FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH IN INDIA

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DEDICATED
TO
MY BELOVED FAMILY

Acknowledgement

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ABBREVIATIONS

ADF	Augmented Dickey Fuller test
AIC	Akaike Information Criterion
ARDL	Auto Regressive Distributed Lag
ATM	Automatic Teller Machine
BC	Bank Credit
BMA	Bayesian Model Average
BRIC	Brazil Russia India China
BSE	Bombay Stock Exchange
CARICOMM	Caribbean Community
CUMSUM	Cumulative Sum of Recursive Residuals
CUMSUMSQ	Cumulative Sum of Squares of Recursive Residuals
ECOWAS	Economic Community of West African States
FDII	Financial Development Index for India
FIN	Financial Innovation Ratio
FMOL	Fully Modified Ordinary Least Squares
FPE	Final Prediction Error
GDP	Gross Domestic Product
GNP	Gross National Product
MC	Market Capitalization Ratio
MENA	Middle East and North Africa
M3	Broad Money
OECD	Organization for Economic Co-operation and Development
PP	Philips Perron
PCA	Principal Component Analysis
RBI	Reserve Bank of India
SBC	Schwarz Bayesian Criterion
SEBI	Securities Exchange Board of India
SSA	Sub Saharan African
VAR	Vector Auto Regression
VECM	Vector Error Correction Model

CHAPTER-I

INTRODUCTION

I.1.Finance

The word finance is originally a French word, which means the management of money. Today finance is not merely a word else has emerged into an academic discipline of greater significance. It is now organised as a branch of Economics. It is concerned with allocation as well as resource management, acquisition and investment and is defined as the commercial activities through which banks, financial institutions generate and distribute fund for capital building of industries. It is conceptualized, structured and regulated by a complex system of power relations with political economies across state and global markets. It is a bridge between the present and the future and whether it is the mobilisation of savings or their efficient, effective and equitable allocation for investment, it is the success with which the financial system performs its functions that sets the pace for the achievement of broader national objectives.

1.2. Financial System

Finance is bulk amounts lend and borrowed by creditors and debtors respectively, for a particular period of time at a stipulated interest rate (Gurley and Shaw 1960). In other words, finance refers to the funds of monetary recourses needed by individuals, business houses and the Government. Hence all those activities dealing with finance are organised in a system known as the "Financial System or Financial Sector". A financial system comprises financial institutions markets and instruments which together form the essential framework for mobilisation and

allocation of savings. The primary role of any financial system is to act as conduit for the transfer of financial recourses from net savers to borrowers.Financial markets can matter either by affecting the volume of savings available to finance investment (Bencivenga and smith (1991); or by increasing the productivity of that investment (Greenwood and Jovanovic, 1990; King and Levine 1993). Thus financial market efficiency can act as a lubricant to the engine of economic growth. The financial system is possibly the most important institutional and functional vehicle for economic transformation. It includes different markets, institutions, instruments, services and mechanisms which influence the generation of savings, investment, capital formation and growth. The Indian financial system is broadly classified into two broad groups: i) Organised sector and (ii) Unorganised sector.

The organised financial system comprises of a good network of banks, other financial and investment institutions and a range of financial instruments, which together function in fairly developed capital and money markets. Short-term funds are mainly provided by the commercial and co-operative banking structure. The organised financial system comprises the different sub-systems such as Banking system, Cooperative system, Development Banking system, Money markets and financial companies or institutions.

The unorganised financial system comprises of relatively less controlled moneylenders, indigenous bankers, lending pawn brokers, landlords, traders etc. This part of the financial system is not directly amenable to control by the Reserve Bank of India (RBI). There are a host of financial companies, investment companies and chit funds etc. which are also not regulated by the RBI or the Government in a systematic manner.

I.3.Financial Development

Financial development is usually defined as a process that marks improvement in quantity, quality and efficiency of financial intermediary services. It refers to the development of well functioning financial markets and intermediaries. Financial Development Report published by World Economic Forum defined financial development as the factors, Policies and institutions that lead to effective financial intermediation and markets, as well as deep and broad access to capital and financial services. Financial development occurs when financial instruments, markets and intermediaries ameliorate though does not necessarily eliminate –the effects of information, enforcement and transactions cost and therefore do a correspondingly better job at providing the five financial functions. Financial development involves improvement in the production of ex-ante information about possible investments, monitoring of investment and implementation of corporate governance, trading diversification and management of risk, mobilization & pooling of savings and exchange of goods and services. According to Dorrucci and Drutti (2007), financial development means the capability of a country to channel its savings into investments effectively and efficiently within its own borders owing to the quality of its institutional and regulatory framework, the size of its financial markets, the diversity of its financial instruments and private agent's ease of access to them and the financial market's performance in terms of efficiency, liquidity. Hartmann and Heider (2007) defined financial development as the process of financial innovation as well as institutional and organisational improvements in a financial system, which reduce asymmetric information, increase the completeness of markets, add possibilities for agents to engage in financial transactions through contracts, reduce transaction costs and increase competition. The scope of financial development therefore includes

improvements or innovations in products, institutions and organisations in the banking sector, non banking financial structures and capital markets.

1.4. Economic Growth

The simplest definition of economic growth is an increase in real Gross Domestic Product (GDP). It is the expansion of the national income that the total production of goods and services of a country over a given period. The growth rate of real GDP is the percentage change in real GDP from one year to the next year. It is usually measured by the pace of change of GDP after adjustment for inflation is known as real GDP. Nominal GDP, on the other hand, refers to the market value of goods and services produced by a country and it can increase due to a rise in production of goods and services or a jump in their prices or both. The real GDP growth rate is equal to the nominal GDP growth rate minus the inflation rate. Gross domestic product, Gross national product, industrial production Index etc are as proxy for economic growth.

1.5. Role of Financial Development in Economic Growth

Economists hold different perspectives on the theoretical link between financial development and economic growth. Schumpeter (1911) mentioned that the services provided by financial intermediaries are essential drivers for innovation and growth. According to Aziz and Duenwald (2002) financial development can affect growth through three main channels. Firstly it can increase the marginal productivity of capital by collecting information to evaluate alternative investment projects and risk sharing; secondly it can raise the proportion of savings channelled to investment via financial development by reducing the resources absorbed by financial

intermediaries and thirdly it can raise the private saving rate. Anzari (2002) noted that financial development contribute economic growth in the following six ways that is financial markets enable small savers to pool funds, savers have a wider range of instruments stimulating savings, efficient allocation of capital is achieved as the proportion of financial saving in total wealth rises, more wealth is created as financial intermediaries redirect savings from the individuals and the slow growing sectors to the fast growing sectors, financial intermediaries partially overcome the problem of adverse selection in the credit market and financial markets encourages specialisation in production development of entrepreneurship and adoption of technologies

However systematic analysis of the relationship between financial development and economic development was first popularised by Goldsmith (1955). He found sound positive correlation between financial development and the level of real per capita GDP. The McKinnon-Shaw school examines the impact of Government intervention on the development of the financial system. Their main proposition is that Government restrictions on the banking system such as interest rate ceilings and direct credit programmes have negative effects on the development of the financial sector and, consequently, reduce economic growth. Several other studies, on the other hand, have documented a negative relationship between financial development and economic growth [see, for example, Robinson (1952), Schwartz and Friedman (1963)].

Recent studies indicate that financial development is one of the main factors behind growth. The literature on Economics and Finance has identified a number of channels through which the financial sector supports economic growth. Creane et al(2004) argued that a modern financial system promotes investment by identifying and funding good business opportunities; mobilising savings; monitoring the

performance of managers; enabling the trading , hedging and diversification of risk; and facilitating the exchange of goods and services. These functions result in a more efficient allocation of resources, a more rapid accumulation of physical and human capital, and faster technological progress which in turn feed economic growth. Based on theoretical literature the views on financial development in economic growth can be classified into two major categories. The first view was put forwarded by Schumpeter (1911), who was the earliest economist and who highlighted the importance of finance in the process of economic development. He emphasised the importance of financial services in promoting economic growth and highlighted the circumstances in which financial institutions can actively encourage innovation and promote future growth by determining and funding productive investments. He argued that financial systems are important in promoting innovations, i.e. economies with more efficient financial systems grow faster. The second view was contributed by Robinson (1952) who considered finance as a relatively unimportant factor in growth process. He argued that as output increases, the demand for financial service increases as well, which in turn has a positive effect on financial development. According to Robinson (1952) all other things being constant, financial development follows economic growth and not the other way around.

Based on the Robinson's (1952) and Schumpeterian's (1911) view, Patrick (1966) contributed to financial development and economic growth literature by identifying two patterns in the causal relationship between financial development and economic growth. The first one is called "Demand Following" which is the creation of modern financial institutions and the supply of their financial assets, liabilities and related financial services in response to the demand for these services by investors and savers in the real economy .The second one is called "Supply Leading" which is

the creation of financial institutions and the supply of their financial assets, liabilities and related financial services in advance of demand for them, especially the demand of entrepreneurs in the modern growth inducing sectors. Supply leading has two functions: to transfer resources from traditional (non-growth) sectors to modern sectors and to promote and stimulate an entrepreneurial response in the modern sectors. Patrick (1966) also argued that the causal relationship between financial development and economic growth varies according to the stages of the development process. He suggests that the supply-leading pattern dominates during the early stages of economic development. As financial and economic development proceeds, the supply-leading characteristics of financial development diminish gradually and are eventually dominated by demand following characteristics of financial development. The financial and real sectors may expand simultaneously contributing to the development of each other, which points to bidirectional causality between the two. Two way relationships between financial development and economic growth has been shown by, for example, Berthelemy and Varoudakis(1997), Greenwood and Bruce(1997) and Luintel and Khan(1999).

Most of the earlier research pertaining to the causal relationship between financial development and economic growth were concentrated on developed countries particularly on capitalist countries. Their relevance to the developing countries like India is limited due to the existence of vast differences in socio economic and political characteristics between developed and developing countries.

1.6. Objectives of the Study

1. To Construct Financial Development Index for India

2. To examine whether there exist long and short run relationship between financial development and economic growth in India

3. To check whether there exist any difference in relationship between financial development and economic growth in India during pre and post liberalization period.

4. To identify the direction of causality between financial development and economic growth in India.

1.7. Null Hypothesis of the Study

Ho1: There is no significant long run and short run relationship between financial development and economic growth in India.

Ho2: There is no significant difference in the relationship between Financial Development and Economic Growth during Pre and Post liberalization period.

Ho3: No information is passed from financial development to Economic Growth during the study periods.

Ho4: There is no change in the direction of causal relationship between pre and post liberalization period.

1.8. Significance of the Study

It is identified from the review of literature that most of the studies related to financial development and economic growth used different proxies like market

turnover, market capitalisation, bank credit, financial innovation ratio, broad money, domestic credit to private sector, new issue ratio etc. Generally proxy is taken based on the dominance of the financial market or banking system in that country. In India both the financial market and banking sector has a predominant role. Therefore, exclusion of one variable may give a misleading result. In most cases these variables are highly correlated and there is no uniform argument that which proxies are most appropriate for measuring financial development.

There is need to construct an index as a single measure that represents the overall development in the financial sector by taking the relevant financial proxies into account. World Economic Forum has been constructing financial development index for 55 countries from 2008 onwards and India is one among the list. In case of India, from 1991, financial sector has made tremendous changes in the field of stock market and banking sector and therefore any study or measurement of the relationship between financial development and economic growth in India during the pre and post liberalization period will be of great help to understand them in the right perspective. During 1991 the Government of India initiated a comprehensive financial reform to reduce the market segmentation, encourage competition toward a market based and more efficient monitory and credit mechanism. The main objective of the liberalisation policy was to make the financial sector more competitive through privatizing the nationalised commercial banks, liberalising interest rates and credit ceilings.

The present research under the title "Financial Development and Economic Growth in India" is an attempt to construct a financial development index for India. Due to many economic reforms, India has become one of the fastest growing economies in the world. The change in India's policy towards liberalisation in 1991

has provided a good environment for sustainable economic growth. All these reforms have changed the banking sector as well as the financial market. Therefore it is important to study the finance - growth relation during pre and post liberalisation period.

I.9. Scope of the Study

The scope means the boundary of the operations or the area for the study. This study includes financial development proxies from the financial markets and financial intermediaries. Market Capitalization of BSE is used to represent stock market. Broad Money (M3) and total Bank Credit of Commercial Bank is used to represent the financial intermediaries. New developments in the markets such as ATM, Debit Cards, Credit Cards etc are represented by Financial Innovation Ratio (Broad money/Narrow money). A period of 41 years (1971-2011) is taken in to consideration for the purpose of this study.

1.10. Data Description

The study aims to find out the finance- growth relationship in India. It has used yearly data for a period of 41 years (1971-2011). The variables used to construct financial development index are Market capitalization of BSE as percentage of GDP, Broad money (M3) as percentage of GDP**,** Bank credit as percentage of GDP and the Financial Innovation Ratio (Broad Money/Narrow Money). GDP at factor cost (constant price) is considered to represent economic growth. Data are collected from the official website of RBI, SEBI reports and Bombay stock exchange office. Data are taken for a period of 41 years that is from 1970-71 to 2010-11. The study is done for three different periods. First one is the whole time span under consideration, i.e. 1971-

2011, the second is pre-liberalization period (1971-1991) and third is post liberalization period (1992-2011). The study period is divided, based on the structural break in the data set. It is determined with the help of Chow test and by considering the general economic condition of India.

1.11. Model Specification

The empirical literature generally finds a positive relationship between development and economic growth; there is no commonly used indicator for financial development. So the researcher has developed an appropriate index for financial development by considering the major proxies, which are already used in the previous studies.

Based on the theoretical literature the relationship between economic growth and financial development can be specified as follows

$$LogGDP = \beta_0 + \beta_1 \, LogFDI + \varepsilon_t \qquad \text{-----(1)}$$

Where GDP is real GDP, FDI is a measure of Financial Development and ε_t is an error term.Real GDP and FDI variable are expressed in natural logarithm. The Researcher has modified the model which is used by Bhattacharya and Sivasubramanian (2003) in their study. From the literature, the coefficients of financial depth (FDI) are expected to be positive.

1.12. Tools Used in the Study

1.12.1. Principal Component Analysis (PCA)

According to Sricharoen and Buchenrieder (2005), "PCA is an indicator reduction procedure to analyze observed variables that would result in a relatively small number of interpretable components (group of variables), which account for

most of the variance in a set of observed variables". The Eigenvalues are calculated for each component. Generally the size of an Eigenvalue indicates the amount of variance in the principal component explained by each component. The first principal component reflects the largest proportion of the total variability in the set of indicators used. The second component accounts for the next largest amount of variability not accounted by the first component, and so on.

1.12.2 Chow Test

It is a statistical and econometric test of whether the co-efficient estimated over one group of the data are equal to the co-efficient estimated over another. In econometrics chow test is commonly used in time series analysis to test for the presence of a structural break, Bhattacharya and Sivasubramanian (2003).

1.12.3. Line Graph & Summary Statistics

Summary statistics of the variables are needed to understand the behavior of raw data series included in the study. Mean shows the average value of the data set, median shows the mid value of the series and standard deviation shows the dispersion of the variables. Skewness will give the information whether the data set is positively or negatively skewed. Jarque- Bera test indicates whether the series is normal or not normal. Generally, line graphs are used to understand the movements of each variable.

1.12.4. Stationarity (Unit root test)

Stationarity test or unit root test can be used to determine if trending data should be first differenced or regressed on deterministic functions of time to render the data stationarity. Stationarity is the important properties of time series data which shows the ability of the data series to explain the long term and short term information. A stationary time series is the one, statistical properties of which mean, variance and auto correlation are all constant overtime. Moreover, economic and

finance theory often suggests the existence of long run equilibrium relationships among nonstationary time series variables. As a preliminary test, it is necessary to test the stationarity of the time series variables used in the study.

1.12.5. Auto Regressive Distributed Lag Model (ARDL)

"The study also attempts to examine the long run relationships using co-integration techniques. The purpose is to find out whether financial development has any short run and long run effect on GDP, besides identifying the factors determining economic growth in India.

There are two preliminary approaches used to examine the existence of long run relationship among variables. The first approach is a two step residential based test for the null of non-co-integration by Engle & Granger(1987) and the Fully Modified Ordinary Least Squares procedures of Philips and Hansen(1990) and the second approach is the system based reduced rank regression by Johansen (1988), Johansen & Juselius(1990) full information Maximum Likely Hood technique. Both approaches concentrate on cases in which the underlying variables are integrated of order one(I(1) and sample size should be large enough.

The co-integration methodology of this work is adopted on the basis of the following considerations. Mah(2000) discussed that the co-integration methods of Engle and Granger(1987),Johansen(1988), and Johansen & Juselius(1990) are not reliable for studies that have small samples. Kermers et al.(1992) provides empirical evidence that , in the case of small sample , no co-integration can be established amongst the variables that they are integrated of order one,I(1). Hakkiko and Rush(1991) proves that increasing the number of observations by using monthly or quarterly data will not improve the robustness of the results in co-integration analysis,

unless the length of the period under consideration is extended to an appropriate level. Therefore, the bounds testing approach to co-integration developed by Pesaran et al.(2001), is considered to be the most appropriate procedure for this study.

The interest in ARDL model is for the following reasons.

1. It provides a convenient way to deal with long run relationships by focusing on the dynamics of one single equation, where the long run relationship and short run dynamics are estimated jointly

2. The present study is dealing with small sample size consist of 41 observations. Hence ARDL model is more appropriate to overcome the difficulties of small sample size. Several studies have applied the ARDL model relatively for small sample sizes. For example Gounder (1999 and 2002), and Pattichis(1999) applied it in their study where the number of observations were 20 , Tang(2001) for 25 observations, Tang (2006) for 26 observations, Tank & Nair (2002) for 29 observations.

3. The Vector Error Correction Model(VECM) is likely to have better statistical properties than the two step Engle –Granger method, because it does not push the short run dynamics in to the residual terms(Pattichis 1999; and Banerjee et al.1998)

4. All variables are assumed to be endogenous. (Johansen's co-integration technique concerned with the decisions regarding the number of endogenous and exogenous variables to be included, the treatment of deterministic elements, the order of VAR model and the optimum number of lags to be specified). But generally, the empirical results are very sensitive to the method and various alternative choices are available in the estimation procedure. ARDL avoids concerning the choices mentioned above

5. In ARDL method different variables have different optimal number of lags. The ARDL procedure involves two stages. The first stage is to establish the existence of a long run relationship. Once a long run relationship has been established, a two step procedure is used in estimating the long run relationship. The ARDL approach for initial investigation of the existence of long run relationship can be predicted by estimating the short run and long run parameters using the following model.

For instance testing for co-integration among GDP and FDI involves the following steps.

