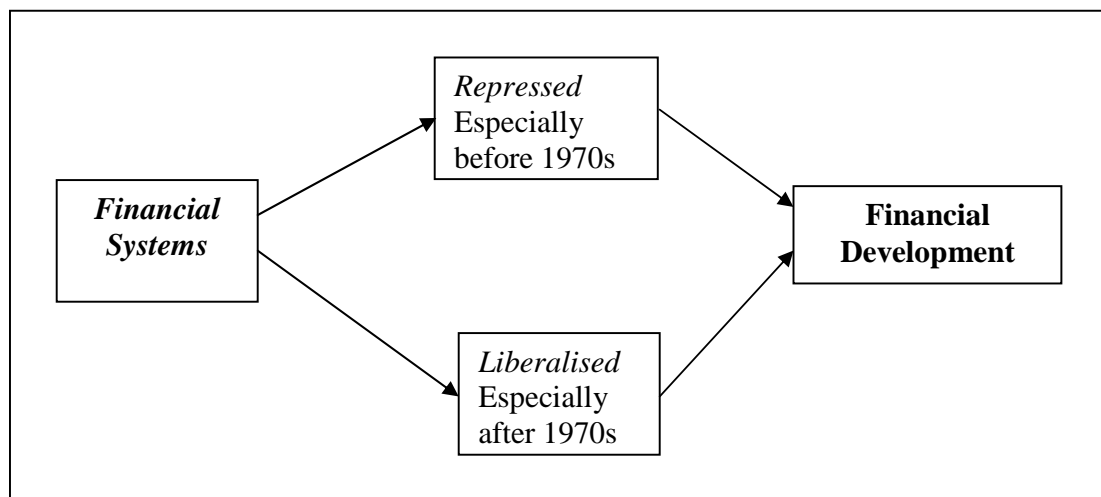
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<sup>7</sup> Financial Service Agency (FSA) was established in Japan on 1998 to work as the agency to supervise and enhance the financial system in Japan.

### 2.3.5 Financial Liberalisation and Financial Development

Financial Development refers to the ability of a financial system to enhance financial activities i.e., the number of banks, finance companies and other intermediaries. It also refers to credit flows, mobilisation of savings and an overall improvement in the financial environment that makes for economic growth. Indeed, an economist is concerned with financial liberalisation as it affects financial development (FD). Financial liberalisation is just a process that makes for a better financial performance, in other words the objective of FL is FP and ultimately, national economic growth. The concept of FL has had numerous concentrations since 1970s showing arguments that either support or reject FL.

**Figure 2.1: Ways of Financial Development**



*Source: Author Computed*

Figure 2.1 summarises that a regulated financial system was implemented in most developing countries while other countries were embracing a financial policy drawn from the positive aspects of the control and liberal economic system in place before the 1970s. FL is one of the methods used to improve financial development in an economy. The target is improved financial performance and economic growth in a country by either financial regulation or financial liberalisation. Financial liberalisation was adopted in most developing countries after the 1970s.

Edward (1989) explores FL targets to eliminate tariffs, free the financial sector, reduce distortions in the labour market, and relax control of capital for proper FD and EG. All these FL activities in the national economy increase the welfare of a nation.

Bhattarai (1998) suggests that financial liberalisation helps improve the distribution of income by raising the wage rate of rural labour. He says that more financial intermediaries provide more credit which increases the demand for labour and ultimately helps increase the wage rate.

Agung (1998) mentions the different responses to monetary policy. The author says monetary contraction does not significantly influence lending by state banks but led to a decline in lending by the smaller banks in Indonesia.

The data of 8 countries<sup>8</sup> for 25 years with different types of economies have been used by Bandiera, Honohan & Schiantarelli (2000) to analyse the effect of real interest rates on savings. They constructed a financial liberalisation index that considered interest rates, pro-competition measures, reserve requirements, directed credit, bank ownership, prudential regulation, capital account liberalisation, and deregulated securities markets in selected countries and concluded that there was no evidence of a positive effect of real interest rates on savings but in most cases there was negative relationship. The effects of the financial liberalisation index on savings amongst the countries are mixed so in this sense their findings are similar to Bayoume (1993).

Guha-Khasnobis and Bhaduri (2000) concluded that financial reform failed to improve the efficiency of investment allocation after 6 years of liberalisation in India. Somehow the views given by Mahambare and Subarmanyam (2000) are slightly different and suggest that economic liberalisation has depressed savings in the short term unlike the long term where it motivates savings through economic growth.

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<sup>8</sup> The authors have included the data of Chile, Ghana, Indonesia, Korea, Malaysia, Mexico, Turkey and Zimbabwe for the period of 1970-94 to construct the financial liberalization index in their study.

Arestis, Demetriades, Fattouh and Mouratidis (2002) explained the root of the impact of financial liberalisation policies on financial development using data from six countries<sup>9</sup> for the period of 1955 to 1997, and concluded that the effects of financial policies differ significantly among them. They mentioned that financial liberalisation is a much more complex process with ambiguous effects on financial development than its earlier assumptions. To reach these conclusions this study applied cointegration and the error correction model (ECM).

Kelly & Everett (2004) explained that structural changes and financial innovation have contributed positively to an increase in the elasticity of credit and that banks met their targets to fulfil the demand for loans. Financial liberalisation has enabled banks to contribute significantly to economic growth in Ireland.

Shrestha and Chowdhury (2005) examined the financial liberalisation hypothesis using the Auto Regressive Distributed Lag (ARDL) modelling approach in Nepalese data for the period 1970 to 2003. The paper concluded by showing the positive affect of the real interest rates on savings and investment.

Sylla (2006) has said that political unification helps make financial development that fosters business enterprises and economic growth within a competitive environment by giving easy access to the credit resources required for business activities.

Giannetti (2007) says that emerging economies enjoy low interest rates and experience lending and investment booms at the initial phase of liberalisation but the situation soon reverses. Therefore it needs greater transparency to reduce a banking crisis and maintain financial stability in the national economy.

### **2.3.6 Financial Liberalisation and Economic Growth**

Shrestha (2005) used the econometric methods with time series data and analysed the overall impact of financial liberalisation in Nepal. The study shows a mixed impact of financial

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<sup>9</sup> Greece, Thailand, Philippines, South Korea, India, and Egypt are included in the study with the variables like interest rate controls, reserve requirements, liquidity requirement etc., the study finds that Philippines, India and Egypt have long-run effects on financial development and in contrast such long-run effect not found in case of South Korea, Thailand and Greece.

liberalisation in economic growth and suggests an extension of banks in order to speed up financial development. This study does not show the causal relationship between financial development and economic growth that makes financial development and economic growth move independently. One important aspect of the study is that it argues that financial liberalisation has not improved financial performance and is negatively associated with income equality and financial stability, but it is positively associated with growth.

Laurenceson and Chai (2003) analysed financial reform in China. This study included the role of stock market in economic growth and has overviewed the domestic financial liberalisation and financial depth. It has shown that financial sector reforms have a positive contribution to economic development and that financial reform has assisted in channelling savings into investments with higher productivity. In this instance financial liberalisation helped boost the economy.

Nyawata & Bird (2004) used descriptive statistics to analyse the impact of financial liberalisation in the Southern African economy for the period of 1980 to 1999, with highlights from the global trends of financial liberalisation. The paper suggests not expecting too much unless complementary policies are set up because financial liberalisation in the absence of macroeconomic stabilisation is not sustainable. Competition in the financial sector without strong supervisory and regulatory frameworks cannot support economic growth so that financial liberalisation may generate neither economic success nor failure as predicted by advocates and critics respectively.

Singh (1997) evaluated the impact of financial liberalisation and stock markets on economic growth. The paper argued that financial liberalisation and associated expansion of the stock markets hinders their development. Stock market development is an important part of internal and external financial liberalisation but it cannot hasten industrialisation and faster long term economic growth in most developing countries. That leads to poor investments and the subsequent interaction between stock and currency markets destabilises the financial market, which ultimately reduces long term growth. Another important aspect of rapid development of the stock market is that it dominates the existing banking system. The paper concludes by saying that developing countries cannot afford the luxury of a stock market.

Demetriades and Luintel (1996) examined the relationship between financial policies and economic growth in Nepal for the period 1962 to 1992, and concluded that per capita income is positively associated with financial deepening and negatively with bank branches. King & Levine (1993) have used the cross section data of 80 countries for the period of 1960-89 to show that a highly significant positive relationship exists between the initial value of the ratio of liquid liabilities to GDP, and real per capita income. Demetriades and Hussein (1996) supported the results of King and Levine (1993), which showed a positive association between growth and the initial phase of FL, but they say the situation may be different in the long term.

### **2.3.7 Financial Liberalisation and Money Demand**

It is said that financial liberalisation creates an environment where there is an increase in the demand for money, either by increasing the financial resources to lead a supply-induced demand or by creating a suitable environment for making an investment in the economy. Wesso (2002) investigated the impact of financial liberalisation in broad money demand in the case of South Africa and found that money demand seems to be unstable because of financial liberalisation and technological changes over the long term.

Perera (1993) found that there is a long term demand function for broad money with real gross domestic product, interest rates, price levels and nominal effective exchange rate. The conclusion is that the tradition of modelling money demand is correct and interest rates plays a vital role in determining money demand, but the study is silent about financial liberalisation.

Perera (1993) is given by Verma (2001) exploring that the demand for narrow and broad money are dependent on price levels, income, interest rates and the net effective exchange rate. These variables play a key role in either increasing or decreasing the demand for money in the economy, although this study also does not relate to financial liberalisation in Sri Lanka.

Rother (1999) analysed the broad money demand in the West African Economic and Monetary Union (WAEMU) region and concluded that regional integration, financial liberalisation, and indirect monetary policy have created a potentially unstable money demand function that is very difficult to predict, especially in the smaller economies in the region.

Adam (1999) studied the case of Zambia and concluded that the uncertainty of variation in the demand for money increased after the liberalisation process started.

## **2.4 Financial Development and Economic Growth**

Financial development indicates the financial depth that includes both qualitative and quantitative measures of financial services. It is said that financial development enhances economic growth. Goldsmith (1969), in one of the pioneer works on financial development, has shown the positive relationship between financial development and economic growth using annual data for the duration of 1880 to 1963 from 35 countries. This study used the financial interrelation ratio (FIR)<sup>10</sup>. Goldsmith says the effects of financial super structure accelerate the economic growth and help improve economic development by facilitating the migration of funds to that place in the economic system where it will make a maximum social return.

Gupta (1984) has examined the role of domestic finance on the economic growth of developing countries and concluded that the direction of casualty has been changed from financial development to real development. The study tested the direction of casualty between financial development and real growth using the time series data from 14 developing countries. The study used Fisher's equation to examine financial repression and found considerable variation amongst the countries included in the sample. By the help of a single equation model of saving behaviour, the study examined the role of financial intermediation. The author has analysed the short-term effects of financial liberalisation on savings, investment, and income with a simultaneous equation model that shows considerable scope for the financial sector.

Economic growth is the central point of an economic development process. Jansen (1990) says that financial development could speed up economic growth if proper allocation and mobilisation of financial resources were made. Financial development helps maintain suitable structural changes, stability, and better monetary policy in the economy.

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<sup>10</sup> Goldsmith has derived FIR with the relation of the value of all financial instruments outstanding and the value of national wealth.

King & Levine (1993) conducted an empirical study and found that the higher levels of financial development are positively associated with faster economic growth. To reach this conclusion they used the data of 80 countries from 1960 to 1989 employing four indicators i.e. size of the formal financial system, credit allocated to private enterprise, bank deposits, and claims on the non financial private sector.

Patrick and Park (1994) mention the role of the financial development for economic growth in three countries, Japan, Korea, and Taiwan. The authors say that their financial systems and development broadly affect overall economic development. Financial development is a major part of economic development. Financial development generally begins with lending and borrowing dominated by organised lending institutions, eg, commercial banks, non-bank financial institutions, and varieties of money and capital markets. Financial development makes economic development easy.<sup>11</sup>

Valentiny (1994) evaluated the relationship between financial development, inflation and economic growth with the help of a two-sector endogenous growth model. The study shows the positive impact that financial liberalisation has on the per capita growth rate and negative impact on inflation. It suggests that the growth effect of inflation becomes modest if money facilitates the purchasing of investment goods.

Gregori & Guidotti (1995) examined the empirical relationship between long-term growth and financial development with the ratio between credit to the private sector and GDP using cross country samples and panel data for Latin America. This study found that these methods show that the assumptions are positively correlated with a different impact across countries and a negative impact respectively. The findings focus on transmission from financial development to economic growth instead of the volume and size of investment, and suggest that the removal of financial repression is essential and can be done successfully through an appropriate regulatory framework to avoid any costly financial crisis in the overall economy.

Berthelemy and Varoudakis (1996) made a study using large samples of across countries data. The study explored the presumption of a reciprocal influence between financial development

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<sup>11</sup> Patrick, Hugh T. & Yung Chul Park (1994), *The Financial Development of Japan, Korea and Taiwan*, Oxford University Press. p. 3, 9.

and economic growth. They emphasised developed financial sectors, which favour growth by mobilising savings. Moreover, the study demands a sufficiently developed financial sector for the proper mobility of capital and means, which must be invested by financing from its own funds. The study recommends a proper financial system in developing countries for economic growth because it plays a decisive role in mobilising and allocating the resources required for investment. As per the study, the development<sup>12</sup> of the financial sector is no doubt an engine of growth.

Demetriades and Hussein (1996) used time series data to conduct causality tests between financial development and real GDP. The paper concludes by supporting the view that finance is a leading element for economic development and that causality patterns differ across countries. In some instances the study found evidence that economic development systematically causes financial development and showed the bi-directional relationship between financial development and economic growth.

Becsi and Wang (1997) observed the important role that financial inter-mediation plays in an economy. The paper shows how a poor performance by the financial sector becomes very costly for society and suggests that developing a strong and healthy banking sector is necessary in the economy. It concludes by saying that financial intermediaries upgrade economic efficiency and ultimately economic growth as they allocate capital to its potential use.

Levine (1997)<sup>13</sup> explores the positive first order relationship between financial development and economic growth. Levine says that the level of financial development not only maintains a positive relationship with growth but it also helps predict the future rate of economic growth, capital accumulation, and technological change in the economy. The paper states that changes in technology, non-financial sector policies, and institutions influence the quality of financial services and structure of the financial system because technological advancement lowers the cost of transaction.

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<sup>12</sup> Bertheke Jean- Claude and Varoudakis Aristomene (1996) "Financial Development Policy and growth" Published by OECD, p. 125-129.

<sup>13</sup> Levine has very clearly explained in this paper that what the financial system does in the economy and how it affects the economic growth. In this context the author presents the theory saying financial instruments, markets and institutions etc. lower the transaction cost and helps to enhance the overall economic growth.

Ahmed and Ansari (1998) clearly mentioned the relationship between financial sector development and economic growth using the Granger Casualty Analysis for three major South Asian economies i.e. India, Pakistan, and Sri Lanka. The authors applied regression equations for the Cobb-Douglas production function to analyse the impact of financial sector development on economic growth. The article concludes by saying that financial sector development causes economic growth in the granger sense, and financial sector development has a significant role in the economic growth of these countries. The results are similar to Patrick (1966) where financial development contributes to economic growth in the initial phase of economic development.

Allen & Ndikumana (1998) analysed the role of financial intermediation to enhance economic growth in Southern African Development Community (SADC) and said the finance growth nexus is a long term phenomenon. They used various indicators<sup>14</sup> of financial development and concluded that it is positively correlated with the growth rate of real per capita GDP.

Khan (1999) analysed the relationship between financial development and economic growth to develop a theory of financial development based on the cost of external finance. The work concludes by stating that financial development reduces the costs of external finance, accelerates the rate of economic growth, and also predicts that financial development raises the return loans and reduces the spread between borrowing and lending rates.

Sinha and Macri (1999) studied the relationship between financial development and economic growth using data from eight Asian countries and concluded that there is a positive and significant relationship between income and financial variables for some countries, although the relationship is different. The study used the augmented production function with the financial development variable, multi-variate causality test between the growth rate of income, and the growth rates of financial development variables to reach this conclusion.

Khan & Senhadji (2000) examined the relationship between financial depth and growth covering the time series data for 30 years. Basically, the study included the banking system and the stock and bond market and found almost similar result as the previous studies. The

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<sup>14</sup> They have used the indicators in the regression i.e. percent of GDP, credit to the private sector, the volume of credit provided by banks, liquid liabilities of financial system and an index of these indicators.

study concludes by saying that financial depth is an important determinant of cross-country differences in growth. The study has used some financial depth indicators and estimation methods and mentions three debates i.e. issues related with the measurement of financial depth, direction of causality between financial depth and growth, and which financial system is to be known as the superior financial system, ie, bank based or market based.

Xu (2000) analysed the effects of permanent financial development on domestic investment and output covering the time series data of 41 countries. He used the Multivariate VAR framework with the popular economic variables to make the analysis i.e. real GDP, real domestic investment, and an index of financial development.. The study also explored the important role of FD on economic growth.

Rioja & Valev (2002) studied the effects of financial development on the sources of growth in different groups of countries with the panel data of 74 countries using the Generalised Method of Moments (GMM) dynamic panel techniques. They mentioned the strong positive influence of finance on productivity growth basically in developed economies, and noted that such growth occurs in less developed economies through capital accumulation. As with most of the other studies, this paper also includes the common financial development measures i.e. private credit, commercial Vs. Central Bank, Liquid Liabilities (LL) etc.

Hu (2002) has evaluated the relationship between banking development, stock market development, and economic growth using data from Taiwan from 1976 to 1998. The study has shown the causal relationship of the financial sector with economic growth. The work shows that repressions policies have no impact, that the direct credit program had a negative impact, and the positive effect of correcting financial market failures on Taiwan's economic growth. This work shows the significant impact of the change in the financial policy regime in late 1980 on the relationship between banks and stock markets and causality between financial sector development and economic growth. It mentioned that the banks and stock market played complementary roles during the financial repression before (1989), were later after financial liberalisation and became substitutional after 1989. The study was made using the macro-economic model and VAR method to identify the relationship between growth and financial development indicators.

Rousseau (2002) concentrated on examining the role of the financial sector in four developed countries i.e. Dutch Republic, England, the United States and Japan to promote the variety of economic activities in these economies. The study included those countries considered to have experienced a financial revolution over the past 400 years. It showed that the emergence of financial instruments, institutions, and markets across these countries has played a central role in enhancing trade, commerce, and industrialisation. Fase and Abma (2002) examine the empirical relationship between financial development and economic growth in nine emerging economies in South-East Asia covering the data for 25 years. The study focuses on financial reforms to improve economic growth in developing countries. The study has used the pooled data from across the countries and the balance sheet totals of the banking sector to measure of financial development.

Aziakpono (2004) studied the financial development and economic growth in Southern Africa. The paper shows the relevance of domestic financial intermediation in a financially integrated market using the experience of the Southern African Customs Union (SACU) and (Rand) common monetary area, and suggests that those countries with weak economic conditions should focus on improving their weak financial system in order to receive the benefits from financial intermediation. The study has used the panel data with econometric technique for the analysis.

Christopoulos & Tsionas (2004) investigated the long-term relationship between financial depth and economic growth using the relevant data through panel unit root tests, panel cointegration analysis, and the OLS method. It mentioned a single equilibrium relationship between financial depth, growth, and ancillary variables, where a cointegration relationship implies uni-directional causality from financial depth to growth. The study combined cross sectional and time series data to examine financial development and economic growth in developing countries.

Waqabaca (2004) examined the relationship between financial development and economic growth using the time series data for 30 years, but strictly in the context of Fiji. The study provides some support for reviewing the financial development of three decades with the empirical analysis through unit root tests, and cointegration tests with bi-variate vector autoregressive (bVAR) framework. It shows a positive relationship between financial

development and economic growth with the direction of causation running predominantly from economic growth to financial development. The author has tried to make a useful analysis in terms of financial institutions and markets with clear picture of their sizes, activities, efficiencies, and role in economy.

Auerbach and Siddiki (2004) evaluated the role of finance on economic development. They clearly mentioned the important arguments for and against FL and concluded that FL cannot positively contribute to the economy in the absence of a proper competitive financial environment.

Dritsakis and Adamopoulos (2004) examined the causal relationship of openness of the economy with financial development and economic growth. They used a multi-variate autoregressive VAR model for data from Greece from 1960 to 2000. They found the causal relationship between financial development and economic growth, a degree of openness in the economy, and economic growth.

Hondroyannis, Lolos & Papapetrou (2004) used VAR and ECM techniques to assess the relationship between development of the banking system and stock market and economic development in Greece from 1986-1999. The study showed the bi-directional causality between finance and growth in the long term and concluded that both the bank and stock market financing are useful for promoting economic growth over the long term whatever the effect. Another finding of the paper is that bank finances have a greater effect on growth than stock market finances.

## **2.5 Studies on Sri Lankan Financial Liberalisation and Economic Growth**

Sri Lanka started the process of Financial Liberalisation in 1977. Ravallion and Jayasuriya (1988) reviewed the impact of liberalisation in relation to inequality caused by FL in Sri Lanka. The paper states that capital market liberalisation helps reduce expenditure and inequality as the high-income group are motivated to save and the low-income group gains access to spending through credit. Alternatively the budgetary part of this policy reform shows that it significantly increases inequality in income and expenditure.

Athukorala and Rajapatirana (1993) said that private investment in Sri Lanka became more profitable after liberalisation and found evidence to support the McKinnon-Shaw hypothesis, which states that high real interest rate motivates financial savings in the overall economy.

Ghatak (1997) found similar conclusions to the MacKinnon – Shaw hypothesis showing the positive and significant effects of financial liberalisation on the economic growth of Sri Lanka during 1950 to 1987.

Verma (2001) analysed the results of financial liberalisation in Sri Lanka from 1977 to 1997 with quarterly data, and found significant growth in the number of financial institutions, financial instruments, and financial markets. The study used Johansen's cointegration methodology to analyse the long term money demand function and found that the demand for narrow and broad money depend on price levels, income, interest rates and the net effective exchange rate. The research suggests that the central bank of Sri Lanka should make a broad definition of money for monetary control in the country.

Olsen (2001) examined the utilisation of banking services at individual and household levels by considering demographic factors, economic factors, and socio-cultural factors on the demand side, and occupation related opportunities, regional supply, variations in the formal banking sector and consumer's ability to repay loans on the supply side. The paper used data for the year 1996/97 covering around 9,000 households in Sri Lanka. A multi-dimensional model with multi-level regression analysis and logistic regression analysis was used to analyse the flow of bank credit, other loans, and ethnic, occupational, income related, and personal factors related to the use of funds and professional moneylenders. The paper concluded by showing the relationship between credit and income (saving and income) in a cubic form.

Cooray (2003) mentioned the appreciable progress on financial structure expansion and deepening of financial markets, but it is still incomplete. She suggested that financial reform only could do nothing to promote efficiency in an economy unless policies and FL infrastructures are made supportive; therefore, substantial development of the financial sector is required for sustainable financial reform and development to support the economic growth of a nation.

These studies show that some attempts have been made to study the Sri Lankan financial system where the impact of financial liberalisation reveals an increasing number of financial intermediaries, building institutions. They basically suggested that financial liberalisation should be followed by strong policies and mechanisms for implementing them.

