CHAPTER 4
BANKING REGULATION

4.1 Introduction

Financial institutions have been an alternative to the direct supply of fund through financial markets, when ultimate users of funds who view direct investment unattractive proposition. They play a pivotal role in an economy in two areas: they facilitate attaining actuarial risk through risk pooling, and they enable investors to achieve informational efficiency (1, pp. 8).

In financial market, the presence of financial institutions are also justifiable by their role revolving around improving the risk-return tradeoffs for investors through (i) placing their funds efficiently in suitable investment opportunities, and (ii) where that compatibility between investors and investments does not exist, transforming either the time or the risk dimension.

While banking system as one of the major depository institutions, shares all above roles with other financial institutions, it plays the exclusive role of serving as a critical link in the money creation process. The special nature and unique role has make banks subject to more restrictions and regulations than others.

Failures of financial institutions to provide services or breakdown in their efficient provision can be costly to both the ultimate suppliers and users of funds as well as to the economy as the whole. The efforts to restructure of financial system in general and banking system in particular, through the prudential regulations attempt to prevent this type of failures and costs imposed on the economy and society at large. The globalized financial system, are closely related and exposed to same kind of risks. Financial institutions around the world have had undergone a series of disasters in recent years. Therefore, the coordination of prudential regulations at global level is increasingly important, and calls for more compliance with international norms and standards. The main goal is to promote safety and soundness of financial system through risk
4.2 Bank and related concepts

4.2.1 Meaning of Banking

In reality, the definition of bank is complicated. First, there is distinction between the legal definition of commercial banks and the functional definition of what banks do. Second, there are many non-bank competitors performing many of the functions of banks. Third, legal and regulators’ definition change over time, and different countries have different legal definitions depending on whose rules or laws are being used (2, pp. 3). The provision of deposit, loan products, and liquidity normally are the distinguishing features of banks from other types of financial firms. The traditional functions performed by banks can be considered in broad areas of:

- Payment system
- Intermediation

Banks are the core of the payment system. Payment system refers to the means by which financial transactions are settled and efficiency of this system is vital to economic stability and growth. Commercial bank performs two basic functions as an intermediary, including; deposit function and loan function.

Banks as deposit-type financial intermediaries are economic units with principal function of obtaining funds from depositors and others, and providing
loans to the borrowers. To this end, they offer different financial products with desirable risk-return characteristics, high degree of liquidity and wide variety of denominations, interest rates, and maturities. Deposits as the liabilities of banks and loans as their assets must be managed if the bank is to maximize profit. Banks encourage saving by providing different services and products, and by effectively screening credit requests, they channel funds into socially productive and profitable uses (2, pp. 8-10). Therefore in functional term, a commercial bank can be defined as “A financial institution that is owned by stockholder, operates for a profit, and engages in lending activities.” (3)

Besides traditional functions, commercial banks provide other services in anticipation of earning profits from those activities such as; off-balance sheet activities, insurance and securities related activities, and trust services.

### 4.2.2 Bank goals and constraints

Like any other for-profit corporation, the principal goal is to maximize shareholders wealth measured in terms of market value of banks’ stock and cash dividends paid. Market value depends on three factors:

- Amount of cash flows accrued to banks’ shareholders
- Timing of cash flows
- Risks involved in those cash flows

Any decision making involves evaluation of the impact of various strategies on the return and the risks of cash flows. Bank management must balance risk and return in effort to maximize shareholder wealth. However, such decisions are constrained by a number of factors. The constraints may be classified in three categories of:

- Market constraints
- Social constraints
- Legal/regulatory constraints

Market constraints may affect banks in two distinct ways. First, a bank’s profitability and growth is limited by the growth rate of economy that it serves. Second, there is competition from other providers of financial services and financial market. Social constraints come from the historical position of bank at
the core of financial system. They are expected to provide deposit and credit services to the communities they serve. Legal and regulatory constraints on banks behavior are designed either to reduce the risk of failure or to restrict the allocation of bank credit. These constraints can be on balance sheet composition or on customers' relationships (2, pp. 14). Though these constraints impose some restriction and costs on financial institutions, particularly, banks, but they have been one of major forces behind innovative products and strategies designed to overcome the limitations.

4.2.3 Banking and Financial Innovation

The wide range of financial products in banking industry has been the result of recent financial innovations originated through financial engineering techniques to fit specific needs in banking industry. These innovations have affected banks not only in their assets and liabilities composition through wide array of financial instruments in asset as well as liability side of banking system and wide range of financial and even non financial services on offer, but also their risk management process and strategies. The innovations take the form of process innovation, or product innovation. Most of the new financial instruments are examples of where technological changes resulted in product innovations. The product innovation arises because of constraints placed on banks such as regulation, competition and risk. According to Kane (1984) it is important to observe the regulatory and technological factors behind any financial innovation (4). However, it is more useful to think of financial innovation, regulation and risk management as being interdependent. Regulations can be a catalyst for financial innovation which allows bankers to bypass the rules.

4.2.4 Evolution of bank and Diversification of bank activities

Financial institutions, particularly banking system like other constituents of financial system, have been evolved due to the general trends towards globalization, deregulation, technological improvement, and financial innovation and securitization. Commercial banking is changing, both in nature of business and structure of the industry. The basic business of banking has changed and continues to change along three dimensions:
• The entry of new types of institutions into banking
• The evolution of intermediation function as banks start developing new types of lending and borrowings
• The addition of other related functions to the basic ones of payments and financial intermediation

The increasing competition has brought about more convergence in all operational aspects which has been the natural extension of business. In spite of all restrictions, there has been increasing convergence among financial institutions in the provision of different services. Deregulation and financial innovations have been major facilitating factors in this process.

Asset evolution: There have been major changes in the composition of banks’ assets in response to different factors, from mainly two classes of borrowers—merchants and governments—into the wide array of asset classes. Since 70s, the increasing gap between bank lending and borrowing rate and comparative disadvantage of banks facilitate the development of money markets. Money markets serve as the cheaper alternative to borrowing from banks, with ability to avoid a number of regulatory costs and limits that continue to impose on banks. Banks have lost a lot of commercial loan businesses to this market, but the losses were partially replaced with fee income from service provision by banks in money market, as the new form of asset.

The menu of bank assets has grown and diversified over the years in response to different needs and limitations and now there is a wide variety of non commercial lending along with commercial lending. In fact, as economy has developed, banks have faced different demands for credit from new classes of borrowers and higher yields than their traditional assets. However, new types of assets have typically increased risk and reduced liquidity and consequently have gotten the banks into difficulties. Mortgage lending, consumer lending, and securitization have been major items in this class.

Liability evolution: Two main factors have driven the evolution of bank liabilities. First factor has been the expansion of bank lending scope, which has increased the need for funds. New forms of liability offer new sources of funds.
Second factor has been different bank regulation imposing restrictions on the nature or terms of existing liabilities.

The classic bank liability has been checking deposit, and bank notes were major competitor issued only by government. This forced banks to look to other types of liability such as time deposits, initially were used by near banks, and Inter-bank deposits that have achieved remarkable growth in domestic and international terms. Deposit losses and competitive disadvantages during the 60s, led banks to find innovative ways around the interest rate restrictions such as; the bank repo, the overnight Eurodollar, and the inter bank fed funds purchase.

While money markets compete for the funds of bank depositors, but there have been new opportunities in the money market to collect fund by banks’ holding companies through the wide variety of negotiable certificate of deposit (NCD).

The serious problems, in early 80s, due to heavy reliance on money market for funding have been major force for brokered retail deposits. It has been an effort to increase banks core deposits by marketing retail certificates of deposits through securities firms, as the stable source of funds.

Diversification of bank activities: The evolution of bank assets and liabilities shows how the intermediation side of bank’s business has developed. But banking evolved as the combination of financial intermediation and payments. It did so because there were economies of scope between these two activities. Economies of scope have led banks into various other lines of business related to payments, intermediation, marketing and management services.

Some of the banks have shown tendency towards securities business (universal banks), such as underwriting, market making, consultation and advisory services regarding mergers and acquisitions, monitoring and supervising of corporations on behalf of investors, and provision of trust and custodian services. Banks enjoy economies of scope in securities business, because of great similarity and complementarities between what involved in financial intermediation and securities business.
The specific relation between a bank and its customers and its capacity in evaluating and monitoring, provides bank with opportunities to sell bank’s products or non-bank financial products, such as insurance policies and mutual funds. Banks earn fee income from all these credit substitution without directly involvement.

Off-balance sheet (OBS) banking may be defined as banking activities that do not directly involve changes in bank assets or liabilities. Expansion of these activities has proved non-interest income as the important sources of income for banks. The rapid growth of OBS activities has been largely because of the derivatives markets expansion and securitization. The growth of exchange traded and customized OTC derivatives, has meant banks can broaden the type of intermediation they undertake. Banks may use derivatives for proprietary trading and speculation, to hedge, or as part of fee-based risk management services offered to customers. Though such off-balance sheet banking has a number of advantages for banks, but effectively increases banks’ leverage and risks.

Therefore, along with core banking functions, there has been growing diversification of banks with a wide range of financial services and even non-bank financial services on offer. The good reputations of bank as an intermediary promote it to market other financial services. Thus, some banks may be able to establish a competitive advantage and profit from offering those services (5; pp. 41-52, 6; pp. 128-159).

Figure 4.1 shows the banking industry’s business lines. As it was mentioned before, due to different constraints and competitions there has been the emergence of wide varieties of new products and strategies in banks as one of the major users of these innovative solutions. However, not only financial institutions, particularly banks have been the users of financial innovations and financial engineering to materialize them, but also they have become the major providers of these services in financial systems.

Besides all motives behind this evolutionary function, the most important factor giving them the comparative advantage to become major providers of financial innovation services has been the asymmetric information. Asymmetric
information framework is pioneered by Akerlof (1970) (7). The basis for this work is the belief that some market participants have information that the other do not. But it is important to remember that asymmetric information is compatible with market efficiency where asymmetric information is between the issuer and investor rather than between individual investors in the same market. Understanding the cycle of financial innovation involves extending of the concept of asymmetric information to financial institutions. The distinction between banks and markets lies in a number of key dimensions regarding the relationship between investors and firms in each of the intermediaries. Asymmetric information is higher in bank intermediation than market intermediation. And this gives a comparative advantage to banks over other participants for providing these services (8).

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<th>Business Poles</th>
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<td>Commercial Banking</td>
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<td>Others...</td>
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<td>Lending &amp; collecting Deposits, Individual &amp; Small Businesses</td>
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<td>Identified Borrowers &amp; Relationship Banking</td>
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<td>Structured Finance</td>
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<td>Traded Instruments</td>
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Fig. 4.1 Breaking down the bank portfolio along organizational dimensions (9, pp.4).
The ability of banks to exploit economies of scale by expanding into related activities has sometimes been limited by regulatory restrictions, but the separation of commercial banking from other activities especially from the securities business has not completed. The main sources of pressure for deregulation have been increasing competition from other financial institutions and markets, and increasing globalization of the world financial system.