In the first stage, researcher estimated an unrestricted error correction model. An ARDL representation of equation (2) can be specified as follows

$$\Delta LGDP = a_0 + \sum_{i=1}^{q1} \beta_1 \, LGDP_{t-i} + \sum_{i=0}^{q2} \beta_2 \, LFDI_{t-i} + \theta_1 LGDP_{t-1} + \theta_2 LFDI_{t-1}$$

$$+ \, \varepsilon_t \qquad\qquad\qquad\qquad -- (2)$$

Where q1 and q2 are the lag length and εt is assumed to be the error term, Δ is the difference operator, Log GDP is real GDP and LFDI is financial development Index. The approach involves the following steps. In the first stage, the null hypothesis of no co integration relationship which is defined as $H_0 = \delta_1 = \delta_2 = 0$ is tested against the alternative hypothesis $H1 = \delta \neq \delta \neq 0$ of the existence of co integrating relationship. The co-integration test is based on the F-statistics or Wald statistics. The F-test has a non standard distribution. Thus, Pesaran and Pesaran (1997) and Pesaran et al (2001) have provided two sets of critical values for the co integration test. The lower critical bound assumes that all the variables are I (0), where as the upper critical bound assumes that all the variables are I (1). If the computed F-statistic is greater

than the upper critical bound, then the null hypothesis will be rejected suggesting that there exists a co integrating relationship among the variables. If the F-statistic falls below the lower critical bounds value, it implies that there is no co integrating relationship. However, when the F-statistic lies within the lower and upper bounds, then the test is inconclusive.

In this context, the unit root tests should be conducted to ascertain the order of integration of the variables. If all the variables are found to be I (1), then the decision is taken on the basis of the upper critical value. On the other hand, if all the variables are I (0), then the decision is based on the lower critical bound value.

If the variables have long run relationship, as a second step researcher can estimate the long run coefficients and corresponding error correction model. This involves estimating an auto regressive distributed lag model.

$$\text{L}GDP = a_0 + a_1 t + \sum_{i=1}^{m} \alpha_i \ LGDP_{t-i} + \sum_{i=0}^{p} \theta_i \ LFDI_{t-i} + v_t \qquad (3)$$

The ARDL method estimates $(P+1)^k$ number of regressions in order to obtain the optimal lags for each variable, where 'P' is the maximum number of lags to be used and 'k' is the number of variables in the equation (Shrestha and Chowdhury, 2005). The model is selected based on the Schwartz-Bayesian Criterion (SBC) or Akaike Information Criterion (AIC). The SBC uses the smallest possible lag length and is therefore described as the parsimonious model. The AIC chooses the maximum relevant lag length (see Shrestha and Chowdhury, 2005; and Jalil et al, 2008).Once co-integrating relationship is ascertained, the long run and error correction estimates of the ARDL model are obtained. The diagnostic test statistics of the selected ARDL

model can be examined from the short run estimates at this stage of the estimation procedure.

In addition, to evaluating the parameter stability in the models the study graphically plotted cumulative sum of recursive residuals and cumulative sum of squares of recursive residuals test. Bahmani- Oskooee and Brooks (1999) opined that the estimated parameters derived from the error correction model may not be stable. Hence unstable parameters can result in model misspecification, which has the potential to bias the result. Therefore, stability test like the CUMSUM and CUMSUM square test proposed by Brown et al (1975) are important to find the stability of parameter. These statistics are updated recursively and plotted against the break points of the model. If the plot of the statistics fall inside the critical bounds of 5% significance, then the co-efficient of a given regression are considered as stable. These tests incorporate the short run dynamics to the long run through residuals.

Microfit 4.0 is an interactive user friendly econometric software that is mostly used by economists to analyse micro and macro variables which is developed by Pesaran and pesaran(1997)"

1.12.6. VAR Granger Causality Block Exoginity test

In order to identify the direction of causal relationship Vector Auto Regressive(VAR) Granger Causality block exoginity test is applied. The VAR frame work for Granger Causality test is appropriate which is given below.

$$\Delta \text{LGDP}_t = a + \sum_{i=1}^{p} \alpha_i \ \Delta \text{LGDP}_{t-i} + \sum_{j=1}^{q} \beta_j \Delta \text{LFDI}_{t-J} + \mu_t \qquad --- (4)$$

$$\Delta LFDI_t = a + \sum_{i=1}^{r} \gamma_i\, \Delta LFDI_{t-i} + \sum_{j=1}^{s} \delta_j\, \Delta LGDP_{t-J} + v_t \qquad --- (5)$$

In the above equation $\boldsymbol{\mu_t}$ and $\boldsymbol{v_t}$ are serially uncorrelated white noise residuals; and p,q,r and s are lag length of each variable in each equation, Δ is the difference operator, LogGDP is real GDP and LFDI is Financial Development Index. A statistically significant F statistics of each model would be enough to have causation from GDP to FDI in equation(4) and from FDI to GDP in equation (5) (Hassapis et al .,1999)

1.12.7. Variance Decomposition Analysis

Granger causality test indicates only in sample causality test. To gain insight in to causal relationships out of sample, researchers can use variance decomposition analysis. In variance decomposition analysis we partition the variance of the forecast error of a particular variable in to proportions attributable to innovations (shocks) in each variable in the system including its own.

1.13. Limitations of the Study

For this study researcher is used secondary data. The errors happened during compilation of data is not in the control of researcher. Here researcher has taken 41 yearly data and constructed the Financial Development Index. The time span of the data is less, it may affect the result There may be factors other than those considered in this study that determine financial development, because of unavailability of data it is not taken in to consideration. No control variables used in this study.

1.14. Readers Guide

The study is divided in to 6 chapters in which **First chapter** deals with introduction of study, objectives of study, methodology of study and limitations of the study.

Second chapter covers the review of literature in the different area of the study such as financial development and economic growth in India and other countries, Stock market and economic growth, banking sector and economic growth. Based on review it is being found the research gap for the present research and made the empirical study.

Third chapter is associated with the construction of Financial Development Index by using principal component analysis.

Fourth Chapter explains the co-integration between financial development and economic growth and also examines the structural stability of the long run relationship during the study period

Fifth chapter deals with the structural break in the data with the help of chow test and re-examines the co-integration between financial development and economic growth during pre and post liberalisation period.

Sixth Chapter explains the causality between financial development index and economic growth for the three study periods based on the structural break, proportion and transmission of shock from one variable to another variable also analysed in this chapter.

Seventh chapter provides the findings, conclusion, suggestions and scope for further research.

CHAPTER II

REVIEW OF LITERATURE

II.1. Introduction

Without a review of earlier studies, it will be difficult for the researcher to deal with the particular research problem. To identify the gaps in this field, previous research has been reviewed. A number of studies in the area of financial development are carried out in national and international level. A review of earlier studies related to the present study is provided as a backup for the present study in the following paragraph. The review is done mainly on Financial Development and Economic Growth, Banking Sector and Financial Development, Determinants of Financial Development, Financial Development Index and Economic Growth, Stock Market and Financial Development and Trade Liberalization and Economic Growth

II.2. Studies Related to Financial Development and Economic Growth

From the research papers reviewed it is found that there are studies carried out in different countries like India, Northern Cyprus, Pakistan, Ireland, Turkey, Malaysia, Morocco, Middle East and North African(MENA) countries & Sub-Saharan African(SSA) countries. All revealed that financial development has a significant effect on economic growth except Turkey and Morocco. Studies done in these countries considered only one indicator as a proxy for financial development.For example in Turkey Deren Unalmis(2002) considered private sector credit as a proxy for financial development and related this proxy with GNP and found that there is no long term relationship between financial development and economic growth. He has also considered various other proxies for financial

development and related them to economic growth and found that there is a relationship and also, it is a   bidirectional relationship. So, this type of study will give different results with different proxies and it is difficult to conclude whether there is any relation between financial development and economic growth. In case of Pakistan, Sulaiman.D.Muhammad (2010)considered money supply as a proxy for financial development related with economic growth and found the existence of relationship, Where as when he considered domestic credit by banks as a proxy for financial development, he finds no relationship. This study validates the need for a common proxy or index to measure financial development.

Gregorio,J.D; Guidotti,P.E;(1995) examined the relationship between long run growth and financial development in 95 countries. For this study they have classified the countries as high income, middle income and low income countries. The variables used in the study were ratio of domestic credit to the private sector to GDP, primary and secondary enrolment ratio, GDP per capita, Government spending, investment rate. Cross section regression was applied for analysis. The empirical result showed that more financial development leads to improved growth performance. The level of growth differs from countries to country.

Kar,M; Pentecost,E.J; (2000) made an attempt to examine the causal relationship between financial development and economic growth in Turkey. The study has conducted for a period of 32 years (1963-1995). The variables used in this study were broad money, banking deposit liabilities and private sector claims. The data analysed by using Granger causality, co-integration and vector error correction methodology (VECM). The result showed that the direction of causality between financial development and economic growth is varying according to the selection of

proxies used for financial development. So there is no full acceptance of the view that finance leads growth or finance allows growth in case of Turkey.

Sinha,D; (2000) evaluated the relationship between financial sector development and economic growth for eight Asian countries. Main features of the study is used much longer time series data set and performed multivariate causality test, no other previous study has undertaken in this area. The variables used in this study are growth rate of money supply as ratio of GDP, growth rate of real per capita income, growth rate of quasi money as a ratio of GDP, growth rate of domestic credit as a ratio of GDP, growth rate of real GDP, growth rate of real investment as a ratio of GDP, growth rate of population, growth rate of real money supply, growth rate of real domestic credit, growth rate of real broad money. Result shows that there exists a positive and significant relationship between the income and financial variables for India and Malaysia, Pakistan and Sri Lanka. From the multivariate causality test for India and Malaysia it is noticed that a two way relationship between the income and financial variables.

Xu,Z;(2000) investigated the effects of permanent financial development on domestic investment and output in 41 countries. The data were collected for a period of 33 years (1960-1993) and included variables such as real GDP, real domestic investment and index of financial development. The index of financial development was constructed by taking total bank deposits in GDP and the geometric mean of this year's bank deposits and last year's bank deposits divided by GDP.VAR model was used to analyse the data. Impulse response analysis was applied to find out the effect of financial development on investment and real GDP. The study found strong evidence that financial development is important to GDP growth and domestic

investment is an important channel through which financial development effects economic growth.

Liu,C.C.L; (2002) investigated the direction of causality between financial development and economic growth in 109 developing and industrial countries. The study covered a period of over 34 years (1960-1994). The variables used in the study were ratio of broad money to GDP, ratio of credits provided by financial intermediaries to the private sector to GDP, real GDP per capita growth rate, Initial human capital, initial income level, a measure of Government size and black market exchange rate premium. Geweke Decomposition test was used to analyse the data. The result showed that financial development leads to economic growth for all the countries and found the evidence of bi-directional causality between financial development and economic growth..

Choong,C.K; et al(2002) focused to study financial development and economic growth in Malaysia by considering the stock market as a main factor for financial development. The data were taken for a period of 22 years (1978-2000). The researchers view is that it's more important to study the financial development and economic growth relationship through stock market development. For this purpose two variables included in the study were the ratio of total market value to nominal GDP and the stock market turnover ratio. ARDL was applied to analyse the variables because of the limited number of samples and the level of integration. Finally, the result showed that stock market development is co-integrated with economic growth. Not only that the stock market development has a significant positive long run impact on economic growth and Granger Causality test revealed that the stock market development causes economic growth.

Omran,M; Bolbol,A; (2003) investigated the role of foreign direct investment for promoting economic growth and financial development in Arab countries. The data was taken for a period of 24 years (1975-1999) and 17 countries were selected for the study. The variables used in this study were domestic credit from commercial banks to the private sector as a ratio of GDP, foreign direct investment, commercial banks assets as a ratio of commercial banks and central bank assets, total value of shares traded to GDP, turnover ratio. The data were analysed by using cross country regression and pair wise granger causality test. They analysed the data by dividing it into three groups mainly reform countries, Gulf countries and other countries to find out the causality between financial direct investment and financial development. The result showed that Arab countries financial system is related with bank.

Bhattacharya,P.C; Sivasubramanian,M.N; (2003) tried to criticize the tools used to analyze the financial development and economic growth in former studies. For the study he has taken in to account the period from 1970-71 to 1998-99. For this researcher has taken M3 as proxy for financial development and GDP for economic growth respectively. Three things are being examined here which are causality between GDP and M3, long run relationship between M3 and GDP and finally analyzing the structural breaks in time series data during pre and post liberalization period. Test for co-integration revealed that M3 and GDP are co-integrated. It is found that there were structural breaks in time series data. Causality is running from M3 to GDP not vice versa.

Ramlal,V; Watson,P.K; (2004) examined the long run relationship between financial development and economic growth in the three CARICOM countries. The study was done by taking data for 32 years (1970-2002) and variables such as broad money divided by GDP, domestic credit to the public sector divided by GDP, per

capita growth rate of real income were used. VAR model, impulse response, variance decomposition and VECM were used to analyse the data. The result showed causation between financial development and economic growth except in Trinidad & Tobago and Barbados.

Rahman,M.D.B;(2004) made an attempt to find out whether financial development results in higher investment and output growth in the long run. Study was conducted by taking data from 1976-2005. The variables considered for the study were weighted average annual interest rate on lending by banks, domestic credit to the private sector as a percent of GDP, total deposits as a percent of GDP, broad money as a percent of GDP, gross fixed capital formation as a percent of GDP and GDP per capita. VAR model was used to analyse the data. The result proved the existence of co-movement between financial development on investment and per capita income in the long run.

Awad,M.A; Harb,N;(2005) focused to study the linkages between financial development and economic growth in the Middle East . Variables such as real GDP, real Government spending, real M1 and ratio of private credit to monitory base were used in the study. The data was analysed by using panel co-integration, FMOLs regression, Multivariate Johansen co-integration test and Granger Causality test. The result showed that in the long run, financial development and economic growth may be related. In the short run the evidence of linkages between financial development and economic growth showed that causality affects run from economic growth to financial development.

Khan,M.A; et al(2005) examined the relationship between financial development and economic growth in Pakistan. The study period was 23 years (1971-

2004).He also examined the structural stability of finance growth relationship in the presence of financial sector reforms. The variables used for the study were financial depth, logarithm of real GDP measured as a ratio of GDP to consumer price index, share of investment proxy by the gross fixed capital formation to nominal GDP and real deposit rate. The data is analysed using Auto Regressive Distributed Lag (ARDL) method. The result showed a stable long run relationship between economic growth and financial depth.

Huang,Y;(2005) investigated the existence and the direction of causality between private investment and financial development on a panel dataset of 43 developing countries for a period of 28 years(1970-1998). Here, the he has taken two modern quantitative methods Bayesian Model Averaging (BMA) and General to specific approach. Researcher considered a wider assessment of economic, political and geographic variables and constructed a composite index for financial development. The researcher reached to a conclusion that institutions, policy, geography as a whole being important for financial development and also have significant implications for developing financial markets. The significant effects of the structural factors which are relatively time invariant means that any effort of the Government to improve institution quality, more open trade, sound macroeconomic policies and geographic infrastructure can stimulate financial development in the long run.

Khaled,A.Z; et al(2006) examined financial development and economic growth in MENA countries for a period of 12 years(1989-2001).For the study researcher has taken data from eleven Arab countries. The variables used in the study were liquid liabilities, bank credit, credit allocated to private sector to total domestic credit, credit to private enterprises divided by GDP and growth rate of real per capita

GDP. The data were analysed using regression model. The result showed there is no significant relationship between financial development indicators and growth rate GDP in Arab countries.

Rathinam,F.X;(2007) made an attempt to re-examine the financial development and economic growth puzzle in India , by focusing the determinants of financial sector growth such as legal and institutional developments and financial regulation. Study used variable such as M2 over nominal GDP, private credit to make an overall index of financial development by applying principal component analysis. The data were analysed with in a multivariate VAR frame work, Granger causality test and Vector Error Correction Model. The empirical test showed that legal and institutional developments and financial regulation cause financial sector growth. The result also showed that legal, institutional developments positively effect financial sector growth in the long run and financial regulation has a negative impact.

Mihalca,G;(2007) investigated the relationship between financial development and economic growth in Romania. The researcher made the study by taking data for 11 years (1995-2006). This period was selected by considering the stable condition of economy. The variable considered for the study was the ratio of domestic credit of banking institutions to nominal GDP and per capita real GDP. The analysis was done by different stages. In the first stage correlation between financial development and economic growth was calculated. The result showed a negative strong relationship between financial development and economic growth. In the second stage the researcher used Cobb-Douglas equations to find out the correlation co -efficient. The result showed that there is no relationship between financial development and economic growth.

Ketteni,E; et al (2007) tried to study how financial development influences economic growth. The study used a general non parametric frame work and allows all three determinants of economic growth such as per capita income, human capital and financial development to be treated nonlinearly and provides specification tests for choosing amongst the alternative models. The result showed that both parametric and nonparametric estimation confirms a strong, significant, positive and linear relationship between financial development and economic growth.

Ferda Halicioglu(2007) made an attempt to find out the validity of the demand pulling and supply leading hypotheses. For this study the researcher has taken data for a period of 37 years (1968-2005). The variables considered for the study were the ratio of broad money stock to nominal national income and the ratio of bank deposit liabilities to nominal national income. The econometric model used for the study is ARDL approach of Pesaran and Granger Causality test. The result showed a unidirectional causation from financial development to economic growth.

Yachao,S;(2007) investigated the relationship between financial development and economic growth for Hubei province. The variables used for the study were index of deposit, index of loan and retail price index. The study was done by taking 7 years data (1999-2006). The econometric models such as Co- integration and Granger causality test were used to analyse the variables. The result showed that financial development improves economic growth.

Katircioglu,S.T; et al (2007) made an attempt to investigate the possible co-integration and the direction of causality between financial development, international trade and economic growth in India. The study was done by taking data for a period of 39 years (1965-2004). The main variables used in the study were real gross

domestic product, ratio of broad money to nominal GDP, ratio of domestic credit to nominal GDP, real exports of goods and services and real imports of goods and services. Co-integration test was used to find out the long term relationship and Granger Causality was used to find out the direction of causality between financial development, trade and growth. The result showed that the 'supply leading and the demand following hypothesis' cannot be conditional for the Indian economy. The result also showed that there was a long run equilibrium relationship between financial development, international trade and real income growth. Unidirectional causality run from real income growth to international trade growth.

Khan,M.A; (2008) focused a study to find out the relationship between financial development and economic growth in Pakistan. Researcher has taken data for a period of 44 years (1961-2005). The variables used in the study were real output, ratio of private sector credit to GDP, real deposit rate and the share of investment to GDP. To find out the long run relationship between real GDP, financial development, real deposit rate and share of investment to GDP, researcher used bound testing approach to co-integration. The study revealed that in the long run financial development and investment showed a positive impact on economic growth. Real deposit rate positively correlated to real income. Researcher concluded that the economic growth is positively and significantly affected by the changes in financial development.