It was found that some of the data series are stationary and some non-stationary in the case of Sri Lanka, therefore the ARDL approach of cointegration gives more accurate results for the causal relationship (Laurenceson and Chai 2003). This shows that this OLS based ARDL approach of cointegration is the most accurate way of declaring the impact of FL in Sri Lanka. This shows the relevance of our study of Sri Lankan Financial Liberalisation.

## **2.6 Concluding Remarks**

These empirical studies have focused on different aspects of FL and its impact in the economy. They are related to different elements of the economy at various angles. Over the past two and half decades a wave of FL has motivated a large number of developed and developing countries to apply FL policy. Many scholars who have defined financial liberalisation as the pathway to financial development and economic growth in developing countries focused on four major aspects. The first is a substantial reduction in government intervention and allowing market forces to determine interest rates and allocate credit. The second is to change the structure of the financial sector by easing entry conditions and increasing the autonomy of financial agents when mobilising resources and making investments so that competition may be encouraged. The third aspect is to create a new structure of regulation that is less interventionist and more open to the private sector. The fourth is to recommend policies that increase the degree of financial openness to allow an easy flow of financial facilities inside and outside of a country. From these it can be concluded that financial liberalisation is not a result or an end, it is a process that liberalises the financial sector to increase financial performance.

FL removes restrictions on domestic financial agents in their access to capital and on the entry of foreign financial agents into domestic financial sectors. It dilutes the rules that control their operations in the domestic market and increase financial development to motivate savings and

investment, and increase the money circulation by a positive impact in the monetary mechanism.

It is clear that financial liberalisation and the financial system play controversial roles on economic growth. From this controversy three different viewpoints have emerged, i.e. some economists strongly accept the role of the financial system on economic growth, some strongly oppose it and say that the financial system follows the economic growth, while a third states that the financial system plays an ambiguous role in economic growth. Almost the same views are found concerning the impact of financial liberalisation on EG, FD, and ED with the causal relationship.

Economists using empirical analysis have found a diversified result and nature of FL to influence the determinants of development. Some works explore the positive causal relationship of FL with economic growth and say that it enhances the quality and quantity of growth determinants, while others say it neither harms nor makes any active contribution. On the other hand some works mentioned the negative role or causal relation of FL in these matters and clearly suggest that it increases poverty, income inequality, and ultimately harms the economy.

Financial liberalisation without strong building institutions, proper sequential processes, strong commitment from policy makers and macro-economic stability cannot provide the desired benefits to the national economy. The results depend upon the situation and may not follow the same orientation in all countries. Empirical evidence from different countries have also proved that the FL impacts on the economy differently. Basically the result is associated with the effort made by a nation to tackle the limitations or problems inherent with FL. Therefore policy makers should consider these problems or limitations while formulating the process so that the desired benefits and objectives are achievable.

All of these studies can be categorised as follows. The first focused on some special or particular aspect of liberalisation i.e. impact of financial liberalisation on savings, investments, and economic growth and its generalised overall impact on this base. The second category is that on which researchers have tried to analyse various aspects of liberalisation as fragmented parts of financial liberalisation, and the third category is the studies that have

included some extra variables directly related with the financial sector and overall economic liberalisation.

The literature studies show that some attempts have been made to study financial liberalisation in Sri Lanka with the major findings being that it had a mixed impact. They mentioned that the numbers of financial intermediaries, building institutions, banking systems and overall financial development has increased and suggest that financial liberalisation should be followed by strong policies to gain the benefits from FL. They studied Sri Lankan financial liberalisation in different issues but they did not mention its overall impact on major issues of macro-economic policy in the Sri Lankan context. This gap motivated us to examine the overall impact of FL on the major macro-economic issues of the Sri Lankan economy.

## **CHAPTER 3**

### **AN OVERVIEW OF SRI LANKAN ECONOMY**

#### **3.1 Background**

Sri Lanka is a South Asian Island located in the Indian Ocean with a total area of 65610 square kilometres. It has a total population of 19,668,000<sup>15</sup>. Sri Lanka, formally named Ceylon, became independent in 1948 and emerged unscathed from the Second World War and did not have to shed blood for its independence. Compared to other Asian countries Sri Lanka inherited a prosperous export sector and high level of education level from Britain. Politically, Sri Lanka was polarised between the conservative right and the communist oriented left. Over the last 50 years two major political parties, the United National Party (UNP) and Sri Lankan Freedom Party (SLFP) have dominated the political system<sup>16</sup>. UNP led the right capitalist forces and SLFP leads the socialist forces. From 1994 coalition parties were in government, from 1994 to 2001 the SLFP lead coalition People Alliance (PA) Party ruled the country and from 2001 the UNP led coalition United National Front (UNF) Party came to power and continued till 2005. From then to now the SLFP Party rules the country.

Sri Lanka's economic development has been affected by two political disturbances. One originated from grievances from the minority Tamil community living in the Northern and Eastern region. Various rebel groups were involved in an arms struggle and one, the Liberation Tigers of Tamil Eelam (LTTE) continues to do so. The other organisations with grievances are the majority Sinhalese living in the Southern part. They began a similar struggle with the dominant movement being Janatha Vimukthi Peramuna (JVP). The disturbances occurred in the early 1970s and late 1980s. Following its failure, JVP is now registered as a political party. Despite the sufferings caused by these internal conflicts Sri Lanka has still made significant progress in different sectors of its national economy.

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<sup>15</sup> Provisional population of the mid year 2005, Central Bank of Sri Lanka.

<sup>16</sup> UNP ruled in 1948-1955, 1965-1970, 1977-1993, UNP led UNF (United National Front ) 2001-2003 almost 33 years while SLFP ruled 1956-1964, 1970-1977, and SLFP led PA ( People Alliance) 1994-1998, 2003-Present almost 23 years.

After gaining independence from Britain, Sri Lanka still had rich export sector based on plantation cash crops such as tea, rubber and coconuts but commenced a heavy food-importing scheme. During the 1940s Sri Lanka focussed on the social sector with more emphasis given to health, education, and assistance programmes. During the 1960s a controlled economic system was practised and foreign exchange restrictions and a licensing system to import goods was introduced. During 1965-70 one attempt was made to partially liberalise the economy by adopting a dual exchange rate<sup>17</sup> but it was not successful. From 1970 Sri Lanka started a controlled economy. Major policy changes occurred in 1977 in the areas of trade, investment, exchange rates and finance, and Sri Lanka started Financial Liberalisation (FL), a radical departure from the “welfare oriented and inward looking” policies in place before 1977 and began to liberalise the economy and financial system by removing dual exchange rates, domestic price controls, trade restrictions, subsidies, and restrictions on foreign banks. During this process Sri Lanka had introduced a comprehensive liberalisation package, part of which allowed entry of foreign banks and export led industries. Interest rates were uncontrolled and a restriction on bank requirements and credit flows. This second wave of liberalisation started in 1990 and from 1977 to 1997 Sri Lanka achieved an average growth rate of 5 percentages over those two decades. Sri Lanka has a per capita GNI of US\$1160<sup>18</sup>.

The chapter is organised as follows: section 2 presents the composition and growth of GDP, section 3 presents a glimpse of the balance of payments; section 4 presents government finance, section 5 presents monetary expansion. Section 6 presents the government budget, section 7 explains the situation of government debt, section 8 explores the inflation situation, and section 9 presents brief concluding remarks about this chapter.

### **3.2 Composition and Growth of GDP**

The Service, Industry, and Agriculture sectors are the major contributors to the Sri Lankan economy. Agriculture includes forestry and fishing, mining and quarrying, the Industrial sector includes manufacturing, electricity, water and construction, and the services sector includes wholesale and retail trade as the major, transport, storage and communication, financial

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<sup>17</sup> The Foreign Exchange Entitlement Certificate System (FEECS) was implemented. In this system to import food and raw materials, a lower exchange rate was determined.

<sup>18</sup> BBC News website mentions the per capita GNI is US\$1160 with the reference of World Bank 2006. [http://news.bbc.co.uk/2/hi/south\\_asia/country\\_profiles/1168427.stm](http://news.bbc.co.uk/2/hi/south_asia/country_profiles/1168427.stm) (accessed on 21.03.2007)

services, real estate and business services, public administration, other government services and defence, community, social and personal services. Overall, the agriculture sector made the largest contribution to the economy up to 1957 but this could not remain so after liberalisation commenced agriculture has been reduced such that services is now the largest contributor to GDP.

Agriculture combining plantation crops i.e. tea, coconut and rubber, Industry combining manufacturing and others, and Services, are the major components of the Sri Lankan GDP.

Please see print copy for figure 3.1

Figure 3.1 presents the growth in the contribution of GDP from agriculture, industry and services sectors from 1950 to 2005. It shows the service sector increasing its contribution, unlike agriculture. The service sector has been the leading contributor since the late 1950s while the industry sectors contribution to GDP has continuously led the agricultural sector since the early 1990s. The figure shows that the agricultural contribution was the lowest sector after the 1990s but was the leader in GDP composition in the early 1950s.

From this structure it is clear that the agricultural sector is declining daily while the service sector increases more rapidly than the industrial sector. The service sector started to lead in 1957 and became higher than agriculture for the first time from 1993, when the industrial sector also became greater than the agricultural sector. In 2005 the agricultural contribution

remains at 17.2 percent, industry at 27 percent, and the Service at 55.8 percent in 2005. The service sector remains as the main contributor of GDP in Sri Lanka since 1957.

Table 3.1, 3.2, and figure 3.2 present the growth rate of GDP from 1950 to 2005, which shows fluctuations in of the growth rate over that time so that the economic development during various governments and economic performance during the various financial systems can be analysed comfortably.

Please see print copy for table 3.1

Table 3.1 shows that the highest average GDP growth rate of 5.7% is from 2004 to 2005, and then 5.17% from 1994 to 2000. The lowest growth rate remained at 2.68% from 1971 to 1976 when the regime controlled Sri Lanka.

The table 3.2 presents the average GDP growth rate under two different financial systems. The first is from 1950-1959 in which no specific financial system was maintained and most

financial activities were based on colonial rules. The second is from 1960-1976 when a regulated financial system was introduced, which shows a slightly higher growth rate than the first.

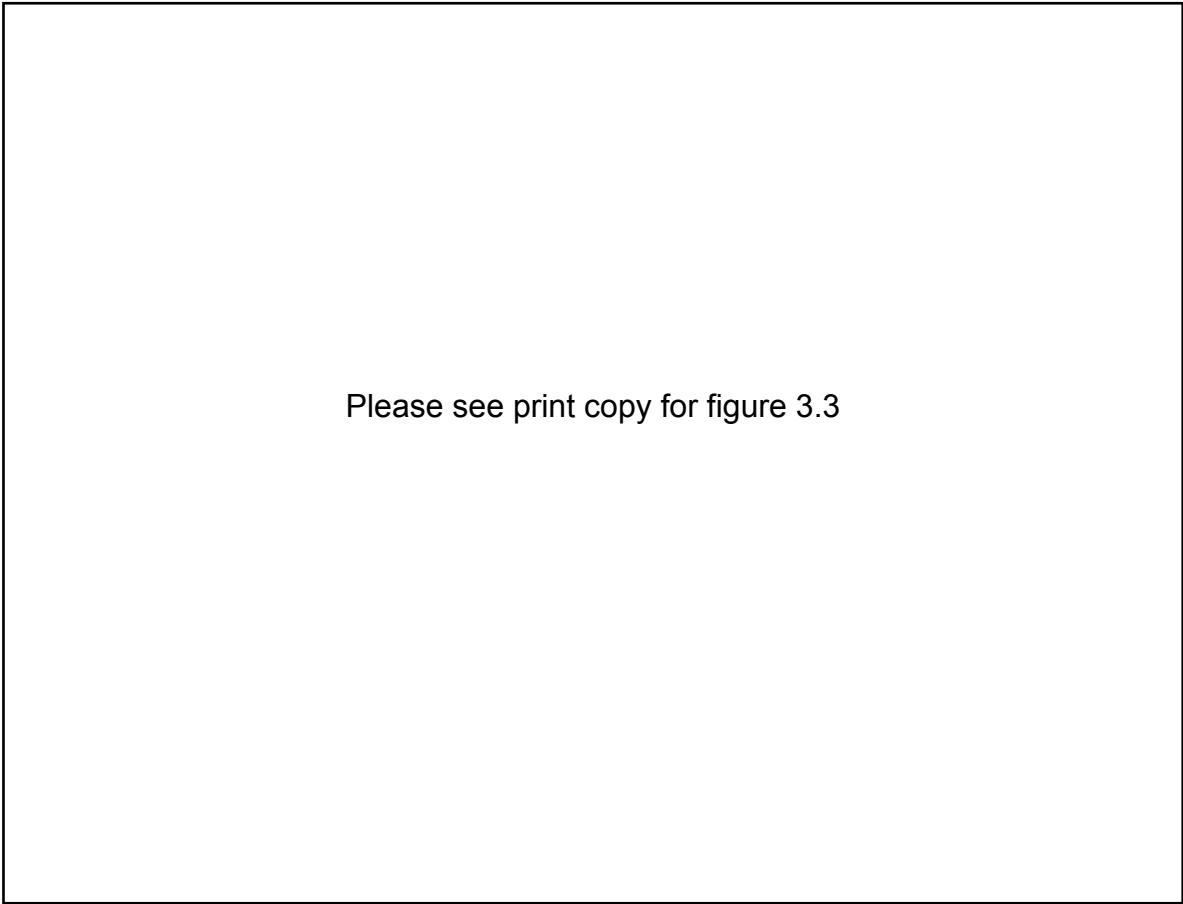
Please see print copy for table 3.2

Table 3.2 shows that the overall growth rate of Sri Lanka since 1950 to 2005 seems to be 4.26% with the highest growth rate of 4.81% during 1977 to 2005. This higher growth rate can be associated with a more liberal policy on trade and investment, exchange rates and finance. The average growth rate from 1950-1959 is 3.1% and 3.95% from 1960-1976.

Please see print copy for figure 3.2

Figure 3.2 shows that the highest growth rate for an individual year is 8.2% for both 1968 and 1978, whereas 2001 had the negative growth rate of -1.5%. The lowest positive growth rate recorded is 0.2% in 1971. This rate is around 4% in 1961 and fluctuated in different modes of time. In 1972 for the first time since the 1960s, it became nominally negative before inclining sharply the following year, just before 1969 it reached a maximum of 7%, and after 2001 it remained above 4% every year until 2005.

The composition of GDP with a sub-sector can picture the overall situation of GDP in the nation. For that reason the data related to 2005 can help us understand the real composition of GDP in Sri Lanka for the current period. Therefore, the sub-sectoral composition of GDP for 2005 is presented in figure 3.3.

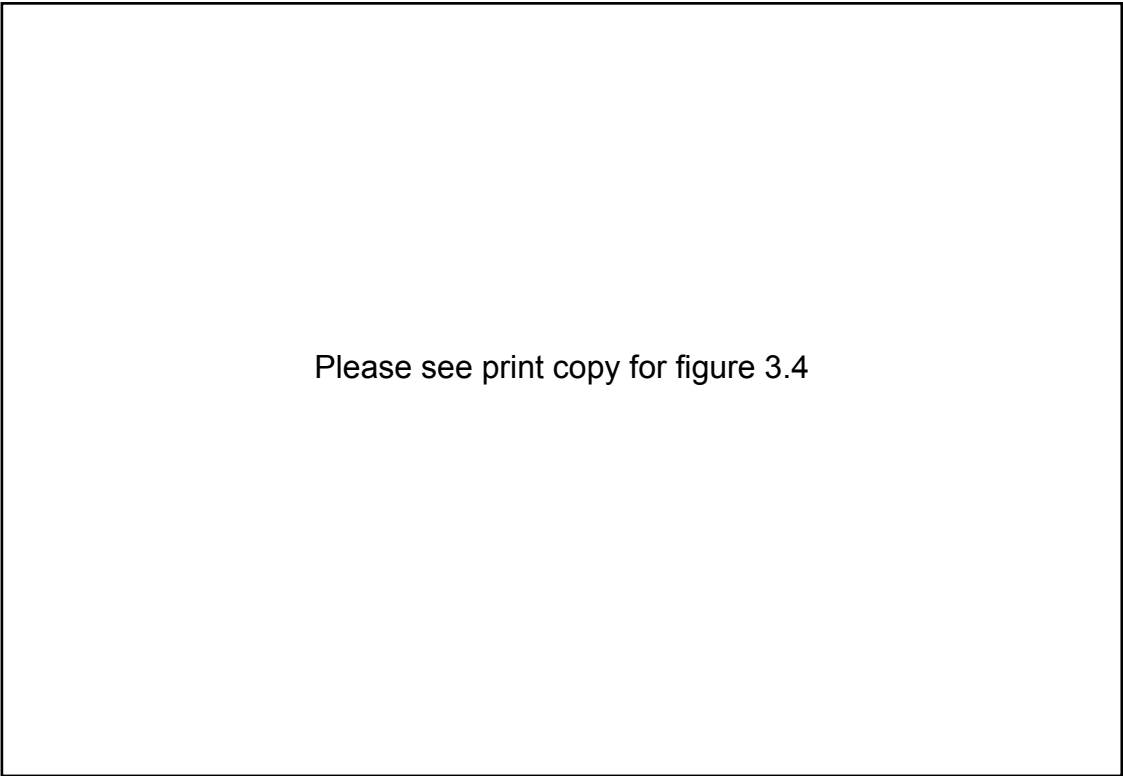


Please see print copy for figure 3.3

Figure 3.3 shows the service sector contributing approximately 56% of GDP to the economy as combination of the wholesale and retail trades, hotels and restaurants at 21%, transport, storage, and communication at 16%, financial services, real estate and business services at 12%, and public administration, other government services and defence at 7%. It clearly shows that the wholesale and retail trade, including hotels and restaurants, is the major component of services, and this sub-sector has the highest individual contribution to GDP. Agriculture contributes 17%, which is the second largest individual value of the total contribution of GDP. Industry contributes 27% to GDP and it includes manufacturing at 16%, construction at 7%, mining and quarrying at 2%, and electricity at 2%. Therefore the manufacturing dominates the industry market and this sector is primarily focused on export-oriented manufacturing.

### **3.3 Balance of Payments**

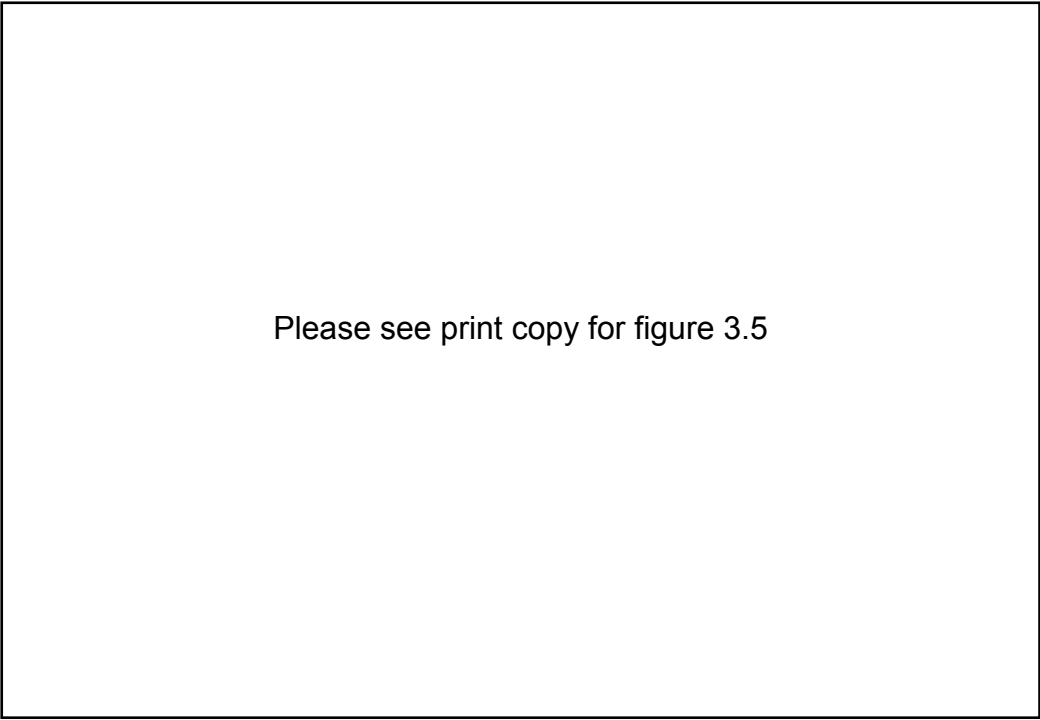
The trade balance and current account balance shows the balance of payments in the economy. The difference between total import and export shows the trade balance. The trade balance and total service and net income jointly show the current account balance



Please see print copy for figure 3.4

Figure 3.4 shows that the trade balance is negative because of heavy imports. After 1957 the balance remained negative and reached US\$ -2516.6 million in 2005. Another sector related with BOP is services and income. It was highly negative during the second half of the 1980s and became positive, but it always remained below US\$ 50 million after 2002. The transfers net sector remained positive after 1960, it is increasing with an average of US\$423.86 million during 1960 to 2005, and it reached US\$ 1828.1 million in 2005. Because of this situation the current account balance remains negative with only US\$ 650.1 million, despite the heavy trade imbalance of US\$2516.6 million in the background of the worst current account balance during 1994-1996.

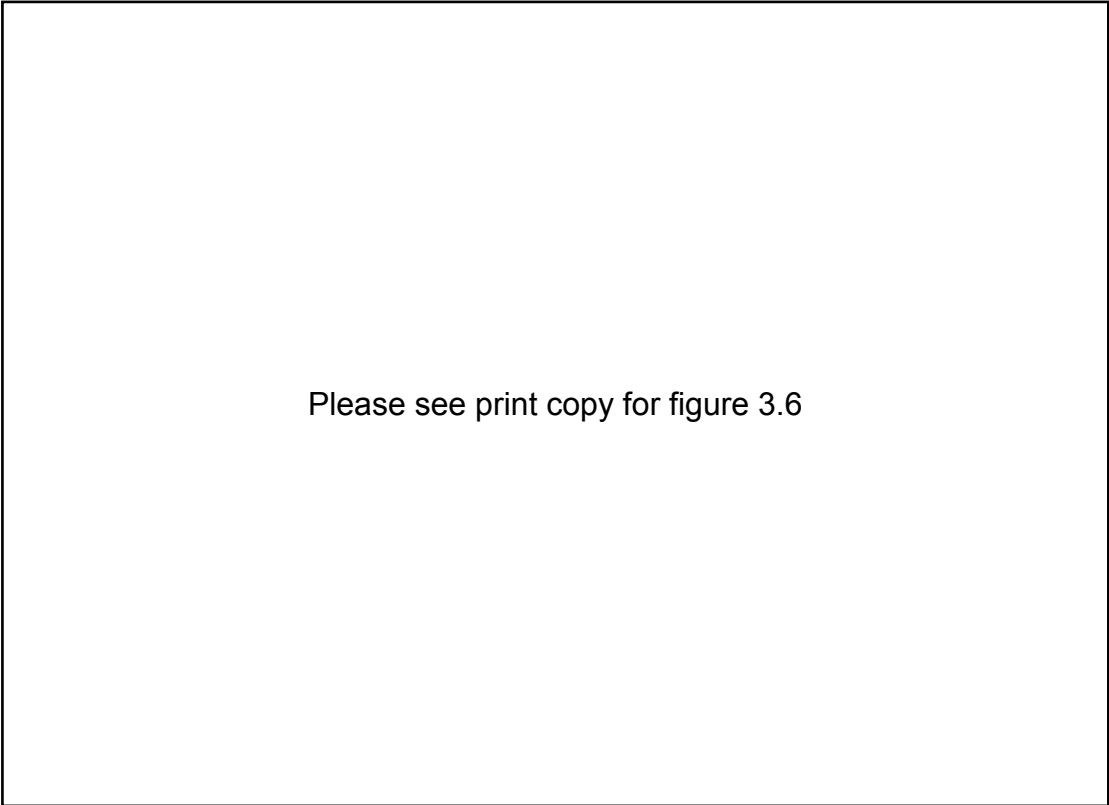
International trade plays a major role in a favourable balance of payments with both imports and exports having a special influence on the national economy. Normally it is assumed that a higher volume of exports than imports indicates a better economic performance but if capital and technology are imported rather than consumer goods that indicates a speedy development of the industrial sector, so in this case both exports and imports accelerate economic growth (Paudel and Shrestha 2006, p. 131). Figures 3.5 and 3.6 show a clear picture of the trade position from 1950 to 2005 in Sri Lanka.