4.2.5 Banking risks

Like any profit maximizing business, banks must deal with macroeconomic risks. However, banks also confront a number of risks atypical of non financial firms. Banking risks are the adverse impacts on profitability of several distinct sources of uncertainty. The objective of the bank as a whole will be to add value to the bank’s equity by maximizing the risk-adjusted return to shareholders. Banks accept risk in order to earn profit and in this sense, a bank is like any other business, but for banks, profitability (and shareholder value-added) is going to depend on the management of risks. In the extreme, inadequate risk management may threaten the “solvent” of a bank.

The major risks faced by banking system are:

- Credit risk (Default risk)
- Liquidity risk
- Interest rate risk
- Foreign exchange risk
- Market risk
- Country or sovereign risk and political risk
- Technology and operational risk
- Performance risk
- Capital or gearing risk

Credit risk is the risk of loss due to a deterioration of the credit standing of a borrower and the first of all risks in terms of importance. It is major source of loss and primary cause of bank failures. Customers fail to comply with their obligations to service debt led to a total or partial loss of any amount lent to the
counterparty. Default triggers a total or partial loss of any amount lent to the counterparty. Credit risk is also the risk of a decline in the credit standing of an obligor of the issuer of a bond or stock. Such deterioration does not imply default, but it does imply that the probability of default increases. In the market universe, a deterioration of the credit standing of a borrower does materialize into a loss because it triggers an upward move of the required market yield to compensate the higher risk and triggers a value decline (9, pp. 13-15). Credit risk is usually associated with loans and investments, but it can also arise in connection with other extensions of bank credit. The various default events are:

- Delay in payment obligations
- Restructuring of debt obligations due to a major deterioration of the credit standing of the borrower
- Bankruptcies

Banks are in business to take credit risk, it is the traditional way banks made money. Credit risk rises if a bank has many medium to low quality loans on its books, but the return will be higher. Since much of the default risk arises from moral hazard and information problems, banks must monitor their borrowers to increase their return from the loan portfolio. Good credit risk management has always been a key component to the success of the bank, even as banks move into other areas*.

**Liquidity risk** is the risk of insufficient liquidity for normal operating requirements, that is, the ability of the bank to meet its liabilities when they fall due. A shortage of liquid assets is often the source of the problems, because the bank is unable to raise funds in the retail or wholesale markets. Liquidity risk refers to multiple dimensions including:

- Inability to raise funds at normal cost
- Market liquidity risk
- Asset liquidity risk

* - For detail on credit risk management see reference no.5, pp. 155-169.
Liquidity risk might become a major risk for the banking portfolio. Extreme lack of liquidity results in bankruptcy making liquidity risk a fatal risk. However, extreme conditions are often the outcome of other risks. Important unexpected losses raise doubts with respect to the future of the organization and liquidity issues. When a commercial bank gets into trouble, depositors ‘run’ to get their money back. Lenders refrain from further lending to the troubled institution. Massive withdrawals of funds or the closing of credit lines by other institutions are direct outcomes of such situations. A brutal liquidity crisis follows, which might end up in bankruptcy (9, pp. 16-17).

Topi (2008) shows the links between banks’ liquidity outlook and their incentives to take credit risk, asserting the bank’s incentives to mitigate its credit risk by screening decrease if the probability of a bank-specific liquidity shock declines. This suggests that the benign liquidity outlook prevailing prior to the subprime crisis may have contributed to the lack of screening by banks that has been an important causal factor in the crisis (10).

The interest rate risk is the risk of earnings and capital due to the unfavorable movements of interest rates. Most of the items of banks’ balance sheets generate revenues and costs that are interest rate-driven. Since interest rates are unstable, so are earnings and values. This risk arises from:

- Differences in timing of rate changes and timing of cash flows (re-pricing risk)
- Changes in the shape of yield curve (yield curve risk)
- Option values embedded in bank products (options risk)

Anyone who lends or borrows is subject to interest rate risk (11).

Credit risk and interest rate risk are the two most important risks faced by commercial banks and are intrinsically related. Drehmann et al (2008) propose a general framework to compute a bank’s economic value as well as its future profitability and capital adequacy over time by assessing the combined impact of credit and interest rate risk on risk-adjusted discount rates and cash-flow contributions to profits (12).

Foreign exchange risk is the risk of incurring losses due to changes in the exchange rates. Variations in earnings result from the indexation of revenues
and charges to exchange rates or of changes of the values of assets and liabilities denominated in foreign currencies. The conversion risk resulted from the need to convert all foreign currency-denominated transactions into a base reference currency. This risk does exist, beyond accounting conversion in a single currency, if the capital base that protects the bank from losses is in local currency. A credit loss in a foreign country might result in magnified losses in local currency if the local currency depreciates relative to the currency of the foreign exposure.

**Market risk** is the risk incurred in trading assets and liabilities (and derivatives) due to changes in interest rates, exchange rates, and other asset prices, rather than holding them for longer term investment, funding, or hedging purposes. This risk is the risk of adverse deviations of the mark-to-market value of the trading portfolio, due to market movements, during the period required to liquidate the transactions. The period of liquidation is critical to assess such adverse deviations. If it gets longer, so do the deviations from the current market value. Market risk includes a very large subset of other risks, and two major types of market risks are currency and interest rate risk. Market risk does not refer to market losses due to causes other than market movements, loosely defined as inclusive of liquidity risk (13; pp. 557, 9; pp. 18-19).

**Sovereign Risk** normally refers to the risk that a government will default on debt owed to a bank or government agency. In this sense, it is a special form of credit risk, but the bank lacks the usual tools for recovering the debt at its disposal.

**Political Risk** broadly refers as state interference in the operations of a domestic and/or foreign firm. Banks can be subjected to sudden tax hikes, interest rate or exchange control regulations, or be nationalized. It can refer to sovereign risk as defined above, or some form of political interference, or both (5, pp. 112).

There is no single definition of political risk. In general, the term refers to those risks that are subject to the political decision making process and are therefore beyond the control of the firm. Political risk must be carefully distinguished from commercial risk. The former relates to specific actions (or
non-actions) under the control of the central government (or under certain circumstances other political entities). Generally, a governmental entity must agree to a specific arrangement (e.g., investment law, tariff agreement, investment contract, etc.) for the risk to be considered political. Action taken by the government must likewise be specific and result in an expropriation of value without payment of fair compensation. Commercial risks, including those associated with the production process, changes in input and output prices, interest or foreign exchange rates, market demand, and/or the competitive environment are specifically excluded. Political risks fall into four general groupings:

- Confiscation, expropriation and nationalization
- Currency inconvertibility
- Contract frustration
- War and general civil unrest (such as; revolution, terrorism) (14).

There have been number of studies supporting the existence of adverse domestic and international economic and financial spillover effects of extreme political acts. Particularly with reference to the adverse effects of terrorism there have been number of studies such as; Blomberg et al (2004) investigating the macroeconomic effects in relation to terrorism (15), Anderton and Carter (2004) which examine its microeconomic effects (16), and Simpson (2007) which assesses the effect of 9/11 on USA banking system (17).

**Country risk** is, loosely speaking, the risk of a crisis in a country. There are many risks related to local crises, including:

- Sovereign risk, which is the risk of default of sovereign issuers, such as central Banks or government sponsored banks
- A deterioration of the economic conditions
- A deterioration of the value of the bank’s base currency
- The difficulties or prohibition of transferring funds from the country either due to the legal restrictions imposed locally or because the currency is not convertible any more
• A market crisis triggering large losses for those holding exposures in the local markets

Country risk is a floor for the risk of a local borrower, or equivalently, that the country rating caps local borrowers’ ratings. In general, country ratings serve as benchmarks for corporate and banking entities. The rationale is that, if transfers become impossible, the risk materializes for all corporate in the country. There are debates around such rules, since the intrinsic credit standing of a borrower is not necessarily lower than on that of the country.

Performance risk exists when the transaction risk depends more on how the borrower performs for specific projects or operations than on its overall credit standing. Performance risk appears notably when dealing with commodities. As long as delivery of commodities occurs, what the borrower does has little importance. Performance risk is transactional because it relates to a specific transaction. Moreover, commodities shift from one owner to another during transportation. The lender (bank) is at risk with each one of them sequentially. Risk remains more transaction-related than related to the various owners because the commodity value backs the transaction (9, pp. 15-16).

Operational risk is those of malfunctions of the information system, reporting systems, internal risk-monitoring rules and internal procedures designed to take timely corrective actions, or the compliance with internal risk policy rules. Although operational risk is by itself not a new concept, it has by far not received the same amount of attention as credit and market risk until recent years. Fundamental changes in financial markets, increasing globalization and deregulation, as well as corporate restructuring had a large impact on the magnitude and nature of operational risks confronting banks (18).

The New Basel Accord of January 2001 defines operational risk as “the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems or from external events*”.

Operational risk is the risk to earning or capital arising from problems associated with the delivery or service of a product. In the absence of efficient

* - BCBS (2001a), p.94. the definition has been updated in the BCBS (2003a) document and does not distinguish between direct and indirect losses anymore.
tracking and reporting of risks, some important risks remain ignored, do not trigger any corrective action and can result in disastrous consequences. In essence, operational risk is an ‘event risk’ and appears at different levels:

- People.
- Processes.
- Technical.
- Information technology (9, pp. 20-21).

Following the widespread recognition of the importance of operational risk in banking and the knowledge that operational risk exhibits characteristics fundamentally different from those of other risks, an increasing amount of academic research has been devoted to this issue. Power (2005) reviews the development of operational risk in general (19).

**Capital or gearing risks** exist due to the highly leveraged nature of bank businesses. There are normally no sudden or random changes in the amount people wish to save or borrow, unless depositors are given reason to believe the system is becoming unsound. Generally, a bank is said to be highly geared/leveraged when a large exposure is associated with a small capital outlay. This can occur in the more traditional activities such as fractional reserve lending, or because of newer types of business, such as the use of derivatives and activities related to contingent assets and liabilities, referred as off-balance sheet risk.

The leverage limit for banks is critical because banks are relatively high gearing means the threshold of tolerable risk is lower in relation to the balance sheet. This is where capital comes in, with the principal function of acting as a buffer and supporting or absorbing losses. When banks need to increase their leverage, they should set aside more capital, and this is the principle behind the Basel risk assets ratio.

Capital risk is the outcome of other risks incurred by the bank, such as credit, market or liquidity risk. Poor earnings, caused by high loan losses or inappropriate risk taking in other areas put the bank’s capital at risk. Banks perceived to have an insufficient amount of capital will find it difficult to raise fund (5; pp.109-110, 20).
From the other point of view, Fisher (2007), with reference to the last decades innovation levels and changes swept international financial market that has massively changed the banking industry and increasing trends towards international finance, refers to strategic, model, and endogenous risk as the three critical risk categories, what make banks to survive or not to survive (21).

4.2.6 Banking Risk Management

The elimination of the high degree of segmentation, and continued demarcation of financial markets beside the banks movement into the new areas of off-balance sheet activities has made banks more income volatile and subject to variety of risks.

Risk management involves spotting the key risks, deciding where risk exposure should be increased or reduced and identifying the method of monitoring and managing the banks risk position in real time. The ultimate goal is to facilitate a consistent implementation of both risks and business policies. If the objective is to maximize profits and shareholder value-added, then the way risk management is organized in a bank is as important as the development of risk management tools and techniques.