Adamopoulos,A;(2008) focused on a study to examine the long run relationship between economic growth and financial development of Ireland. The study has two objectives - to apply Granger Causality test based on a Vector error correction model in order to examine the causal relationship between the examined variables taking in to Johansen Co integration analysis and to examine the effect of

stock and credit market development on economic growth taking into account the positive effect of industrial production. The main variables used in the study were GDP, general stock market index, domestic bank credits to private sector and industrial production index. The results of the Granger causality test indicated that there is a bidirectional causal relationship between economic growth and credit market.

Singh,T;(2008) investigated the relationship between financial development and economic growth in India for a period of 44 years(1951-52 to 1995-96), and it measures financial development in terms of financial ratios that is financial interrelations ratio and new issue ratio and economic growth in terms of per capita real gross domestic product. For analysis co-integration is used. The empirical result shows that the financial development and economic growth are characterized by the presence of long run equilibrium relationship. Finally the study concluded that, liberalization and development of financial sector helped in achieving high economic growth in India.

Odhiambo,N.M;(2008) focused in a study to find out the dynamic causal relationship between financial development and economic growth. Here researcher used data for a period of 36 years (1969-2005). Researcher used variables such as financial depth and per capita income. The variable were analysed by using tri-variate causality frame work and found out causality between financial development, savings and economic growth. The result showed there is unidirectional causality run from economic growth to financial depth.

Bader,S.A; Qarn,A.S.Q;(2008) examined the causal relationship between financial development and economic growth in Egypt. The study was conducted by

taking data for a period of 41 years (1960-2001). The variables used for the study were ratio of money stock to nominal GDP, M2 minus currency to GDP, ratio of bank credit to the private sector to nominal GDP, ratio of credit issued to non financial private firms to total domestic credit as proxy for financial development and real GDP per capita. The data were analysed by using Granger causality, Co-integration and Error Correction Model. The tests revealed that bi-directional granger causality between economic growth and financial development in Egypt by using all the financial development proxies.

Thahir,M;(2008) attempted to find out the relationship between economic growth and financial development. For this study researcher has taken 23 years (1973-2006) data. The variables such as real per capita GDP, ratio of domestic credit to GDP, total capital formation to GDP, weighted average savings interest minus current GDP deflator were used. The data were analysed by using Vector Error Correction Model (VECM) and Multivariate Co-integrating testing procedure. Result showed that there is no causality between economic growth and financial development in long run but in short run financial development causes economic growth.

Seetanah,B; et al(2008) made an attempt to find out the link between financial development and economic growth in Island economies. The variable such as the country's investment divided by its GDP, total of export and import divided by GDP, employment level, secondary enrolment ratio, liquid liabilities to the country's GDP, value of credits by financial intermediaries to the private sector divided by GDP were used. Data for a period of 22 years (1980-2002) were used for analysis. Dynamic panel data regression and GMM methodology was used to analyse the data. The result showed a significant positive relationship between financial development and economic growth

Dushku,E;(2008) focused on a study to find out the causal relationship between financial development and economic growth by taking data for a period of 11 years (1996-2007). To study the impact of financial development to economic growth, they have taken five different indicators such as M2 as a percentage of GDP, domestic credit as percentage of GDP, private credit as a percentage of GDP, deposit as percentage of GDP, private credit to total domestic credit. The Granger causality test and the Vector Error Correction Model were used for analysis. The result showed that there is a bi-directional causality between all financial indicators and economic growth.

Wei,W; Fuzhong,C;(2008) investigated the relationship between financial development and economic growth in the Yandtze river delta. For this purpose they have chosen panel data model. The study was done by taking data for a period of 12 years (1994-2006). By considering the past literature they have used variables such as growth of regional economy, financial interrelations ratio, financial efficiency, development of stock market and development of insurance market. Fixed effect model was used to analyse the variable. The empirical result showed that the effect of financial development of insurance market to economic growth varied in different stages.

Shahnoushi.N et al (2008) focused to study the relationship between the financial development and economic growth in Iran. The study period was 43 years (1961-2004). The variables used for the study is natural logarithm of the real GDP, natural logarithm of granted credit of banks to private sector and real interest rate. The data were analysed using Johansen's Co-integration, Vector error correction model. The result showed that economic growth in Iran had a positive effect on financial development and no effect on GDP.

Dawson.P.J(2008) focused on a study to re-examine the relationship between financial development and economic growth using annual panel data of 44 developing countries. The period of the study was taken from 1974-2001.The variables used for the study were total population, M3 as a proportion of GDP, Depth. The tools used for analysis were panel unit root tests and Wald test. The empirical result showed that there is a significant relationship between financial development and economic growth.

Seetanah,B;(2008) investigated the relationship between financial development and economic growth in Mauritius by using the ARDL model. The study was done by taking 52 years (1952-2004) data. Researcher has chosen liquid liabilities to the country's GDP, value of credits by financial intermediaries to the private sector divided by GDP, the country's investment divided by its GDP, total of export and imports divided GDP and secondary enrolment ratio were used in this study. The result showed that both financial development proxies have a positive significant effect on economic growth in the short and long run.

Rioja,F;(2008) tried to evaluate the role of financial system in increasing the economic growth and the income inequality in Latin America and Caribbean(LAC). For this purpose researcher has taken the data such as the average income of every quintile from the poorest Q1 to the richest Q5, variable interest is the Gini co-efficient, private credit variable. Dynamic panel estimation method is used to analyze the variable. Finally the researcher reached to a conclusion that larger financial systems have been found to increase growth and reduce poverty in large world samples. The positive findings of the paper are financial development have succeeded in raising the income of individuals in the middle income ranges (Q2-Q4).

Bader,S.A; Qarn,A.S.A;(2008) investigated the causal relationship between financial development and economic growth for six middle east and north African countries. Variables used in the study were the ratio of money stock, the ratio of M2 minus currency to GDP, the ratio of bank credit to the private sector to nominal GDP, the ratio of credit issued to non financial private firms to total domestic credit and real GDP per capita. Vector Auto regression is used to find out the causality between financial development and economic growth. The results confirmed that the finance leads to growth in five out of six countries. No causality is found in case of Israel.

Oura,H;(2008) evaluated the efficiency of different segments of India's financial system using firm level data on corporate financing patterns and gave suggestions for the further up gradation of India's financial system. The data used for the study ranges from 1994 to 2006, and regression model was used for the analysis. The variables used in the study were share of external funds on total funds for firm, share of debt, foreign debt, equity over debt and inherent external fiancé demand. The researcher examined whether Indian firms are increasingly relying on external funds and facing financing constraints in some segments of the financial system with an influence on firm growth. The paper has provided evidences for the existence of inefficiency in Indian financial sector, which negatively affects growth differentials of finance intensive industries from other industries.. There are signs of inefficiency in India's financial system particularly in the debt financing mechanisms. T

Yay,G; Oktayer,A;(2009) investigated the relationship between financial development and economic growth for developed and developing countries. The study was done by taking 21 years (1975-2006) data. Twenty one developing and sixteen developed countries were selected for the study. The variables namely stock market value traded, Government expenditure, trade openness, inflation rate, bank

credit, average years of schooling and black market exchange premium were used for the study .Generalized method of moments technique was used to analyse the data. The result of developing economies indicated that both stock market and banks positively influence the economic growth where as in developed economies; only stock markets positively influence economic growth.

Amanulla,S; et al(2009) made a study to prove the long term relationship between financial development and economic growth in Indian states. For this purpose researcher has taken 14 states and divided into 2 parts that is backward state (Bimaaru) and developed states. The variables such as per capita net state domestic product and per capita credit were used for the study. The study was done for a period of 21 years (1981-2002).Researcher used Pedroni panel co-integration test to prove the long term relationship between financial development and economic growth. Ultimately the researcher reached the conclusion that all the Indian states does not matter whether developed or BIMMARU state, show a growth both in credit and output individually during this period. One state's credit-output relationship is not only influenced by one's own effort across the time period but also influenced by other states credit- output.

Vazakidisand,A; Adamopoulos,A;(2009) made an attempt to find out the causal relationship between financial development and economic growth in Greece. The researcher conducted study for a period of 29 years (1978-2007). The researcher used a multivariate model to find out the relationship. Economic growth is measured by the rate of change of bank credits to private sector as a percentage of GDP, the general stock market index and industrial production index. The researcher analysed the data by using Johansen's co-integration, Vector Error Correction Model and Granger causality test. The result showed that economic growth causes stock market

development and industrial production index and industrial production index causes credit market development.

Kargbo,S.M; Adamu,P.A;(2009) made a study in Sierra Leone to find out the relationship between financial development and economic growth over a period of 38 years(1970-2008). To avoid the problem with single financial development indicator they have constructed financial development index for that country. Banking deposit liabilities to GDP, ratio of private sector credit to GDP, ratio private credit to total credit were used for index construction. ARDL was applied to estimate the long and short run relationship. The result showed that there exist a positive effect on economic growth via financial development index, real interest rate and investment.

Sunde,T;(2009) conducted a study in Namibian economy to analyse the relationship between financial sector development and economic growth. Financial institutions variables used in this study were lending rates, ratio of liquid assets to GDP, and the ratio of private credit to GDP. For the purpose of measuring economic growth researcher used level of real GDP per capita and the ratio of investment to GDP. The data were analysed by using Johansen Co-integration test and Granger causality test. The result showed that causality between financial development and economic growth is bi-directional.

Vuranok,S;(2009) made an attempt to find out the causal relationship between financial development and economic growth in Turkey. The study was done for a period of 17 years(1991-2008).The variables taken for the study were per capita real income, M2, M2Y and money supply to GDP . The variables were analysed by using economic tools such as Johansen co-integration test and Granger Causality test. The result showed that there is no long term relationship between financial

development and economic growth. Granger causality test cannot estimate the direction of causality correctly.

Rufael,Y.W;(2009) re-examines the causal relationship between financial development and economic growth in Kenya. Here the researcher has taken data for a period of 39 years (1966-2005). The variables were analysed by using Toda and Yamamoto Granger non- causality test. The result showed that in three out of 4 proxies of financial development support bi-directional granger causality. In this study the robustness check was done by using leveraged bootstrap simulation technique. All other cases except liquid liabilities to economic growth confirmed that there was a bidirectional causality run from financial development to economic growth.

Esso,L.J;(2010) tried to re- examine the co-integrating and causal relationship between financial development and economic growth in Economic Community of West African States(ECOWAS) countries. The variables used for the study were gross domestic product per capita and credit to private sector as a percentage of GDP. The tools used for the analysis are Zivot and Andrews unit root test and Vector Auto Regression. The result showed that there is a long run relationship between financial development and economic growth in five countries namely Cape Verde, Cote D'lvoire, Ghana, Guinea and Liberia. The result also showed that GDP Per capita significantly causes financial development in Cape Verde, Cote D'lvoire and Sierra Leone.

Kar,M; et al(2010) investigated the direction of causality between financial development and economic growth in the Middle East and North African countries. The method applied here is the recently proposed panel causality testing approach.

The empirical results showed that the direction of causality between financial development and economic growth is sensitive to the measurement of financial development in the MENA countries. The researcher found that financial sector and real sector are interrelated to each other in most cases. Economic policies focused only on the development of financial sector but not in economic development.

Leitao,N.C;(2010) tried to find out the link between financial development and economic growth. For the study, he has taken European Union countries and BRIC countries. Researcher has taken data for a period of 26 years (1980-2006). The researcher applies a static panel data and a dynamic panel data model (GMM-SYS). Variable used in this study were growth rate of real GDP per capita, international trade, productivity and macroeconomic stability. Finally researcher reached a conclusion that financial development stimulates the productivity and industrial trade.

Jude,E.C;(2010) focused on a study to find out the financial development and growth in 71 developed and developing countries over a period of 44 years(1960-2004). The variables used in the study were commercial central bank ratio, Inflation rate and the ratio of Government expenditure to GDP, the sum of exports and imports and population growth rate. The data was analysed by using panel smooth regression approach. The study found that the relationship between financial development and economic growth was nonlinear. Further research can be done by including more financial development indicators.

Pradhan,R.P;(2010) examined the causal relation between financial development,economic growth and poverty reduction. The study was conducted in India by taking 57 years (1951-2008) data. Variables such as broad money supply to GDP, per capita GDP and people below poverty line were used. The data were analysed by using co-integration and causality test. The test result proved that

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economic growth is a factor for financial development and financial development & economic growth has a major contribution to poverty reduction in the Indian economy. The policy implication of the study was economic growth can be taken as the policy variable to accelerate financial development and both could be used as the policy variable for poverty reduction.

Antonios,A;(2010) investigated the relationship between financial development and economic growth for 15 European Union member states. The study was conducted for a period of 42 years (1965-2007). The variables included in the study were gross domestic product, general stock market index,domestic bank credits to private sector, interest rate, consumer price index and industrial production index. The data was analysed using regression model. The result showed that the stock and credit market development related to the development of industrial production have a positive direct effect on economic growth for 4 countries such as Austria, Belgium, Ireland and Luxemburg. At the same time bank market development has a greater effect on economic growth for Sweden and UK while stock market development has a greater effect on economic growth for the remaining 9 countries.

Yong,L; weiping,L;(2010) conducted a study to analyse the relationship between regional financial development and regional economic growth. The study is done in Suzhou city in China by taking variable such as private investment divided by aggregate investment, aggregate loan divided by GDP and also constructed an index for financial development by applying principal component analysis. To find out the long run relationship and causation they have applied co-integration test and causality test. The result showed that financial development and the economic growth still remains at the supply leading stage.

Muhammad,S.D; Umer,M;(2010) conducted a study to find whether any co integration exists between financial development and economic growth in Pakistan and also tried to evaluate the causality between financial development and economic growth. Researcher conducted the study for a period of 35 years (1973-2008). They have taken logarithm of real GDP as a proxy for economic growth and logarithm of broad money and logarithm of domestic Credit as proxy for financial development. Auto Regressive Distributed Lag was used to find out the Co-integration. The result showed that there is a long run relationship between broad money supply growth and economic growth. But the researcher failed to find any constant relationship between domestic credit provided by banking sector and economic growth in Pakistan.

Bangake,C; Eggoh,J.C;(2011) reassessed the causal relationship between financial development and economic growth by using panel method. They have taken data from 71 developed and developing countries over a period of 44 years. Variables such as ratio of liquid liabilities to GDP, the ratio of deposit money bank assets to GDP, ratio of private domestic product per capita, Government expenditures as ratio to GDP, exports and imports divided by GDP were used. The data were analysed by using panel co-integration and causality test. The result showed that economic growth, financial development indicators and control variables were co-integrated. The economy was divided in to low, middle and high income countries via this it showed a market difference between country groups. It also showed a strong bi-directional causality between financial development and economic growth in the long run but in the short run there is no such relationship except in high income countries.

Misati,R.N; Nyamongo,E.M;(2011) focused on a study to find out the relationship between financial sector development and private investment in sub-Saharan Africa. For this study they used panel data of 18 countries in Africa. The data

for a period of 13 years (1991-2004) were used. The variables such as the index of the economic freedom, corruption perception index, economic freedom of the world index, checks and balance index, private investment, GDP growth rates etc were used. The data were analysed by using extended simple accelerator model. The result showed that negative relationship between interest rate on deposits and private investment and a positive relationship between both the credit to the private sector and a positive turnover ratio and private investment.

Jalil,A; Feridun,M;(2011) conducted a study to find out the effect of financial sector development on economic growth in Pakistan. Researcher has used 33 years data. The variables were analysed by using the recent ARDL model. Researcher have used principal component analysis for constructing the financial development index for Pakistan .The index was constructed   by using the variables such as liquid liabilities , ratio of credit to private sector to nominal GDP, ratio of commercial bank assets to the sum of commercial bank and central bank assets. GDP was used as proxy for economic growth. The empirical result showed the presence of a positive and significant relationship between financial development and economic growth in Pakistan..

Johannes,T.A; et al(2011) examined the relationship between financial development and economic growth in Cameroon by taking data for a period of 25(1970-2005) years .Variable such as GDP per capita, size of the financial sector, bank credit allocated to private enterprises by the financial sector investment rate, the size of the Government , openness of the economy were used . The study applied Johansen co-integration test and causality test to analyse the data. The result showed that financial development has a positive significant effect on economic growth in the

long run. The causality test revealed that in the short run there is no causality relationship between financial development and economic growth.

Rachdi,H; Mbarek,H.B;(2011) examined causality between financial development and economic growth in a panel data. The study was based on a sample of 10 countries, 6 from OECD region and 4 from the MENA region. The study was done by taking 16 years (1990-2006) data. The variables used in the study were real per capita GDP, private credit by deposit money banks, ratio of liquid liabilities to GDP, consumer price index, ratio of Government consumption to GDP. The data were analysed by using co-integration test, Generalised Method of Movements (GMM) system approach and Granger causality test. The panel data co-integration result revealed that long term relationship between financial development and economic growth in the ten countries not only that GMM system approach showed that financial development and real GDP per capita are positively related. The error correction model showed the causality is bi-directional for the OECD countries and unidirectional for MENA countries that is economic growth leads financial development.

Eng,Y.K; Habibullah,M.S;(2011) re-examined the causality issue in financial development and economic growth. The study was done by using an unbalanced panel with 8 years (1990-1998) annual data. Variables used in the study were real gross domestic product and the ratio of domestic credit to GDP and analysis is done by using GMM panel estimates. The result showed that there exists evidence supporting the demand following as well as non causal relation between the economic growth and the financial deepening.

Anwar,S; Sun,A; (2011) examined the inter relationship among economic growth, stock of foreign investment and stock of domestic capital in Malaysia. The variables such as GDP, real domestic capital stock, stock of foreign investment , stock of foreign capital , number of workers employed, total factor productivity were used in their study. The data were taken for 37 years (1970-2007) and data were analysed with simultaneous equations Generalised method of moments. The result showed that the level of financial development in Malaysia significantly affects its stock of domestic capital which contributes to economic growth.

II.3. Studies Related to Banking Sector and Financial Development

Some researchers made an attempt to find out whether financial development has any relationship with banking sector controls or banking efficiency. The study was conducted in Sub-Saharan Africa, Northern Cyprus, and India. The empirical studies show that banking sector controls or banking efficiency has significant effect on financial development.