Please see print copy for figure 3.5

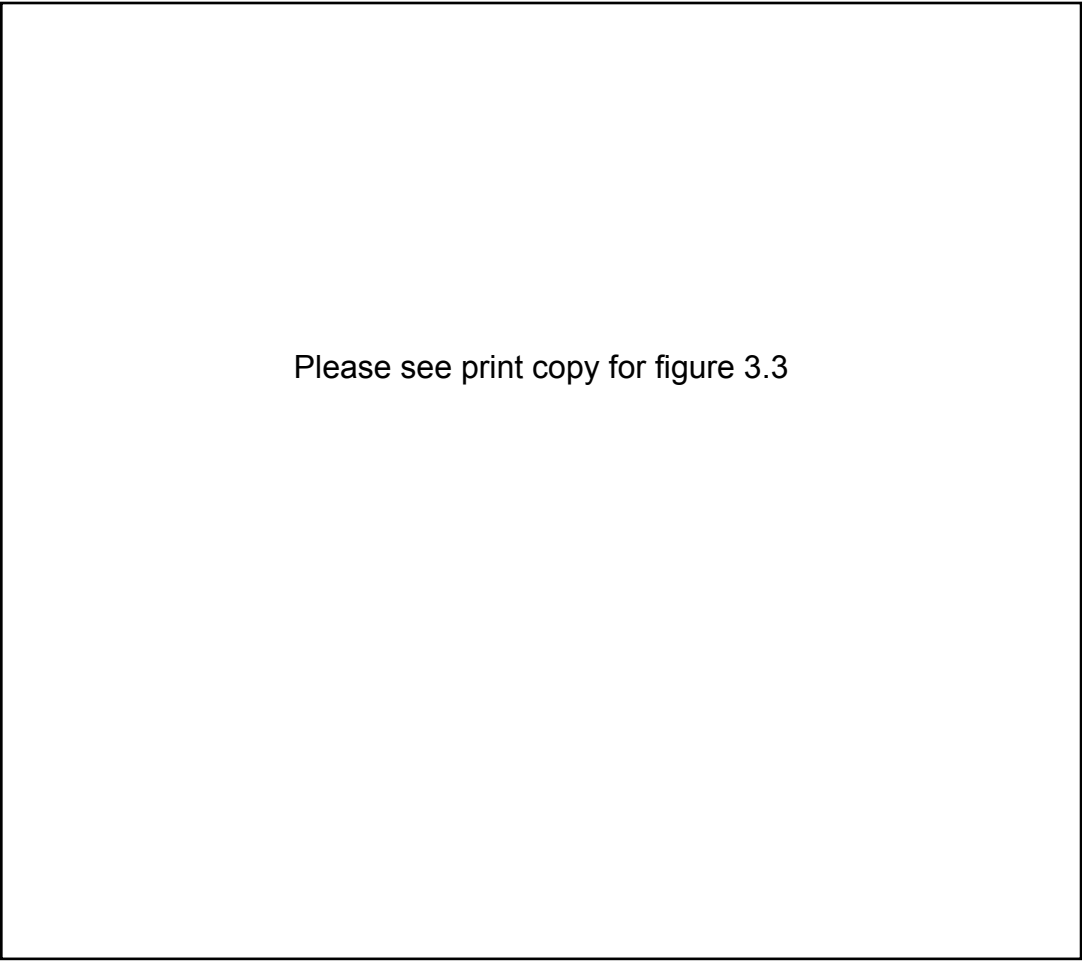
The composition of exports in figure 3.5 shows that after the 1980s agricultural exports were losing their position every year. Agriculture made an almost 91% average contribution to exports until 1971 but the slow decline may be due to the inclusion of industrial products. Agricultural exports remain at almost 80% on average from 1971 to 1976, which shows the dominance of plantation agriculture in the export trade. At the beginning of the 1980s it reduced to approximately 50% and then to 40% later in the 1980s. It declined to around 20% at the end of the 1990s and remained at 18.2% in 2005 with the average of 38.16% from 1977-2005, which may be due to the liberal trade policies and subsequent reduction in agriculture subsidies.

The industrial sector started to expand after 1972 and has become the major part of Sri Lanka's export trade. It was 78% in 2005 and enjoyed an almost 50% average growth rate from 1972 to 2005, while minerals and other products contributed almost 4% in 2005 and it has an almost similar position with a single digit fluctuation since 1950.



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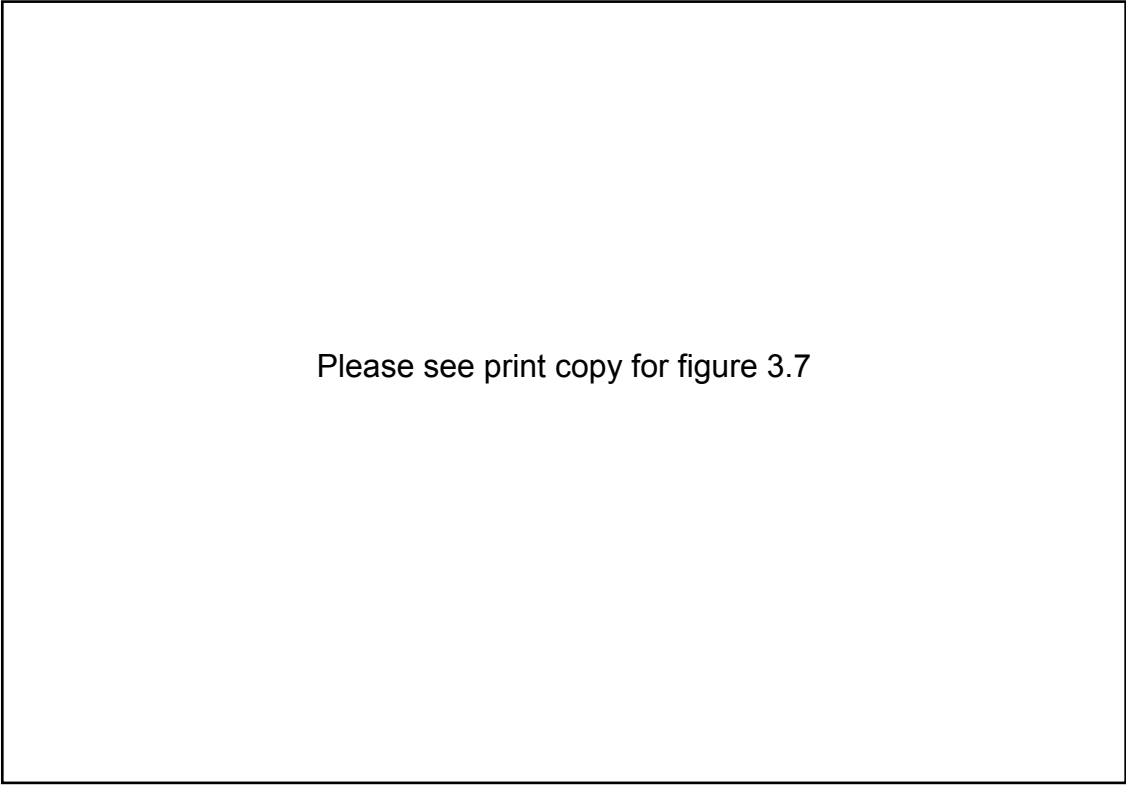
Figure 3.6 shows that the import sector of Sri Lanka consists of 3 major types of goods i.e. consumer, intermediate, and investment, It shows the dominance of intermediate goods at 45% compared to 60% in 2005. Investment goods have also increased from 12% in 1977 to 21% in 2005. This reduction of imported consumer goods from 42% in 1977 to 19% in 2005 is a more favourable situation.



Please see print copy for figure 3.3

Exports and imports have been growing by an average 6.33% and 7.59% respectively from 1950 to 2005. Exports and imports both increased in maximum average from 2004 to 2005 by an average 11.20% and 15.34% respectively. A common phenomenon of all these periods is that imports have been increasing at a higher average than exports except from 1994 to 2003. Table 3.3 reveals that the average export and import growth rates climaxed from 2004 to 2005. The average export growth rate is negative from 1956 to 1964, from 1965 to 1970 and from 2001 to 2003, while import growth rate is negative from 1965 to 1970 and from 2001 to 2003.

The average growth rate for exports was 6.33% and 7.59% for imports from 1950 to 2005, which shows that the deficit in the balance of trade in Sri Lanka is increasing.



Please see print copy for figure 3.7

The maximum growth rate of imports was in 1974 at 69.80% and 1978, 1979 and 1980 remained constant with almost 41% growth rate. The minimum growth rates (negative growth rates) are for 1954 with -15.25%, 1976 was -16.2% and there were many other years with lower negative growth rates.

Total exports and imports remained as Exports US\$ 6,346.7 million and Imports US\$ 8,863.2 million in 2005. Similarly the current account balance for 2005 is US\$ -650.1 million but the overall balance for 2005 seems to be positive at US\$ 501.4 million.

### **3.4 Government Finance**

Government finance is one of the major elements for creating employment opportunities and increasing a nation's output. The volume of government finance enhances the quality and quantity of infrastructure development. Government finance consists of revenue and

expenditure. The volume of government revenue and expenditure in a nation determines the size of its finance, and it is said that government finance indicates the overall economic situation of a nation.

Revenue was 16% of GDP in 2005 and 15.4% in 2004, while expenditure was 24.7% of GDP in 2005 and 23.5% in 2004. The overall budget deficit in 2005 was Rs. 205,037 million and it was only 165,432 million in 2004. Foreign sources grants have increased by almost 4 times in 2005, which was Rs. 32,640 million compared to Rs. 8,681 million in 2004. This radical increment may stem from assistance from other countries after the Tsunami. Figure 3.8 presents a composition of revenue focusing on the tax and non-tax revenue.

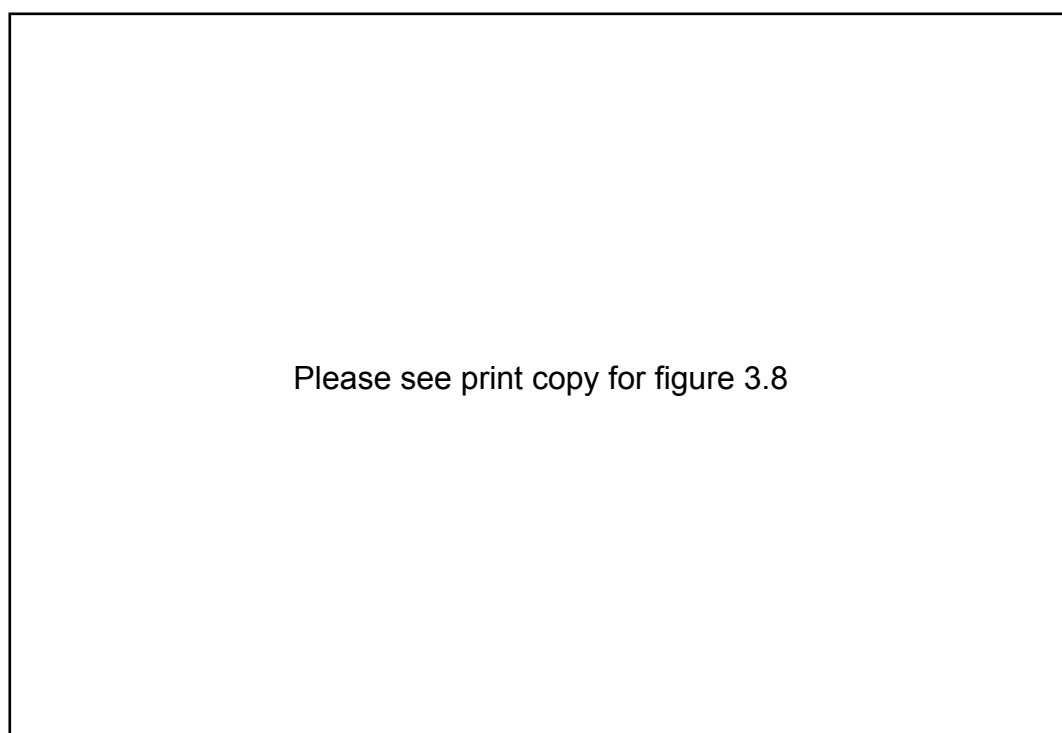
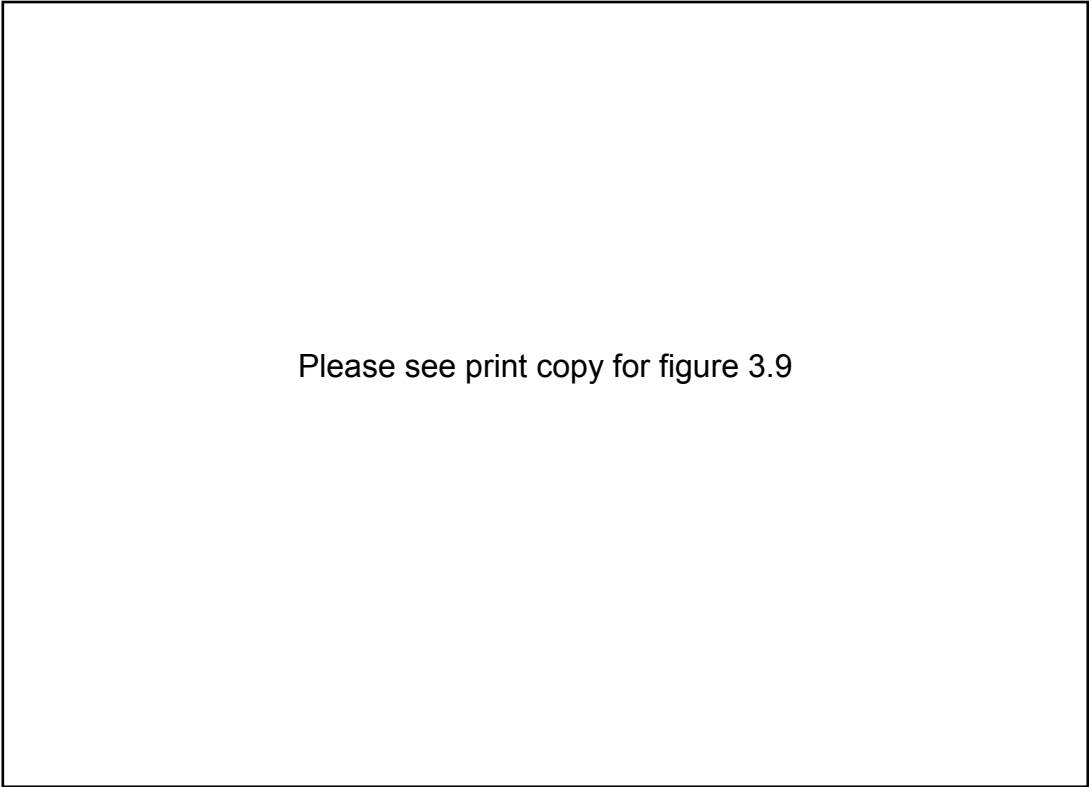


Figure 3.8 shows the dominance of government revenue raised from taxation from the beginning. Revenue from taxation contributes more than 85% most years and rose to 93% of total revenue. Current expenditure is almost 60% of total expenditure in most years and rose to 82% in 2002, as shown in figure 3.9.

The largest proportion of government expenditure is from current expenditure though both current and capital and net lending expenditure are increasing in most years. From a total expenditure of Rs. 584,784 million, current expenditure is Rs. 443,350 million while capital and net lending expenditure remains Rs. 141,434 million for 2005. Total expenditure for 1950-2005 increased by 14% on average and has been increased up to 100%, i.e., for 1977 it increased with this figure and was significantly negative for 1953, 1954 1963 and 1981.



Please see print copy for figure 3.9

Figure 3.9 shows that the current expenditure was significantly greater every year except 1980. Current expenditure is more than 60% and capital and net lending expenditure is less than 40% every year, with some exceptions. This shows that more is spent on administrative and non-development activities and less on capital expenditure despite the fact that capital expenditure is most important in developing economies like Sri Lanka. In fact, Sri Lanka made massive investment in the public sector from 1977 to 1985 in four areas: a) establishing an Export Processing Zones (EPZ), b) development of a parliamentary complex in the capital city, c) an acceleration of the Mahaveli river development programme, and d) the housing program. This

led to an increase in the capital and net lending expenditure and a decrease in current expenditure from 1977 to 1985.

### **3.5 Monetary Expansion**

The major objective of monetary expansion is to control inflation and enhance economic growth by an appropriate circulation of money in the economy. The budget deficit is controlled at the beginning of each new millennium unlike the 1980s, now the money supply is uncontrolled and increasing.

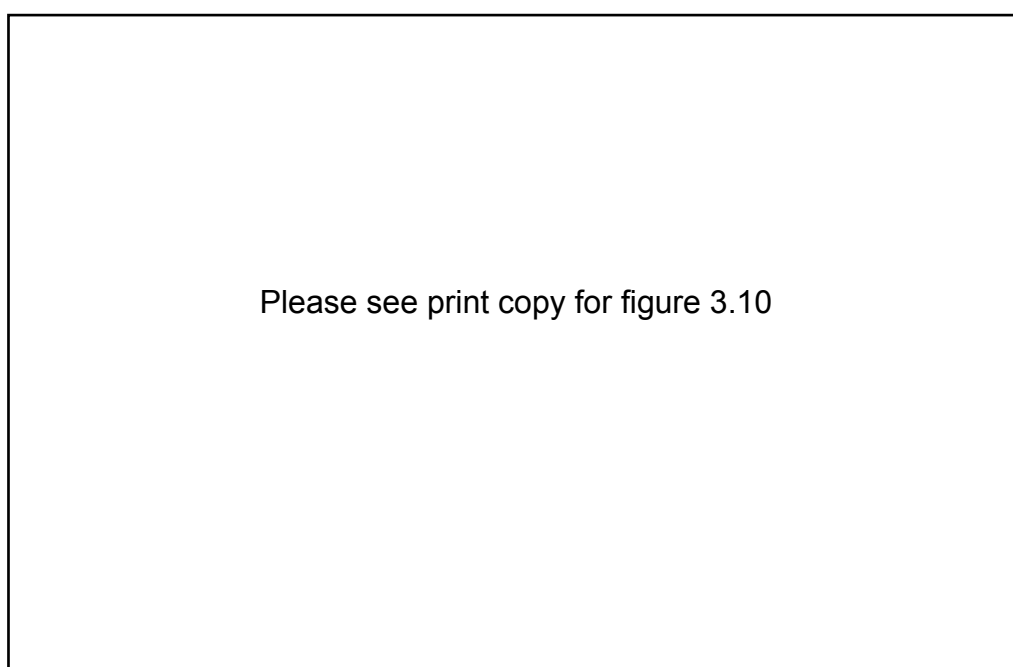
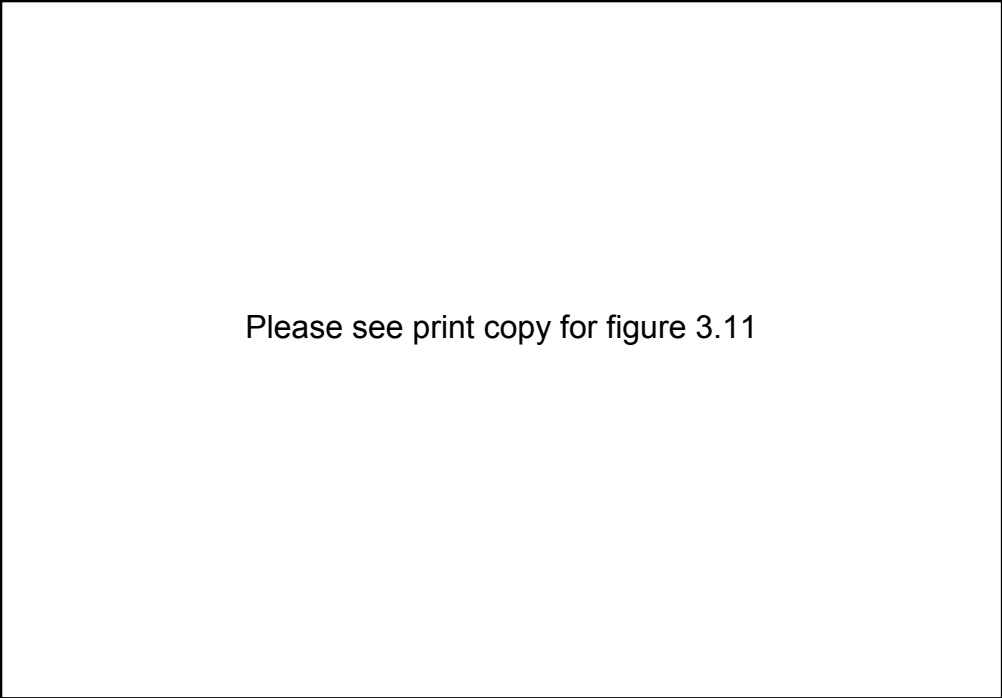


Figure 3.10 shows the ratio of narrow money and broad money with GDP and shows that broad money increased after 1977 and the ratio of narrow money gradually declined after 1989. Since 1959 the ratio of M2 with GDP always leads to the ratio of M1 to GDP, and they had an opposite trend after 1989.