Risk management has been always central to the profitability of banks; however its focus has changed over time. Risk management emphasizes on liabilities management during 1960s, has expanded to include the banks off-balance sheet operations and the risks inherent therein during 1980s, since then bank risk management has undergone a profound change and continues to evolve in the 21st century. While classical risk management/practices consist of setting risk limits ensuring that business remains profitable, modern best practices consist of setting risk limits based on economic measures of risk which ensures the best risk-adjusted performances. In both cases, the goal remains to enhance the risk–return profile of transactions and of the bank’s portfolios. Nevertheless, new best practices are more risk-sensitive through quantification of risks. Their key difference is the implementation of risk measures. Risks are invisible and intangible uncertainties, which might materialize into future losses, while earnings are a standard output of reporting
systems complying with established accounting standards. Such differences create a bias towards an asymmetric view of risk and return, making it more difficult to strike the right balance between both. Characterizing the risk–return profile of transactions and of portfolios is the key for implementing risk-driven processes. The innovation of new best practices consists of plugging new risk–return measures into risk management processes, enriching them and leveraging them with more balanced views of profitability and risks (9, pp. 53-58). The innovation has evolved the process of risk management through the gradual emergence of new risk measures, and these innovations relate to:

- The recognition of the need for quantification to develop risk-based practices and meet risk-based capital requirements.
- The willingness of bankers to adopt a more proactive view on risks.
- The gradual development of regulator guidelines for imposing risk-based techniques, enhanced disclosures on risks and ensuring a sounder and safer level playing field for the financial system.
- The emergence of new techniques of managing risks (credit derivatives, new securitizations that off-load credit risk from the banks’ balance sheets) serving to reshape the risk–return profile of banks.
- The emergence of new organizational processes for better integrating these advances, such as loan portfolio management.

Without risk models, such innovations would remain limited. Therefore, there has been increasing emphasis on the use of models to produce reliable risk measures to direct capital to the activities that offer the best risk-return combination. The basic prerequisites for deploying risk management in banks may be as follow:

- Risks measuring and valuation
- Tracing risks back to risk drivers under the management control

This is where modeling risks contributes. Risk models have two major contributions: measuring risks and relating these measures to management controls over risks. Banking risk models address both issues by embedding the specifics of each major risk. As a direct consequence, there is a wide spectrum
of modeling building blocks, differing across and within risks. They share the risk-based capital and the Value at Risk (VaR) concepts that are the basic foundations of the new views on risk modeling, risk controlling and risk regulations. Risk management requires an entire set of models and tools for linking risk management (business) issues with financial views on risks and profitability. Such tools enhance considerably the views on risks and provide the ability to control them.

Banks are increasingly exposed to new forms of risk, which are quite different in nature from the traditional risks, due to their evolving functions and roles, and emergence of new instruments and strategies which are used by them. Therefore, now, the central objective of bank is the management of a whole range of unbundled risks including; credit/counterparty, market (including interest rate and currency risks), sovereign and operating risks. This has evolved the traditional function of an asset–liability management (ALM) in banks. For banks performing intermediary and payment functions as their principal function, risk management basically consists of good ALM. Managing the banking exposure to interest rate risk and trading interest rate risk are different businesses. Both commercial activities and trading activities use up liquidity that financial institutions need to fund in the market. Risk management, in this case, relates to the structural posture that banks take because of asset and liability mismatches of volumes, maturity and interest rate references. ALM is in charge of managing this exposure. ALM models have developed gradually until they became standard references for managing the liquidity and interest rate risk of the banking portfolio. Market risk models appeared soon after the Basel guidelines started to address the issues of market risk. They appeared sufficiently reliable to allow internal usage by banks, under supervision of regulators, for defining their capital requirements.

For credit risk, the foundations exist for deploying instrumental tools fitting banks’ requirements, and potentially, regulators’ requirements. The New Basel Accord of January 2001 set up guidelines for credit risk-sensitive measures, therefore preparing the foundations for the full-blown modeling of the credit risk of banks’ portfolios. Other major risks appeared when progressing in
the knowledge of risks. Operational risk became a major priority, since January 2001, when the regulatory authorities formally announced the need to charge bank capital against this risk.

ALM is basically an effort to minimize exposure to price risk by holding the appropriate combination of assets and liabilities in such a way to meet the firms’ objectives and simultaneously minimize the firm risk and in other words to get the desirable risk-return profile. This addresses the issue of defining adequate structures of balance sheet and the hedging programs for liquidity and interest rate risk. The primary task is to provide relevant risk measures of these risks, and to keep them under control, given expectations of future interest rates. Asset-liability management and related models have changed a great deal in last decades due to the more sophisticated approaches to the measurement and management of risks (22, pp. 494-498). The foundation concepts in ALM strategies are as follow:

- Liquidity
- Term structure
- Interest rate sensitivity
- Maturity composition
- Default risk

Liquidity is defined as the ease with which assets can be converted to cash. There are two distinct dimensions liquidity as the term pertains to assets; first, maturity dimension, and second’ marketability. An asset is said to be liquid if mature in a very short period, and/or if it can easily be sold in the secondary market without a major price concession.

The second foundation concept, term structure, implies the relationship between debt instrument yields and those instruments’ maturities at any given point in time, depicted via yield curve. The shape of curve and expectation of asset liability manager about the future shape of the curve plays significant role in future strategies.

With respect to interest rate sensitivity, there are two way to look at it. It may be used to describe the degree to which an instrument’s price will change when its yield as a reflection of market rate changes, and can be measured by
different tools such as duration, yield value of 32\textsuperscript{nd}, or dollar value of a basis point. The other way to look at interest rate sensitivity is to focus on variable rate assets and liabilities. In this usage, the degree of sensitivity is determined by the degree to which an instrument's interest rate adjusts and the speed of this adjustment.

Maturity composition refers to the maturities of assets and liabilities that can be matched or unmatched. Maturity composition and term structure interact to determine interest rate sensitivity.

The final factor playing role in ALM, is default risk or credit risk, the risk that borrower will be unable to repay the loan principal and/or interest. As it mentioned before, credit risk is the major risk faced by banking system due to its lending side of intermediary function. It continues to be central to good risk management because most bank failures are linked to a high ratio of non-performing asset or loan to total advances. However, as banks become more complex organizations, other types of financial risks have been unbundled and made more transparent* (23).

4.2.7 Banks' risk-based practices

Banks have plenty of motives for developing risk-based practices and risk models. In addition, regulators made this development a major priority for the banking industry, because they focus on systemic risk. Risk-based policies and practices have been adopted to enhance the risk–return profile of the bank portfolio. They cover all techniques and management tools required for measuring, monitoring and controlling risks. The innovation in this area is the gradual extension of new quantified risk measures to all categories of risks, providing new views on risks, in addition to qualitative indicators of risks. Trends towards risk-based practices accelerated in recent years, extended to the entire banking industry. The basic underlying reasons are: banks have major incentives to move rapidly in that direction; regulations developed guidelines for risk measurement and for defining risk-based capital (equity); the risk management models enriched considerably, for all types of risks, providing

* - For more details see reference no.1, Chapter 9.
tools making risk measures instrumental and their integration into bank processes feasible.

Visibility and sensitivity to risks are important for bank management, because banks take risks, transform them, and embed them in banking products and services. Risk-based practices designate those practices using quantified risk measures. Their scope evidently extends to risk-taking decisions, under an ‘ex ante’ perspective, and risk monitoring, under an ‘ex post’ perspective, once risk decisions is made. There are powerful motives to implement risk-based practices:

- To provide a balanced view of risk and return from a management point of view
- To develop competitive advantages
- To comply with increasingly stringent regulations all with the aim of improvement of bank efficiency

Under a management perspective, without a balanced view of expected return and risk, banks have a myopic view of the consequences of their business policies in terms of future losses, because it is easier to measure income than to capture the underlying risks. The underlying major issue is to assign a value to risks in order to make them commensurable with income and fully address the risk–return trade-off. A representative example of new risk-based practices to address this need is the implementation of risk-adjusted performance measures. The rationale of risk adjustment is in making comparable different performances attached to different risk levels, and in general making comparable the risk–return profiles of transactions and portfolios.

Furthermore, those banking institutions that actively manage their risks have a competitive advantage. They take risks more consciously, they anticipate adverse changes, they protect themselves from unexpected events and they gain the expertise to price risks. The competitors who lack such abilities may gain business in the short-term. Nevertheless, they will lose ground with time, when those risks materialize into losses.
Banking failures make risks material and convey the impression that the banking industry is never far away from major problems. Mutual lending—borrowing and trading create strong interdependencies between banks. An individual failure of a large bank might trigger the contagion effect, through which other banks suffer unsustainable losses and eventually fail. Regulators have been very active in promoting pre-emptive policies for avoiding individual bank failures and for helping the industry absorb the shock of failures when they happen. Toward this end, regulatory frameworks have been renovated and regulatory guidelines and requirements have become more stringent. However, it is not the only incentive for structuring the risk management tools and processes. Both motivations and regulations make risk measurement a core building block of valuable risk-based practices (9, Introduction).

4.2.8 Financial Reengineering

The banking crisis such as South-East Asia and Japan has brought to the fore problem that a weak and fungible domestic financial sector, specially banking system can pose for the economy. The stability of financial sector and proper safeguard system of financial system to prevent financial problems assuming crisis proportions of systemic nature has assumed critical importance in this context calling for systemic restructuring of the system in general and banks in particular.

A systemic bank restructuring, encompasses a series of measures that need to be coordinated in order to maintain the national payments system and access to credit while correcting problems in the financial system that caused or contributed to the crisis. Coordination of these measures is more important in a developing country as explained by Joseph Stiglitz (1998); “Restructuring the banking system is even more difficult in many developing countries, for several reasons. First, there is less technical, legal, and institutional capacity for tasks like asset resolution. Second, the fraction of the banking system with bad assets and insolvencies is often far larger; there are fewer healthy banks to take over the weak banks. Third, the banking systems may be more complex, with a mixture of state and private banks. The state banks may carry with them an
implicit guarantee for depositors. A government announcement that it will not guarantee the private banks can easily generate a run on the private banks, especially if the government shuts down some banks but leaves doubts about the health of some of the remaining banks (24).

The challenge for governments is how to address the immediate crisis without adversely affecting the ability to use systemic solutions for long term problems. Thus, in taking the initial steps to intervene as forcefully as possible to restore confidence to the entire banking system, a government should be careful not to distort the incentives for comprehensive reform. To be successful over the long run, systemic bank restructuring should employ measures which are cost effective and simple to implement, distribute losses equitably, aim at minimizing the burden on the public sector, avoid generating future moral hazard problems, and promote good governance. The legal framework for systemic bank restructuring can be separated into four linked elements:

- Restoring Confidence in the Banking System
- Establishing a Legal Process for Government Intervention
- Establishing a Mechanism for Intervening Failed Banks
- Establishing a Mechanism for Maximizing Recovery on Non-Performing Loans (25).