Levine,R; (1993) analyzed whether any country's level of financial development played an important role in determining the rate of economic growth and analyzed whether the liberalizing restrictions have helped the foreign banks to enter and function in a country particularly the bolster financial development. The researcher used two measures of financial development namely the ratio of liquid liabilities of the financial system divided by GDP and the ratio of deposit bank domestic credit divided by deposit bank domestic credit plus central bank domestic credit so as to ensure the relative importance of specific financial intermediaries. The period taken for the study is 1960-1989, during that time, the only decomposition is between the central bank and deposit banks; so by considering ratio of deposit bank to domestic credit divided by deposit bank domestic credit plus central bank domestic

credit is not adequate. Finally the researcher arrived to a conclusion that, a developing country's level of financial development is important for its future rate of economic growth.

Demetriades,P.O; (1996) concentrated in evaluating the effect of various types of banking sector controls on the process of financial deepening. Researcher has taken data from India .Here the researcher measured banking sector control directly by collecting information from various types of interest rate controls, reserve and liquidity requirements and directed credit programs. The econometric tools such as unrestricted error correction method, co-integration and week exogeneity were used for analysis. The results showed that banking sector controls as a whole had a negative influence on financial development in India. Researcher suggested that financial deepening can be achieved by altering banks behavior particularly by changing banks willingness to attract deposits by various strategies. Here the researcher paid little attention to examine the effect of repressionist policies in endogenous growth models with imperfectly competitive banks

Unalmis,D;(2002) made an attempt to find the direction of causality between financial development and economic growth in Turkey. The previous studies revealed that there exists a long run relationship between financial development and economic growth. The researcher made this study by taking the data from 1970-2001. Variables used for the study were domestic credit as a ratio of GNP (LDCG), private credit as a ratio of GNP (LPCG), Private credit as a share of domestic credit (LPCDC), broad money supply as a ratio of GNP (CM2YG), total deposit as a ratio of GNP (LTLDG) as financial development proxies and change in per capita GNP at constant price(DLPCI) as proxy for economic growth. The researcher used VAR, VECM and Granger Causality tests to analyse the data. Researcher analysed the data by using

Granger Causality by two different conditions, they were non stationary and co integrated variables, non stationary and non co integrated variables. In this LPCG, LDCG, LM2YG were non stationary and non co integrated variables. The results showed that except private credit as a share of domestic credit (LPCDC) all other variables financial development causes economic growth in both short run and long run. Besides that there exist a bidirectional relationship between financial development and economic growth.

Moustain,A;Fatima;(2004) tried to find out the causality issue between financial development and economic growth for a period of 30 years(1970-2000). The indicators used for the study were liquid liabilities, domestic credit provided by the banking sector as a percentage of GDP (BCR), domestic credit to the private sector to GDP (PRIV) as proxy for financial development and GDP as a proxy for economic growth. Johansen Co integration test were used for analysing the data. The study revealed that short run irregular relationship occurs between financial development and economic growth and it failed to find or establish any stable long term relationship between finance and growth. The study was successful in providing evidence which support the argument stating that higher level of financial development is directly proportional to higher levels of consumption.

Guryay,E;(2007) investigated a study in Northern Cyprus to find out the causality between financial development and economic growth. The study period ranges from 1986-2004 and used the important financial development indicators such as the ratio of deposits to GDP and loan to GDP. The data were analysed by using Ganger Causality test. The result showed that there is a minor causality between economic growth and financial development that is annual growth rate of real GDP has causal relationship between the ratios of loan to GDP, and domestic investments

to GDP. The direction of causality exists between economic growth to financial development not vice versa.

Burcu et al (2009) investigated the long run relationship between financial development and economic growth in emerging countries by using panel data of 10 countries during the period of 1968-2007. Here the researcher used the liquid liabilities of the financial system, Bank credit, Private sector credit, Gross domestic product, Gross fixed capital, General Government final consumption expenditure as share of GDP, Volume of Trade as variables of study. The data was analysed by panel unit root tests, Panel co-integration and Fully Modified Ordinary Least Squares (FMOLS) methods. For analysing the long run relationship financial development and economic growth researcher adopted Pedroni Panel Co-integration test. For finding the co-integration the researcher also used panel Fully Modified Ordinary Least square (FMOLS) method. The results showed that the null hypothesis of no co-integration is strongly rejected which shows the existence of a long run relationship between economic growth and financial development.

Kablan,S;(2010) tried to find out answers for mainly two questions such as how efficient banks are in Sub-Saharan Africa(SSA) and what determines their degree of efficiency?. What other factors may explain the low level of financial development in SSA? Researcher used stochastic frontier analysis to assess banking efficiency and its determinants. The environmental factors that explain efficiency are information technology, client tastes and regulation. Banks tried to influence environmental factors through lobbying activities, marketing efforts, research and development. Here the researcher has taken variables such as ratio of private loans to GDP, GDP per capita and share of rural population to evaluate the banking efficiency. For evaluating the financial development in SSA macro economic variables, political variables

(Country risk guide) etc were used. Generalised method of movements (GMM) model is applied for analysis. The result of GMM and stochastic frontier analysis showed that generally, the banks in SSA countries are cost efficient. The efficiency score measures how efficient SSA banks are in the combination of labour, physical capital and financial capital to produce on optimal combination of collected deposits, loans and investment in securities under price constraints. The financial development in SSA was adversely affected by inflation and somewhat by concentration. The presence of foreign banks leads to a phenomenon of cream skimming to a decline in credit to the private sector.

II.4.Studies Related to Determinants of Financial Development

The researcher has reviewed studies on the determinants of financial development and found that institutional, policy and geographical variables do have influence on the financial development. Institutional variables includes common law legal origin dummy, civil Law legal origin dummy, aggregate of share holders right; policy variables include economic volatility, trade openness ,output and inflation volatility; Geographical variables include REGAP(Asia & Pacific), REGMENA,REGWENA,REGSSA,REGLAC etc; and other variables include Initial income, Initial population, Ethnic polarization index and the like. From this literature, the researcher is able to identify the factors determining financial development.

Herger,N; et al (2007) tried to concentrate the main determinants of financial development such as culture, institutions or trade. Researcher also tried to explain the vast differences in the size of capital markets across countries by drawing together theories emphasizing cultural values, dysfunctional institutions or impediments to trade as obstacles to financial development. Here the researcher conducted an

integrated test on the ability of cultural beliefs and values, institutional quality, and trade to explain cross country differences in financial development. The researcher concluded the study by leaving domestic markets open to foreign trade and competition. Cultural factors such as religion or ethnic diversity affect the quality of greedy institutions there by exhibiting an indirect effect on financial development.

Koubi,V;(2008) investigated whether political institutions pertaining the Government quality matter for financial markets growth. Researcher has taken banking and stock market development variable by using standard indicators in financial development determinants namely the quality depth of banking system and the liquidity of the stock market..Regression model was used for analysis. Finally the researcher arrived to a conclusion that financial development is negatively related to Government quality and which is particularly true for banking development.

Erzen,S; (2008) evaluated the determinants of financial development and private sector credit for a panel of 85 developing and industrial countries using annual data from 1980-2006 . The researcher evaluated the impact of commercial banking system credits to public sector on private sector credits. The study revealed that if the debt management is stable then this behaviour of banks in developing countries facilitates financial intermediation. A Government debt market with low macroeconomic volatility and sufficient volume of debt supports a private bond market as it brings a basic financial infrastructure including law, institutions, products, services, repo and derivatives market and plays a role as an informational benchmark.

Chinn,M.D; et al (2008) examined the factors affecting financial development. Researcher conducted a panel data analysis encompassing 108 countries

and data of 20 years (1980-2000). The variables used in the study were private credit from deposit money banks to the private sector, stock market capitalization, total value of stocks traded, stock market turnover, capital openness index etc. Regression model is used for the analysis. The result suggested that financial openness does contribute to equity market development.

Lu,S.F; Yao,Y;(2009) conducted a study to find out the effectiveness of law , financial development and economic growth in financially repressed economy like china. Data for a period of ten years (1991-2001) were taken for the study. Four financial development indicators such as financial depth, bank competition, share of credit, share of private investment and effectiveness of legal system were used and analysed by using regression equation. The result showed that the improvement in the law alone in a repressed economy does not lead to overall financial development.

Dogbey,J;(2010) concentrated to examine whether financial development is communicable using spatial econometrics analysis. For the study the researcher had taken three measures of financial development as a percentage of financial development namely domestic credit to the private sector, private credit by the banking sector and stock market total value traded. Independent variables used in this study include initial GDP per capita, the lagged level of financial development, spatial weight matrixes and regional or continent dummies. The data for the analysis is taken for a period of 15 years (1985-2000). This study used spatial econometric methods to examine the spread of financial development; a Spatial Auto Regressive model (SAR) and Spatial Error Model (SEM) were also used. The study found lagged levels of financial development to account significantly and positively for the level of financial development, but negatively for the changes of financial development. It also found out that bureaucratic quality is important for financial development.

II.5. Studies Related to Financial Development Index and Economic Growth

Since individual indicators give different results, an attempt was made to have one measure and index. For India, Malaysia, Pakistan and Turkey the researchers have already constructed some index with different indicators. There is no worldwide accepted indicator for financial development index. World Economic Forum started to construct FDI for 55 countries from 2008 and India is one among those countries.

Aug,J.B;(2005) focused to examine the role of saving, investment, trade openness and real interest rate in determining the finance growth nexus in the small, developing economy of Malaysia for a period from 1960-2001. Researcher applied principal component analysis to measure the depth of financial development by the construction of financial development index. The analysis is done by using co-integration using the Johansen approach. The result showed that economic growth causes financial development in the long run.

Khan; (2006) examined the impact of trade and financial liberalisation on economic growth in Pakistan. Researcher has taken annual observations over a period from 1961-2005. ARDL method was applied for the analysis. The study revealed a positive and significant impact of financial sector development index (FSDI) and ratio of discount rate and trade openness on real GDP. However in the short run FSDI exerted statistically insignificant negative association with economic growth.

Hye,Q.M.A;(2011) made a study to develop financial development index for India. For long run robustness Auto Regressive Distributed Lag model (ARDL) and Rolling window regression method is used. Researcher used variables such as GDP, Financial development index and real interest rate, labour force and gross fixed capital formation. The results of the study revealed that financial development index

and real interest rate negatively determine the economic growth in India. But capital and labour on the growth theory positively determine economic growth in the long run.

II.6.Studies Related to Stock Market and Financial Development

There are studies carried out in India, Malaysia and Ohio State University related to financial development and economic growth; they all are giving different results. In the case of India, stock market is not associated with economic growth. But in Malaysia, stock market development has a significant positive impact on economic growth. It is found by the researcher that there is no consistent relationship between stock market and financial development.

Arestis,P;(2001) investigated the long run relationship between stock market velocity, stock market development, banking system development and level of output and also examined the causality between output and banking system development, output and stock market development. Researcher carried out empirical investigation in a Vector Auto Regression (VAR) model. The empirical analysis showed that stock markets are able to contribute for long term output growth and their influence is relatively low when compared to the banking system.

Lazar,D; (2005) examined whether the financial system is relevant or irrelevant in a country's growth. For this researcher has taken 21 years data (1981-2001) from BSE along with the primary data from foreign institutional investors and real per capita GDP. Time series growth regression study is the mode of analysis. From their study it is suggested that, stock market development in India is not associated with economic growth over a study period of 21 years.

Deb,S.G;(2008) tried to find out whether there exists any relationship in the development of financial sector on economic growths, and if it exists what would be the nature and direction of the causal relationship. Researcher has taken 11 years quarterly data for the study (1996:Q4-2007Q1). Here BSE sensitive index is taken as the proxy for the Indian stock market. The three vital indicators for stock market development variables included in the study are real market capitalization ratio, real value traded ratio and stock market velocity. Real GDP growth rate is the proxy for economic development. The study has taken econometric methods like Granger causality test and Toda Yamamoto approach for the analysis. The empirical result showed a bi-directional causality between real GDP growth rate and real market capitalization ratio.

II.7.Studies Related to Trade Liberalization and Economic Growth

As far as world economy is concerned, reforms have made changes in entire world. Here, the researcher reviewed some studies which are related to trade liberalization and economic growth. Studies done in India, Pakistan & Malaysia showed that trade liberalization has helped to have economic growth in the countries.

Gupta,D; Sathye,M;(2004) tried to find whether India reached a stage of financial development when full capital account convertibility was introduced. Capital account convertibility is the freedom to convert local financial assets in to foreign financial assets and vice versa at market determined rate of exchange. The study has considered the data from 1951-1970.Main variables used for the study are financial ratio, financial inter relation ratio , new issue ratio. The researcher compared the compound annual growth rate of the two period and the results showed that there enters a decreasing trend of annual growth rate in these years after nationalization.

Choong,C.K; et al (2005) made an attempt to find out the relationship between financial development, economic growth and the role of stock market. The researcher conducted the study for a period of 22 (1978-2000) years. Variable included in the study were per capita nominal GDP for economic growth, size and liquidity level of stock market. The number of observation was only 23, so for finding the long run relationship the researcher used the new and emerging econometric tool-ARDL bound test. The result showed that financial development indicators as well as the discount rate have a strong and positive significant impact on economic growth in the long run. Openness ratio has less influence on economic growth. The Granger Causality was also applied to find out the direction of causality. The result showed a short run Causality between the variables, where as stock market was viewed as a leading sector that cause economic growth.

Chao,C;(2006) focused on a study how the development of financial intermediation influences China's economic growth. The data for a period of 14 years (1999-1985) were taken for the analysis. The data were analysed by using GMM estimator method. The result showed that financial intermediation gives a positive causal and economically greater impact on China's economic growth. The researcher suggested that there is an urgent need for china to improve its efficiency of financial intermediation.

Baltagi,B.H; et al (2007) the main objectives of the study is to check whether the simultaneous opening of trade and capital accounts promotes financial development and to analyze whether the economic institutions have a positive influence on financial development and finally to check the influence of trade and financial openness. The variables used for the study were liquid liabilities, private credit, domestic credit, number of companies listed, ratio of total trade to GDP,

corruption, rule of law, bureaucratic quantity, Government repudiation of contracts and risk of expropriation. Dynamic GMM estimation is used for analysis and the data ranges from 1980-2003 was taken in to consideration. It is widely accepted that financial development constitutes a potential mechanism for long run growth.

Law,S,H;(2007) examined the trade openness and capital account openness which influence financial development in Malaysia. The first measure of financial development indicator contains three banking sector development indicators namely liquid liabilities, private sector credits and domestic credit provided by banking sector. The second measure of financial development consists of two stock market development indicators namely stock market capitalization and number of companies listed. Stock market capitalization is the value of listed company's shares on domestic exchanges and fluctuates with stock market price fluctuations. The data is collected for 27 annual observations from 1978-2004. The researcher reached to a conclusion that trade openness offers greater scope for advancing financial development than capital account openness. Improving institutional infrastructure, such as rule of law as well as economic development will encourage the development of the financial system.

Tressel,T; Detragiache,E;(2008) tried to find whether the policies over the past decades and liberalised banking systems around the world have resulted in deeper credit markets by considering ratio of bank credit to private sector to GDP as proxy for financial development and an index of domestic banking reforms for a set of 91 countries in five areas (credit controls and reserve requirement, interest rate controls, entry barriers, state ownership and banking supervision) as an explanatory variable. General dynamic auto regressive lag model was applied for analysing the data. The study was done by taking data for a period of 32 years (1973-2005). The result

showed that the key binding institutional dimension seems to have an extent at which political institutions protect citizens from expropriation from the state of powerful elites.

Ang,J.B;(2008) made an attempt to find out the various mechanisms which links the financial development and economic growth in Malaysia. For linking the mechanisms they have found out private saving, private investment, foreign direct investment and aggregate output. The data for a period of 43 years (1960-2003) were taken for the study. Auto regressive distributed lag method was used to analyse the data. The result showed that private investment and private saving links helps financial development to leads higher economic growth in Malaysia. The result also agreed that financial policies such as interest rate controls, high reserve requirements and directed credit programs helped Malaysia's financial development positively.

Yang,Y.Y; Yi,M.H;(2008) examined the causal relationship between financial development and economic growth in Korea. The study was done for a period of 31 years (1971-2002). Ratio of gross fixed investment to GDP, ratio of Government consumption to GDP, ratio of export plus import to GDP were used as the variables for the study. The data were analysed by using regression equation and super exogenity test. The empirical result showed that financial development control that is interest causes the economic growth, but there is no reverse relationship.

Kar,M;(2008) made an attempt to study trade liberalisation, financial development and its joint impact on long term growth. The study period covered from 1963-2005. The variables used to analyse co- integration is the log of per capita real income(LPRV), the log of gross fixed capital formation as a proxy for capital stock(LK), the log of secondary School enrolment rate(LSEC), trade liberalisation

index, financial development index and economic liberalisation index. The analysis is done by considering trade liberalisation index and economic growth, financial development index and economic growth, joint impact of trade liberalisation index and financial development index that economic liberalisation index and economic growth. The result showed that trade liberalisation and financial development positively contributes to economic growth. The joint impact of trade liberalisation and financial development in terms of economic liberalisation index on economic growth is also significant.

Law,S.H;(2009) conducted a study to examine the impact of trade openness and capital flows on financial development in developing countries using a dynamic panel GMM estimation technique. The three banking sector development indicator samples are collected from 40 developing countries from1980-2003. The empirical results by applying dynamic panel GMM techniques suggested that trade openness and capital flows are statistically significant determinants of banking sectors development in developing countries. The evidence suggested that neither finance size nor finance activity, which represents the overall financial market development, seem to respond positively to both trade and capital account openness.

Demir,F; Dahi,O.S;(2009) investigated the effects of financial development in the pattern of specialisation of South-South trade and South –North trade. The researcher has taken the data for a period of 27 years (1978-2005) from 28 developing countries. Ratio of real private credit by deposit money banks & other financial intermediaries to real GDP (CR), liquid liabilities to GDP, aggregate index for creditor index were taken as proxy for trade. Augmented system GMM estimator by Arellano& Bover(1995) was used for analysis. The study revealed that financial

development has stronger positive effect on Southern trade whereas it fails to find out any major effect of financial development on South-North trade.

Federici,D; Caprioli,F; (2009) checked the existence and strength of credit channel and balance sheet effect in countries characterized by an intermediate level of financial development. The researcher has taken 39 countries for the study. Researcher used VAR and impulse response method to analyse the data. The empirical result showed that financial development is an important variable for the existence of a credit effect, not only that it also given evidence that financially developed countries is able to avoid currency crises

Lee,C.C; Chang,C.P;(2009) made a study to find out the relationship between foreign direct investment , financial development and economic growth in 37 countries during a period of 32 years(1970-2002). Panel unit root, Pedroni's panel co integration test, likely hood based co-integration test were used in this study to find out the long run relationship. The panel co integration result showed a strong long run relationship among foreign direct investment, liquid liabilities and domestic credit provided by banking sector has a larger effect on economic growth than foreign direct investment. The causality test showed evidence of short run relationship is weak and the long run relationship among variables is clear. There is a bidirectional causal relationship between foreign direct investment and the financial development indicators in the long run and there is a complementary relationship among all the variables.

