

**DISINTERMEDIATION IN FINANCIAL SYSTEM:
AN EMPIRICAL STUDY OF INDIAN COMMERCIAL BANKS**

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I, Shri Dipankar Shome, hereby declare that the subject matter on the thesis is the original work carried out by me, that the contents of this thesis did not form basis of the award of any previous degree to me or to the best of my knowledge to anybody else, and that the same has not been submitted by me for any research degree in any other University/Institute.

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The

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List of Acronyms

AIFIs	All India Financial Institutes
AMFI	Association of Mutual Funds in India
ARDC	Agricultural Refinance and Development Corporation
BCI _{Index}	Bank Credit Intermediation Index
BDD _{Index}	Bank deposit Disintermediation Index
BDFS	Bank Deposit to Financial Savings
BDI _{Index}	Bank Deposit Intermediation Index
BLD _{Index}	Bank Disintermediation (loan) Index
BSE	Bombay Stock Exchange
C	Currency
CD	Certificate of Deposit
CP	Commercial Paper
CBLO	Collateralised Borrowing and Lending obligations
CCBs	Central Cooperative Banks
CCIL	Clearing Corporation of India Ltd
C-D ratio	Credit-deposit ratio
CDSL	Central Depository Services Ltd
CRR	Cash Reserve Ratio
DD	Demand deposit
DFHI	Discount and Finance House of India
DIC	Deposit insurance corporation
DvP	Delivery versus Payment
FCNR (deposits)	Foreign Currency Non-resident (deposits)
FIMMDA	Fixed Income Money Market and Derivatives Association of India
FLD Index	Financial disintermediation (loan) Index
FLIP	Fiscal investment and Loan programme
FRBs	Floating Rating Bonds
GDP	Gross domestic product
GDS	Gross Domestic Savings
GIC	General insurance corporation of India
G-Sec market	Government securities market
HHS	Household Savings
ICICI	Industrial Credit and Investment Corporation of India
ICSE	Inter-connected Stock Exchange of India
I-D ratio	Investment-deposit ratio
IDBI	Industrial Development Bank of India
IFCI	Industrial Finance Corporation of India
IIBI	Industrial Investment Bank of India
IMF	International monetary fund
Int br	Interest rate (bank rate)
Int gs	Interest rate (government securities)
IRDA	Insurance Regulatory and Development Authority
IRD	Interest Rate Derivatives
KVP	Kissan Vikas Patra

LAF	Liquidity Adjustment Facility
LERMS	Liberalised Exchange Rate Management System
LIC	Life insurance corporation of India
M- Cap/Mark Cap	Market Capitalisation Index
M1	Narrow money stock
M3	Broad money stock
MMMFs	Money Market Mutual Funds
NABARD	National Bank for Agriculture and Rural Development
NBCI _{Index}	Non-bank Credit Intermediation Index
NBDI _{Index}	Non-bank Deposit Intermediation Index
NBFCs	Non-banking financial companies
NCBI	National Cooperative Bank of India
NDS	Negotiated Dealing System
NEAT	National Exchange for Automated Trading
NIBA	Non-Interest Bearing Assets
NPA	Non-performing asset
NSC	National Savings Certificate
NSDL	National Securities Depository Ltd
NSE	National Stock Exchange
PACS	Primary Agricultural Credit Societies
PDAI	Primary Dealers Association of India
PPF	Public Provident Fund
PSFS	Physical Savings to Financial Savings
PSS	Postal saving system
PSUs	Public Sector Undertakings
RBI	Reserve Bank of India
REPO	Repurchase order
RIDF	Rural Infrastructure Development Fund
ROA	Return on Assets
RRBs	Regional Rural Banks
RTGS	Real Time Gross Settlement
SARFAESI Act	Securitisation and Reconstruction of Financial Assets and enforcement of Security Interest Act
SBS	Size of Banking Sector
SCBs	State Cooperative Banks
SEBI	Securities and Exchange Board of India
SFCs	State Financial Corporations
SGL	Subsidiary General Ledger
SHGs	Self help groups
SLR	Statutory liquid ratio
STCI	Securities Trading Corporation of India
STRIPS	Separate trading for Registered Interest and Principal of Securities
TD	Time deposit
UCBs	Urban Cooperative Banks
UTI	Unit Trust of India
WDM	Wholesale Debt Market

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Chapter: 1

Introduction

1.1 Introduction

The primary function of financial system is to mobilise savings and to allocate those funds among competing users/investors on the basis of expected risk-return. This function is carried out by financial intermediaries through intermediation process. Financial intermediaries are primarily commercial banks, which provide credit in the form of loans and also other institutional investors such as insurance companies, pension funds and venture capitalists which provide financing in the form of debt and equity. The role of commercial banks in this intermediation process is very significant because of their overwhelming control over the entire financial assets of the economy and more because of the under development of capital market in most of the developing economies like India and many others.

The three distinguishing characteristics of banks are their ability to provide credit for those projects which otherwise cannot be funded by other sources; which they fund from their liabilities called deposits that is more of non-contingent and liquid in nature; and finally, the bank capital acts as a cushion for meeting other fixed interest obligations (*Bernanke & Gertler, 1985*). Their role as intermediaries arises during saving-investment process where they emerge between the ultimate borrowers and lenders. They accept deposits in the form of money. Such deposits are simply IOUs (I owe you) written in the books of banks on which they promise to give a rate of return in the form of interest. Acceptability of cash here depends on their ability to produce the same on demand by depositors, the only exception being time deposits, whereby withdrawal is possible only after a specified time period. This ability to pay back on demand is called liquidity of the bank which will be of great size if the bank maintains all its assets in cash. But cash does not earn any income; whereas the banks have a preference to earn a return as they have to pay a certain additional amount to deposit holders in the form of interest as well. And for this purpose deposits are converted to many categories of assets of which loan to different borrowers is the most prominent one, against which they charge

appropriate rate of interest for their intermediary interventions. Thus to simplify, it may be said that banks accept money in the form of deposits which are used for lending and investment operations to earn profits. But, a part of these funds are also kept in the form of other liquid assets, mostly cash; to enable them to fulfil their legal requirements as well as to meet the obligations towards the depositors. In allocation of funds for various purposes, such as income earnings, they are guided by statutory requirements like central bank's directives and similar other considerations.

Another distinguishing feature of banks is that they can create as well as transfer funds, while other financial institutions can transfer funds only. This aspect has been variedly expressed, and banks are said to create deposits or credit or money, or it can be said that, every loan given by banks creates a deposit, and this has given rise to the important concept of deposit multiplier or credit multiplier or money multiplier. The importance of this is that banks add to the money supply in the economy; and since money supply is an important determinant of prices, nominal national income, and other macro-economic variables, banks can become responsible in a major way for changes in economic activity.

But, in an economic system, other institutions like mutual funds, non-banking financial companies also function in the same line with banks, although their way of accepting deposits as well as investment pattern are different. Hence, intermediation is, "to have middle-man (intermediary) between borrowers and lenders, rather than borrowers and lenders dealing directly to each other" (*financial dictionary, anz.com*). It is not meant for banks alone but arises with any source of indirect finance. However, the basic philosophy towards development of diversified financial system with banks and non-banks is to enhance the risk pooling and risk sharing opportunities by investors and borrowers. The role of financial institutions in the capital intermediation process has changed significantly over the years. In the past, funds were intermediated through banks and other savings institutions. The savings of individuals were deposited in these institutions, which subsequently lent the funds, as business and consumer loans. The advent of direct market financing for large borrowers, techniques such as securitisation, and the institutionalisation of savings has led to the disintermediation of financial institutions. Over the years, financial intermediaries have been steadily losing market share in the global

financial intermediation business to capital markets. This is known as ‘financial disintermediation’ – that is, the bypassing of financial institutions. Usually the term ‘financial disintermediation’ is used to refer to the flow of funds directly from surplus to deficit sectors of economy without any intervention of middle-man; but here the scope of study has been widened to include other non-commercial banking institutes in addition to direct market mobilisation of funds. Further, as has been stated by Goodhart (1992), “disintermediation not only refers to those instances where financial flows are constrained by intervention to pass more directly from saver to borrower (than in unconstrained context), but also where such flows pass through different, and generally less efficient, channels than would otherwise be the case”.

1.2. Disintermediation: a theoretical exposure and overview

The term ‘Disintermediation’ means the “cutting of middle-man, so that the borrowers and lenders can deal with each other directly”. It occurs when a customer is able to interact with the primary supplier of goods or services, without requiring the services of a previously essential intermediary (*Clemons et.al, 2002*); and so is not only applicable for financial service industry alone but for any service industry where intermediary service is involved between supplier and recipient. However, in the context of financial services it is properly defined as a move from the intermediated provision of financial services via banks to direct financial relations between borrowers and lenders. In a world of complete markets, this process would lead to a situation where there would be no need for financial intermediaries anymore. As a result of the existence of transaction and information costs, however, financial intermediation is unlikely to become redundant. Hence, disintermediation can more properly be defined as a loss in importance of traditional banking activities, such as, the collection of deposits from households and the provision of bank loans to companies. In this scenario, the role of financial institutions shifts to the provision of financial services on a fee basis. This development, which could rather be characterised as 'bank disintermediation', does not necessarily imply that there is an overall decrease in financial intermediation.

The term ‘disintermediation’ is used to describe a situation which takes place with the development of alternative sources of investment thereby giving investors and

borrowers a wide variety of options. But in relation to banks, it describes what happens when money is moved out and invested in other sources. In such direct financing, borrowers and lenders directly deal with each other. Although this term is not directly related with deregulation as disintermediation was already in place much before deregulation (*FRBSF, 2002*) and is mostly because of the availability of alternative instruments of savings and borrowings. There can also be certain other explanations for bank disintermediation in both deposit and loan segment. Some of them highlighted by other authors in their works are as follows:

Using a moments approach, *Horvath (1988)* has shown that disintermediation is also likely to occur when the distribution of income changes relative to the variance. And a continuous receipt of information may eventually trigger a reallocation of funds from intermediary deposits to alternatives that is possible if interest rates were rising and volatile.

In another model, suggested by *Diamond & Rajan (1999)*, there are three reasons for disintermediation happening through run by depositor. Firstly, any attempt by a banker to extort rents and not passing through maximum collections directly to depositors will disintermediate the banker along with driving the rent to zero. Secondly, deposit contract allows the investor to withdraw money at any time and a failure to honour the same bestows right upon the depositors to seize bank assets and negotiate with entrepreneur for direct payment, which again disintermediates the banker. Thirdly, a direct lending to firms force banks to finance more intangible projects that make some deposits uninsured and runs by uninsured depositors would still lead to some disintermediation.

Mayers & Rajan (1995) have shown that starting with core liquid assets is beneficiary for firms as external financing can be used for less liquid projects. And those with unusually liquid core business are best suited to channel the financing to other firms. This also leads to the theory of intermediation; and alternatively can explain the cause of increase in disintermediation and banks concentration in illiquid segments of loan market.

According to *Fingleton (1997)*, in the process of disintermediation, intermediated trade is replaced by direct one, whereupon a middleman who first develops a market but later on faces risk of being replaced by direct trade. He analysed the

whole situation in three phases. In the first, a direct trade is not viable which, in the second phase, replaces with a situation where complete disintermediation is possible with buyers and sellers collectively maximising their joint surplus. In the third phase, in addition to drastic disintermediation, there exists a partial disintermediation which would ultimately improve the welfare by both increasing volume of trade and also disciplining the middleman's market power. Further, according to the author, this disintermediation in financial market causes re-regulation.

Another improvement is deregulation, leading to development of new and innovative market instruments, which has contributed more towards banking disintermediation. Development of technology, i.e., facilities like ATM, Phone Line Banking, Internet Banking, etc., allows customers to avail banking services without visiting the banks. This can be referred to as 'technological disintermediation'. Nevertheless, with this development, even the non-financial companies have entered into financial service industry. This is particularly true in case of Continental Europe. Elsewhere in the USA and UK, banks are merging with non-banks and with securities and insurance firms. Whereas in Central European Economies, Australia, Japan and Latin American countries, the reason for banking disintermediation respectively are investment funds, pension funds, postal saving schemes and tax by government on bank withdrawals. Tougher capital regulations have helped to preserve the funding advantage that some large companies have in accessing international capital markets on their own. And the growth so far can be seen with the declining share of banks deposits in the global finance from 45 percent in 1980 to 30 percent today (*Business India, 2005*), with corresponding increase in the debt and equity securities. So, the banks have been forced to find additional sources of revenue including new ways of intermediating and fee-based businesses.

Over the last twenty-five years or so, a series of developments have contributed towards financial deregulation. There were episodes of banking crises in both developed and developing countries since 1980 and one of the reasons for this was excessive state regulation. The other reasons for deregulation can be technological development as well as pressure on World Bank and IMF by the UK and the USA to encourage other countries to deregulate. In India, financial deregulation was the

initiation of government in response to the crisis that surfaced during 1991, thus bringing it closer towards failure to meet its international payment obligations. So, in order to strengthen the system, decision was taken for financial sector restructuring. Based on the recommendations of various committees, importantly Narsimham committee 1991 and 1998, the focus shifted towards promoting infrastructure; and over a period of time the system evolved with four segments, viz., banking, insurance, capital and money markets, and specialised institutions of lending, thus deepening the financial system and broadening the sphere of competition for banks and disintermediation.

Disintermediation in India started from 1980s with development of capital market as well as initiative from government towards tax concession policy and permission to Public sector undertakings to accept deposit. Another factor was the introduction of new tax concession schemes by LIC and Small Saving Schemes by Postal Department. All these led to reduction of banks share in household savings. With liberalisation of economy, capital is moving freely and, good credit worthy borrowers are trapping cheap source of finance from domestic as well as international market. Before 1990, there was only LIC and GIC in insurance sector, but the post-liberalisation gave rise to private sector, where even the MNCs have entered Indian market in collaboration with domestic firms. The banking industry in response to the challenges thrown up by the disintermediation is increasingly taking the form of developing specialised service capability to meet the rapidly changing customer preferences, and in recent years have turned increasingly to non-interest income deployment of funds. During the year 2004, it consisted of 17 percent of the total income (*Ramasastri, Samuel & Gangadaran, 2004*).

1.3. Literature Review

With a general background of disintermediation in banks, presented in the previous section, the present literature review proceeds in a sequence. The evidences in developed countries are presented first, followed by findings from the developing economies. The Indian research works are reviewed at the end of this section.

1.3.1. Developed economies

In industrial countries with highly developed financial markets, the greater use of indirect instruments requiring commercial banks to hold a part of public deposits as cash or reserve can lead to financial disintermediation as people may opt for investing money in unregulated market (*Alexander, Tomas & Enoch, 1996*). Capital market has gone through dramatic changes all over the world with bond market developing to meet the requirements of the long-term creditors; and government and corporations are moving to market as well as with investors diversifying their portfolio internationally and also NBFCs competing with banks (*Dicky & Fan, 2005; Business India, 2005; Hauslre, 2002*). This is leading to shift away from banks to market, with a decline in bank's share in global stock from 45 percent in 1980 to 30 percent today (*Business India, 2005*). Although banks, non-banks and stock markets are active in richer countries, it is the stock market that is more efficient than banks in market based economies and vice-versa for underdeveloped economies (*Kunt & Levine, 1999*).

Other reason for financial disintermediation is an increase in the rate of financial innovation. Most emerging capital markets have burgeoning equity markets, with barely existing debt markets (with relatively short tenors) and mildly controlled foreign exchange markets. And one of the major forces propelling capital markets towards higher level of 'emergedness', in addition to deregulation and securitisation; is financial disintermediation. But this is not a new phenomenon with financial markets having traded stocks and bonds for the last 150 years; what is relatively new is the rise of commercial paper as a lower cost alternative to bank loans, and also securitisation (*Jacque, 2001*). Developing the credit derivative market, that provides a non-transparent liquid secondary market for bank assets, can also become the cause of disintermediation; as the entrepreneurs who otherwise have to rely on bank certification to raise finance from market, may go for issue of lower grade bonds to obtain finance (*Morrison, 2001*). Yet in another work *Caballero & Krishnamurthy (2000)*, in their model suggested for emerging market crises has shown two collateral constraints. They are the firms' limited borrowing capacity in both international and domestic markets. One of the consequences of interaction among these two constraints is disintermediation that is a fire sale of

domestic assets causing banks to fail in their function of reallocating resources across the economy leading to wasted international collateral.

For those countries where governments rely on bank information to identify taxable entities and measure the amount of their taxable activity, a high tax rate is a sufficient cause for firms to disintermediate banks for transaction to avoid taxes. This threat may be of little importance in the rich countries, but in poorer countries, this may be a key factor both limiting tax collection and shaping government policy more generally. For those countries where banks provide modest value added forecasts, shows that tax revenue as a share of GDP will be less and entry of foreign banks will lead to shift of accounts by domestic firms to abroad in order to hide their activities. Further, anything that undercuts the value of financial services can also undercut the fraction of tax revenue in GDP in addition to loss of financial intermediation (*Gordon & Li, 2005*). *Cotter (2005)* has recommended for removal of unnecessary intermediaries in order to get better service from the remaining ones, but at the same time agrees that this is not an easy task as no intermediary is entirely capable of functioning with complete accuracy.

In developed countries like the USA, the growth rate of banks in terms of both deposit and lending capacity declined due to shift in preferences for borrowing by companies as well as investors' preference shifting towards market based instruments. They had to face tough competition from upcoming new instruments of savings as well as non-banks having the advantage of better technology, reduced service price, etc., among others; and so started to sell alternative investment products (*Boczor, 1978; Lipp, 1982; Friedman, 1982; Barnard jr, 1987; Ghosh, 1991; Kehrer, 1997; Maloney, 2001; Allen & Santomero, 2001; Allen & Parwada, 2002a; Allen & Parwada, 2002b*). Analysis of early period shows that in 1966, there was a temporary disintermediation due to shift in savings towards credit market instruments effecting both commercial banks and savings and loan association. This, however, returned to original position with a shift back to savings instruments by the end of 1967 (*Hester, 1969*).

Disintermediation in savings and loan (S&L) industry during 1960s was due to rise in interest level in alternative (market) assets on one side with restrictions and interest rate ceiling on the S&L industry on the other (*Halloran, 1979; Hendershott, 1971; Kane, 1981*). A rise in the interest rate of alternative assets after

1965 saw a significant level of withdrawal from the savings and loan association resulting in drop of savings growth rate close to zero that occurred twice, which the casual empiricism disagree that a hike in the interest rate was the cause of disintermediation, and the evidence suggests that savings account drains are not large enough to lead to desired mortgage liquidation (*Hendershott, 1971*). Further, according to *Kane (1981)*, it was the inflation that induced declines in the face value of mortgage which brought down the level of their net worth. It is the Federal savings and Loan Insurance Corporation guarantees that kept the S&L industry alive; whereas the deposit rate ceilings had been a temporary source of help. Further, freeing their way to raise funds through certificates of deposit in one hand with restrictions on their lending opportunities on the other is attributed as the cause of disintermediation they suffered after the business peak in 1965.

The period from 1966-69 also saw the life insurance companies experiencing a rapid increase in their policy loans ensuing disintermediation in the net inflows of mutual savings bank and savings and loan association (*Schott, 1971*). Disintermediation as a matter of fact has turned the U.S. financial services industry's strong mix of suppliers and competition with new waves of technology, new ways for suppliers and users of funds to bypass old models and functions (*Diogo, 2000*). *Boyd & Gertler (1995)*, have concluded that the share of commercial banks in total intermediation has not declined rather have grown in the last four decades. And a slight loss of market in the late 1980s and early 1990s was mainly a transitory response to a series of shocks that occurred over this period. The present growth of commercial paper market, faster than the loan provided by commercial banks, has caused disintermediation in their traditional role leading many into new market position such as asset-backed lending and other off balance-sheet activities (*Lamb, 1996*). A group of regional banks by promoting the market for asset-backed commercial paper is deliberately harnessing the process of disintermediation. But commercial banks do not see this as a replacement of commercial loans market and no one is also preventing them from creating a competing arrangement (*Streeter, 1992*).

Monetary transmission in Canada has changed markedly since the late 1980s and financial disintermediation has contributed to the changes in the sensitivity of aggregate demand to real interest rates. Moreover, changes in the ratio of direct to

indirect finance, that is a measure of disintermediation, contribute to explain the changes in the interest rate elasticity, and suggest an increased effectiveness of monetary policy associated with a larger use of market-based sources of finance in the 1990s. This could be attributed to the lower interest rate sensitivity of relationship-based lending compared to the more price-sensitive direct or market funding (*Roldos, 2006*).

The recent years' decline in US traditional bank intermediation is progressing in Europe too accompanied by a rise of other financial intermediaries. But this cannot be considered as financial disintermediation, although this has altered the earnings structure of banks towards fee-based income with convergence towards integrated financial firms (*Freedman, 2000; De Swaan, 2000*). Another study was conducted by *Szilagyi, Batten & Fetherston (2003)* with respect to the nature and problems associated with intermediated financing through comparison of the three major forms of debt financing over the period from 1997 to the first quarter of 2001, i.e., international bank financing, securities issues in domestic markets and securities issues in international bond markets. Overall result suggests that although financing structures are converging towards the Western European model, but they remain underdeveloped by international standards. And the most significant factor limiting the growth of corporate debt markets is the narrow investor base.

Building societies in the UK have privileged position over banks and hold 5 percent of total outstanding government stocks and 12 percent stock of less than five years maturity. And this may affect the latter in the form of losing deposit, lending and profit. Nevertheless, banks will gain deposit, as the increased deposit on societies shall be invested in public deposits that will further be deposited in bank. So banks will not lose deposit because of building societies but mostly due to monetary policy (*Llewellyn, 1979*).

In Germany, the share of bank deposits in household savings declined by 16 percent points after 1980 and that of insurance increased to 20 percent, but more shifts is towards fixed assets. Over the past two decades, though the share of equity has doubled, but bank financing in companies still accounts for 45-55 percent since the past five decades (*Buch & Goldor, 1999*). But conclusion based on data for intermediation ratio and financing patterns of firms between 1970 and 2000 is that disintermediation in assets side of banking sector is not visible as they are still the

major financier for enterprises (60 percent financing), but a fall in interest margin is possible due to improved customer awareness and intensifying competition (*Hackethal, 2003*). Again another conclusion on the basis of flow of funds data for the period from 1982 till 1995 is that banking industry has not declined in Germany and the United Kingdom and that the trend towards disintermediation is almost non-existent, while in France they are losing in the assets side which in due course may threaten the existence of their entire business (*Schmidt, Hackethal & Tyrell, 1998*).

In Australian market, due to the growth in compulsory pension scheme, bank deposits have fallen from 62 percent in 1990 to 45 percent in 2001, whereas superannuation assets have risen from 27 percent to 38 percent in this period, thus requiring alternative to bank deposits (*Allen & Parwada 2002a*). But it is the retirement funds that directly compete with no substitution effect between traditional deposits and managed funds (*Allen & Parwada, 2002b*).

With implementation of financial sector reform measures since 1996, Japan economy has evidenced gradual disintermediation with a decline in the bank loan portfolio, although bank intermediation still remains the major channel. The factors responsible are shift of private corporate sectors to bond and money market (revealing disintermediation), banker's reluctance in lending to small and medium sized companies and decline in the credit demand by quality corporate borrowers (*Batten & Szilagyi, 2002*).

Again, in Japan, the Postal Saving System (PSS) and the Fiscal Investment and Loan Program (FILP) form the system of government intermediation. PSS is a source of disintermediation from private banks as the investors consider the deposit as direct govt. debt and the private banks deposit as insured upto ¥10 million (as the limit of DIC to insure) (*FRBSF, 2002*). But a lesser is known about how the banks perform when their boundaries extend to new business areas such as the provision of monitored finance (like venture capital), where the individual owner-manager funds are also functioning equally (a source of financial disintermediation). Data for 127 Japanese private equity funds show that more financial intermediation is associated with less governance in comparison to individual owner-manager funds, whereby smaller portfolio per manager is directly associated with more governance and monitoring of management with a greater

scope of advice to the portfolio companies (*Cumming, Fleming & Schwienbacher, 2005*).

1.3.2. Developing economies

Cash shortage has been observed in many economies in former Soviet Union, and this manifests financial disintermediation as the cash flows from the household to the banks and further to government, which returns to household again in wages form, which is deposited again in banks. So if households deposit in banks is reduced, they will not be able to provide enough cash to government and further will affect government's expenditure (*Conway, 1994*).

In Czech Republic, banks are still in leading position with 80 percent of the assets under them and the non-banking sector is still underdeveloped. But the corporate sector borrowings is being supplemented with inter-corporate debts, foreign investments and other alternative sources of bank loan and in the field of consumer credit they are facing competition from financial and commercial companies providing varied and innovative services (*CNB, 2002*). In addition, as the CEE economies (i.e., Czech Republic, Hungary and Poland) are growing, most of the monies are going from bank to investment funds, i.e., fixed income, cash and mixed funds (*Bledowsky, 2002*).

The Middle East and North African (MENA) region is facing the challenge of financial liberalisation due to reduction in boundaries between banks and non-banks as well as financial innovation. The three major driving factors are liberalisation, technical changes, and market innovation. And disintermediation being one of the four trends is still in early stage due to slow emergence of securities market (*Grais & Kantur, 2003*). Financial disintermediation in Uganda that occurred with economic liberalisation with domestic credit falling in overall between 1993 (by 8 percent) and 1995 (by 47.3 percent) due to fall in claims on central government in contrast to 1980s that formed a larger chunk of domestic credit (*Kararach, 2002*). But for Tunisian commercial banking system the result on the basis of panel data regression for the period 1980-2000 show that the move towards a more market based financial structure is profitable to the banking industry and disintermediation is favourable to the banking sector profitability (*Naceur & Goaid, 2005*).

However, since 1988 in some Latin American countries, bank debit taxes have contributed to disintermediation as people opt for more of direct cash transactions or through offshore banks. It is found that disintermediation rate is 28 percent, 41 percent and 47 percent in Venezuela, Colombia and Ecuador respectively and not significant in Brazil with tax rate ranging between 0.2 and 2.0 percent (*Kirilenko & Summers, 2002*). But for a sub-sample of seven countries viz., Argentina, Brazil, Colombia, Chile, Mexico, Peru and Venezuela; one of the results of analysis is that there does not seem to be bank "disintermediation" although after reform their role has changed (*Walker & Lefort, 2000*).

1.3.3. India

Indian financial market saw changes taking place from 1980s. And with the introduction of the new instruments of savings in market there was a decline in the rate of bank savings. So it could be said that financial disintermediation was already in place from the first half of 1980s (*Murthy, 1984; Jadhav, 1988*) resulting to 33 percent decline in bank savings in 1981-82 from 53 percent in 1980-81 (*Murthy, 1984*). Again analytical framework made by *Jadhav (1988)* to study the variations in the ratio of M1& M3, C&TD, DD&TD revealed declining trend in three ratios, thus revealing that financial disintermediation has set in.

Further, due to liberalisation of Indian economy and with increased importance of capital market during 1990s the share of bank credit (especially to commercial sector) decreased. This is due to new investment options available in the market (*EPW, 1991; RBI, 2000; RBI, 2002*). Though there is no evidence to support the view of large scale disintermediation; but there is some decline visible on aggregate deposit growth rate requiring banks to guard themselves against future threat of financial disintermediation (*Krishnamurthy, 1994*). Further, a revival of the capital market would encourage households to turn to equity and corporate bonds for better return, as there is little incentive to put money in a bank for a return of 5-6 percent (*Sabnavis, 2003*).

Finally, based on the selected data of Indian banking sector from 1980-89, *Sen (1991)* has concluded that an increase in SLR requirement will be detrimental to growth of banks as the private firms on the face of credit crunch will offer bonds and shares at attractive rates to tap funds directly from households resulting in

financial disintermediation. This also means a fall in the amount of funds available to the government from the SLR requirements of commercial banks.

1.4. Research Problem

The phenomenon of disintermediation has occurred throughout the world, in both developed as well as developing economies, somewhere early and somewhere later. Capital market has also gone through changes, with government and corporations opting for direct market borrowings and investors diversifying their portfolio internationally; thus leading to reduction of banks share in global stock. Study has been made in almost all the economies where disintermediation affected the banking sector.

Several studies has been made in USA context which is market based economy, to see the effects on banks due to new investment options that came up due to development of pension funds, mutual funds, finance companies in market. Studies have been conducted there for the early period effect of disintermediation till the current period effect. Similar studies have been made in European countries as well as Latin American to see the different forms of disintermediation and the effect they have in their economies. Even in countries like Germany and Japan which are bank-based, study has been made to see if there has been any shift in investment pattern and the effect that it made on banks.

But speaking in context to Indian economy, it may be stated though disintermediation is already in place, whose evidence has been found in the works during 1980s; the beginning for the process of disintermediation (as mentioned beforehand) could be linked with the development of capital market instruments and other saving instruments as well as change in government policy from 1980 onwards that was taken as a step after the report from the committee to Review the Working of the Monetary System (Chakravarty Committee). During that period some studies have been conducted through empirical data investigation but that may be said to see the initial effect, as at that period the term 'disintermediation' was only introduced to Indian economy.

With liberalisation process being brought into effect from 1990 onwards, the Indian financial system saw a beginning of the new phase for upcoming of new institutions and instruments to give diversified options to investors and borrowers.

After the report from the high level Committee on Financial System set up by the government under the chairmanship of Shri. M Narasimham to examine all aspects relating to the structure, organisation, functions and procedures of financial system, the authorities introduced a large number of changes (reforms) in financial system. These have taken the form of opening several sub sectors of the financial system to the private sector, deregulation of interest rates and a greater market orientation for financial institutions as regards both source and placements of funds. All these, especially the opening up of alternative sectors for channelising funds, may impact banks ability to do the same. But a few works have been done in the field of disintermediation which again were theoretical in nature with no significant empirical analysis done in this field. Also in many works this fact is being reported as a part, without much highlight with regard to the impact on banking system.

Except for some comparative studies made in international context where some cross country comparisons have been made, there is no evidence for analysis of performance and profitability of commercial banks (except for one in Tunisian commercial banks). The earlier works conducted in US economy were to see the impact on deposit taking and loan giving ability by commercial banks and savings and loan association. But again these works do not include any interpretation about impact on their performance and profitability. The term 'disintermediation' has been used to mean the shift of investors preference from savings in the form of bank deposits to capital market only and not to other alternative institutions of savings. The liberalisation of financial systems has led to development of new and innovative instruments which in aggregate can affect the intermediary role of these commercial banks. But the recent works have concentrated over the impact made as a result of development of one alternative instrument such as commercial paper or development of mutual funds, or even the impact of tax on bank deposits. In this work the overall impact on banks due to the development of alternate financial institutions as well as the growth of Indian capital market, both as possible sources of disintermediation, has been studied.

In methodological issues, wherever empirical analysis has been made the statistical tools that have been used are the ratio analysis, graphical display of trend and the regression and correlation analysis in addition to some tests of significance such as 'T' test. Through the use of these tools and techniques it is not possible to capture

the disintermediation phenomenon comprehensively rather they indicate some change or show some relationship among variables. This problem is addressed here by capturing the disintermediation through a single index. Two disintermediation indices have been developed which were not applied in other previous research works.

1.5. Significance of Study

As has been mentioned above, the impact of disintermediation was visible since 1980s whose effect after liberalisation during 1990 can be expected to be more far-reaching. With the development of capital market there can be a shift in the preference of the investors to invest in the new and innovative instruments like mutual funds, insurance (those paying additional returns along with insurance benefit) and such other instruments that are giving better return than banks and so are more attractive, thus withdrawing from banks to invest in other sources. Even on the borrowing front there have been many changes as the corporate as well as the government are now going towards market instruments where they can raise funds easily and at cheaper rate. Corporate also now have the option to raise funds from international capital market with overseas corporate bodies now allowed to invest directly in Indian ones. This gives them the provision to go for owned capital thus avoiding banks for loaned source. Even in domestic front, the growth of debt market as a source of finance is another factor that may affect banks' own ability to lend to the companies especially the blue chip companies who instead will prefer to go for direct market financing if they can raise funds at a cheaper rate that may include instruments such as commercial papers for short-term funding purpose. So the banks have now to compete with these new and innovative instruments and institutions as against the pre-reform period where they had to compete mostly among themselves. This, however, are likely to affect them with regard to their profitability and performance; and ultimately may lead to further disintermediation. Hence a study is required to see the effect of these new institutions and instruments and specifically the impact of a growing capital market on commercial banks during the post-liberalisation phase and also for the overall period from 1980 till present for which no such work could be found. Another essential reason to take up this work is that the studies taken up during the pre-liberalisation phase did not

consider the impact of disintermediation on profitability and performance of commercial banks i.e., whether there has been any fall in the profit or any other related variable, the fact which needs to be examined.

This study is likely to fill up the void in the academic research on this particular area. Post-liberalisation study assumes more significance and this will help bankers to chalk out their future strategies to compete with other intermediaries and remain relevant in the financial system. Academicians and researchers would be immensely benefited because of the wider coverage of the study period which provides a long term prospective about disintermediation in India.

1.6. Objectives

While pursuing the work of disintermediation impact on bank performances and profitability the following objectives are undertaken:

- a. To review the growth and composition of financial intermediaries and instruments.
- b. To study the changes in household investment pattern.
- c. To examine the disintermediation impact of capital market growth on the performance of bank.
- d. To examine the overall financial disintermediation impact on bank's business and financial parameters.

1.7. Hypotheses

To arrive at the conclusions about the third and fourth objective two hypotheses that have been used are states as follows:

- a. Capital market growth is a significant disintermediation variable for banking in India.
- b. There is significant impact of overall financial disintermediation on the performance of banks.

1.8. Methodology

The study is exploratory in nature. It is an empirical research work based on aggregate data and is meant to provide information on any negative impact on commercial bank's deposit taking and loan giving functions due to the development of alternative means of savings and loan, which is better known as 'disintermediation'. For this purpose, to begin with, an examination for growth and development of financial institutions and instruments in Indian Financial System has been made. This is followed by an evaluation made for any shift in the pattern of household sectors' savings. Since household is the largest savings sector in Indian economy and any shift out of bank deposits to other alternative source of savings will lead to a reduction in the capacity of deposit taking by banks. Analysis here has been in the form of ratio analysis and trend analysis with respect to household savings in both financial and physical savings as well as for different forms of financial savings including deposits with commercial banks. One of the important sources for banking disintermediation is capital market, a means through which companies tap the investors directly for their requirement of funds which they would otherwise have raised as loan from commercial banks. Again shift by the borrowers from commercial banks to other non-banking sources of credit is also a cause for bank disintermediation. So, in order to see the impact of capital market and other non-banking credit sources on commercial banks' loan disbursal segment, indices have been developed for deposit mobilisation and loan disbursal by both commercial banks and non-banking institutions as well as for mobilisation of funds through capital market; and analysis of trend has been made for the same in relation to time. Finally, the impacts on profit and performance of commercial banks have been analysed. For this purpose important indicators of profit have been identified and analysed for shift in trend followed by regression analysis to determine if disintermediation has impacted their profitability and performance.

1.8. a. Period of Study

This study covers a period of twenty six years from 1980-81 till 2005-06 that is divided into two phases of pre-liberalisation and post-liberalisation. The phase of pre-liberalisation here is from 1980-81 till 1992-93 and that of post-liberalisation is from 1993-94 till 2005-06. Reason for starting from 1980-81 is that during the

phase of 1980s a relaxation was made on economic policy taken place with a number of new policy initiatives introduced by the Government of India in order to make the financial system a competitive one. This included relaxation of norms for issue of non-convertible bonds, introduction of Cumulative Convertible Preference Shares, warrants and Employees Stock Option Scheme, and allowing corporate sector to accept deposits from public on one hand; whereas, on the other side, there was introduction of new means of savings by post office like National Savings Certificate, Monthly Income Scheme, Kisan Vikas Patra with attractive rates of return. All these posed a challenge to commercial banks and also could lead to disintermediation.

Similarly, after the recommendation of the Narasimham Committee in November, 1991, the government introduced a number of measures with an aim to infuse competitiveness in the financial system. Thus in order to allow liberalisation to take its course, the year 1992-93 has been included in pre-liberalisation phase whereas the year 1993-94 has been considered as the beginning year of post-liberalisation phase.

1.8. b. Data Source

The work is based on secondary source of data used in aggregate form for all scheduled commercial banks in India as well as for other sectors like savings of household and capital market mobilisation. Database is mostly collected from various publications issued by Reserve Bank of India like Handbook of Statistics on Indian Economy, Report on Trend and Progress of Banking in India, and Statistical tables relating to banks in India. In addition, another source has been Handbook of Statistics on the Indian securities market published by Security and Exchange Board of India. Data series for the purpose of aggregate economic savings is from new series base, i.e., 1999-2000 series.