However, the recent financial crisis, have shown that even countries with the strong fundamentals and governments responses; have been hit by the crisis through contagion. A country’s ability to withstand international instability and to access market as well as investment abroad is likely depend on whether domestic financial system, particularly banking system is perceived to be stable and broadly confirm to international prudential and supervisory norms. Therefore, in pursuing of improving the soundness of financial system in general and banking system in particular, the financial reengineering of the system is an essence.

Financial (re)engineering sets to build a financial sector which is resilient, efficient and competitive, and responsive to the changing economic requirements. The strengthening measures relating the prudential norms in conformity with international measures and standards, with considering
country’s specific conditions; applying new systems and methods in banks; structural issues; regulatory and supervisory issues; legal and legislative frameworks are some of the measures regarding the reengineering of sound, stable, and more efficient financial system.

Financial institutions, regulatory entities are the main players in the process of restructuring or reengineering of financial systems. Each financial institution, according to its risk based practices undertake measures based on their own self interest incentives, to improve the efficiency in addition the measures in national level, which play an important role in the restructuring of system. The key strategies for creation of a progressive and dynamic financial system may be classified in four categories of:

- Enhancing financial sector capability in meeting growing demand
- Strengthening the resilience of financial system to withstand shocks
- Enhancing the capacity and efficiency of domestic financial institutions
- Enhancing market discipline (26).

4.2.9 Banks Regulation and Harmonization

Banks due to their specific nature and unique role have been most regulated in financial system. There are many cases where central banks or other financial regulators have intervened to rescue a bank or banks to protect the rest of the banking system and financial system as the whole.

The vulnerability of banking to contagion creates systemic risk; the risk that creates disturbances in a financial institution or market will spread across the financial system. This will lead to widespread bank runs by wholesale and retail depositors, and possibly, collapse of the banking system. An extensive collapse will result in the loss of intermediation, money transmission and liquidity services offered by banks leading to inefficient allocation of resources in the economy. Thus, bank failures can create substantial negative externalities or social costs, in addition to the obvious private costs of failure. Systemic banking risks are aggravated by the inter-bank and Euromarkets, which play a crucial role in the global banking scene. In an increasingly integrated financial systems, the inter-bank market acts as a risk absorber and risk spreader but at
the same time makes the global banking system vulnerable to certain exogenous shocks. Additional problems arise because of the macroeconomic role played by banks; as help to implement government monetary policy. Therefore, in most countries, to prevent or minimize the banks failures, the banking systems are singled out for special regulation. Different types of regulations with the aim of enhancing the net social benefits of banks’, particularly commercial banks’ services to economy may be classified as:

- **Safety and soundness regulation**: to protect depositors and borrowers against the risk of bank failure. There have been developed layers of protective mechanisms to balance banks’ profitability and their risks, such as requirements encouraging banks to diversify their assets that may result in lower profitability but also ultimately lower risk of insolvency (27).
- **Monetary policy regulation** which concerns with the special role played by banks in transmission of monetary policy to the rest of the economy.
- **Credit allocation regulation** is carried out to support the banks’ lending to socially important sectors through which, for instance, they may require banks to hold a minimum amount of assets in a particular sector of economy.
- **Consumer protection regulations** are done to prevent discrimination by lending institutions (banks).
- **Investor protection regulations** include various laws protecting investors using banks directly to purchase securities and/or indirectly to access securities market, against abuses.
- **Entering and chartering regulation** (13, pp. 396-401).

In brief, banks are regulated for three different reasons. First, they are regulated to reduce the risk of large scale failures that adversely affect the level of economic activity. This is also the concern of systemic risk. The second reason is to protect creditors/depositors—in case of banks the largest number of creditors are small depositors, most of whom are not capable of evaluating the financial condition of banks or monitoring their actions. Third, banks are
regulated to achieve desired social goals. This public choice approach to regulation serves to reallocate resources from one group to another (2, pp. 29-30). According to Kelly (1996), banks are regulated to promote an efficient and effective banking system that finances economic growth, impartially allocates credit, and meets the needs of the customers and communities that banks serve (28). The first two reasons involve prudential regulation. The prudential regulation of banks is concerned with minimizing the social costs of bank failure, ensuring that banks do not take advantage of the fact they are singled out for special regulation, and possibly protection.

In the most cases prudential regulation focuses on bank regulation at the micro level, i.e. ensuring each bank behaves in a prudent manner, to prevent systemic failure arising from contagion if one bank fails. Boreo (2003) argues equal attention should be paid to macro-prudential regulation and aggregate exposures of banks. This prevents the banking system as whole from getting into trouble because they are exposed to the same collective risks in which an entire banking system can encounter problems simultaneously (29).

The major goals of regulatory efforts have been improving the safety of the banking industry, by imposing different requirements in line with banks' risks; leveling the competitive playing field of banks through setting common benchmarks for all players; promoting sound business and supervisory practices, and finally achieving desired social goals (5, pp.173-177). The effectiveness of prudential regulation will depend on what it is supposed to do. In this context, it may be successful in accomplishing some goals, and less successful in other areas. However, safety and soundness of banking system is the primary objective of prudential regulation. If banking system fails to achieve this objective, the other objectives of prudential regulation can not be met. The large number of bank failures and crisis suggest that prudential regulation has limits, and that it works better in some countries than in others. For instance, systemic causes of bank failures are one of those limits (30). Prudential regulation works best in a stable economic environment. The Basel Committee on Banking Supervision’s Core Principles state,” In the absence of sound Macroeconomic policies, banking supervisors will be faced with a virtually
impossible task.” Most banking crises have been associated with unstable economic conditions (31).

**Harmonization** refers to uniform international banking regulations. It also refers to stemming the divergent standards that are applied to similar activities of different financial institutions. The Bank for International Settlement (BIS) was established in 1930, as the principal center for international central bank cooperation dealing with bank regulatory issues. The international coordination of prudential regulation at global level is increasingly important, and there are number of arguments in favor of global coordination of prudential regulations. First, problems with the global institutions and markets could undermine the stability of the international financial system, and therefore the environment in which all banks operate. Second, if a branch or subsidiary of a bank is located in another country, there is the question of which supervisory authority should have jurisdiction over the branch. Third, if all multinational banks are required to meet the same global regulations, compliance costs will be similar. Hence a global approach to regulation can help to level the competitive playing field for banks with international operations (5, pp. 179-180).

### 4.2.10 Development of Regulatory Guidelines and Basel II

Originally, regulations were traditional conservative rules. The regulatory scheme was passive and tended to differentiate prudent rules for each major banking business line. Differentiated regulations segmented the market and limited competition. Innovation made rules obsolete, because players found ways to bypass them and to compete directly with other segments of the banking industry. Obsolete barriers between the business lines of banks, plus failures, triggered a gradual deregulation wave, allowing players to move from their original business field to the entire spectrum of business lines of the financial industry. The outcome of deregulation is an increased competition between unequally experienced players, and the implication is increased risks. The resulted failures have made the need for re-regulation obvious and re-regulation gave birth to the current regulatory scheme.
The current international bank regulatory system dates back to 1974, when the central-bank Governors of the Group of Ten, established Basel Committee on Banking Supervision under the Bank of International Settlements (hereinafter BCBS). The committee has no formal supranational supervisory authority or legal force. It has been formulating broad supervisory standards and guidelines and recommends statements of best practice in the expectation that individual authorities will take steps to implement them in the best suited form to their own national systems. The Committee encourages convergence towards common approaches and common standards without attempting detailed harmonization of member countries’ supervisory techniques. It also covers a very wide range of financial issues mostly towards the provision of an adequate and systematic supervision. In 1988, they developed the principles of the Basel framework for determining capital adequacy, a system of bank regulation incorporated into national banking legislation around the world (hereinafter Basel I). This system provided for the implementation of a credit risk measurement framework with a minimum capital standard of 8% by end-1992. This framework has been progressively introduced not only in member countries but also in virtually all other countries with internationally active banks. A first draft of the New Capital Adequacy Framework (Basel II) by the Basel Committee on Banking Supervision was released in June 1999 (i.e. a consultative paper (CP)), containing general outlines of proposed regulations, known as CP1, to affect capital requirements of credit institutions. Capital adequacy rules established by the Basel Committee are eventually to be adopted by central banks and supervisory authorities of the majority of countries in the world. The outcome was the publication of a "New Basel Capital Accord" (technically, the 3rd CP), proposed formally on April 29, 2003 and inviting comments from the banking community until July 31, 2003 (collectively, “Basel II”). The goal has been to finalize new capital rules by the end of 2003, for worldwide implementation by or after December 31, 2006. Following extensive interaction with banks, industry groups and supervisory authorities that are not members of the Committee, the revised framework was issued on 26 June 2004, as a basis for national rule-making and for banks to complete their
preparations for the new framework’s implementation. Basel II says, “The Committee has designed the revised Framework to be a more forward-looking approach to capital adequacy supervision, one that has the capacity to evolve with time”, (32). The Core Principles and the Methodology were revised recently and released in October 2006* (33). The timetable of CPs, quantitative impact studies (QISs) and implementation deadlines are shown in Table 4.1.

Table 4.1 Basel I and Basel II timetable of consultative papers, quantitative impact studies, parallel run and final implementation (34; pp. 3, 9; pp 30)

<table>
<thead>
<tr>
<th>Dates</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1988</td>
<td>Current Accord published</td>
</tr>
<tr>
<td>1996</td>
<td>Market Risk Amendment allowing usage of internal models</td>
</tr>
<tr>
<td>June 1999</td>
<td>First consultation paper (CP1) on New Accord</td>
</tr>
<tr>
<td>July 2000</td>
<td>Quantitative impact study (QIS1)</td>
</tr>
<tr>
<td>January 2001</td>
<td>CP2</td>
</tr>
<tr>
<td>April 2001</td>
<td>QIS2</td>
</tr>
<tr>
<td>November 2001</td>
<td>QIS2.5</td>
</tr>
<tr>
<td>October 2002</td>
<td>QIS3</td>
</tr>
<tr>
<td>April 2003</td>
<td>CP3, Publication of New Accord</td>
</tr>
<tr>
<td>October 11, 2003</td>
<td>Announcement changing the rules</td>
</tr>
<tr>
<td>June 2004</td>
<td>Finalization of Basel II regulations</td>
</tr>
<tr>
<td>January 2006</td>
<td>Parallel running of IRB approaches with Basel II</td>
</tr>
<tr>
<td>January 2007</td>
<td>Implementation of Basel II (see Warning)</td>
</tr>
</tbody>
</table>

In a general sense, Basel II represents an improved and broadly comparable way to look at risk taking across organizations and over time. The framework is structured to be much more risk-sensitive than Basel I. Basel II is designed to address the concern that Basel I regulatory capital ratios are no longer good indicators of risk. Indeed, calculating Basel I ratios is sometimes viewed as nothing more than a compliance exercise. The development of sophisticated secondary markets in recent years has allowed banks to make strategic decisions to either retain or sell virtually every category of loan and investment asset. This market advance has had significant implications for the

* - Many of the comments submitted to BCBS by July 31st are available for inspection at the Internet website maintained by BCBS. (see http://www.bis.org/index.htm)
initial Basel effort. Basel I presents an opportunity for banks to retain balance-sheet positions that are of higher risk than their regulatory capital charge and to shed those of lower risk. Using this type of capital arbitrage, banks can game the system in such a way that the resultant Basel I ratio does not have substantial meaning for the public, bank management, or the supervisor. Basel II is intended to close this gap by more directly linking riskiness of assets to their corresponding regulatory capital charge and to reduce, if not eliminate, the incentives to engage in capital arbitrage.