Yucel,F;(2009) made a study to analyse the causality relationship between financial development, trade openness and economic growth for the Turkish economy. The researcher has taken data for a period of 18(1989-2007) years. Ratio of

sum of exports and imports to GDP as a proxy for trade openness, ratio of M2Y to GDP as proxy for financial development and GDP as a proxy for economic growth were taken as the variables for the study. Johansen's Maximum likelihood co integration was used for knowing the level of integration and Vector Error Correction Model for checking the causality between financial development, trade openness and economic growth. The result showed trade openness has positive effect on growth whereas financial development has negative effect on growth.

Disbudak,C; (2010) examined the relationship between the credit market development and economic growth for Turkey. Researcher conducted the study for a period of 47(1961-2008) years. Researcher used the ratio of private Credit to nominal GDP (BCR) as, real GDP growth (GDPGR) for economic performance. Consumer Price Index(CPI) was added to control the possible effects of other growth determining factors. ARDL bound testing approach was used to analyse the data. Zivot Andrews Unit root test was also applied to check the stationarity. Finally the study concluded that bank credit may play a very important role in financing the process of economic growth.

Atif,R.M; et al(2010) focused on a study in trade liberalisation, financial development and economic growth in Pakistan. The researchers study period was 1980-2009. For the purpose of the study researcher has taken GDP as a proxy for economic growth, import and export as a proxy for trade liberalisation and broad money as a percentage of GDP as a proxy for financial development. The data were analysed by using ARDL bound testing approach. The result showed that a long and short run relationship between economic growth, trade openness and financial development. In case of causality, trade openness and financial development causes economic growth.

Khan,R.E.A; Hye,Q.M.A; (2010) examined the relationship between financial sector reforms and house hold savings in Pakistan. Duration of the study was twenty years (1988-2008). The variables included in the study were household savings, financial liberalisation index, real deposit rate, per capita income dependency ratio, agriculture sector GDP and remittance .To find out the long run relationship, ARDL test was applied. The result showed that in the long run financial liberalisation index and deposit rate create a negative impact on the household savings. Similarly in the short run also the financial liberalisation index and dependency ratio negatively affect the house hold savings, but the agriculture sector GDP positively affect the house hold savings.

II.8. Research Gap

- There is no standardized financial development index in India.

- There are only few studies made in the area of financial development in India.

- It is found that most of the studies have considered only one or two proxy variables for financial development and those variables are used to assess the relationship between financial development and economic growth.

- It is rare to find out studies related to the effect of financial development on economic growth during the pre and post liberalization period.

- All analysis in previous studies done only with conventional or traditional methods or models such as regression

CHAPTER III
FINANCIAL DEVELOPMENT INDEX OF INDIA

III.1. Introduction

An index is a statistical aggregate that measures change in the magnitude of a group of related variable to measures the stock market performance or economic performance. Each index has its own calculation methodology and is usually expressed in terms of a change from base value. To understand and measure the degree of financial development one must consider different factors that together contribute to the degree of depth and efficiency of the provision of financial services. There is no uniform argument as to which proxies are most appropriate for measuring financial development. This justifies the need to construct an index as a single measure that represents the overall development in the financial sector by taking the relevant financial proxies in to account. The study used Broad money as percent of GDP (M3), Bank Credit as percentage of GDP (BC), Market Capitalisation of BSE as percent of GDP(MC) and Financial Innovation(FIN) ratio as the proxies for financial depth. Using these variables the researcher developed a summary measure for financial depth by applying Principal Component Analysis (PCA). That sufficiently deals with the problems of multi colinearity and over parameterization as an overall indicator of the level of financial development.

III.2.Variables Considered for Construction of Financial Development Index

III.2.1 Broad Money as Percentage of GDP (M3)

Broad money is the sum of currency outside banks, demand deposits other than those of the central Government, the time savings and foreign currency deposits of resident sectors other than the central Government, bank and traveller's cheques and other securities such as certificates of deposit and commercial paper. Bhattacharya and Sivasubramanian (2003) used M3 as proxy for financial development in a study conducted in India.

III.2.2.Market Capitalization as Percentage of GDP

Market capitalization is the total value of the tradable shares of a publicly traded company, it is equal to the share price times the number of shares outstanding. Chakraborty(2007) used market capitalisation ratio to represent the stock market in India.

III.2.3.Bank Credit of Scheduled Commercial Bank as Percentage of GDP

Total bank credit provided by the scheduled commercial bank is taken to represent the credit money circulated in economy during each period. Chakraborty (2007) used bank credit as variable to measure the banking sector in their study.

III.2.4.Financial Innovation Ratio

Financial innovation means that the new instruments in the financial services industry like ATM, Debit card, Credit card, Smart cards and Wire transaction. These innovations play significant role in the improvement of an economic efficiency and productivity. Hye (2011) made a study in India there he used financial innovation

ratio to represent the new technological changes in the financial market. Generally broad money to narrow money ratio is taken to represent financial innovation ratio.

III.3.Line Graph of Variables Considered for Construction of Index

Figure No.III.1

Line Graph of Variables Used for Index Construction
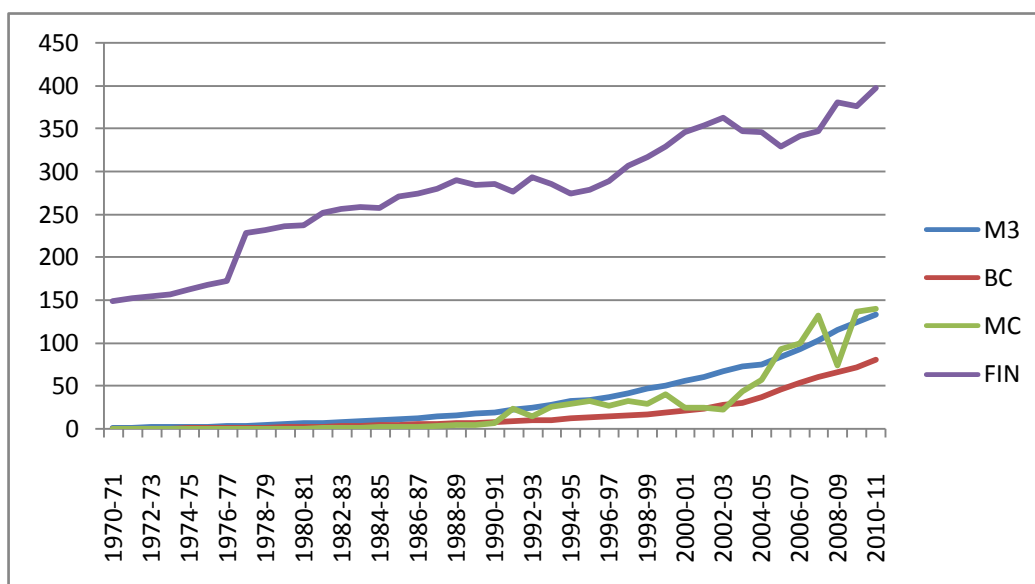
While observing figure No.III.1, M3 shows an upward trend during the study period. Bank credit also shows an increasing trend but in the year 2000 it shows a high increasing trend. While taking the market capitalisation ratio of BSE up to the year 1991 a stable condition, after 1991 a sudden improvement in the value and started to show a volatile trend. We can see the ups and downs in the study period after 1991. In the year 2003 a major increasing trend, while reaching to the year 2009 it shows a declining trend in the series and recovered soon after and it shows an upward trend. Financial innovation also shows a volatile trend, up to the year 1990. It showed an increasing trend while reaching to the year 1991 and showed a declining

movement, but recovered soon. In the year 2006 it shows again a decline trend but recovered like earlier and 2009 it again come down and recovered soon.

III.4.Methodology Adopted

- Yearly data is taken for a period of 41 years from 1971-2011.

- Broad money as percentage of GDP, bank credit as percentage of GDP, market capitalisation of BSE as percentage of GDP, Financial Innovation ratio(Broad money to narrow money)   are considered for constructing the Financial Development Index for India(FDII).

- Principal component analysis is used for finding out the weights of each variable for constructing the index.

- Variable is multiplied with corresponding weights calculated through principal component analysis

- Sum up the results of the multiplied variable and divided by the total weight of principal components

- The resultant figure is the Financial development index to represent financial development

Table.No.III.1

Weights of Variables included in Index by using Principal Component Analysis

Principal component	Eigen value	% of variance	Cumulative % of variance
1	3.615575	0.9039	0.9039
2	0.334665	0.0837	0.9876
3	0.040993	0.0102	0.9978
4	0.008767	0.0022	1.0000
Variable	**Factor loadings**	**Factor score**	
BC	0.517022	**25.88443**	
FIN	0.457577	**22.90834**	
M3	0.522017	**26.13450**	
MC	0.500809	**25.07273**	

Notes: BC, Bank credit; FIN, Financial Innovation; M3, Broad money; MC, Market capitalisation ratio

Table No. III.1 presents the result obtained from principal component analysis. The eigen values indicate that first principal component explains about 90% of the standardised variance, the second principal component explains another 8 percent, third principal component explains another 1% and last principal component accounts for only 1% of the variation. It is visible from the table, that first principal component which explains the variations of the dependent variable better than any other linear combination of explanatory variables. So it is the best measure of financial development in this case. The first principal component is computed as a linear combination of the three standard measures of financial development with weights given by the first eigenvector. After rescaling the individual contributions of broad money (M3), bank credit (BC), market capitalisation ratio (MC) and financial innovation ratio (FIN) to the standard variance of first principal component, the results are 26% for M3, 26% for BC, 25% for MC and 23% FIN respectively. The researcher uses these as the basis of weighting the variables to construct a financial depth index denoted as financial development index (FDI).

Table.No.III.2

Financial Development Index Constructed for the Past 41 years

Year	Index	Year	Index
1971	35.00789	1992	77.85367
1972	35.89609	1993	80.22115
1973	36.47966	1994	82.25468
1974	37.18817	1995	82.01711
1975	38.65996	1996	84.82217
1976	40.01187	1997	86.55065
1977	41.35211	1998	93.57617
1978	54.17847	1999	97.00142
1979	55.20465	2000	103.9431
1980	56.6806	2001	105.9694
1981	57.39841	2002	109.6113
1982	60.72819	2003	113.7624
1983	62.29699	2004	117.1156
1984	63.1797	2005	122.8393
1985	63.67589	2006	132.5184
1986	67.07197	2007	141.5696
1987	68.64566	2008	155.3309
1988	70.89942	2009	153.2096
1989	73.51452	2010	171.584
1990	73.31159	2011	181.7685
1991	74.63384		

Financial Development Index Constructed for the Past 41 years.

Table III-2 and figure III-2 shows that, from 1970 onwards there is an increasing trend of financial development up to financial reform period. During the post reform period, the index shows a volatile trend up to 2008, after that it has come down in 2009 but recovered soon. But the overall performance of index shows increasing trend with changes.

III.5.Conclusion

An attempt was made to construct an Index to represent financial development and it indicates the reality. Index shows that there is a financial development in India during last 41 years with mild ups and downs but always increasing. India has financial development during the last forty one years.

CHAPTER IV

RELATIONSHIP BETWEEN FINANCIAL DEVELOPMENT INDEX AND ECONOMIC GROWTH

IV.1.Introduction

Studying the linkage between financial development and economic growth is very common. Goldsmith (1969) provided the first cross country empirical study showing the existence of a positive link between the functioning of the financial system and growth. But there are studies which showed a negative relationship between financial development and economic growth or no relationship between them. Gregorior and Guidotti(1955) find that financial development has a negative impact on the economic growth of the countries especially in Latin America and China. So in this context, it is important to study the relationship between financial development and economic growth in India. This study is carried for the period between 1971-2011.Unlike other studies constructed Index and GDP is taken as proxy for economy and relationship between them is analysed.

IV.2.Methodology Adopted

- Variables used are: financial development index for India (FDII) and Gross Domestic Product (GDP).

- Annual data for 41 years is taken for the study.

- Economic growth is represented with GDP at factor cost at constant price

- Line graph and summary statistics is used for preliminary analysis

- Variables such as FDI and GDP are changed in to log form

- Stationarity properties of the variables are checked through ADF and PP test statistics

- Optimal lag for the model is selected by using AIC criterion.

- Bound test is used to find out the co-integration between the variables.

- Long run and short run relationship between variables are found out with the help of ARDL model.

- Stability and Diagnostic tests are also done using ARDL model

IV.3.Empirical Results

This section deals with descriptive statistics, line graph and unit root test results of Financial Development Index and GDP included in the study.

IV.3.1.Descriptive Statistics

In order to understand the behaviour of data series included in the study , mean, median, standard deviation, Skewness, kurtosis and Jacque –Bera are measured and presented in the table IV.1. It is found that both variables have positive mean value and positive skewness. Jarque –bera test value and the probability show that the data series are not normal, requiring further check and smoothening.

Table No.IV.1

Descriptive Statistics of GDP and FDI for the Period Under Consideration

Variable	GDP	FDI
Mean	1737979	84.37890
Median	1347889	74.63384
Std. Dev.	1180335	38.44967
Skewness	1.132297	0.828014
Kurtosis	3.311101	2.974840
Jarque-Bera	8.926335	4.686062
Probability	0.011526	0.096036
Observations	41	41

IV.3.2.Line Graph

The basic movement and characteristics of variables can also be understood through line graph presented below figure IV.1. Both variables move in the same direction with minor fluctuation.

Figure.No.IV.1

Line Graph of Economic Growth (GDP) and Financial Development Index(FDI) for the Study Period
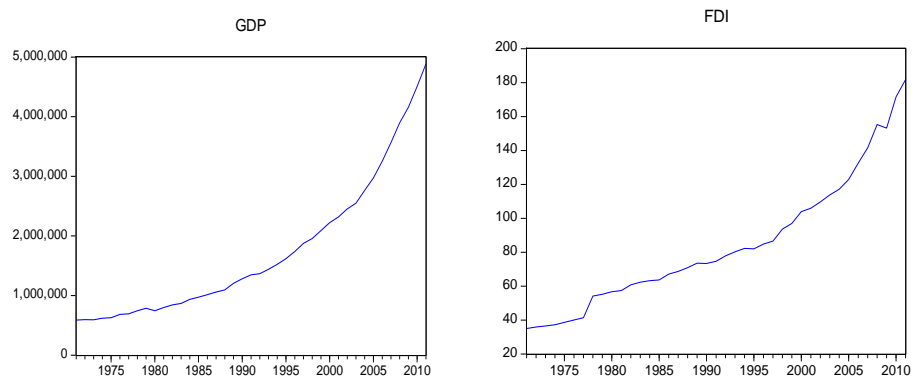
IV.3.3. Stationarity Test (Unit Root)

Testing of unit root of each variable is important before the implementation of ARDL co-integration method, because if a series is I(2) then the ARDL procedure gives spurious results. Unit root test is conducted to ensure that the series are not integrated of an order higher than one. To examine the time series properties of the data, the researcher employed an Augmented Dickey Fuller (ADF) test and Philips Perron unit root test. The results presented in table IV.2 suggestes that all the variables are integrated of order one that is stationary after first difference. In this study, the numbers of observations are as small as forty one. Most of the conventional multivariate co-integration procedures are valid for large sample size. The bound test is suitable for a small sample size. So in this study the researcher used Autoregressive Distributive Lag method (ARDL).

Table No.IV.2

Unit Root Test Result of Economic Growth and Financial Development Index with ADF and PP Test for the Study Period

Variables	Level/first difference	Lags	Calculated t value	ADF critical 5%	Stationarity
L(GDP)	Level First difference	3 3	3.834974 -5.753858	-2.938987 -2.938987	Non –stationary Stationary
L(FDI)	Level First difference	3 3	-1.661066 -6.599787	-3.526609 -3.526609	Non-stationary Stationary
Variables	Level/first difference	Lags	Adj. t-Stat	PP critical 5%	Stationarity
L(GDP)	Level First difference	3 3	4.906761 -5.804800	-2.936942 -2.936942	Non –stationary Stationary
L(FDI)	Level First difference	3 3	-1.662299 -6.599727	-3.526609 -3.526609	Non –stationary Stationary

Notes: For ADF, AIC is used to select the lag length. For PP test, Barlett-Kernel is used as the spectral estimation method. The bandwidth is selected using the Newey–West Method

IV.4.Lag Selection Criteria for the Variables used in the Study

The step of discovering the long run relationship among explanatory variable requires an adequate lag length of them in order to remove any serial correlation. The optimum lag length is usually selected based on AIC test statistic. Pesaran and Shin (1988) and Narayanan(2005) suggested that we should choose 2 as the maximum order of lags for annual data in the ARDL model.

Table No.IV.3

Statistics for Selecting Lag Order for Variables used in the Study

Order of Lag	AIC	SBC	HQ
1	-4.363796	-4.193174	-4.302579
2	**-4.584455***	-4.325888*	-4.492459*

Note: AIC: Akaike information criterion; SC : Schwarz information criterion; HQ: Hannan-Quinn information criterion

From the values of each criterion presented in table IV.3 lag order 2 is appropriate for this study.

IV.5. Co-integration through Bound Test

The bound test on lag length in this study is based on ADF unit root proposed by Dickey & Fuller (1981) in the fitted models. The estimation of equation is done with 'No trend No intercept' as it is considered in case I of Pearson and Shin.".

The bound testing procedure is based on the F statistics or Wald statistics and is the first stage of the ARDL co-integration method. Accordingly a joint significance test that implies no co-integration should be performed. The F test used for this procedure has a non standard distribution. These two sets of critical values are computed by Pearson et al for a given significance level. One set assumes that all variables are I(0) and other set assumes that they are I(1). If the computed F-statistics

exceeds the upper critical bound value, then the null hypothesis of no co-integration will be rejected. If the F statistic falls in to the bounds, then the test becomes inconclusive. If the F-statistic lies below the lower critical bounds value, it implies no co-integration.

Table No.IV.4

Bound Test Result of Financial Development and Economic Growth for the Study period

Critical value	F- statistics	16.18325
	Lower bound	Upper bound
10%	2.01	3.10
5%	2.45	3.63
1%	3.42	4.84

Notes: Critical values derived from Pesaran et al(2001).Case I:No intercept and no trend with lag 2.

The table IV.4 shows that when tested for the joint significance of lagged level variables with "No trend and No intercept"; F-statistics are significant at 2 lags. The calculated F-statistics is greater than the upper bound critical value at 1% level of significance, indicating that null hypothesis is to be rejected and it proves the existence of co-integration between the variables.