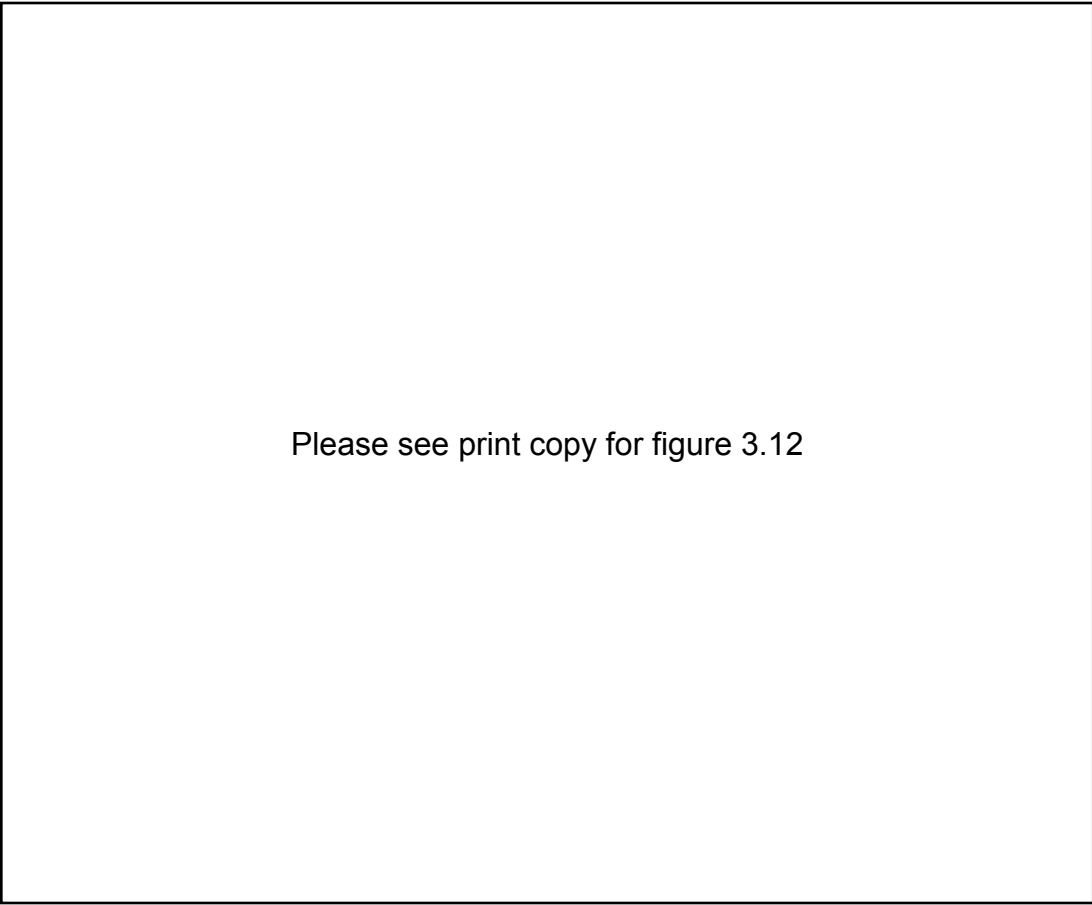


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The average growth rate of M1 and M2 remained at 10.76% and 13.18% respectively for the overall period 1950-2005. Money growth has almost the same sign although the figure is different. M1 remained as a positive growth rate after 1969 and M2 has been the same since 1966. Since 2002 the growth rate of M1 was leading to M2 the same as from 1986 to 1989 while the situation in the most of this period is the opposite.

### **3.6 Government Budget**

The government budget is another indicator of the economic condition of a nation. The government budget in Sri Lanka is characterised by a budget deficit budget, the same as other developing economies in the world arena with the exception of 1955 and 1956. This budget deficit has been growing every year and has reached Rs. 205,038 million with total revenue Rs. 379,746 million and a total expenditure Rs. 584784 million in 2005, an almost 24% greater increase than in 2004.



Please see print copy for figure 3.12

Figure 3.12 shows that with some exception the budget deficits have increased since 1950 at an average rate of 43.22% from 1950 to 2005. It is recorded as 168.25% from 1950 -1959, 14.47% from 1960 to 1976 and 7.09% from 1977 to 2005.

### **3.7 Government Debt**

Government debt shows its financial liabilities as a domestic organisation, people and foreign organisations and countries, and is one of the major indicators of the economy. Total debt in 2005 was Rs. 2,222,341 million which is 93.9% of GDP. Of this amount Rs. 956,620 million is foreign debt, while the total debt in 2004 was 105.5% of GDP, and Rs.2, 139,526 million and foreign debt was Rs. 996,138 million.

Please see print copy for figure 3.13

Figure 3.13 shows that the total value of domestic and foreign debt was almost 94% of GDP in 2005, which is lower than 2004. On average it remained approximately 68% of GDP from 1950 to 2005. Peak debt in comparison to GDP was recorded in 1989 as 108.7% of GDP and from 2001 to 2004 it remained above 100% of GDP. After 1964 the debt always remained more than 50% of GDP, and after 1987 it was more than 90% except for 1997 when it fell to 85.8%. On the other hand the proportion of domestic debt was higher than foreign debt after 1995.

### **3.8 Inflation**

Inflation denotes the economic situation in which the general level of prices for goods and services continues to rise while purchasing power falls. Inflation can be determined with the help of the consumer price index.

Please see print copy for figure 3.14

Figure 3.14 shows the consumer price index stood at 4055.5 (1952=100), the rate of inflation on the same base is 11.6% for 2005, and the index number has been increasing every year, with some exceptions.

Please see print copy for figure 3.15

Figure 3.15 shows that the average growth of inflation registered from 1952 to 2005 was 7.40% while the highest rate of inflation recorded was 26.1% for 1980, and the lowest one is negative 1.6% for 1960. The inflation rate seems to have fluctuated greatly for most years, as shown.

### **3.9 Concluding Remarks**

Most of the rules and policies of the colonial era were continued in Sri Lanka until 1956. Since then there has been relatively more government involvement in the financial system with the structure of a mixed economy. Priority during this controlled regime was given to economic development by mobilising the domestic resources. Agriculture was the main contributor to the economy but it began to decline after the 1960s and was taken over by the service sector that led in GDP construction and is still leading. The economy of that period remained with state involvement in almost all leading economic activities. While the focus was on the agricultural sector, the focus of the industrial sector was to import industrial products, a situation that continued until 1976.

Sri Lanka began its liberal economic policy in 1977 and was the earliest starter in South Asia. The agricultural sector was removed from the list of priorities and massive reductions in subsidies were made. At the same time the direction of industrial policy was changed from import substitution to promoting exports. This meant that export oriented industrial policies and strategies were adopted in different ways and priority was given to industrialisation because of its positive performance during that period.

Financial sector reforms consistent with trade and investment liberalisation were carried out which increased the magnitude of GDP growth and average growth rate some extent. Based on data from Sri Lanka and with an overview of its economy it seems to have made significant progress. For example the volume of GDP has increased significantly, monetary expansion is greater, international trade has increased in volume, as has the volume of government expenditure and revenue, but simultaneously budget deficits, government debt and inflation have also increased with almost similar features. It shows that although the overall size of the economy has increased our concerns regarding financial liberalisation is whether FL has supported those extensions of economic variables or not. Therefore the brief introduction to the financial sector of Sri Lanka has been presented in the next chapter.

## **CHAPTER 4**

### **FINANCIAL LIBERALISATION IN SRI LANKA**

#### **4.1 Introduction**

From the 1970s financial liberalisation became the most important phenomenon of the financial system in many countries in the worldwide economy. Sri Lanka could not remain unaffected by this wave of the financial liberalisation (FL) because it started in financial sector in 1977. FL commenced in the banking and financial sectors. During this process the policies and implementation phase of FL have impacted as global economic growth and development issues. In the following sections part 2 presents the financial intermediaries and their functions before and after FL, with different sub-section, part 3 presents demand, savings and time deposits, part 4 is related to measures of FL, and part 5 presents brief concluding remarks.

#### **4.2 Financial Intermediaries and their Performance before and after Financial Liberalisation**

Sri Lankan data shows that there is a significant change in the number of financial intermediaries such as commercial banks, commercial bank branches, finance companies, leasing companies, development banks, and money exchangers etc. The volume of banking transactions has also increased. The situation of financial intermediaries and their performance are presented in the following sub-sections.

##### **4.2.1 Financial Intermediaries before Financial Liberalisation**

Financial and economic policies as well as government efforts have been formulated in a number of ways and changed from time to time as they have directly or indirectly affected financial intermediaries and the overall financial system. After independence Sri Lanka had 3 specific phases, i.e. Independence to 1959, from 1960 to 1976, and from 1977 onwards. Primary policy initiatives were made at the time of independence; the direction was enhanced and then changed in 1960 towards a regulated economy, and towards a liberalised economy in

1977. This led to changes, which affected the financial liberalisation policies from those periods.

In the initial period after independence the Currency Board System was responsible for money supply and The Board of Commissioners<sup>19</sup> issued currency. The Sri Lankan Rupee was tied with the Indian Rupee. The central bank of Sri Lanka was established under monetary law in 1949. Some tasks assigned to the central bank were to administer and regulate money and the banking system, to issue currency and implement monetary policy, and to act as an advisor to government in economic matters (Cooray 2003).

The Bank of Ceylon had almost one third of the assets of commercial banks. One organised stock market had listings of about 200 companies, a large number of credit societies were active, and the disorganised sector was also providing financial services in rural areas outside the control of the monetary authorities.

From 1960 Sri Lanka started to regulate the financial system with a policy of nationalisation and direct control of the financial sector. Some of the banks, including Bank of Ceylon were nationalised in 1961 and at the same time the People's Bank was established to enhance the co-operative movement of Ceylon while the operations of foreign banks were restricted. Because of this, the Bank of Ceylon and the People's Bank expanded rapidly until they had more than 70% of total bank advances and total bank deposits in the country. The number of branches increased from 45 to 165 during the decade from 1960 to 1970 to reached 562 in 1975. The loan to deposit ratio rose to 90% in 1975 from 73% in 1960 (Different Issues of Annual Report of Central Bank of Sri Lanka<sup>20</sup>).

By 1977 the banking sector comprised a Central Bank, four commercial banks, a National Saving Bank, 2 development finance institutions, a cooperative rural bank, some finance companies and insurance companies, and an Employee Provident Fund. Similarly, the money market developed with a Treasury Bill Market; an inter-bank call money market and foreign exchange market. Money market activities concentrated on government securities and treasury bills. The data shows a decline of savings and investments during 1970 to 1976. In this time

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<sup>19</sup> It denotes the Committee of Colonial Secretary, Treasurer and Auditor General.

<sup>20</sup> This is the main sources of data have been used for this chapter unless referenced otherwise.

the agricultural sector's contribution dominated the GDP. The banking sector and other financial sectors were controlled.

Sri Lanka had 12 commercial banks with 10 foreign and 2 domestic banks and until 1977 most of them focused on Colombo. The Hatton Bank Limited was set up in 1888 and was active until 1938 providing assistance to the tea industries and general banking services. The Bank of Ceylon ordinance was amended in 1952 to permit development lending and Bank of Ceylon expanded to cover 37% of the total deposits of commercial banks. Due to government's nationalisation policy in 1960, the Bank of Ceylon was nationalised in 1961 and in the same year the "People's Bank" was established to enhance the cooperative movement which focused on rural and agriculture credit. There were 45 bank branches in 1960 which increased to 298 by the end of 1976. Restrictions were made to foreign banks in 1960 prohibiting their expansion and in the early 1970s, because of this policy, 2 state owned banks owned 71% of total bank deposits and 72% of total bank advances. Furthermore the Commercial Bank of Ceylon Ltd established in 1969 and the Hatton National Bank Ltd. in 1970.

Basically the number of commercial banks, development banks, finance companies and other financial organisations were established after the period of FL. Therefore the largest volume of financial activities is post 1977 and they are presented in different sub-sections of the following section.

#### **4.2.2 Financial Intermediaries after Financial Liberalisation**

A financial reform package was introduced in 1977 with modifications to credit, exchange rate controls, and relaxation of direct credit. Sri Lankan financial liberalisation is made up of 2 basic phases, 1977 to 1989 and post 1989. In the first phase the focus was on interest rates, exchange rates and banking reforms while the second phase focused on stabilisation and further relaxation of trade and payment (Cooray 2003). In the second phase the Colombo Stock Exchange was opened to foreign investors and current account liberalisation, promotion of capital markets, revision of tax structures, reduction of subsidies, and market oriented monetary policies were made. Investment promotion zones were set up with one authority to develop the infrastructure and manage the zones. Many new organisations were established,

such as the Merchant bank, leasing companies, money broking firms, and insurance and finance companies.

The banking and financial system of a country is known as the backbone of the modern economy because this sector helps to mobilise savings and investments and maintain a suitable money circulation in the national economy. Deposit mobilisation, loan disbursement, credit deposit ratio, numbers of branch banks, performance of commercial and other types of banks, i.e. development banks, cooperatives and financial companies and leasing companies etc. indicate the overall banking and financial environment of a country and similarly, the transactions and performance of the banking sector denotes the overall situation of the financial system of an economy. The Central Bank of Sri Lanka leads the banking sector in Sri Lanka that includes all the institutions that are involved in banking activities such as the Central Bank, commercial banks, development banks, and saving banks. Commercial banking is the largest sub-sector in the financial system in the country. Sri Lanka has a total of 22 commercial banks of which 11 are domestic and 11 are foreign, and 14 Licensed Specialised Banks as per the record in 2005.

The Financial Liberalization process based on liberal economic policy was started in 1977 and operational restrictions on foreign banks were removed. That resulted in the development of 19 more banks by 1989. The Bank of Ceylon opened one branch in India and Pakistan in 1985. On the other hand, 6 new commercial banks were established from 1987 to 2000 and total number of domestic commercial banks reached 8, the total number of commercial banks reached 26 in 2000, while the total number of commercial banks reduced 22 in 2005 (Annual Report 2005, Central Bank of Sri Lanka).

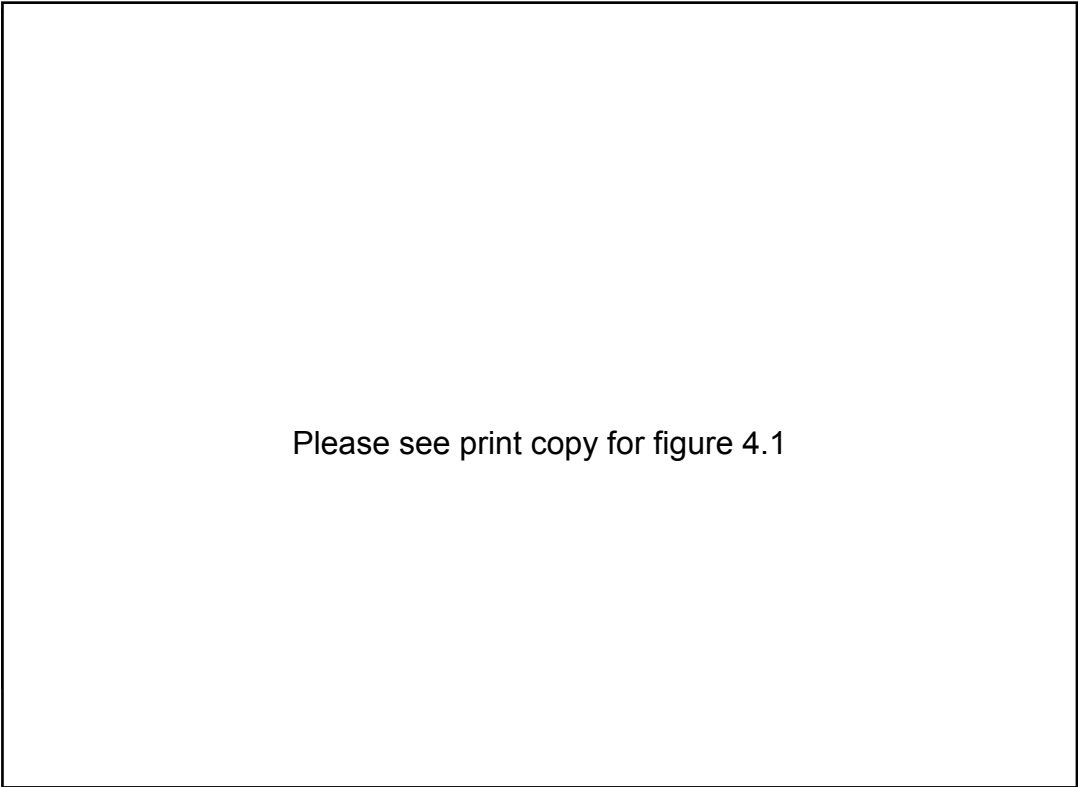
#### **4.2.2.1 Commercial Banks: Functions and Performance**

Sri Lanka has 3 types of commercial banks, i.e., state commercial banks, private domestic banks, and foreign banks. They all provide loans for different purposes using different procedures. A loan disbursement by a commercial bank indicates the performance and the role of the financial sector in the economy. The loan (loan and advances) disbursement by commercial banks data shows that it was Rs.3533 million in 1975 and that increased to Rs.

647994 million in 2005, which is almost 184 times greater. The average growth rate of the commercial bank loan disbursements from 1962 to 2005 is 18.38%.

Deposit mobilisation is another important task of the banking sector. State owned banks, private banks, cooperative-banking organisations and foreign banks mobilise the deposits in the country. The trend of deposits shows an increasing rate while the value of deposits increased by an average of 14.13% from 1950 to 2005, by 6.92% from 1950 to 1976, and by 20.14% from 1977 to 2005. Deposit mobilisation by the commercial banks alone was Rs. 4943 million in 1976 and remained at Rs. 945575million in 2005.

The credit deposit ratio of commercial banks indicates their credit creation efficiency. This ratio was recorded as 47.67% in 1962, it fluctuated from year to year but recorded more than 100% in 1981, declined to less than 70% after 2001 and declined to 68.53% in 2005.



Please see print copy for figure 4.1

Another important aspect of commercial banks is their branch expansions to provide banking facilities and help increase people's banking habits. Thus far 22 commercial banks have

branches and other outlets totaling 3100 in 2005 compared to 2540 in 2004. Sri Lanka has 14 licensed specialised banks that include regional development banks, national savings banks, long term lending institutions, housing finance institutions, and private savings and development banks. There are 404 branches and other outlets compared to 406 in 2004. The total number of all commercial and licensed specialised banks branches was 3504 in 2005. The number of commercial bank branches from 1950 to 2005 is shown in table 4.1.

Please see print copy for table 4.1

The table shows the expansion of commercial bank branches every 5 years after 1950. The highest number of established branches was from 2000-2005.

#### **4.2.2.2 Development Banks: Functions and Performance**

The history of the development bank in Sri Lanka shows that two banks were active at the time of independence, the Ceylon State Mortgage Bank established in 1931 and the Agricultural and Industrial Credit Corporation set up in 1943. Late in 1955 the Development Finance

Corporation was established. In 1979 the State Mortgage and Investment Bank was established by an amalgamation of the Ceylon State Mortgage Bank and Agricultural and Industrial Credit Corporation to increase the amount of capital in this sector. Due to the liberal policy a number of institutions were established after 1977. The National Development Bank was set up in 1979 to promote industrial, commercial and agricultural activities. Similarly the National Housing Development Authority and Housing Development Finance Corporation were established in 1979 and the Export Credit Insurance Corporation was established in 1979. Two private sector development banks were founded in 1997, the Pramuka Savings Bank Limited and the Sanasa Development Bank Ltd. These institutions played an important role in fulfilling the requirement of capital to respective sectors. Development banks are designated as licensed specialised banks, a sector that includes for example development banks, saving banks, and regional development banks. At the end of 2005 there were 14 such banks and institutions actively contributing to the development sector in different ways.

#### **4.2.2.3 Saving Institutions: Functions and Performance**

Sri Lanka has savings institutions focused on increasing savings in the national economy and mobilising deposits from all savers. The National Savings Bank and Contractual Savings Institutions are major savings institutions. The Ceylon Savings Bank established in 1832 is known as the original savings bank in Sri Lanka. The Savings Certificate Movement was established in 1945 and were active in the urban sector. In 1972 the National Savings Bank was established by amalgamating The Ceylon Savings Bank, The Post Office Savings Bank, and the Savings Certificate Movement, to facilitate the coordination and expansion of this sector. This type of bank did not expand like the commercial banks, having Rs. 1033 million of total saving in 1972 and its slow growth rate and account is included in contractual saving institutions.

Contractual savings institutions consist of insurance companies and compulsory savings institutions. Before independence Indigenous insurance was established in 1939, and in 1961 the Insurance Corporation of Sri Lanka was established and had a monopoly market on life insurance until 1979. The National Insurance Corporation was set up in 1979, the public insurance sector was relaxed in 1985 and this monopoly was demolished. By the end of 2005 there were 15 insurance companies with total assets of Rs. 105 billion. Insurance companies

are active in the field of life insurance, fire insurance, general insurance, accident insurance and marine insurance. There was only one insurance company in 1977, which increased to 5 in 1990, to 9 in 2000, and to 15 in 2005.

Another institution is the Employee's Provident Fund, which was established in 1958 and remained in mono existence until 1982. It was used to make compulsory savings from employees. In 1982 the Employee's Trust Fund was founded with the aim of providing retirement benefits to employees. All these institution have been growing and expanding their activities every year. Some other non-bank financial institutions like venture capital companies, insurance companies, Regional Development banks, pensions and trust etc. are also active in Sri Lanka. These types of financial institutions basically increased after 1990.

#### **4.2.2.4 Finance Companies**

Finance companies also accept deposits and provide loans to the money demander in more liberal ways than commercial banks but in the Sri Lankan context, finance companies could not rapidly grow in strength and numbers until after the FL process started. There were 72 finance companies operating in 1982, which decreased to 28 in 2005. Finance companies were in trouble during the late 1980 and some failed but increasing the regulation and supervision provisions in this sector removed these problems. This sector holds Rs. 87,494 million assets in 2005. Supervision and regulation of finance companies was under the Finance Company Act. No. 27 of 1979, but in 1988 the Central Bank was given wider powers to supervise and regulate the finance companies and non-banking financial institutions.

#### **4.2.2.5 Leasing Companies**

Leasing companies are organisations established to enhance leasing activities in a more systematic way. These companies help fulfill leasing requirement in the lowest possible costs with varieties of facilities within the economy. Sri Lanka has established leasing companies since 1982 and in 2005 there were 68 with assets of Rs. 63 billion. Leasing companies focused on commercial vehicles and different trading sectors.

#### **4.2.2.6 Money and Capital Markets**

Money markets interact with lenders and demanders of money for short-term supply of money. Money market includes treasury bills market, inter-bank call money markets, foreign exchange markets, and offshore markets. Money markets in Sri Lanka were very small and grew very slowly until the 1970s. The money market has expanded significantly in number and total assets in the post liberalisation periods.

Capital markets deal with long-term demand and supply of money and securities. The capital market consists of the share market and bond market. The Colombo Stock Exchange was established in 1982, The Capital Development and Investment Company was established in 1983, and the Central Depository System was set up in 1991. The Bond market seems to have had a comparatively slower development than the share market. The removal of regulatory restrictions led to a significant expansion of the money and capital market in the post liberalisation periods.

#### **4.3 Demand, Time and Saving Deposits**

Total Deposits including demand, time, and savings deposits in Sri Lanka have been increasing for most of the year although rate of increment seems to fluctuate. Overall growth from 1950 to 2005 remained at 14.12% on average; it was 6.92% until 1975 and then increased to 20.14% from 1976 to 2005.

#### **4.4 Measures of Financial Liberalisation**

Financial Liberalisation in Sri Lanka started in 1977 with the specific aim of fostering the economy. Since then various financial liberalisation measures have been formulated and implemented in order to widen and deepen the financial system. The whole reform process of Sri Lanka can be divided into two phases. The period from 1977–1989 is known as the pre 1989 period and after 1989 it was known as the post-1989 period. The first phase focused on interest rates, exchange rates, and banking reform and the second phase focused on stabilisation and further relaxation of remaining restrictions on trade and payments. The key measures implemented in Sri Lanka are highlighted in the following sub-sections.