The rational for the New Accord has been the need for more flexibility and risk sensitivity. In fact, the need for Basel II reflects the increased sophistication of risk-management practices and the ways they can be applied to the measurement of capital and at the same time, it also reflects the increased complexity of banking in general, especially at larger institutions (35). The trend towards more internal and external assessment on risks and returns emerged and took momentum in several areas. Through successive accords, regulators promoted the building up of information on all inputs necessary for risk quantification. Accounting standards evolved as well. The past capital adequacy regulations have depended on a feedback system where supervisory authorities inspect past risks for the present supervision to control banks’ future actions. In contrast, Basel II regulations provide for organizations seen as necessary for risk management purposes and encourage banks to take necessary measures based on future predictions to control their risks. In this sense, Basel II calls for a feed-forward risk control system (36). Therefore, the new package (Basel II) is very extensive providing a menu of options, extending coverage and more elaborate measures, in addition to descriptions of work in progress and its regulatory and supervisory framework promotes self-organized risk management. The advantages of new package over the Basel I may be summarized as:

- A more complex and potentially better credit risk model;
- Banks’ own rating system is a foundation for the capital allocation;
- Addresses a number of capital arbitrage issue in Basel I for example such as securitization;
• Improved focused on the range of risks a bank faces;
• Encouraged industry participation in developing better risk measurement and management solution (37).

Basel Committee on Banking Supervision attributes the implementation of Basel II to following factors:
• Given rapid financial innovation, Basel I capital ratios are no longer very accurate measures of bank risk.
• Basel II more closely aligns bank capital to the actual level of risk.
• Basel II is more capable of evolving with financial innovation.
• Basel II is more closely aligned with the bank’s internal risk management practices.
• Basel II is a necessary response to a complex and changing environment.
• Innovation in financial markets.
• Significant advances in technology, financial product innovation, and risk management; examples include: (i) Derivatives products (from plain vanilla to exotic). (ii) Securitization (from simple risk transfer to increasing sophistication in the slicing and dicing of risk).
• Innovation continues to occur at a rapid pace.
• Shift in many banks’ business models, from buy-and-hold to originate-to-distribute.
• Greater reliance on markets for risk transfer and liquidity.
• Models have generally focused on behavior under “normal” circumstances.
• Supervisory focus is on what happens under “stressed” conditions.
• New challenges for banks (and supervisors) (38).

In a broad sense, Basel II fulfills two major goals. The one is that of upgrading regulations which rests on the three pillars. The other goal which has received less publicity so far, yet is just as important, is that of; (i) increasing in a substantial way the risk sensitivity of senior management;(ii) leading towards an effective link between regulatory capital, risk management and economic
capital. Through the second goal, Basel II provides an institution with the high
ground in its competition with other banks. Under these approaches, banks will
be required to adopt more-formal, quantitative risk-measurement and
management procedures and processes. And, to implement this framework,
both bank management and supervisors will need to focus on the integrity and
soundness of these procedures and processes, including comprehensive
assessments of capital adequacy in relation to the bank's overall risk taking.
Monroe (2005) classifies the goals of Basel II as: greater risk sensitivity;
suitability; incentive compatibility; competitive equity; safety and soundness;
balance; no cyclicality; and aggregate capital level (39). Basel II comprises
three pillars:

- Minimum regulatory capital requirement;
- Enhanced bank supervisory review (supervisory processes);
- Disclosure of risk information by banks (market discipline).

All of these three elements, acting together and not singly, will help prop
up a bank against financial collapse. Together, they allow external supervisors
to audit the quality of the information, a basic condition for assessing the quality
and reliability of risk measures in order to gain more autonomy in the
assessment of capital requirements. Regulatory requirements for market, credit
and operational risk, plus the closer supervision of interest rate risk, pave the
way for a comprehensive modeling of banking risks, and a tight integration with
risk management processes, leading to bank-wide risk management across all
business lines and all major risks (40).

In general, the reform represents a step towards seeking a better
adequacy of statutory capital to economic capital and will result in a
strengthening of the banks’ financial solidity, whilst simplifying their
management. In a competitive economy failures are not abnormal; they are
even necessary to the system's long term balance. The regulator's objective
must be rather to avoid the spread of such failures to the whole system, in as
much as the regulations must not interact in an abusive manner in the
establishments' management.
The major interest in the Basel II approach resides less in its mechanical consequences than in its innovations. The Pillars two (monitoring process) and three (market discipline) are going to provide better transparency and above all, the collection of detailed information on the nature and changes of the various risk categories as well as information indispensable for analyses, for forecasts and for guarding against individual and, above all, systemic risks (41).

4.2.10.1 Pillar I: Minimum Capital Requirement

The first pillar designs supervisory authorities to review and approve risk management systems developed by banks in order to overcome the problem whereby supervisory authorities’ fixed general rules cannot catch up with the advancement of risk management processes (36).

Role of capital

As it was mentioned before, regulators concerned with the systemic risk of bank runs do not like to rely exclusively on reserve requirements, deposit insurance or being a lender of last resort because of the potential for moral hazard. As a result, regulators aiming at minimizing the moral hazard problem impose equity capital requirements as a fraction of the bank’s assets (42). Conventionally the strong bank capital base reduces risk in two basic ways:

- It provides a cushion for absorbing losses from investments that have defaulted or gone sour (credit risk);
- It allows the bank to meet liquidity needs arising from unanticipated deposit outflows either through sale of assets without duress or by maintaining uninterrupted access to financial markets (liquidity or interest risk).

Recently, capital has assumed significance for still another reason. With the intensified competition and abridged product life cycle, banks have been under heavy pressure to develop new products. Risks related to the development process, successful introduction in the market place and competitions are often unanticipated or underestimated. The cushion of equity capital is vital for bearing the cost of these risks (1, pp.283-284).
Total economic capital of financial institution is the combination of regulatory capital which is primarily addressing the expected losses, and economic capital which is as a reserve or cushion for unexpected losses. With Basel II, the economic capital is identified as what in the past was called entrepreneurial capital and its role is to assure that even under extreme conditions the credit institutions attract counterparties, remain solvent, and stay in business. However, the amount of capital of a bank is only a measure of its financial strength and ability to withstand unexpected financial crises, and is not a measure of its skill, sophistication or ability to thrive and persevere (30, pp.66-71).

**Regulatory Capital**

The "capital adequacy" of banks has been a prime concern of international banking regulators for many years. It has been the main pillar, by enforcing a capital level in line with risk, with the fundamental objective of strengthening the soundness and stability of banking system. However, the manner in which such "adequacy" is measured, changes from time to time. The greater precision that is applied has been a function of the availability of better calculation tools used in risk management, the growing complexity of banking operations, the growing experience and sophistication of banking regulators, as well as the demand of bank customers to have more reliable and "solid" financial institutions. Under Capital Adequacy Norm, regulators focus on pre-emptive actions limiting the risk of failure, with attempts to reach a consensus on the feasibility of implementing new complex guidelines by interacting with the industry. Therefore, Basel guidelines are subject to some implementation variations according to the view of local supervisors.

Basel Committee on Banking Supervision asserts that Basel II seeks to modify the definition of a bank’s risk weighted assets, i.e., “the methods used to measure the risks faced by banks … [and] make the resulting capital ratios more meaningful” (40, pp. 3). Returning to Basel I, the minimum required capital ratio (set at 8%) was calculated as the regulatory capital divided by the risk exposure related only to credit risk, with a calculation for market risk added in
1996. The scope of regulations extended progressively later to include other risk and additional charges. The new capital adequacy rules (Basel II) have brought about more emphasizes on risk base approaches and resulted in proactive methods to compute capital needs against passive flat 8% of Basel I.

Figure 4.2 shows that risk based decision is a proactive method to compute capital needs. By contrast, fixed ratios like a flat 8% are passive, and say nothing about assumed exposure (34, pp.32-33).

Fig. 4.2 Risk based pricing sees to it that capital requirements are dynamic while a fixed 8% ratio is static (34, pp.34).

One of the greatest innovations of Basel II is that it offers lenders a choice between: The standardized approach, The Foundation Internal Ratings-Based Approach (F-IRB), Advanced Internal Ratings-Based Approach (A-IRB). All three methods, designed to gage capital adequacy and promoted under Pillar 1, target financial staying power. Internal ratings-based solutions differ substantially from the standardized approach, because the banks internally assess their own key risk drivers, which serve as primary inputs to their computation of capital requirements. The same reason sees to it that IRB solutions have a much higher risk sensitivity, which benefits senior
The major innovation is to distinguish among the size of different risks of asset on the balance sheet and to identify the risk inherent in instruments off the balance sheet by using a risk adjusted assets dominators in these capital adequacy ratios. To determine the minimum capital requirements, four-step procedure must be followed:

- Classify bank assets into one of four risk categories, which are represented by 0, 20, 50, and 100 percent
- Classify off-balance-sheet activities into the appropriate risk categories represented by 0, 20, 50, and 100 percent
- Multiply the dollar amount of assets in each category by the appropriate risk weight (i.e., the percentage) to obtain the risk-adjusted assets
- Check whether the bank capital satisfies the requirement by comparing the desired percentage, either 4 percent or 8 percent to the risk-adjusted assets (1, pp 288).

The basic objective of Pillar 1 is that credit institutions are well capitalized. Today, many analysts consider as well-capitalized banks those with capital equal to more than 10 percent of their assets, provided both capital and assets are weighted for risk. Adequately capitalized banks are usually those with capital of 8 percent to 10 percent of assets under the same conditions. Below the 8 percent level comes the class undercapitalized credit institutions, while below 5 percent are those significantly undercapitalized, with equity of less than 2 percent of assets. While these definitions look clear enough, but what exactly constitutes capital is not. Basel II identifies three categories of own funds (regulatory capital) which differ in their ability to cover losses:

- Tier 1 or Core capital
- Tier 2 or Supplementary/ Additional capital
- Tier 3 capital.

Tier 1 and Tier 2 capital constitute the liable capital of the institution. Tier 3 capital is still a minor player.

* - For more details see reference no. 5, pp 181-202.
Tier 1 capital is closely linked to a bank’s book value of equity reflecting the concept of the core capital contribution of bank’s owners. Basically it includes the book value of common equity plus amount of perpetual preferred stock plus minority equity interests held by the bank in the subsidiaries minus goodwill.

It is appropriate to keep in mind that:

- T-1 does not necessarily increase efficiency, and
- It can be open to abuse, like the so-called Hybrid Tier 1 (HT-1).