IV.6. Long Run Relationship:

Table.No.IV.5

Long Run Estimates based on AIC-ARDL (2, 0)

Variable	Coefficient	Standard error	T-ratio
LFDI	4.1920	.31923	13.1317***(.000)

Notes: *** significant at 1% level; Dependent variable LGDP

The co-efficient value of financial development appears to be positive and statistically significant at one percent level in the table IV.5.   It is inferred that a 1 percent of growth in financial development would imply an estimated increase of

almost 4.2 percent in Gross Domestic Product in the long run. Financial development raises the capacity of financial intermediaries and financial markets to supply funds and increase economic growth through the channel of increased supply of finance in the economy. The same kind of result was seen by Khan and Qayyum(2006) for Pakistan.

IV.7. Short Run Relationship:

The empirical investigation regarding the short run dynamics is important for policy makers because the signs and magnitudes of the short run dynamics provide the direction and movements of variables. Thus short run dynamics are estimated through error correction model.

Table No.IV.6

Short Run Estimates Based On AIC-ARDL (2, 0)

Variable	Coefficient	Standard error	T-ratio
dLGDP1	-.25328	.15722	-1.6109[.116]
DlFDI	.067216	.018595	3.6147[.001]
ecm(-1)	-.016034	.0055332	-2.8978[.006]
F-stat		F(2, 36) 8.4039[.001]	
DW-statistic		2.02	

Note: Probability value is given in parenthesis

The error correction term (ECM-1) is statistically significant at 5% level with negative sign. The negative and significant co-efficient is an indication of co-integrating relationship among GDP and Financial Development Index. The error correction co-efficient suggests that the convergence towards the long run equilibrium is very slow for the period. Two percent of the long run disequilibrium is corrected in the short run period. This further supports the co-integration results obtained by using F-test at the bound test result shown in table IV.4.The co-efficient of short run change

in the financial development index is also positive and statistically significant at 5 percent level. The results agrees with the findings by Khan and Qayyum(2006) for Pakistan.

IV.8. Diagnostic Test Result of the Variables used

To ensure that models are not miss specified, Table No.IV.7 presents result of test for serial correlation, functional form, normality and hetroscadasticity. The results of the diagnostic test reveal that all the models are well specified, indicating that the estimated Error Correction Model performs well. There is no auto correlation problem in the model because Durbin Watson's statistics is 2. The diagnostic test of estimated ARDL model suggests that the model passes the test of serial correlation, functional form misspecification, heteroscedasticity and non-normal errors.

Table No.IV.7
Diagnostic Test Result of Economic Growth and Financial Development

Test Statistics	LM Version
A:Serial Correlation	CHSQ(1)= .35444[.552]
B:Functional Form	CHSQ(1)= .053716[.817]
C:Normality	CHSQ(2)= 34.7333[.000]
D:Heteroscedasticity	CHSQ(1)= 2.2756[.131]

IV.9. Stability Test of the model used

To confirm, it is important to investigate whether the above shown long run relationship is stable during the study period. In other words researchers have to test for parameter stability. The methodology used here is based on the cumulative sum (CUSUM) and cumulative sum of squares (CUSUMSQ) test proposed by Brown et al(1975). Unlike chow test that requires break points to be specified, the CUSUM test can be used even if we do not know the structural break point. The CUSUM test uses

the cumulative sum of recursive residuals based on the first N observations and is updated recursively and plotted against break point. The CUSUMSQ makes use of the squared recursive residuals and follows the same procedure. If the plots of CUSUM and CUSUMSQ statistics study with in the critical bounds at 5% level of significance the null hypothesis of all co-efficient in the given regression are stable and cannot be rejected. If however either the parallel lines are crossed then the null hypothesis of parameter stability is rejected at the 5% significance level. .

Figure.No.IV.2

Plot of Cumulative Sum of Recursive Residuals

The straight lines represent critical bounds at 5% significance level

Figure IV.3

Plot of Cumulative Sum of Squares of Recursive Residuals

The straight lines represent critical bounds at 5% significance level
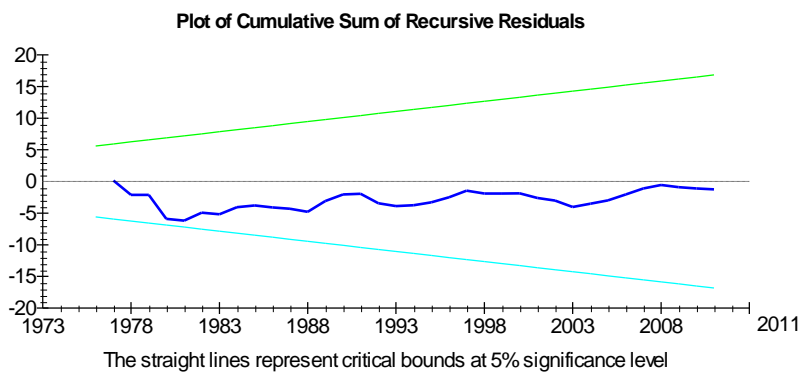
93
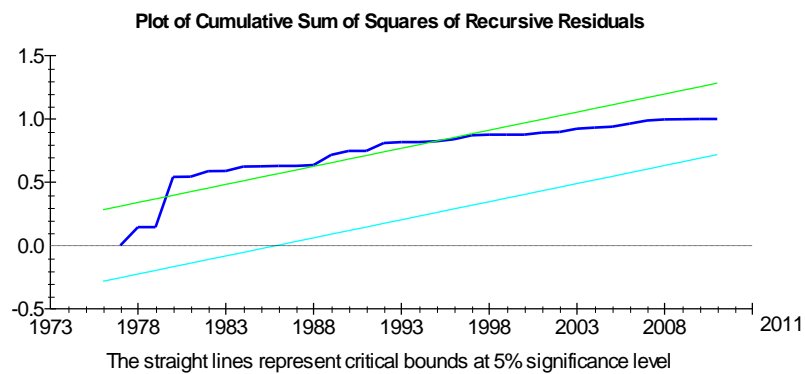
Figure IV.2 evidently shows that CUSUM plots lie within the bound where as Figure IV.3. CUMSUMSQ plots lie outside the bound. Thus it is providing evidence that parameter of the model suffer from structural instability over the period. It shows that there is a structural break in the data series used for the study

IV.10.Conclusion

An attempt was made in this chapter to find out whether there is a co-integrating relationship between financial development and economic growth in India. The empirical results show that there is a significant positive relationship between financial development and economic growth. The result also showed a significant positive long run and short run relationship between these two variables. While examining the stability of the long run relationship during the study period, the stability test CUSUMSQ shows instability in the graph. It further provides a re-examination of structural break in the data series. It proved that Indian financial development and economic growth are related both in the long run and short run period and therefore, policy decision with regard to financial development in terms of financial innovation will help the economy.

CHAPTER V

RELATION BETWEEN FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH DURING PRE AND POST LIBERALISATION PERIOD

V. 1.Introduction

As far as India is concerned, financial sector reforms have made tremendous change in the financial market and the banking sector. For studying the relationship between financial development and economic growth in India, it is necessary to check the pre liberalisation and post liberalisation period performance. Since the beginning of the 1990s the Indian economy has been undergoing economic reforms which include financial sector reforms among others. The reforms were carried out mainly in the case of banking sector and the capital market. With the reduction in interest rate, Indian banking system has become more market oriented. Finally it has given output to the stock market also. The number of stock exchanges has also increased. The principal objective of financial sector reforms is to improve the allocateive efficiency of resources, ensure financial stability and maintain confidence in the financial system by enhancing its soundness and efficiency. Due to these structural breaks in Indian Economy with financial sector reforms, it is ideal to check the relationship during pre and post liberalisation period.

V.2. Methodology Adopted

- Financial Development Index and GDP are converted   in log form

- Applied Chow test is used to find out the structural break in the data series.

- Descriptive statistics and line graph are used for preliminary analysis.

- Stationarity is checked with ADF and PP tests.

- AIC is used to find out the optimum lag length for the model.

- Bound test is used to find out the co-integration relationship.

- Long and short run co-integration are checked with ARDL model.

- Stability and diagnostic test are also checked with ARDL model.

V.3. Existence of Structural Break

Table V.1

Chow Test Result of Financial Development Index and Economic Growth

Null hypothesis	F statistics	Probability	Conclusion
No breaks at specified breakpoints	56.15740	0.0000	Rejected

Note: year 1991 is taken as a break period

The chow test result shown in table V.1 confirms the structural break in the data during the year 1991. The null hypothesis of no break at specified break point (1991) is rejected at 1% level. By considering the structural break, the study period is divided in to two that is pre liberalisation period (1971-1991) and post liberalisation period (1992-2011).

V.4. Section I. Pre- Liberalisation Period (1971-1991).

V.4.1.Summary Statistics

Table.No.V.2

Descriptive Statistics of Financial Development Index and Economic Growth for the Pre Liberalisation Period

Variable	GDP	FDI
Mean	862030.6	55.52455
Median	798505.8	57.39841
Std. Dev.	233486.0	14.11184
Skewness	0.622062	-0.243191
Kurtosis	2.292439	1.590626
Jarque-Bera	1.792426	1.945038
Probability	0.408112	0.378129
Observations	21	21

In order to understand the behaviour of raw data series included in the study, mean, median standard deviation, skewness, kurtosis and Jacque bera are measured and presented for pre liberalisation period. During this period positive mean and skewness are seen for economic variables, whereas, positive mean and negative skewness for financial development in India. Jarque-Bera result and its probability indicate that the series are normal at its value during the pre liberalisation period.

V.4.2.Line Graph of Variables used in the Study:

Line graph presented in Figure.No.V.1 show that both GDP and FDII did not have smooth, how instead it is seen that increasing trend with wild fluctuation of sudden increasing and sharp decreases. It shows that there had been any consistency in its behaviour.

Figure.No.V.1
Line graph of Financial Development Index and Economic Growth for the Pre-Liberalisation Period
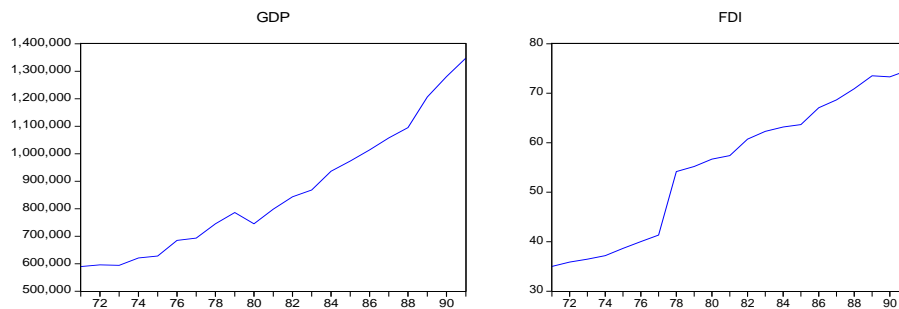
V.4.3.Stationarity Test Result of the Variables used in the Study:

Before conducting the bound test it is necessary to ensure that all the variables are integrated at order less than two, i.e. I(2), and therefore Augmented Dickey Fuller (ADF), Philips Perron unit root test is employed and Table V-3 shows that all variables are non stationary at levels and stationary at first difference.

Table.No.V.3

Unit Root Test Result of Variables: Financial Development Index and Economic Growth for the Pre- Liberalisation Period.

Variables	Level/first difference	Lags	Calculated t value	ADF critical 5%	Stationarity
L(GDP)	Level	1	-2.412156	-3.658446	Non-stationary
	First difference	1	-6.106799	-3.673616	Stationary
L(FDI)	Level	1	2.888558	-1.959071	Non-stationary
	First difference	1	-3.194719	-1.960171	Stationary
Variables	**Level/first difference**	**Lags**	**Adj. t-Stat**	**PP critical 5%**	**Stationarity**
L(GDP)	Level	1	-2.311295	-3.658446	Non-stationary
	First difference	1	-10.14638	-3.673616	Stationary
L(FDI)	Level	1	2.960220	-1.959071	Non –stationary
	First difference	1	-3.160351	-1.960171	Stationary

Notes: For ADF, AIC is used to select the lag length . For PP,Barlett-Kernel is used as the spectral estimation method. The bandwidth is selected using the Newey–West Method

V.4.4.Lag Selection Criteria

Table.No.V.4

Statistics for Selecting Lag Order

Order of Lag	AIC	SBC	HQ
1	-4.500833	-4.105112	-4.246388
2	**-4.699838**	-4.401594	-3.756262

Note: AIC: Akaike information criterion; SC : Schwarz information criterion;
HQ: Hannan-Quinn information criterion

From the values of each criterion presented in table V.4 researcher can use lag order 2 for this study.

V.4.5.Co-integration through Bound Test:

It is found that the variables are integrated at an order less than two that is I (2).ARDL model is to check the existence of a co-integrating relationship between financial development and economic growth in the pre liberalisation period that is 1971-1991. For this purpose bound test is applied and the result is presented in table V.5. If the computed F-statistics exceeds the upper critical bound value, then the null hypothesis of no co-integration will be rejected. If the F statistic falls in to the bounds then the test becomes inconclusive. If the F-statistic lies below the lower critical bounds value it implies no co-integration.

Table.No.V.5

Bound Test Result of Financial Development Index and Economic Growth for the Pre-Liberalisation Period

Critical value	F- statistics	2.16
	Lower bound	Upper bound
10%	4.19	5.06
5%	4.87	5.85
1%	6.34	7.52

Notes: Critical values derived from Pesaran et al(2001).Case V: Unrestricted
Intercept and Unrestricted trend with 2 lag

The table V-5 shows that calculated F statistics is 2.16, less than the table value. So it is concluded that during the pre liberalisation period financial development and Economic growth has no co integrating relationship. The null hypothesis that there is no co-integrating relation between financial development and economic growth is not rejected. When there is no co-integration it is not possible to check the existence of long and short run relationship.

V.5.Section II-Post Liberalisation Period (1992-2011)

In the above section, the relationship between financial development and economic growth during the pre liberalisation period was analysed and found that no co-integration between financial development and economic growth. Attempt is made to find out the relationship between financial development and economic growth during the post liberalisation period. As the existing studies proved that financial development helps the country to improve the economic growth, it is necessary to check whether the financial sector reform implemented in 1991 has contributed for the improvement of financial sector and ultimately to the economic growth of India. The number of observations is comparatively less; bound test is used to find out the relationship between financial development and economic growth.

V.5.1. Summary Statistics:

Table.No.V.6

Descriptive Statistics of Financial Development Index and Economic Growth for the Post Liberalisation Period

Variable	GDP	FDI
Mean	2657724	115.9272
Median	2386425	109.3818
Std. Dev.	1066369	31.80251
Skewness	0.677506	0.675395
Kurtosis	2.308609	2.330213
Jarque-Bera	1.928397	1.894374
Probability	0.381289	0.387830
Observations	20	20

It is seen from table No.V.6 that mean and skweness are positive for both variables. Jarque- Bera results and its probability indicate that data series are normal Line graph presented in Figure. No.V.2 reveals that there is a steady growth with mild changes throughout the study periods into the pre liberalisation period

Figure.No.V.2

Line Graph of Financial Development Index and Economic Growth for the Post Liberalisation Period
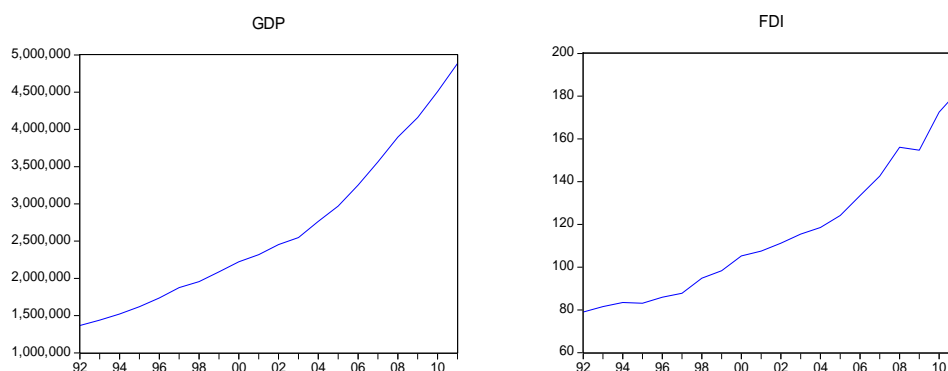
V.5.2. Stationarity Test Result

Unit root test is carried out to ensure that the variables are integrated at an order less than two. The table Vo.V.7 shows that all the variables are non-stationary at level and stationary at first difference.

Table.No.V.7

Unit Root Test of the Variables Used in the Post Liberalisation Period

Variables	Level/first difference	Lags	Calculated t value	ADF critical 5%	Stationarity
L(GDP)	Level	1	2.624337	-3.029970	Non-stationary
	First difference	1	-2.730606	-2.660551	Stationary
L(FDI)	Level	1	2.513467 i	-3.040391	Non-stationary
	First difference	1	-4.686899	-3.040391	Stationary
Variables	Level/first difference	Lags	Adj. t-Stat	PP critical 5%	Stationarity
L(GDP)	Level	1	2.278596	-3.029970	Non-stationary
	First difference	1	-2.734184	-3.040391	Stationary
L(FDI)	Level	1	1.778592	-3.029970	Non –stationary
	First difference	1	-4.662622	-3.040391	Stationary

Notes: For ADF, AIC is used to select the lag length . For PP,Barlett-Kernel is used as the spectral estimation method. The bandwidth is selected using the Newey–West Method.

V.5.3.Lag Selection Criteria for the Variables used

Table.No.V.8
Statistics for Selecting Lag Order

Order of lag	AIC	SBC	HQ
1	5.278565*	-5.080705*	-5.251283*
2	-5.061566	-4.767491	-5.032334

Note: AIC: Akaike information criterion; SC : Schwarz information criterion; HQ:Hannan-Quinn information criterion

From the values of each criterion presented in table V.8, based on AIC criteria maximum order of log 1 can be used for this study.

V.5.4. Co-integration through Bound Test:

Table No.V.9

Bound test result of Variables used in the Post Liberalisation Period.

Critical value	F- statistics	5.19
	Lower bound	Upper bound
10%	2.17	3.19*
5%	2.72	3.83*
1%	3.88	5.30

Notes: Critical values derived from Pesaran et al(2001).No intercept and no trend with lag 1

The table V-9 shows that the calculated F statistics is 5.19, which is significant at 5% level. Since the calculated F statistics (5.19) is higher than the table value, it is concluded that there exist a co-integrating relationship between financial development and economic growth. For finding out the long run and short run relationship, ARDL model is applied.

V.5.5.Long and Short Run Relationship:

Table.No.V.10

Long Run Estimates based on AIC-ARDL (1, 0) for Post Liberalisation Period

Variable	Coefficient	Standard error	T-ratio
LFDI	3.8608	.34369	11.2334[.000]***

Notes: *** significant at 1% level; Dependent variable LGDP

The above table No.V-10 shows a positive and significant relationship between financial development and economic growth at 1% level of significance. It is also revealed that one percent change in financial development makes a 3.86% change in economic growth in the post liberalisation period. The findings of Muhammad, S.D(2010) for Pakistan, Chakraborty(2007) for India also confirms the above result.