#### **4.4.1 Exchange Rate Decontrol (1977)**

Sri Lanka had a dual exchange rate during its regulated financial system such that the exchange rates were different for imports and exports, while facilities were basically for exports. This exchange rate was abolished after the introduction of liberalisation to establish the same rate for both purposes. Both exchange rates were unified and allowed to float in relation to a basket of currencies. In 1979 commercial banks were authorised to set up Foreign Currency Banking Units (FCBUs), which helped promote offshore banking. An inter-bank market for forward exchange transactions was introduced in 1983 and a Non-Resident Foreign Currency (NRFC) account scheme was introduced in 1978 to facilitate inward remittances from Sri Lankans living overseas. Similarly, in 1991 a Resident Foreign Currency (RFC) scheme was introduced to permit residents to open accounts in designated currencies with a minimum balance of \$US 500. From 1991 money changers were authorised to engage in foreign exchange transactions apart from the Central Bank and commercial banks with the aim of minimising price distortions in the domestic foreign exchange market.

#### **4.4.2 Interest Rate Deregulation (1977)**

Sri Lanka set a target to meet the huge investments needed to build a development infrastructure, for this purpose financial policies were focused on providing a wider and more efficient financial system in the economy. Interest rate policy became liberal to mobilize more savings so that investments could increase. The data shows that the interest rate recorded from the late 1980s to 2002 are at a high level. Interest determination is based upon the situation of the money and capital market, which shows that the market is the major determinant of interest rates in the nation. Interest rate de-regulation commenced in 1977 which led to an increase in the bank rate from 8.5% to 10% while interest rates on deposits increased to 18% on fixed deposits and to 8.4% in the National Savings Banks, but remained at 7.2% in commercial banks. Bank rates were revised in 1980 and increased to 12%, while market forces determined interest rates in the Treasury bill market since 1988.

#### **4.4.3 Removal of Entry Barriers & Relaxation on Foreign Banks (1979)**

The prohibitions made for branch expansion and restricted limitations on transactions by foreign banks during the regulated phase of economy were removed after 1977 as part of the

1979 financial sector reforms. This helped increase the number of foreign and other banks, which boosted financial performance in the national economy.

#### **4.4.4 Removal of Credit Ceiling on Commercial Bank (1979)**

The credit ceiling and directed credit systems were removed in 1979 so that commercial banks were relaxed from providing credit to government corporations and statutory boards.

#### **4.4.5 Reform in Money and Capital Markets**

Formal and informal money market activities remained low until 1977. Most of the activities were confined to Colombo and were basically limited to inter-bank call money market activities and some government treasury bills. Discount and re-discount windows were opened by the Central Bank in 1981 which enhanced the secondary market for treasury bills. Weekly primary auctions for treasury bills were started in 1986, which helped make the market more reliable for investors. During liberalization different provisions were developed to make the money market more efficient. For example a Reverse Repurchase Market was set up in 1995, a Certificate of Deposit was introduced in 1981, and Commercial Papers and Treasury bonds were also introduced in different years.

There was some share market activities in 1896 but after 1977 an institutional framework was developed to enhance the capital market. For example the Secondary Treasury Bill Market was set up in 1981, the Colombo Stock Exchange Ltd. in 1982, the Capital Development and Investment Company in 1983, the Security Council in 1987, the Central Depository System in 1991, and a Fully Automated Trading System in 1997. The Sri Lankan bond market was relatively underdeveloped although some efforts were made to develop one, for example in 1991 Commercial Banks were permitted to issue certificates of deposits with maturities of over four years, in 1996 a Floating Rate Certificate of Deposit was introduced, a Treasury bond was started in 1997 and is in the growing stage of the capital market.

#### **4.4.6 Institutional Reforms (1978)**

Various institutional reforms were made and many institutions were established to strengthen the financial and banking sectors of the country. These reforms increased the number of institutions and their branches, and enhanced the efficiency of the banking and financing sectors and other forms of capital & money markets. Many commercial banks (domestic and foreign), Colombo Share Market, Saving Institutions such as the National Savings Bank, the

Insurance Corporation of Sri Lanka, and non-bank financial institutions such as the National Development Bank, the Development Finance Corporation of Ceylon, the State Mortgage and Investment Bank, and many lending institutions and National Housing Department and finance companies etc. were established during the 1<sup>st</sup> half decade of the financial liberalisation process. The institutional reform process was formally started since 1978 with the establishment of the Sri Lanka Export Credit Insurance Corporation for the provision of insurance coverage to the export sector. Table 4.2 shows the details of the institutions established in the process of institutional reforms in the country.

Please see print copy for table 4.2

#### **4.4.7 Introduction of Prudential Regulation (1989)**

The removal of regulatory restriction in the financial sectors helped to develop and widen the financial sector overall. During both phases of liberalisation various standards and norms were set and amended from time to time to enhance the banking and financial sectors. Prudential

standards were developed in the financial sector for sustainable development, basically for the requirements of capital adequacy, loan classifications and recognition of income from interest, and these norms are changed and modified at different times. Prudential regulations such as minimum liquid asset ratio and single borrower limit imposed on commercial banks commenced in 1989. The capital adequacy requirement was increased in 2002 to 10% of risk-weighted assets. In 2005 amendments were made to the current Banking Act to establish specific standards and improve the supervisory mechanisms (ADB, 2005, Strategy and Programme Assessment). The regulatory and legal framework was improved in 2005 in order to improve bank and non-bank institutions. To improve the efficiency and strength of the payment and settlement system, the Payment and Settlement Systems Act No. 28 was enacted in 2005. Financial Sector Strengthening Programmes were introduced in different mode of time during liberalisation.

#### **4.4. 8 Introduction of the Debt Recovery Act. (1990)**

To maintain the commercial banking sector intact, debt recovery is a fundamental task. Non-performing assets and overdue debt from Commercial banks and other banking and lending institutions are obstacles to the continual growth of the banking and financial sector and ultimately create problems by widening and deepening financial services in the economy. Therefore Sri Lanka set up the Debt Recovery Act No. 2 of 1990, Mortgage Act No. 3 of 1990, and Recovery of Loans by Banks Act No. 4 of 1990 to facilitate the debt recovery procedures of commercial banks.

#### **4.4.9 Liberalisation of Current Accounts (1994)**

The Current account shows the current transaction of a country with the rest of the world. These include trade, transfers, and income from international investments. The Current account was fully liberalised in Sri Lanka from 1994, which helped to increase earnings from international investments and income transfers.

## **4.5 Concluding Remarks**

The Sri Lankan financial system has been studied in three phases, from independence to 1959, on which most of the colonial policies remained effective, from 1960 to 1976 which is known as the regulated financial system, and from 1977 onward as the era of liberalisation of the financial system.

At the time of independence the Sri Lankan financial system only consisted of a small number of institutions. Until 1956, Sri Lanka remained almost the same as before independence, and except for establishing some financial institutions it continued with most of the policies of the colonial era.

A regulated financial system commenced in 1960 and remained until 1976. The banking sector was controlled and domestic commercial banks basically estate owned commercial banks. They dominated the financial market in a number of ways with barriers to the foreign banks in the country. Interesting fact is that 2 estate-owned commercial banks had captured more than 70% of the market, directed credit, controlled interest rates, entry barriers to foreign banks, and were the major features of the financial system of that period. Some improvements were made during this phase to basically settle the system in the economy and tighten the monitoring and control mechanisms, but the market mechanism was distorted, savings and investments were declining, private sectors were discouraged, and the banking sector remained incompetent which meant slow economic growth. This slow growth meant that the financial sector could not expand from the period of 1960 to 1977. From this background Sri Lanka started a two phase FL policy based upon a market economy in 1977. The first phase lasted from 1977 to 1989 and focused on deregulating interest rates, and exchange rate and banking reforms. The second phase was post 1989 where the focus was on stabilisation and further relaxation of trade, payment, and institutional building.

The financial sector was liberalised by removing obstacles placed on the financial control systems whilst simultaneously continuing some positive aspects of a regulated system. Monitoring and supervisory ion mechanisms for finance companies were tightened after this sector had some problems in the late 1980s.

The financial sector has been extended with more banks, financial institutions, and comparatively easy access to financial markets. The financial structure of Sri Lanka consists of a Central Bank, commercial banks, licensed specialised banks, development banks, finance companies, leasing companies, savings institutions, pension and provident funds, insurance companies, rural banks, housing companies, and other institutions related to the money and capital market.

The Sri Lankan economy made strenuous efforts to grow during this phase, which caused different variables to fluctuate in shape and size. Sri Lanka experienced a regulated and deregulated economy as well as a financial system so the present situation is the result of those policies and efforts. The Sri Lankan data shows that various sectors of the financial system have increased, such as the number banks and financial institutions, investments, deposit mobilisation, loans and advances from alternative credit facilities, and volume of GDP. Various provisions and efforts have been made to maintain economic growth, some of which have had a positive effect on the financial systems and economic sector.

Exactly what impact financial liberalisation has had on the country is one of the important concerns of policy makers and analysts. This study aims to empirically examine the overall impact of various financial liberalisation measures in economic growth and major macro-economic issues facing Sri Lanka.

## **CHAPTER FIVE**

### **RESEARCH METHODOLOGY**

#### **5.1 Introduction**

This chapter introduces the framework for analysing the financial liberalisation policy and its impact on the macro-economy of Sri Lanka. This chapter is organised as follows. Section 2 attempts to develop the framework for analysing the FL policy so that the overall impact of financial liberalisation can be evaluated in brief. Section 3 explains the methodology, including the financial liberalisation index, and presents different hypotheses and models in different sub-sections to make the study meaningful. Section 4 explores the nature and sources of data, and Section 5 presents brief concluding remarks.

#### **5.2 Framework for Analysing the Financial Liberalisation Policy**

The literature survey in chapter two revealed that while many scholars and researchers have studied different aspects of FL it could basically fit 3 categories. The first focuses on some special or particular aspect of liberalisation i.e. its impact on savings, investments, and economic growth. The second category is where researchers have tried to analyse various aspects of liberalisation as fragmented parts, while the third category includes variables directly related to the financial sector and overall economic liberalisation. They lack the analysis of FL as a policy in the context of Sri Lanka; therefore this study aims to bridge this gap by proposing a framework for analysing FL policy.

Policy can generally be evaluated by analysing its overall impact on the respective sectors. In our analysis FL incorporates banking, financing (financial sector widening and deepening); savings, investments, trades and businesses; and monetary expansion. Policy is for the betterment of people so that their living standards can be improved. Any policy related to the economic sector is to directly focus on the link between economic activities and ultimately, economic growth. Therefore the framework for evaluating FL policy is to look at how it has impacted on the financial sectors, on monetary expansion and the overall economic growth of a

nation because they are the key issues of macro-economics that relate directly to with the living standards of the people of a country.

### **5.3 Methodology**

The methodology for this research work is designed to evaluate the impact of the FL in different issues of the macro-economy of Sri Lanka. In this process the financial liberalisation index (FLI) was derived using different policy measures and components and is then as the proxy of FL for empirical analysis. A number of hypotheses with suitable models were developed following Shrestha (2005) to conduct empirical tests, while some were developed based on the theory with their economic relationships.

#### **5.3.1 The Financial Liberalisation Index and its Components**

A financial liberalisation index is constructed in order to study the level of FL. Our expectation is that these policies capture the process of FL over time. FL is a process that includes various changes, amendments on existing policies, and introduction of some new policies as per the requirements to support a liberal economy in the nation. The Financial Liberalisation index for Sri Lanka is constructed to include all these policies and measures, and include all the efforts made in Sri Lanka during the different periods after 1977. FLI is constructed to include major components following the method proposed by Bandiera, Caprio et al. (2000), Laeven (2003) and Shrestha (2005). They proposed the FLI in different contexts, for example Bandiera, Caprio et al (2000) prepared the FLI for eight developing countries including, eight main components as (1) interest rates, (2) pro competition measures, (3) reserve requirements, (4) directed credit, (5) bank ownership, (6) prudential regulation, (7) stock market, and (8) international financial liberalisation. Laeven (2003) constructed an almost similar FLI for 13 developing countries excluding stock market and external sectors, as mentioned by Bandiera, Caprio et al. (2000). Shrestha (2005) constructed another FLI for a developing country, Nepal, including eight components, i.e. (1) interest rates de-regulation, (2) removal of entry barriers, (3) reduction in reserve requirements, (4) easing of credit controls, (5) introduction of prudential regulations, (6) stock market reforms, (7) privatisation of state owned banks, and (8) external account liberalisation.

This study has used 13 major policy components of financial liberalisation to construct a financial liberalisation index for Sri Lanka. These are (1) interest rate deregulation, (2) liberal exchange rate policy, (3) banking policy reforms, (4) easing of credit supplies, (5) introduction of prudential norms, (6) money market reforms, (7) share market reforms, (8) bond market reforms, (9) current account liberalisation, (10) capital account liberalisation, (11) bank ownership, (12) change in reserve requirements, and (13) institutional reforms.

These components are directly related to the financial liberalisation process; indeed their combined forms are helpful for setting a standard for the FL process.

Due to the steps taken toward FL, there were effects at the policy level and that could change the direction of the selected policy variables. These exchanges are very helpful when examining the impact of individual policy components because they contributed to the quality and extension of FL. A summary index of FL and indicators of the individual policy components are presented in table 5.1.

**Table 5.1: Policy Components and Indicators**

S.N.	Policy Components	Indicators
1.	Interest Rate Deregulation (IRD)	Interest rate change (deposits, lending, refinance)
2.	Liberal Exchange Rate Policy (LERP)	Unification and decontrol of exchange rates
3.	Banking Policy Reform (BPR)	Permission to foreign banks, relationship to commercial banks.
4.	Easing Credit Supply (ECS)	Removal of credit ceiling and directed credit system
5.	Introduction of Prudential Norms (IPN)	Empower the Central Bank, imposing of minimum liquid assets ratio, single borrower limits in commercial banks
6.	Money Market Reform (MMR)	Treasury bills resale market, accredited primary dealers participation, set up of reverse repurchases market.
7.	Share Market Reform (SMR)	Beginning of share transactions, equity share financing set up of Security Council, permission to share investment in foreign institutions.
8.	Bond Market Reform (BMR)	Permission to commercial banks to issue certificates of deposits with maturity of four years, floating rate certificates, treasury bond transactions
9.	Current Account Liberalisation (CAL)	BOP statistics, remittance and services transfers.
10.	Capital Account Liberalisation (CAAL)	Foreign directive investment and capital inflow
11.	Bank Ownership (BO)	Removal of entry barrier to foreign banks. State owned private and foreign commercial banks.
12.	Reserve Requirements (RR)	Reduction in Reserve Requirements
13.	Institutional Reforms (IR)	Credit Insurance, establishment of different organisation for specific purposed, formation of Security Council, debt and loan recovery acts, rural credit policy, micro finance scheme etc.

An arbitrary value is assigned to each financial liberalisation policy variable mentioned in table 5.2 in order to derive the FLI. For ease of setting, it is assumed that each policy variable has a value between 0 and 1, where 0 denotes the situation of a particular sector which is not liberalised until that date, and 1 means fully liberalised till that date. In other words it takes 0 value if that sector remains part of the regulated regime and 1 if the sector is liberalised in the full phase. Liberalisation is a gradual process in most contexts i.e. partially in first phase, then gradually, and then the complete liberalisation phase. Therefore, to cover this sort of situation, partial values like 0.5 and 1 have been assigned for components liberalised in two phases, 0.33, 0.66 and 1 for those liberalised in 3 phases, and 0.25, 0.5, 0.75 and 1 which are liberalised in 4 phases. In the two phases of liberalisation 0.5 represents the first phase and 1 represents the second phase. For the 3 phases of liberalisation 0.33 represents the first phase, 0.66 represents the second phase and 1 represents the third phase. For the 4 phases of liberalisation 0.25 represents the first phase, 0.5 represents the second phase, 0.75 represents the third phase and 1 represents the fourth phase of liberalisation in Sri Lanka. The last phase of liberalisation with any number of phases is represented by 1.

**Table 5.2 Financial Liberalisation Policy Variables**

Year	IRD	LERP	BPR	ECS	IPN	MMR	SMR	BMR	CAL	CAAL	BO	RR	IR
1963	0	0	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0	0	0
1977	0.33	0.33	0	0	0	0	0	0	0	0	0	0	0
1978	0.33	0.33	0	0	0	0	0	0	0	0	0	0	0.13
1979	0.33	0.33	0.5	0.5	0	0	0	0	0	0	1	0	0.25
1980	0.33	0.33	0.5	0.5	0	0	0	0	0	0	1	0	0.25
1981	0.66	0.33	0.5	0.5	0	0.25	0	0	0	0	1	0	0.25
1982	0.66	0.33	0.5	1	0	0.25	0.2	0	0	0	1	0	0.38
1983	0.66	0.33	0.5	1	0	0.25	0.4	0	0	0	1	0	0.5
1984	0.66	0.33	0.5	1	0	0.25	0.4	0	0	0	1	0	0.5
1985	0.66	0.33	0.5	1	0	0.25	0.4	0	0	0	1	0	0.63
1986	0.66	0.33	0.5	1	0	0.25	0.4	0	0	0	1	0	0.63
1987	0.66	0.33	0.5	1	0	0.25	0.6	0	0	0	1	1	0.75
1988	0.66	0.33	0.5	1	0.5	0.25	0.6	0	0	0	1	1	0.75
1989	1	0.33	0.5	1	1	0.25	0.6	0	0	0	1	1	0.75
1990	1	0.33	0.5	1	1	0.25	0.8	0	0	0	1	1	0.88
1991	1	0.66	0.5	1	1	0.25	0.8	0.33	0	0	1	1	0.88
1992	1	1	0.5	1	1	0.5	1	0.33	0	0.33	1	1	0.88
1993	1	1	0.5	1	1	0.75	1	0.33	0	0.33	1	1	0.88
1994	1	1	0.5	1	1	0.75	1	0.33	1	0.33	1	1	0.88
1995	1	1	1	1	1	1	1	0.33	1	0.33	1	1	0.88
1996	1	1	1	1	1	1	1	0.66	1	0.33	1	0	1
1997	1	1	1	1	1	1	1	1	1	0.33	1	0	1
1998	1	1	1	1	1	1	1	1	1	0.33	1	0	1
1999	1	1	1	1	1	1	1	1	1	0.33	1	0	1
2000	1	1	1	1	1	1	1	1	1	0.66	1	0	1
2001	1	1	1	1	1	1	1	1	1	0.66	1	0	1
2002	1	1	1	1	1	1	1	1	1	0.66	1	1	1
2003	1	1	1	1	1	1	1	1	1	0.66	1	1	1
2004	1	1	1	1	1	1	1	1	1	0.66	1	1	1
2005	1	1	1	1	1	1	1	1	1	0.66	1	1	1

*Note: Numbers given 0 for none, 1 for full and 0.25, 0.33, 0.375, 0.5, and 0.66, 0.675, 0.75 and 0.875 for partial liberalisation as per their phase. Source: Author Computed.*

Some key dates for policy variables and their implementation are presented in the following points.

**Interest Rate Deregulation (IRD)** is one of the key variables of the financial liberalisation process in Sri Lanka as in most other countries. Interest rate deregulation is in different phases during the FL process. Sri Lanka started to deregulate the interest rates for the first time in 1977, revisions were made in 1980, and interest rates in some sectors such as treasury bills were determined by market forces by 1988. This illustrates the 3 phases of deregulation.

**Liberal Exchange Rate Policy (LERF)** was another important variable in Sri Lanka which started FL by unifying the dual exchange rate system and removing the exchange rate controls in 1977. From 1990 Sri Lanka started transactions in US\$ and from 1991 money exchangers were permitted, which shows that the exchange rate was liberalised in 3 major steps up to 1991.

**Banking Policy Reform (BPR)** means the activities and steps involved in liberalising the banking sector started in 1979 when foreign bank investments were allowed in the country. From 1995 commercial banks were permitted to obtain foreign loans up to 5% of their capital and reserves.

**Easing Credit Supply (ECS)** was gradual in Sri Lanka. A selective credit ceiling on commercial banks was withdrawn after 1979. In 1982 selective credit to residents and companies registered in Sri Lanka to purchase plantations and immovable objects was also withdrawn to make the supply of credit to commercial banks easier.

**The Introduction of Prudential Norms (IPN) in 1988 systematised the** banking and finance sector, enhanced the transparent monitoring mechanism on that. Central Bank, and gave it monitoring role. In 1989 the minimum liquid asset ratio and single borrower limits were imposed on commercial banks.

**Money Market Reform (MMR)** was also made in different phases. In 1981 the re-sale of Treasury bills at above the call market rates by the Central Bank commenced, primary dealers accredited to participate in primary Treasury bill market in 1982, the sale of treasury bills under re-purchase agreements in 1983. A reverse re-purchase market was set up in 1995.

**Share Market Reform (SMR)** is part of the capital market reform started in 1982 with the beginning of share transactions by the Colombo Stock Exchange Ltd. The Capital Development and Investment Company was set up for equity financing in 1983 and the Security Council in 1987. In 1990 permission was granted to approve country funds, regional funds, and non-residents could invest up to 40% in the shares of companies listed with issued share capital. From 1992 Sri Lankans were permitted to invest up to 100% in the shares of companies listed outside the country.

**Bond Market Reform (BMR)** is another element of the Capital Market whose reform directly affects reforms in the capital market. The Bond market remained comparatively less attractive and basically its reform process was started in 1991 with permission for the commercial banks to issue certificates of deposits with maturities of over four years. The Floating Rate Certificate of Deposit was introduced in 1996 and the Treasury Bond was in 1997.

**Current Account Liberalisation (CAL)** is one of the important steps of FL. The external account includes the current account and capital account. Current Account was fully liberalised in Sri Lanka from 1994.

**Capital Account Liberalisation (CAAL)** is another important part of the external account that commenced liberalization from the early 1990s. The share investment external Rupee account and a capital gain tax on share transfers was started in 1992. From the year 2000 some measures were taken to liberalise the capital account by allowing non-nationals to invest in the Colombo Stock Market through the share investment external Rupee account. Capital gains and sales proceeds were removed, so too the capital gains tax on share investment, but external accounts were not fully liberalized until now.

**Bank Ownership (BO)** in Sri Lanka consists of state owned banks, private banks, and foreign banks. Sri Lanka removed the operational restrictions in foreign banks in 1979, after which the situation remains the same.

**Reserve Requirements (RR)** provision was changed from time to time. As a monetary policy tool the statutory reserve requirement ratio was increased in different ways until 1987, after which the ratio was simplified and a uniform rate of 10% was imposed on demand, time, and

savings deposits. Later in 1996 it was increased to 15% on all deposits. Another specific reduction was made in 2002 and it is now maintained at 10%.

**Institutional Reform (IR) led to the** establishment of many organisations and maintained a variety of provisions for norms and standards that strengthened the financial sector. In 1978 credit insurance that explored secure credit facilities to extend banking and financial institutions was established. The National Development Banks were set up in 1979, a loan scheme for small and medium industry was introduced in 1979, National Insurance was established in 1979, an Employee Trust Fund was set up in 1982, Capital Development and investment companies were set up in 1983, the Merchant Bank was established in 1983, regional and rural development banks were founded in 1985, a securities council was set up in 1987, and the Credit Information Bureau was set up in 1990. Similarly, some important provisions were developed during different periods, for example the Debt Recovery Act, Loan Recovery Act; and Mortgage Act were introduced in 1990. A Micro Finance Scheme was introduced in 1996 based on a feel for the importance of micro-finance and a rural credit policy to improve credit facilities in rural areas. These institutional reforms were made in 8 important phases and therefore, based on these dates, it has been assumed that the Financial liberalisation index for Sri Lanka is developed using table 5.2, and the FLI equation has been expressed in equation 5.1.

$$FLI = w_1IRD_t + w_2LERP_t + w_3BPR_t + w_4ECS_t + w_5IPN + w_6MMR_t + w_7SMR_t + w_8BMR_t + w_9CAL_t + w_{10}CAAL_t + w_{11}BO_t + w_{12}RR_t + w_{13}IR_t \dots\dots\dots(5.1)$$

Where  $w_i$  is the weight of the component calculated by using the First Principal Component method<sup>21</sup>, and in our case the eigenvector of the selected principal component method is denoted by  $w_i$ .