Basel II clearly specifies that HT-1, which is also called capital from innovative instruments, will be limited to 15 percent of T-1 capital net of goodwill. HT-1 capital is an innovative instrument with some characteristics of equity and some of debt* (43). In case of HT-1 capital, apart from other risks they may increase market expectations, in an undocumented way. Hence a bank must be cautious in its usage. However, it seems that several credit institutions like HT-1 not only for making their capital base stronger, but also for tax reasons. Credit institutions employing HT-1 are the same ones that go for leverage. One of the means to do this is mandatory convertible bonds which cost below equity, but present a number of other problems such as inherent complexity, and the fact that they dilute in a significant way the existing shareholders’ equity. Moreover, whether or not the use of HT-1 capital is a lawful exercise, depends on the jurisdiction (34, pp. 66-70).

Tier 2 capital is a broad array of secondary capital sources including banks’ loss reserves up to a maximum of 1.25% of risk adjusted assets plus various convertible and subordinated debt instruments with maximum caps (13, pp. 412-416). As contrasted to T-1 and T-2, T-3 is short-term capital with up to two years. It does not even have a unique definition, among bankers. Some credit institutions include insurance in it; others do not. Tier 3-based capital came up as an option mainly in the twenty-first century:

- It is mostly trading book P&L

* - For more details regarding regulatory capital for structured products in Basel II proposal see reference no. 43, chapter 15.
• It is too volatile to count on, and
• It consists of short-dated instruments

Rating agencies will not go for T-3 because trading gains can turn into trading losses at a moment's notice. The regulators take a cautious approach to T-3, and so do several senior bankers. Today T-3 is neither generally liked nor widely used (about 3% of regulatory capital). Trading assets come and go, changing the base on which regulatory and economic capital are computed. Since its inception in 1998, only big banks with significant trading books tend to favor T-3. It is as well to take note that T-3 usage leads to pricing differentials (34, pp. 71-74).

4.2.10.2 Pillar 2: Supervisory Review Process

The second pillar establishes supervisory review explicitly as a central piece in the new capital allocation structure. The supervisory review process rather than being a discretionary pillar acts as a fundamental complement to both the minimum regulatory capital requirements (Pillar 1) and market discipline (Pillar 3). Basel II means to address the quality of the supervision of this issue of capital adequacy by national bank regulators. These recommendations involve more than just merely assessing whether a bank has a minimum adequate capital level, and require a more intimate level of supervision involving for example: (i) stress testing of the bank (ii) supervisory review of concentration risks, when a bank focuses a large chunk of its business on a particular sector with certain associated risks; (iii) evaluation of residual risks remaining after reliance of any collateral, guarantees, credit derivatives and other risk mitigants; (iv) special supervisory review of securitizations; (v) supervisory review of the methodologies, procedures, assumptions and external data sources used by a bank to compute the various statistical measures required by Basel II; (vi) special supervisory assessment of a bank's personnel, with a view towards evaluating the method by which a bank manages its operational risks (44).

Supervisors will be responsible for evaluating how well banks are assessing their capital needs relative to their risks. The risk-sensitive
approaches developed by the New Accord rely extensively on banks’ internal methodologies, giving banks more discretion in calculating their capital requirements. Hence, separate disclosure requirements become prerequisites for supervisory recognition of internal methodologies for credit risk, credit risk mitigation techniques and other areas of implementation. The four basic principles for an effective bank regulatory process and supervisory policies are as follow:

- Banks should have a process for assessing their overall capital in relation to their risk profile and a strategy for maintaining their capital levels.
- Supervisors should review and evaluate banks’ internal capital adequacy assessments and strategies, as well as their ability to monitor and ensure their compliance with regulatory capital ratios.
- Supervisors should expect banks to operate above the minimum regulatory capital ratios and should have the ability to require banks to hold capital in excess of this minimum.
- Supervisors should intervene at an early stage to prevent capital from falling below the minimum levels required to support the risk of a particular bank, and should require corrective actions if capital is not maintained or restored (45, pp. 8-10).

The risk based supervisory efforts hold out a package of benefits of the supervisor, the supervised entities and the depositor as well. This approach provide supervisors deeper understanding of risks associated with banks and facilitate optimum use of scarce supervisory resources and direct supervisory attention to those banks and those areas within the banks, which cause more supervisory concern. With reference to financial institutions and bank it will enhances their own capabilities for risk management and risk control and bring about lesser supervisory intervention for the good performers. Through reducing the of insolvency probability, risk based supervisory provide greater comfort for deposit protection, therefore benefits depositors (46).
4.2.10.3 Pillar 3: Greater Disclosure Requirements / Market Discipline

Pillar 3 addresses the issue of improving market discipline through effective public disclosure. Market discipline is to complement the minimum capital requirements (Pillar 1) and the supervisory review process (Pillar 2). The Committee aims to encourage market discipline by developing a set of disclosure requirements which will allow market participants to assess key pieces of information on the scope of application, capital, risk exposures, risk assessment processes, and hence the capital adequacy of the institution. The Committee believes that such disclosures have particular relevance under the New Accord, where reliance on internal methodologies gives banks more discretion in assessing capital requirements (40, pillar 3).

In case of different organizations, which have become so varied and complex, any supervisory efforts have the choice of either using more invasive procedures or relying on market discipline. And market discipline is impossible if counterparties (and rating agencies) do not have better information about banks' risk positions. Markets need accurate information to function effectively. In fact, the main objective is not to supplant supervision of organizations but to provide information that will enable market participants to serve as an effective complement to supervisors (35).

By bringing greater market discipline to bear through enhanced disclosures, the new capital framework can produce significant benefits in helping banks and supervisors to manage risk and improve stability. The rules are designed to provide the market with important information about banks without flooding the market with unnecessary data. The requirements for transparency should be examined in the context of increased links between banks' internal controls and accounting and the contents of banking regulation, greater reporting requirements regarding their governance, and the demands placed on their information systems. The accord emphasizes the potential for market discipline to reinforce capital regulations and other supervisory efforts in promoting safety and soundness in banks and financial systems. Another important consideration has been the need for the Basel II disclosure framework to align with national accounting standards. The objective is to ensure that the
Disclosure requirements of the New Accord focus on bank capital adequacy and
do not conflict with broader accounting disclosure standards with which banks
must comply. This objective has been accomplished through a strong and
cooporative dialogue with accounting authorities (9; pp. 49-50, 45; pp. 10-11).

4.3 Banks in India and the regulatory efforts

4.3.1 Survey of Prudential Norms in India

Strengthening of the financial sector and improving the functioning of the
financial markets have been the core objectives of financial sector reforms in
India. The central plank of financial sector reforms is a set of prudential norms
aimed at imparting strength to banks and financial institutions as well as
inculcating greater accountability and market discipline. These norms include
not only capital adequacy, but also asset classification and provisioning,
exposure and disclosure norms, investment and risk management as well as
asset-liability management guidelines. The approach has been to benchmark
the norms against international best practices.

Considerable progress has been made with regard to the financial sector
reforms initiated by recommendations of Narasimham Committee-I Report
(1992-1993). The committee was constituted by RBI with a view to ensuring that
this sector operates on the basis of operational flexibility and functional
autonomy thereby enhancing efficiency, productivity and profitability. Wide
ranging suggestions and recommendations of this committee were accepted
and have resulted in evolvement of prudential norms on income recognition,
asset classification and provisioning. Salient recommendations of Narasimham-I
on capital adequacy norms are as follow:

- The ratio of capital funds in relation to a bank’s deposits or its assets is a
  well-recognized and universally accepted measure of the strength and
  stability of the institution. For the purpose of calculating capital adequacy,
  risk weights have to be assigned to different categories of assets. The
  specific circumstances obtaining in India have to be taken due note of in
  assigning such weights.
• For the purpose of calculation of capital, BIS has classified capital into two categories, namely Tier I capital consisting of share capital and disclosed reserves and Tier II capital consisting of undisclosed and latent reserves, hybrid capital and subordinated debt which should not exceed Tier I capital.

• The Bank for International Settlement (BIS) norm for capital adequacy is 8 per cent of the risk-weighted assets. The Committee recommended that all banks in India reach this figure in a phased manner. For banks operating on an international scale, the norm should be achieved as early as possible and in any event within three years (i.e., March 1994). Other banks should achieve a capital adequacy norm of 4 per cent by March 1993 and the 8 per cent norm in full within the next three years (i.e., by March 31, 1996).

• Before arriving at the capital adequacy ratio for each bank, committee emphasized the need for evaluating the assets of the banks on the basis of their realizable values. The Committee proposed for uniform accounting practices in banks and financial institutions particularly regarding to income recognition and provisioning against doubtful debts.

During the period of 1992-1996, the emphasis was on capital adequacy measures represented through different circulars and instruction. The major objective during 1996-97 was on importing a greater degree of market orientation, promoting greater degree of operational efficiency and quality enhancement of financial intermediation. The committee on banking sector reform with Mr. M. Narasimham as chairman, was constituted on December 26, 1997 to review the record of financial sector reforms of the Narasimham Committee on financial system (1991), and to suggest remedial measures for strengthening the banking system and covering areas of banking policy, legislative and technological changes. Major Recommendations of Narasimham Committee – II submitted in April 1998, are summarized as:

• To bring about efficiency in banks, the committee recommended a number of measures such as; reversion of operational manual and its
updating, simplification of documentation systems, introduction of computer audit, and etc.

- In structural issues, committee recommended the complete convergence of activities between banks and DFIs and then converting DFIs into banks leading to existence of only two intermediaries.
- Pending the emergence of markets in India where market risks cannot be covered, it would be desirable to take into account market risks in addition to the credit risks. It should be obligatory for banks to take into account risk weights for market risk to facilitate soundness and stability of system.
- Emphasizing that the entire portfolio of Government securities should be marked to market. The committee suggested new prescription on risk weight for Government and other approved securities to hedge against market risk.
- Emphasizing on reducing non-performing asset of banks in a phased manner besides the proposition for Asset Reconstruction Company (ARC), to tide over the backlog of NPAs.
- Alone with more tightening prudential norms especially regarding asset recognition and classification, the committee asserted going beyond the earlier norms and set new and higher norms for capital adequacy. Accordingly, the Committee recommends that an intermediate minimum target of 9% be achieved by the year 2000 and the ratio of 10% by 2002 (47).

During the financial year 1998-99, in pursuing the objective of further improving the soundness of banking system, the RBI announced a package of reform measures relating to prudential norms in conformity with recommendations of the second Narasimham Committee. The measures aimed at increasing the minimum capital adequacy ratio in the banking system, recognition of market risk and related risk weight, and moving toward tighter norms. The RBI put in place a formal Asset-Liability Management (ALM) system to further enhancing transparency in accounting and disclosure practices during this period.
During the financial year 1999-2000, important measures were announced to strengthen the banking system including: assigning of risk weight of 2.5% to cover market risk in respect of investment in securities outside the SLR by March 31, 2001 -over and above the existence 100% risk weight- in addition to a prescription for Government and other approved securities by March 31, 2000; lowering of exposure ceiling regarding to individual borrower from 25% of the bank’s capital fund to 20%, effective April 1, 2000.

Banking sector reforms, during 2000-01, emphasized on building the health of banks and financial institutions, improving their asset quality, strengthening prudential norms and supervision and monitoring developments with a view to securing the soundness and stability of Indian banking system comparable to international standards. During this year, banks were encouraged to make provision in excess of stipulations, and taking into account their own risk perceptions. The valuation norms applicable for investment portfolios were modified to reflect market movements. Banks were advised for moving over to international practice of classifying loans; providing a simple, non-discretionary and non-discriminatory mechanism for recovery of NPAs in all sectors through compromise settlements. With regard to the New Capital Accord, RBI expressed the view that where banks are simple structure and have subsidiaries; the Accord could be adopted on stand alone basis with the full deduction of equity contribution made to subsidiaries from the total capital.