1.8. c. Data Limitations

In some cases the data for commercial banks and also for other non-banking variables are not available in a detail, specifically with respect to pre-liberalisation phase. Similarly data for capital market mobilisation is not available from one

source and so multiple sources have been referred to obtain the same. Following are the limitations encountered while collecting data that has impacted the study.

a) Data on cooperative banks both for deposit acceptance and loan giving are collected only for State Co-operative Banks, Central Co-operative Banks and Urban Co-operative Banks. So the data set for cooperative banks excludes other types of cooperatives such as State Co-operative Agriculture and Rural Development Banks, Primary Co-operative Agriculture and Rural Development Banks, Primary Agricultural Credit Societies, etc.

b) Disbursements by AIFIs are inclusive of other types of assistance provided by these institutions like subscription of bonds. So in some cases this data does not reflect the actual loan provided by them to industrial concerns.

c) Similarly, data with regard to private placement market and also for funds raised through commercial papers have been included from the years 1995-96 and 1992-93 respectively, as their data are not available for the previous years.

d) Data for interest income of banks includes interest from both loan and investment. As there is no separate disclosure for data with regard to interest received on loan given and that from investment, hence no segregation could be made. This is more pronounced during the period pre-liberalisation phase.

e) Data for interest expenses include interest paid on deposit and also on others like borrowings from RBI and inter-bank borrowings. But here also no segregation could be made on account of non-availability more specifically for pre-liberalisation phase.

f) Data for capital of commercial banks does not include any detailed break-up for equity and debt and for this reason all capital has been assumed as equity capital.

g) Data for market capitalisation is not available for the years 1980-81 and 1981-82; and hence are estimated through interpolation.

1.8. d. Variables Used

Identification of the factors responsible for disintermediation in Indian financial sector is the primary task. The impact of capital market and of the overall disintermediation on the important banking variables are identified with the help of regression technique. Factors are identified for the growth/decline of these

variables through trend analysis and other statistical analysis like correlation analysis etc. Some of the important variables identified are: i) number of instruments in the market, ii) number of institutions in the market, iii) amount mobilised through domestic capital market, i.e., issue of equity and debt, iv) amount mobilised through domestic money market, v) amount mobilised through other financial institutions other than banks. Introducing any variable into the regression models depends on the trend analysis and the strength of correlation coefficient with the dependent variable.

Specifically, the study covers two aspects of disintermediation impact, firstly on the primary operation of banks viz. deposit taking and loan disbursal, and secondly on the overall financial parameters of the banks. The main indicators of the latter identified are interest income, interest expenses and the net interest spread. Other financial parameters have also been considered as per the need of the study. Analysis is made on the trend of deposit accepted and loan given by banks as well as for other sources of investment and borrowing available in the market, through tabular and graphical presentation. Comparative analysis of deposit mobilisation as well as credit disbursal by other intermediaries is also made. The tools applied for analysis are ratio analysis, trend analysis, linear growth rate, correlation analysis, multiple linear regression model, autoregressive model or GLS model for regression. In addition some tests have also been applied like the Durbin-Watson test for autocorrelation, Multicollinearity Test, F-test, T- test and Chow's 'F' test. A brief explanation for each of these tools and techniques is given as below.

1.8. e. Statistical tools for analysis

i. Ratio analysis: Overall disintermediation in the financial system can be studied through the analysis of different ratios. They include i) Household Savings to Gross Domestic Savings, ii) Household Investment in Financial Assets to Total Household Savings, iii) Household Investment in Physical Assets to Total Household Savings, iv) Bank Deposits to Gross Financial Savings of Household, v) Investments in Other instruments to Household Investment in Financial Assets, vi) Net annual deposit with commercial banks / Total deposit with all intermediary institutions, vii) Net annual deposit with non-banking financial intermediaries / Total deposit with all intermediary institutions, viii) Net annual credit by

commercial banks / Total credit by all intermediary institutions, ix) Net annual credit by non banking financial intermediaries / Total credit by all intermediary institutions, x) Credit-deposit ratio, xi) Investment-Deposit ratio, xii) Capital of banks/ Total assets of Banks, xiii) Overhead/ Total assets of Banks etc. Many other ratios have been used as per the requirement of the analysis. In addition to this growth rate has been calculated for different components like Gross Domestic Savings, Net Domestic Savings, Savings of Household, Savings of Private Corporate Sector, Savings of Public Sector, Savings through bank deposits and alternative instruments of savings both institutional and market, Credit by commercial banks and other alternatives, both institutional and market, etc.

ii. *Index number:* Index number is used as a device of comparison of related variables (such as price, quantity or group of articles) in different situations, for example, certain place or period of time. Indices have also been created here (in chapter 4) to see whether there is any trend of disintermediation visible in Indian Financial System. For this purpose, eight indices have been developed in all, out of which first four are intermediation indices and the rest four are disintermediation indices. For all these eight indices, the year 1980-81 has been considered as the base year.

iii. *Linear Growth:* Linear growth technique is being used to see the movement of trend (upward or downward) for each of the variables selected. This technique uses "least squares" method to calculate a straight line that best fits data, and then returns a value that describes the line. Here the data has been converted to log before calculating the same.

iv. *Correlation Analysis:* When an analysis is performed to determine the degree of association between two variables, it is referred to as correlation analysis and the resulting measure is called the correlation coefficient. It has been used as an aid to regression analysis carried out to know whether the two variables are correlated. It is denoted by 'r' and the formula is

$$r = \frac{n\sum xy - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2]} \sqrt{[n\sum y^2 - (\sum y)^2]}}$$

v. *Trend analysis of index:* Trend represents movement of indices with underlying direction and rate of change when allowance has been made for the other components. It is a method of time series analysis that involves comparison of the

same item for over a longer period to detect general pattern of a relationship between associated factors or variables. Out of the different types of trend analysis the two methods used are given below.

a. Quadratic Trend : $Y = a + bx + cx^2$

b. Cubic Trend: $Y = a + bx + cx^2 + dx^3$

vi. *Multiple linear regression model*: Multiple regression analysis is an extension of simple regression equation and involves analysing two or more independent variables with a determinant variable in order to find the factors affecting the latter. For simple linear regression equation having one independent variable denoted by 'x', and the regression coefficient is denoted by 'b'. Whereas in the case of multiple linear regression involving two variables 'x₁' and 'x₂', the regression coefficients are 'b₁' and 'b₂' which when expressed in equation form gives

$$Y = a + b_1x_1 + b_2x_2$$

This may be expanded with 'n' number of independent terms that gives the equation which is

$$Y = a + b_1x_1 + b_2x_2 + \dots + b_nx_n$$

vii. *Autoregressive model or GLS model*: In case where the result of linear regression does not give a satisfactory result due to presence of autocorrelation problem or even in case of non-decisiveness for presence or absence of the same (discussed next) the model used is the autoregressive one that involves regressing Y on X in a transformed manner obtained by subtracting a proportion (rho) of the value of a variable in the previous time period over its value in the current time period used under iterative method. And the equation is $(Y_t - \rho Y_{t-1}) = \beta_1 (1 - \rho) + \beta_2 (A_t - \rho A_{t-1}) + \beta_3 (B_t - \rho B_{t-1}) + \epsilon_t$. But in this procedure the first observation is lost, and since the data set is a small one where losing one data point may make substantial difference in result, hence they were tested under "á la prais-winsten iterative procedure", that is a generalised least squares model for regression. The reason for selecting this model is that it does not suffer from the limitation of losing out the first observation as it happens in case of other methods such as Cochrane-Orcutt model. The formula to calculate first observation for dependent variable is $Y_1 \sqrt{1 - \rho^2}$, and that for independent variable is $X_1 \sqrt{1 - \rho^2}$.

1.8. f. Other statistical tests

In addition to the above-mentioned tools for analysis, some tests have also been applied as well. They have been used as supportive tools for finding out the statistical significance of the results derived. These tests are mentioned here-under:

i. Durbin-Watson test for autocorrelation: In case of time series analysis, the presence of autocorrelation in regression makes result a non-reliable one, and so the assumption of no autocorrelation needs to be tested. This analysis has been made through Durbin-Watson test for autocorrelation. For ordinary least squares regression the test is 'd' test; whereas in case of autoregressive model it is the 'h' test that has been applied. The formulas for both these are given as under.

a. Durbin-Watson d test

$$d = \frac{\sum \hat{u}_t^2 + \sum \hat{u}_{t-1}^2 - 2\sum \hat{u}_t \hat{u}_{t-1}}{\sum \hat{u}_t^2}$$

Or

$$d \approx 2 \left[1 - \frac{\sum \hat{u}_t \hat{u}_{t-1}}{\sum \hat{u}_t^2} \right]$$

b. Durbin-Watson h test

$$h = \hat{\rho} \sqrt{\frac{n}{1-n[\text{var } \hat{\beta}_3]}}$$

ii. Test for multicollinearity: Multicollinearity means existence of linear relationship between two or more independent variables in a regression model. Although its presence does not violate the assumption of OLS, but in case of near or high multicollinearity the following consequences can be encountered:

- a) Large variances and co-variances make precise estimation difficult.
- b) Wider confidence intervals can lead to the acceptance of zero null hypotheses.
- c) Insignificant T-ratio, although R^2 can be very high.
- d) The greater the multicollinearity, the greater the standard errors.

Variance Inflation Factor (VIF) has been used as an indicator for the presence or absence of multicollinearity, in addition to the theoretical justification for correlation between variables. As a rule of thumb VIF of 10 or higher may be

reason for concern, and the same has also been applied here¹. As a remedial measure (as applied in Chapter 5) when two variables are showing high correlation, one of them has been dropped out of the regression analysis.

iii. F-test: This test has been conducted to test the overall significance of regression analysis, that is, whether the model fits well or not. The formula to calculate f value is

$$F = \frac{\text{ESS / df}}{\text{RSS / df}}$$

If the computed F value exceeds the tabulated F value at α percent level of significance we reject the null hypothesis.

iv. T- test: It is a statistical hypothesis in which the test statistic has a student's t distribution if the null hypothesis is true. One of its uses for which it has been applied here is a test of whether the slope of a regression line differs significantly from zero. Or that there exists a significant correlation between independent variable and the dependent one. The formula is given as below:

$$t = \frac{\bar{X} - \mu_0}{s\bar{X}}$$

v. Chow's F-Test: When regression tests involve time series data, then there is every possibility for a structural change between the regressand and regressor as the values of parameter does not remain the same throughout the entire period of time. Here the Chow's F Test can become a determinant test to see whether the coefficients in a regression model are the same in separate sub-periods also. The formula for Chow's F test is given as follows:

$$F = \frac{S_5 / K}{S_4 / (N_1 + N_2 - 2k)} ; \text{d.f.} = (k, N_1 + N_2 - 2k)$$

Where; S_1 , S_2 and S_3 are the specified residual sum of squares obtained from the above trend analysis. And

$$S_4 = S_1 + S_3$$

$$S_5 = S_1 - S_4$$

K = number of coefficient estimated including the intercept.

¹See Gujarati (2006), Pp: 362

There are some other tools and statistical techniques have been applied like the calculation of average, variance, etc. It is further important to mention here that since these analyses have been performed through computational software, that is, MS excel and SPSS, hence not much importance has been given to the calculation steps.

1.9. Limitations of the study

Apart from the earlier mentioned limitations in the data source, there are two more problems that have been encountered while analysing data for chapter-4. First is disclosure with regard to the amount raised through capital market instruments i.e., equity and debt that is available only for the amount raised through issues made for these instruments. Any redemption made out of these instruments will eventually reduce the amount mobilised by capital market. But the same could not be considered as there is no such disclosure. Secondly, deposits mobilised by NBFCs have not been included in trend analysis as there is an inconsistency in data system due to a change in their reporting pattern since 1997-98. Earlier system of reporting comprised of data relating to regulated deposits (of which public deposit formed a part) and exempted deposits; that has now been changed to disclosure made for public deposits only and hence cannot be compared with earlier part. Likewise data for any loan given by them could not be included due to non-availability.

In addition to the above, there are certain demographic variables which are found impacting the savings pattern of household like age, educational qualification, dependency ratio etc. But these have been kept outside the scope of study. So, only financial variables are considered as determinant variables.

1.10. Chapterisation

The study is spread over six chapters.

Chapter-1:Introduction-This provides the conceptual background to disintermediation phenomenon and presents a literature review pertaining to several works undertaken in various economies. The research problem, objectives and hypotheses are presented in this chapter. With the detail methodology to the work this chapter includes the significance of the study as well as the study limitations.

Chapter-2: Review of Indian Financial System- The phase-wise development of Indian financial institutions and instruments are narrated in this chapter.

Chapter-3: Analysis of Household Investment Pattern- This chapter highlights the change in preferences for savings of households in different instruments over a period time. The pre and post-liberalisation phases are analysed in detail.

Chapter-4: Deposit and loan disintermediation in Indian Commercial Banks- Growth of capital market in both pre and post-liberalisation phases and its impact on the deposit taking and loan provisioning function of the banks are analysed in this chapter.

Chapter-5: Impact of disintermediation on commercial banks' performance and profitability- The overall impact of disintermediation on the bank performance and profitability is presented in this chapter.

Chapter-6: Findings and Conclusion

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Chapter: 2

Review of Indian Financial System

2. 1. Introduction

India has a long history of financial intermediation and with the passage of time could develop a striking network of financial institutions, instruments, markets and services to fulfil the requirements of wide-ranging segments of economy, which later on motivated by socio-economic considerations has developed under a strong government regulation with high degree of control over entry and expansion (referred to as repression by various authors). In 1980s, the monetary policy witnessed a break when the monetary authorities shifted their preferences towards explicit monetary targeting with feedback based of the recommendations made by the Committee to Review the Working of the Monetary System (Chakravarty Committee, 1985). The underlying rationale was to reduce the rigidities and delays, improve flexibility and diversification and bring about a more competitive environment in the financial system (*Malhotra, 1989*).

In 1991, again the financial system received special attention as a part of the New Economic Policy when on the basis of recommendation of high level Committee on Financial System, the government introduced a large number of changes (reforms) with objective to correct or eliminate financial repression. The reforms have taken the form of opening several sub-sectors of the financial system to the private sector, deregulation of interest rates and a greater market orientation for financial institutions as regards both source and placements of funds (*Jena, 2003*), and the key words to describe reforms in concise manner were liberalisation, deregulation, privatisation and globalisation.

With an objective to review the growth and composition of financial intermediaries and instruments, this chapter concerns itself with phase-wise development of the Indian Financial System beginning from pre-independence. For this purpose the overall development of financial intermediaries and instruments has been divided into four phases, i.e., pre-independence, post-independence till 1980, 1980 till liberalisation, and post-liberalisation phase. An elaborate discussion of all these phases is presented in the following sections.

2.2. Pre-Independence Phase

During pre-independence period, the financial system that was largely dominated by unorganised sector consisting of money lenders and indigenous bankers has also witnessed an initiation towards development of organised financial sector. In banking sector, this period saw an initiation towards modern banking whose foundation was laid through establishment of three Presidency Banks which were merged in 1921 to form the Imperial Bank of India. It functioned as a quasi-central bank and later on with the establishment of Reserve Bank of India it was acting as an agent in places where the latter did not have any office of its own. The early years of the twentieth century were also characterised by the continuous official attention to the provision of rural credit (*Mohan, 2004a*). Between 1915 and 1935 different committees were set up whose reports advocated for a well developed cooperative credit structure. Prominent amongst them was the Maclagan Committee on Cooperation in India, whose report issued in 1915 led to the establishment of cooperative banks in all provinces, thereby giving rise to a 3-tier cooperative credit structure by 1930.

Within non-banking institutional sector, it was the Small Savings and Insurance whose development was prominent. The scheme of Small Savings was introduced by company government with motive to encourage people to save through government-run savings banks attached either with Presidency Banks or District Treasuries or Post Offices. This business was monopolised in 1896 when post office took it over from other agencies. Similarly, commencement of insurance in its modern form coincided with the arrival of Europeans. The passage of Indian Life Insurance Companies Act in 1912 marked the establishment of life insurance business in India in official manner followed by passing of the Indian Insurance Companies Act in 1928 and Insurance Act in 1938 for effective control. In 1926, the Royal Commission on Indian Currency and Finance (Hilton Young Commission) proposed the formation of a central bank to be called as the Reserve Bank of India. Subsequently with passing of the Reserve Bank of India Act in 1934 that the Reserve Bank of India (RBI) came into existence on 1st April 1935 as a shareholders' institution.

So to conclude here, the financial system during pre-independence was largely dominated by the informal sector. But this period also saw an initiation towards the development of formal financial intermediary institutions setup, marked by the establishment of both banking and non-banking institutions of savings meant to augment savings in economy. The existence of Joint Stock Companies and establishment of a few stock exchanges (e.g., Bombay Stock Exchange established in 1875) bear out the fact that there was some initiation towards capital market development even during pre-independence period. Table 2.1 below gives an overview of the development of financial system prior to independence. An important feature of this phase is that the developments took place mostly in private sector.

Table: 2.1- Institutional and Instrument development during pre-independence

Sectoral Development	Year	Institution / Instrument
Central Bank	1935	Reserve Bank of India established
Commercial Banking	1806	Bank of Bengal established
	1840	Bank of Bombay established
	1846	Bank of Madras established
	1921	Imperial Bank of India formed
Capital market	1887	Bombay Stock Exchange established
	1908	Calcutta Stock Exchange established
	1908	Madras Stock Exchange established
	1930	Indore Stock Exchange established
	1943	Hyderabad Stock Exchange established
Instrument development	1896	Small Savings Scheme monopolised by Post office
	1917	Treasury Bills issued for first time

2.3. Post-Independence till 1980

Financial policies of the government (after independence) were of three types - creating markets and financial institutions, regulating them and providing rewards such as subsidies when priority activities are undertaken (*D'Souza, 2000*). Some of the steps taken during this phase were towards expansion of banking infrastructure, creation of development banks both at state and national levels to support industrial development and creation of other institutions of savings such as LIC in insurance, UTI in mutual funds, etc. But the most important step taken in this field was the nationalisation of Reserve Bank of India in 1st January 1949 under the Reserve Bank of India (Transfer to Public Ownership) Act, 1948. In line with the theory of

mixed economic policy adopted for independent India it (RBI) also began to operate in a new concept of promotional and developmental role. A clear objective behind this was to raise the savings ratio in order to enable the higher investment necessary for growth, in the absence of efficient financial intermediation and of a well developed capital market (*Mohan, 2006*).

In 1954, some major institutional changes were pressed for in the All India Rural Credit Survey Report. In the aftermath of this Report with a clear recognition of the need for public sector commitment to the provision of credit to the rural sector at a reasonable cost, that the Imperial Bank of India was brought under major ownership of Reserve Bank of India in 1955 (*Ojha, 1988*). During the early 1960s, it was realised that credit flow from banks were not in a right direction since a large part of the country (particularly rural and semi-urban part) were either sparsely banked or not banked at all. Consequently to achieve a wider spread of banking facility and to make banks an effective instrument of economic development, the Government introduced a scheme of social control in 1968, and this marked the transitory stage. Commencement here was made through nationalisation of fourteen large banks in 1969 followed by six more in 1980. But the initial period effect after first phase of nationalisation was not a satisfactory one since the business of banking was still concentrated to a few states with more of commercial and industrial activities². This, however, proved to be fruitful one in the long run as there was an increase in the number of commercial bank offices by around four times from 8,262 in 1970-71 to 32,419 in 1980-81. An improvement was also visible in the trend of both deposit taking and loan disbursement by commercial banks. The figures of deposit and credit which were Rs. 5,921 crore and Rs. 4,692 crore respectively in 1970-71, could reach up to Rs. 36,996 crore and Rs. 29,688 crore in 1980-81 thus showing an increase of more than five times. So, 1970s has been regarded as a decade of growth and expansion in banking (*Rangarajan, 1983*).

But by the middle of the 1970s, it was felt that the task of providing agricultural credit on the requisite scale could not be met by commercial banks, unless they acquired specialised knowledge of the rural setting (*Mohan, 2004b*). Consequently, following the recommendations of Banking Commission a beginning was made in the latter half of 1970s when nationalised banks established 196 Regional Rural

² For details refer *Tyagrajan & Ramachandran 1974*

Banks (Grameen Banks) between October 1975 and June 1985. In addition, a comprehensive branch licensing policy was formulated in 1978 to correct regional imbalances and also accelerate the pace of economic growth. This was followed by nationalisation of six more banks in 1980 with deposit base over Rs. 200 crore.

With the beginning of national economic planning in India, cooperatives were made an integral part of the institutional framework for community development and extension services. They also remained the main agencies of dispensing credit for rural development. But this sector has been the principal sufferer as a result of artificial lowering of interest rates to agriculture and has been afflicted by various reasons such as politicisation and excessive bureaucratisation (*Venkitaraman, 1992*). Their deposit rates were also regulated since 1974; and in this respect the rate prescribed by RBI for commercial banks were considered as the minimum to be offered by cooperatives also. During 1970s and 1980s, their growth remained constant except for PACs whose deposits have declined drastically. Thus following recommendations of the “Committee to Review Arrangements for Institutional Credit for Agriculture and Rural Development (1979)”, the National Bank for Agriculture and Rural Development (NABARD) was set up in 1982 for providing credit for promotion of, among others things, agriculture (*Mohan, 2004a*). The NABARD since its inception has taken over the entire undertaking of ARDC and is also administering Rural Infrastructure Development Fund (RIDF).

During this phase All India Development Banks were also established with a reason to extend credit facilities for industrial development and render advisory services in order to develop backward regions as well as small and new entrepreneurs. In this direction, the first step was setting up of the Industrial Finance Corporation of India in 1948; followed by the establishment of other institutions like Industrial Credit and Investment Corporation of India in 1955 and Industrial Development Bank of India in 1964. Passing of the State Financial Corporation Act in 1951 marked the beginning for establishment of Development Banks at state level. By 1955-56, the State Governments established 12 State Financial Corporations that went up to 18 by 1980.

During the decade of sixties and also in early seventies, State Industrial Development Corporations were set up either as wholly owned bodies of state governments or as statutory autonomous corporations under State Acts or as public

or private limited companies. Over the period of time these DFIs (both at state and national levels) could develop a variety of products and services to meet the growing needs of the corporate sector. Their respective charters enjoined them to support issues of industrial securities through underwriting and/ or direct subscription; and with a view to mobilise private savings into capital market they are expected to promote healthy growth of the same. During 1970-71 the overall assistance sanctioned by these DFIs was Rs. 254 crore which went up to Rs. 2,926 crore in 1980-81 with the share of SFCs and SIDCs ranging between 20 and 30 percent. A brief highlight of AIFIs established during this phase is presented in Table 2.2 below.

Table: 2.2 – Establishment of DFIs (1947 to 1980)

Year	Development Financial Institutions	Objective
1948	Industrial Finance Corporation of India	Medium and long term credits to industries
1954	National Industrial Development Corporation	Provide services related to project implementation, consultancy and rehabilitation
1955	Industrial Credit and Investment Corporation of India	Private sector industrial development
1955	National Small Industries Corporation	Promote growth of small scale industries
1958	Refinance Corporation of India	Refinance of banks loans granted to small and medium industries
1963	National Cooperative Development Council	Plan and promote programmes relating to cooperative development
1964	Industrial Development Bank of India	Industrial Finance and Development
1971	Industrial Reconstruction Corporation of India	Reconstruction and rehabilitation of sick industries

Other important developments that took place during this phase in the field of non-banking were with respect to insurance and mutual funds industry. By the end of 1955, there were 245 insurance companies and provident fund societies out of which 16 were non-Indian companies (*Desai, 2002*). They all were brought under the state control in 1956 through an ordinance resulting in creation of the 'Life Insurance Corporation of India'. Insurance has been nationalised because the whole mechanism of finance had to be fitted increasingly into the pattern of development that the government now visualises for the economy (*Economic Weekly, 1956*). After nationalisation the growth of life insurance business has been a remarkable one marked by a constant increase in amount of life funds, assets, number of policyholders and premium income (Table 2.3).

Table: 2.3 – Growth of life insurance business during 1947-1980

Year	Life Fund (in Rs. Crore)	Assets (in Rs. Crore)	New Business		Business In force	
			No of Policies (in Lakh)	Sum Assured (in Rs. Crore)	No of Policies (in Lakh)	Sum Assured (in Rs. Crore)
1958	410.40	463.0	9.30	337.45	59.74	1,523.67
1970	1,611.03	1,771.78	13.97	1,025.8	139.39	5,781.2
1980	5,818.09 (14)	6,176.93 (13)	20.96 (2.25)	2,733.11 (8.11)	220.39 (3.68)	17,234.24 (11)

Data source: Sadhak, 2006

Note: Figures in bracket represent number of times increase in 1980 over 1958

General Insurance was also nationalised after passing of the General Insurance Business (Nationalisation) Act in 1973; and the process began with the amalgamation of 107 insurers which were then grouped into four subsidiaries of General Insurance Corporation of India viz., National Insurance Company Limited, New India Assurance Company Limited, Oriental Fire and General Insurance Company Limited, and United India Insurance Company Limited.

Unit Trust of India (UTI) was established in 1964 as a public sector institution. Its objective was to mobilise savings from small and diversified investors of lower and middle class and make them available for productive ventures. It made several pioneering efforts in the industry and secured a strong place in the Indian investment universe (*Sethu, 2006*). Launched in 1964, its Unit Scheme 64 popularly known as US 64 is the oldest scheme in India and commands a size of Rs. 12,778 crore as on June 2001 accounting for 13 percent of the entire Indian mutual fund industry (*mutualfundsindia.com*). It also has implemented various schemes of investments in order to satisfy the needs of varied sections of society like Money Market Fund, Children's Career Plan, Contra Fund, Unit Linked Insurance Plan, etc. Table 2.4 gives an overview of the important institutional developments during the post-independence period till 1980.

Apart from the above-mentioned segments, some developments also took place in the media of small savings scheme. Two new saving schemes introduced during 1970 were the post office time deposits with different years of maturity and post office recurring deposit. In addition, there were three issues of National Savings Certificates introduced during this year of which two were discontinued later on. The rates of return on small savings have also undergone some changes after 1970 and were made more attractive than bank deposits.

Table: 2.4 - Institutional Development (1947-1980)

Year	Institutional development	Objective
1948	Reserve Bank of India (Nationalisation)	Government control over functioning
1955	State Bank of India	Nationalisation of Imperial Bank
1956	Life Insurance Corporation of India	Government control over life insurance
1963	National Cooperative Development Council	Strengthen and develop agriculture, and allied activities in cooperative sector
1964	Unit Trust of India established	Channelising public savings to productive Ventures
1969	Nationalisation of commercial banks (Phase-I)	Fulfil socio-economic responsibility
1975	Regional Rural Banks	Provide credit to rural sector in country
1980	Nationalisation of commercial banks (Phase-II)	Fulfil socio-economic responsibility

2.4. 1980s till liberalisation

Since the mid 1980s, many far-reaching changes have taken place in the Indian financial system. Liberalisation though vigorously started in post 1990 years, some initial reforms had taken place during the eighties. On one hand, many banks floated specialised subsidiaries, thereby entering into other related activities, such as, merchant banking, mutual funds, hire purchase finance, housing finance, venture capital, equipment leasing, factoring, securities booking and trading. Whereas, on the other side, the scheme of Service Area Approach was introduced with an aim to expand the networks of bank branches and also improve the quality of credit disbursal in rural areas. A system of action plan formulation was also introduced by RBI in 1985 that required covering of all important areas like organisational structure, human resource development, production, efficiency, technological upgradation, etc. Implementation of these action plans was monitored at the highest level of banks as well as by RBI. A remarkable improvement has been noticed in the performance of commercial banks over the period from 1980-81 till liberalisation. The figures for deposit taking and investment have grown by more than 4 times whereas credit disbursal figure have grown by around 3 times. But a marked improvement was seen in the branch expansion in rural area (Appendix table 2.1).

A few more development banks were set up during this phase. These were specialised in nature thus catering to the needs of specific industries like shipping,

foreign trade, tourism etc (Table 2.5). Their total assistance (both in terms of sanctions and disbursements) was improved remarkably. This fact is visible from the rate of growth (Appendix table 2.3) that has been more than the overall growth rate.

Table: 2.5 - DFIs established since 1980s

Year	DFI	Objective
1982	Export Import Bank	Financial support to exporters and importers
1985	Industrial Reconstruction Bank of India (IRCI renamed)	Continue with earlier role of reviving sick industries
1987	Stock Holding Corporation of India Ltd	Provide quick share transfer and other related facilities
1987	Shipping Credit and Investment Corporation of India	Development of shipping, fishing and related industries
1988	Risk Capital and Technology Finance Corporation	Venture capital finance
1989	Tourism Finance Corporation of India Ltd	Assistance and development of conventional as well as non-conventional tourism projects
1990	Small Industries Development Bank of India	Administration of Small Industries Development Fund and National equity Fund

Few more changes were also seen in the medium of small savings. Schemes which include Kisan Vikas Patra (KVP), National Savings Certificates (NSC), postal savings and public provident funds (PPF) have attracted investors' interest ever since the RBI pursued a soft interest rate policy, precisely due to the higher interest rates offered on these instruments combined with attractive tax concessions (*EPW, 2004a*).

A rapid expansion of Non-Banking Financial Companies (NBFCs) took place in the decade of eighties thus providing avenues for depositors to hold assets and for borrowers to enhance the scale of funding of their activities (*RBI, 1999-00*). On the basis of the data, being collected by Reserve Bank of India, it has been found that the number of such companies had increased from 209 in 1983 to 412 in 1986 (*Ojha, 1987*). Various factors are responsible for such marked growth which includes more customer-oriented services, absence of comprehensive regulation in opposition to their presence in banking system and the like. It is very important to note that two-third of the aggregate resources came from deposits alone (*Ojha, 1987*).

But capital market remained dormant with long-term capital requirements still met by the Development Financial Institutions. So in order to bring diversity in investor's options and to widen the capital market base, the government introduced several innovative instruments that included Cumulative Convertible Preference Shares, Warrants and Employees Stock Option Scheme. In addition, the corporate sector was also allowed to accept deposits from public. Another significant development in the Indian capital market (during this phase) is the emergence and growth of private placement market (*Thiripalraju, 1993*). All these brought about an unprecedented change in Indian Capital Market. The primary market has witnessed a phenomenal progress in quantitative terms for number of issues and amount as well as in qualitative and structural terms by way of establishment of specialised institutions and introduction of innovative instruments to attract more investors (*Rangarajan, 1994*). The amount of capital raised from market increased from Rs. 310 crore in 1980-81 to Rs. 9,895 crore in 1990-91, that is an increase of around 32 times. Further when compared between equity and debt capital, it is found that a major portion of mobilisation took place through debt capital that increased by around 62 times (from Rs. 139 crore in 1980-81 to Rs. 8,609 crore in 1990-91) as compared to 7.5 times growth in equity capital (from Rs. 170 crore in 1980-81 to Rs. 1,286 crore in 1990-91).³ Capital raised by non-government companies through equity shares, preference shares and debentures increased substantially with a bulk of the new issues made in the form of non-convertible debentures that happened due to relaxation in terms and conditions of their issue. This followed a marked shift towards convertible debentures noticed during the end of decade. The rise in (amount of) capital raised through debentures came largely on account of certain favourable policy changes in the guidelines for debenture issue (*Ojha, 1984*).

Prior to mid 1980s, the money market was a heavily regulated one characterised by an insufficient number of instruments with no secondary market to trade on. In 1985, the Committee to Review the Working of the Monetary System (Chakravarty Committee) was the first to make several recommendations for the development of money market, followed by the Working Group on Money Market (Vaghul Committee) in 1987. Pursuant upon the recommendations of both these committees

³ For data source see end note

a number of measures were initiated by RBI to widen and deepen the market. Beginning made here was through the establishment of Discount and Finance House of India (DFHI) in 1988 in order to provide liquidity and develop secondary market for instruments. This followed the introduction of several new financial instruments and services like 182-days treasury bills, Inter-Bank Participation Certificate, Certificates of Deposits, Commercial Paper, development of active bills market, Repo, Money market Mutual Funds, factoring and stockinvest.

Table: 2.6 - Developments during 1980's

Sector	Year	Developments
Capital Market	1985	Guidelines issued for issue of PSU bonds
	1985	CCPS introduced by government
	1989	Partly convertible debentures introduced
Money Market	1988	Inter Bank Participation Certificate reintroduced
	1989	CDs came into existence
	1990	CPs came to existence
Small Savings Schemes	1986	Indira Vikas Patra introduced
	1987	Post Office Monthly Income Scheme introduced
	1988	Kisan Vikas Patra introduced
	1989	NSC VIII issue introduced

Another significant development visible was the process of disintermediation which means to bypass banks and other financial institutions as intermediaries and invest through direct market instruments. All these along with inter-bank competition had forced banks to improve upon their customer service and also diversify into other areas of non-banking and non-funded business called 'financial services'.

2.5. Post-liberalisation

Financial sector reforms launched after the recommendation of the Committee on Financial Systems (Narasimham Committee-I) in 1991 were aimed towards making the financial sector more viable and more efficient. The basic premise has been to create an efficient and stable financial system and to remove the cobwebs of inefficiency. While the main emphasis of the first phase of reforms was on improving the efficiency of financial sector as a whole and turning it into towards global integration of financial services; the second phase of reforms was concentrated on banking sector. Approach here has been to consistently upgrade the financial sector by adopting the international best practices through a consultative

process (*Leeladhar, 2007*). The key words describing reforms have been liberalisation, deregulation, privatisation and globalisation.

2.5. a. Regulatory development

In line with deregulation of financial institutions and financial instruments, there has been a shift in the role of RBI from direct to prudential system of regulation thereby granting more of operational flexibility and financial autonomy to commercial banks and other financial institutions under its control. Some of the measures include deregulation of interest rates, rationalisation of CRR and SLR, phasing out of *ad hoc* treasury bills, eliminating the system of automatic monetisation and replacing it with a system of Ways and Means Advances, activation of Bank Rate and reduction in the reliance on refinance.

A high-powered Board for Financial Supervision was also constituted in 1994 to exercise the powers of supervision and inspection in relation to the banking companies, financial institutions and non-banking companies. Currently, the function of supervision of banks, financial institutions and NBFCs rests with RBI. However, the promotion of the institution of Primary dealers and Clearing Corporation of India Ltd. supports the fact that even in post-liberalisation period it has continued its efforts towards improving financial infrastructure of varying degrees of involvement.

The Securities and Exchange Board of India (SEBI) was setup as a regulatory authority under the Ministry of Finance in 1988. However it was granted an autonomous status in 1992 with statutory powers for investor's protection, and promotion and development of securities market. Simultaneously, the office of the Controller of capital issues was also abolished, with repeal of the 'Capital Issues (Control) Act'.

SEBI has imposed a greater degree of constraint on the freedom of the existing exchanges (*Thomas, 2005*). It regulates and supervises the functioning of capital markets and several other institutions such as the stock exchanges, mutual funds, securities dealers and brokers. With an objective to regulate and promote securities market, certain range of powers from Securities Contract (Regulation) Act and Companies Act has also been delegated to it. Its range of authority includes power to issue rules, regulations, directives and norms applicable for both the primary and

secondary market. It has full autonomy and authority to develop and regulate the securities market, and can conduct enquiries, audits and inspection, and panellise the market intermediaries in case of any violations. Furthermore, with an aim to facilitate mobilisation and allocation of resources, it has put a standard set of rules to be followed by all participants in market.

As a follow up of the recommendations of Malhotra Commission, the Insurance Regulatory and Development Authority (IRDA) was constituted on 19th April 2000 as an autonomous body under the Insurance Regulatory & Development Authority Act with the key objective to promote market efficiency and ensure consumer protection. Its function, duties and powers are stated in section 14 of IRDA Act 1999 which states: “Subject to the provision of this Act and any other law for the time being in force, the Authority shall have the duty to regulate, promote and ensure orderly growth of the insurance business and re-insurance business” (*IRDA, 1999*). During the year 2000 it opened the insurance market for private companies to register with maximum foreign equity participation of 26 percent. The main objective behind all these is to infuse competition in market.

2.5. b. Banking Development

The very objective of the reforms were to create an environment in which banks will be compelled to improve productivity and reduce costs so that they can act as autonomous business units fully responsible for their own performance (*Rangarajan, 1993*). On the eve of reforms, the SLR and CRR together formed about 63.5 percent of the banks’ deployable resources (*see Mohan, 2004b*). Consequently measures were taken for their gradual reduction and boost the loanable funds of commercial banks. Some other steps were also designed by the government for deregulation with emphasis to provide a free hand functioning. A few to mention amongst these are the reduction in interest rate subsidy to priority sectors, deregulation of interest on both deposits and loans, liberalisation of policy for branch licensing etc.

Development of new and innovative services in market along with technology, have had their impact on banks. They have expanded their arenas into uncharted areas like consumer finance, project finance and merchant banking services. But a key issue that needs to be abridged for improvement in profit level is the

management of the level of non-performing loans (NPLs) which during March 1998 was as high as 14.7 percent of total advances in comparison to a figure of 5 to 10 percent for other emerging economies in Latin America and Asia (*Hawkins & Mihaljek, 2001*)⁴. While several measures have been taken to reduce the level of NPLs like setting up of the Debt Recovery Tribunals, Lok Adalats and Asset Reconstruction Companies; the most prominent has been the enactment of Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act in 2002 that empowers secured creditors to enforce any security interest credited in its favour without any intervention of court or tribunal. Speaking in terms of performance, it is seen that all the three measures i.e., deposits, investments and credit although have improved in figurative way, but the rate of growth for credit have shown a minor decline in this phase. Although the number of urban, semi-urban and metropolitan branches has increased resulting in increase in overall number of branch during post-liberalisation phase, but there has been a clear decline in the number of rural branches in this phase (Appendix table 2.1). This can be linked with the changing banking scenario where private banks more specifically foreign banks who have been allowed to operate since 1993 have concentrated their business in urban areas.