As there exists a long run relationship it is important to know the short run relationship between the variables because the long run disequilibrium is corrected in the short run. Table No.V-11 provided the result of short run relationship.

Table.No.V.11

Short Run Dynamic Results (ARDL (1, 0)) of Post Liberalisation Period

Variable	Coefficient	Standard error	T-ratio
dLFDI	.070644	.025774	2.7409[.013]
ecm(-1)	-.018298	.0082891	-2.2074[.041]
F-stat. F(1, 18) 10.1672[.005]			
DW-statistic 1.8756			

Note: Dependent variable LGDP

The error correction term (ECM-1) is statistically significant with 5% level with negative sign. The error correction co-efficient is -0.01, which suggests that the convergence towards the long run equilibrium is very slow for the period. Financial development is statistically significant. The magnitude of the coefficient implies that 1% percent of the disequilibrium caused by previous year's shocks converges back to the long-run equilibrium in the current year. The findings of Muhammad and Ummer (2010) for Pakistan, Chakraborty(2007) for India also confirms the above result.

V.5.6. Diagnostic Test Result of the Variables used:

Once co-integrating relationship is ascertained, the long run and error correction estimates of the ARDL model are obtained. The diagnostic test statistics of the selected ARDL model can be examined from the short run estimates at this stage of the estimation procedure.

Table.No.V.12

Diagnostic Test Result of Financial Development and Economic Growth for the Post liberalisation Period

Test Statistics	LM Version
A:Serial Correlation	CHSQ(1)= .34350[.558]
B:Functional Form	CHSQ(1)= .15477[.694]
C:Normality	CHSQ(2)= 1.1158[.572]
D:Heteroscedasticity	CHSQ(1)= 1.8915[.169]

A:Lagrange multiplier test of residual serial correlation, B:Ramsey's RESET test using the square of the fitted values, C:Based on a test of skewness and kurtosis of residuals,D:Based on the regression of squared residuals on squared fitted values. Degree of freedom is given in brackets and probability value in parenthesis

The table V-12 shows that diagnostic tests of the estimated ARDL (1, 0) model suggest that the model passes the tests of serial correlation, functional form misspecification and non-normal errors.

V.5.7. Stability Test of the Model used:

As the model helped to find the relationship between variables, it is necessary to check the stability of the model applied in the study. The plots of CUSUM and CUSUMSQ statistics study is within the critical bounds at 5% level of significance. The null hypothesis of all co-efficient in the given regression is stable and cannot be rejected from figure No.V.3 and V.4. There is no instability in the model.

Figure. No. V.3
Cumulative sum of Recursive Residuals Test for the Post Liberalisation Period

Plot of Cumulative Sum of Recursive Residuals

The straight lines represent critical bounds at 5% significance level
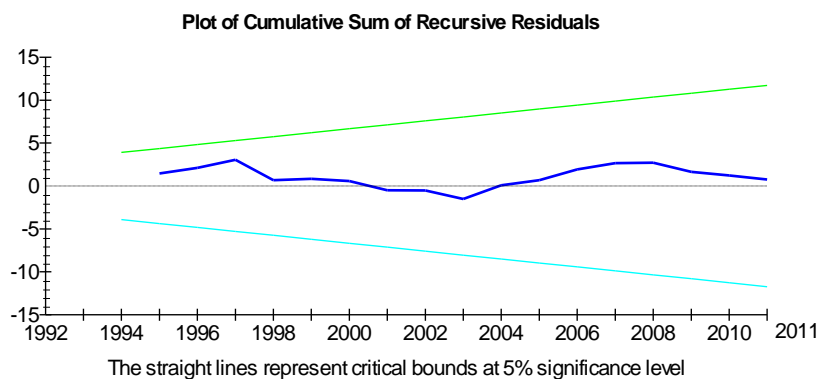
Figure.No.V.4
Cumulative Sum of Squares of Recursive Residuals test for the Post Liberalisation Period

Plot of Cumulative Sum of Squares of Recursive Residuals

The straight lines represent critical bounds at 5% significance level
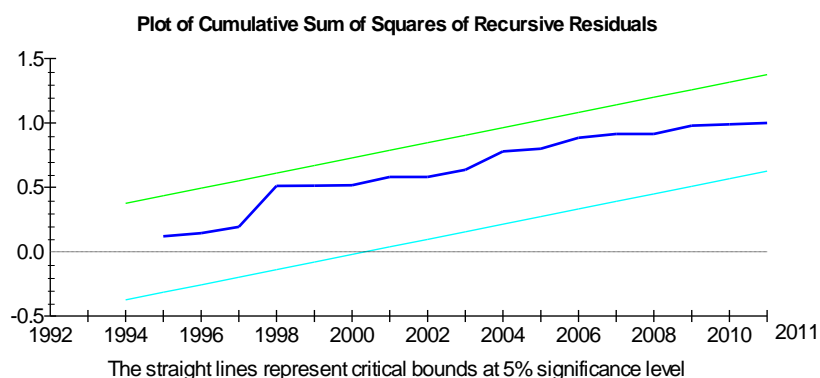
V.5.7 Conclusion

It is identified that there is a change in the mode of relationship between financial development and economic growth in the pre and post financial reform period. The empirical result didn't show any co-integrating relationship between financial development and economic growth during the pre liberalisation period where as in post liberalisation period it showed a significant positive relationship.

CHAPTER VI

DIRECTION OF CAUSALITY BETWEEN FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH

VI.1. Introduction

There are so many studies which have analysed the causal relationship between financial development and economic growth, for Eg: Adamopoulos,A; (2008) made study in Ireland, Muhammad and Umer (2010) in Pakistan etc. The direction of causality between financial development and economic growth is crucial because it has different implications for development policies. Economic growth leads financial development, (demand following hypothesis) means when real growth has been taking place so that the expansion of financial institutions is only a result of the need of the expansion of the real economic activities. Support of this view can be found; in Arestis and et al (2002),Ang and Mckibbin(2007) has found out that unidirectional causality that runs from Economic Growth to financial development. On the other hand financial development leads economic growth (supply leading hypothesis) means that the expansion of financial system may help to improve and lead economic growth by increasing savings and improving borrowing options and the reallocation of capital. Bhattacharya and Sivasubramanian (2003), Amenounve and et al.(2003) investigated the unidirectional causality runs from financial development to economic growth. At the same time, financial and the real sectors may expand together contributing to the developments of each other, which shows bidirectional causality between financial development and economic growth. Two way relationship between financial development and economic growth has been shown by Demetriades and Luintel(1996),Ghirmay(2004). From the above studies it is understood that causality will differ from country to country. Patrick (1966)

mentions that, there are economies with supply leading and demand following hypothesis, he also mentions that in the early stages of development the economy will follow the supply leading hypothesis, where, as when the economy grows, it will follow the demand following hypothesis. To take policy decision it is important to know which way financial development and economic growth cause each other and therefore an attempt is made to find out the causality between financial development and economic growth in Indian Context.

VI.2. Methodology Adopted:

1. Yearly data is taken for the study

2. Variables such as GDP and Financial Development Index are converted into log form then the first difference of each variable was determined.

3. The study is done for three periods i.e.; the whole study period (1971-2011), pre-liberalisation period (1971-1991) and post liberalisation period (1992-2011).

4. Preliminary analysis is done with the help of summary statistics and line graph

5. ADF and PP test are applied to check the Stationary properties of the variables.

6. Optimal lag length is determined through VAR lag selection criteria like LR,FPE and AIC

7. Short term causal relationship between variables is found through VAR Granger Causality/Block Exogeneity Wald Tests and Pair wise granger causality test.

8. Proportion and level of shock transmitted from one variable to another is determined by using Variance Decomposition Model.

VI.3. General Behaviour of variables considered

This section discusses the descriptive statistics of variables included in the study, their line graph, unit root test result and lag length criteria of Financial Development Index (FDI) and Economic Growth (GDP) included in the analysis of GDP function.

VI.3.1. Summary Statistics of Variables used in the Study

Table VI.1 shows the descriptive statistics of FDI and GDP. It is observed from the table that the series of GDP and FDI are not normal for the three periods. This is confirmed by Jarque-Bera value which is given in the table.No.VI.1.It shows that mean value of FDII and GDP are positive during all three study periods. FDI shows the positive Skewness and GDP is negatively skewed during all three study periods. Kurtosis is higher than the limit during whole study period and pre-liberalisation period, whereas during post liberalisation period it is less the limit of 3.Jarque-Bera test results and probability indicate the significant non-normality of series during whole study period and pre-liberalisation period where as during post liberalisation period data is found to be normal.

Descriptive Statistics of Financial Development Index and Economic Growth for the Three Study Periods

Period		FDI	GDP
Whole period	Mean	0.041179	0.052859
	Median	0.032626	0.055864
	Std. Dev.	0.045150	0.030192
	Skewness	3.425768	-1.207378
	Kurtosis	17.77414	5.161248
	Jarque-Bera	442.0314	17.50340
	Probability	0.000000	0.000158
	Observations	40	40
Pre-liberalisation period	Mean	0.037851	0.041327
	Median	0.025280	0.043376
	Std. Dev.	0.056466	0.034510
	Skewness	3.713726	-0.865724
	Kurtosis	15.90011	4.044192
	Jarque-Bera	184.6500	3.406872
	Probability	0.000000	0.182057
	Observations	20	20
Post liberalisation period	Mean	0.044152	0.067033
	Median	0.036345	0.065083
	Std. Dev.	0.030656	0.016588
	Skewness	0.306591	-0.177909
	Kurtosis	2.583871	2.003324
	Jarque-Bera	0.434749	0.886644
	Probability	0.804629	0.641901
	Observations	19	19

VI.3.2. Line Graph of Variables used in Three Study Periods

Line graph of the variables for the three study period is depicted in figureVI.1 with the variables in its first difference form.

Figure.No.VI.1

Line Graph of Financial Development Index and Economic Growth for the Whole Study Period
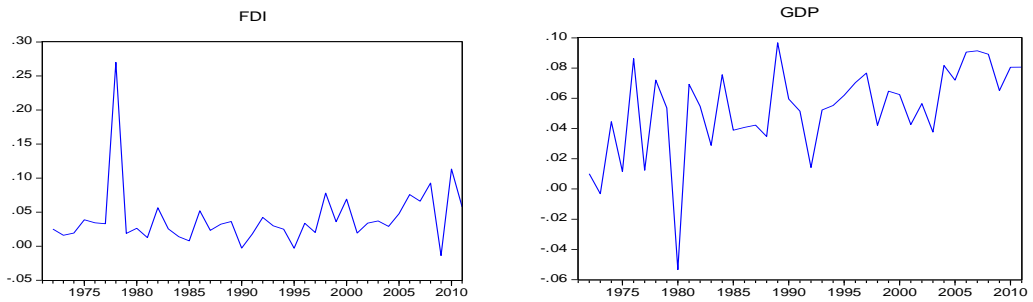
Figure.No.VI.2

Line Graph of Financial Development Index and Economic Growth of Pre Liberalisation Period
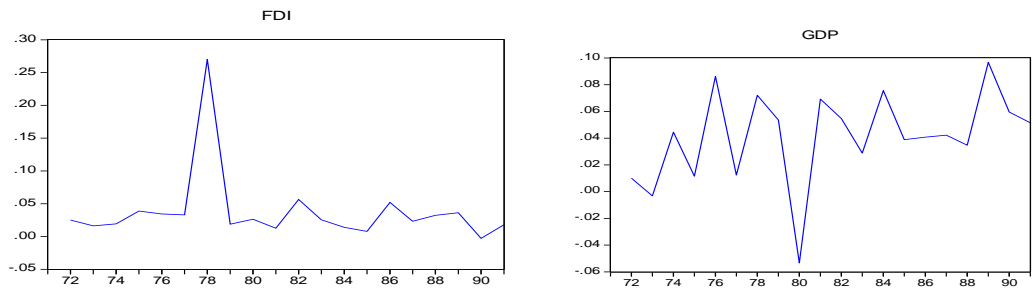
Figure.No.VI.3

Line Graph of Financial Development Index and Economic Growth for the Post Liberalisation period

111
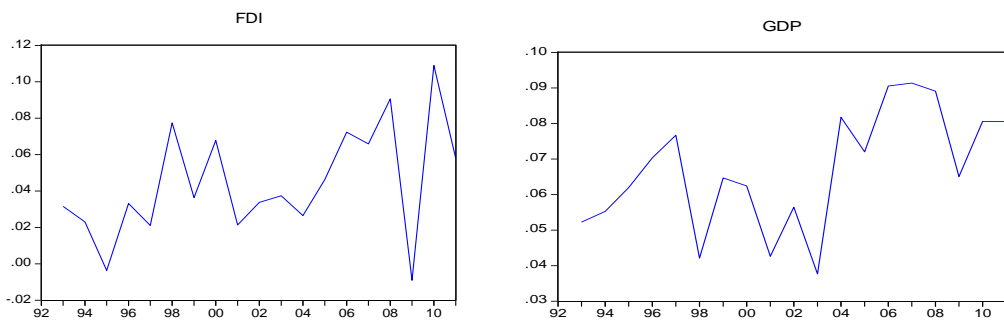
It is found during whole study period that financial development index shows the almost straight line growth with changes and greater level change in 1978, whereas GDP shows the increasing trend with changes and deep fall in 1980. Same trend is shown in the pre-liberalisation period with sharp increase in 1978 in financial development index and deep fall in 1980 in economic growth. It is observed during post liberalisation period that FDII showed increasing trend with changes and deep fall in 2009 and GDP showing increasing trend with deep fall during 1998 and 2003.

VI.3.3. Stationarity Test Result

Table VI-2 shows the unit root result of the three periods of study. The period under consideration shows that all variables are stationary at its level form. The ADF and PP test supporting the result, that variables are stationary at its level form. It helps to run granger causality test since the variables are stationary in its level form.

Table.No.VI.2

**Unit Root Test of the Variables Financial Development Index and
Economic Growth for the Three Study Periods**

Period	Variables	Level	Lags	Calculated t value	ADF critical 5%	Stationarity
Whole period	L(GDP)	Level	3	-5.160213	-3.540328	Stationary
	L(FDI)	Level	3	-6.652351	-2.938987	Stationary
	Variables	**Level**	**Lags**	**Adj. t-Stat**	**PP critical 5%**	**Stationarity**
	L(GDP)	Level	3	-9.353209	-3.529758	Stationary
	L(FDI)	Level	3	-6.652954	-2.938987	Stationary
Period	**Variables**	**Level**	**Lags**	**Calculated t value**	**ADF critical 5%**	**Stationarity**
Pre reform period	L(GDP)	Level	1	-5.348374	-3.029970	Stationary
	L(FDI)	Level	1	-4.379775	-3.029970	Stationary
	Variables	**Level**	**Lags**	**Adj. t-Stat**	**PP critical 5%**	**Stationarity**
	L(GDP)	Level	1	-5.418912	-3.029970	Stationary
	L(FDI)	Level	1	-4.379891	-3.029970	Stationary
Period	**Variables**	**Level**	**Lags**	**Calculated t value**	**ADF critical 5%**	**Stationarity**
Post reform period	L(GDP)	Level	1	-2.730606	-2.660551	Stationary
	L(FDI)	Level	1	-4.686899	-3.040391	Stationary
	Variables	**Level**	**Lags**	**Adj. t-Stat**	**PP critical 5%**	**Stationarity**
	L(GDP)	Level	1	-2.734184	-2.660551	Stationary
	L(FDI)	Level	1	-4.662622	-3.040391	Stationary

Notes: For ADF, AIC is used to select the lag length . For PP,Barlett-Kernel is used as the spectral estimation method. The bandwidth is selected using the Newey–West Method.

VI.3.4.Lag Selection Criteria of Variables used in Different Study Periods

Table.No.VI.3

VAR Lag order Selection Criteria for Financial Development Index and Economic Growth for the Three Study Periods

Period	Lag	LogL	LR	FPE	AIC	SC	HQ
Whole period	0	141.3687	NA	1.83e-06	-7.533443	-7.446366*	-7.502744*
	1	142.1389	1.415446	2.18e-06	-7.358857	-7.097627	-7.266761
	2	149.4586	**12.66125***	**1.83e-06***	**-7.538305***	-7.102922	-7.384812
	3	151.3904	3.132544	2.06e-06	-7.426507	-6.816970	-7.211617
Pre reform period	0	57.69001	NA*	4.90e-06*	-6.551766	-6.453741*	-6.542022*
	1	59.43549	2.874913	6.43e-06	-6.286529	-5.992453	-6.257297
	2	65.73135	8.888261	5.05e-06	-6.556629*	-6.066503	-6.507910
	3	68.23827	2.949321	6.44e-06	-6.380973	-5.694797	-6.312766
Post reform period	0	67.03747	NA*	3.16e-07	-9.291067	-9.199773*	-9.299518
	1	71.67986	7.295180	**2.92e-07***	**-9.382837***	-9.108955	**-9.408189***
	2	73.14526	1.884086	4.43e-07	-9.020751	-8.564281	-9.063006
	3	74.18353	1.038269	7.71e-07	-8.597646	-7.958589	-8.656803

LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan-Quinn information criterion .*indicates lag order selected by the criterion at 5% level of significance.

VI.4. Direction of Causality during Whole Study Period

To understand the causality between FDI and GDP, VAR Granger Causality test and Pair wise Granger Causality test are used for the study period 1971-2011.

Table. No. VI.4

VAR Granger Causality/Block Exogeneity Wald Tests Result of Financial Development Index and Economic Growth for the Whole Study Period

Dependent variable	Independent variable	Chi-square value	DF	Probability	Causal relations
DLGDP	DLFDI	12.47737	2	0.0020	FDI→EG
DLFDI	DLGDP	2.414556	2	0.2990	No Causality

The table VI-4 shows that the null hypothesis of FDI does not granger cause GDP is rejected at 1% level of significance .That means causality runs from financial development to economic growth in the case of India during the period 1971-2011. The supply leading hypothesis is followed in the case of India. The result is also supported by the Pair wise Granger Causality test result which is given in table No.VI.5. Bhattacharya and Sivasubramanian(2003) made a study in India by taking M3/GDP as proxy for financial development and reached to similar conclusion that financial development leads the economy to grow not the other way that is financial development leads economic growth. It helps the policy makers to decide which way they can develop the financial sector and ultimately the development of economy.