Policy measures undertaken in the context of the banking sector during 2001-02 were guided by the objectives of strengthening the banking sector through rigorous operational, prudential and accounting norms set to gradually converge to the international standards, improvement in the credit delivery system and gradual narrowing of divergences in regulatory frameworks of different types of institutions. Prudential tightening covered exposure and disclosure norms, guidelines on investments, risk management, asset classification, and provisioning. Banks were encouraged to follow international practices in respect of assigning capital for market risk, and also policy attention was drawn to the management of NPAs and related supervisory initiatives, including setting up of asset reconstruction company and revival of weak public
sector banks. The Board for Financial Supervision (BFS) evolved a country-specific approach to consolidated supervision through the multi-disciplinary Working Group, in line with international best practices.

Financial sector reforms were carried forward during 2002-03 with the announcement of measures for streamlining banking operations, upgradation of risk management systems, operationalisation of consolidated accounting practices, and enactment of new Act to improve the recovery of non-performing loans. The internationally accepted norm regarding the recognition of loan impairment was announced to implement. Banks were advised to build up Investment Fluctuation Reserve (IFR) of a minimum of 5% of the investment portfolio within five years. Banks were encouraged to provide internal assessment of country risk. Subordinated debts issued by banks were qualified for inclusion in Tier II capital. A broad framework has evolved for the NPAs management with a many of options provided for debt recovery and restructuring. RBI took the steps to a smooth switchover to risk based supervision (RBS), which entails the allocation of supervisory resources an focus in accordance with risk profiles. This has been part of a forward looking refinement of the supervisory functions with the New Basel Capital Accord when it is adopted. The reserve bank participated in a Quantitative Impact Study (QIS) conducted by Basel Committee to assess the impact of New Capital Accord. A broader internal process of preparing banks for the complexity of the New Accord and the costs involved has been undertaken.

During the financial year 2003-04 the policies convergence to international norms were continued. Banks were sensitizes to the need to put in place risk management systems and to draw up the road maps by end-December 2004 for migration to Basel II. The environment to NPAs management through the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) act of 2002 was strengthen. Risk-based supervision (RBS) on a pilot basis was introduced for eight banks.

The conduct of financial regulation and supervision by RBI in 2004-05 was guided by the need for ensuring financial stability to maintain confidence in financial system by enhancing its soundness and efficiency. RBI has
progressively aligned the regulatory framework with international best practices with country specific adaptation. In addition to the fine tuning prudential guidelines, the Reserve Bank focused on encouraging market discipline and ensuring good governance. The Indian banking system became fully compliant with Basel I standards by March 2005. Steps to implement Basel II norms were carried forward through the Capital Adequacy Assessment Process (CAAP). In order to ensure a smooth transition to Basel II in a non-disruptive manner, a consultative approach was adopted. Draft guidelines on implementation of New Capital Adequacy Framework were formulated and issued to banks on February 15, 2005 and banks were encouraged to focus on formalizing and operationalising their Internal Capital Adequacy Assessment Process (ICAAP) with effect from April 1, 2006 in the line with pillar 2 of new accord.

During 2005-06, various policy initiatives by RBI were guided by the need to prepare the commercial banks for implementation of Basel II. In view of the enlarged capital requirement under Basel II, banks were permitted to raise capital through new instruments. A guidance note was issued to provide a benchmark for banks to establish a scientific operational risk management framework. Due to sharp growth in bank credit to a few sectors, prudential measures were tightened for the specific sectors.

During 2006-07, Reserve Bank continued to focus the regulatory and supervisory initiatives on promoting a stable and competitive financial sector in an environment characterized by rising globalization, financial deregulation and rapid technological innovations. Prudential, accounting and disclosure norms were strengthened to promote financial stability. Consistent with the policy approach to conform the domestic financial sector to the international best standards with emphasizes on gradual harmonization, final guidelines for implementation of Basel II by banks were issued. Initiatives to strengthen the urban cooperative banks, protecting customers’ rights, enhancing the quality of services were pursued during the year.

During 2007-08, RBI continued to build a regulatory and supervisory architecture in line with the international best standards, adopted to suit the domestic conditions. The objective has been to make the Indian banking sector
more competitive, efficient, sound, and dynamic. The year witnessed major progress in implementation of New Capital Adequacy Framework. The Pillar II guidelines were issued during the year. Foreign banks and domestic banks with overseas presence migrated to Basel II on March 31, 2008. The focus of RBI initiatives was on strengthening corporate governance practices in banks and improving customer services (48). The list of related circulars and instructions are represented in appendix A.

4.3.2 Capital to Risk Asset Ratio in India and Recent Prudential Norms

In the report submitted to the Government of India in December 1991, the Narasimhan Committee on Financial System suggested several reform measures for India’s financial system. The Committee recommended gradual liberalization of the banking sector by adopting measures such as reduction of statutory preemptions, deregulation of interest rates and allowing foreign and domestic private banks to enter the system. Along with these, the Committee also recommended adoption of prudential regulation relating to capital adequacy, income recognition, asset classification and provisioning standards.

While the liberalization was aimed at bringing about competition and efficiency into India’s banking system, the prudential regulation was aimed at strengthening the supervisory system, which is important in the process of liberalization.

The Narasimhan Committee endorsed the internationally accepted norms for capital adequacy standards, developed by the Basel Committee on Banking Supervision (BCBS). In pursuance of the Narasimhan Committee recommendations, India adopted Basel I norms for commercial banks in 1992, the market risk amendment of Basel I in 1996 and has committed to implement the revised norms, the Basel II, from March 2008.

In implementing Basel II, the RBI is in favor of gradual convergence with the new standards and best practices. The aim is to reach the global best standards in a phased manner, taking a consultative approach rather than a directive one. In anticipation of Basel II, RBI has requested banks to examine the choices available to them and draw a roadmap for migrating to Basel II. The
RBI has set up a steering committee to suggest migration methodology to Basel II and based on recommendations of the Committee, in February 2005, RBI has proposed the Draft Guidelines for Implementing New Capital Adequacy Framework covering the capital adequacy guidelines of the Basel II accord. The RBI expectation has been initially, to adopt the Standardized Approach in banks for the measurement of Credit Risk and the Basic Indicator Approach for the assessment of Operational Risk. Over time, when adequate risk management skills have developed, some banks may be allowed to migrate to the Internal Ratings Based approach for credit risk measurement* (49).

Capital adequacy is an indicator of the financial health of the banking system. It is measured by the Capital to Risk-weighted Asset Ratio (CRAR), defined as the ratio of a bank’s capital to its total risk-weighted assets. Financial regulators generally impose a capital adequacy norm on their banking and financial systems to absorb unforeseen losses due to risky investments. A well adhered to capital adequacy regime does play an important role in minimizing the cascading effects of banking and financial sector crises (50).

Pursuant to the recommendations of the High Power Committee (Madhavrao Committee), UCBs were brought under the Capital to Risk Asset Ratio (CRAR) discipline with effect form March 31, 2002, in a phased manner. Under the capital adequacy framework, the balance sheet assets, and off-balance sheet items have been assigned weights according to the prescribed risk weights. The value of each asset/item shall be multiplied by the relevant weights to arrive at the risk-adjusted values of assets and of off-balance sheet items. The aggregate will be taken into account for reckoning the minimum capital ratio. UCBs are required to maintain minimum ‘Capital Funds’ equivalent to the prescribed ratio on the aggregate of risk weighted assets and other off-balance sheet exposures on an ongoing basis.

**Capital Funds** for the purpose of capital adequacy standard consist of both Tier I and Tier II Capital.

**Tier I would include:**

* - For more details see the RBI comments on new Capital Adequacy framework (Basel II), 2000 and 2003, available at RBI website.
• **Paid-up share capital** collected from regular members having voting powers.

• **Free Reserves** as per the audited accounts. While the amounts held under the head "Building Fund" will be eligible to be treated as part of free reserves, "Bad and Doubtful Reserves" shall be excluded.

• **Capital Reserve** representing surplus arising out of sale proceeds of assets.

• **Any surplus** (net) in Profit and Loss Account i.e. balance after appropriation towards dividend payable, education fund, other funds whose utilization is defined, asset loss, if any, etc.

Note:

• Two main characteristics satisfied by fund/reserve included in Tier I capital is that fund/reserve should be created as an appropriation of profit and should be free reserve not specific reserve.

• Amount of intangible assets, losses in current year and those brought forward from previous periods, deficit in NPA provisions, income wrongly recognized on non performing assets, provision required for liability devolved on bank, etc. will be deducted from Tier I Capital.

**Tier II capital would include:**

• **Undisclosed Reserves**, with characteristics similar to equity and disclosed reserves. They can be included in capital, if they represent accumulation of profits and not encumbered by any known liability and should not be routinely used for absorbing normal loss or operating losses.

• **Revaluation Reserves** often serving as a cushion against unexpected losses, but they are less permanent in nature and cannot be considered as 'Core Capital'. The extent to which the revaluation reserves can be relied upon as a cushion for unexpected losses depends mainly upon the level of certainty that can be placed, therefore, only 45% of revaluation reserve should be taken for inclusion in Tier II Capital.

• **General Provisions and Loss Reserves** including such provisions of general nature appearing in the books of the bank which are not
attributed to any identified potential loss or a diminution in value of an asset or a known liability. Such provisions which are considered for inclusion in Tier II capital will be admitted up to 1.25% of total weighted risk assets.

- **Investment Fluctuation Reserve**, if there is any.
- **Hybrid Debt Capital Instruments**, Hybrid instruments with close similarities to equity, in particular, when they are able to support losses on an ongoing basis without triggering liquidation, may be included in Tier II capital.
- **Subordinated Debts**, should be fully paid-up, unsecured, subordinated to the claims of other creditors, free of restrictive clauses and should not be redeemable at the initiative of the holder or without the consent of the bank's supervisory authorities. to be eligible for inclusion in Tier II capital. These instruments will be limited to 50 percent of Tier I capital.

Note: The total of Tier II elements will be limited to a maximum of 100% of total Tier I elements for the purpose of compliance with the norms.

In order to implement the Capital to Risk Adjusted Ratio discipline, prudential norms harp upon three vital aspects including:

- Income recognition;
- Asset classification;
- Provisioning.

**Income recognition** shall be objective and based on record of recovery rather than any subjective considerations. Income recognition in case of NPA account is based on actual realization. However, in case of performing asset, income can be booked partly on actual basis and partly on accrual basis.

By definition, an asset becomes non-performing when it ceases to generate income for the bank. A non-performing asset (NPA) is a loan or advance where: the interest and/or installments of term loan remain overdue for a period more than 90 days; if cash credit or an overdraft account remain out of order; if bills purchased/discounted remains overdue for a period of more than 90 days after its due date; and if in case of an agricultural account, amount of
interest/installment of principal remains overdue for two harvest seasons for a short duration crops, and one harvest season for long duration crops.