With a host of new players entering into the scene, the competitive scenario is also changing very fast. The entry of developmental financial institutions in commercial and investment banking have challenged the dominance of commercial banks. With the dilution and reduction in government share, the traditional theory of protectionism in the name of nationalisation is no more valid. Continuing consolidation of banking sector taking place through merger has reduced the number of scheduled commercial banks to 82 as at March, 2007, with the number of RRBs coming down from 196 to a current number of 96 as on this date.⁵ Someone has even gone to the extent of calling modern banking, marked by the changing and competitive environment, as 'Darwinian Banking', in which only the fittest will survive (*Rangarajan, 1993*).

In Cooperative banking, the financing for agricultural and rural development has reduced over the years. Some of the factors responsible are excessive

⁴ As seen in Mohan 2004 c

⁵ RBI Report on trend and progress of banking in India,2007

bureaucratisation, artificial lowering of interest rates, etc. Several steps have been taken to remove these anomalies like setting up of Cooperative Development Funds, deregulation of lending and deposit rates, and freedom to invest surplus funds in equities, bonds and similar other instruments and the establishment of National Cooperative Bank of India (NCBI) promoted by National Cooperative Union as a multi-state cooperative society in 1993. After the recommendations of Marathe Committee (1993), the RBI has also replaced its earlier dictum of 'one district one bank' with liberal licensing policy.

For those Cooperatives maintaining accounts with RBI, there has been a slight improvement in their performance both in terms of deposit taking and loan disbursement (Appendix table 2.2), but that is negligible. However, their bureaucratisation, weaknesses in performance, lack of professionalism in management and ineffective internal control and audit system has still remained the cause of concern. In addition, the questions of technological upgradation and code for corporate governance have also assumed importance in the backdrop of financial sector reforms.

2.5. c. Non-Banking Institutional Development

Till 1991, the development banks have been functioning in a highly regulated environment, thereby enjoying a comfortable spread. Their cost of borrowing has been considerably lower than their return on financing. Besides, they have also diversified into newer fee-based array of services such as banking, debenture trusteeship, forex services, etc. However, since deregulation they are competing with each other for good business. After easing out of cheap SLR funds from the government, they have become increasingly conscious of the need to improve the quality of their portfolio. They are adopting prudential norms and classifying their assets into standard, sub-standard, loss and doubtful, thus following international norms of loan classification. Another feature is the shift in their identity from government corporation to a company under the Companies' Act. The first amongst them was the IFCI which got converted into a company in 1993, followed by IIBI (earlier IRBI) in 1997. These DFIs have now entered into the banking business also, and as a result, the gap between banks and non-banks are getting blurred with time. The merger of ICICI in 2001 and that of IDBI in 2004 has led to the

development of another concept of 'Universal Banking'. But in total, the assistance granted by these DFIs have declined over the period during post-liberalisation resulting into a negative linear growth (Appendix table 2.3), and one of the reasons for this is the above-mentioned factor, that is, their conversion into universal banks in addition to the fact that now even commercial banks are allowed to grant long-term project loans to corporate sector.

Over time, the distinction between banks and NBFCs have also blurred due to overlapping of functions and also a gradual cross penetration of markets that happened in the field of both deposit mobilisation and credit disbursal. After the enactment of Reserve Bank of India (Amendment) Act, 1997, all NBFCs are now regulated by RBI (except Housing Finance Companies which are regulated by National Housing Bank). For this purpose, RBI has a separate department referred to as Department of Financial Companies. The categories of NBFCs and their nature of activities are currently being regulated by the RBI and are very similar to the ones discussed by the working group of financial companies, better known as Shah Working Group. This group was of the view that a thriving, healthy and growing non-banking financial sector is an essential for promoting the growth of an efficient and competitive financial system. In the early phase of the post-reform period, certain categories of NBFCs were given freedom to determine their own interest rates but with a view to preventing adverse selection by households, the free interest rates on public deposits of NBFCs were regulated again with a cap of 16 percent since January, 1998.

In recent years the NBFC sector has seen a significant change mainly on account of regulatory changes that have been taking place in this sector. With the tightening of regulations for raising deposits, many NBFCs with insufficient capital base have been weeded out resulting in significant condensation of this sector. On the other side, their performance with regard to deposit mobilisation from public have also declined (Appendix table 2.4) with a corresponding rise in the amount of borrowings that include borrowing from banks, market borrowings, borrowings from the Government and inter-corporate borrowings.⁶

⁶ This is based on RBI report on currency and finance 2001-02

Until the beginning of 21st century, the two segments of insurance business remained within the domain of public sector. Their monopoly was broken amid the government's decision (as a follow-up of Malhotra Committee's report) to allow private sector participation. Creation of Insurance Regulatory and Development Authority (IRDA) as a statutory body for regulating and supervising this sector marked the beginning in this direction. During the year 2000, it (IRDA) opened the insurance market for private companies to register with maximum foreign equity participation of 26 percent.

Liberalisation of entry norms in the insurance segment has brought about a sea change in product composition (*Mohan, 2000b*). Till June 2001, the number of private companies entering life insurance and general insurance business was nine and five respectively which has gone up to fifteen and nine in 2005-06. This growth has also been accompanied by a number of product innovations whose benefits are also attached with delivery mechanisms that can be linked with external marketing tie-ups.

Table-2.7: Premium Underwritten by Insurers (Rs. Crore)

Year	LIFE INSURERS		NON-LIFE INSURERS		GIC
	Public sector (LIC)	Private Sector	Public sector	Private Sector	
2000-01	34,892.02	6.45	10,491.88	7.14	2,551.28
2001-02	49,821.91	272.55	11,917.59	467.65	3,008.48
2002-03	54,628.49	1,119.06	13,520.44	1,349.8	3,186.32
2003-04	63,533.43	3,120.33	14,284.65	2,257.83	3,991.78
2004-05	75,127.29	7,727.51	14,948.82	3,507.62	4,373.68
2005-06	90,792.22	15,083.54	15,976.44	5,361.53	4,458.84
Linear Growth Rate	17.61	142.42	8.11	113.33	11.83

Data source: IRDA Annual Report, Various Issues

Opening up of insurance market to the private players has not been able to cause any intensive penetration (*Sadhak, 2006*). Although these new players have widened the scope of insurance activities with a promise to challenge some of the basic paradigms of the state owned insurance policy, but their concentration has been in particular segment. For instance, life insurance has concentrated more in the pension and group insurance whereas for non-life segment has mostly concentrated in corporate sector insurance as well as fire and engineering portfolios. It is also clear that health and rural sectors have not really benefited from the entry of private players in the market, although they present huge

opportunities to mobilise savings (*EPW, 2004b*). The four subsidiaries of GIC were delinked and given the status of four independent companies with GIC as national re-insurer. The main objective has been to promote competition and enhance customer satisfaction. Further, as may be seen in Table 2.7, that although these public companies (both in life and non-life) are still the major mobilisers of premium, but the rate of growth maintained by private players are much better (142.22 and 113.33 percent) which if continues may become a future cause of worry for the earlier players (17.61 and 8.11 percent).

Mutual funds industry was opened in 1993 for private sector participation. Initially there was regulatory restriction on the minimum size and tenure of investment as well as minimum lock-in period of investment, which the RBI implemented on recommendation of Basu Committee; but the same was deregulated later on.

Table-2.8: Net resources mobilised by Mutual Funds (Rs. Crore)

Year	UTI	Bank-sponsored	FI-sponsored	Private sector	Total
1980-81	52.1	-	-	-	52.1
1985-86	891.8	-	-	-	891.8
1990-91	4,553	2,351.9	603.5	-	7,508.4
1995-96	-6,314	113.3	234.8	133	-5,832.9
2000-01	322	247.8	1,272.8	9,292.1	11,134.7
2005-06	3,472.5	4,278.2	2,111.9	40,811.3	50,673.9

Data Source: RBI Handbook of Statistics on Indian Economy 2006

In recent years the range of products has been widened to include schemes which are more attractive in comparison to direct equity investments. As a result, the number of households owning units of MFs exceeds the number of households owning equities and debentures (*NSE, 2004*). A comparison among the four categories i.e., UTI, Bank sponsored, Financial Institution Sponsored and Private Sector mutual funds show that, at present, the private sector mutual funds is able to mobilise the maximum amount of funds in comparison to other three categories. UTI, on the other hand, has lost its dominance in market to private sector mutual funds (Table 2.8). The Mutual Fund Association, Association of Mutual Funds in India (AMFI), has perhaps the largest role to play in helping retail investors overcome their lack of awareness of MFs and MMMFs in particular (*Roy, 2005*). At this point, AMFI is also encouraged by the SEBI to bring industry inputs in

framing better regulations of mutual funds industry. But in order to have deeper impact, there has to be more innovation both in products and approaches.

Gross collections from small savings schemes have grown at a phenomenal rate of 17 percent per annum as compared with bank deposits growth of around 13 percent (*Majumdar, 2002*). Among the certificates, Kisan Vikas patras were most popular accounting for the 50 percent to 73 percent of total receipts and may be assessed from the fact that around 25 percent of savings under this scheme have been mobilised from marginal farmers, economically the poorest among the farming community (*EPW, 2004a*). A profile of various schemes in operation is given in Table 2.9.

Table-2.9: Small Savings Schemes in force

Schemes	Year of Introduction	Interest Rate since March 1, 2003	Amount outstanding as at end march 2006 (Rs. Crore)
Post office Savings bank accounts	1896	3.5 %	16,476
Public Provident Fund	1979	8 %	16,376
Post office time deposit account	1970	6.25 % to 7.50 %	36,861
Post office recurring deposit account	1970	7.5 %	49,957
Post Office Monthly Income Scheme	1987	8 %	1,82,540
NSC VIII issue	1989	8 %	58,507
Kisan Vikas Patra	1988	8.41 %	1,46,348
Senior citizens saving scheme	2004	9 %	14,974

Note: Data on Public Provident Fund up to 1992-93 relate to State Bank of India transactions only and from 1993-94, they relate to post office transactions only

Data Source: RBI Handbook of Statistics in Indian Economy 2006

One important feature is that, it is still an administered form of saving organisation where the rate of return has not been deregulated. There has been a rationalisation of interest rate of different instruments under the small savings schemes in the post-liberalisation phase. It is thought that the popularity of these schemes is because of the element of tax exemption attached with their savings that is available as deduction under section 88 of Income Tax Act. But in contrast most of these schemes do not have such benefit. For instance, Kissan Vikas Patra does not have any tax deduction benefit attached to it, but still it is the most famous instrument of savings.

2.5. d. Financial Market Development

The main components of Indian financial market are capital market (equity and debt), money market, G-sec market, derivatives market, and foreign exchange market. Since the beginning of reforms, the financial market has begun to respond in a favourable way. As part of the overall reform process, the agenda has included structural transformation of the capital market to bring it at par with their developed counterparts (*Mohan, 2004b*). Some of the important steps taken for this purpose include market pricing of public issues, introduction of proportional allotment of shares, guidelines for corporate governance, revival of accounting standards at par with international norms, opening market for FIIs etc. There has also been an increase in the share of retail investors from 25 percent to 35 percent in the allotment process through book building. In this process, various intermediary institutions have emerged and are in association with both the segments of capital market.

Table: 2.10 - Financial Instruments introduced

Instrument	Feature
Non-voting Shares	Absence of voting rights
Detachable Equity warrants	Issuable with other debt or equity instruments
Participating Preference Shares	Quasi equity instrument; pay-outs linked to equity dividend and also eligible for bonus
Participating Debentures	Unsecured corporate debt participating in profit of companies
Convertible Debentures with options	A derivative of CD with an embedded option, providing flexibility to exit from terms of issue
Third party convertible debentures	Warrant allowing investors to subscribe to the equity of third firm
Mortgage backed securities/ Security backed asset	A synthetic asset for securitisation of asset
Convertible Debentures redeemable at premium	Issued at face value with put option entitling investors to sell back to issuers at premium
Debt-equity swaps	An offer from the issuer of debt to swap it for common stock (equity)
Zero-coupon convertible note	Converts into common stock at investors option to forgo all accrued and unpaid interest

The passing of Depositories Act in 1996 followed by the establishment of Central Depository Services Limited (CDSL) and National Securities Depository Limited (NSDL) as depositories marked the beginning for trading of dematerialised securities. This resulted in improved settlement with speed, accuracy and security. Another important feature is the shortening of the settlement period with the introduction of rolling settlement system. The settlement system that was started at

T+5 basis since July 2001 was brought down to T+3 system on April 2002 and to T+2 since April 2003. Establishment of Clearing Houses and Trade and Settlement Guarantee Funds, along with mechanism for on-line margins and positions monitoring and implementation of risk management system, have improved the quality of trading in terms of safety, transparency and efficiency.

Table: 2.11 - Transactions in Equity Market (Rs. Crore)

Year	Primary Market				Secondary Market	
	Equities		CCPS	Others	Market Capitalisation	Turnover
	At Par	At Premium				
2000-01	818	2,408	142	36	7,68,863	28,80,990
2001-02	151	1,121	0	670	7,49,248	8,95,818
2002-03	143	1,314	0	13	6,31,921	9,68,909
2003-04	360	18,589	0	0	13,18,795	16,20,932
2004-05	420	23,968	0	0	16,98,428	16,66,896
2005-06	372	27,000	0	10	30,22,190	23,90,103

Source: SEBI handbook of Statistics on the Indian Securities Market, 2006 and NSE-ISMR, 2008

India's capital market has made a commendable progress since the inception of SEBI (*Damodaran, 2005*). In response to liberalisation measures, the secondary market too has witnessed a period of continuous boom during 1991-92. The establishment of National Stock Exchange of India (NSE) marked the beginning of on-line screen based trading followed by other exchanges. Another important happening was the demutualisation of Bombay Stock Exchange (BSE) and its conversion into a limited company. Although, at present, there are 22 stock exchanges in India, the NSE and BSE together accounts for around 99 percent of the total market turnover.

Corporate bond market, on the other hand, is a minuscule source of financing in India (and in most other less developed economies) (*Anshuman, 2004*). Though its existence can be traced since independence, but the real development started in the decade of eighties. The market is still lagging behind and is smaller in comparison to the government securities market. Many new and innovative instruments have been issued over a period time like partly convertible debentures, fully convertible debentures, deep discount bonds, zero coupon bonds, bonds with warrants, floating rate bonds and secured premium notes, with maturity period varying between one

to ten years and coupon rates depending upon tenure and credit rating. However, corporate prefer private placement more than the public issue. This may be verified from the fact that there has been a continuous rise in percent of amount raised which for the past five years have increased by more than 300 percent in comparison to the growth rate in the public issue of only about 80 percent (Raju, Bhutáni & Sahay, 2004). This is on account of ease of operation and lower cost of raising funds.

Table: 2.12 - Overview of Indian Bond Market (Rs. Crore)

Year	Debt Issued by Corporate sector		Bonds issued by PSUs	
	Public Issues	Private Placements	Tax-Free Bonds	Taxable Bonds
2000-01	2,740	67,836	662	15,969
2001-02	6,271	64,876	274	14,162
2002-03	2,613	66,948	286	7,243
2003-04	4,324	63,901	-	10,169
2004-05	3,867	83,405	-	18,671
2005-06	0	96,368	-	27,636

Source: SEBI handbook of Statistics on the Indian Securities Market, 2006

Secondary market trading in India for corporate debt instruments takes place mostly in Wholesale Debt Market (WDM) segment of National Stock Exchange popularly known as NEAT (National Exchange for Automated Trading). NEAT is a fully automated screen based order driven trading system, and provides two sub-types market viz:-

- a) Continuous Automated Market- Buyers and sellers without direct contact put their best buy and sell orders; and order matching results into trade.
- b) Negotiated Market- Buyers and sellers through direct contact negotiate outside and report the exchange through broker on completion of trade.

Commencement of this segment by NSE has brought about transparency and efficiency to the debt market, along with effective monitoring and surveillance to the market (Raju, Bhutáni & Sahay, 2004). Table 2.12 above gives an overview of the development of debt segment in capital market during post-liberalisation phase. However, an important reason for non-development of corporate debt market is the lack of large and diverse institutional investors as well as lack of understanding among investors about the principle of risk-return in capital market.

Another development was the introduction of derivatives that took place in 1995 when Securities Contract Regulation Act was amended to withdraw the prohibition on option trading. Subsequently, a committee was set up by SEBI under the chairmanship of L. C Gupta to suggest appropriate regulatory guidelines for introduction of derivatives. The committee suggested for introduction of exchange traded derivatives to be declared as securities so that framework for securities trading could also be made applicable for derivative trading purpose. This followed the setting up of sub-committee under J. R Verma in 1998, who suggested for risk containing measures in derivative trading. It was only after the report submitted by these two committees that SEBI allowed BSE and NSE to start with trading of index futures. BSE commenced trading on Index Futures from June 9, 2000 followed by NSE on June 12, 2000. Now, there are a number of derivatives that are traded in the form of futures and options which are both index based as well as stock specific (Table 2.13). Trading for these derivatives also takes place in ICSE along with that in BSE and NSE. And for this purpose overall guidelines have been provided by SEBI. These guidelines have enabled the exchanges to do overall supervision and guidance while SEBI has acted as the regulator of last resort for the trading in derivatives market (*SEBI, 2006*).

Trading mechanism of derivatives has been kept separate from that of cash segment with a clear mechanism for clearing and settlement. A broker of cash segment cannot become a member of derivatives by automatic means.

Table – 2.13: Financial Derivatives in India

Year	Derivatives introduced
2000	Index Futures based on Sensex of BSE
	Index Futures based on Nifty of NSE
2001	Cash settled European Style Index Options
	Cash settled American Style Stock Options
	Stock Futures
	Interest rate derivatives
2003	Futures on long bond (10 year notional G Secs) and TBs (92 days notional)

Table: 2.14-Turnover in derivative market (Rs. Crore)

Trading exchange	Derivative	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
BSE	Index futures	1,672.62	1,276.3	1,810.99	6,571.52	13,599.66	5
	Index options	0	78.3	1.98	0.03	2,297.23	3.2
	Stock futures	0	451.6	644.3	5,171.05	212.85	0.49
	Stock options	0	115.51	21.17	331.61	2.58	0.09
	Total	1,672.62	1,921.71	2,478.44	12,074.21	16,112.32	8.78
NSE	Index futures	2,365	21,482	43,952	5,54,446	7,72,147	15,13,755
	Index options	0	3,766	9,247	52,816	1,21,943	3,38,469
	Stock futures	0	51,516	2,86,532	13,05,939	14,84,056	27,91,697
	Stock options	0	25,163	1,00,133	2,17,207	1,68,836	1,80,253
	Interest rate futures	0	0	0	202	0	0
	Total	2,365	1,01,927	4,39,864	21,30,610	25,46,982	48,24,174

Source: RBI Handbook of Statistics in Indian Economy, 2007

Money market is a composition of various sub-markets, such as, call/notice market, Treasury Bills market, repo market, Certificates of Deposit (CDs) and Commercial Paper (CPs) market and commercial bill market. Since the initiation of reforms, there has been a concerted effort by RBI towards development of a money market with efficiency, liquidity and stability as a distinctive character. In order to widen and deepen the money market RBI has taken several steps to create a favourable policy environment by way of appropriate institutional and instrumental development, technological enhancement and also promote better market practices. Some of the important developments are stated as follows:

- The traditional refinance support on fixed terms has been replaced by a full-fledged Liquidity Adjustment Facility (LAF) which was introduced in 2000.
- Development of the payment system infrastructure was strengthened with the formation of the Clearing Corporation of India Ltd. (CCIL) in 2001, introduction of the Negotiated Dealing System (NDS) in February 2002, and the implementation of Real Time Gross Settlement (RTGS) system in March 2004.

- In order to ensure efficiency and transparency in money market operations measures have been taken to make various other money market instruments such as CDs, CPs, etc., freely accessible to non-bank participants.
- A major initiative pertains to Collateralised Borrowing and Lending Obligation (CBLO), which was operationalised as a money market instrument through CCIL on January 20, 2003.

Table: 2.15- Money Market transactions (Rs. crore)

Year	Average Daily Turnover					Outstanding amount	
	Call money market	Market REPO (outside the LAF)	CBLO	Term money market	Total	CPs	CDs
2000-01	32,157	10,500	—	—	42,657	6,751	1,199
2001-02	35,144	30,161	—	195	65,500	7,927	949
2002-03	29,421	46,960	30	341	76,752	8,268	1,224
2003-04	17,191	10,435	515	519	28,660	7,835	3,212
2004-05	14,170	17,135	6,697	526	38,528	11,723	6,052
2005-06	17,979	21,183	20,039	833	60,034	17,285	27,298

Source: Mohan, 2007

Table: 2.16 - Money market development during post-liberalisation

Segment	Year	Development
Call Money Market	1991	RBI allowed entities with bulk resources to operate as lenders through DFHI with prior permission
	1996	RBI allowed primary dealers to participate both as borrowers and lenders
	2002	Prudential limit stipulated on the exposure of scheduled commercial banks (SCBs) in call money market in two stages: In the first stage, SCBs daily lending in the call/notice money market, on a fortnightly average basis, not to exceed 50 percent of their owned funds as at the end of March of the previous financial year; In the second stage, SCBs fortnightly average lending in the call/ notice money market not to exceed 25 percent of their owned funds;
	2005	The process of converting call money market into a pure inter-bank market was completed
	2005	All non-bank entities except for primary dealers were completely phased out
Commercial Bills Market	1990	New types of institutions were permitted to participate in bills rediscounting scheme

	2003	Banks were given freedom to decide their own guidelines for assessing/sanctioning working capital limits of borrowers while purchasing/ discounting/ negotiating/ rediscounting genuine commercial/trade bills.
Treasury Bills Market	1992	364-day Treasury Bills introduced
	1992	182-day Treasury Bills discontinued
	1993	Fixed rate discount system on 91-days TBs replaced by flexible rate system
	1997	91-day tap Treasury Bills discontinued
	1997	14-day treasury bills issued in two types (first version called Intermediate treasury Bill replaced the 91-day treasury bill)
	1999	182-day Treasury Bills were reintroduced
	1999	State governments were allowed to put bids on non-competitive basis in the auctions for 182 days and 364 days TBs
	2001	14-day and 182-day Treasury Bills discontinued with effect from 14 th May
Commercial Papers (CP)	1990	CPs came to existence through RBI issuance guidelines
	1998	The CPs would be issued for maturities between 15 days and more, but less than one year
	1998	Every issue of CP including renewals will be treated as a fresh issue
	2000	CP allowed to be issued as 'stand alone' product
	2001	CP to be issued only in dematerialised form.
Certificate of Deposits (CDs)	1998	The minimum lock-in period for CDs reduced from 30 days to 15 days.
	2000	The minimum maturity of CDs was reduced from 3 months to 15 days
	2002	Issue of certificate of deposits (CDs) by banks and FIs only in the dematerialised form effective June 30, 2002.
	2005	The minimum maturity period of certificates of deposit (CDs) reduced from 15 days to 7 days with immediate effect.
MMMFs	1992	RBI allowed banks and FIs to start MMMFs
	1993	Private sector MMMFs were allowed to be set up
	1999	MMMFs were permitted to offer cheque writing facility
	1999	MMMFs were allowed to be set up as a separate entity in the form of a trust only
	2000	MMMFs were brought within the purview of SEBI regulations.
	2006	Gold Exchange Traded Fund schemes permitted
REPO	1992	Repo auctions were conducted for varied periods ranging between 1 to 14 days
	1995	The auctions were discontinued due to lack of demand
	1997	Auctions were re-introduced on a 3 to 4 day cycle

	2000	The repo market was expanded to cover non-bank entities holding current and SGL accounts with banks
	2003	Guidelines were issued for uniform accounting of repo transactions.
	2004	RBI reintroduced overnight fixed rate reverse repo auctions under the LAF, discontinuing 7 days and 14 days reverse repos
	2004	The nomenclature of repo and reverse repo has been interchanged as per international usage.

With the increased market orientation of monetary policy along with greater global integration of domestic markets, the Reserve Bank's emphasis has been on setting prudential limits on borrowing and lending in the call money market, encouraging migration towards the collateralised segments and developing derivative instruments for hedging market risks (*Mohan, 2007*). In this connection steps have been taken over the period of time for development of each of the sub-sectors also (Table 2.15) that could ultimately result in modification of existing instruments, introduction of new instruments as well as new measures that could add to depth and liquidity in market. New instruments such as repo and CBLO (collateralised borrowing and lending obligations) have increased their share in the annual average market turnover in comparison to the earlier existing instruments such as call money market whose share has rather declined (Table 2.16). Guidelines for issue of many instruments such as commercial paper (CP) and certificates of deposit (CDs) as well as their maturity profiles have also been modified over time to widen the participation base.

Till the middle of 1991-92, the government securities market remained almost dormant and was characterised by a passive internal debt management policy with borrowing at pre-announced interest rates, targeting a captive group of investors (*Rangarajan, 1997*). Hence, the reform was initiated with a primary objective to move from an administered system to market determined rate of interest. Some of the important developments included change in policy making for better regulatory system, expansion of trading, diversification of instruments and participants, and introduction of new technology.

Table: 2.17- Reforms in Government securities Market

Year	Measures Initiated
1992	Commencement of auction for Central Government Securities at market determined rates.
1993	91 day Treasury Bills offered through auctions at market determined rates
1994	Issued Zero coupon Bonds for the first time.
	Securities Trading Corporation of India (STCI) commenced operations
1995	Guidelines and procedures for enlistment of Primary Dealers were issued
	Delivery-versus-Payment (DVP) in G-secs was introduced
	Floating Rate Bonds (FRBs) was introduced
1997	Historical agreement between Government and RBI to, inter-alia, discontinue ad-hoc T-Bills
	FIMMDA was established; Repo was permitted in all G-secs to SGL a/c holders
	FII's were permitted to invest in G-secs
	Capital Indexed Bonds were issued; PDAI was formed
2000	Introduction of Liquidity Adjustment Facility (LAF)
2002	Negotiated Dealing System (NDS) (Phase I) and Clearing Corporation of India Ltd. (CCIL) were operationalised
	Compulsory holding of G-secs in demat form by RBI regulated entities
	G-secs with call and put option was introduced
2003	Trading of G-secs on stock exchanges
	Eligibility to participate in the repo market was extended to non-banks
	Interest Rate Derivatives (IRD) have been introduced
	Government Debt Buy-Back scheme was successfully implemented

Source: Mohan 2004(c)

Instruments introduced during this phase include Zero Coupon Bonds, Tap Stocks, partly paid stocks, REPO (Repurchase Agreement), STRIPS (Separate Trading for Registered Interest and Principal of Securities) and conversion of auction Treasury Bills into term security. But Plain Vanilla Bonds still remain the most preferred constituting 97 percent of the total outstanding bonds as on February 2004 (*Mohan, 2004c*). All these have resulted in transformation of the Indian G-Sec market into a broad based and well diversified one. Now the list of participants also include primary dealers, 100 percent gilt mutual funds, corporate bodies, provident funds, trusts, individuals, foreign institutional investors (FIIs) and non-resident Indians (NRIs) in addition to the existing ones mentioned above. Some of the important developments are given in Table 2.17.

For foreign exchange transactions, the exclusive authority to deal is vested with RBI. It deals both in its own account as well as on behalf of the government, which it does through Authorised Dealers comprising of banks. During the period 1975-1992, the exchange rate of rupee was officially determined by the RBI in terms of a “weighted basket of currencies” of India’s major trading partners and there were significant restrictions on the current account transactions (*Udeshi, 2004*).

However, with the introduction of economic reforms in 1991 and in order to sustain competitiveness of exports, an alteration was made in the exchange rate of rupee through downward adjustment to place it at appropriate level in line with inflation differential. Consequently, following the recommendation of the High Level Committee on Balance of Payments, a dual exchange rate mechanism called the Liberalised Exchange Rate Management System (LERMS) was introduced in March, 1992 that was made effective in March, 1993 with ultimate unification of the dual rates (known as modified LERMS), that marked the beginning of a new era of market determined exchange rate regime. Recommendations of Expert Group on Foreign Exchange (Sodhani Committee, 1995) to develop, deepen and widen forex market acted as a pointer for development of Indian Forex Market. With the transition to a market-determined exchange rate system in March, 1993 and the subsequent gradual liberalisation of restrictions on various external transactions, ensuring orderly conditions in the forex market in India has become one of the key objectives (*Gopinath, 2005*). It is also an important step in the progress towards current account convertibility, which was finally achieved in August 1994 by accepting Article VIII of the Articles of Agreement of the International Monetary Fund (*Udeshi, 2004*). The post-liberalisation era has witnessed several significant changes in the external policy of RBI towards macro management with greater emphasis on transparency, data monitoring and information dissemination. Keeping in view the robustness of this sector, far reaching changes have been incorporated in phased manner from current account convertibility to capital account liberalisation. Other steps include allowing corporates to borrow under automatic route up to US\$ 500 million per year that is subject to certain stipulations. Banks were also allowed to fix their trading limits, borrow and invest funds in the overseas markets up to specified limits, determine interest rates on FCNR deposits within ceilings and use derivative products for asset-liability management purposes.

So to conclude here, it may be said that as a part of the overall New Economic Policy the financial system also received special attention in 1991. The recommendation of Narasimham Committee-I provided the guideline for the first phase of reforms. Focus during this phase has been on deregulation of the banking industry, strengthening of the institutional framework, improvements in payments

and settlement systems, and strengthening the supervisory framework. Further, keeping in view of the international changes, the second Narashimham Committee on banking sector, SH Khan Committee on universal banking, Birla Committee on corporate governance-where all gave their reports in 1998, R.H Patil working group in 2001 and Naresh Chandra Committee on corporate governance in 2002 etc. have made an array of recommendations for best practices. Development Financial Institutions have been the major institutional support for investment in the private sector.

The last decade has also witnessed considerable diversification of the money and capital markets. New financial services and instruments have appeared on the scene. Financial deregulation, freeing of interest rates on debentures, bank lending rates and their practices etc. - all these have helped the growth of financial sector. Some other measures were also initiated in capital market as a part of overall financial sector reform. A few to mention are market pricing of public issues, introduction of proportional allotment of shares, guidelines for corporate governance, revival of accounting standards at par with international norms, opening market for FIIs etc. In 1992, SEBI was made a status of statutory organisation for regulating the functioning of capital market. In addition, the secondary market also witnessed a period of continuous boom during 1991-92, in response to the liberalisation measures announced by the government. The policy of RBI is now focused mainly on dismantling control to enable liberalised environment whereupon procedural formalities are minimised. Its role is being characterised by a shift towards macro management with greater emphasis on transparency, data monitoring and information dissemination.

Graph - 2.1 - Structure of Indian Financial System

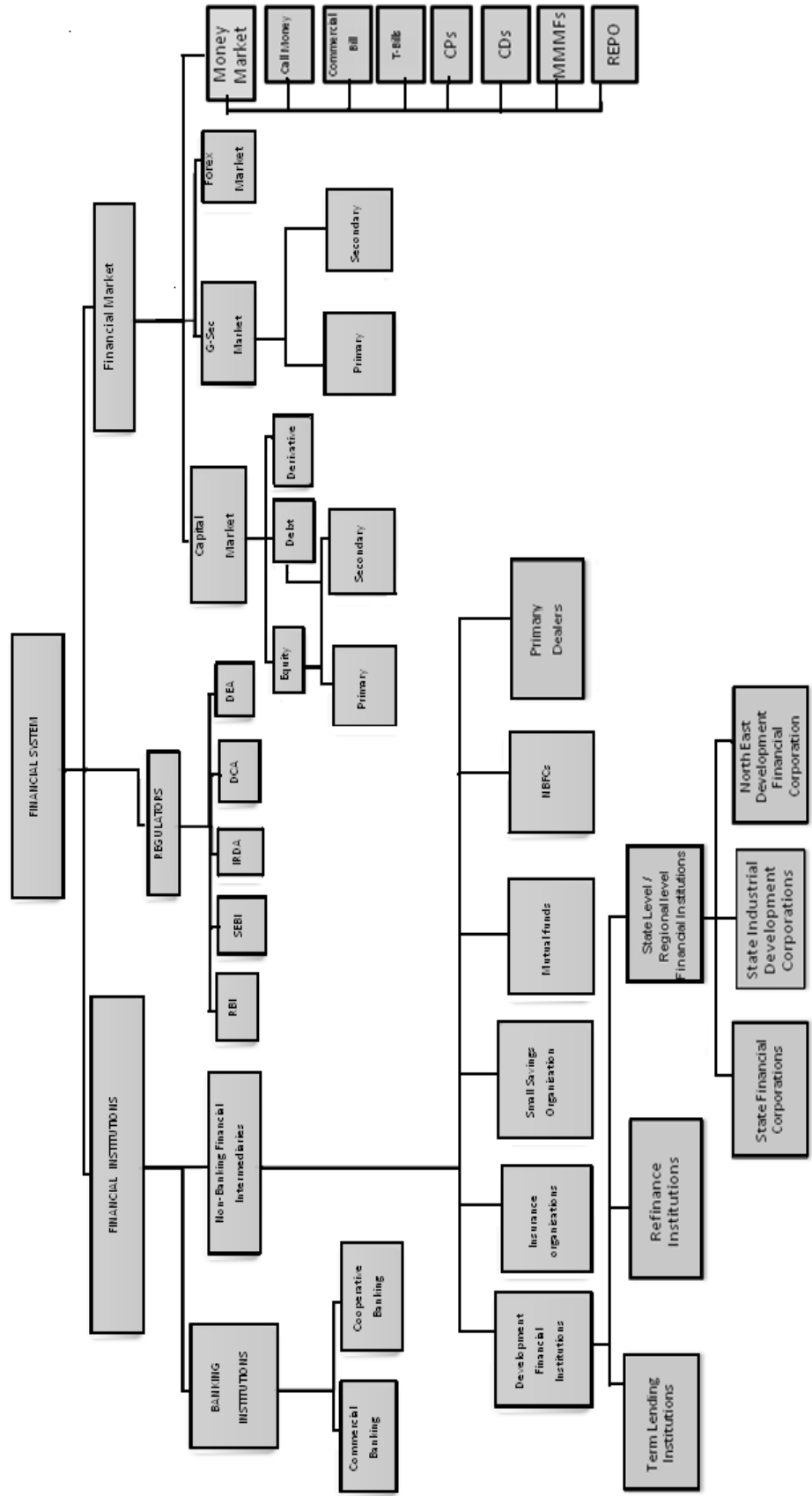
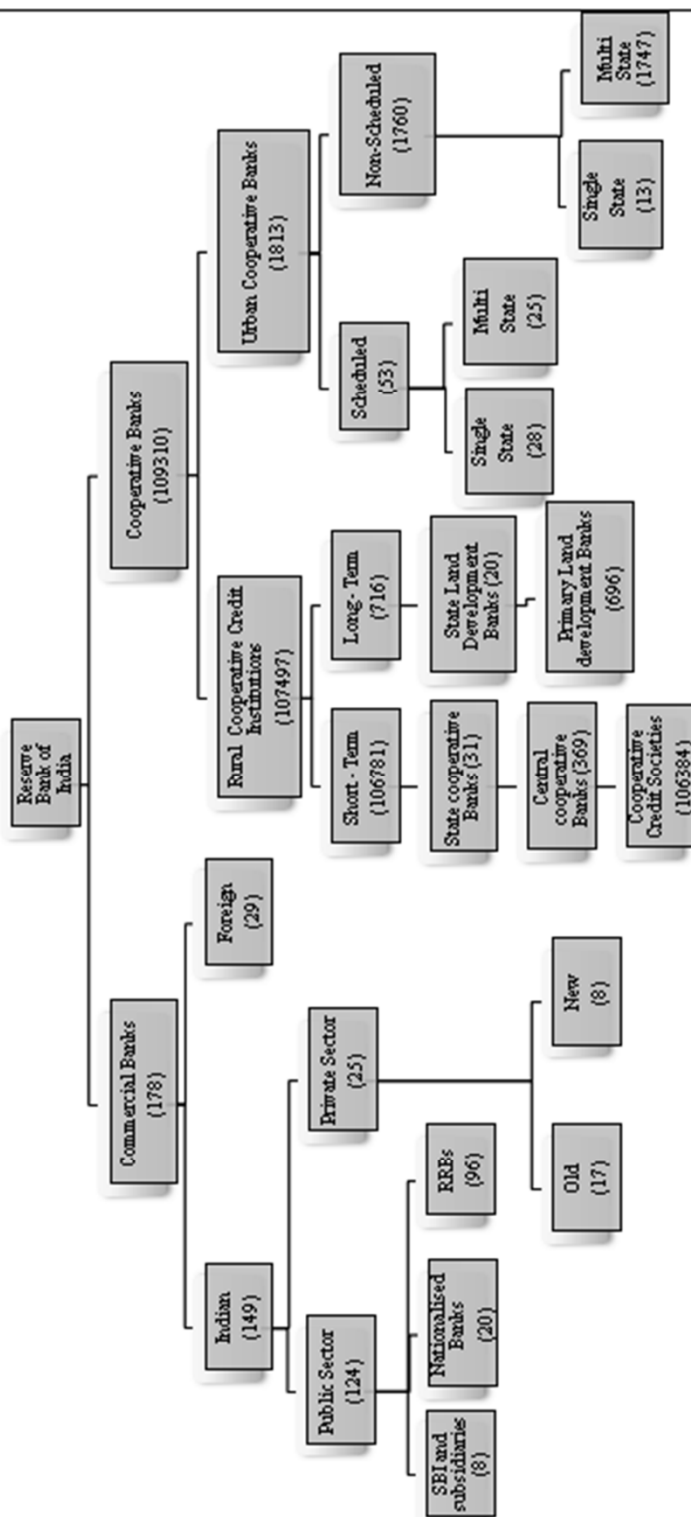