Table.No.VI.5

Pair wise Granger Causality Tests for the Financial Development Index and Economic Growth for the Whole Study Period

Null hypothesis	F-statistics	Rejected/Not rejected	Conclusion
FDI does not Granger Cause GDP	6.23868(0.0050)	Rejected	FDI→GDP
GDP does not Granger Cause FDI	1.20728(0.3119)	Not rejected	No Causality

VI.5.Direction of Causality during Pre-Liberalisation Period (1971-1991)

The study period is divided into pre and post liberalisation period and the causality effects of variables are calculated separately and results are presented for pre-liberalisation period below.

Table No.VI.6

VAR Granger Causality/Block Exogeneity Wald Tests result of Financial Development and Economic Growth for the Pre-Liberalisation period

Dependent variable	Independent variable	Chi-square value	DF	Probability	Causal relations
DLGDP	DLFDI	13.78273	2	0.0010	FDI→EG
DLFDI	DLGDP	1.109883	2	0.5741	No Causality

The table VI-6 shows that the null hypothesis of financial development does not granger cause economic growth is rejected at 1% level of significance .That means, causality is running from financial development to economic growth in the case of India during the pre-liberalisation period (1971-1991). The supply leading hypothesis is followed in case of India during that time. The pair wise granger causality test results shown in table No.VI.7 also confirms the same result.

Seetanah and et al (2008) did a study in Mauritius and reached to similar type of conclusion that financial development leads economic growth.

Table.No.VI.7

Pair wise Granger Causality Tests result of Financial Development Index and Economic Growth for Pre-Liberalisation Period

Null hypothesis	F-statistics	Rejected/Not Rejected	Conclusion
FDI does not Granger Cause GDP	6.89137(0.0091)	Rejected	FDII→GDP
GDP does not Granger Cause FDI	0.55494(0.5871)	Not rejected	No causality

VI.6. Direction of Causality during Post Liberalisation Period (1992-2011)

Table .No.VI.8

VAR Granger Causality/Block Exogeneity Wald Tests result of Financial Development and Economic Growth for the Post-Liberalisation Period

Dependent variable	Independent variable	Chi-square value	DF	Probability	Causal relations
DLGDP	DLFDI	0.037488	1	0.8465	No Causality
DLFDI	DLGDP	3.346938	1	0.0673	GDP→FDII

The table VI-8 shows that the null hypothesis, economic growth does not granger cause financial development is rejected at 10% level of significance. That means causality runs from economic growth to financial development in the case of India during the post liberalisation period (1991-2011). The demand following hypothesis is followed in the case of India during post liberalisation period. The above result is also confirmed by Pair wise Granger Causality test result which is shown in table.No.VI.8. Chakraborthy(2007) made a study in India by taking market turnover, market capitalisation ratio, bank credit, stock market volatility for financial development indicator during 1996-2005 and found out that causality is run from

economic growth to financial development in the post liberalisation period. It seems that the role of financial development may not be crucial for economic growth in the post liberalisation period. It is understood that policy makers need not concentrate on financial development to boost economic growth instead policy measures on economic growth would help to have financial development in India. From the work of Demetriades and Luintel(1996,) reached to a conclusion that in India financial repression has a negative effect on financial development. Ang (2005) pointed out in their study that if financial repression exerts negative influences in the process of financial development, causality is likely to run from growth to finance. After concluding the above views our result also supports the view.

Table.No.VI.9

Pair wise Granger Causality Tests result of Financial Development Index and Economic Growth for Post-Liberalisation Period

Null hypothesis	F-statistics	Rejected/Not Rejected	Conclusion
FDI does not Granger Cause GDP	0.03749(0.0891)	Not Rejected	No Causality
GDP does not Granger Cause FDI	3.34694(0.0873)	Rejected	GDP→FDI

VI.7.Conclusion

Indian economy follows the Patrik(1966) view of causality. In his study he mentions that the direction of causality will differ from country to country and according to the economic conditions. This study also agrees with his views, i.e. in the pre liberalisation period, financial development leads economic growth and during post liberalisation, the economy started to grow slowly and the direction changed from economic growth to financial development.

VI.8.Proportion and Transmission of Shocks

In econometrics and other applications of multivariate time series analysis, a variance decomposition or forecast error variance decomposition is used to aid in the interpretation of a vector auto regression model, once it has been fitted. Awad and Harb (2005) and Bader and Qarn (2008) used variance Decomposition model in their study in order to discuss the strength of the evidence of the causality result present in that study. The variance decomposition indicates the amount of information each variable contributes to other variables in the auto regression. It determines how much of the forecast error variance of each of the variables can be explained by exogenous shocks to other variables.

Based on our empirical analysis it is found that causality run from financial development to economic growth during the whole study period and Pre liberalisation period where as in the case of post liberalisation period causality run from economic growth to financial development while using financial development index and economic growth, however the vector error correction model can indicate only granger causality within the sample period, and does not measure the relative strength of granger causality among the variables beyond the sample period .By portioning the variance of the forecast error of a certain variable into proportions attributable to shocks in each variable in the system including its own, variance decomposition, can indicate granger causality beyond the sample period. In this section an attempt is made to determine the relative importance of the financial development indicator explaining GDP. Here also, the study period is divided into three, such as whole study period (1971-2011), Pre-liberalisation period (1971-1991), Post Liberalisation period (1992-2011).

VI.8.1.Transmission of Shocks during Whole Study Period

Table.No.VI.10

Results of Forecast Error Variance Decomposition Analysis of Economic Growth and Financial Development Index for the Whole Study Period

Time Lag	Relative variance of Economic Growth			Relative variance of Financial Development		
	S.E.	DGDP	DFDI	S.E.	DGDP	DFDI
1	0.025230	100.0000	0.000000	0.046862	4.148440	95.85156
2	0.025382	98.97610	1.023896	0.047060	4.439088	95.56091
3	0.029804	73.89153	26.10847	0.048128	8.624442	91.37556
4	0.029900	73.79892	26.20108	0.048186	8.620670	91.37933
5	0.030255	72.50162	27.49838	0.048616	8.565824	91.43418
6	0.030274	72.47963	27.52037	0.048642	8.582850	91.41715
7	0.030303	72.45445	27.54555	0.048678	8.605954	91.39405
8	0.030312	72.41212	27.58788	0.048681	8.613805	91.38620
9	0.030321	72.36718	27.63282	0.048685	8.620022	91.37998
10	0.030322	72.36759	27.63241	0.048686	8.619498	91.38050

Table VI.10 shows a shock in GDP is not passed on to financial development immediately. Instead in the second year just one percent level of information is passed, where as in the third year nearly 26 percent of shock is transferred to financial development and later on almost the same level of shock is passed during 10 years period. These indicate that economic growth measures will reflect its impact on the financial development during third year .where as in the case of financial development index it is understood that policy measures in financial development would cause maximum of 9 percent changes in economy during the 10 upcoming years. It is noted that immediate effect is possible in the economy due to changes in FDII, where as changes in economy does not cause immediately but in third years

VI.8.2.Transmission of shocks during Pre Liberalisation Period (1971-1992)

Table.No.VI.11

Results of Forecast Error Variance Decomposition Analysis of Economic Growth and Financial Development for the Pre-Liberalisation Study Period

Time Lag	Relative Variance of Economic Growth			Relative Variance of Financial Development		
	S.E.	DGDP	DFDI	S.E.	DGDP	DFDI
1	0.035214	100.0000	0.000000	0.060412	2.482855	97.51714
2	0.036654	97.57918	2.420820	0.061316	5.266447	94.73355
3	0.036713	97.38097	2.619030	0.061396	5.445862	94.55414
4	0.036714	97.37493	2.625073	0.061400	5.450101	94.54990
5	0.036714	97.37488	2.625124	0.061400	5.450114	94.54989
6	0.036714	97.37488	2.625125	0.061400	5.450114	94.54989
7	0.036714	97.37488	2.625125	0.061400	5.450114	94.54989
8	0.036714	97.37488	2.625125	0.061400	5.450114	94.54989
9	0.036714	97.37488	2.625125	0.061400	5.450114	94.54989
10	0.036714	97.37488	2.625125	0.061400	5.450114	94.54989

As per table VI.11 during pre liberalisation period shocks in economic growth passes information only in the second year and a maximum of 3% is reflected during the 10 years period. Financial development index passes information immediately to 2.5 percent level and throughout ten years period only maximum of 5.5 percent of shocks are passed on to economy.

VI.8.3. Transmission of Shocks during Post Liberalisation Period (1992-2011)

Table.No.V1.12

Results of Forecast Error Variance Decomposition Analysis of Economic Growth and Financial Development for the Post Liberalisation Study Period

Time lag	Relative Variance of Economic Growth			Relative Variance of Financial Development		
	S.E.	DGDP	DFDI	S.E.	DGDP	DFDI
1	0.016467	100.0000	0.000000	0.029834	10.00772	89.99228
2	0.017545	99.81664	0.183361	0.033093	19.07003	80.92997
3	0.017707	99.81989	0.180113	0.033330	19.01497	80.98503
4	0.017729	99.81695	0.183050	0.033386	19.16195	80.83805
5	0.017733	99.81701	0.182987	0.033390	19.16255	80.83745
6	0.017733	99.81696	0.183041	0.033392	19.16553	80.83447
7	0.017733	99.81696	0.183040	0.033392	19.16557	80.83443
8	0.017733	99.81696	0.183041	0.033392	19.16563	80.83437
9	0.017733	99.81696	0.183041	0.033392	19.16564	80.83436
10	0.017733	99.81696	0.183041	0.033392	19.16564	80.83436

It is observed from table VI.12 significantly that, no information passed from economic growth to financial development during post liberalisation period throughout 10 years period, whereas FDI passes 10 percent of its shocks to economy during the 10 years period and around 19 percent of shocks transferred to economic growth.

VI.9.Conclusion

Variance decomposition result shown in tables VI-11 to VI-16 revealed that a shock in GDP is not immediately reflecting to financial development index in all the three study periods. In the first year the shock is reflecting itself and the second year

onwards it reflects to FDI that also a small percentage. While considering the financial development index, a shock is immediately transferred to GDP in all the three study periods, but the percentage of shock transfer varies over the periods. It is seen that 3rd year onwards the percentage of shock transferred is stable up to tenth year in all the three study periods.

While comparing pre and post liberalisation periods the percentage of shock transferred from GDP to FDI is high in the pre-liberalisation period because in the pre liberalisation period causality is runs from financial development to economic growth. From the empirical result of variance decomposition result also confirms that financial development index explains the 27% of variance in this period.

While considering the shock transfer from FDI to GDP, the percentage of shock transfer is high in case of post liberalisation period. While examining the empirical result of causality during this period, it shows that causality run from economic growth to financial development. From the empirical result variance decomposition result also confirms that GDP explains 10% of the variance in this period.

CHAPTER VII

FINDINGS & SUGGESTIONS

VII.1. Introduction

An attempt is made to find out the nature of relationship between financial development and economic growth in India and the direction of relationship between financial development and economic growth. The study gets a wider acceptance because financial development is considered as an important factor for economic growth. Financial development index was constructed by taking in to account the important financial development proxies. Financial sector reforms carried out in the year 1991 has made drastic changes in the economy, both in the stock market and in financial intermediaries and structural break was found out in the data and divided the study period accordingly.

As far as financial development is concerned the relationship and the direction of relationship are important. While talking about the relationship, most of the studies showed a positive relationship between financial development and economic growth. Whereas, china is considered as a counter example for the existing theory because, it showed a negative relationship between financial development and economic growth. There are countries which do not have any relationship between financial development and economic growth. So it was important to see whether the relation between financial development and economic growth in India is positive or negative with the constructed index.

Based on the theoretical background, the researcher divided the study period in to pre and post liberalisation period. Like other countries India also has gone for

economic reforms since 1991. The existing study proved that stock markets and financial intermediaries have changed because of the economic reforms carried out during that time.

With important proxies from financial sector, index was constructed to represent financial development of India. For identifying the importance of each variable, principle component analysis is applied and appropriate weights for each variable are identified and constructed the index.

In order to determine the long run and short run relationship, ARDL Co-integration method is used. The causality between financial development and economic growth is also an issue. Some researchers found that the direction of causality run from financial development to economic growth and some others noted a reverse process. So it was necessary to know the direction of causality in Indian economy for taking the policy decision. For this purpose, Pair wise Granger Causality test and VAR block exogenity tests are applied. To identify the shocks in one variable and its relationship to other variables, variance decomposition method is used. The findings and conclusion from the analysis is summarised below.

VII.2.Conclusion

This study made an attempt to construct a financial development index for India and analysed the relationship with economic growth. The result showed that there is a co-integration between financial development and economic growth, where as the stability test shows instability in the study period. It shows a structural break in the study period; accordingly the analysis is done for pre and post liberalisation period and found co-integration in the post liberalisation period only. While checking the causality between financial development and economic growth it shows unidirectional

causality. Further, in the pre-liberalisation period financial development leads economic growth where as in the post liberalisation period economic growth leads to financial development.

VII.3. Findings

VII.3.1.Financial Development Index

The constructed index coincides well with the policy changes that took place in India during the sample period. A rise in index indicates an increase in financial development. It is evident in the index that extend of financial development from 1970-1990 appears to be quiet normal where as index begins to move upwards from 1991 onwards mainly due to the measures in the banking sector and financial markets. Financial development moves tandem with economic growth in India.

VII.3.2. Existence of Long Term Relationship

From the empirical analysis it is found that there is a co-integrating relationship between financial development and economic growth during the whole study period (1971-2011) and post liberalisation period (1992-2011). No co-integration is found out during pre-liberalisation period. It is understood that during the whole study period 1% change in financial development creating a 4.5% change in economic growth where as in the post liberalisation period only 3.8% change in economic growth due to change in financial development. Also it is found out that in both periods the change is positive, that means that an increase in the level of financial development creates an increase in the level of economic development.

VII.3.3.Existence of Short Term relationship

The long term relationship between financial development and economic growth shows that there is a possibility for disequilibrium among the financial development and economic growth during short run period. This disequilibrium among the relationship is corrected soon because financial development and economic growth are integrated for a long period. The speed of adjustment to correct the disequilibrium of the financial development and economic growth is tested with the error correction model, which tells the efficiency to correct the changes and make equilibrium among the relationship. In the whole study period the level of convergence towards the long run equilibrium is very slow. That is 1% of the disequilibrium in the long run is corrected in the short run. Where as in the post liberalisation period also the same condition exist, here also the level of convergence is slow i.e,2% of the disequilibrium in the long run is corrected in the short run, which means that the disequilibrium between financial development and economic growth is corrected very slowly in the Indian economy.

VII.3.4.Existence of Causal relationship

The data is divided into three period such as whole period (1971-2011), pre-liberalisation period (1971-1991) and post liberalisation period (1992-2011). The causality between variables is tested by using VAR Granger Causality. The robustness check is done by using pairwise Granger Causality test. The results for whole study period and pre liberalisation period shows that financial development leads economic growth where as in case of post liberalisation period economic growth leads financial development. While taking pre and post liberalisation period causality result supports the Patrick(1966) view , i.e. early stages of economic development, financial

development cause economic growth and when the economy started to grow economic growth cause financial development. It is understood that the role of financial development may not be crucial for economic growth in the post liberalisation period.

VII.3.5. Shock from GDP to FDII

In all the three study periods a shock in GDP is not reflecting to FDI immediately. Whereas pre and post liberalisation period second year onwards shock in GDP transmits its FDI at 2.62% and 27.63% respectively. But in post liberalisation period GDP bears all shocks in itself, only minor percent is explained by FDI. It shows that related variables are transferring information from one to another. With this information future can be forecasted.

VII.3.6.Shocks from FDII to GDP

In all the three study periods, shocks in FDII immediately reflect to GDP. In case of pre and post period less than 10% of shock in FDII is explained by GDP, while nearly 19% of shock is explained by GDP in the post liberalisation period.

VII.3.7.Transmission of Shocks is different in Pre and Post liberalisation Period

Variance decomposition analysis is used to find out the percentage of shock transferring from one variable to the other. The empirical result shows that if there is any shock in one variable surely affecting the other with in the same year or next year. In case of GDP a shock in the year is transferring to financial development index second year only, but in case of financial development index a shock is immediately transmitted to GDP in the same year. While comparing pre and post liberalisation periods the percentage of shock transferring from GDP to FDI is high in the pre-

liberalisation period. In the case of shock transferring from FDI to GDP, the percentage of transferring is high in case of post liberalisation period.

VII.4.Suggestions

VII.4.1.Official Index for Financial Development of India (FDII)

Government or any other Government organisation can construct a standard index for India and researchers can use that index and do research in this area. Since economic condition of each country varies, it is better to construct a country specific index instead of depending on any other proxy for financial development.

VII.4.2.Policies to Boost Economic Growth of India

As our study found that economic growth leads financial development it will be good to introduce policies which are able to improve the level of economic growth in India.

VII.4.3.More of Economy and Less of Financial Reforms

Financial sector reforms initiated by Government of India not affected the economy to grow according to this study and also similar view held by other studies for some other countries. Therefore, it is suggested that Government should focus more for bringing the growth in economy rather than financial reforms. Financial reforms may be part of economic measures not as isolated one.   .

VII.4.4.Bring Relevance of Stock Market to Economic Growth

It is found through this and other studies and also it is widely acknowledged that   the existence of stock market is not relevant to Indian economic growth; stock market is almost like Casino, with no effect on economy. Therefore Government

should bring in measures to make stock market relevant to the economy. Small step like Rajiv Gandhi Equity Scheme is one such step towards achieving this goal.

VII.4.5.Bring Relevance of Bank to Economic Growth

Bank and its coverage is limited to small section of population. Majority population particularly rural are not yet banked. Studies proved that banks do not have much role for economic growth of India. Therefore, efforts are required to bring relevance of banks to economy. For example financial inclusion, inclusive growth are efforts towards making these institutions relevant to economy. But tangible results are seen. Therefore, it is suggested to bring relevance of banks to economy.

VII.5.Scope for further Research

This research has made an attempt to see the relationship between financial development and economic growth during the study period and also examined the direction of causality between the variables. From the analysis it is understood that there are some more areas which the study didn't focus. So further research can be under taken in the following areas:

1. Since, there is no co-integration between financial development and economic growth during pre-liberalisation period, further research can be undertaken to find out the reasons for the same.

2. This study finds the existence of co-integration and therefore it is must to find out whether it is because of financial reform or due to some other sectors.

3. It is also found out that financial development does not lead economic growth in India during post liberalisation period, irrespective of financial sector

reforms in India and therefore, it is imperative to find out why financial development does not cause economic growth.

4. Research can also be undertaken to see the effects of financial liberalisation and repression on economic growth in India.

5. This study did not give effect to the crisis as it considered between pre and post liberalisation period. Theoretically it is expected that crisis could have made changes in economy and financial sectors. Therefore, it is better to undertake a study to see the effects of crisis on the economy.

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