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<sup>21</sup>First Principal Component Method has been used to develop the FLI for Sri Lanka. As the 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> eigenvectors capture more than 96% value of the observations, we have selected  $\lambda_1$ ,  $\lambda_2$  and  $\lambda_3$  Principal component method is assumed as most useful tool for screening multivariate data and it helps to know the correlation among the variables.

**Table 5.3: Eigenvalues & Eigenvectors of the correlation Matrix of policy variables**

Variables	Eigenvectors ( $\lambda_k$ )		
	$\lambda_1$	$\lambda_2$	$\lambda_3$
IRD	0.291860	0.223457	-0.113278
LERP	0.298321	-0.051519	-0.022992
BPR	0.294800	-0.001890	-0.273855
ECS	0.275088	0.330699	-0.262037
IPN	0.284637	-0.014236	0.300178
MMR	0.295911	-0.196802	-0.033602
SMR	0.300220	0.055663	0.102424
BMR	0.266311	-0.406428	0.007966
CAL	0.259383	-0.423538	-0.003991
CAAL	0.264459	-0.360723	0.195510
BO	0.262745	0.356538	-0.363717
RR	0.193937	0.414647	0.753326
IR	0.299571	0.149249	-0.056201
<i>Eigenvalues(<math>\lambda_k</math>)</i>	<b>10.65546</b>	<b>1.250303</b>	<b>0.630884</b>

Source: Author Computed

For the purpose of analysis the first principal component  $\lambda_1$  that covers 85% of the total variance<sup>22</sup>, and a fixed value of  $w_i$ <sup>23</sup> with the weight based on the Eigen value to arrive at equation 5.2:

$$0.027IRD_t + 0.028LERP_t + 0.028BRP_t + 0.026ECS_t + 0.027IPN_t + 0.028MMR_t + 0.028SMR_t + 0.025BMR_t + 0.024CAL_t + 0.025CAAL_t + 0.025BO_t + 0.018RR_t + 0.028IR_t \dots \dots \dots (5.2)$$

Using the weight of variables  $w_i$  from equation (5.2), to multiply the corresponding value in table (5.2) for all 13 variables, the index for the individual policy components have been calculated. The financial liberalisation index for each year is obtained by summing up the calculated values of all 13 policy components for the respective year, and are presented in the last column of table 5.4.

<sup>22</sup>  $\sum \lambda_k = 10.655 + 1.25 + 0.63 = 12.535 \therefore \lambda_1 = 10.655 \div 12.535 = 0.85$

<sup>23</sup> For Example  $w_i = \lambda_1 / \lambda_k \therefore w_1 = 0.2919 / 10.6555 = 0.0274$

**Table: 5.4 Financial Liberalisation Index (FLI) for Sri Lanka**

Year	IRD	LERP	BPR	ECS	IPN	MMR	SMR	BMR	CAL	CAAL	BO	RR	IR	FLI
1963	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1964	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1965	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1966	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1967	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1968	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1969	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1970	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1971	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1972	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1973	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1974	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1975	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1976	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1977	0.009	0.0092	0	0	0	0	0	0	0	0	0	0	0	0.018
1978	0.009	0.0092	0	0	0	0	0	0	0	0	0	0	0.004	0.022
1979	0.009	0.0092	0.014	0.013	0	0	0	0	0	0	0.025	0	0.007	0.077
1980	0.009	0.0092	0.014	0.013	0	0	0	0	0	0	0.025	0	0.007	0.077
1981	0.018	0.0092	0.014	0.013	0	0.007	0	0	0	0	0.025	0	0.007	0.093
1982	0.018	0.0092	0.014	0.026	0	0.007	0.006	0	0	0	0.025	0	0.011	0.115
1983	0.018	0.0092	0.014	0.026	0	0.007	0.011	0	0	0	0.025	0	0.014	0.124
1984	0.018	0.0092	0.014	0.026	0	0.007	0.011	0	0	0	0.025	0	0.014	0.124
1985	0.018	0.0092	0.014	0.026	0	0.007	0.011	0	0	0	0.025	0	0.018	0.127
1986	0.018	0.0092	0.014	0.026	0	0.007	0.011	0	0	0	0.025	0	0.018	0.127
1987	0.018	0.0092	0.014	0.026	0	0.007	0.017	0	0	0	0.025	0.018	0.021	0.155
1988	0.018	0.0092	0.014	0.026	0.013	0.007	0.017	0	0	0	0.025	0.018	0.021	0.168
1989	0.027	0.0092	0.014	0.026	0.027	0.007	0.017	0	0	0	0.025	0.018	0.021	0.191
1990	0.027	0.0092	0.014	0.026	0.027	0.007	0.023	0	0	0	0.025	0.018	0.025	0.2
1991	0.027	0.0185	0.014	0.026	0.027	0.007	0.023	0.008	0	0	0.025	0.018	0.025	0.217
1992	0.027	0.028	0.014	0.026	0.027	0.014	0.028	0.008	0	0.0082	0.025	0.018	0.025	0.248
1993	0.027	0.028	0.014	0.026	0.027	0.021	0.028	0.008	0	0.0082	0.025	0.018	0.025	0.255
1994	0.027	0.028	0.014	0.026	0.027	0.021	0.028	0.008	0.023	0.0082	0.025	0.018	0.025	0.278
1995	0.027	0.028	0.028	0.026	0.027	0.028	0.028	0.008	0.023	0.0082	0.025	0.018	0.025	0.299
1996	0.027	0.028	0.028	0.026	0.027	0.028	0.028	0.016	0.023	0.0082	0.025	0	0.028	0.292
1997	0.027	0.028	0.028	0.026	0.027	0.028	0.028	0.025	0.023	0.0082	0.025	0	0.028	0.301
1998	0.027	0.028	0.028	0.026	0.027	0.028	0.028	0.025	0.023	0.0082	0.025	0	0.028	0.301
1999	0.027	0.028	0.028	0.026	0.027	0.028	0.028	0.025	0.023	0.0082	0.025	0	0.028	0.301
2000	0.027	0.028	0.028	0.026	0.027	0.028	0.028	0.025	0.023	0.0164	0.025	0	0.028	0.309
2001	0.027	0.028	0.028	0.026	0.027	0.028	0.028	0.025	0.023	0.0164	0.025	0	0.028	0.309
2002	0.027	0.028	0.028	0.026	0.027	0.028	0.028	0.025	0.023	0.0164	0.025	0.018	0.028	0.327
2003	0.027	0.028	0.028	0.026	0.027	0.028	0.028	0.025	0.023	0.0164	0.025	0.018	0.028	0.327
2004	0.027	0.028	0.028	0.026	0.027	0.028	0.028	0.025	0.023	0.0164	0.025	0.018	0.028	0.327
2005	0.027	0.028	0.028	0.026	0.027	0.028	0.028	0.025	0.023	0.0164	0.025	0.018	0.028	0.327

The financial liberalisation index for Sri Lanka is presented in figure 5.1.

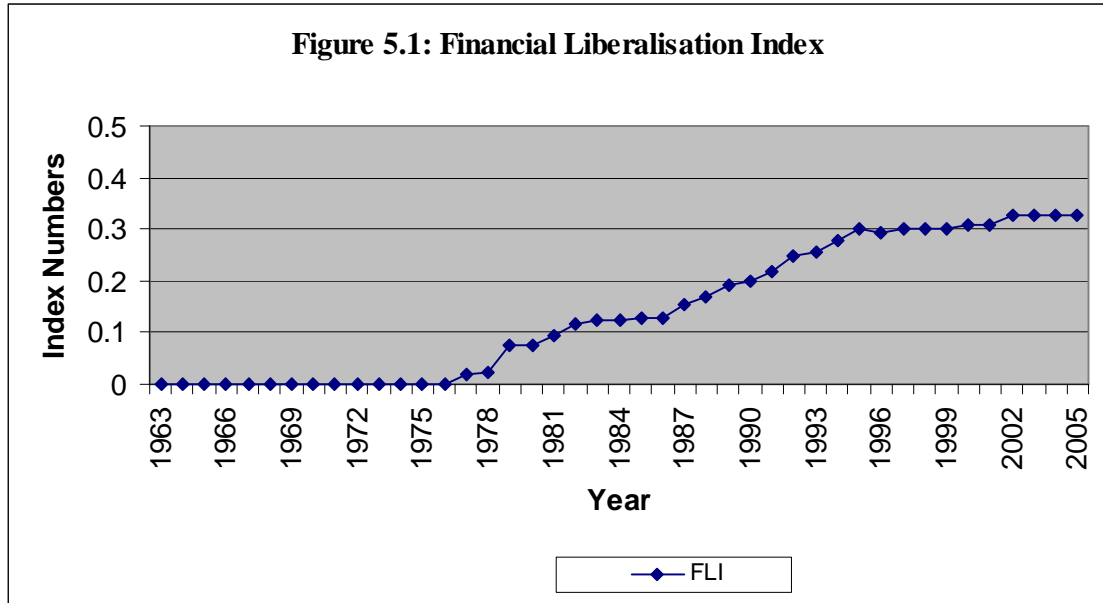


Figure 5.1 shows that the major steps of FL were followed from 1986 to 1995, which was the main period of financial liberalisation in Sri Lanka.

In the next step the variables for the equation to be tested for empirical analysis have been developed. Therefore the following sections introduce the model with dependent and independent variables related to the hypotheses, and present an econometric framework for testing them to reach conclusive results.

### 5.3.2 Setting Hypotheses and Models

As mentioned in previous chapters, the main objective of this study is to examine the impact of FL in Sri Lanka with a particular focus on how financial liberalisation has impacted on widening the financial sector widening interest rates, savings and investment, financial performance, economic growth, and money demand. For this purpose some hypotheses are tested in this study using the respective models.

### 5.3.2.1 Financial Sector Widening

From the financial liberalisation thesis, it is known that FL helps to enhance the financial sector in a number of ways. The removal of entry barriers, deregulation of interest rates and relaxing reserve requirements and exchange rates etc., extend the financial sectors significantly. Because entry barriers are removed, the number of financial institutions increases in the market, which widens the financial sector, so in this regard hypothesis H1 is tested:

*H1: Financial liberalisation widened the financial sector in Sri Lanka*

It is said that financial liberalisation helps widen the financial sector of an economy. This is assumed that as a result of the removal of entry barriers, FL increases the number of banking and financial institutions and encourages more financial activities for a variety of purposes. This hypotheses is tested with Sri Lankan data that FL has widened the financial sector in Sri Lanka, in this context the volume of banking transaction is analysed. Here the total volume of bank transaction (VBT) is based upon total deposits in commercial banks (TDB) and total credit distributed by commercial banks (TCB). Therefore to test this hypothesis the following original expression is made:

$$VBT = TDB + TCB \dots\dots\dots(5.3)$$

Where,

*TDB*: Total Deposits of commercial banks i.e. demand deposits, savings deposits and fixed deposits.

*TCB*: Total Credit supplied by commercial banks in different headings, purposes and methods.

Our assumption here is that the volume of bank transactions determines the degree of financial sector widening. If the financial sector has widened there would be more banking facilities, for example, greater availability of credit resources, more inflow of foreign capital, and more bank deposits. Therefore the real value of banking transaction (VBTR) is taken as a proxy of financial sector widening, and FL helps to widen to financial sector, is our hypothesis. The relationship between VBTR and FLI is analysed by the following equation:

$$VBTR_t = a_1 + a_2GDPR_t + a_3IRR_t + a_4PBB_t + a_5FLI_t + e_t \dots \dots \dots (5.4)$$

Where  $a_1$  is the intercept;  $a_2$ ,  $a_3$ ,  $a_4$  and  $a_5$  are the co-efficients of the variables GDPR, PBB, and FLI for the respective years and  $e_t$  is the error term, which is assumed to be normally distributed with mean and variance 0 and  $\sigma^2$ . The variables are real gross domestic product (GDPR), real interest rate (IRR), and average population density per bank branch (PBB) has been included because they are directly related to the real volume of banking transaction (VBTR), and the dependent variable. The assumption here is Value of banking transaction depends on income, interest rates, population density per bank branch, and financial liberalisation.

Using the natural log (L) form, the equation 5.4 can be expressed as:

$$LVBTR_t = a_1 + a_2LGDPR_t + a_3IRR_t + a_4LPBB_t + a_5FLI_t + e_t \dots \dots \dots (5.5)$$

Here IRR and FLI are in the original form (not in log form) as some of the observations of these variables are zero or negative. The expected values of  $a_2$ ,  $a_3$ , and  $a_5$  are positive and  $a_4$  negative as LGDPR, IRR, and FLI can have a positive effect in LVBTR, and population per bank branch effects negatively. In this sense the less density of population per branch means the bank provide good facilities and the quality of banking services degrades as the density of population per branch increases because they have to deal with more people at a time.

### 5.3.2.2 Interest Rates, Savings and Investment

Deregulation of interest rates is one of the important aspects of FL, which is supposed to lead to more savings and investments. It is said that the higher real interest rates stimulate savings and investments that foster the economy. Hypothesis H2 has been tested to analyse this argument:

*H2: FL has motivated domestic savings and investments in Sri Lanka.*

It is known from the financial liberalisation thesis that the McKinnon–Shaw hypothesis of FL suggests that there is a positive relationship between interest rates, savings, and investment. The focus of this hypothesis is real interest rate increases in liberal financial policy by which

savings increase and ultimately, so too does investment. In order to test this hypothesis the relationship between interest rates, bank savings and credits are analysed by the following equation:

$$TDR_t = a_6 + a_7GDPR_t + a_8DRR_t + a_9PBB_t + a_{10}FLI_t + e_t \dots \dots \dots (5.6)$$

Where,

TDR = Real time deposits held at banks (saving and fixed deposit in bank)

DRR = Real Deposit Rate

Equation 5.6 has been expressed in a natural log form below:

$$LTDR_t = a_6 + a_7LGDPR_t + a_8LDRR_t + a_9LPBB_t + a_{10}LFLI_t + e_t \dots \dots \dots (5.7)$$

The coefficient of the above equations  $a_7$ ,  $a_8$  and  $a_{10}$  are expected to be positive and  $a_9$  is expected to be negative. The coefficient signs would mean first phase of hypothesis H2 cannot be rejected which means that FL has motivated domestic savings in Sri Lanka.

To test the second phase of hypothesis H2 that is whether FL has motivated investments in Sri Lanka, it is essential to analyse the relationship between interest rates and investments, so for this reason equation 5.8 has been analysed.

$$TBCR_t = a_{11} + a_{12}LRR_t + a_{13}RFR_t + a_{14}BCBR_t + a_{15}PBB_t + a_{16}FLI_t + e_t \dots \dots \dots (5.8)$$

Where

TBCR = Real Total Bank Credit (Credit extended by banks to the private and public sector)

LRR = Real Lending Rate (Average of the various categories lending rate)

RFR = Real Refinance Rate (Interest rate charged by the central bank on refinanced credit provided to banks)

BCBR = Real Borrowing by banks from the Central bank, which also includes refinanced credit

PBB = Average Population density per bank branch (Total population divided by total number of bank branches)

To test this relationship real total bank credit (TBCR) is used as a proxy of the investment.

Equation 5.8 has been written into a natural log form in equation 5.9.

$$LTBCR_t = a_{11} + a_{12}LRR_t + a_{13}RFR_t + a_{14}LBCBR_t + a_{15}LPBB_t + a_{16}FLI_t + e_t \dots \dots \dots (5.9)$$

It is impossible to express some variables in this equation into the natural log form because in some years they are either zero or negative. The coefficients signs of  $a_{12}$ ,  $a_{14}$  and  $a_{16}$  are expected to be positive and the sign of  $a_{13}$  and  $a_{15}$  are expected to be negative. Here the positive sign of  $a_{14}$  and  $a_{16}$ , and negative sign of  $a_{15}$  would mean the second part of H2 is true and this hypothesis cannot be rejected.

### 5.3.2.3 Financial Performance

Financial Liberalisation introduces many institutions and policies to increase the number and quality of credit resources, which create more opportunities for investors. Investors foster an environment, which improves financial performance. This is examined by testing hypothesis H3:

*H3: Financial Liberalisation has deepened the financial sector in Sri Lanka*

In truth financial depth and financial stability jointly contribute to a better financial performance in the overall economy of a nation. It is said that a better financial performance provides a better environment, which fosters economic activities in a country. Therefore financial sector deepening and financial stability are major objectives of FL.

Equation 5.10 is tested to examine this hypothesis:

$$FD_t = a_{17} + a_{18}GDPP_t + a_{19}VBTP_t + a_{20}IRR_t + a_{21}PBB_t + a_{22}FLI_t + e_t \dots \dots \dots (5.10)$$

Where

- FD = Financial Sector Deepening (The ratio of bank deposit liabilities to nominal GDP is used as the proxy of such financial depth)
- GDPP = Per Capita GDP (Nominal GDP)
- VBTP = Per Capita volume of Bank Transactions
- IRR = Real Interest rate proxies by one year saving deposit rate.

Equation (5.10) has been expressed in a natural log form, as in equation (5.11)

$$LFD_t = a_{17} + a_{18}LGDPP_t + a_{19}LVBTP_t + a_{20}IRR_t + a_{21}LPBB_t + a_{22}FLI_t + e_t \dots \dots \dots (5.11)$$

In this equation  $a_{18}$ ,  $a_{19}$ ,  $a_{20}$  and  $a_{22}$  are expected to be positive and  $a_{21}$  is expected to be negative. If all the signs were as per our expectations it would mean hypothesis H3 cannot be rejected.

A strong and stable financial sector is essential for economic growth, and a stable financial sector provides secure investment and other financial opportunities, which help to improve the overall financial performance of a nation. Therefore, to measures the financial sector stability, hypothesis H4 is tested:

*H4: Financial Liberalisation has improved the financial sector in Sri Lanka*

Financial Stability is one of the major concerns of FL. Some developing countries experienced a currency and banking crisis during the process of FL. The reasons were basically more competition, lower profit margins, easy access to risky resources, unfavourable capital movements, and a reduction in government capital spending that can adversely affect the economy in various ways. Financial stability can be reflected in the performance of the banking system and its loan performance. Based on this assumption, the following relation is developed to examine the link between FL and financial fragility in Sri Lanka:

$$CDR_t = a_{23} + a_{24}LRR_t + a_{25}PBB_t + a_{26}FLI_t + e_t \dots \dots \dots (5.12)$$

Where

CDR = Credit Deposit Ratio (The ratio of total credit extended by banks and total deposit liabilities.

Other variables were also used in previous equations. This equation can be expressed in natural log form as in equation (5.13). It is assumed that the credit deposit ratio directly depends on real lending rates, i.e. population density per bank branch is a negative relationship, and FLI creates a formal positive environment for financial activities, including the credit deposit ratio.

$$LCDR_t = a_{23} + a_{24}LRR_t + a_{25}LPBB_t + a_{26}FLI_t + e_t \dots \dots \dots (5.13)$$

Here  $a_{26}$  is expected to be positive and  $a_{24}$  and  $a_{25}$  to be negative to support the hypotheses H4.

#### 5.3.2.4 Financial Liberalisation and Economic Growth

Economic growth is the central point of all policy makers in a nation. All economic activities can be fostered in a country with sustainable economic growth. Under the FL process increased savings, increased investments, and financial institutions contribute to economic growth. For the purposes of examining growth by FL policy, hypothesis H5 is tested:

*H5: Financial Liberalisation enhanced economic growth in Sri Lanka*

It is said that the ultimate target of all financial and economic policy is to achieve a higher rate of economic growth. To examine the impact of FL on economic growth, equation 5.14 has been tested:

$$GDPP_t = a_{27} + a_{28}FD_t + a_{29}IRR_t + a_{30}FLI_t + e_t \dots \dots \dots (5.14)$$

Where

GDPP = Per capita real gross domestic product

FD = Financial depth, proxies by the ratio of total bank deposit, Liabilities divided by nominal gross domestic product

IRR = Real Interest Rate proxies by one year saving deposit rate.

This equation (5.14) is expressed into a natural log form as in (5.15):

$$LGDPP_t = a_{27} + a_{28}LFD_t + a_{29}IRR_t + a_{30}FLI_t + e_t \dots \dots \dots (5.15)$$

In the equation 5.15  $a_{28}$ ,  $a_{29}$ , and  $a_{30}$  are expected to be positive because all 3 variables help increase the income of individuals. The signs of these entire coefficients being positive would mean that hypothesis H5 is not rejected.

### 5.3.2.5 Financial Liberalisation and Money Demand

Money demand and the supply situation of a country show the strength of an economy. Increased money supply may induce demand or increased money demand may induce money supply in a nation. More monetary expansion shows greater expansion in the economy and therefore it is assumed that FL is the motivator. The relationship between monetary expansion and FL has been tested from hypothesis H6:

*H6: Financial Liberalisation contributed to increase money demand in Sri Lanka.*

An increased money demand shows an improving economic situation, which extends investment opportunities in a nation. FL is supposed to expand the demand for money. Total money demand is supposed to be represented by Narrow Money (M1) and Broad Money (M2). To test the relationship between money demand and FL, equation 5.16 has been tested:

$$NMR_t = a_{31} + a_{32}GDPR_t + a_{33}LRR_t + a_{34}FLI + e_t \dots \dots \dots (5.16)$$

Where

- NMR = Real Narrow Money Demand (Represented by M1)
- GDPR = Income as represented by real GDP
- LRR = Real Lending Rate (Average of the various categories lending rate)

Equation 5.16 has been converted into a natural log form and equation (5.17) is developed:

$$LNMR_t = a_{31} + a_{32}LGDPR_t + a_{33}LRR_t + a_{34}FLI + e_t \dots \dots \dots (5.17)$$

In equation (5.17)  $a_{32}$  and  $a_{34}$  are expected to be positive and  $a_{33}$  to be negative because lending rate affects money demand negatively which means that Hypothesis H6 cannot be rejected. The assumption to include a variable is because an expansion of broad and narrow money depends on incomes, lending rates, and financial liberalisation. These equations (5.16) and (5.17) test the relationship based on narrow money.

To test the impact of financial liberalisation on Broad Money, equation 5.18 is developed.

$$BMR_t = a_{35} + a_{36}GDPR_t + a_{37}LRR_t + a_{38}FLI + e_t \dots \dots \dots (5.18)$$

Where

BMR = Real Broad Money Demand (Represented by M2)

Equation 5.18 has been expressed into a natural log form in equation 5.19.

$$LBMR_t = a_{35} + a_{36}LGDPR_t + a_{37}LRR_t + a_{38}FLI + e_t \dots \dots \dots (5.19)$$

In equation (5.19)  $a_{36}$  and  $a_{38}$  are expected to be positive and  $a_{37}$  to be negative because the lending rate affects money demand negatively which means Hypothesis H6 cannot be rejected. Therefore if all the signs were as per expectation in equation (5.17) and (5.19), it would mean that Hypothesis H6 cannot be rejected and there exists no relationship of FL with broad money demand.