Chart 2.2- Structure of Indian Banking System



Note: figures in bracket represent numbers as at 2007
 Data source: RBI report on trend and progress of banking in India, 2007

Appendix table-2.1: Progress of Commercial Banking in India at a glance

	Year						Linear growth rate		
	1980-81	1985-86	1990-91	1995-96	2000-01	2005-06	1981-2006	1981-1994	1994 - 2006
SCBs									
Deposit (Rs. Cr)	37,988	85,404	1,92,541	4,33,819	9,62,618	21,09,049	16.05	16.46	15.34
Investment (Rs. Cr)	13,186	30,553	75,065	1,64,782	3,70,159	7,17,454	16.49	17.72	16.10
Credit (Rs. Cr)	29,682	56,067	1,25,592	2,54,015	5,11,434	15,07,077	15.37	14.48	16.84
Total Offices	32,419	51,385	59,752	62,367	65,412	68,355	2.05	4.03	0.87
Rural	15,105	30,185	34,791	33,004	32,734	32,082	1.35	4.92	-0.47
Semi-Urban	8,122	9,816	11,324	13,341	14,407	15,403	2.40	2.55	1.30
Urban	5,178	6,578	8,042	8,868	10,052	11,500	2.88	3.67	2.53
Metropolitan	4,014	4,806	5,595	7,154	8,219	9,370	3.43	2.74	3.17
RRBs									
Deposit (Rs. Cr)	232	1,314	4,560	13,370	35,995	64,195	22.23	26.81	16.31
Investment (Rs. Cr)	0	1	16	1,826	7,489	19,050	53.56	50.09	26.93
Credit (Rs. Cr)	285	1,465	3,497	7,289	15,211	36,050	17.31	21.45	15.99

Source: RBI Handbook of Statistics in Indian Economy 2006

Appendix table-2.2: Deposits and Advances by Cooperatives (Rs. Crore)

year	SCBs (maintaining accounts with RBI)		
	Deposit	Investment	Credit
1980-81	623	244	757
1985-86	1029	504	1539
1990-91	2153	1058	2553
1995-96	4286	2408	6318
2000-01	9682	7537	12822
2005-06	15665	16472	15589
Linear Growth Rate			
1981-2006	14.00	17.79	13.21
1981-1994	13.43	15.02	13.06
1994-2006	14.58	18.08	11.26

Data Source: RBI; Handbook of Statistics on the Indian Economy 2006

Appendix table-2.3: Financial assistance sanctioned and disbursed by selected DFIs

DFIs		YEAR (Figures in Rs. Crore)					Linear Growth Rate			
		1980-81	1985-86	1990-91	1995-96	2000-01	2005-06	1981-2004	1981-1994	1994-2006
IDBI	S	1,691.3	3,655.6	6,278.3	16,476.4	26,832.6	-	9.01	14.45	-10.88
	D	1,258.6	2,798.0	4,501.1	10,695.2	17,476.9	-	8.92	13.84	-7.17
IFCI	S	206.6	499.2	2,429.8	10,300.3	1,766.5	-	11.21	24.22	-24.63
	D	108.9	403.9	1,574.3	4,563.3	2,156.8	187.0	6.00	23.55	-33.66
ICICI	S	314.1	708.2	3,744.0	14,594.9	55,815.2	-	26.65	26.64	19.95
	D	185.3	482.2	1,967.5	7,120.4	31,664.6	-	26.02	24.01	23.13
SIDBI	S	-	-	2,408.7	6,065.6	10,820.6	11,942.4	10.32	10.17	6.14
	D	-	-	1,838.5	4,800.8	6,441.4	9,049.6	9.05	11.79	4.85
IIBI	S	19.4	75.2	234.7	897.3	2,102.3	-	19.38	18.95	8.97
	D	16.9	67.8	153.9	528.6	1,709.8	-	20.25	17.98	15.17
SFCs	S	370.5	1,009.1	1,863.9	4,188.5	2,911.4	-	6.81	13.17	-9.28
	D	248.0	608.5	1,270.8	2,961.1	1,979.0	-	7.71	14.72	-8.75
SIDCs	S	216.4	527.0	823.7	1,951.2	2,080.1	-	11.19	11.29	2.51
	D	124.6	364.0	598.3	1,188.7	1,664.4	-	12.81	12.67	8.98
Total	S	2,926.9	6,532.6	19,202.4	64,162.7	120,548.1	27,239.2	12.85	20.64	-7.86
	D	1,847.9	4,940.0	12,810.1	38,649.5	75,363.6	20,521.8	13.12	20.46	-5.76

Source: RBI Handbook of Statistics on Indian Economy 2006

Note: 1. S – sanction; D – Disbursement

2. Total represents total of all DFIs, hence does not match with total of rows

Appendix table-2.4: Aggregate Deposits of Non-Banking Companies (Rs. Crore)

Year	NBFCs	NBNFCs/ RNBCs	Total
1980-81	1,476	2,712	4,188
1985-86	4,960	13,113	18,072
1990-91	17,236	26,837	44,074
1995-96	1,01,672	1,86,909	2,88,582
2000-01*	6,459	11,625	18,085
2005-06	2,667	20,175	22,842
Linear Growth Rate			
1981-06	3.47	4.45	4.37
1981-97	28.45	26.53	27.14
1998-06	-18.02	8.27	-0.03

Data Source: RBI Handbook of Statistics in Indian Economy 2006 and 2007

Note: 1) Data format has changed after 1996-97 due to new reporting format following changes in the regulatory framework in 1998

2) NBFCs – Non banking Financial Companies, NBNFCs – Non Banking Non Financial Companies, RNBCs- Residuary non-banking Companies

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End Note:

Data Source

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 - a) 1980-81 till 1989-90--- SEBI Handbook of statistics on the Indian Securities Market, 2006
 - b) 1990-91 --- RBI annual report
2. Debt market mobilisation-
 - a) 1980-81 till 1989-90--- SEBI Handbook of statistics on the Indian Securities Market 2006
 - b) 1990-91 till 1992-93--- RBI annual report

Chapter: 3

Analysis of Household Investment Pattern

3.1. Introduction

Aggregate savings for any economy is the sum total of savings arising from various sectors. The three sectors into which an economy is divided and from which savings contribution flows are; the household sector, the public sector and the private corporate sector. The sum total of savings out of these three sectors forms the gross domestic savings (GDS). Again, gross domestic savings include consumption of fixed capital by these three sectors which when deducted from the same gives net domestic savings (NDS).

Among all the above-mentioned sectors, household is the most prominent one contributing maximum towards domestic savings. It is a residuary sector consisting of individuals, non-profit organisations and the unorganised sector including agriculture, small industry and all types of unincorporated business. The surplus of this sector is available to finance other deficit sectors of economy comprising of government and corporate, who invest more than they save. Household sector savings (HHS) is in the form of both physical and financial assets. Savings in Physical assets comprise of investments in construction, machinery and equipments and changes in stock, whereas financial saving is a diversified one that include bank deposits, savings in post office deposit schemes, investment in insurance and provident fund in one hand (a connotation towards risk aversion) and investment in units of mutual funds, purchase of bonds and shares of companies, and trading in stock exchange on the other (a connotation towards risk taking).

Every household tries to maintain a portion of savings in the form of liquid assets which can be used for immediate transactions. At the same time, it also has a desire to maintain saving in the form of investment in financial instruments where some amount of risk taken is compensated with equal rate of return. Each of these financial instruments has also got some built-in benefits within them. For instance, life insurance is a financial cover in the event of death; provident funds provide financial security upon retirement; and shares and securities offer opportunities for

capital gains. So, savings by household in an asset is not merely guided by the rate of return attached to it but also by other built-in advantages.

But among the different intermediaries operational in financial system, banks have been placed as one of the important mechanisms for mobilisation of savings in financial system. They have the ability to mobilise resources and invest them in efficient manner within the different segments of economy. But the most important role played by them is towards capital formation by way of accepting deposits in varied form. This encourages the habit of savings in economy especially for the household sector which is a surplus one. On the other side, they have restrictions in the number of withdrawals that indirectly encourage less spending, thereby inducing the habit to save more. Again, the characteristic of liquidity is also provided by the banking system that provides withdrawal facility to customers in addition to some rate of return. In the words of Parameswaran & Natarajan (2001), 'banks can be compared with rivers as they collect the small surplus and scattered savings of the people and make them available for productive purposes in large sums of finance'.

In India, the process of financial sector reforms undertaken since the beginning of nineties have led to the deregulation of financial system with a more of private sector participation in economy. At the same time, there has also been a gradual reduction in the interest rate all over the financial market. This includes decrease in the rate of banks' term deposits, and also a cut in the interest rate of government administered small saving schemes. On the other hand, the financial institutions have also been given freedom for managing their assets and liabilities, to determine quantum of resources and also fix rates of interest.

Household saving is a two-stage decision that relates to the amount of savings and the form in which these savings is to be held, i.e. financial and physical. Once this is determined, the next step is to distribute the financial savings among alternative assets. A number of factors influencing household savings have been identified by Reddy (1997). They are:

- growth in income,
- distribution of income,
- macro-economic stability and inflation rate in particular,
- efficiency of financial intermediation,

- rapid improvement in government savings,
- higher proportion of working population to total population,
- strong social influences, such as, the role of extended family and societal values in terms of inter-generational obligations,
- availability of insurance and tax benefits, and
- contractual saving, mainly provident fund and other contributions.

Further, as has been observed by *Reddy (1997)* that amongst the above-mentioned factors, a rapid improvement in government savings and an increase in the rate of inflation beyond a certain point does have a negative impact on household savings.

A household will, in general, invest some of their funds out of savings that will involve certain risk but can be compensated by an equal rate of return. At the same time, it will also desire to have some proportion of its savings in a very highly liquid form that can be used for immediate transactions. These two factors determine the amount of long-term and short-term savings of a household jointly with the degree of reliability on financial intermediaries. The voluminous literature on the determinants of savings identifies a broad range of factors, grouped around the conceptual pillars of consumption smoothing, and precautionary savings in the face of credit market imperfections impeding smoothing of adverse shocks (*Denizer, Wolf & Ying, 2000*). As instances in history have shown, a loss of confidence in country's financial intermediaries can induce households to re-deploy their savings, possibly converting to cash and/or hard goods- with all the attendant implications of destabilising runs on banks or indeed, possibly converting those savings to uses outside the country (*Mcdonough, 1997*).

3.1.1. Forms of Savings: Concepts

HHS is measured as a sum of savings in the form of financial and physical (non-financial) assets. While the latter is not classified in any form and has been taken as an aggregate figure, the former is classified into sub-groups comprising currency, bank deposit, non-bank deposit, life insurance fund, pension and provident fund, claims on government, investment in shares and debentures, investment in units of UTI and net trade debt. However, for the purpose of analysis, the above-mentioned sub-groups are classified into six components comprising:

a) *Currency*- It includes notes of different denominations issued by the Reserve Bank of India and one-rupee notes and coins issued by the Government of India in circulation with public as at the end of March each year.

b) *Bank deposits*- Domestic bank deposits are classified as current, saving and fixed deposits; and household share in each category is estimated on the basis of RBI annual survey on ownership of deposits. However, on account of non-availability of the share of household savings under each class, data pertaining to household savings has been considered in an aggregate basis. Apart from deposits with commercial banks, data also include a share of deposits with cooperative non-credit societies.

c) *Non-bank deposits*- Apart from above-mentioned deposits with banks, the household also saves in the form of deposits with non-banking companies (NBCs). The classification of the term NBC prior to 1997-98 included non-banking financial companies and non-banking non-financial companies. However, due to change in classification, this now comprises of non-banking financial companies and residuary non banking companies. Hence, due to changes in coverage, data of 1997-98 onwards are not strictly comparable with those prior to 1997-98.

d) *Contractual financial assets*- Savings in the form of contractual financial assets include savings with pension and provident fund and life insurance funds. Such savings are like commitment on the part of subscribers that is guided not merely by rate of return but also other in-built characteristics of security and precaution attached to them.

e) *Claims on government*- This include household investments in small savings schemes and in other government securities. Investments in small savings are estimated by deducting investment out of provident fund contributions and deposit-linked insurance funds from the receipts; whereas, investment in government securities is made on estimation basis by applying the proportion of securities purchased by household on total sale of securities.

f) *Capital market investments*- Household investment in capital market has been estimated as a sum total of investments in shares and debentures, units of UTI, and net trade debt; whereby net trade debt is the estimated change of trade dues in respect of sundry creditors minus change in loans and advances to sundry debtors.

3.2. Composition of Savings

As already mentioned, savings flows from three sectors, i.e., household, private corporate and public sector, the aggregates of which is measured by GDS and NDS. The analysis of the growth and pattern of savings is important for understanding the behaviour of the savers. Along with the growth over the entire study period the following tables and graphs portray the pre and post-liberalisation phenomenon.

In terms of the composition of savings in economy, the Table 3.1 shows that there has been a constant increase in the figure of GDP (Gross Domestic Product) over the years by 3.09 times with a linear growth of 5.48 percent. But since it is not a proper representative of income (*see Branko, 1999*), NNP (Net National Product) has been considered as an indicator of national income, that has increased by 3.67 times (linear growth of 5.37 percent), thus revealing an increase in the income of nation by the same number of times. Gross domestic savings on the other hand, have grown in aggregate and also as a percent to both GDP and NNP over the years from 1980-81 till 2005-06, revealing that there has been an increase in the savings of economy.

Table: 3.1 – Composition of savings in economy

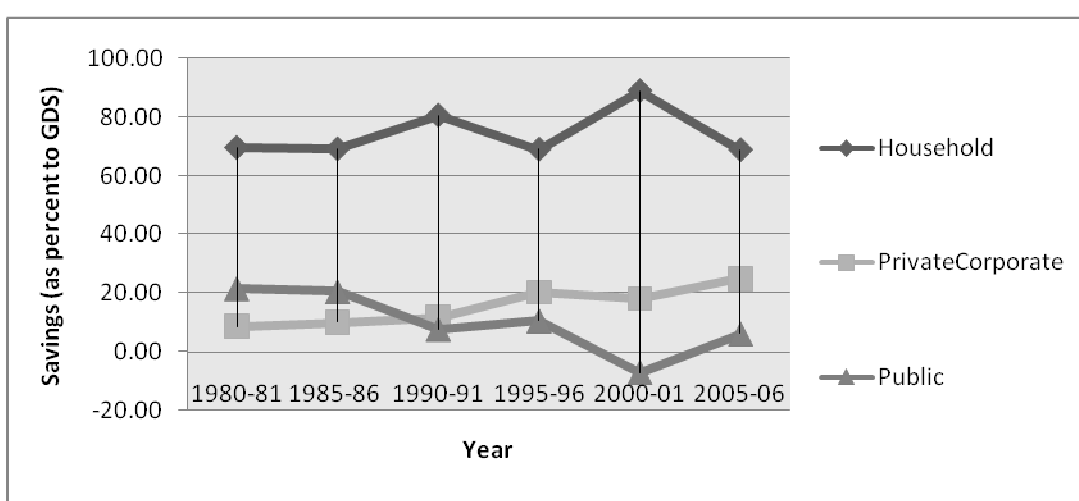
Year	GDP (Rs. billion)	NNP (Rs. billion)	GDS			Sectoral savings (as % to GDS)		
			(Rs. billion)	(% to GDP)	(% to NNP)	Household	Private corporate	Public sector
1980-81	6,954	6,367	269	3.87	4.22	69.66	8.70	21.64
1985-86	8,940	8,115	534	5.97	6.58	69.19	10.16	20.64
1990-91	11,937	10,737	1,300	10.89	12.11	80.60	11.66	7.74
1995-96	15,295	13,720	2,910	19.03	21.21	69.08	20.33	10.60
2000-01	20,309	18,101	4,972	24.48	27.47	88.92	18.13	-7.05
2005-06	28,425	25,332	11,568	40.70	45.67	68.91	24.93	6.16
Average	14,685	13,174	3,036	20.68	23.05	77.71	18.22	4.07

Data source: RBI handbook of statistics in Indian Economy, 2007

And among all the three contributing sectors, household is the most important one contributing more than 75 percent. The share of HHS as a percent to overall savings has increased over the years from 69.66 percent in 1980-81 to 80 percent in the 1990-91 and further to 89 percent in 2000-01. It has also remained as the predominant source of the gross domestic savings. But its contribution to total

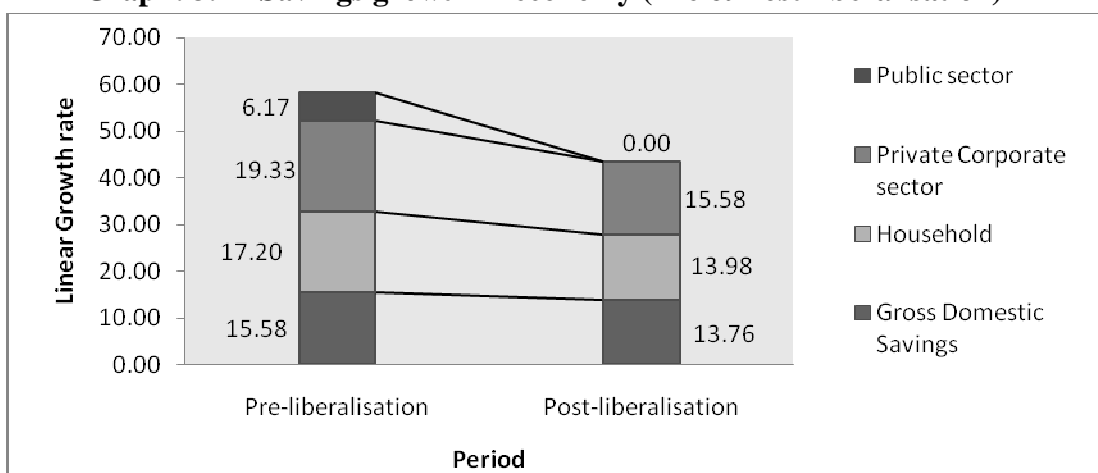
savings after 2000-01 has come down with that of private corporate and public sectors showing improvement in their share (Graph 3.1). If we compare the figure of 1980-81 with 2005-06, the HHS has almost remained flat, rather private corporate sector has been able to triple the share of 1980-81 i.e. 8.7 percent to 25 percent in 2005-06. This simultaneously brought down the public sector savings to almost one third of the 1980-81 figures, i.e., 21.6 percent to 6.2 percent for 2005-06. So the swings in the composition of GDS over the 26 years of the study period remain confined to these two sectors.

Graph: 3.1 –Fluctuations in Composition of Savings



Data source: RBI handbook of statistics in Indian Economy, 2007

Graph: 3.2 - Savings growth in economy (Pre & Post-liberalisation)



Data source: RBI handbook of statistics in Indian Economy, 2007

Table: 3.2 –Means and variances of Savings in economy

Period		Gross Domestic Savings	Sectoral Savings		
			Household	Private Corporate	Public Sector
1980-81 till 1992-93	Mean (Rs. billion)	756.03	564.77	82.80	108.47
	CV	0.60	0.65	0.78	0.29
1993-94 till 2005-06	Mean (Rs. billion)	5,316.23	4,154.11	1,023.81	138.31
	CV	0.55	0.51	0.73	2.67
1980-81 till 2005-06	Mean (Rs. billion)	3,036.13	2,359.44	553.30	123.39
	CV	1.02	0.99	1.28	2.08

Data source: RBI handbook of statistics in Indian Economy, 2007

However, the linear growth rate (Graph 3.2) reveal that the growth of savings in economy has declined over the years from pre to post-liberalisation phase because of the decline in growth rate of savings by all the sectors (including household). There is a fall of 2-3 percent in growth rates across the sectors except public sector which has turned to be zero in the second phase. There is, however, a more consistency in savings in the post-liberalisation phase as compared to pre-liberalisation phase. Among the three sectors, public sector which has shown better consistency in pre-liberalisation phase has turned out to be highly inconsistent in the next phase. For the other two sectors, savings have been smoother in the second phase (Table 3.2) i.e. showing a lesser coefficient of variation.

3.2.1. Composition of household savings

HHS constitutes the major source of savings in an economy. In India almost two-third of the savings comes from this source. Savings of household takes place either in the form of physical assets or financial assets. The movement of the share of these two constituents reveals the shift in preference of the individuals and also their risk and return choices. More savings in bank and post office deposits generally signifies a lesser risk-return appetite on the part of the individuals. On the other hand, more savings in market based instruments like mutual funds, shares and debentures indicate otherwise. The following tables and graphs provide an overview of the changes in composition of household savings since 1980-81.

As observed from the Table 3.3 the HHS as percentage to GDS hovers around 75

percent over the years. HHS expressed as a percent to GDS has increased over the years from 69.66 percent in 1980-81 to 80.60 percent in 1990-91 which again declined to 69 percent in 2005-06. The share of financial savings (FS) in HHS ranges between 43 to 53 percent and for physical savings (PS), it ranges between 47 to 57 percent (Table 3.3). Higher range reveals a slight higher preference towards PS among the households. However, a shift in preference is marked towards financial assets. The share of physical assets in total household savings that was as high as 57 percent in 1980-81 has declined to 48 percent in 2005-06 with a corresponding increase in financial savings from 43 percent to 52 percent during the said years. This structural phenomenon of financial savings superseding the physical one is due to the increasing impact of financial intermediation, widening and deepening of the financial system with a large menu of available financial assets as well as improvement in the relative rates of return for financial assets (RBI, 1999-00).

Table: 3.3 –Change in HHS

Year	HHS/GDS	FS/HHS	PS/HHS
	(In percentage)		
1980-81	69.66	43.34	56.66
1985-86	69.19	46.58	53.42
1990-91	80.60	47.37	52.63
1995-96	69.08	52.59	47.41
2000-01	88.92	48.68	51.32
2005-06	68.91	52.25	47.75
Average	77.71	50.10	49.10

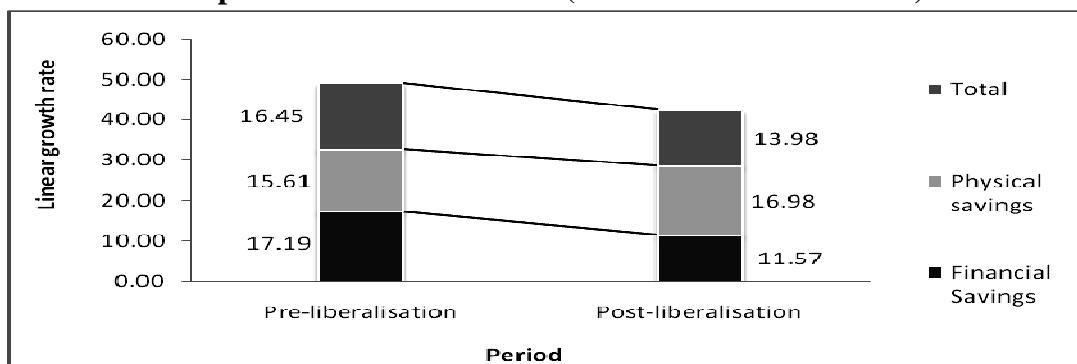
Data source: RBI handbook of statistics in Indian Economy, 2007

Table: 3.4 – Means and variances within HHS

Period	Statistics	Financial Savings	Physical savings	Household Savings
1980-81 till 1992-93	Mean (Rs. billion)	287.01	277.75	564.77
	CV	0.67	0.64	0.65
1993-94 till 2005-06	Mean (Rs. billion)	2,123.88	2,030.23	4,154.11
	CV	0.45	0.58	0.51
1980-81 till 2005-06	Mean (Rs. billion)	1,205.45	1,153.99	2,359.44
	CV	0.96	1.05	1.00

Data Source: RBI handbook of statistics in Indian Economy, 2007

Graph: 3.3 - Growth of HHS (Pre & Post-liberalisation)



Data source: RBI handbook of statistics in Indian Economy, 2007

On an average financial savings as well as physical savings, both have increased almost by seven times during the post-liberalisation phase (Table 3.4). However, in both the phases the average shares of FS in total HHS remains little more than the share of PS. This clearly shows the importance of financial assets in the household portfolio. Again, this increase of financial assets has been more consistent in post-liberalisation phase. The overall growth of HHS has been visibly declined by 3 percent in post-liberalisation phase (Graph 3.3.). This is mainly attributable to the slow rise in financial savings.

3.2.1. a. Household savings in financial assets

It has been already mentioned that each of the financial instruments has some built-in benefits; and savings by household in an asset is not solely guided by the rate of return attached to it but also by other advantages. These instruments are classified into six types, i.e., currency, bank deposits, capital market investment, non-banking deposits, contractual financial assets and claims on government. The shares of each of these components are shown against both GDS as well as Gross Financial Savings (GFS).

Table: 3.5a- Composition of HHS (as % to GDS)

Year	Currency	Bank Deposits	Capital market investment	Non Banking deposits	Contractual financial assets	Claims on Govt
1980-81	6.05	20.65	3.04	1.41	11.30	2.65
1985-86	4.16	19.86	3.63	2.67	11.18	6.39
1990-91	4.81	14.44	6.12	0.99	12.89	6.06
1995-96	5.68	13.73	3.04	4.54	12.45	3.29
2000-01	3.14	19.05	2.09	1.39	16.44	7.85
2005-06	4.49	23.75	2.51	0.53	12.64	7.54
Average	4.72	18.94	2.31	1.76	14.13	7.56

Data source: RBI handbook of statistics in Indian Economy, 2007

Table: 3.5b- Composition of HHS (as % to GFS)

Year	Currency	Bank Deposits	Capital market investment	Non Banking deposits	Contractual financial assets	Claims on Govt
1980-81	13.41	45.80	6.73	3.12	25.06	5.88
1985-86	8.68	41.48	7.57	5.57	23.34	13.35
1990-91	10.61	31.88	13.51	2.18	28.44	13.38
1995-96	13.29	32.12	7.12	10.61	29.14	7.71
2000-01	6.29	38.13	4.19	2.78	32.91	15.70
2005-06	8.73	46.15	4.88	1.03	24.57	14.64
Average	9.54	38.33	4.68	3.56	28.59	15.30

Data source: RBI handbook of statistics in Indian Economy, 2007

Table: 3.6 – Means and variances within household savings in financial assets

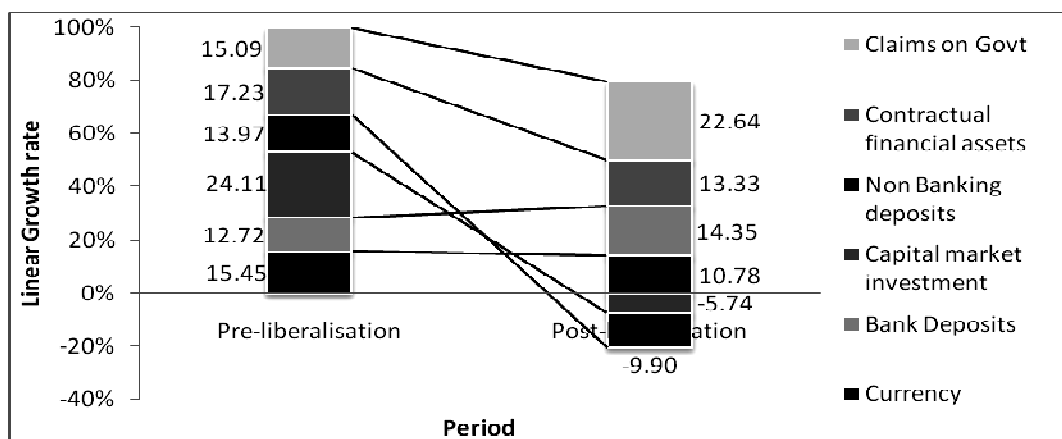
Period		Currency	Bank Deposits	Capital market investment	Non Banking deposits	Contractual financial assets	Claims on Govt
1980-81 till 1992-93	Mean (Rs. billion)	41.03	130.70	42.30	16.41	96.74	36.81
	CV	0.58	0.51	1.12	0.85	0.66	0.57
1993-94 till 2005-06	Mean (Rs. billion)	245.33	1,019.51	98.00	90.42	761.14	422.17
	CV	0.51	0.63	0.80	0.66	0.48	0.79
1980-81 till 2005-06	Mean (Rs. billion)	143.18	575.10	70.15	53.42	428.94	229.49
	CV	0.95	1.11	0.99	1.06	0.99	1.32

Data Source: RBI handbook of statistics in Indian Economy, 2007

Since the nationalisation of major commercial banks (in 1969 and 1980), the geographical coverage of the banking system has considerably widened and the functional coverage of the system has also enlarged (*Ojha, 1986*). As a result, there has been an increase in the banking habit of people with a major portion of savings going to bank deposits that averagely form around 19 percent of GDS (Table 3.5a) and 38 percent of GFS (Table 3.5b). This is followed by contractual savings comprising of savings in life insurance and pension and provident funds that represent savings meant for future security and precaution as well as the benefit of tax savings attached with them (14.13 percent of GDS and 28.59 percent of GFS in average). Non-bank deposits have declined after 1995-96; but this cannot be said to the exact trend since there has been a change in data disclosure pattern. A comparison of mean figures (Table 3.6) reveals that all components of financial savings have improved on an average over the years during the post-liberalisation. However, the savings in the form of bank deposits and claims on government have been more volatile than others during the post-liberalisation phase.

The capital market investment by household sector that increased during the pre-liberalisation phase has been followed by a radical decline during the post-liberalisation.

Graph: 3.4-Growth in alternative financial assets (Pre & Post-liberalisation)



Data Source: RBI handbook of statistics in Indian Economy, 2007

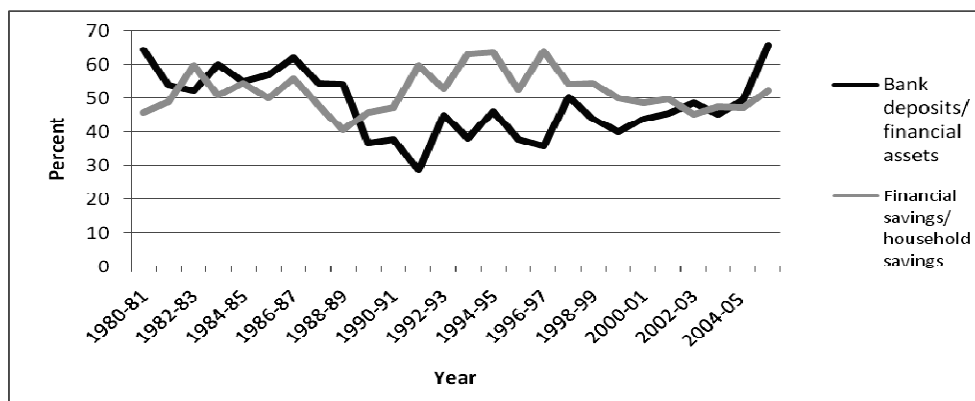
This has happened due to loss of investors' confidence taking place as a result unethical practices adopted by many companies like creating hype and then defrauding the investors during the beginning of post-liberalisation. Stock market scams also brought a bad name to the Indian business community (*Vajpayee, 2003*). All these are also visible in Graph 3.4 where the linear growth for deposits with commercial banks (from 12.72 to 14.35 percent) as well as claims on government (15.09 to 22.64 percent) show that these two instruments have been able to attract more of savings over the period from pre to post-liberalisation (Graph 3.4). But the growth of latter is more than that of the former meaning a shift in the preference of savers towards claims on government (*RBI, 2002*). Alternatively growth of capital market investment and non-bank deposits both have turned into negative during the post-liberalisation phase. This shows lack of faith among households to park their savings in risky investments.

3.3. Shift in Household savings

Before going further to determine the components of household savings, it is required to see whether there has been any significant shift in the mode of household savings from pre to post-liberalisation phase. For this purpose a trend analysis has been made for the two components, that is, financial savings as percent to total household savings and bank deposits as percent to total household financial

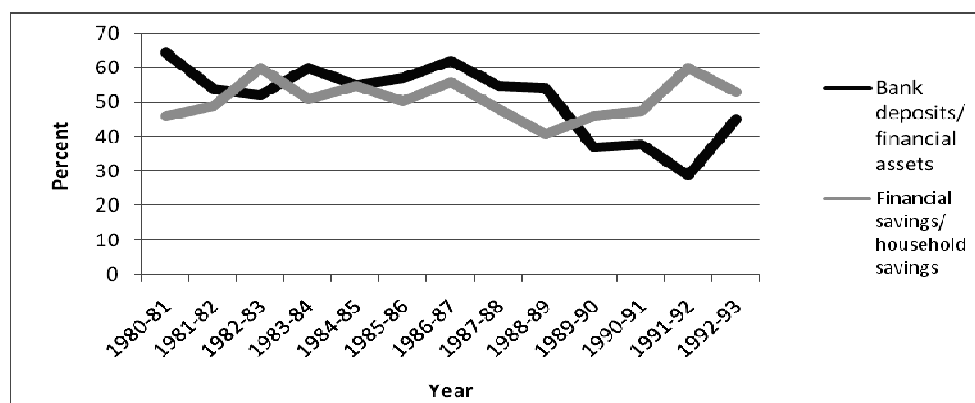
savings. And both have been taken as dependent variables in relation to time. A graphical analysis of both these components followed by trend analysis is given below for the aggregate period as well as for pre and post-liberalisation phases.

Graph: 3.5 – Change in composition of HHS (1980-81 till 2005-06)



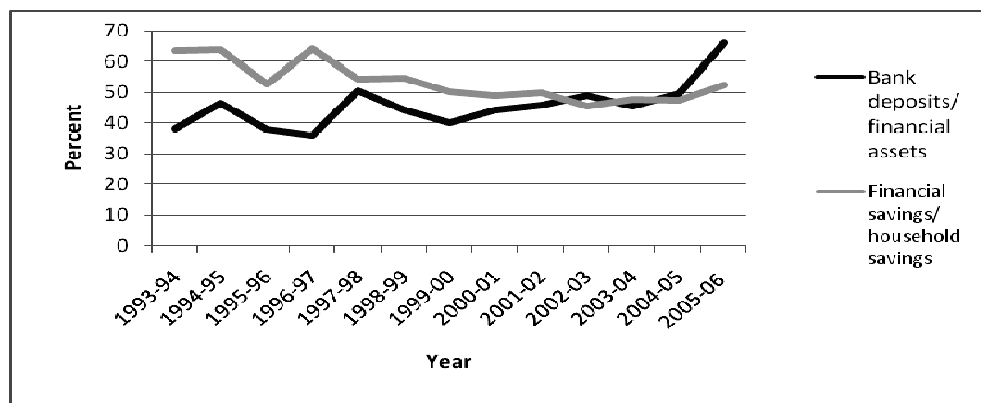
Data Source: RBI handbook of statistics in Indian Economy, 2007

Graph: 3.6 – Change in composition of HHS (Pre-liberalisation)



Data Source: RBI handbook of statistics in Indian Economy, 2007

Graph: 3.7 – Change in composition of HHS (Post-liberalisation)



Data Source: RBI handbook of statistics in Indian Economy, 2007

Graph 3.5 does not provide any indication regarding the trend of savings for overall period for both financial savings as well as bank deposits. But when segregated into two phases, in the pre-liberalisation phase (Graph 3.6), there is a clear decline in the bank deposits of household which is a sign of disintermediation. But during post-liberalisation phase, this trend has turned positive meaning more of financial savings parked in bank deposits (Graph 3.7). This, however, is not true for financial savings as there is no clear indication for the direction of movement of savings in financial assets of household (Graph 3.6), but during the post-liberalisation phase there has been a downfall in the same.

This is also evident in the trend analysis presented in Table 3.7 below where the slopes for overall period are not significant (F values being 0.11 and 0.91). But when divided into two phases of pre and post-liberalisation, there is a significant decline in the bank deposits as a proportion to total financial savings in the first phase followed by an increase in the same in the latter, whereas for financial savings expressed as a percent to total household savings, the shift is significant during post-liberalisation.

Table: 3.7 – Trend of HHS

Dependent variables	Period	Constant	Slope	R ²	F (significance in bracket)
Bank deposits/ Financial savings (%)	Overall	53.72	-0.40	0.10	2.80 (0.11)
	Pre-liberalisation	65.37	-2.05	0.56	13.76 (0.00)
	Post-liberalisation	36.24	1.33	0.45	9.16 (0.01)
Financial savings / Household savings (%)	Overall	52.40	-0.02	0.00	0.01 (0.91)
	Pre-liberalisation	50.82	0.01	0.00	0.00 (0.98)
	Post-liberalisation	62.67	-1.33	0.62	18.32 (0.00)

Table:3.8 – Chow’s ‘F’ test

Dependent Variable	Computed F value	Tabulated F value at 5 % level of significance
Bank deposits/Financial savings (%)	11.47	3.44
Financial savings /Household Savings (%)	6.79	3.44

From the above analysis, it is clear that there has been a shift in both the components of savings over the years. Hence, to see whether the shifts are significant or not, Chow's 'F' test has been applied for both the dependent variables. This shows (Table 3.8) that the computed values are more than their respective tabulated values, which confirms that there has been a structural shift in savings in both the form of total financial savings as well as bank deposits of households from pre to post-liberalisation and is significant.

3. 4. Factors affecting household savings

Savings in financial assets has become one of the important components of household savings in Indian economy. The household decides about its allocation among various competing assets on the basis of various assets available and their respective rates of return, exception may be contractual financial assets whose rate of savings is determined not merely by rate of return but also other in-built characteristics of security and precaution attached to them. Among the different components of household savings in financial assets, savings in bank deposits is the most important one. Analysis of the pattern on household savings in the above section demonstrates that bank deposits are still the most important component. Besides the aggregate savings of household sector as well as savings in physical assets and alternative financial assets which are also growing, there are also certain other factors that can become important factor determinant for savings. They are the income of the household, the interest rate prevailing in the economy and the rate of inflation as macro level systemic variables and number of bank branches as a bank related variable. Each of these factors and their importance in determination of household savings is explained as hereunder:

Income (INC): The household sector is a residual one, i.e., their expenditure is less than their income and so their savings are influenced by distribution of income. The Relative Income Hypothesis put forward by Keynes specifies that there is a positive relationship between income and savings, and absolute changes in income (although not proportional) are responsible for changes in saving for the reason of diminishing marginal utility of present consumption. Similarly, according to the permanent income hypothesis put forward by Friedman, a consumer will base his consumption and, therefore, savings on the basis of permanent income, and not on

transitory income as the latter is temporary in nature; and he has to cut down his expenditure as soon as the effect disappears. So the observed positive relationship between saving rates and permanent income suggests that both the level and the distribution of income are important determinants of household savings (*Bhalla, 1980*).

Over the years, studies have also shown that ratio of savings to income is higher in case of upper income groups in comparison to those of lower income groups, representing an unequal income as a cause towards savings promotion. A Non-uniformity in the temporary income components, which means an uncertainty about income prospects, is also a cause for increase in the need for savings against urgent situation. Different authors in their work have highlighted the impact of personal income distribution and its importance in savings determination. As has been observed by Chase Jr (*1969*), “the most obvious factor explaining the long – run growth of household savings deposits is the growth of the nation’s total wealth” (*See Leff & Sato, 1975*). Hence, per capita income (net national product per capita) has been taken as a measure of income in economy since its growth rate indicates that the growth rate of real national income is more than the growth in population; whereas, in many empirical works, gross domestic product (GDP) has been used to symbolise income. For instance, Ghosh & Pain (*2005*) in their work to determine factors that determine savings in India have used GDP to represent income of nation. Similarly, according to Branko (*1999*) many of the international studies, made earlier for income distribution, have used GDP per capita to represent income. This, however, is not a perfect indicator; and in the words of Branko (*1999*), “GDP is an imperfect indicator of household disposable income or expenditures, both because it fails to account for home-consumption which is particularly important in poor countries, while it includes (e.g.) undistributed profits or increase in stocks which do not directly affect current welfare of the population”.

Rate of Interest: It is generally recognised that savings and interest rate have a positive correlation and the former increases with increase in real rate of interest because of rising opportunity cost of present consumption. One would expect interest yields on savings deposits to figure importantly in the demand for them (*Chase Jr, 1969*). The rate of interest is considered to have an important influence

on household savings. A rise in interest rate also increases the savings and at the same time decreases the current consumption as the price ratio between present and future goods depends upon the rate of interest and expected price.

Coming to the choice of assets between financial and physical assets and also between the different components of financial assets, the possibility for influence of interest rate factor cannot be ignored as the rise in real interest rate would change the form of savings from hoarding, jewellery and currency into deposits, bonds and debentures. Exception may be the contractual financial assets that is regarded as regular expenses and is linked with employment and security. Even then, the rate of return can be the determining factor of amount of savings in these instruments; and an increase in real interest rates on contractual financial assets in the form of provident funds and life insurance could promote aggregate savings. This, however, has been kept outside the scope of the study as our concern here would be to study in aggregate the impact in financial assets and its substitution with bank deposits.

Other things being equal, one would expect an increase in the rate paid on savings deposits to increase total holdings of savings at the expense of both market instruments and money balances (*Chase Jr, 1969*). And a change in the current rate of interest shall influence the decision of subsequent future period investment. Or alternatively, the investment decision of current period will be on the basis of interest rate that has been set earlier. So, bank rate lagged by one year ($INTbr_{t-1}$) has been used as a measure of interest rate factor in the equation to determine the factor affecting bank deposit as that brings about changes in the structure of interest rate and is considered an indicator to determine long-term rate in India. Similarly, weighted average rate of interest on central government securities, lagged by one year ($INTgs_{t-1}$) has been used as a representative rate to determine the factors affecting financial savings of household.

Inflation Index (INFL): Inflation, which means a fall in the value of money and an increase in the general price level, is also a loss of purchasing power. Theoretically, it can be argued that inflation promotes savings as well as discourages the same. In the first place, with an increase in price level, there is a fall in real value of cash balance and in an effort to offset this decline, people

reduce the consumption expenditures leading to a rise in savings. Secondly, with inflation development, a redistribution of income in favour of the higher income groups is possible. This will boost the national savings ratio as people belonging to upper income groups have a higher marginal propensity to save than lower income ones. Alternatively, as the price increases without equivalent increase in real income, the purchasing power parity of consumers decline leading to a decline in their capacity of savings also. That is to say it in other way, an increase in price of the consumable goods, which increases the consumption expenditure, also reduces the savings capacity. This theory may be significant for a developing country like India where the vast majority of population have low income level and thus their consumption expenditures remain at minimum (*Mitra, 1986*). Thus, confronted with inflation, people find it extremely difficult to reduce their consumption expenditures, and try to maintain the level either by curtailing savings or by increasing dis-savings. The overall impact could be a decline in voluntary savings. In addition, since inflation lowers the real rate of return on money fixed financial assets, non-financial assets are likely to be preferred. So the inflation index, which denotes a change in the expenditure capacity and is also a module towards decision for the type of savings, can also be considered as an important determinant of the savings. It can be argued that saving will be influenced by the expected rate of inflation in such a way that a higher rate of expected inflation will result in increased consumption and reduced saving (*Pickersgill, 1976*).

In India, the Wholesale Price Index (WPI) is used as a measure of inflation index as against the wide use of Consumer Price Index (CPI) in other economies. The reason for non-use of consumer price index is the existence of multiple indices, namely, CPI for Industrial Workers, CPI for Urban Non-Manual Employees, CPI for Agricultural labourers, and CPI for Rural labour, which makes the use of latter an unmanageable affair. The WPI is published in a weekly basis; but for the purpose of analysis here, an annual average index on 1981-82 prices has been considered. Since the beginning period of our study is 1981-82, hence to find an impact of change over the period in a consistent way, the new series starting from 1993-94 onwards have also been converted at 1981-82 prices.

Bank branch: The expansion of financial institutions like banks widens the choice of asset and stimulates saving in terms of financial savings (*Pandit, 1991*). As has

been mentioned above that since the two phases of nationalisation in 1969 and 1980 respectively, the area coverage by banking sector has increased with bank offices raising by more than five-fold. As a result, there has also been an increase in the banking habit of people with almost half of the savings going to bank deposits. So, increase in bank branch can make a direct impact in the savings in form of bank deposits and is assumed for the purpose of analysis that it will increase the same. However, the expansion of branch does not make an immediate impact; but it is only after a branch is opened it will mobilise additional resources in that particular place. So, an increase in bank deposits can be expected to take place only in the future period after branch expansion or else given the current period savings in the form of bank deposit, the same will be an impact of branch expansion in the past period. Hence, in analysing the factors affecting bank deposits, the data related to bank branch expansion is taken as one year lagged (**BR t-1**). For overall financial savings, it is not only the bank branch alone but branches of other financial institutions like LIC, Post Office, Mutual Funds and NBFCs in economy that play an equally important determinant role. However, on account of non-availability of data for these institutions, the factor 'branch' has been left out of the analysis of financial savings.

In addition to the above mentioned factors, there are also certain other economic and demographic factors which determine savings in economy. On the basis of review of earlier theoretical and empirical literature on the determinants of savings of developing economies, Mikesell & Zinser (1973) have revealed that there are also certain other factors that affect savings function of developing economies, viz., taxation, imports and exports. The findings by authors reveal that there is both a positive and negative correlation between saving with export and import respectively; but effect of taxation is not portrayed. The variables mentioned are to determine the savings of the economy as a whole and does not reveal the savings nature of households. However, Ghosh & Pain (2005) have concluded that with respect to Indian household "tax incentives matter to the extent of changing the savings basket".

As has been observed in RBI (2005-06), "demographic variables like life expectancy, literacy rate and dependency ratios have emerged as key determinants of savings in addition to traditional variables like real interest rate, growth, per

capita income, spread of banking facility and rate of inflation”. Amongst them, first is the life cycle hypothesis, which states that the proportion of income saved shall also be dependent upon the age composition and earning span of the saver. Another factor is head of household whose age is an important factor in determining the savings, as the size and composition of household as well as consumption need changes with the increasing age of head. The level of education affects both income and savings. On one hand, it determines the nature of work and earning capacity of an individual that ultimately determines the savings. On the other hand, it redesigns the value system and fondness of individuals that affects his decision to save. Lastly, it is also presumed generally that savings per household will increase with the number of working members that may be stated alternatively as “the average propensity to save increases with increase in number of earning members”.

These above-mentioned factors also play an important role in the determination of savings. They also have been considered by other authors in their work as savings determinant in economy. But since this study concerns itself with financial variables, hence, these variables have been kept outside the scope and only those financial factors that have been found to mostly affect the savings in economy are included in the analysis. They are income, rate of interest, rate of inflation and number of branches.

3. 4.1. Analysis of correlation

From the concept of correlation, one may assume that there exists a relationship between correlation and regression concepts; and with the given correlation coefficient it may be anticipated as to how well the data will fit into regression equation. Hence, before carrying out the regression test, it is better to test whether any correlation exists among the variables selected. This can aid in deciding whether a particular variable can be selected as an independent variable for regression analysis.

The correlation co-matrix given in Table 3.9 shows that income and inflation are highly correlated with each other (0.99) and both have grown in a similar pattern. Again both have a significant positive correlation with household savings in financial assets (both at 1 percent significant level). Alternatively, the two other

variables selected, that are physical savings to financial saving ratio (PSFS) and interest rate, do not show any significant correlation; whereas in case of bank deposit, there is a negative correlation with interest on government securities, which means that with an increase in the return on other assets (interest) will reduce the savings in bank deposit.

Table: 3.9 - Correlation co-matrix

	FS	INC	INFL	PSFS	INTbr _{t-1}	BDFS	BR	INTgs _{t-1}
FS	1							
INC	0.99 (0.00)	1						
INFL	0.97 (0.00)	0.99 (0.00)	1					
PSFS	-0.13 (0.54)	-0.12 (0.55)	-0.22 (0.28)	1				
INTbr _{t-1}	-0.74 (0.00)	-0.72 (0.00)	-0.62 (0.00)	-0.41 (0.04)	1			
BDFS	-0.07 (0.76)	-0.13 (0.54)	-0.25 (0.23)	0.44 (0.02)	-0.28 (0.17)	1		
BR	0.76 (0.00)	0.79 (0.00)	0.86 (0.00)	-0.29 (0.16)	-0.33 (0.10)	-0.48 (0.01)	1	
INTgs _{t-1}	-0.22 (0.28)	-0.15 (0.45)	-0.01 (0.97)	-0.41 (0.04)	0.53 (0.01)	-0.58 (0.00)	0.37 (0.07)	1

Note: Significant correlations are highlighted and Significance level for all are mentioned within bracket

However, contrary to our assumption, the correlation between bank deposits and income, and correlation between inflation and interest rate both are not significant.

3.4.2. Regression Model

In this section, the regression equations for household sector tested under ordinary least squares (OLS) assumption is stated in two terms; one for measuring the impact on aggregate savings of household sector in financial assets and the second one is to measure the impact on bank deposits. In first equation, financial savings is considered as the dependent variable which is dependent on income, inflation index, savings in physical assets and interest rate; whereas in the second equation, bank deposit as percent to total assets is dependent on income, inflation index, interest rate and branch expansion. Before going for regression analysis, it is important to make the following assumptions about error term.

- a) They have similar distributions for each value of independent variables, each with same zero mean and same variance.

- b) They are unrelated to independent variables or to the errors of other classes
- c) They are normally distributed.

It is also important to state here that the same equation has been applied to find the variables affecting the respective dependent ones during both the pre and post-liberalisation phases. Since stepwise regression has been used so only the important explanatory variables that affect each of the dependents have been reported in each case.

3. 4.2.a. Total Financial Savings

The equation to determine the variables that influence the growth of household savings in financial assets is stated hereunder:

$$FS = f (INC_t, INFL_t, PSFS_t, INTgs_{t-1}) \text{ ----- (1)}$$

Table- 3.10: Factors determining financial savings of household

Period	Overall		Pre-liberalisation		Post-liberalisation	
	Coefficients					
	Unstandardised	Standardised	Unstandardised	Standardised	Unstandardised	Standardised
Variables	Slope	Beta	Slope	Beta	Slope	Beta
Constant	44420.525 (2.75)		-36299.002 (-11.971)		-25810.57 (-1.55)	
INC _t	25.775 (13.67)	1.628			19.59 (18.38)	1.116
INFL _t	-579.768 (-5.39)	-0.639	451.882 (22.279)	0.989		
PSFS _t	-290.238 (-2.88)	-0.056			-790.32 (-2.95)	-0.179
	R ²	0.99	R ²	0.98	R ²	0.98
	\bar{R}^2	0.99	\bar{R}^2	0.98	\bar{R}^2	0.98
	F	1109.18	F	496.33	F	292.32
	D-W	1.69	D-W	1.36	D-W	1.55

Note: T-values for slope are given in bracket, of which significant ones are highlighted

In all the three models (Table 3.10), almost the entire variation in dependent variable can be explained by independent variables (R^2 being 0.99 in overall and 0.98 during pre and post-liberalisation phases). The Durbin-Watson value is lying between du and 4-du and hence cannot be rejected for the first order serial correlation in both the positive and negative ways. But the t-values at 5 percent level of significance shows that out of the four variables chosen, the first three variables, i.e., income (INC), inflation index (INFL) and PSFS are significant as aggregate determinant of financial savings.

Amongst them income is the prime determinant of savings as expected and the beta coefficient (standardised) is 1.628 meaning for each 1 standard deviation point increase in household savings, the income will have to raise by 1.628 points of standard deviation. The inflation index and PSFS both act as negative force in determining financial savings of household (t is significant at 1 percent level); and as per the beta coefficients at this point, for every 1 standard deviation point of increase in the inflation and physical savings respectively, the savings in financial assets will decrease by 0.639 and 0.056 standard deviation points (Table 3.10). The result for the pre-liberalisation phase shows that only inflation is the factor effecting financial savings; whereas in the post-liberalisation period income and PSFS have surfaced as important determinants.

3. 4.2.b Savings in bank deposits (as percent to financial assets)

The regression equation to identify the factors that affect the household savings in the form of bank deposits is given as hereunder:

$$BDFS = f (INTbr_{t-1}, INC_t, INFL_t, BR_{t-1},) \text{-----} (2)$$

According to Table 3.11, 54 percent of the variation in dependent variable can be explained by the independent variables for the twenty six years period of study; whereas for pre and post-liberalisation phases, it is explained for 75 percent and 51 percent respectively for variation in dependent variable (BDFS). The Durbin-Watson value is lying between du and 4-du and so cannot be rejected for first order positive or negative autocorrelation. However, analysis with the individual independent variables in terms of the t-values show that out of the four variables selected income (INC) is the most important determinant. Inflation index (INFL) is also another significant factor making a negative impact on the savings in bank

deposits, and its beta coefficient shows that inflation index has reduced household savings in the form of bank deposits during the given period.

For both the pre and post-liberalisation phases, it is observed that income has been an important determinant of bank deposits; but a comparison of the two phases shows that during the pre-liberalisation phase, household savings has shifted to some other non-bank deposits (beta coefficient is -1.16), which is an indication of bank disintermediation during the eighties. Bank rate is also found to be one of the important variables affecting bank deposit. During the post-liberalisation phase, income is the only factor effecting savings in bank deposits.

Table: 3.11 – Factors determining household savings in bank

Period	Overall		Pre-liberalisation		Post-liberalisation	
	Coefficients					
	Unstandardised	Standardised	Unstandardised	Standardised	Unstandardised	Standardised
Variables	Slope	Beta	Slope	Beta	Slope	Beta
Constant	78.97 (12.88)	-	0.17 (0.00)	-	29.59 (6.02)	-
INC _t	0.01 (4.87)	4.26	-0.01 (-5.12)	-1.16	0.00 (3.42)	0.72
INFL _t	-0.33 (-5.09)	-4.45	-	-	-	-
BR _{t-1}	-	-	7.97 (2.31)	0.52	-	-
	R ²	0.54	R ²	0.75	R ²	0.51
	\bar{R}^2	0.50	\bar{R}^2	0.70	\bar{R}^2	0.47
	F	13.37	F	14.99	F	11.71
	D-W	1.60	D-W	1.84	D-W	1.92

Note: T-values for slope are given in bracket, of which significant ones are highlighted

The results here for both household savings in financial assets as well as savings in bank deposits (stated as a percent of total financial savings), are similar to the results of Nair (2006) and Ghosh & Pain (2005) whereby they also found income as the prime determinant of savings for household in India. Another study made by Leff & Sato (1975) for five of the developing economies, viz., Brazil, Costa Rica, Israel, Philippines and Taiwan, found that aggregate savings in economy is

significantly responsive to income growth in four out of five countries except Israel.

Inflation index that has been found as a significant factor determinant of financial savings and savings in bank deposits by household is not something commonly found in India. Nair (2006), who in addition to some financial factors has also used the demographic ones did not find an important factor to determine savings. And according to author (Nair, 2006), “excluding inflation or real interest rates has not caused much change in the estimated coefficient and its sign”. Alternatively, this factor has been found significant during forties in USA, where Lansing and Maynes (1952) observed that “consumers in 1949 improved their net worth position, but they did so by building up their stocks of goods while, on balance, reducing their liquid assets (bank deposits and government bonds) and claims and increasing their debt”. Expansion of bank branches could not be found as an important factor for determining bank deposits, a result which is similar to Pandit (1991). It appeared as a significant in the initial analysis of bank deposits but later on got excluded from the stepwise regression analysis suggesting that other two factors are more important.

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Chapter: 4

Deposit and Loan Disintermediation in Indian Commercial Banks

4.1. Introduction

Financial intermediaries emerge in the saving-investment process to intermediate between the ultimate borrowers and ultimate lenders. Their main objective is to mobilise resources from the individual savers for the purpose of onward deployment, for which they make two contracts: one with the lender and another with the borrower. Among all the financial intermediaries operating in market, commercial banks are the oldest ones known and occupy a pivotal position in the entire economic system. They are the financial institutions who accept deposits from people, on promise to pay a rate of interest. Such deposits are then converted to many categories of assets, out of which the most prominent one is loan to different borrowers, on which they charge appropriate interest for their intermediary interventions.

The role of commercial banks in the intermediation process is very significant because of its overwhelming control over the entire financial assets of the economy and more because of the under development of capital market in most of the developing economies like India and many others. But in an economic system, other financial institutions like mutual funds, non-banking financial companies also exist and function in the same line with banks, although their way of accepting deposit as well as investment pattern may be different. Hence, intermediation as a term meaning, “to have middle-man (intermediary) between borrowers and lenders, rather than borrowers and lenders dealing directly to each other” (*financial dictionary, anz.com*), is not meant for banks alone but arises with any source of indirect finance.

Over the years, the role of financial institutions in the capital intermediation process has changed significantly. The advent of direct market financing for large borrowers and techniques, such as, securitisation has led to the disintermediation of financial institutions. They have been steadily losing market share in the global financial intermediation business to capital markets; this is known as ‘financial

disintermediation' – that is, the bypassing of financial institutions. While the term disintermediation is used to describe a variety of developments, it is properly defined as a move from the intermediated provision of financial services via banks to direct financial relations between borrowers and lenders. But in relation to banks, disintermediation describes what happens when money is moved away from banks and invested. This development, which could rather be characterised as 'bank disintermediation', does not necessarily imply that there is an overall decrease in financial intermediation.

Over the last three decades or so, there has been a decline in the share of bank deposits in global finance with a corresponding increase in that of debt and equity. This has taken place due to deregulation of the financial markets in both developed and developing nations. Deregulation was also visible in Indian Financial Market since the 1980s due to development of capital market as well as initiative from government towards tax concession policy and permission to Public sector undertakings to accept deposit. However, the initiation towards establishment of non-banking financial intermediaries was taken soon after independence with a motive to serve the financing needs of industries on one hand and also the needs of small and scattered investors on the other. With liberalisation of economy (since 1992-93), country's financial structure is itself undergoing a process of widening and diversification (*Bandhopadhyay, 1992*). Capital is moving freely and, good credit worthy borrowers are trapping cheap source of finance from domestic as well as international market. This also provides the consumers with benefits of product innovation, increased competition and price reduction. Therefore, this chapter focuses on the impact of the development of alternative financial institutions and also the development of equity and debt markets (referred to as capital market) on commercial banks' deposit taking and loan disbursement functions. The basic assumption here is that if these alternative financial institutions and also capital market are well developed to influence the decision of investors as well as borrowers to attract towards them, then this can become a cause for reduction in the banks' traditional role of accepting deposits from surplus sector of economy and channelising them to the deficit sectors in the form of loan. This is termed as "banking disintermediation"- meaning a significant loss of intermediary role by commercial banking industry.

4.1.1. Concepts

In addition to the bank deposits, there are other financial institutions that also accept deposits in economy; but they may not be perfect substitutes for bank deposits. Hence, the under-mentioned institutions have also been considered as they mobilise deposits in Indian economy and so can become a source of commercial banking disintermediation.

*a) Cooperative Banks:*⁷ Cooperative banks perform all the main banking functions from deposit mobilisation to supply of credit that is similar to commercial banks. But the range of services offered is narrower and the degree of product differentiation in each main type of service is much less as compared to commercial banks. They are characterised by functional specialisation business only in the agricultural and rural sector. However, certain types of cooperative banks, viz., UCBs, SCBs and CCBs operate in semi urban, urban and metropolitan areas also resulting in growth of urban and non-agricultural business over the years. It is also said that the cooperative banks have demonstrated a shift from rural to urban, while commercial banks from urban to rural.

b) Small savings: Different schemes of small savings are run by the post offices in India who mobilise deposits from vast and scattered small savers from both rural and urban areas. Their instruments include deposits (both savings and term deposits), savings certificates and also provident funds. Their function is similar to banks when it comes to mobilisation of deposits. The small savings organisation mobilise the largest volume of savings next to commercial banks. This is because of the important characteristics attached with this mode of savings. A few to mention here are:

- i. Good substitutes for other investment media, such as, bank deposits from the point of maturity, liquidity and safety.
- ii. Post-office Savings are as liquid as bank deposits, and can be withdrawn with no restrictions on the number of withdrawals.
- iii. Finally, for tax payers, small savings carry excellent tax benefits.

⁷ Cooperative banks have been treated as non-banking institute as the term bank has been used to strictly mean commercial banks

c) **Insurance:** Insurance companies are financial intermediaries who collect premiums for policies taken up by investors against which they offer protection and also provide means for accumulating savings and channelising them to other sectors. They are contractual saving agencies who receive a steady inflow of funds in the form of premiums mostly without fail. The major part of insurance business is life insurance, whose premium is also considered as savings and at the same time carry excellent tax benefit for tax payers. General insurance policies, on the other hand, are not financial claims as their essence is the collective pooling of risks happening from fortuitous occurrences. Also, general insurance policies, in comparison to life insurance policies, do not mobilise savings, but they collect funds from the premiums paid (*Samuel, 2003*).

d) **Mutual Funds:** A mutual fund is a pure intermediary which performs a basic function of buying or selling securities on behalf of its unit holders, which the latter may not be able to perform efficiently and profitably. The functions of mutual funds are similar to those other financial intermediaries. However, its special ability is that it provides investors of small and moderate means the opportunity to realize high and secure rate of return on their savings. Unit trusts enable a small investor to hold a share in large and diversified portfolio of assets which reduces the risks of investment. Similarly, it makes possible for small investors to have benefit of professional management of portfolio which in turn helps them to earn a relatively higher rate of return.

e) **Capital market:** The institution of capital market consisting of debt and equity segment is the most important source of disintermediation in any economy where banks have seen a reduction in their intermediary role due to the impact of financial disintermediation. While the term 'equity' has been used here to represent issue of equity shares, preference shares and also cumulative convertible preference shares (CCPs); the term 'debt' represents bonds and commercial papers issued by companies plus bonds issued by Public Sector Undertakings (PSUs) through public issues. The instruments of equity and debt are long term source of finance, only exception being commercial papers which are short-term source and issued to finance current transactions and seasonal needs.

These instruments serve as a means of disintermediation as they bring the borrowers and investors in direct contact with each other. It is generally argued that

capital market facilitates the process of disintermediation by establishing a direct relationship between the savers and users of funds (*Das, 1992*). According to the concept of financial disintermediation, whenever the companies are raising funds directly from market, they are in direct contact with the investors and bypass the intermediary institutions, also referred to as securitisation. But financial intermediary here means the commercial banks, and so capital market is also a source of banking disintermediation.

f) All India Financial Institutions: The term AIFIs comprise of the development banks, specialised financial institutions and investment institutions at the national level and the state industrial development corporations and state financial corporations at the state level. These institutes have been set up to provide assistance to the industrial houses and other business establishments in different forms like consultancy, technical and financial support; where the latter consists of assistance in the form of underwriting and subscription of issues, leasing, hire purchase assistance, etc., but the most prominent one is term loan provided to industrial houses and is approximately 50 percent of the total assistance disbursed by them (both long and short term). But it is the figure of total assistance disbursed by these institutes that has been considered here.

4.2. Fund mobilisation through Institutions and Markets

As mentioned beforehand that in addition to commercial banks, there are certain other financial institutions and also instruments in financial market that mobilise savings in an economy. Hence, before making any analysis with respect to the impact of these alternative savings institutions on deposits of commercial banks, it is here necessary to see whether there is any growth in any of these mode of savings (together with the net annual deposits with commercial banks). The table below followed by the three graphs give a brief outline of the growth and development of alternative savings mode in Indian Economy.

According to the Table 4.1; commercial bank deposits is the most important source of savings that has increased in a constant manner, whereas contribution of cooperatives in terms of deposit mobilisation has remained meagre, lesser than even one percent of GDP thus bringing out their ineffectiveness. But when

represented as a percent of GDP, it is found that during the years 1990-91 and 1995-96 there was a minor decline in the figure of commercial bank deposits (4.97 and 4.33 percent) with a simultaneous increase in market mobilisation. However, the same has picked up during the period after that, thus revealing an increased interest of savers towards bank deposits during the current period.

Table: 4.1-Savings mobilisation through institutions and market

Year		1980-81	1985-86	1990-91	1995-96	2000-01	2005-06
1.Commercial Bank Deposits	(Rs. Cr)	6,229	13,160	25,582	46,960	1,49,273	4,08,851
	(% to GDP)	4.70	5.17	4.97	4.33	7.75	12.58
2.Cooperative Bank Deposits	(Rs. Cr)	1,018	1,713	3,341	9,391	15,346	15,562
	(% to GDP)	0.77	0.67	0.65	0.87	0.80	0.48
3.Mutual Funds	(Rs. Cr)	52	892	7,508	-5,833	11,135	52,482
	(% to GDP)	0.04	0.35	1.46	-0.54	0.58	1.61
4.Small Savings Schemes	(Rs. Cr)	1,266	4,412	8,545	10,391	37,577	69,879
	(% to GDP)	0.96	1.73	1.66	0.96	1.95	2.15
5.Life insurance premium	(Rs. Cr)	888	1,609	4,777	12,094	34,898	1,05,872
	(% to GDP)	0.67	0.63	0.93	1.12	1.81	3.26
6.Total Non-banking institutional (2+3+4+5)	(Rs. Cr)	3,224	8,626	24,171	26,043	98,956	2,43,794
	(% to GDP)	2.43	3.39	4.69	2.40	5.14	7.50
7.Equity market Investment	(Rs. Cr)	170	899	1,286	14,830	3,368	27,372
	(% to GDP)	0.13	0.35	0.25	1.37	0.17	0.84
8.Debt market investment	(Rs. Cr)	139	1,199	8,609	21,702	93,054	1,14,047
	(% to GDP)	0.11	0.47	1.67	2.00	4.83	3.51
9.Total market (7+8)	(Rs. Cr)	310	2,099	9,895	36,532	96,422	1,41,419
	(% to GDP)	0.23	0.82	1.92	3.37	5.01	4.35
10.Total mobilisation (6+9)	(Rs. Cr)	3,534	10,724	34,066	62,575	1,95,378	3,85,213
	(% to GDP)	2.67	4.22	6.61	5.78	10.15	11.85
11.Overall mobilisation (including banks) (10+1)	(Rs. Cr)	9,763	23,884	59,648	1,09,535	3,44,651	7,94,064
	(% to GDP)	7.37	9.39	11.58	10.11	17.90	24.43
12.Non-banking institutional mobilisation	(as % to total mobilisation)	33.02	36.11	40.52	23.78	28.71	30.70
13.Market mobilisation		3.17	8.79	16.59	33.35	27.98	17.81

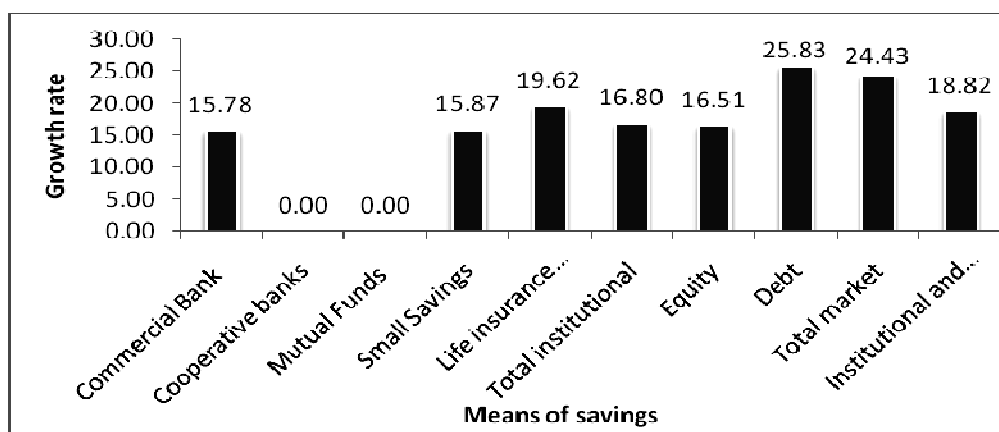
Data Source: Varied sources⁸

⁸ For sources of data refer end note

On the other hand, it is also interesting to note that although deposit taking capacity of different non-bank intermediary institutions has improved, but none have developed to an extent so as to influence the savings of commercial banks neither individually nor jointly; rather their share to GDP has remained less in comparison to commercial banks which again strengthens the fact that savers have shown more of interest in bank deposits as compared to others.

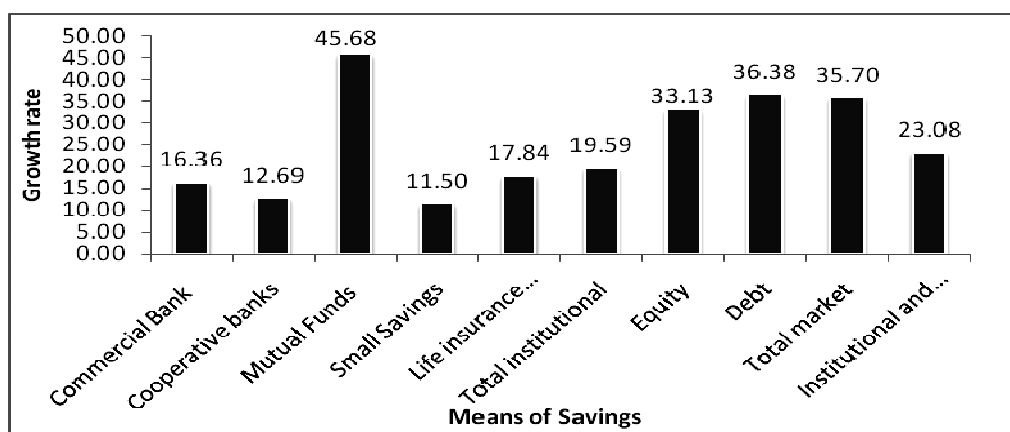
The capital market, that was growing since 1980s due to the growth of both debt and equity instruments that also include the new and innovative instruments such as commercial papers, has declined during the current phase, mainly after the year 1995. Equity market, on the other hand, has not shown any credible growth during the overall period of study. Rather, this overall growth in capital market has declined during the current year and the reason is, of course, a decline in money raised through both debt and equity instruments.

Graph: 4.1- Growth of savings means in economy (Overall)



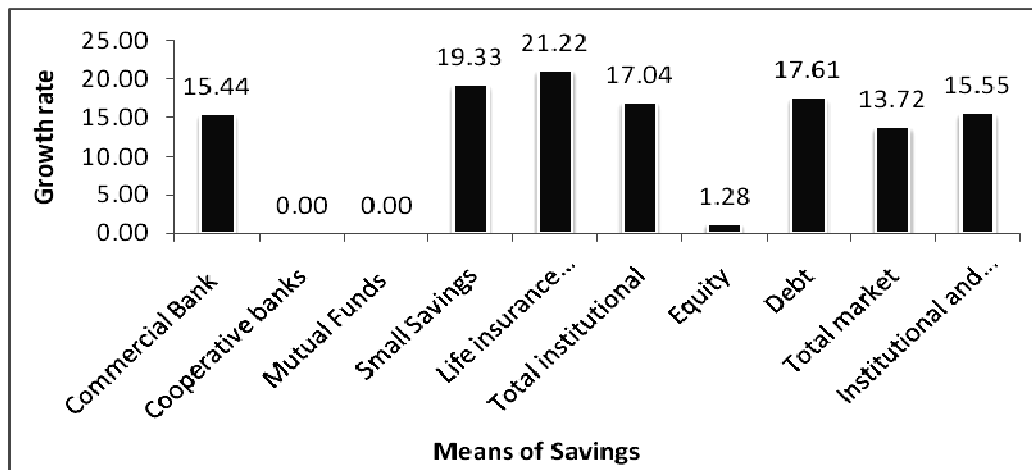
Data source: varied sources

Graph: 4.2-Growth of savings means in economy (Pre-liberalisation)



Data source: varied sources

Graph: 4.3-Growth of savings means in economy (Post-liberalisation)



Data source: varied sources

Linear growth rate of savings presented in the preceding graphs reveal that the growth rate of net deposits with commercial banks has remained almost similar during both pre and post-liberalisation phases. But, on an average, the quantum of deposit is much higher during post-liberalisation as compared to pre-liberalisation phase (Table 4.2). The other two institutional deposits, i.e., small savings and insurance have shown high improvement in terms of their growth during post-liberalisation and are above the figure of overall period growth in contrast to pre-liberalisation phase. Small savings deposits could maintain a level of growth similar to commercial banks for the entire period, but in post-liberalisation phase, its growth is more than that of the commercial banks. This shows a clear preference towards safe instruments with low return. In other words, this also indicates less risk appetite of the Indian households. Despite the euphoria of the capital market in recent years, investors are not attracted in a large number. This non-response to risk taking can be explained through a lack of information at the hand of the investors, asymmetry of information between large and small investors and may be poor financial knowledge. A decline is also visible in the growth rate, for the sum total of deposits intake by all non-commercial banking institutions from pre to post-liberalisation which can be linked with a drop in the growth of savings with co-operative banks and mutual funds. Without considering the negative figures, the growth rates⁹ calculated for them are as follows:-

⁹ Linear growth rate could not be represented in graphs due to presence of negative figures during post-liberalisation.

Cooperative bank deposits:

Overall = 14.86, pre-liberalisation = 12.69, post-liberalisation = 6.85

Mutual funds savings:

Overall = 20.87, pre-liberalisation = 45.68, post-liberalisation = 8.90.