#### 5.4 Nature and Sources of Data

To make the study of FL in Sri Lanka a more relevant and accurate empirical analysis,, varieties of data from different sources have been collected and used. This study includes 2 types of secondary data i.e. individual and time series. Individual data are those used for specific purposes and periods to inform one particular thing or event such as the total population of Sri Lanka in 2005. These types of data explain particular situations of selected things or subjects and are not in any organised form. Time series data are used in empirical analysis using econometric methods to reach the conclusion to a study, but in other contexts are used to analyse a trend.

Data from 1963 to 2005 has been covered to make an empirical analysis. The starting period from 1963 is to represent most observations with available data, and year 2005 is selected as the last period covered in the study because current the data is only available up to the end of this year.

For empirical analysis 17 (*see Table 5.5*) variables for the data set covering 1963 to 2005 were used. Annual data for all the variables have been taken from annual reports of the Central Bank of Sri Lanka for different years.

These variables have been converted into a natural log form to standardise empirical analysis where possible, but some of them, i.e. real deposit rates (DRR), financial liberalisation index (FLI), real interest rates (IRR), real lending rates (LRR), and real re-finance rates (RFR) are in the level form because they have zero or negative values in some observations.

**Table 5.5: Definition of Variables of the Empirical Study**

DRR	Real Deposit Rate
FLI	Financial Liberalisation Index
IRR	Real Interest Rate
LBMR	Log of Real Broad Money
LCDR	Log of Credit Deposit Ratio
LFD	Log of Financial Deepening
LGDP	Log of Per Capita Gross Domestic Product
LGDP	Log of Real Gross Domestic Product
LNMR	Log of Real Narrow Money
LPBB	Log of Average Population per Bank Branch
LRR	Real Lending Rate
LTBCR	Log of Real Total Bank Credit
LTDR	Log of Real Time Deposits
LVBTR	Log of Volume of Banking Transaction
LVBTP	Log of Per Capita Volume of Banking Transaction
RFR	Real Refinance Rate
LBCBR	Log of Real Borrowing by Banks from Central

All these variables covered the data from 1963 to 2005 except FLI. The unit root test at the first stage of empirical analysis was made, and then cointegration tests were conducted by applying the ordinary least square (OLS) based Auto Regressive Distributed Lag (ARDL) approach to cointegration for the models mentioned in different equations in previous sections.

## **5.5 Concluding Remarks**

Our main objective is to study the impact of FL on different macro-economic issues affecting the Sri Lankan economy from 1963 to 2005. Sri Lanka experienced a regulated financial system from 1961 to 1976 and in 1977 commenced a financial liberalisation system that reduced control of financial system. From FLI it was found that major steps towards liberalisation were taken from 1986 to 1995 in two phases known as pre 1989 and post 1989.

Six different hypotheses have been set and a FLI for Sri Lanka has been developed. Different models with their economic relationships were developed to test these hypotheses and presented in different sections of this chapter as equations. Empirical tests were conducted with these models to achieve the concrete results presented in the following chapter.

## **CHAPTER SIX**

### **EMPIRICAL TESTS**

#### **6.1 Introduction**

The main objective of this study is to analyse the impact of financial liberalisation as they have affected different aspects of Sri Lanka's macro economy. The hypotheses developed in previous chapters are to be tested using time series data and therefore some empirical tests were conducted in this chapter to discover the relationship between the variables. The long-term relationship between various time series must be analysed to determine the impact of independent variables on dependent variables. For this purpose cointegration tests are conducted to determine the relationship between the various sets of variables selected in the study. A unit root test is an essential procedure before the cointegration tests followed in this study because the non-stationary time series data from the cointegration test produced a spurious result. A cointegration test using the Ordinary Least Square (OLS) based Auto Regressive Distributed Lag (ARDL) approach was conducted after the unit root test. This chapter is organized as follows, section 2 explores stationary and non-stationary properties of variables and introduces the unit root test, section 3 introduces the ARDL approach to cointegration, section 4 is related to empirical tests and presents the results in different sub-sections, section 5 tests the causality of economic growth and financial development, and section 6 presents brief concluding remarks.

#### **6.2 Stationary and Non-stationary**

A stationary time series means having independent means and variances of time. It is determined by evaluating the mean and variance of a series, i.e. if the means and variances of a time series change over time it is non-stationary and is said to have a unit root. In this case it needs to be converted into stationary time series by differencing. If a time series becomes stationary after differencing by one time, then this time series is known as integration of order one, normally denoted by  $I(1)$ , and if it needs differencing by two times it is known as order

two, denoted by I (2). Similarly if it needs to difference by  $d$  time and denoted by I ( $d$ ), and the stationary time series, which is not essential to make a difference, is denoted by I (0).

The unit root test is the preliminary step for empirical analysis in the cointegration test. It helps us know the stationary and non-stationary nature of time series data. The Dicky Fuller Test (DF), Augmented Dicky Fuller Test (ADF), and the Phillips and Peron Test (PP) methods are normally common to the unit root test adopted by many scholars and researchers so the same methods were followed in this study. The test results are achieved assuming the presence of unit root (non stationary variable) in the null hypothesis ( $H_0$ ) and no unit root (stationary variable) in the alternative hypothesis ( $H_a$ ). In this regard a decision is made based on the calculated statistic and McKinnon's critical value i.e., if the calculated statistic is higher than McKinnon's critical value then  $H_0$  is not rejected and the considered variable is non stationary (has a unit root). Alternatively if the calculated value is lower than McKinnon's critical value then the variable is stationary, which means there is no unit root. To make the test systematic and reliable the first one is made in level and then in first differences, including the intercept and time trend because this is the most flexible specification of the test, as illustrated in equation 6.1:

$$\Delta z_t = a_1 + a_2 t + \gamma z_{t-1} + \sum_{j=1}^k \beta_j \Delta z_{t-j} + \varepsilon_t \dots \dots \dots (6.1)$$

Where  $\Delta$  is the first difference operator,  $z$  is the variable,  $a_1$  is intercept,  $t$  is the time trend,  $\Delta z$  the augmented terms,  $k$  is the appropriate lag length of the augmented terms and  $\varepsilon$  is the white noise error term. The DF test is performed without an augmented term and the ADF test is essentially a test of the significance of the coefficient  $\gamma$  in the above equation. The maximum lag length  $k$  begins with 4 and proceeds down to the appropriate lag by examining the Schwarz Criterion (SBC).

### 6.3 ARDL Approach of Cointegration

The Cointegration test is a technique used to study the long-term equilibrium relationship among the variables. It is very useful for checking the existence of a stable long-term relationship between the selected variables in the study. Various methods of cointegration tests are used in practice, the most widely used being residual based Engle-Granger (1987) test, the

Maximum Likelyhood based Johansen (1991), and the Johansen-Juselius (1990) test. From early 1990 the ARDL approach gained in popularity. It is ARDL based on the OLS (Ordinary Least Square) method. The ARDL model was initially introduced by Charemza and Deadman (1992), later by Pesaran and Pesaran (1997), Pesaran and Smith (1998), and Pesaran and Shin (1997) used it in their respective studies. The main advantage of the ARDL process is that it can be applied whether the regressor is I (0) or I (1). It can give an accurate result for the cointegration of both types of variables i.e. I (0) or I (1) (Pesaran and Pesaran 1997). The ARDL approach takes enough lags to capture the data generating process in a general- to-specific modelling framework and then a dynamic error correction model (ECM) can be easily derived by this method (Banerjee, Dolado, Galbriath and Hendry 1993) are some other advantages of these procedures. Some variables are I (0), and some I (1) in the study so the ARDL approach to cointegration is used because other methods of cointegration seem to be ineffective in this situation.

A simple model previously mentioned in equation 6.2, has been developed to explain the ARDL approach to cointegration.

$$Y_t = a + \beta X_t + \gamma Z_t + \varepsilon_t \dots \dots \dots (6.2)$$

Where  $Y_t$ ,  $X_t$  and  $Z_t$  are three different time series,  $\varepsilon_t$  is a vector of error term and  $a$ ,  $\beta$  and  $\gamma$  are parameters.

The error correction version of this model is presented in equation 6.3.

$$\Delta Y_t = a_0 + \sum_{i=1}^p \beta_i \Delta Y_{t-i} + \sum_{i=1}^p \gamma_i \Delta X_{t-i} + \sum_{i=1}^p \delta_i \Delta Z_{t-i} + \lambda_1 Y_{t-1} + \lambda_2 X_{t-1} + \lambda_3 Z_{t-1} + u_t \dots \dots \dots (6.3)$$

Here the null hypothesis is  $\lambda_1 = \lambda_2 = \lambda_3 = 0$  which shows that a long-term relationship does not exist.

## 6.4 Empirical Tests

Empirical tests were conducted for unit root tests to discover the nature of the variables, a cointegration test using the ARDL approach to cointegration, and causality tests were conducted on finance growth relationship. In this process the first empirical test is conducted for the unit root of the variables using the DF (Dickey-Fuller), ADF (Augmented Dickey-

Fuller ) and PP (Phillips-Perron) methods so the test results would be more realistic and easily declared as I (0) or I (1). In the second step, cointegration tests using the ARDL approach were conducted, and finally a causality test was conducted to know the causal relationship between financial development and economic growth.

#### 6.4.1 Unit Root Tests

Empirical tests were conducted using data from variables selected from Sri Lanka. The results of DF, ADF, and PP tests for level variables are summarised in Table 6.1:

**Table 6.1: Unit root tests on Levels**

Variables	Test with a constant			Test with a constant and a trend		
	DF	ADF	PP	DF	ADF	PP
DRR	-4.47*	-3.42*	-4.62*	-4.43*	-3.38	-4.53*
FLI	0.01	-0.44	0.22	-2.04	-2.31	-2.31
IRR	-4.47*	-3.42*	-4.62*	-4.43*	-3.38	-4.53*
LBMR	-0.77	-0.73	0.47	-1.25	-1.88	-2.44
LCDR	-1.90	-1.81	-2.31	-2.18	-2.02	-1.74
LFD	-0.57	-0.69	-0.45	-2.63	-3.14	-2.64
LGDPP	-0.47	-0.52	0.59	-1.90	-1.44	-3.15
LGDPR	0.24	0.21	0.21	-2.02	-2.77	-2.14
LNMR	-0.75	-0.80	0.77	-1.76	-2.25	-2.48
LPBB	-4.52*	-2.92	-4.36*	-1.56	-1.52	-1.42
LRR	-3.86*	-3.22*	-4.01*	-4.41*	-4.53*	-4.17*
LTBCR	-1.88	-1.75	-0.58	-1.04	-1.06	-1.40
LTDR	-1.34	-1.1	-0.05	-1.02	-1.84	-2.15
LVBTR	-1.59	-1.31	0.02	-1.03	-1.25	-2.04
LVBTP	-1.02	-1.00	0.28	-1.13	-1.67	-2.40
RFR	-3.80*	-2.77	-3.97*	-4.93*	-3.90*	-4.66*
LBCBR	1.16	0.57	-1.12	-0.23	0.31	0.54
<i>Critical</i>		<b>-2.94</b>	<b>-2.93</b>		<b>-3.53</b>	<b>-3.52</b>

*Note: \* indicates the Stationary at 5% level of significance*

In table 6, the unit root test results of all 17 variables, as defined in chapter 5, are presented. DF, ADF, and PP tests are conducted with 4 lags and the results of the unit root test given in table 6.1 show that only the variable LRR is stationary in level form, and is known as the I (0) variable in this study. RFR is another significant variable with a constant and a trend in all tests, assuming that this variable includes a time trend and is assumed as I (0). The remaining variables were processed to test the unit root in the 1<sup>st</sup> difference with the results presented in table 6.2.

**Table: 6.2: Unit root tests on 1<sup>st</sup> Difference**

Variables	Test with a constant			Test with a constant and a trend		
	DF	ADF	PP	DF	ADF	PP
DRR	-8.89*	-5.43*	-17.53*	-8.81*	-5.46*	-20.57*
FLI	-5.76*	-5.80*	-6.01*	-5.67*	-5.76*	-6.04*
IRR	-8.89*	-5.43*	-17.53*	-8.81*	-5.46*	-20.57*
LBMR	-4.27*	-3.46*	-4.61*	-4.25*	-4.55*	-4.55*
LCDR	-6.69*	-4.79*	-6.61*	-6.84*	-5.00*	-9.85*
LFD	-5.47*	-4.07*	-5.64*	-5.38*	-4.00*	-5.61*
LGDPP	-7.46*	-4.2*	-6.94*	-7.40*	-4.17*	-6.90*
LGDPR	-4.97*	-3.79*	-5.15*	-4.98*	-3.79*	-5.13*
LNMR	-4.90*	-5.16*	-5.15*	-4.83*	-5.11*	-5.06*
LPBB	-3.35*	-2.98*	-3.26*	-4.31*	-3.96*	-4.64*
LTBCR	-5.34*	-3.35*	-5.94*	-5.64*	-3.54*	-6.24*
LTDR	-3.69*	-4.00*	-3.93*	-3.73*	-4.01*	-3.95*
LVBTR	-4.84*	-5.29*	-5.35*	-4.99*	-5.36*	-5.41*
LVBTP	-5.88*	-2.96*	-5.57*	-5.74*	-3.76*	-5.50*
LBCBR	-4.57*	-3.04*	-5.33*	-5.78*	-5.43*	-6.77*
<i>Critical Value @ 5</i>	<b>-2.94</b>		<b>-2.94</b>	<b>-3.53</b>		<b>-3.53</b>

*Note: \* indicates the Stationary at 5% level of significance*

The test results for the 1<sup>st</sup> difference shows that DRR, IRR, LCDR, LFD, LGDPP, LGDPR, LNMR, LPBB, LTBCR, LVBTP LBM, LTDR, LVBTR and LBCBR are significant and I (1) with all three tests methods. The remaining variables of FLI become significant with 6 lags so in this situation they are assumed as I (1). Among the variables selected both I (0) and I (1) are found and therefore the ARDL approach to cointegration was used to test the relationship between the variables over the long term.

#### **6.4.2 Cointegration Tests**

After the unit root test it is clear that all the variables are either I (0) or I (1) so the cointegration test using the ARDL approach based on the SBC model was used. The long term relationship test based on the F statistic test was made to confirm the appropriateness of the ARDL approach to cointegration. Here the null hypothesis is  $\lambda_1 = \lambda_2 = \lambda_3 = 0$ , which shows that a long term relationship does not exist. An alternative hypothesis is that there is a long term relationship which was examined with the F-test. If the F-statistic test based on the F-table given in the Microfit Manual Book (Pesaran & Pesaran 1997), is significant this proves that a long term relationship does exist. Here the method for testing this hypothesis is to compare the F-statistics with the upper and lower bound of critical value with a 5% percent level of significance. If it exceeds the upper bound then the case is significant and a null hypothesis is rejected by saying there is a long-term relationship between the variables. If the F-statistic is beneath the lower bound of the critical value it is insignificant, and the null hypothesis cannot be rejected by saying there is no long term relationship. But if the F-statistic lies between the upper and lower bound of the critical value, then the hypothesis remains inconclusive and a decision will be made based on the ECM version of the ARDL model following Kremers et al. (cited in Bahmani- Oskooee 2004). Only those variables with a long term relationship have been tested for a long term relationship between the coefficients of the variables using the Error Correction Model (ECM) on ARDL approach to cointegration, as mentioned in the following sub-sections.

#### 6.4.2.1 Financial Sector Widening

One of the fundamental aspects of FL is that it helps widen the financial sector. To test this hypothesis, as mentioned in chapter 5, the following equation on the ARDL approach to cointegration is tested based on SBC model:

$$LVBTR_t = a_1 + a_2LGDPR_t + a_3IRR_t + a_4LPBB_t + a_5FLI_t + e_t \dots \dots \dots (6.4)$$

In equation 6.4 it was found from the unit root test in the previous section that all the variables are I (1). The log of real value of banking transaction (LVBTR), the log of real gross domestic product (LGDPR), the real interest rate (IRR), the log of average population density per bank branch (LPBB), and the financial liberalisation index (FLI) are non-stationary data series. If the coefficient signs of LGDPR, IRR, and FLI are found positive and the coefficient sign of LPBB is found to be negative, that proves hypothesis H1 that FL supports financial sector widening.

The F-statistic is 4.9501 and F table critical value with an intercept and a trend for 95% levels are given by 3.539 to 4.667. Since the F statistics exceed the upper bounds of critical value a null hypothesis is rejected. This clearly shows that LVBTR has a long-term relationship with LGDPR, IRR, LPBB, and FLI, and that they move together. Therefore it is necessary to apply the ARDL approach to cointegrations to estimate the long-term coefficients and Error Correction Model. Table 6.3 has presented ARDL (1, 0, 1, 0, 2) Model Long-run Results:

**Table 6.3: ARDL (1, 0, 1, 0, 2) Model Long-run Results**  
**Dependent Variable: LVBTR**

Regressor	Coefficient	Standard Error	T-Ratio [Prob]
INPT	-17.8100	9.3655	-1.9017[.068]
T	-0.064122	0.025657	-2.4992[.019]*
LGDPR	2.5347	0.69919	3.6252[.001]*
IRR	0.014503	0.0059142	2.4523[.021]*
LPBB	-0.84593	0.18785	-4.5032[.000]*
FLI	-1.4390	1.1088	-1.2978[.205]

\* Significance at 5% level

The test statistics of table 6.3 show that the coefficient sign of LGDPR, IRR and LPBB are as expected and have a 5% level of significance. This proves the long-term impact of LGDPR, IRR, and LPBB, on LVBTR. On the other hand the coefficient of FLI is not significant statistically, which implies that it will not have a long-term impact on LVBTR and has a negative sign, unlike our expectation. The relationship between LVBTR and LPBB is negative, showing that a 1 unit decrease in LPBB is associated with an increase of Rs. 0.84593 million in LVBTR. The FLI shows negative elasticity with LVBTR, though not statistically significant, which shows that a 1 unit increase in FLI leads to a decrease in LVBTR by 1.439 units. Overall FLI is not contributing towards widen the financial sector, as was our expectation.

**Table 6.4: ARDL (1,0,1,0,2) Model ECM Results**

**Dependent Variable: dLVBTR**

<b>Regressor</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>T-Ratio [Prob]</b>
dINPT	-10.7937	5.7863	-1.8654[.072]
dT	-0.038861	0.019562	-1.9866[.056]
dLGDPR	1.5361	0.51618	2.9760[.006]*
dIRR	0.0049044	0.0026158	1.8749[.071]
dLPBB	-0.51267	0.18647	-2.7494[.010]*
dFLI	2.6084	0.84469	3.0880[.004]*
dFLI1	2.3282	1.0955	2.1252[0.042]*
ECM(-1)	-0.60605	0.11887	-5.0983[.000]*

*\* Significance at 5% level*

Table 6.4 presents an error correction model associated with ARDL (1,0,1,0,2), which was selected based on the Schwarz Bayesian Criterion. This is statistically significant at the 5% level to confirm a slow speed of adjustment back to a long-term equilibrium with the coefficient of ECM (-1) -0.60605. Although there is no strong positive impact of FLI on LVBTR, table 6.4 shows some positive effects on the change in total volume of bank transactions in the short term because dFLI is significant variable in the ECM result. In other words FLI has a positive significant impact on LVBTR in the short term.

#### 6.4.2.2 Interest rates, Savings, and Investment

The literature of FL illustrates that real interest rate increases helps increase savings and investments in FL. To prove this hypothesis an empirical test through the equation 6.5 was conducted.

$$LTDR_t = a_6 + a_7LGDPR_t + a_8DRR_t + a_9LPBB_t + a_{10}FLI_t + e_t \dots \dots \dots (6.5)$$

In this equation the log of total real time deposits (LTDR), the log of real gross domestic product (LGDPR), real deposit rate (DRR), the log of the average population density per bank branch (LPBB) and the financial liberalisation index (FLI), are I (1).

The F-statistic for this model is 4.7301, which exceeds the upper bound of the critical values (3.539 to 4.667) so a null hypothesis can be rejected. The results show a long-term relationship between the variables, so it can be concluded that LGDPR, DRR, LPBB and FLI are the long term forcing variables that explain the LTDR.

**Table 6.5: ARDL (2, 3, 1, 2, 1) Model Long-run Results**  
**Dependent Variable: LTDR**

Regressor	Coefficient	Standard Error	T-Ratio [Prob]
INPT	-200.8213	552.4172	-.36353[.719]
T	-1.4534	4.2419	-.34262[.735]
LGDPR	17.6210	7.4319	2.3710[.0425]*
DRR	-.35334	1.2059	-.29302[.772]
LPBB	-5.6213	14.5908	-.38526[.703]
FLI	21.5522	66.8840	.32223[.750]

\* Significance at 5% level

Table 6.5 presents the long term results of the ARDL (2,3,1,2,1) model showing that only the LGDPR is statistically significant at 5% levels. The signs of the variables LGDPR, LPBB, and FLI meet our expectation that LGDPR has a positive relationship, LPBB has a negative relationship, and FLI has a positive but insignificant relationship with real time deposits. On the other hand the sign of DRR is not as per our expectation and does not support our hypothesis.

The Error correction model results are presented in table 6.6.

**Table 6.6: ARDL (2,3,1,2,1) Model ECM Results**

**Dependent Variable: dLTDR**

<b>Regressor</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>T-Ratio [Prob]</b>
dINPT	10.1179	10.4821	.96526[.343]
dT	.073224	.049807	1.4702[.153]
dLTDR1	-.38426	.17100	-2.2471[.033]*
dLGDP	.58991	.63303	.93189[.359]
dLGDP1	2.2205	.81780	2.7152[.011]*
dLGDP2	2.4023	.72446	3.3160[.003]*
dRR	.010612	.0027872	3.8074[.001]*
dLPBB	-.83367	.36336	-2.2944[.029]*
dLPBB1	-1.4202	.39702	-3.5772[.001]*
dFLI	1.3692	1.1342	1.2072[.237]
ECM(-1)	-0.63174	.27640	-2.28562[.047]*

\* Significance at 5% level

Table 6.6 shows that ECM (-1) is statistically significant and the sign is as expected. dLTDR1, dLGDP1, dLGDP2, dRR, dLPBB, and dLPBB1 are statistically significant which shows they made a significant contribution to LTDR in the short term. The sign of FLI is positive but insignificant which shows that it has a positive, but not very significant short-term role.

The second part of hypothesis H2 mentioned in chapter five is associated with the positive effect of real interest rates on investments, which is a proxy of total bank credits in real value. In order to analyse this relationship the following equation is tested:

$$LTBCR_t = a_{11} + a_{12}LRR_t + a_{13}RFR_t + a_{14}LBCBR_t + a_{15}LPBB_t + a_{16}FLI_t + e_t \dots \dots \dots (6.6)$$

In equation 6.6 the real lending rate (LRR) is I (0) and the remaining variables are I (1). A dependent variable is the log of real total bank credit to the private and public sector (LTBCR) to represent investments. The independent variables are the real re-finance rate (RFR), the log of real borrowing by banks (LBCBR), and LPBB and FLI are as defined earlier. Here the expectation to support the hypothesis is positive signs for the coefficients of all independent variables except the negative coefficient of LPBB.