Table: 4.2- Variations across the saving channels

Saving Channels		Period	Overall	Pre-liberalisation	Post-liberalisation
1. Commercial Bank deposits	Mean (Rs.Cr)		79,895.77	18,216.38	1,41,575.15
	CV		1.16	0.61	0.69
2. Cooperative Bank deposits	Mean (Rs.Cr)		9,333.92	2,420.92	16,246.92
	CV		1.00	0.62	0.54
3. Mutual Funds	Mean (Rs.Cr)		8,506.70	3,743.80	13,269.61
	CV		1.60	1.20	1.34
4. Small Savings	Mean (Rs.Cr)		20024.35	4151.54	35897.15
	CV		1.16	0.61	0.67
5. Life insurance Premium	Mean (Rs.Cr)		20,584.04	2,776.00	38,392.08
	CV		1.36	0.74	0.80
6. Total non-bank institutional mobilisation (2+3+4+5)	Mean (Rs.Cr)		58,449.02	13,092.26	1,03,805.77
	CV		1.12	0.70	0.64
7. Equity market mobilisation	Mean (Rs.Cr)		6,226.23	1,831.53	10,620.92
	CV		1.31	1.64	0.88
8. Debt market mobilisation	Mean (Rs.Cr)		34,103.21	3,990.60	64,215.82
	CV		1.16	1.01	0.56
9. Total market mobilisation (7+8)	Mean (Rs.Cr)		40,329.43	5,822.12	74,836.75
	CV		1.10	1.12	0.51
10. Total mobilisation (6+9)	Mean (Rs.Cr)		98,778.45	18,914.38	1,78,642.51
	CV		1.10	0.82	0.58

Data source: varied sources

The rate of growth for capital market decreased over the period from pre to post-liberalisation illuminating a decrease in investors' preference towards market investment during the post-liberalisation. The rate of growth during pre-liberalisation phase was more than that of the overall growth. But the same has declined in post-liberalisation phase because of setback in fund mobilisation

through public issues that has happened since the mid-1990s that is from 1995-96 onwards (*EPW, 2001*).

There is an indication that growth rate of aggregate institution and market mobilisation has declined during the post-liberalisation phase, along with a decline in the net deposit mobilisation by commercial banks. This is also an indication that a portion of savings is going to certain other sectors that has not been represented here (like deposit with NBFCs, savings in physical assets, etc).

While mobilisation through all instruments individually and in aggregate have improved from pre to post-liberalisation phase (Table 4.2) i.e. almost 9 fold for the aggregate figures, the coefficient of variation denoting consistency with respect to mobilisation by individual institutions and market instruments is not very comprehensible. The mobilisation through mutual fund is most inconsistent during both the phases. But the aggregate figures show that there is more consistency in mobilisation of funds by various instruments during the post-liberalisation phase as compared to pre-liberalisation.

4.3. Fund disbursement by Institutions and Markets

Like fund mobilisation, institutions-both banking and non-banking- are engaged in disbursing funds to the deficit sectors. Apart from institutions; borrowers also raise money from the capital market through equity and debt instruments.

Akin to bank deposit, credit by commercial banks has improved over the years in terms of both aggregate figures and as percent to GDP especially after the year 1995-96 which has happened due to the fact that the reform process has led to decline in the rates of CRR and SLR to a combined current level of almost 30 percent, thereby increasing the proportion of resources available for lending towards non-governmental sectors. Though, the combined credit by cooperative sector and assistance by All India Financial Institutes (AIFIs) was more than the commercial banks, but that did not make any reasonable impact over the growth of commercial bank credit. In fact, the share of cooperatives has decreased during the current years with a corresponding increase in the share of commercial banks including RRBs. Some of the reasons are the rural branch expansion by commercial banks including those of RRBs and general failure of cooperative banking in India in recent years. Whereas in case of AIFIs, this decline can be

linked with blurring of gap between them and the commercial banks on one hand, and the conversion of two of the important DFIs into universal banks (a term similar to commercial banks) after merger on the other, whereupon the ICICI bank (after merger) forms the third largest bank¹⁰ in India after SBI and PNB.

Table: 4.3- Funds disbursed through Institutions and Markets

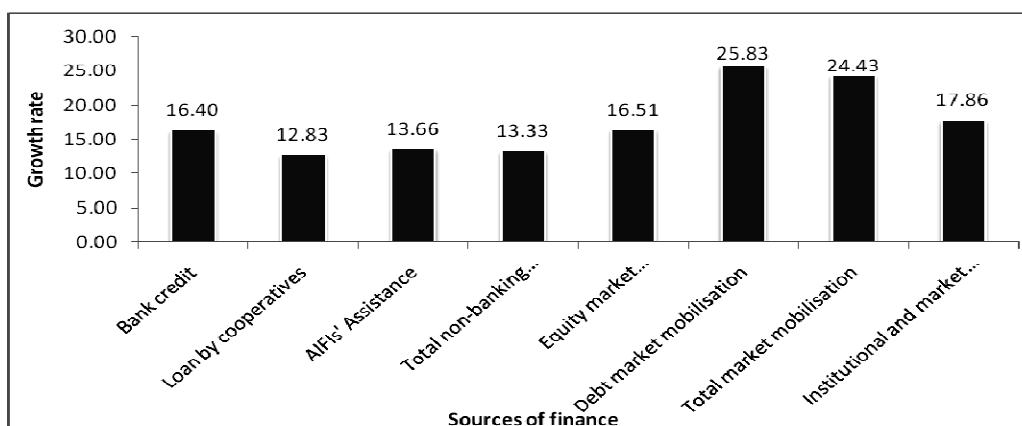
Year		1980-81	1985-86	1990-91	1995-96	2000-01	2005-06
1. Bank credit	(Rs. Crore)	3,834	7,114	14,848	42,455	75,476	4,06,649
	(% to GDP)	2.89	2.80	2.88	3.92	3.92	12.51
2. Credit by cooperative	(Rs. Cr)	261	1,593	2,106	10,317	13,672	13,182
	(% to GDP)	0.20	0.63	0.41	0.95	0.71	0.41
3. Assistance by AIFIs	(Rs. Cr)	1,848	4,940	12,810	38,650	75,364	38,656
	(% to GDP)	1.39	1.94	2.49	3.57	3.91	1.19
4. Total non-banking institutional credit (2+3)	(Rs. Cr)	2,109	6,533	14,916	48,967	89,036	51,838
	(% to GDP)	1.59	2.57	2.90	4.52	4.62	1.59
5. Equity market	(Rs. Cr)	170	899	1,286	14,830	3,368	27,372
	(% to GDP)	0.13	0.35	0.25	1.37	0.17	0.84
6. Debt market	(Rs. Cr)	139	1,199	8,609	21,702	93,054	1,14,047
	(% to GDP)	0.11	0.47	1.67	2.00	4.83	3.51
7. Total market mobilisation (5+6)	(Rs. Cr)	310	2,099	9,895	36,532	96,422	1,41,419
	(% to GDP)	0.23	0.82	1.92	3.37	5.01	4.35
8. Total non-banking and market mobilisation (4+7)	(Rs. Cr)	2,419	8,632	24,811	85,499	1,85,458	1,93,257
	(% to GDP)	1.83	3.39	4.82	7.89	9.63	5.94
9. Overall Mobilisation (including banks (8+1))	(Rs. Cr)	6,253	15,746	39,659	1,27,954	2,60,934	5,99,906
	(% to GDP)	4.72	6.19	7.70	11.81	13.55	18.45
10. Non-banking credit	(as % to total mobilisation)	33.73	41.49	37.61	38.27	34.12	8.64
11. Market mobilisation	(as % to total mobilisation)	4.95	13.33	24.95	28.55	36.95	23.57

Data source: Varied sources

¹⁰ Based on data from statistical tables relating to banks in India, RBI

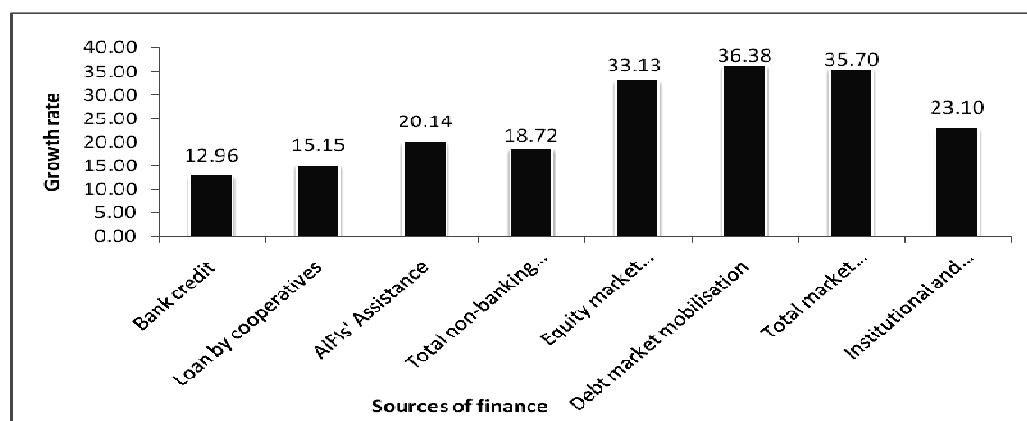
As has been already highlighted, both the instruments of capital market i.e., debt and equity have grown over the years during 1980s, resulting in enhancement of the value of overall capital market both in figure and as a percent to GDP. A comparison between the two instruments (debt and equity) shows that debt market is the contributing factor for overall growth in market mobilisation. But, during the recent years, resource raised by corporate sector through both the instruments has declined both in figure and as a percent to GDP whereas commercial banks have gained their share by disbursing more credit. So, to conclude from this table, it is the commercial banks that are presently dominating the credit market. Besides the other credit granting institutes and market instruments, those acting as substitute for credit either individually or in aggregate way have not grown enough to challenge the credit disbursal capability of commercial banks, and their share that was increasing since 1985-86 have declined during the current period.

Graph: 4.4-Growth of financing sources in economy (Overall)



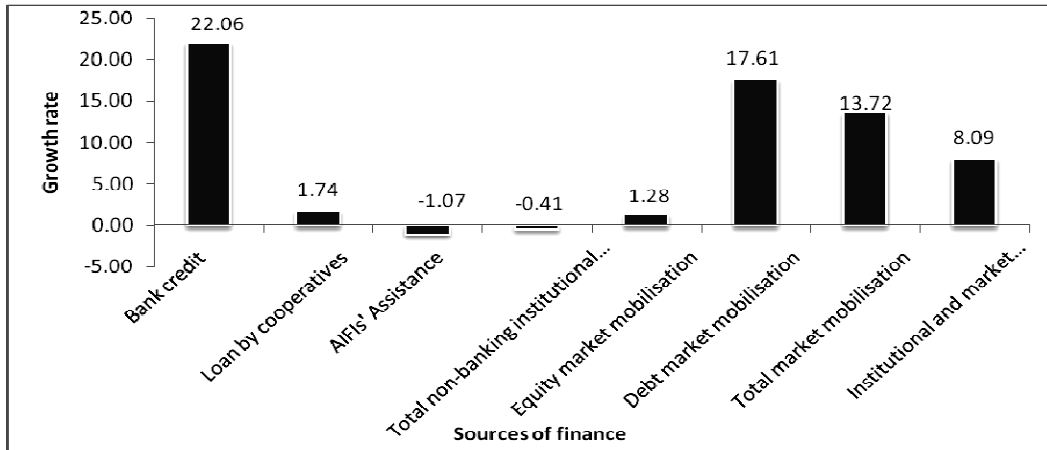
Data source: varied sources

Graph: 4.5- Growth of financing sources in economy (Pre-liberalisation)



Data source: varied source

Graph: 4.6- Growth of financing sources in economy (Post-liberalisation)



Data source: varied sources

Table: 4.4 - Means and variations across the credit channels

Credit Channels	Period	Overall	Pre-liberalisation	Post-liberalisation
Bank credit	Mean (Rs. Cr)	57,136.15	10,034.23	1,04,238.08
	CV	1.59	0.64	1.07
Credit by cooperative	Mean (Rs. Cr)	7,119.81	2,156.77	12,082.85
	CV	0.91	0.61	0.48
Assistance disbursed by AIFIs	Mean (Rs. Cr)	25,919.73	7,746.60	44,092.86
	CV	0.87	0.82	0.39
Total non-banking institutional credit	Mean (Rs. Cr)	33,039.54	9,903.37	56,175.71
	CV	0.86	0.74	0.39
Equity market Investment	Mean (Rs. Cr)	6,226.23	1,831.53	10,620.92
	CV	1.31	1.64	0.88
Debt market investment	Mean (Rs. Cr)	34,103.21	3,990.60	64,215.82
	CV	1.16	1.01	0.56
Total market mobilisation	Mean (Rs. Cr)	40,329.43	5,822.12	74,836.75
	CV	1.10	1.12	0.51
Total non-banking and market mobilisation	Mean (Rs. Cr)	73,368.97	15,725.49	1,31,012.45
	CV	0.92	0.88	0.34

Data source: varied sources

The growth rate of credit by commercial banks that was 12.96 percent during the pre-liberalisation phase has improved during the post-liberalisation phase (22.06 percent) and is more than the overall rate of growth (16.40 percent), thus implying that there has been an improvement in the credit giving facility during the post-liberalisation phase. This can be linked to the policy of central bank to reduce the amount of reserves required by commercial banks. This ultimately has resulted into more funds available at the disbursement of commercial banks, thus allowing them to expand their credit portfolio. Whereas the rate of growth for credit by non-banking institutes, comprising of loan by cooperatives and assistance by AIFIs, in both individual as well as in aggregate way was more than that of commercial banks during the pre-liberalisation phase. But both of them have come down during the post-liberalisation phase, thus implying a lesser amount of preference by borrowers to use other sources of fund.

In capital market segment, the Graphs 4.4, 4.5 and 4.6 reveal that the overall rate of growth for both in aggregate as well as in individual terms have been more than that of the growth of credit by commercial banks. However, when a comparison is made between the two phases, the result is altogether different with a drastic fall visible in the rate of growth in the second phase, i.e., from 35.70 percent to 13.72 percent for the total capital market. The drastic fall is mainly attributed to the lack of confidence of fund raisers in the capital market due to several scams, more particularly in the equity market. All this have ultimately led to a reduction in the total growth of institutional and market mobilisation in contrast to that of commercial banks that has rather improved in the post-liberalisation phase.

The amount of credit granted by commercial banks, non-banking institutions as well as mobilisation through capital market-all have increased on an average from pre to post-liberalisation phase (Table 4.4). Bank credit is almost 44 percent of the total credit disbursed in post-liberalisation phase which was around 40 percent in the previous phase. However, the figures for CV show that there is more variation (less homogeneity) in credit disbursement by commercial banks during the post-liberalisation; that is happening due to sudden increase in the capacity of credit disbursement by them. Whereas in case of credit by other non-banking institutions and mobilisation through market instruments, there is more homogeneity in the disbursement of fund during post-liberalisation phase as compared to pre-liberalisation.

4.4. Trend of Institutional deposit and credit disintermediation

After analysing the growth of alternative means of savings mobilisation and credit disbursal in the economy, it is hereby important to make an analysis of their trend with respect to time. For this purpose, trend analysis is made for measuring any change in the intermediary role with regard to bank deposits and bank credit. The indices given hereby are with regard to the intermediary role of commercial banks and that by non-banking institutions with regard to both deposit taking and credit disbursal.

Bank deposit intermediation index (BDI_{Index}) = Net annual deposit with commercial banks / Total deposit with all intermediary institutions

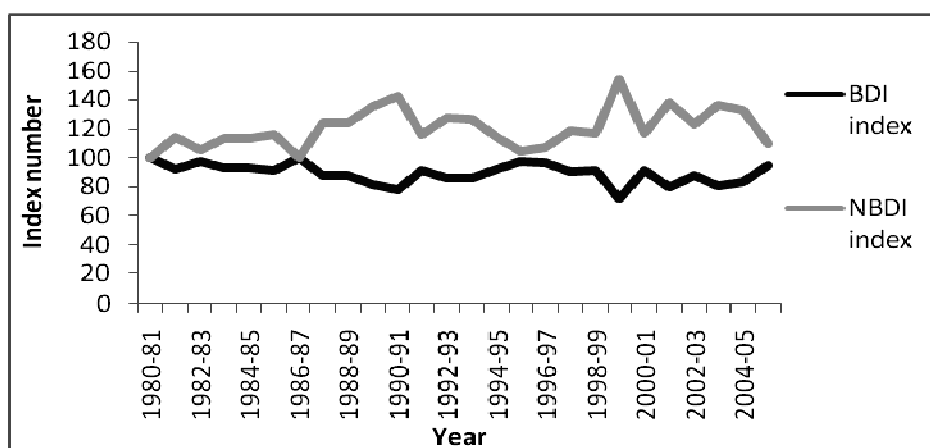
Non bank deposit intermediation index ($NBDI_{Index}$) = Net annual deposit with non banking financial intermediaries / Total deposit with all intermediary institutions, i.e., otherwise $1 - BDI_{Index}$

Bank credit intermediation index (BCI_{Index}) = Net annual credit by commercial banks / Total credit by all intermediary institutions

Non bank credit intermediation index ($NBCI_{Index}$) = Net annual credit by non banking financial intermediaries / Total credit by all intermediary institutions, i.e., otherwise $1 - BCI_{Index}$

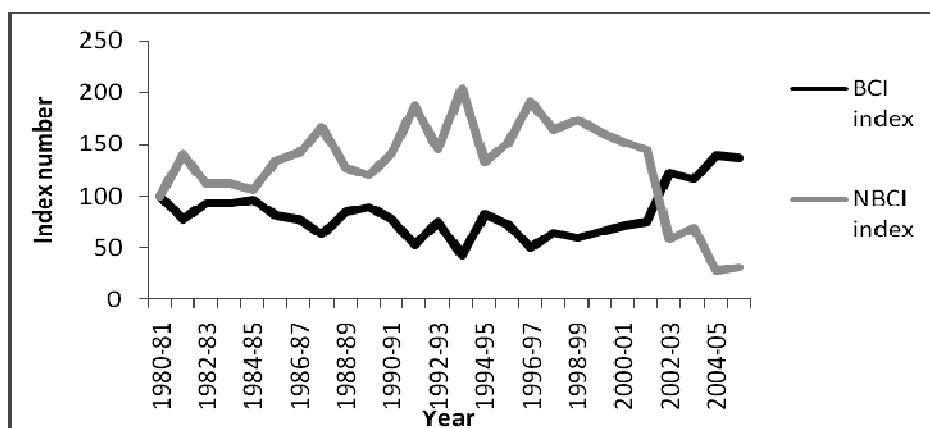
The basic philosophy adopted here is 'disintermediation means a loss of intermediation'. There can be various explanations like the rate of interest, the degree of risk associated or the amount of liquidity and so forth; that form the background towards making decision to choose the mode of investment. But the conclusion point is a decision whether to park the savings in bank or select a non-bank institution which may vary from time to time. The same argument is also applicable in case of credit. Hence, a drop in the banks intermediation indices (both deposit and credit) in relation to time with a similar increase in the index figures of non-banking institutions, or otherwise, a negative slope in trend can be considered as bank disintermediation through institutionalisation. All the indices have 1980-81 as the base year.

Graph: 4.7 – Deposit intermediation index



Data source: Varied sources

Graph: 4.8 – Credit intermediation index



Data source: Varied sources

Graphical representations depicted above for these four indices do not give any precise indication with regard to the nature of their movement. Hence, econometric techniques have been applied to analyse each of the four ratios mentioned above and for each of them, two alternative specifications have been applied.

Equations to identify the trend are given as follows:-

Quadratic: $Y = a+bt+ct^2$

Cubic: $Y = a+bt+ct^2 + dt^3$

Where ‘Y’ is the dependent variable representing each of the above mentioned four indices, and ‘t’, is the time in years. It is also important to mention here that the same equation have been applied to look into the trends during both the pre and post- liberalisation phases.

Table: 4.5 -Trend of BDI Index

Phase	Overall		Pre-liberalisation		Post-liberalisation	
Trend	Quadratic	Cubic	Quadratic	Cubic	Quadratic	Cubic
a	97.86 (23.80)	100.07 (16.70)	99.96 (19.99)	94.86 (11.99)	96.92 (13.35)	80.55 (8.41)
b	-1.08 (-1.54)	-1.98 (-1.05)	-1.52 (-0.93)	2.18 (0.46)	-2.44 (-1.02)	9.44 (1.66)
c	0.02 (1.04)	0.11 (0.67)	0.02 (0.22)	-0.61 (-0.80)	0.13 (0.80)	-1.91 (-2.06)
D		0.00 (-0.52)		0.00 (0.84)		0.09 (2.23)
R ²	0.21	0.22	0.49	0.53	0.15	0.45
\bar{R}^2	0.14	0.11	0.39	0.37	-0.02	0.27
F	3.00	2.02	4.87	3.38	0.89	2.48
DW	1.87	1.90	2.21	2.44	2.22	2.92

Note: Each slope is followed by its t-value in bracket, out of which highlighted ones represent significant at 5 % level

Table: 4.6-Trend of NBDI Index

Phase	Overall		Pre-liberalisation		Post-liberalisation	
Trend	Quadratic	Cubic	Quadratic	Cubic	Quadratic	Cubic
a	104.14 (13.11)	99.86 (8.63)	100.06 (10.36)	109.91 (7.19)	105.96 (7.56)	137.56 (7.44)
b	2.08 (1.54)	3.82 (1.05)	2.95 (0.93)	-4.21 (-0.46)	4.71 (1.02)	-18.23 (-1.66)
c	-0.05 (-1.04)	-0.21 (-0.67)	-0.05 (-0.22)	1.18 (0.80)	-0.26 (-0.80)	3.70 (2.06)
d		0.00 (0.52)		0.06 (-0.84)		-0.19 (-2.23)
R ²	0.21	0.22	0.49	0.53	0.15	0.45
\bar{R}^2	0.14	0.11	0.39	0.37	-0.02	0.27
F	3.00	2.03	4.87	3.39	0.89	2.48
DW	1.87	1.90	2.21	2.44	2.22	2.92

Note: Each slope is followed by its t-value in bracket, out of which highlighted ones represent significant at 5 % level

With respect to trends of deposit mobilisation by banks and non-banking institutions, the tables above (Tables 4.5 & 4.6) do not show any clear shift from banks to non-banking institution, or else it may be said that there is no clear trend of movement towards intermediation or even disintermediation either for the overall period of study or during the pre and post-liberalisation phases. The t-values of each of the coefficients in all the equations are insignificant and also the \bar{R}^2 values show very poor explanatory power of the models.

Table: 4.7 -Trend of BCI Index

Phase	Overall		Pre-liberalisation		Post-liberalisation	
	Quadratic	Cubic	Quadratic	Cubic	Quadratic	Cubic
a	118.11 (11.57)	86.93 (7.40)	95.71 (8.41)	95.33 (5.10)	67.90 (4.68)	64.63 (2.72)
b	-9.01 (-5.17)	3.66 (0.99)	-1.78 (-0.48)	-1.51 (-0.14)	-6.17 (-1.30)	-3.79 (-0.27)
c	0.36 (5.80)	-0.79 (-2.51)	0.03 (-0.11)	-0.07 (-0.04)	0.95 (2.87)	0.54 (0.23)
d		0.03 (3.71)		0.00 (0.03)		0.02 (0.18)
R ²	0.62	0.76	0.39	0.39	0.83	0.83
\bar{R}^2	0.58	0.73	0.27	0.18	0.80	0.78
F	18.54	23.78	3.17	1.90	25.03	15.08
DW	1.47	2.40	2.20	2.20	2.19	2.18

Note: Each slope is followed by its t-value in bracket, out of which highlighted ones represent significant at 5 % level

Table: 4.8 -Trend of NBCI Index

Phase	Overall		Pre-liberalisation		Post-liberalisation	
	Quadratic	Cubic	Quadratic	Cubic	Quadratic	Cubic
a	67.07 (3.61)	123.75 (5.80)	107.80 (5.21)	108.48 (3.19)	158.35 (6.01)	164.29 (3.80)
b	16.39 (5.17)	-6.66 (-0.99)	3.24 (0.48)	2.74 (0.14)	11.22 (1.30)	6.91 (0.27)
c	-0.66 (-5.80)	1.43 (2.51)	0.05 (0.11)	0.13 (0.04)	-1.72 (-2.87)	-0.98 (-0.23)
d		0.05 (-3.71)		-0.00 (-0.03)		-0.03 (-0.18)
R ²	0.62	0.76	0.39	0.39	0.83	0.83
\bar{R}^2	0.58	0.73	0.27	0.18	0.80	0.78
F	18.54	23.78	3.17	1.90	25.03	15.08
DW	1.47	2.40	2.20	2.20	2.19	2.18

Note: Each slope is followed by its t-value in bracket, out of which highlighted ones represent significant at 5 % level

In contrary to deposit acceptance, a trend of disintermediation is visible in case of credit disbursal by commercial banks (slope = -9.01) with respect to non-banking institutional credit disbursal. This can be said to exist on the basis of quadratic trend whereas cubic trend analysis does not bring out any significant result (Tables 4.7 & 4.8). But when further divided into pre and post-liberalisation, the relation is not a significant one as there is no trend of disintermediation visible.

Hence, from the above analysis one can conclude that there is no clear shift from commercial banks to other intermediary institutions when it comes to deposits mobilisation, or else, no clear indication for bank disintermediation because of

deposit mobilisation by alternative institutions. Whereas in case of credit disbursal by commercial banks, a small shift is visible in overall period of study. But when further divided into two phases, no trend is visible.

4.5. Capital market disintermediation

Basically the term disintermediation has been used to mean a situation where there is no intermediary institution between the borrowers and lenders and both are in direct contact with each other for funds mobilisation. Now a days, there is a tendency by the large corporations to access directly to raise funds rather than depending on an intermediary institute for the same. This has led to development of capital market allowing corporate houses to bypass intermediary institutions. In India also (as mentioned above), the capital market got a boost due to relaxation in government norms for the access of the same. Hence, a separate analysis is required to see whether there is any disintermediation effect of capital market both on commercial banks as well as on financial institutions with respect to their deposit taking and credit disbursal.

The basic approach adopted here is similar to that in the previous section. There can be various possible explanations like the rate of interest, the degree of risk associated or the amount of liquidity and so forth; that form the background towards making decision to choose the mode of investment; but here the decision point is cheap availability of funds for corporate houses. The hypothesis 'Capital market growth is a significant disintermediation variable for banking in India' is being tested in this section. For this purpose four indices are developed as under-mentioned:

Bank disintermediation (deposit) index (BDD_{Index}) = Net annual deposit with commercial banks / Total annual capital market mobilisation

Financial disintermediation (deposit) index (FDD_{Index}) = Net annual deposit with all financial intermediaries / Total annual capital market mobilisation

Bank disintermediation (loan) index (BLD_{Index}) = Net annual loan by commercial banks / Total annual capital market mobilisation

Financial disintermediation (loan) index (FLD_{Index}) = Net annual loan by all financial intermediaries / Total annual capital market mobilisation

Banking disintermediation indices are to analyse the impact of capital market disintermediation on banks deposit and loan whereas, financial disintermediation indices are to measure the impact on all financial institutions (both bank and non-banking institutions). The graphs given below show the movement of all the four indices from 1980-81 till 2005-06 and portray that there has been a sharp fall in the all the index figures. It is found that till 1990-91 each of the indices have fallen sharply followed by negligible negative slope thereafter. The related figures are presented in the Table 4.9:

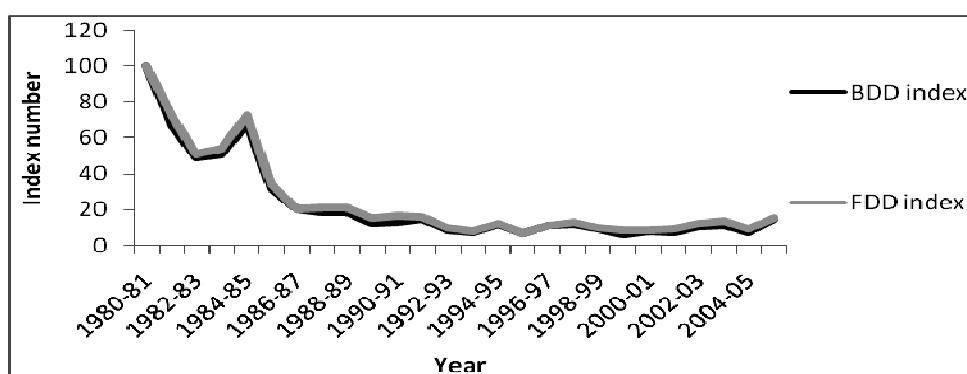
Table: 4.9 – Shift in disintermediation indices

Year	BDD _{Index}	FDD _{Index}	BLD _{Index}	FLD _{Index}
1980-81	100	100	100	100
1985-86	31.18	34.01	27.38	33.89
1990-91	12.85	16.47	12.12	15.68
1995-96	6.39	6.55	9.39	13.04
2000-01	7.70	8.43	6.32	8.89
2005-06	14.37	15.12	23.23	16.90

Data source: Varied sources

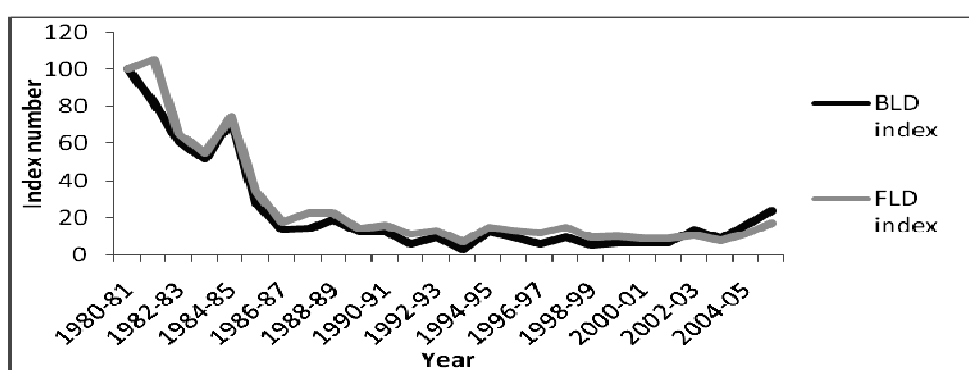
As may be seen above that there has been a sharp decline in deposits taken and credit disbursal by commercial banks as a proportion to capital market mobilisation during the pre-liberalisation phase. This sharp decline till 1990-91 can be attributed to the increased investor preference in capital market, mostly debt market. This happened as a result of the growth in corporate bond market that also includes PSU bonds introduced since the year 1985-86. During the post-liberalisation phase, there have been a large number of additions of new debt instruments and increasing use of private placement channels of resource mobilisation. But there is no fall in the index figures during this phase which, on one hand, implies lack of investors preference towards capital market investment, whereas, on the other hand, this means that even companies have preferred going for bank finance instead of capital market in order to meet their requirements.

Graph: 4.9 – Deposit Disintermediation Index



Data source: Varied sources

Graph: 4.10 – Loan Disintermediation Index



Data source: Varied sources

Similar to the previous section, a trend analysis has been applied here for all the four indices framed. A fall in the disintermediation index (for both deposit and loan) in relation to time, or otherwise, a negative slope in trend can be considered as bank disintermediation. Similar is the case for financial disintermediation.

Table: 4.10 –Trend of BDD Index

Phase	Overall		Pre-liberalisation		Post-liberalisation	
	Quadratic	Cubic	Quadratic	Cubic	Quadratic	Cubic
a	87.49 (15.19)	104.42 (15.41)	104.56 (10.19)	108.91 (6.50)	10.01 (3.98)	5.53 (1.52)
b	-9.43 (-9.60)	-16.32 (-7.66)	-15.63 (-4.64)	-18.79 (-1.88)	-0.61 (-0.74)	2.63 (1.21)
c	0.26 (7.43)	0.88 (4.89)	0.65 (2.78)	1.19 (0.74)	0.06 (0.98)	-0.50 (-1.42)
d		-0.02 (-3.49)		-0.03 (-0.34)		0.03 (1.60)
R ²	0.87	0.92	0.89	0.89	0.15	0.34
\bar{R}^2	0.86	0.90	0.86	0.85	-0.02	0.12
F	76.76	80.07	38.89	23.67	0.89	1.54
DW	1.34	1.91	1.96	1.92	2.32	2.60

Note: Each slope is followed by its t-value in bracket, out of which highlighted ones represent significant at 5 % level

Table: 4.11 –Trend of FDD Index

Phase	Overall		Pre-liberalisation		Post-liberalisation	
Trend	Quadratic	Cubic	Quadratic	Cubic	Quadratic	Cubic
a	90.79 (15.73)	106.61 (15.17)	106.36 (9.86)	109.38 (6.19)	10.31 (4.23)	7.31 (1.93)
b	-9.61 (-9.76)	-16.04 (-7.25)	-15.25 (-4.30)	-17.44 (-1.66)	-0.40 (-0.50)	1.78 (0.79)
c	0.27 (7.52)	0.85 (4.52)	0.62 (2.52)	0.99 (0.58)	0.05 (0.83)	-0.33 (-0.89)
d		- 0.01 (-3.14)		-0.02 (-0.22)		0.02 (1.03)
R ²	0.87	0.91	0.88	0.88	0.20	0.29
\bar{R}^2	0.86	0.90	0.85	0.84	0.04	0.05
F	80.29	77.45	35.42	21.39	1.28	1.21
DW	1.42	1.93	1.94	1.92	2.51	2.62

Note: Each slope is followed by its t-value in bracket, out of which highlighted ones represent significant at 5 % level

From the Tables 4.10 and 4.11 above, it is evident that the trend lines (both quadratic and cubic trends) accurately represent the movement of index points (see R²); and hence, it may be said that the model derived for the overall period of twenty six years are statistically significant ones. The Durbin-Watson value lying between du and 4 – du is significant at 1 percent significance level; hence there is no evidence for the first order serial correlation in both the positive and negative ways. But their respective negative slope with significant T- values shows that there has been a decline in the deposit disintermediation index which is evident from the equations given below:

Bank disintermediation (deposit) index- overall

Quadratic: $Y = 87.49 - 9.43t + 0.26t^2$

Cubic: $Y = 104.42 - 16.32t + 0.88t^2 - 0.02t^3$

Financial disintermediation (deposit) index - overall

Quadratic: $Y = 90.79 - 9.61t + 0.27t^2$

Cubic: $Y = 106.61 - 16.04t + 0.85t^2 - 0.01t^3$

But when divided into two phases of pre and post-liberalisation, the equation for the former for both the trends show that there has been a significant decline in the index values, and the models are also significant (see F-values). But the individual t-values of slope are significant at 5 percent level only under quadratic trend, which reveals disintermediation both for net annual bank deposit and net annual financial

institutional deposit in relation to time. But for the post-liberalisation phase, there is no clear conclusive evidence for disintermediation either for bank deposit or for deposit with financial intermediaries irrespective of the fact that the slope is still negative in case of quadratic trend, but that is insignificant (see t-value). This trend of disintermediation during the pre-liberalisation phase can be attributed to the financial transformation that took place during the 1980s where several new capital market instruments were introduced by the government in order to induce investors towards capital market investment. In equity market segment, the introduction of Cumulative Convertible Preference Shares, Warrants and Employees Stock Option Scheme are prominent. In addition, the corporate sector was also allowed to accept deposits from public. Yet another significant development in the Indian capital market was the emergence and growth of private placement market. Similarly, the bond market was opened to PSUs for raising funds. All these measures led to a phenomenal progress in quantitative terms of number of issue and amount as well as in qualitative and structural terms by way of establishment of specialised institutions and introduction of innovative instruments to attract more investors. Capital raised by non-government companies through equity shares, preference shares and debentures increased substantially. This followed a marked rise in the amount of capital raised through debentures that came largely on account of certain favourable changes in the guidelines for debenture issue. Although the proportion of bank deposits to capital market mobilisation was still higher, but the same came down from 20.11 times in 1980-81 to around 1.70 times in 1992-93. Similarly the proportion of deposits with all financial intermediaries to capital market mobilisation that was as high as 30.52 times in 1980-81 came down to 3.01 times in 1992-93. These changes are reflected through their index figures presented in Table 4.9. An increase in the amount of mobilisation through capital market was due to the fact that as a policy of financial sector liberalisation, companies were given free hand to price their security issues; but mis-management in stock market as reflected through several scams (Harshad Mehta scam, M S Shoes scam and Ketan Parikh scam etc.) has led to investor's loss of funds and confidence in market thereby reducing the amount of funds mobilised through capital market. In the current period after 2000, there is also a growing deposits uptake by the commercial banks, thus implying that as a source of savings, commercial banks could gain back credence. One of the reasons for this was the unethical practices adopted by

companies for raising funds by way of creating hype in the market. They could raise good quantity of amount from investors in the form of high premium and now are trading at a rate lower than their face value (*Vajpayee, 2003*).

Similar to deposit disintermediation index, analysis has been made for the loan disintermediation index also for both bank as well as for financial intermediaries as a whole. The result has been stated in Tables 4.12 and 4.13 where it is evident that the trend lines (both quadratic and cubic trends) of both indices are statistically significant.

Table: 4.12 –Trend BLD Index

Phase	Overall		Pre-liberalisation		Post-liberalisation	
	Quadratic	Cubic	Quadratic	Cubic	Quadratic	Cubic
a	97.20 (16.03)	113.99 (15.51)	116.27 (11.19)	114.62 (6.72)	11.04 (3.15)	2.15 (0.51)
b	-11.29 (-10.91)	-18.12 (-7.84)	-18.32 (-5.37)	-17.12 (-1.69)	-2.06 (-1.80)	4.40 (1.73)
c	0.33 (8.86)	0.95 (4.82)	0.78 (3.28)	0.57 (0.35)	0.21 (2.61)	-0.90 (-2.19)
d		0.01 (-3.19)		0.01 (0.13)		0.05 (2.73)
R ²	0.88	0.96	0.91	0.91	0.63	0.80
\bar{R}^2	0.87	0.92	0.89	0.88	0.56	0.73
F	85.53	83.16	50.08	30.11	8.53	11.81
DW	1.42	2.02	2.24	2.25	2.05	2.73

Note: Each slope is followed by its t-value in bracket, out of which highlighted ones represent significant at 5 % level

Table: 4.13 –Trend of FLD Index

Phase	Overall		Pre-liberalisation		Post-liberalisation	
	Quadratic	Cubic	Quadratic	Cubic	Quadratic	Cubic
a	103.65 (15.22)	125.38 (16.49)	125.93 (11.42)	122.02 (6.76)	13.33 (4.34)	3.99 (1.34)
b	-11.20 (-9.64)	-20.04 (-8.38)	-19.23 (-5.31)	-16.40 (-1.53)	-0.89 (-0.89)	5.89 (3.31)
c	0.31 (7.46)	1.11 (5.47)	0.81 (3.22)	0.32 (0.18)	0.07 (0.93)	-1.10 (-3.80)
d		0.02 (-3.99)		0.02 (0.28)		0.05 (4.07)
R ²	0.87	0.92	0.91	0.91	0.08	0.68
\bar{R}^2	0.86	0.91	0.89	0.88	-0.10	0.57
F	77.28	90.26	49.68	30.10	0.43	6.26
DW	1.35	2.34	2.62	2.62	1.62	2.68

Note: Each slope is followed by its t-value in bracket, out of which highlighted ones represent significant at 5 % level

The Durbin-Watson value lying between du and $4 - du$ is significant at 1 percent significance level, hence there is no evidence for the first order serial correlation in both the positive and negative ways. Their respective negative slope with significant t-values shows that there has been a decline in the deposit disintermediation index which is evident from the equations given below for the overall period:

Bank disintermediation (loan) index- overall

Quadratic: $Y = 12.03 - 1.40t + 0.04t^2$

Cubic: $Y = 14.11 - 2.24t + 0.12t^2 + 0.00t^3$

Financial disintermediation (loan) index - overall

Quadratic: $Y = 19.89 - 2.15t + 0.06t^2$

Cubic: $Y = 24.06 - 3.85t + 0.21t^2 + 0.00t^3$

Similar to deposit disintermediation index, both the bank and financial credit disintermediation indices have been divided into two phases of pre and post-liberalisation; and the equation for pre-liberalisation for both the trends show that there has been a significant decline in the index values, and the models are also significant (see F-values). But for the result for individual t-values of slope is significant at 5 percent level only under quadratic trend, which reveals disintermediation both for net annual bank credit and net annual credit by all financial institutional in relation to time. The reason for decline in the proportion of bank credit to total capital market mobilisation is the same as that for decline in deposit mobilisation. The introduction of new and innovative instruments, such as, PSU bonds, CCPs as well as Commercial papers on one hand and a change in government's policy towards relaxation of norms for raising capital from primary market on the other, increased investors participation in capital market and there was a manifold increase in the amount of capital mobilised through primary market. But during post-liberalisation phase, there is no conclusive evidence for disintermediation visible either for loan disbursal by commercial banks or even for all financial institutions. This means that during the current phase there has been a decline in the interest of companies as borrowers of fund from capital market.

4.6. References

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Chapter: 5

Impact of disintermediation on commercial banks' performance and profitability

5.1. Introduction

Bank performance is a function of several inputs. Both micro, i.e., bank related variables and macro variables affect the performance. Variables like number of employees, number of branches, technology, policies of RBI and Govt., international and national developments are some of the examples of such inputs for performance. Further, the ownership and quality of governance also affects the performance of banks (Berger et.al, 2005). Performance is measured by several indicators. For example, the overall business in form of deposit taking and loan disbursement can be one the important indicators of performance. Income, expenditure, loan quality and profit are also other important indicators. Apart from financial performance, social performance of banks also counts. Coverage of rural population, opening of no-frill accounts and recently, the assistance to Self Help Groups (SGHs) are some of the performance indicators. The measurement of performance can be done either in respect of banks as a whole or for individual branches.

Related to performance is the efficiency of performance, which is measured in two ways- technical efficiency and economic efficiency. The former arises when input minimisation is possible for a given quantity of output; whereas, the later arises when output is maximised for a given quantity of input. Economic efficiency on the other hand, is a broader concept, which involves choosing optimal levels and combinations of inputs and outputs and also plays a leading role among all the determinant functions in any organisation. One of the important measures of efficiency is the intermediation cost stated as a percent to total assets. Another used measure is the cost-income ratio that may be defined as the ratio of operating cost to net total income. In addition, some of the widely used measures are non-interest operating expenses to total assets, total expenses to assets, total expenses to total

revenue, non-interest expenses to adjusted operating revenue and staff expenses to assets. The parameters of profitability used are return on assets, return on equity, profit per employee, etc. Similarly the parameters used to measure the relation between efficiency and ownership are operating expenses, spread, net profit, asset quality and capital adequacy.

Credit risk also impinges on efficiency in both positive and negative way. Credit risk is expected to have a negative impact on efficiency when it comes to running a firm that is risky. However, active risk-taking is expected to be rewarded by higher expected return and could have a positive effect on efficiency. There is also a relationship between capital and efficiency. Well-capitalised banks often tend to be better run and in turn are able to generate higher profits. This enables them to plough back a part of their earnings into capital, and thereby improve their capital position. Some other parameters used to measure the efficiency of commercial banks are business per employee, profit per employee, NPA, capital adequacy, etc.

But this chapter focuses on the impact of disintermediation on the performance of the banks reflected through income and expenditure parameters. For this purpose bank income is classified into two categories, viz., interest income and non-interest income. Interest income is obtained from interest earning assets that is mostly of advances and loans extended. Non-interest income includes revenue from sources such as commissions, brokerage, exchange, service charges, government fees, rent from lockers and premises, etc. Similarly, bank costs are also classified into categories, such as, interest cost and non-interest cost. Interest cost is the amount paid by way of interest on interest bearing liabilities (deposits) and non-interest costs include establishment costs, and other operating costs like rent and taxes, stationary and printing charges, depreciation, auditor's fee, telephone charges, etc. The difference between the interest income and interest cost is called 'spread' or 'interest contribution' whereas that between non-interest income and non-interest expenses is called 'burden' or 'non-interest contribution'. The combination of spread and non-interest contribution when adjusted for provisions and contingencies gives the net profit or loss.

The rate of interest on deposits is basically fixed by the monetary authorities, thus remaining outside the bank's own control. Though after the deregulation of interest some autonomy has been given to the banks to fix on their own, still indirectly

Govt. influences the interest rate. Consequently, banks have to act according to the administered rates of interest and cost structure. Similarly, interest earned on advances that constitutes a major portion of earnings is left with little discretion of banks. Banks are controlling the quantum of advances to some extent as there are statutory regulations on priority sector advances, etc. Similarly, returns on statutory holdings, like CRR and SLR, against deposit liabilities are also rigid. Thus the interest incomes and interest costs are almost outside the bank's control. Hence, for effective funds management, banks have to concentrate on non-interest costs and non-interest incomes. A major item of non-interest expenditure is the establishment cost, whose growth needs to be contained of it by an efficient staff recruitment policy and optimal utilisation staff services. Similarly, the sources of non-interest income such as commissions, brokerage and exchange can also be fixed at a reasonable rate in a systematic manner.

The measurement of profitability, in case of Indian banks, has been in terms of the performance impacted by social responsibility attached to their basic functions; and the same has been a point of criticism. During pre-liberalisation era, profit has always been the cause of concern for Indian commercial banks. Although bank's profit was found to be increasing in absolute terms from year to year, but their profitability has been very much eroded due to politicisation of bank's functioning and loan melas (*Kothari, 1990*). In post-liberalisation phase, particularly after the opening of banking sector, Indian banks have shown considerable resilience in the competitive environment and have remained financially healthy. The co-existence of the public sector, private sector and the foreign banks has generated competition in the banking sector leading to a significant improvement in efficiency and customer service (*Reddy, 2007*). But amidst all these, an important question that remains unanswered is whether their profit and performance has been impacted by the growing alternative instruments of savings mobilisation in market, specifically capital market that is commonly referred to as "disintermediation". This chapter tries to answer the above-mentioned question and for which, analysis has been made for the various indicators of profit and performance for Indian Commercial Banks.

5.1.1. Concepts

Following are the indicators used to measure the performance and profitability of banks. They are the basic indicators usually used to measure the performance comprising of both income and expenses. Income here includes income from both on and off-balance sheet activities. On- balance sheet represents income from intermediation activity; whereas off-balance sheet activity represents income from non-intermediation activity. Similarly, expenses have been classified as expenditure towards interest payment and other expenses, where the former represents expense made for intermediation activity.

- a. **Interest Income:** Interest income represents income from traditional intermediation activity of giving loan. By retaining the rate of interest as constant, the increase in interest income represents more and more of deposits are being converted into loans of different forms.
- b. **Interest expense:** Interest expense represents expenditure towards traditional intermediation activity of accepting deposits. By retaining the interest factor as constant, its increase represents more savings of nation being converted into deposit of different forms of savings.
- c. **Non-Interest Income:** Non-interest income represents income from other sources other than interest on loan, such as, commissions, brokerage, exchange, service charges, government fees, rent from lockers and premises, etc. An increase in such income suggests that there is a shift in the banks' activities more towards those falling out of their traditional intermediation activity.
- d. **Non-interest Expense:** Non-interest expenses include establishment and other operating expenses, such as, payments to and provisions for employees, rent, taxes, lighting, printing, depreciation etc. The major item of non-interest expenditure is the establishment cost. An increase in this type of expenses represent inefficiency on the part of management to control over the cost of operation that makes a negative impact on performance and profitability because efficient banks are expected to have a lower operating cost.
- e. **Net-Interest Margin (Spread):** Another important indicator of efficiency of banks is net interest margin. It is defined as the excess of interest income over interest expense. It is an important indicator of banks efficiency since it drives a

wedge between interest received by depositors and the interest charged to borrowers on their loans.

f. **Profit:** As has been mentioned above that for all commercial enterprises, profit is the most important component. But unlike other enterprises, bank profit is the difference between income (interest and non-interest) and expense (interest and non-interest).

In addition to the above-mentioned, some other components have been used in this chapter. They are the basic performance indicators, i.e., credit-deposit ratio and investment-deposit ratio; as well as internal determinants like the log of bank assets (to determine the importance of banking finance), capital to total assets, non-interest bearing assets (NIBA) to total assets, overheads to total assets, wage to total assets, advance to total assets; and also some of the variables introduced in regression analysis to capture the impact of disintermediation in commercial bank's performance like market capitalisation to GDP, bank disintermediation (deposit) index and bank disintermediation (loan) index. The validation towards their inclusion has been provided in respective sections.

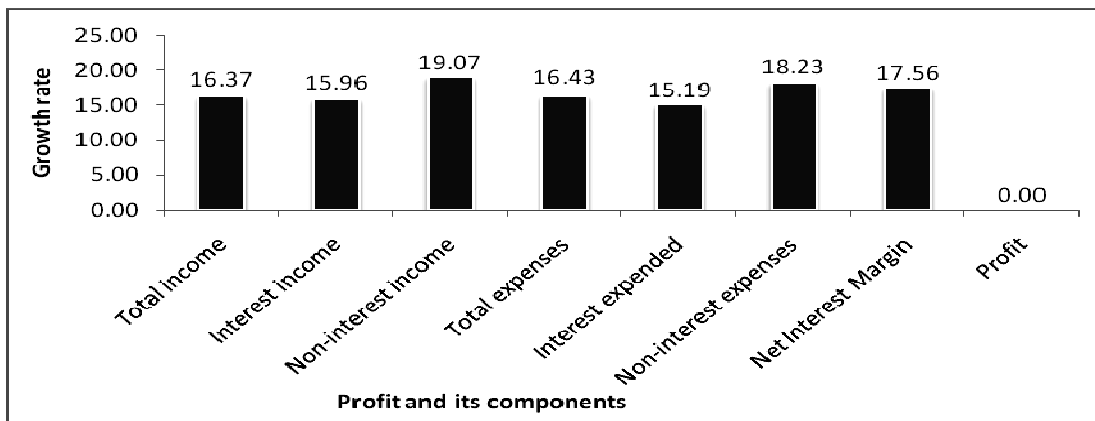
5.2. Growth of income and expenses by Commercial banks

As mentioned above that banks are commercial organisations whose performances are also measured by the return that they can obtain out of their operation. Income received by them is in the form of interest as well as non-interest income. Similarly, expenses are in the form of both interest and non-interest expenses. The difference between interest earned and interest expended is called the net interest margin or spread. Spread represents the amount of net earning out of intermediation activity.

As per the linear growth rate of total income revealed in Graphs (5.1, 2 & 3), there has been a decrease in the rate of growth of both the income and expenditure over the period from pre to post-liberalisation phases leading to a decline in the growth rate of both net interest margin and overall profit. As has been observed in Graph 5.1, the growth rate of interest income is less than that of the total income whereas that of non-interest income is more; thus revealing the fact that in the overall period of study, there has been a declining importance of interest income in the total income of commercial banks with the non-interest income gaining credence in its

place. A similar development is also visible for expenditure pattern, which shows a gaining importance of non-interest expenditure on one side with interest expenditure losing on the other. When the figures are divided into pre and post-liberalisation phases (Graphs 5.3 and 5.4), there has been a clear decline in the rate of growth for all the components of bank performance over the period from pre to post-liberalisation. But the decline is more pronounced in case of interest income and expense than that of non-interest income and expense. The rate of growth for interest income, that was equivalent to non-interest income during the pre-liberalisation phase and also higher than the overall growth rate, has come down drastically during post-liberalisation phase to reach a level where the growth rate of non-interest income (although declined) is more than that of interest income, thus illuminating the fact there has an increase in earnings from off-balance sheet activities. The reason behind this is the shift in services by banks away from interest earning assets, such as, loans and advances, and investment activities towards various other non-income activities which include income from fee, commission and other service charges. This is more pronounced in case of new private sector banks as well as foreign banks which are more of technology oriented. All this has resulted in a decline of the growth rate for net interest margin from pre to post-liberalisation phase (from 19.42 to 15.06 percent). Similar is the case for expenditure pattern, where the growth rate of interest expense during pre-liberalisation phase was more than that of the overall growth and was also higher than that of non-interest expense. But this has come down drastically during post-liberalisation phase; and now is at a rate much lower than that of the overall rate of growth. Whereas, the rate of growth for non-interest expense (although declined) has remained higher than that of the interest expense, thus implying that the internal cost of operation, such as, the overheads and provisions and contingencies have increased over the period of time.

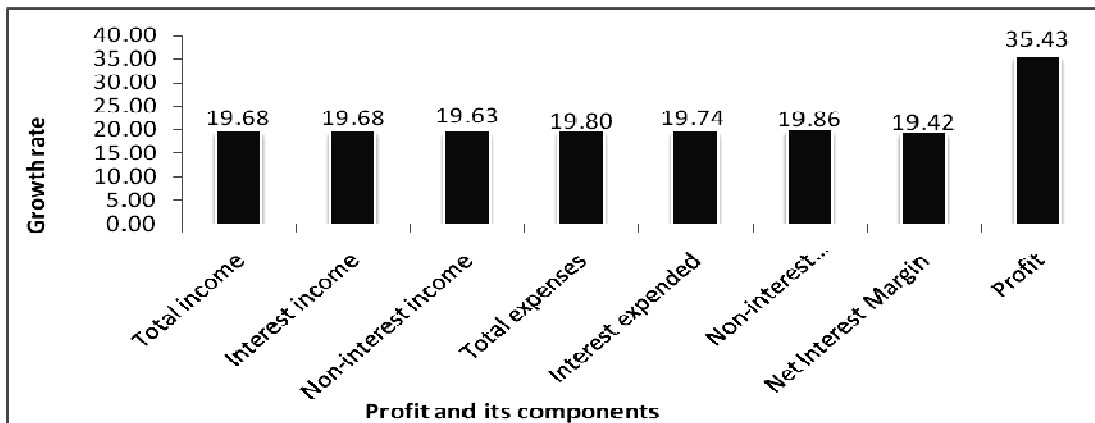
Graph: 5.1 – Performance of Commercial banks (Overall)



Data source: RBI

Note: Linear Growth rate of profit could not be calculated due to presence of negative figure in data

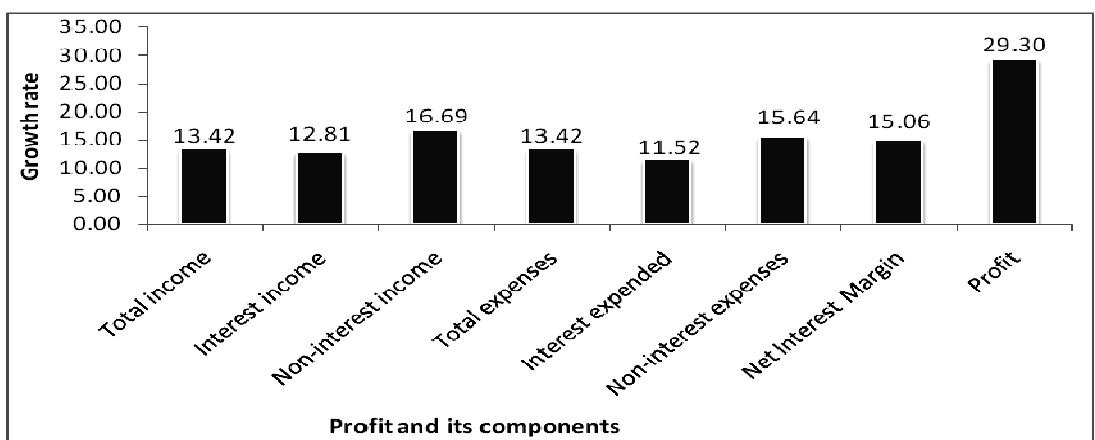
Graph: 5.2 - Performance of Commercial banks (Pre-liberalisation)



Data source: RBI

Note: Growth rate of profit represents growth rate form 1980-81 till 1991-92

Graph: 5.3 - Performance of Commercial banks (Post-liberalisation)



Data source: RBI

Note: Growth rate of profit represents growth rate form 1994-95 till 2005-06

Table: 5.1 –Commercial Bank Performance (other statistics)

Period		Total income	Interest income	Non-interest income	Total expenses	Interest expended	Non-interest expenses	Net interest margin	Profit
Overall	Mean (Rs. Cr)	71,738.02	60,960.09 (84.98)	10,776.37 (15.02)	71,699.15	40,028.03 (55.82)	31,671.12 (44.18)	20,933.14	4,888.87
	CV	0.97	0.94	1.16	0.97	0.88	1.11	1.08	1.69
Pre-liberalisation	Mean (Rs. Cr)	17,498.17	15,743.1 (89.97)	1,755.02 (10.03)	17,423.85	11,509.30 (66.05)	5,914.55 (33.95)	4,235.99	-553
	C V	0.75	0.74	0.83	0.75	0.73	0.81	0.78	24.35
Post-liberalisation	Mean (Rs. Cr)	1,25,974.75	1,06,177.0 (84.28)	19,797.71 (15.72)	125,974.44	68,546.75 (54.41)	57,427.69 (45.59)	37,630.28	9,833.57
	C V	0.47	0.45	0.62	0.47	0.40	0.58	0.57	0.95

Data source: RBI

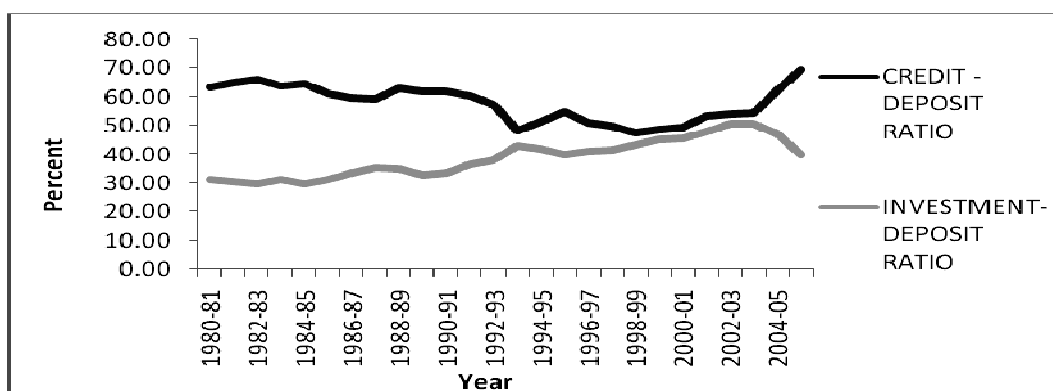
Note: Figures in bracket represent percent to total income and expenditure in that order

During the initial period of post-liberalisation, the level of efficiency of commercial banks have shown a downfall that happened till 1996, mainly because of decline in technical efficiency that was more pronounced in case of public sector banks. But, the later period, after that, has been marked by an improvement in efficiency so as to reap the maximum economies of scale. In overall, the expenditure (both interest and non-interest) have declined over the years during the post-liberalisation phase which is a sign of banks' improving efficiency. All these improvements has led to an improvement in their profitability from an average figure, that was negative during pre-liberalisation has now turned into positive (Table 5.1) with a marked growth since the year 2003-04. However, a slow growth of profit during post-liberalisation phase is due to the presence of lesser margin of profit during the initial years, which, if excluded, brings out the fact that there has been a marked improvement in the amount of profit in recent years. One of the factors contributing to this phenomenon is the opening up of this sector for private participation including foreign participation that has ultimately led to increase in competitive attitude and better profitability. As revealed through the coefficient of variations on an overall basis, banking performance has been more consistent in post-liberalisation phase in comparison to the previous phase.

5.3. Determinants of performance

The two important measures that determine the level of bank performance in terms of their intermediary behaviour are the credit-deposit ratio (C-D ratio) and investment-deposit (I-D ratio). These two ratios determine as to what percent of deposits accepted goes towards loan and what percent goes towards investment activities instead getting converted into loan.

Graph: 5.4 – Basic determinants



Data source: RBI

An increase in the C-D ratio shall mean that more of the deposit is converted into loan assets, which is a sign for improvement of basic intermediation activity. Whereas increase in I-D ratio means deviation away from intermediation activity as it shows that more and more of deposits is getting invested into market.

Graph 5.4 which presents both the C-D ratio and I-D ratio, reveals a gradual decline in the C-D ratio till the year 2002-03 accompanied by an increase in I-D ratio. Only in recent years, the trend has changed in favour of the former. This is also established through the linear growth rate which is -0.76 percent for C-D ratio and 2.07 percent for I-D ratio. This means that instead of converting more and more of deposit into loan, that is being converted more into investments, and is more pronounced during pre-liberalisation phase when the linear growth rate for C-D ratio and I-D ratio respectively were -0.76 percent and 1.70 percent. This trend, however, is not valid during the post-liberalisation phase as there has been an improvement in the C-D ratio which has turned positive (linear growth rate being 1.88 percent) and the growth rate of I-D ratio (although positive) has declined from the earlier level of 1.70 percent to 1.11 percent during the post-liberalisation phase. Again, going back to the graph, the current years have witnessed a reversal in trend

as the curve of I-D ratio has come down and that of C-D ratio gaining importance enlightening that a higher proportion of deposits are being converted into loans. But this has happened only after 2002-03, and prior to which the I-D ratio was higher than the C-D ratio. This whole situation of negative growth rate in respect of C-D ratio during the pre-liberalisation phase can be linked with government policy of having higher reserve requirements that required more of funds to be parked in government securities and other approved securities. But, on the other hand, the phase of post-liberalisation has been characterised by a decrease in the same as the rate has brought down from more than 50 percent during the beginning of liberalisation phase to a current level of around 30 percent, resulting to increase of quantity of funds available with banks for disbursal. Banks have also been accorded greater discretion in sourcing and utilisation of resources, albeit in an increasingly competitive environment (*Leeladhar, 2007*).

In addition, there are some of the internal determinants of performance which also show whether there is any disintermediation that has affected bank performance are being analysed in this current section. These are some of the measures that have been applied by (*Naceur & Goaid, 2005*). Their importance and nature of movement have been given in Table 5.2.

Table: 5.2 - Internal determinants

Year	Bank assets (Log)	Capital	NIBA	Overheads	Wage	Advance
		(As percent to total assets)				
1980-81	4.77	0.19	20.37	2.50	1.76	46.82
1985-86	5.14	0.48	17.31	2.57	1.78	45.62
1990-91	5.53	0.97	7.05	2.67	1.59	43.83
1995-96	5.79	2.70	10.77	4.57	2.08	41.9
2000-01	6.13	1.57	7.28	4.15	1.80	40.22
2005-06	6.46	0.96	5.57	4.05	1.22	54.09

Size of bank: Size of bank can be measured by the log of bank assets which also reflects the importance of bank financing in economy. Although some previous authors have used size of bank assets figure directly to measure the size, but here it has been converted into log before making any interpretation. As per the Table 5.2

above, there has been a constant increase in the size of banking; and therefore, it may be said that there has been an increasing importance of banking finance in economy.

Capital to total assets: A higher ratio of equity capital to total assets implies that there is a lesser need for external funding, and also that well capitalised banks are more secured as they face lower costs of going bankrupt, resulting in lower cost of funding. However, the data disclosure for banks capital does not differentiate between equity and debt funding; and for this reason, whole of the capital figure has been considered as equity capital. And as visible in the table above, till 1995-96 there has been a constant rise in the ratio of capital as a percent to total assets, followed by a decline in the same.

Non-interest bearing assets to total assets (NIBA): NIBA and profitability have inverse relationship and an increase in the NIBA impact negatively on profits and vice-versa; as this represents that portion of overall assets which does not earn any return. The ratio of NIBA to total assets, that was as high as 20.37 percent in 1980-81, have come down over the years and is now 5.57 percent. This reveals the increasing ability of banks to convert deposits into more and more of interest bearing assets.

Overheads to total assets (Overhead): This ratio provides information on variation in bank costs and a high ratio is expected to have a negative impact on performance because efficient banks are expected to operate at lower costs. But, the table above shows that there has been a constant increase in the overhead cost which is not a good sign, as that brings forward the inefficiency of banks to control cost. This also proves that there has been an increase in the banks cost of operation over time.

Wages to total assets (wage): Another measure of efficiency is the wages paid to employees. This includes payments to and provisions for employees which, when expressed as a percent to total assets, reveals that there has been a constant increase till 1995-96 proving inefficiency on the part of banks to curtail the cost of operation, and may be linked with excess manpower. This, however, declined in the period after that, thus revealing an increasing efficiency on the part of banks to curtail cost of operation.

Advance to total asset: Advance is expected to be the main source of income and to have a positive impact on bank performance. Hence, keeping other things as constant, the more deposits are transformed into loans, the higher the interest margin and profits. But, the table above shows that there has been a constant decline in the ratio of advance to total assets till 2000-01 and cannot be said to be a good sign for banks. This, however, has improved during the current year and is at its highest.

5.4. Disintermediation and Performance: a correlation

Before making any further analysis with respect to disintermediation, making any impact over the profitability and performance, it is necessary hereby to make an analysis with regard to the correlation between disintermediation indices and the basic measures of banks' performance. The correlation co-matrix table given below discloses the relation between the disintermediation indices with two of the important performance indicators for banks, i.e., interest income and interest expense; both expressed as a percent to total assets.

According to the Table 5.3 below, there is a highly significant positive correlation between the BDD_{Index} and the BLD_{Index}, which means that the nature of movement for both curves is almost analogous. This has been seen in chapter: 4 that both the indices have come down in a similar manner during the overall period of study, with a clearly pronounced decline during pre-liberalisation phase due to the change in government's policy, supporting improvement of capital market through introduction of new instruments during 1980s.

Table: 5.3 - Correlation matrix-1

	BDD _{Index}	BLD _{Index}	Interest income	Interest Expense
BDD _{Index}	1.00			
BLD _{Index}	0.98 (0.00)	1.00		
Interest income	-0.53 (0.01)	-0.46 (0.02)	1.00	
Interest Expense	-0.57 (0.00)	-0.50 (0.01)	0.99 (0.00)	1.00

But for the measures of performance, i.e., interest income and interest expense, the assumption made is that due to the impact of disintermediation both will get reduced, or, in other words, there will be a direct positive correlation between them and the disintermediation indices. But the matrix shows a negative correlation between them and the disintermediation indices, which is against expectation. A negative correlation between bank deposit disintermediation index and interest expenditure means that although there has been a decline in the deposit as a ratio to total market mobilisation, but then cost in the form of interest payment has increased. This is also evident from the correlation between bank credit disintermediation index and interest expense whose negative correlation also proves the fact that the latter is growing, irrespective of the fact that there is a decline in the former (as shown in previous chapter).

5.4. 1. Regression analysis

To test the hypothesis whether disintermediation has affected the profitability and performance of commercial banks in India, two regression analyses are being executed for two dependent variables, i.e., Net Interest Margin (NIM) and Return on Assets (ROA), separately. NIM, which is a measure of efficiency of performance as has been used by (*Kunt & Ross, 1999 and Naceur & Goaid, 2005*) and is also the determinant of net return from intermediation activity. It is the difference of interest income over interest expenditure, expressed as a proportion of total asset. Another measurement is the Return on Assets, i.e., percent of profit earned per unit of asset as has been used by (*Naceur & Goaid, 2005*). This is a measurement of the efficiency of banks in terms of profitability, measured per unit of assets, i.e., Total Bank Income after Tax / Total Assets.

The determinant factors used are market capitalisation, size of banking sector, BDD_{Index} , BLD_{Index} and C-D ratio. Each of these determinant variables is explained as follows:

1. Market capitalisation index (Markcap) is the total stock market capitalisation /GDP, has been used as a proxy for financial market development and as a measure of the size of the equity market.

2. Size of banking sector (SBS) is the total assets with commercial banks/ GDP, has been used to represent the importance of banking finance in economy.
3. Bank disintermediation (deposit) index (BDD_{Index}) = Net annual deposit with commercial banks / Total annual capital market mobilisation
4. Bank disintermediation (loan) index (BLD_{Index}) = Net annual loan by commercial banks / Total annual capital market mobilisation
5. C-D Ratio: This is introduced in the model as the basic indicator of intermediation activity.

The first two variables have been used by Naceur & Goaid (2005) as the determinant factors for net interest margin and profitability in Tunisian banks. Here, it may be assumed that if the market disintermediation is making any impact over the performance and profitability of commercial banks, then there will be a negative slope between the net interest margin and return on assets with that of market capitalisation index, i.e., with an increase in the value of market capitalisation index, there will be a decline in the value of both net interest margin and return on assets. Again, as has been stated by Naceur & Goaid (2005) "MCAP and SBS may also indicate the complementarities or substitutability between bank and equity market financing." Hence, it may be anticipated in corollary to their own assumption that if net NIM and ROA has negative relation with market capitalisation, then they will also have negative relation with size of banking sector. The two disintermediation indices introduced in previous chapter to see the impact of capital market development over bank deposit and bank loan are also entered here as two of the determinant variables. In contrary to previous variable, here the relation is expected to be a straight one as it may well be assumed that if disintermediation is making impact over banks' performance, there will be a decline in the both banks' net interest margin and profit.

The major reason for introducing C-D Ratio as an independent variable is that if there is a significant positive relation between this ratio with NIM and ROA, then it may well be accepted that intermediation activity is still the main source of earning and profitability.

But before performing any regression analysis, it is hereby important to see whether any correlation exists among the selected variables (both dependent and independents). From Table 5.4 below, it is evident that there exists a negative correlation between the net interest margin (NIM) and market capitalisation index (markcap) for the overall period of twenty-six years and also during pre-liberalisation phase; implying that growth of capital market and performance of commercial banks do not go together.

But this cannot be said in a forceful manner as the correlation coefficient between them is not a significant one. Whereas in case of both the disintermediation indices, there exists a negative correlation between them and NIM, which implies that performance of commercial banks have improved irrespective of the fact that there has been a decline in both deposit taking and loan giving capacity of commercial banks, as proportion of capital market mobilisation (as has been seen in chapter 4). Again this result is significant for the overall period of twenty six-years only and not in case of any of the sub-periods.

A significant negative correlation between C-D ratio (C-D) and NIM (for the overall and pre-liberalisation phase) is also something against our expectation, as it is expected that an improvement in intermediary business should also bring about an improvement in performance. However, a significant positive relation between the size of banking sector (SBS) and NIM implies that for the overall period of twenty-six years, banking finance in economy is an important variable. But this is not true for pre and post-liberalisation phases. A similar nature of correlation is also visible with return on assets (ROA) that is a measure of profitability. But apart from SBS (that is positively significant), none of the other variables have any significant correlation coefficient; and hence, no conclusion can be drawn with regard to their relation except for the fact that amount of banking finance in economy could be a significant determinant of profitability. This is more pronounced during the post-liberalisation phase.

Table: 5.4 – Correlation Matrix-2

Overall							
	NIM	ROA	C-D	Markcap	SBS	BDD _{Index}	BLD _{Index}
NIM	1						
ROA	0.39 (0.05)	1					
C-D	-0.61 (0.00)	-0.11 (0.58)	1				
Markcap	-0.18 (0.39)	0.04 (0.83)	0.21 (0.30)	1			
SBS	0.46 (0.02)	0.62 (0.00)	-0.10 (0.64)	-0.24 (0.24)	1		
BDD _{Index}	-0.63 (0.00)	-0.22 (0.29)	0.57 (0.00)	0.65 (0.00)	-0.62 (0.00)	1	
BLD _{Index}	-0.62 (0.00)	-0.18 (0.37)	0.62 (0.00)	0.67 (0.00)	-0.55 (0.00)	0.98 (0.00)	1
Pre-liberalisation							
NIM	1						
ROA	-0.19 (0.54)	1					
C-D	-0.49 (0.09)	0.45 (0.12)	1				
Markcap	-0.25 (0.41)	0.02 (0.96)	0.37 (0.21)	1			
SBS	0.26 (0.39)	0.05 (0.86)	-0.52 (0.07)	-0.62 (0.03)	1		
BDD _{Index}	-0.40 (0.18)	0.14 (0.64)	0.68 (0.01)	0.76 (0.00)	-0.88 (0.00)	1	
BLD _{Index}	-0.45 (0.12)	0.10 (0.76)	0.75 (0.00)	0.75 (0.00)	-0.87 (0.00)	0.98 (0.00)	1
Post-liberalisation							
NIM	1						
ROA	0.21 (0.50)	1					
C-D	0.05 (0.87)	0.39 (0.19)	1				
Markcap	0.27 (0.38)	0.65 (0.02)	0.72 (0.01)	1			
SBS	-0.32 (0.29)	0.64 (0.02)	0.76 (0.00)	0.62 (0.03)	1		
BDD _{Index}	0.28 (0.35)	0.41 (0.16)	0.44 (0.14)	0.34 (0.26)	0.26 (0.40)	1	
BLD _{Index}	0.13 (0.68)	0.48 (0.10)	0.91 (0.00)	0.68 (0.01)	0.68 (0.01)	0.60 (0.03)	1

Data source: Statistical tables relating to banks in India RBI, and Chapter-4

Note: Significant correlations are highlighted and Significance level for all are mentioned within bracket

The models to test the determinant variables for net interest margin and return on assets are:

$$\text{NIM} = f(\text{SBS}, \text{Markcap}, \text{BDD}_{\text{Index}}, \text{BLD}_{\text{Index}}, \text{C-D})$$

$$\text{ROA} = f(\text{SBS}, \text{Markcap}, \text{BDD}_{\text{Index}}, \text{BLD}_{\text{Index}}, \text{C-D})$$

It is also important to mention that the same models above have been used to determine the important variables affecting the NIM and ROA for the overall period as well as for the pre and post-liberalisation phases. These above-mentioned dependent variables were first tested with linear regression under the assumption of ordinary least square method; the results of which are presented in Tables 5.5 and 5.6 below.