The F-statistic for this model is 4.568 against the critical value bounds of 3.189 to 4.329. The results show that it is significant at a level of 5%, which means there is long term relationship between the model variables. The results of the long-term coefficient are presented in table 6.7.

**Table 6.7: ARDL (1, 0, 4, 4, 0, 1) Model Long term Results**  
**Dependent Variable: LTBCR**

<b>Regressor</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>T-Ratio [Prob]</b>
INPT	30.7017	4.2779	7.1768[.000]*
T	-0.061505	0.025804	-2.3835[.027]*
LRR	-0.0042804	0.011037	-0.38783[.702]
RFR	0.057901	0.020945	2.7645[.012]*
LBCBR	-0.041503	0.028438	-1.4594[.159]
LPBB	-2.4863	0.36519	-6.8083[.000]*
FLI	1.4944	1.0606	1.4090[.173]

*\* Significance at 5% level*

Table 6.7 shows that the real re-finance rate (RFR) and log of average population density per bank branch (LPBB) are the key variables and are significant at level of 5%. The signs of LPBB, RFR, and FLI are as expected although FLI is not statistically significant. LBCBR is also not statistically significant and has been negatively associated with LTBCR.

**Table 6.8: ARDL (1, 0, 4, 4, 0, 1) Model ECM Results**  
**Dependent Variable: dLTBCR**

<b>Regressor</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>T-Ratio [Prob]</b>
dINPT	16.4024	3.0350	5.4044[.000]*
dT	-0.032859	0.013514	-2.4316[.023]*
dLRR	-0.0022868	0.0058111	-.39352[.697]
dRFR	0.0085255	0.0059063	1.4434[.162]
dRFR1	-0.014574	0.0046821	-3.1128[.005]*
dRFR2	-0.010948	0.0036464	-3.0025[.006]*
dRFR3	-0.0056170	0.0025547	-2.1987[.038]*
dLBCBR	0.088399	0.026337	3.3564[.003]*
dLBCBR1	0.12522	0.036403	3.4398[.002]*
dLBCBR2	0.069046	0.026834	2.5730[.017]*
dLBCBR3	0.069573	0.028790	2.4165[.024]*
dLPBB	-1.3283	0.24768	-5.3630[.000]*
dFLI	2.8895	1.1110	2.6009[.016]*
ECM(-1)	-.53425	0.10710	-4.9882[.000]*

\* *Significance at 5% level*

Table 6.8 shows that the ECM (-1) is statistically significant with a correct sign, although the coefficient of -0.534 suggests that about 53 % of the disequilibria of the previous year's shock is adjusted back to equilibrium in the current year. The coefficients of dLRR and dRFR are statistically significant which shows they have a significant impact on LTBCR in the short term, albeit with different signs.

#### **6.4.2.3 Financial Performance**

Financial liberalisation aims to improve the overall financial performance (financial development) in the economy. To prove this assumption, equations 6.7 and 6.8 were tested.

$$LFD_t = a_{17} + a_{18}LGDPP_t + a_{19}LVBTP_t + a_{20}IRR_t + a_{21}LPBB_t + a_{22}FLI_t + e_t \dots \dots \dots (6.7)$$

In equation 6.7 the dependent variable is the log of financial sector deepening (LFD), which is the log of the ratio of bank deposit liabilities to nominal GDP as the proxy of such financial depth, the independent variables are the log of per capita nominal gross domestic product (LGDPP), and the log of the per capita volume of banking transaction (LVBTP), IRR, and

LPBB, as defined earlier. To support the hypothesis that FL improves financial performance the expected signs for every variable except LPBB are positive.

The F-statistic for this model is 0.40258 against the critical value bounds of 3.189 to 4.329, which indicates that a null hypothesis cannot be rejected. It is clear that there is no long-term relationship between the variables, which means there is no long-term relationship between FLI and financial performance and development. This situation does not support our hypothesis, which proves that financial liberalisation has improved the financial performance of Sri Lanka.

Another aspect of the economy is the performance of banking sector. Equation 6.8 was tested with a dependent variable, the log of credit deposit ratio (LCDR), and the independent variables are LRR, LPBB, and FLI.

$$LCDR_t = a_{23} + a_{24}LRR_t + a_{25}LPBB_t + a_{26}FLI_t + e_t \dots \dots \dots (6.8)$$

The F-statistic for this model is 1.5738 with critical values from 4.066 to 5.119. The results show that a null hypothesis cannot be rejected at a level of 5%, which proves there is no long-term relationship between these variables.

#### 6.4.2.4 Financial Liberalisation and Economic Growth

Financial liberalisation aims to foster economic growth in a nation. As mentioned in the literature survey, there are different views so this debatable issue in the context of Sri Lanka is tested with equation 6.9.

$$LGDPP_t = a_{27} + a_{28}LFD_t + a_{29}IRR_t + a_{30}FLI_t + e_t \dots \dots \dots (6.9)$$

In equation 6.9 the dependent variable is the log of the per capita gross domestic product (LGDPP), the independent variables are the log of financial sector deepening (LFD), real interest rates (IRR), and financial liberalisation index (FLI), all of which are I (1).

The F-statistic for the model is 2.7060 and critical values from 4.066 to 5.119 which shows that a null hypothesis can be rejected at a 5% level of significance. Therefore it can be concluded there is no long-term relationship between the variables, which contribute to economic growth.

This situation proves that financial liberalisation and financial depth have not contributed to the economic growth of Sri Lanka. It also proves that FL has not significantly contributed to economic growth in Sri Lanka.

#### 6.4.2.5 Money Demand

It is said that FL fosters the number of economic activities and ultimately helps increase the money demand in the national economy. Therefore to know how FL impacts on money demand, equations 6.10 and 6.11, which are related to broad and narrow money, were tested.

$$LNMR_t = a_{31} + a_{32}LGDPR_t + a_{33}LRR_t + a_{34}FLI + e_t \dots \dots \dots (6.10)$$

In equation 6.10 the log of real narrow money (LNMR) is a dependent variable and LGDPR, LRR, and FLI are independent variables, as defined earlier. The positive sign of the coefficients of all variables in equation 6.10 and 6.11 are expected to support the hypothesis that financial liberalisation has helped increase money demand.

The F-statistic for the model is 8.4142 and the critical values are from 4.066 to 5.119, which shows its significance and from which we, can reject the null hypothesis saying there is a long-term relationship among the variables. LGDPR, LRR, and FLI do have a long-term impact on LNMR so testing the long-term coefficients and ECM using the ARDL approach to cointegration is essential.

ARDL (1, 0, 0, 2) Model long term results are presented in table 6.9.

**Table 6.9: ARDL (1, 0, 0, 2) Model Long-run Results**

**Dependent Variable: LNMR**

<b>Regressor</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>T-Ratio [Prob.]</b>
INPT	-3.3193	18.9736	-.17494[.862]
T	.071363	0.066913	1.0665[.295]
LGDPR	0.43076	1.5823	.27223[.787]
LRR	.033246	0.014306	2.3239[.027]*
FLI	-5.8056	2.4604	-2.3597[.025]*

\* Significance at 5% level

As seen in table 6.9 the real lending rate (LRR) and financial liberalisation index (FLI) are the key variables, which have a long-term relationship with LNMR. The relationship of FLI is negative while LRR has a positive relationship with LNMR. This positive association of LRR with LNMR shows that the money demand market is dominant by money lending organisations such as banks, finance companies, insurance companies, and other money suppliers in the market. There is no significant long-term relationship between LGDPR and LNMR in this test.

The ARDL (1, 0, 0, 2) Model ECM Results presented in table 6.10 shows the ECM (-1) is a statistically significant moderate power for getting the economy into an equilibrium and dLRR and dFLI1 are statistically significant, showing their relationship with dLNMR in the short term.

**Table 6.10: ARDL (1, 0, 0, 2) Model ECM Results**  
**Dependent Variable: dLNMR**

<b>Regressor</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>T-Ratio [Prob]</b>
dINPT	-0.96638	5.6198	-0.17196[.865]
dT	0.020777	0.016930	1.2272[.229]
dLGDPR	0.12541	0.47414	0.26451[.793]
dLRR	0.0096794	0.0022927	4.2219[.000]*
dFLI	1.1050	1.0307	1.0721[.292]
dFLI1	2.4687	1.1042	2.2357[.033]*
ECM(-1)	-0.29114	0.097340	-2.9910[.005]*

\* Significance at 5% level

Equation 6.11 is used to test the relationship between the log of real broad money (LBMR) with the log of real gross domestic product (LGDPR), and the real lending rate (LRR) with the financial liberalisation index (FLI).

$$LBMR_t = a_{35} + a_{36}LGDPR_t + a_{37}LRR_t + a_{38}FLI + e_t \dots \dots \dots (6.11)$$

The F-statistic for this model is 8.3174 and the critical value bound at 95% is from 4.066 to 5.119. The results show that it is highly significant, indicating a long-term relationship between LGDPR, LRR, and FLI on LBMR.

The ARDL (2, 0, 0, 3) Model long term test results are presented in table 6.11

**Table 6.11: ARDL (2, 0, 0, 3) Model Long-run Results****Dependent Variable: LBMR**

<b>Regressor</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>T-Ratio [Prob.]</b>
INPT	-34.0304	10.2462	-3.3213[.003]*
T	-0.031937	0.033488	-.95368[.348]
LGDPR	3.0309	0.85303	3.5531[.001]*
LRR	0.023978	0.0058476	4.1006[.000]*
FLI	-4.3829	1.0631	-4.1227[.000]*

\* Significance at 5% level

As revealed by table 6.11, LGDPR, LRR, and FLI are key variables for LBMR in the long term. LGDPR and LRR are positively associated with LBMR and FLI is negatively associated with LBMR in the long term, which proves that FL has impacted negatively to increase money demand in the Sri Lankan economy.

**Table 6.12: ARDL (2, 0, 0, 3) Model ECM Results****Dependent Variable: dLBMR**

<b>Regressor</b>	<b>Coefficient</b>	<b>Standard Error</b>	<b>T-Ratio [Prob]</b>
dINPT	-13.7449	5.7121	-2.4063[.023]*
dT	-0.012899	.014881	-0.86681[.393]
dLBMR1	0.26426	.10717	2.4657[.020]*
dLGDPR	1.2242	.48817	2.5077[.018]*
dLRR	0.0096849	.0017169	5.6409[.000]*
dFLI	1.9118	.71028	2.6917[.012]*
dFLI1	3.3588	1.0100	3.3254[.002]*
dFLI2	2.1846	.75755	2.8838[.007]*
ecm(-1)	-0.40390	.081302	-4.9679[.000]*

\* Significance at 5% level

Table 6.12 reveals that ECM (-1) and all the variables are statistically significant and the signs of variables are as per our expectations. It also shows that LGDPR, LRR, and FLI have contributed positively to increase the broad money demand in the short term.

## 6.5 Causality Test

As shown, the debate in the literature survey about financial development and its relationship with economic growth highlighted three different controversial views: financial development causes economic growth, financial development does not cause economic growth but economic growth brings financial development, and financial development plays a negative role in economic growth. How this affects Sri Lanka is the major question raised in our study. To answer it, a unit root test of the variables was conducted and showed that the log of financial development (LFD), the proxy of financial deepening, and the log of nominal gross domestic product per capita (LGDPP), and the proxy of economic growth are the non-stationary series I(1). The cointegration test between LFD and LGDPP was conducted based on a Vector Auto Regression (VAR) approach pioneered by Johansen (1991) with the model mentioned in equation 6.12.

$$Z_t = \alpha + \Pi_1 Z_{t-1} + \Pi_2 Z_{t-2} + \dots + \Pi_k Z_{t-k} + \ell_t \dots \dots \dots (6.12)$$

Equation 6.12 has been expressed like equation 6.13.

$$\Delta Z_t = \alpha + \Pi_k Z_{t-k} + \sum_{i=1}^{k-1} \theta_i \Delta Z_{t-i} + \ell_t \dots \dots \dots (6.13)$$

Where  $\Pi$  and  $\theta$  are p-by-p matrices of unknown parameters and  $\ell$  is the white noise term. Johansen and Juselius (1990) developed two likelihood ratio tests: the Maximum Eigen Value Test which evaluates the null hypothesis of r co-integrating vectors against the alternative of (r+1) co-integrating vectors, and the trace test which evaluates the null hypothesis of co-integrating vectors versus the general null of p cointegrating vectors. In this case the null hypothesis (H0) states there is no cointegration between the variables and the alternative hypothesis (H1) is the existence of only one cointegrating vector. If the variables are co-integrated then the error correction model is used to test the causality between LFD and LGDPP because cointegration implies the existence of an error correction model (ECM). Alternatively, where variables are not co-integrated the Granger Causality test will be adopted.

The assumption is made here that the Underlying VAR model contains unrestricted intercepts not deterministic trends but the order of VAR selected as 2 is considered a relatively small number of observations following Johansen and Juselius (1990). The result of the cointegration test is presented in table 6.13.

**Table 6.13: Cointegration Tests using Johansen Procedures**

Variable	Max. Eigen Value Test	Trace Test	Result
LFD and LGDPP    r =0	14.5005(14.8800)	14.5407(17.8660)	Not Co-integrated
r = 1	0.040222(8.0700)	0.040222(8.0700)	

The test values of both are at a significance level of 5% that shows that LFD and LGDPP are not co-integrated and therefore our next step is to test causality. For this test the popular 'Granger Causality' method introduced by Granger (1969) where the lag values of one variable (suppose A), improve prediction of the future value of another variable (suppose B), then it is said that A has the causal relationship with B, or A Granger causes B. Equation 6.14 and 6.15 were used to test the Granger Causality of these two variables:

$$\Delta LGDPP_t = \sum_{i=1}^n \alpha_i \Delta LGDPP_{t-i} + \sum_{j=1}^n \beta_j \Delta LFD_{t-j} + u_{1t} \dots \dots \dots (6.14)$$

In equation 6.14 the present value of  $\Delta LGDPP$  is related to the past values of itself and the past values of  $\Delta LFD$ , while equation 6.15 shows that the present value of  $\Delta LFD$  is related to the past values of itself and present values of  $\Delta LGDPP$ .

$$\Delta LFD_t = \sum_{i=1}^n \lambda_i \Delta LFD_{t-i} + \sum_{j=1}^n \delta_j \Delta LGDPP_{t-j} + u_{2t} \dots \dots \dots (6.15)$$

The null hypothesis in 6.14 is  $\beta_j=0$ , which means  $\Delta LFD$  does not Granger cause  $\Delta LGDPP$ , similarly, the null hypothesis in equation 6.15 is  $\delta_j=0$ , and it states that  $\Delta LGDPP$  does not cause  $\Delta LFD$ , and the test of hypothesis is made with the F-statistics. The test results are in table 6.14.

**Table 6.14: Granger Causality Results****Sample: 1963-2005****Lags: 4**

<i>Null Hypothesis</i>	<i>Observations</i>	<i>F-Statistics</i>	<i>Probability</i>
$\Delta\text{LGDP}$ does not Granger cause $\Delta\text{LFD}$	38	3.91002	0.01169*
$\Delta\text{LFD}$ does not Granger cause $\Delta\text{LGDP}$	38	2.03138	0.11615

*\* Significance at 5% level*

The test results in table 6.14 show that the F-statistics for  $\Delta\text{LGDP}$  is significant which implies that a null hypothesis in this case is rejected at the level of 5% significance, but alternatively the F-statistics for  $\Delta\text{LFD}$  is insignificant and a null hypothesis cannot be rejected. The test results reveal that while economic growth has enhanced financial performance and financial development, they are not contributing to economic growth. These results support our findings in equation 6.9 which shows that FLI is not contributing for any long term impact on economic growth in Sri Lanka. Therefore it can be said that there is a one-way causality led by economic growth to financial performance and financial development.

## 6.6 Concluding Remarks

All together 6 hypotheses were introduced in chapter 5 to test the impact of financial liberalisation on the macro economy of Sri Lanka. This chapter focused on testing these hypotheses by conducting empirical tests.

The first was for the unit root of every variable included in the study by adopting DF, ADF and PP test procedures. Out of 17 variables, LRR is I (0) in all three methods. Some variables were I (0) in the PP test and I (1) in the ADF test. In that situation those variables were assumed to be I (1) and they went through the ARDL approach of cointegration based on SBC results to test all hypotheses in eight equations. The long-term coefficient and the ECM (-1) results were also presented as tables in the relevant sections and sub-sections of this chapter. The stability of the equation or long-term relationship between the models was tested using the F-test. Only the model with a significant F-test at a significance level of 5% has been processed for the ARDL approach to cointegration.

The major objective of this study is to analyse the impact of FL on the different macro-economic issues of the Sri Lankan economy. Therefore the cointegration test applying the OLS based ARDL approach was applied. In this process the long term and short-term impact of FL on the economy were introduced. The results show that the FL has not contributed to widen the financial sector in the long term, as was expected. Indeed FL had a negative impact on widening the financial sector; this was insignificant in the long term but positive in the short term. This study did not find that financial liberalisation had any impact on interest rates and savings. FL was positive on investments but while the impact was insignificant over the long term, it was significant in the short term. FL had no strong relationship to the overall financial performance, so too with the banking sector performance and economic growth. Empirical tests on broad and narrow money demand were conducted and revealed that FL has a significant negative impact on narrow money demand in the long term and positive in the short term, but significant. FL has a significant negative impact on broad money demand in the long term and significant positive impact in the short term.

The relationship between financial performance and economic growth is very debatable among economists and researchers because the results of different countries' experience contradict each other. To test this debate for Sri Lanka, the Granger Causality test was conducted which showed that the causal relationship between financial performance and economic growth as explained by its supporters was not found. There is a one way causal relationship i.e. economic growth granger causes financial performance. These results clearly support those who say that financial performance and financial development do not support economic growth significantly but economic growth significantly supports and enhances financial performance and economic development.

## **CHAPTER SEVEN**

### **CONCLUSIONS AND FINDINGS**

#### **7.1 Introduction**

The objective of this research is to analyse the impact of financial liberalisation on macro-economic issues such as interest rates, savings and investments, national income, economic growth, financial performance and financial sector widening, and money demand in the Sri Lankan economy covering data from 1963 to 2005. Through empirical analysis, some impact and policy implications of FL were discovered and presented in the following: section 3 presented the contributions to this study and section 4 outlined the limitations and orientation for future study.

#### **7.2 Summary of Findings and Policy Implication**

As found in chapter six through the empirical tests, FL in Sri Lanka has been a mixed impact in the overall economy. Financial liberalisation has contributed in some issues positively but not as expected in most instances. The empirical results could not show such a significant positive contribution to financial liberalisation in the Sri Lankan economy as explained by its supporters. The major findings and their policy implications have been summarised in the following paragraphs.

The test results showed that the average population per bank branch, real interest rate and real gross domestic product are key variables for widening the financial sector. Therefore more branches should be established to enable easier access to financial resources and real interest rates should be increased to motivate financial activities. Higher interest rates motivate savings that can be used for a variety of financial and economic activities to extend the financial sector.

Another finding is that real gross domestic product helps widen the financial sector, which proves that economic growth fosters the financial sectors better than FL in the long term even though FL assists in the short term. These results support the findings of Robinson (1952), Lucas (1988), Stern (1989) so it can be concluded that financial sector widening is impossible without increasing people's real income.

Interest rates and savings are supposed to be helped by FL in the long term but this study did not discover any such contribution. LGDPR is the significant variable, which forces to increase interest rates and savings; it proves that income led interest rates and savings are found in Sri Lanka.

Real re-finance rates and the average population per bank branch are the key determinants to increasing investments. The real re-finance rate explores the possibility of high returns to investors so that investment can increase. The results show that as the number of bank branches increase it gives easy access to money demanders in the financial market, and facilitates people's banking habits, which attract the formal financial sector that ultimately leads to an increase in investment. Therefore the study suggests that a substantial increase in the number of branches is essential for Sri Lanka to increase investment.

Financial sector deepening and the credit deposit ratio are major indicators of financial performance. Banking sector performance can be measured by the credit deposit ratio. The results show that FL did not contribute as expected to improve the financial performance of the economy. The reasons may be unfair competition among the banks, dominance of government owned banks, loose monitoring mechanisms, failure to follow sequential procedure, implications without proper preparation etc. This means that more effort must be made to improve the performance of the banking and financial sector otherwise the FL policy would become the most debatable issue in Sri Lanka for years to come.

Economic growth is the key objective of economic and financial policies in a country but our results reveal that financial liberalisation did not play such a significant role in enhancing economic growth in Sri Lanka. The results do not support the findings of Ghatak (1997) in the Sri Lankan context when he explored the positive impact of FL in Sri Lanka from 1950 to 1987. The policy implication is that financial deepening was not done well enough to reap the fruits of the financial sector which proves that liberalisation alone is not enough if not followed by proper strategies with suitable sequential procedures. The results of this study support the findings of Robinson (1952), Lucas (1988) and Stern (1989) when they say that the financial system and financial performance can be improved only as economic growth occurs in a nation.

The expansion of money demand indicates the strength of an economy in the sense that demand will be spent on capital expenditure, investment and consumption. The real expansion of money demand shows the growing strength of an economy. In Sri Lanka the real lending rate has a positive association and FL has a negative association with the demand for narrow money. This proves that money demand is mostly made by the corporate sector to lend at higher interest rates, and financial liberalisation has disturbed the expansion of money demand but contributed in the short term.

For an expansion of broad money, real gross domestic product and real lending rates are the key variables. FL has a negative impact on the expansion of money demand unlike our expectations, which shows that expansion is possible by enhancing economic growth and increasing real incomes, not by financial liberalisation as it has occurred.

The empirical results show that there is one-way causal relationship between economic growth and financial performance; economic growth causes financial development and financial performance in the case of Sri Lanka. The empirical results support the view that economic growth leads to financial development. This study did not find any convincing empirical evidence to support the proposition of the FL hypothesis.

### **7.3 Contribution of this Study**

This study has made some significant contributions in the case of Sri Lanka and FL. FLI for Sri Lanka while considering the different phases and stages of FL has been developed. This liberalisation index would make it easy to further study Sri Lankan FL and the same method could be used to study other countries.

Sri Lanka has been implementing financial liberalisation since 1977 in 2 major phases with different efforts. Other studies have been made on Sri Lanka but this is the first to use the ARDL approach of cointegration covering the longest data and it has analysed most of the financial and economic sector in relation to financial liberalisation at the macro level.

This study has presented the real picture of FL using Sri Lankan data. It is somewhat critical on the overall FL policy based on the empirical analysis because it has made positive and negative contribution to financial liberalisation in the country.

#### **7.4 Limitations of the Study and Directions for Future Research**

The study focused on the macro effect of FL in Sri Lanka. The desirable level of liberalisation and state role in financial sector performance are still unanswered questions. These issues can be further studied at a firm level that will enhance the quality of research. Furthermore the impact of financial liberalisation on international trade, balance of payments and government finance can be studied with the relevant methodology.

The empirical results did not find any significant contribution of FL to Sri Lanka. It is essential to research why not despite the magnificent effort of government and the international sectors in Sri Lanka. This is one of the major questions to be addressed in future research into Sri Lankan financial liberalisation.

Critics of financial liberalisation say that FL reduces the welfare in a society and increases the poverty gap. Therefore, further research can be made on how financial liberalisation affects the reduction of poverty, whether FL has contributed or is supporting its critics.

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