Table: 5.5 – Net Interest Margin (OLS Result-I)

Period	Overall			Pre-liberalisation			Post-liberalisation		
	Coefficients								
	Unstandardised	Standardised	Collinearity Statistics	Unstandardised	Standardised	Collinearity Statistics	Unstandardised	Standardised	Collinearity Statistics
	Slope	Beta	VIF	Slope	Beta	VIF	Slope	Beta	VIF
Constant	0.04 (3.97)			0.04 (0.59)			0.03 (3.24)		
SBS	0.01 (0.93)	0.21	2.46	-0.03 (-0.70)	-0.52	5.72	-0.01 (-2.18)	-0.90	2.48
Markcap	0.00 (0.99)	0.22	2.40	0.00 (0.38)	0.21	3.25	0.00 (1.53)	0.59	2.17
BDD _{Index}	-0.00 (-0.49)	-0.44	37.37	0.00 (0.54)	1.07	41.35	0.00 (0.56)	0.20	1.80
BLD _{Index}	0.00 (0.03)	-0.03	37.29	0.00 (-0.85)	-2.14	67.26	0.00 (0.11)	0.09	8.72
C-D	0.00 (-1.80)	-0.41	2.40	0.00 (0.67)	0.05	4.69	0.00 (0.18)	0.14	8.78
	R ²		0.57	R ²		0.33	R ²		0.52
	F		5.26	F		0.69	F		1.50
	D-W		1.54	D-W		1.83	D-W		1.51

Note: Each slope is followed by its T-value in bracket, of which highlighted ones represent significant at 5 % level

Table: 5.6 – Return on Assets (OLS Result-I)

Period	Overall			Pre-liberalisation			Post-liberalisation		
	Coefficients								
	Unstandardised	Standardised	Collinearity Statistics	Unstandardised	Standardised	Collinearity Statistics	Unstandardised	Standardised	Collinearity Statistics
	Slope	Beta	VIF	Slope	Beta	VIF	Slope	Beta	VIF
Constant	-1.00 (-0.97)			-0.14 (-4.95)			0.02 (0.96)		
SBS	4.21 (3.92)	0.97	2.46	-0.01 (-0.25)	-0.10	5.72	0.03 (2.72)	0.78	2.48
Markcap	- 0.00 (-0.18)	- 0.04	2.40	0.00 (1.35)	0.41	3.25	0.00 (2.34)	0.63	2.17
BDD _{Index}	0.02 (0.86)	0.83	37.37	0.00 (3.85)	4.19	41.35	0.00 (0.98)	0.24	1.80
BLD _{Index}	- 0.00 (- 0.23)	- 0.22	37.29	-0.00 (-4.06)	-5.64	67.26	0.00 (0.82)	0.44	8.72
C-D	-0.03 (-1.41)	-0.34	2.40	0.00 (4.43)	1.62	4.69	0.00 (-2.16)	-1.17	8.78
	R ²		0.50	R ²		0.80	R ²		0.77
	\bar{R}^2		0.37	\bar{R}^2		0.66	\bar{R}^2		0.60
	F		3.99	F		5.58	F		4.57
	D-W		1.32	D-W		1.98	D-W		1.62

Note: Each slope is followed by its t-value in bracket, out of which highlighted ones represent significant at 5 % level

From Tables 5.5 and 5.6, it is visible that a higher degree of correlation exists between BDD_{Index} and BLD_{Index} that is more pronounced during the pre-liberalisation phase (also see Table 5.4). As a remedy to this problem of multi-collinearity, the variable BDD_{Index} is dropped out from the above equation and only BLD_{Index} has been retained as independent variable since both will give same slope value. Another reason for retaining the BLD_{Index} is that an increase in loan giving activity will increase revenue in the form of interest income, and so has got a direct impact over banks' profitability and performance. Hence the new equations are as follows:

$$\text{NIM} = f(\text{SBS}, \text{Markcap}, \text{BLD}_{\text{Index}}, \text{C-D})$$

$$\text{ROA} = f(\text{SBS}, \text{Markcap}, \text{BLD}_{\text{Index}}, \text{C-D})$$

The regression results presented in Tables 5.7 and 5.8 do not provide any sufficient reason to interpret the model. The values for D-W are lying in indecisive zone, meaning no clear indication for presence or absence of autocorrelation, and hence, no decision could be reached about the authenticity of results obtained from the above two regression models.

Table: 5.7 – Net Interest Margin (OLS Result-II)

Period	Overall			Pre-liberalisation			Post-liberalisation		
	Coefficients								
	Unstandardised	Standardised	Collinearity Statistics	Unstandardised	Standardised	Collinearity Statistics	Unstandardised	Standardised	Collinearity Statistics
	Slope	Beta	VIF	Slope	Beta	VIF	Slope	Beta	VIF
Constant	0.04 (4.21)			0.05 (1.01)			0.03 (4.15)		
SBS	0.01 (1.31)	0.27	1.95	-0.03 (-0.73)	-0.51	5.72	-0.01 (2.36)	0.93	2.44
Markcap	0.00 (0.98)	0.22	2.39	0.00 (0.36)	0.19	3.42	0.0 (1.60)	0.59	2.17
BLD _{Index}	-0.00 (-1.08)	-0.37	5.81	0.00 (-0.80)	-0.97	16.71	0.00 (1.60)	0.33	6.11
C-D	0.00 (-1.81)	-0.40	2.40	0.00 (-0.18)	-0.10	3.90	0.00 (0.04)	0.03	8.20
	R ²	0.56		R ²	0.31		R ²	0.50	
	F ²	0.48		F ²	-0.05		F ²	0.24	
	F	6.76		F	0.87		F	1.96	
	D-W	1.44		D-W	2.04		D-W	1.52	

Note: Each slope is followed by its t-value in bracket, out of which highlighted ones represent significant at 5 % level

Table: 5.8 – Return on Assets (OLS Result-II)

Period	Overall			Pre-liberalisation			Post-liberalisation		
	Coefficients								
	Unstandardised	Standardised	Collinearity Statistics	Unstandardised	Standardised	Collinearity Statistics	Unstandardised	Standardised	Collinearity Statistics
	Slope	Beta	VIF	Slope	Beta	VIF	Slope	Beta	VIF
Constant	-0.63 (-0.68)			-8.79 (-2.16)			2.78 (1.63)		
SBS	3.79 (3.98)	0.88	1.95	-0.33 (-0.11)	-0.07	5.72	3.29 (2.64)	0.75	2.44
Markcap	0.00 (-0.14)	-0.04	2.39	0.01 (0.67)	0.34	3.24	0.17 (2.34)	0.63	2.17
BLD _{Index}	0.01 (1.43)	0.54	5.81	-0.01 (-0.88)	-1.00	16.71	0.07 (1.65)	0.74	6.11
C-D	-0.03 (-1.47)	-0.36	2.40	0.15 (1.90)	1.05	3.90	-0.11 (-2.52)	-1.31	8.20
	R ²	0.48		R ²	0.38		R ²	0.73	
	F ²	0.38		F ²	0.07		F ²	0.60	
	F	4.87		F	1.22		F	5.55	
	D-W	1.39		D-W	1.58		D-W	1.55	

Note: Each slope is followed by its t-value in bracket, out of which highlighted ones represent significant at 5 % level

Consequently, they were tested with autoregressive model under “á la prais-winsten iterative procedure”.

And the first equation used here to determine the factors affecting net interest margin (NIM) is as follows.

$$(Y_t - \rho Y_{t-1}) = \beta_1(1 - \rho) + \beta_2(A_t - \rho A_{t-1}) + \beta_3(B_t - \rho B_{t-1}) + \beta_4(C_t - \rho C_{t-1}) + \dots$$

Which when converted to multiple regression model gives

$$(NIM_t - \rho NIM_{t-1}) = \beta_1(1 - \rho) + \beta_2(SBS_t - \rho SBS_{t-1}) + \beta_3(\text{Markcap}_t - \rho \text{Markcap}_{t-1}) + \beta_4(\text{BLD}_{\text{Index } t} - \rho \text{BLD}_{\text{Index } t-1}) + \beta_5(C-D_t - \rho C-D_{t-1}) + \varepsilon_t$$

Table: 5.9- Net Interest Margin (GLS Result)

Period	Overall		Pre-liberalisation		Post-liberalisation	
	Coefficients					
	Unstandardised	Standardised	Unstandardised	Standardised	Unstandardised	Standardised
	Slope	Beta	Slope	Beta	Slope	Beta
Constant	0.03 (3.07)	-	0.05 (0.98)		0.04 (4.13)	
SBS	0.01 (1.02)	0.24	-0.03 (-0.68)	-0.52	-0.01 (-1.90)	-0.82
Markcap	0.00 (0.78)	0.20	0.00 (0.34)	0.20	0.00 (1.51)	0.62
BLD _{Index}	0.00 (-0.99)	-0.37	0.00 (-0.74)	-0.97	0.00 (0.63)	0.39
C-D	0.00 (-1.14)	-0.29	0.00 (-0.19)	-0.12	0.00 (-0.16)	-0.12
	R ²	0.38	R ²	0.31	R ²	0.46
	\bar{R}^2	0.22	\bar{R}^2	-0.17	\bar{R}^2	0.08
	F	3.04	F	0.80	F	1.52

Note: Each slope is followed by its t-value in bracket, out of which highlighted ones represent significant at 5 % level

From Table 5.9 above, it is evident that for the overall twenty-six years period, i.e., from 1980-81 till 2005-06, only 38 percent of the variation in dependent variable is explained by independent variables. Whereas, when divided in two periods of pre and post-liberalisation the result shows that it is only 31 percent and 46 percent of the variations in these periods are explained by the independent variables.

But when observed in terms of t-values, the result reveals that for the overall period of twenty-six years, none of the independent variables could affect the performance of commercial banks in terms of net interest margin (insignificant t values). Further, when analysis is made for pre and post-liberalisation phases, the results obtained are not significant at all as both the models have shown insignificant F-values.

Similarly the model for ROA is given as hereunder:

$$(Y_t - \rho Y_{t-1}) = \beta_1 (1 - \rho) + \beta_2 (A_t - \rho A_{t-1}) + \beta_3 (B_t - \rho B_{t-1}) + \beta_4 (C_t - \rho C_{t-1}) + \dots$$

Which when converted to multiple regression equation gives

$$(ROA_t - \rho ROA_{t-1}) = \beta_1 (1 - \rho) + \beta_2 (SBS_t - \rho SBS_{t-1}) + \beta_3 (Markcap_t - \rho Markcap_{t-1}) + B_4 (BLD_{Index\ t} - \rho BLD_{Index\ t-1}) + \beta_5 (C-D_t - \rho C-D_{t-1}) + \varepsilon_t$$

Table: 5.10 –Return on Assets (GLS Result)

Period	Overall		Pre-liberalisation		Post-liberalisation	
	Coefficients					
	Unstandardised	Standardised	Unstandardised	Standardised	Unstandardised	Standardised
	Slope	Beta	Slope	Beta	Slope	Beta
Constant	-0.77 (-0.68)		-8.46 (-1.98)		2.80 (1.55)	
SBS	3.30 (2.74)	0.67	-0.08 (-0.02)	-0.02	3.32 (2.38)	0.74
Markcap	0.00 (0.08)	0.02	0.01 (0.56)	0.31	0.17 (2.14)	0.63
BLD _{Index}	0.01 (0.82)	0.31	-0.01 (-0.73)	-0.98	0.07 (1.60)	0.75
C-D	-0.02 (-0.86)	-0.23	0.14 (1.68)	1.05	-0.11 (-2.39)	-1.31
	R ²	0.31	R ²	0.37	R ²	0.73
	\bar{R}^2	0.13	\bar{R}^2	-0.07	\bar{R}^2	0.53
	F	2.21	F	1.05	F	4.63

Note: Each slope is followed by its t-value in bracket, out of which highlighted ones represent significant at 5 % level

From Table 5.10 it is evident that for the overall twenty-six years, it is only 31 percent of the variation in dependent variable that is being explained by the independent variables. However, the result obtained through model is an

insignificant one and hence there is no rationality behind its interpretation (insignificant F-value).

Again when divided into two sub-phases, the result for pre-liberalisation phase does not bring out any significant relation between return on assets with independent variables, except for size of banking sector, which implies that banking finance in economy has been an important bearing in their profitability. But this cannot be said in a forceful manner since the model is not a significant one (insignificant F-value). However, during post-liberalisation phase, the model shows a highly positive correlation between the dependent variable with independent ones (F-value significant at 5 percent level), as 73 percent of the variance in dependent variable is being explained by independent ones. And amongst the independent variables, it is the size of banking sector (SBS), market capitalisation index (Markcap) and C-D ratio (C-D) which are the significant determinant variables, with all having positive slope values. A significant positive slope value for return on assets with the size of banking sector as well as C-D ratio indicate that improvement in the functioning of commercial banks in economy during post-liberalisation phase is a cause for improvement in their profitability. But the growth of capital market did not make any negative impact over their profitability (positive slope).

So to conclude, for the overall period of twenty-six years or even for any of the sub-periods, it has been noticed that, neither BLD_{Index} and nor Markcap (used as variables to indicate the impact of disintermediation) have emerged as important indicators affecting either the net interest margin or return on assets. Hence, the hypothesis that 'disintermediation has affected the profitability and performance of commercial banks in India' is rejected. And finally the statement made by Velayudham (1987) regarding disintermediation where he says "Banks need not unduly worry about this problem for two reasons..... Second, resort to capital market is still an urban phenomenon", still appears to be valid even at present.

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Chapter: 6

Findings and Conclusion

6.1. Background

The role of financial institutions in the capital intermediation process has changed significantly over the years. The advent of direct market financing for large borrowers, with techniques, such as, securitisation and the institutionalisation of savings, has led the financial intermediaries to steadily lose market share in the global financial intermediation business to capital markets. This is known as 'financial disintermediation', that is, the bypassing of financial institutions.

'Disintermediation', which means "cutting of middle-man, so that the borrowers and lenders can deal with each other directly", occurs when a customer is able to interact with the primary supplier of goods or services, without requiring the services of a previously essential intermediary. However, in context to financial services, it is properly defined as a move from the intermediated provision of financial services via banks to direct financial relations between borrowers and lenders. This development, which could rather be characterised as 'bank disintermediation', does not necessarily imply that there is an overall decrease in financial intermediation.

Capital market all over the world has gone through dramatic changes with bond market developing to meet the requirements of the long-term creditors. This is leading to shift away from banks to market, with a decline in bank's share in global stock from 45 percent in 1980 to 30 percent today. Another reason for financial disintermediation is an increase in the rate of financial innovation. Disintermediation in India was visible from 1980s with development of capital market as well as initiative from government towards tax concession policy and permission to Public sector undertakings to accept deposit. Another factor was the introduction of new tax concession schemes by LIC and Small Saving Schemes by Postal Department. All these led to a reduction of banks' share in household savings. Further, the liberalisation of economy saw free movement of capital, with good credit worthy borrowers tapping the cheap source of finance from domestic as well as international market. The banking industry is increasingly taking the form

of developing specialised service capability to meet the rapidly changing customer preferences; and in recent years turned increasingly to non-interest income deployment of funds.

Even on the borrowing front, there have been many changes as the corporate as well as the government are now going towards market instruments where they can raise funds easily and at cheaper rate. So, the banks have now to compete with the upcoming new and innovative instruments and institutions. This, however, is likely to affect them with regard to their profitability and performance; and ultimately may lead to further disintermediation.

Hence, this study is undertaken to see the effect of these new institutions and instruments and, specifically, the impact of a growing capital market on commercial banks during the post-liberalisation phase and also for the overall period from 1980 till present for which no such work could be found. Precisely, this exercise intends to review the growth and composition of financial intermediaries and instruments and tries to identify the changes in the household investment pattern. While examining the disintermediation impact of capital market growth on the performance of bank, it also tries to see whether bank financial performances are impacted by the disintermediation or not.

The study is exploratory in nature and covers two aspects of disintermediation impact, firstly, on the primary operation of banks, viz., deposit taking and loan disbursal, and secondly, the overall impact on the financial parameters of the banks. It covers a period of twenty six years from 1980-81 till 2005-06 that is divided into two phases of pre-liberalisation and post-liberalisation. The phase of pre-liberalisation is from 1980-81 till 1992-93 and that of post-liberalisation is from 1993-94 till 2005-06. Source of data is secondary and used in aggregate form for all scheduled commercial banks in India as well as for other sectors like savings of household and capital market mobilisation. The tools applied for analysis are ratio analysis, trend analysis, linear growth rate, correlation analysis, multiple linear regression model, autoregressive model or GLS model for regression. In addition, some tests have also been applied like the Durbin-Watson test for autocorrelation, F-test, T- test and Chows F-Test.

Moreover, eight indices have been developed to see whether there is any trend of disintermediation visible in Indian Financial System. Out of which, first four are

intermediation indices, meant to measure the impact of deposit mobilisation and loan disbursement by alternative intermediaries in economy over commercial banks' deposit acceptance and loan disbursement capacity. The rest four are disintermediation indices, developed for the purpose of measuring the impact of funds mobilisation through capital market over the deposit taking as well as loan disbursement capacity of both commercial banks and all financial intermediaries. For all these eight indices, the year 1980-81 has been considered as base year.

6.2. Findings

During pre-independence period, the financial system witnessed an initiation towards development of organised financial sector. In banking sector, this period saw the beginning of modern banking whose foundation was laid through establishment of three Presidency Banks which were merged in 1921 to form the Imperial Bank of India. Within non-banking institutional sector, it was the Small Savings and Insurance whose development was prominent. The existence of Joint Stock Companies and establishment of a few stock exchanges (e.g., Bombay Stock Exchange established in 1875) bear out the fact that there was some initiation towards capital market development even during pre-independence period.

After independence, the financial policies of the government were to build markets and financial institutions, regulate them and provide rewards such as subsidies, when priority activities are undertaken. Some of the steps taken during this phase were towards expansion of banking infrastructure, creation of development banks both at state and national levels to support industrial development and creation of other institutions of savings, such as, LIC and GIC in insurance, UTI in mutual funds, etc. In the arena of small savings, there were two new schemes introduced during 1970. These were the post office time deposits with different years of maturity and post office recurring deposit.

Since the mid 1980s, many far reaching changes have taken place in Indian Banking Sector. On one hand, many banks have set up specialised subsidiaries, thereby entering into other off balance-sheet activities. Whereas on the other side, the scheme of Service Area Approach was introduced with an aim to expand the networks of bank branches and also improve the quality of credit disbursement in rural areas. A remarkable improvement has been noticed in their performance over the

period from 1980-81 till liberalisation. The figures for deposit taking and investment have grown by more than 4 times; whereas credit disbursement figure have grown by around 3 times.

In non-banking sector, some specialised development banks were set up to cater to the needs of specific industries like shipping, foreign trade, tourism etc. There was a rapid expansion in case of Non-Banking Financial Companies, thus providing avenues for depositors to hold assets and for borrowers to enhance the scale of funding their activities. In the media of small savings, schemes like Kisan Vikas Patra, National Savings Certificates, postal savings and public provident funds could attract investors' interest precisely due to the higher interest rates offered on these instruments combined with attractive tax concessions.

There was an initiative from government to widen and deepen the market base. Introduction of new instruments in capital market like, Cumulative Convertible Preference Shares, Warrants and Employees Stock Option Scheme, permission to accept deposits from public as well as the emergence and growth of private placement market, brought about an unprecedented change in Indian Capital Market. The amount of capital raised from market increased by around 32 times from Rs. 310 crore in 1980-81 to Rs. 9,895 crore in 1990-91. Pursuant upon the recommendations of Chakravarty Committee and Vaghul Committee a number of measures were initiated by RBI to widen and deepen the money market. Beginning made here was through the establishment of Discount and Finance House of India (DFHI) in 1988, followed by introduction of several new financial instruments and services like 182-days treasury bills, Inter-Bank Participation Certificate, Certificates of Deposits, Commercial Paper, development of active bills market, Repo, Money market Mutual Funds, factoring and stock invest.

In 1991, the financial sector reforms, launched after the recommendation of the Committee on Financial Systems (Narasimham Committee-I), were aimed towards making the financial sector more viable and more efficient with the basic premise to create an efficient and stable financial system and remove the cobwebs of inefficiency. Focus, during this phase, has been on deregulation of the banking industry, strengthening of the institutional framework, improvements in payments and settlement systems, and strengthening the supervisory framework. Further, keeping in view of the international changes, the second Narashimham Committee

on banking sector, SH Khan Committee on universal banking, Birla Committee on corporate governance-where all gave their reports in 1998, R.H Patil working group in 2001 and Naresh Chandra Committee on corporate governance in 2002 etc., have made an array of recommendations for best practices. Development Financial Institutions could establish themselves as a major institutional support for investment in the private sector.

There was a considerable diversification of the money and capital markets. New financial services and instruments have appeared on the scene. Some of the measures initiated in capital market were market pricing of public issues, introduction of proportional allotment of shares, guidelines for corporate governance, revival of accounting standards at par with international norms, opening market for FIIs etc. In 1992, SEBI was given a status of statutory organisation for regulating the functioning of capital market. In response to the liberalisation measures announced by the government, the secondary market also witnessed a period of continuous boom during this year.

There has been a shift in the role of RBI from direct to prudential system of regulation, thereby granting more of operational flexibility and financial autonomy to commercial banks and other financial institutions under its control. Its role is being characterised by shift towards macro management with greater emphasis on transparency, data monitoring and information dissemination.

Gross Domestic Savings have grown in aggregate (from Rs. 269 billion in 1980-81 to Rs. 11,568 billion in 2005-06) and also as a percent to NNP (from 20.09 percent 1980-81 to 36.57 percent 2005-06), thus revealing an increase in economic savings. And among all the three contributing sectors, household is the most important one contributing more than 75 percent. But if we compare their share in GDS of 1980-81 with 2005-06, the HHS has almost remained flat, rather private corporate sector has been able to triple the share of 1980-81 i.e. 8.7 percent to 25 percent in 2005-06. Simultaneously, the public sector savings has come down to almost one third of the 1980-81 figures, i.e., from 21.6 percent to 6.2 percent in 2005-06. So, the swings in composition of GDS over the 26 years of study-period remain confined to these two sectors. However, the linear growth rate reveal that the growth of savings in economy has declined over the years from pre to post-liberalisation

phase, as there has been a fall of 2-3 percent in growth rates across the sectors except public sector which has turned to be zero in the second phase.

The share of physical assets in HHS has declined from 57 percent in 1980-81 to 48 percent in 2005-06 with a corresponding increase in financial savings from 43 percent to 52 percent. This structural phenomenon of financial savings superseding the physical one is due to the increasing impact of financial intermediation, widening and deepening of the financial system with a large menu of available financial assets as well as improvement in the relative rates of return for financial assets.

There has been an increase in the banking habit of people with a major portion of savings going to bank deposits followed by contractual savings. However, a comparison of the rate of linear growth for these two instruments of savings show that during the post-liberalisation phase, there has been a shift in the preference of savers towards claims on government (growth of 22.64 percent) from deposit with commercial banks (growth of 14.35 percent). Capital market investment by household sector that increased during the pre-liberalisation phase (24.11 percent) has shown a radical decline during the post-liberalisation (-5.74 percent).

In order to see whether there has been any significant shift in the mode of household savings from pre to post-liberalisation phase, a trend analysis has been made for financial savings as percent to total household savings and bank deposits as percent to total household financial savings, both taken as dependent variables in relation to time. However, the result of analysis for an overall period of twenty-six years does not provide any indication regarding the trend of savings for both the financial savings as well as bank deposits (insignificant R^2 and F values). But in the pre-liberalisation phase, there is a clear evidence of decline in the bank deposits of household (slope value - 0.25) which is a sign of disintermediation. But this is not evidenced during the post-liberalisation phase (slope value 1.33). For financial savings as percent to total household savings, there is no clear indication for the direction of movement during pre-liberalisation phase; but during the post-liberalisation phase, there has been a significant shift in the same (slope value - 1.33).

As has been seen above, that savings in financial assets has become one of the important components of household savings in Indian economy; and among the different means of financial savings, bank deposits are still the most important ones. The household decides about its allocation among various competing assets on the basis of various assets available and their respective rates of return. Besides, there are also certain other factors that can become important factor determinant for savings. They are the income of the household, the interest rate prevailing in the economy and the rate of inflation as macro level systemic variables and number of bank branches as a bank related variable.

The regression equations for household sector tested under ordinary least squares (OLS) assumption is stated in two terms: one for measuring the impact on aggregate savings of household sector in financial assets and the second one is to measure the impact on bank deposits. The result for overall twenty-six years reveal that among different determinants of household savings in financial assets, income is the direct determinant (beta coefficient is 1.628); whereas the savings in physical assets as well as the inflation index are the factors that affect the rate of savings in alternative way (beta coefficients are -0.639 and -0.056). The result for the pre-liberalisation phase shows that only inflation is the factor effecting financial savings (beta coefficient is 0.989); whereas in the post-liberalisation period, income and physical savings to financial savings ratio (PSFS) have surfaced as two important determinants (respective significant beta coefficients of 1.116 and -0.179).

Among the factors that determine household deposit in bank, income is the most important determinant (beta coefficient 4.26). Inflation index is also another significant factor whose beta coefficient (-4.45) shows that inflation index has reduced household savings in the form of bank deposits. A comparison of the two phases shows that during the pre-liberalisation phase, household savings has shifted to some other non-bank deposits (beta coefficient is -1.16), which is an indication of bank disintermediation during the eighties.

For the overall period of twenty-six years, commercial banks have remained the most important source of savings whose deposit taking capacity has not been influenced by the development of any other non-banking intermediary institutions. Whereas a decline is visible in the savings mobilised by capital market during the

post-liberalisation phase from 5.01 percent in 2000-01 to 4.35 percent of GDP in 2005-06; and the reason is of course a decline in money raised through both debt and equity instruments.

Linear growth rate of savings with commercial banks has remained almost similar during both pre and post-liberalisation phases (16.36 percent and 15.44 percent respectively) in contrast to a decline in the growth rate of deposits intake by all non-commercial banking institutions (from 19.59 to 17.04 percent) and can be linked with a drop in the growth of savings with co-operative banks and mutual funds along with an indication that a portion of savings is going to certain other sectors that has not been represented here (like deposit with NBFCs, savings in physical assets, etc). A decline in growth rate of capital market from 35.70 percent to 13.72 percent is possibly because of non desirability of investors towards capital market investment due to lack of information, asymmetry of information between large and small investors and may be poor financial knowledge.

Akin to bank deposit, credit by commercial banks has improved over the years both in aggregate figures and as percent to GDP (from 2.89 percent in 1980-81 to 12.51 percent 2005-06). On the other hand, there has been a decline both in the share of cooperatives as well as AIFIs during the post-liberalisation phase (cooperatives share has reduced from 0.95 percent of GDP in 1995-96 to 0.41 percent in 2005-06, whereas the share of AIFIs declined from 3.57 percent in 1995-96 to 1.19 percent in 2005-06). Both the instruments of capital market, i.e., debt and equity which have grown over the years during 1980s have declined during the recent years both in figure and as a percent to GDP.

The growth rate of credit by commercial banks that was 12.96 percent during the pre-liberalisation phase has improved during the post-liberalisation phase (22.06 percent), thus implying that there has been an improvement in the credit disbursal activity of banks during the post-liberalisation phase. Whereas the rate of growth of credit provided by non-banking institutions, comprising of loan by cooperatives and assistance by AIFIs in both individual as well as in aggregate way, was more than that of commercial banks during the pre-liberalisation phase (18.72 percent). But both of them have come down during the post-liberalisation phase (-0.41 percent) thus implying a lesser amount of preference by borrowers to use other institutional sources of fund. In capital market segment, the overall rate of growth both in

aggregate (35.70 percent) and in individual terms (33.13 and 36.38 percent for equity and debt market respectively) have been more than that of the growth of credit by commercial banks. However, a comparison made between the two phases brings out the fact that there has been a drastic fall in the rate of growth in the post-liberalisation phase from 35.70 percent to 13.72 percent for the total capital market; and is mainly attributed to the lack of confidence on the part of fund raisers in the capital market due to several scams more particularly in the equity market.

A trend analysis has been made for the four indices, developed with regard to the intermediary role of commercial banks and non-banking institutions through both deposit taking and credit disbursement. The models for deposit mobilisation show a very poor explanatory power (in significant t-values and very low \bar{r}^2 values), meaning no clear trend of movement towards intermediation or even disintermediation either for the overall period of study or during the pre and post-liberalisation phases. But, a trend of disintermediation is visible in case of credit disbursement by commercial banks (slope = -9.01) for the overall period of twenty-six years which, when divided into pre and post-liberalisation, does not show any significant trend of disintermediation.

The hypothesis 'Capital market growth is a significant disintermediation variable for banking in India' has also been tested with the help of the trend analysis of four disintermediation indices. And as evident from their respective negative slope¹¹, there is a clear decline in the deposit disintermediation indices for the overall period of twenty-six years. But, when analysed for pre and post-liberalisation phases, the equations for pre-liberalisation phase show a significant decline in index values under both the types of trends which can be attributed to the financial transformation that took place during the 1980s where several new capital market instruments were introduced in order to induce investors towards capital market investment. But for the post-liberalisation phase, there is no clear conclusive evidence for disintermediation either for bank deposit or for deposit with financial intermediaries.

¹¹ For Bank Disintermediation (Deposit) Index (BDD_{Index}) the slope values are: quadratic trend = -9.43; cubic trend = -16.32

For Financial Disintermediation (Deposit) Index (FDD_{Index}) the slope values are: quadratic trend = -9.61; cubic trend = -16.04

Similarly, result for the loan disintermediation index is also negative with respect to banks as well as financial intermediaries as a whole; and are also statistically significant¹². When divided into two phases, the equations for pre-liberalisation under both the trends show that there has been a significant decline in the index values (the reason being same as that for decline in deposit mobilisation). But during post-liberalisation phase, there is no conclusive evidence for disintermediation visible either for loan disbursement by commercial banks or even for all financial institutions. This means that during the current phase, there has been a decline in the interest of companies as borrowers of fund from capital market.

The measurement of profitability in case of Indian banks has been in terms of the performance impacted by social responsibility attached to their basic functions; and the same has been a point of criticism. But during post-liberalisation phase, particularly after the opening of banking sector, Indian banks have shown considerable resilience in the competitive environment and have remained financially healthy. The co-existence of the public sector, private sector and the foreign banks has generated competition in the banking sector leading to a significant improvement in efficiency and customer service. But amidst all these, an important question that remains unanswered is whether their profit and performance has been impacted by the growing alternative instruments of savings mobilisation in market, specifically capital market that is commonly referred to as “disintermediation”.

A decrease is visible in the rate of growth of both the income (from 19.68 to 13.42 percent) and expenditure (from 19.80 to 13.42 percent) of the banks over the period from pre to post-liberalisation phases, leading to a decline in the growth rate of both net interest margin (from 19.42 percent to 15.06 percent) and overall profit (from 35.43 percent to 29.30 percent). For the overall period of twenty-six years also, there has been a declining importance of interest income in the total income of commercial banks with the non-interest income gaining credence in its place¹³. A similar development is also visible for expenditure pattern, which shows a gaining

¹² For Bank Disintermediation (Loan) Index (BLD_{Index}) the slope values are: quadratic trend = -11.29; cubic trend = -18.12

For Financial Disintermediation (Loan) Index (FLD_{Index}) the slope values are: quadratic trend = -11.20; cubic trend = -20.04

¹³ Growth rates for total income, interest income and non-interest income have been 16.37%, 15.96% and 19.07% respectively.

importance of non-interest expenditure on one side with interest expenditure losing on the other¹⁴. When the figures are divided into pre and post-liberalisation phases, there has been a clear decline in the rate of growth for all the components of bank performance over the period from pre to post-liberalisation, and is more pronounced in case of interest income and interest expense.

There has also been a steady decline in C-D ratio till the year 2002-03 accompanied by an increase in I-D ratio during pre-liberalisation phase when the linear growth rate for C-D ratio and I-D ratio respectively were -0.76 percent and 1.70 percent. This means that more and more of deposit got converted into investments instead of getting converted into loan. During the post-liberalisation phase, there has been an improvement in the C-D ratio with a corresponding decline in I-D (growth rate being 1.88 percent and 1.11 percent respectively).

In addition, there are some internal determinants of performance which also show whether there is any disintermediation that has affected bank performance. Results of their analysis are presented as follows:

- There has been a constant increase in the size of banking sector measured by the log of bank assets (4.77 in 1980-81 to 6.46 in 2005-06), and therefore it may be said that there has been an increasing importance of banking finance in economy.
- A higher ratio of equity capital to total assets implies that there is a lesser need for external funding. And, till 1995-96, there has been a constant rise in the ratio of capital as a percent to total assets (from 0.19 percent in 1980-81 to 2.70 percent in 1995-96), followed a decline in the same (0.96 percent in 2005-06).
- The ratio of NIBA (Non-interest bearing assets) to total assets, that was as high as 20.37 percent in 1980-81, has come down over the years to 5.57 percent. This reveals the increasing ability of banks to convert deposits into more and more of interest bearing assets.
- There has been a constant increase in the overhead cost (from 2.50 percent in 1980-81 to 4.05 percent in 2005-06). This brings forward the inefficiency of banks to control cost.

¹⁴ Growth rates for total expense, interest expense and non-interest expense have been 16.43%, 15.19% and 18.23% respectively.

- There has been a constant increase in wages as percent to total assets till 1995-96 proving inefficiency on the part of banks to curtail the cost of operation, and may be linked with excess manpower. However this has declined after that particular year (1995-96).¹⁵
- Advance is expected to have a positive impact on bank performance. But there has been a constant decline in the ratio of advance to total assets from 46.82 percent in 1980-81 to 40.22 percent in 2000-01; which cannot be said to be a good sign for banks. This, however, has improved during the current year, and is at its highest (54.09 percent).

The relation between the BDD _{Index} and BLD _{Index} with interest income and interest expense, expressed as a percent to total assets, has been measured through correlation co-matrix. The result of which brings out the fact that there is a negative correlation between them and the two disintermediation indices, which is against the assumption made that due to the impact of disintermediation there will be a direct positive correlation between them and the indices.

To test the hypothesis whether disintermediation has affected the profitability and performance of commercial banks in India, two regression analyses are being executed for two dependent variables, i.e., Net Interest Margin (NIM) and Return on Assets (ROA). The determinant factors used are market capitalisation, size of banking sector, BLD _{Index} and C-D ratio (BDD _{Index} dropped out of regression analysis due to its high correlation with BLD _{Index} resulting into problem of multicollinearity in analysis). These were tested with autoregressive model under “á la prais-winsten iterative procedure”.

The result for equation used to determine the factors affecting NIM reveals that none of the independent variables could affect the performance of commercial banks either for the overall period of twenty-six years or for the pre and post-liberalisation phases (very poor explanatory powers of R² and insignificant F and T values). Similarly, for ROA no decision could be reached with regard to impact on dependent variable caused by any of the independent ones (insignificant F value) for both the overall as well as pre-liberalisation phase.

¹⁵ Proportion of Wages to total assets that was 2.08 % in 1995-96 came down to 1.80 % in 2000-01 and further to 1.22 % in 2005-06

However, the model for post-liberalisation phase illustrated that amongst all the independent variables, it is the size of banking sector (SBS), market capitalisation index (Markcap) and C-D ratio (C-D) which are significant. But a positive slope value for return on assets with the size of banking sector as well as C-D ratio indicate that improvement in the functioning of commercial banks in economy during post-liberalisation phase is a cause for improvement in their profitability. But the growth of capital market did not make any negative impact over their profitability (positive slope).

Since, for the overall period of twenty-six years or even for any of the sub-periods, neither BLD_{Index} and nor Markcap (used as variables to indicate the impact of disintermediation) have emerged as important indicators affecting either the net interest margin or return on assets. Hence, it may be believed that disintermediation has not affected the profitability and performance of commercial banks in India.

6.3. Conclusion and Suggestions

In most of the developing economies, banks play an important role in mobilisation of surplus fund from the households and deployment of the same in the deficit sectors. With the growth of alternative saving and credit institutions in recent years and perceptible change in the attitude of the investors towards capital market, banks feel the pressure of growing competition. Likely impact of these alternative institutions is apprehended on their deposit taking and credit disbursal activities, thus finally affecting the financial performance. This type of impact on banks' performance is quite visible in many developed economies where capital market growth has been significant.

Though, in recent years, many alternative institutions have flourished in the Indian financial system, we do not find any of their impact on Indian banks. Although some disintermediation is found for the pre-liberalisation period, in the subsequent phase of post-liberalisation banks are doing better business. This clearly reveals the importance of banking institutions in the current Indian economic conditions. And for some time to come, disintermediation would not bother the Indian banks, unless some significant change in the perception of the investors takes place favourably towards the capital market.

This study is based on certain assumptions. For example, for household analysis it is assumed that only financial variables affect the saving preferences. So, researches have the scope to include the non-financial variables into the household analysis. Similarly, the data base for the alternative institutions does not cover all the institutions which could be further expanded in future studies.

In future, with the rapid globalisation spree all around, more intermediaries are likely to appear in the Indian soil; thus the chance of increase of competition is more likely. So bankers need to be more strategic with their future course of action. While attracting the households with variety of products and services holds the key for deposit growth, enhancing the customer base for credit business will foster the income of the banks. Since the global institutions are large in size, Indian banks need to consolidate themselves as universal financial institutions so that the pressure of competitions from the alternative channels can be well managed.

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