Classification of bank assets (on-balance sheet and off-balance sheet assets and items) into the appropriate risk categories with different risk weights shall be done on the basis of objective criteria with uniform and consistent application of norms dually ensured. This classification should be done taking into account the degree of well defined credit weaknesses, risks and the extent of dependence on collateral security for realization of dues. Under the prudential norms of asset classification, banks are now required to classify their advance in four broad groups including:

- **Standard asset**: an asset which does not disclose any weaknesses and does not carry more than normal business risk.
- **Substandard asset**: as asset which has remained NPA for a period less than or equal to 12 months. Such an asset will have well defined credit weaknesses that jeopardize the liquidation of the debt and are characterized by the distinct possibility that the banks will sustain some losses, if deficiencies are not corrected.
- **Doubtful asset**: an asset which has remained in the substandard category for a period of more than 12 months. This category has all the weaknesses of substandard asset, with added characteristics that weaknesses make collection or liquidation in full, on the basis of currently known facts, conditions and values, highly questionable and improbable.
- **Loss asset**: an asset which is considered uncollectible and of such little value that its continuance as bankable asset is not warranted although there may be some salvage or recovery value.

Provisions should be made in conformity with the prudential norms on the NPAs on the basis of classification of assets into prescribed categories, reckoning the period for which the asset has remained non-performing and the availability of security and the realizable value thereof.

With respect to standard asset, from the year ended March 31, 2000, the banks should make a general provision of a minimum of 0.25%, however, from the year ended March 31, 2007, Tier II banks have be subjected to higher
provisioning norms on standard asset as; the general provisioning requirement of 0.4% for standard assets, while till now, this requirement for direct advances to agricultural and SME sectors which are standard asset, remains at 0.25% of the funded outstanding on a portfolio basis. The provisioning requirement of 2.0% for personal loans, loans and advances qualifying as capital market exposures and commercial real estate loans, loans and advances to systematically important NBFCs-ND.

In case of substandard assets a general provision of 10% on total outstanding should be made without making any allowance for DICGC/ECGC guarantee cover and securities available.

Regarding the doubtful assets, provision should be made for 100% of the extent to which the asset is not covered by the realizable value of the security to which the bank has a valid recourse, and realizable value is estimated on a realistic basis. In regard the secured portion of doubtful asset, provision may be made on at the rates ranging from 20% to 100% of the secured portion depending on the period for which the asst has remained doubtful.

In respect for loss assets, the entire assets should be written off after obtaining approval and as per the provisions of the CO-operative Societies Act/Rules. If for any reason, the assets are permitted to remain in the books, 100% of the outstanding should be provided for. Full provision at 100% should be made against any asset identified as loss asset, if the expected salvage value of the security is negligible (51).

4.3.3 India’s trend toward risk based supervision (RBS)

The Basel Committee on Banking Supervision has advocated a risk-based supervision of banks as stability of the financial system has become the central challenge to bank regulators and supervisors throughout the world. This is a robust and sophisticated supervision with adoption of the CAMELS/CALCS approach essentially based on risk profiling of banks. The focus of RBS is on the assessment of inherent risks in the business undertaken by a bank and efficacy of the systems to identify measure, monitor and control the risks. In
pursuance of that risk profile, RBI prepares a customized supervisory program. It is a systems based inspection approach.

CAMELS: (Applicable to all domestic banks) Capital Adequacy, Asset Quality, Management, Earnings, Liquidity and Systems & Controls.

CALCS: (Applicable to Indian operations of banks incorporated outside India) Capital Adequacy, Asset Quality, Liquidity, Compliance and Systems.

The objective of prudential regulation and supervision is a banking system that is safe and sound. Banks may fail due to any of the following reasons: run out of liquidity, run out of capital or run out of both.

RBS, would use a range of tools to prepare the risk profile of each bank including CAMELS rating; off-site surveillance and monitoring (OSMOS) data; prudential returns and market intelligence reports; ad-hoc data from external and internal auditors; information from other domestic and overseas supervisors; on-site findings; sanctions applied; structured meetings with bank executives at all various levels; inter face dialogue with the auditors etc. A monitorable action plan (MAP), to mitigate risks to supervisory objectives posed by individual banks would be drawn up for follow-up. RBI is already using MAPs to set out the improvements required in the areas identified during the current onsite and off-site supervisory process. If actions and timetable set out in the MAP is not met, RBI would consider issuing further directions to the defaulting banks and even impose sanctions and penalties.

RBI Objectives of risk based supervision has been the implementation of risk management and supervisory control in banks which optimize utilization of supervisory resources and minimize impact of crisis situation in the financial system. This approach is also is expected to construct a risk matrix for each institute, provide a continuous monitoring and evaluation of risk profile of the supervised institutions, and facilitate the implementation of new capital adequacy framework (46, 52).
4.4 Study of the efficiency of banking system regulation in India

4.4.1 Aim of study

The main aim of the study is to examine the effect of prudential norms and risk based practices of banks in India and their success in reducing the net non-performing assets in the banking system. In fact, we intend to assess the success of the RBI along with banks in applying prudential norms and other related efforts in the improvement of soundness of banks and their efficiency and reducing the risk of default regarding their assets and improvement in the asset quality. The important aspect of the banking sector reforms has related to the liberalization of norms and guidelines for making the whole sector vibrant and competitive. This is a gradual process undertaken with utmost care and includes different policy making, operational, and structural aspect of system.

4.4.1.1 What is Non-Performing Asset (NPA)?

An asset becomes NPA when it ceases to generate income for bank*. Apart from compromise on object credit assessment of borrowers due to political economy considerations, laxities in legal system, accounting disclosure practices, recession and willful default have lead to the accumulation of NPA. One of the vibrant dimensions of banking sector is to reduce the NPA as one of the prominent reasons for the crisis in the worldwide banking and financial sector. India has also experienced the problem of raising NPA. A perusal of the RBI circulars regarding NPA gives a comprehensive idea about the extent of detail in which norms and guidelines have been formulated to arrest the growth in NPAs. It started off with introduction of prudential norms and has delved into adoption of a risk based management system (53). The issue of NPAs in the financial sector has been an area of concern for all economies and reduction in NPAs has become synonymous to functional efficiency of financial intermediaries. Although NPAs are a balance sheet issue of individual banks and financial institutions, it has wider macroeconomic implications and the literature, while discussing financial sector reforms, has gone into a discussion on NPAs also. The reasons can be observed from figure 4.3.

* - For more details regarding definition of various classes of NPA asset refer to master circular on income recognition, asset classification, provisioning and other related matters, 2008.
4.4.1.2 Impact of NPA on bank operation

The NPAs have deleterious impact on the return on assets of banks. NPAs do not generate interest income for banks but at the same time banks are required to provide provisions for NPAs from their current profits. Therefore, there will be a fall in bank interest income, profitability of bank, and return on investment; at the same time, the capital adequacy ratio will be disturbed as NPAs are entering its calculation; assets and liability mismatch will be widen; cost of capital will go up; the economic value addition (EVA) by banks gets upset because EVA is equal to the net operating profit minus cost of capital; and finally, there will be limit recycling of the funds. Due to these effects the banks are faced with bulging NPAs, experience lower income and higher
provisioning for doubtful debts making a dent in their profit margin. In this context of crippling effect on banks operation the slew asset quality is placed as one of the most important parameters in the measurement of banks performance.

4.4.1.3 Measures to control NPA

It is proved beyond doubt that NPAs in banks ought to be kept at the lowest level. But for the purpose of controlling of NPAs, the preventive as well as curative measures would be necessary. Preventive management includes measures such as credit assessment and risk management mechanism, organizational restructuring, reducing dependence on interest, and successive checking the potential and borderline NPAs, with effort to avoid its incidence. Curative measures designed to maximize recoveries in such a way that banks funds locked up in NPAs are released for recycling (54).

4.4.2 Sample, Data Sources, and Methodology

Sample and Data sources: The sample contains thirty banks from scheduled commercial banks including; State Bank of India and its associates (8 banks), Nationalized bank (19 banks), and three Private bank. The study uses the banking data reflected in financial statements of banks in the accounting terms as are available from the Reserve Bank of India for the period of 1999-2008 (10 years). Different time series data are collected, some of them as the part of prudential norms to reduce the probability of NPA, and some as the risk factors, Capital adequacy ratio (Tier I and Tier II), public sector advance, priority sector advances, term loan, secured advances, and provisions and contingencies, income on investment, and non-interest income.

In order to identify the most meaningful basis to re-express the data set we use principal component analysis. Principal component analysis (PCA) is a standard tool in modern data analysis that provides a roadmap for how to reduce a complex data set to a lower dimension to reveal the sometimes hidden, simplified structures that often underlie it (55). Based on the results from principal component analysis, Tier II capital, non-interest income, and priority sector advances were dropped. The collected variables are as follow:
Capital to risk asset ratio Tier I, is the ratio Tier I capital (i.e. net paid up capital + reserves and surpluses) to total risk-weighted asset (i.e. adjusted value of funded risk asset-adjusted value of non-funded and off balance sheet items). And as a part of capital adequacy ratio brings about more risk sensitivity of banks against both on and off balance sheet exposures. Considering the level of risks banks are operating in and their tendency to accept the risks, the level of regulatory capital will be as the measure to promote more safety in the system. With properly identification and classification of assets and providing risk adjusted capital reserve banks attempt to reduce the possibility of NPAs and distress faced by banking system. While capital remains a useful regulatory tool in the hands of policy makers for influencing bank behavior, but there is no conclusive evidence to support a shift from high-risk towards low-risk asset category by banks.

Provisioning is done partly due to the Regulation requirements- by imposing the minimum levels- and partly as the risk based policies of the banks by their own, as a percentage of their gross NPAs (based on their loan losses) and contingencies according to their off balance sheet activities and items. Provisioning is done mainly based on asset classification, as the percentage of loan losses and off balance sheet items, each year, in order to provide more safety and soundness, according to the realization and expectation of losses. The provisions and contingencies have five classes of provisioning as: provision for depreciation on investment; provision towards NPAs; provisions towards standard assets; provisions made towards income tax; and other provision and contingencies, shown under the head expenditure in profit and loss account. The provisions and contingencies as an effort to reduce the amount of NPA and its effects are part of tier II capital with predetermined weights for each category. In this study the lagged amount of provisions and contingencies are used.

In sector wise division of advances, the public sector advances include advances to Central Government, State Governments, public corporations, and Government owned companies (owned more than 50%). These are directed advances, usually with lower profit expectation, which carry degrees of default
risks. Therefore any increase in the amount of these advances calls for more risk management practices, otherwise may lead to increase in NPAs of banking system.

In type wise classification of advances, term loan stands for two classes of loans including; medium term loans granted for a period of one year and up to and inclusive of three years, and long term loans granted for a period of above three years. These loans would include; loans originally sanctioned for a period exceeding one year with specific schedule of repayment and remaining outstanding partly or wholly as on the date of the return; interim cash credit pending the sanction of formal term loans; and installment credit where repayment is spread over more than one year on the basis of their classification criteria. The long term nature of term loans makes it subject for variety of risks and therefore, as a source of default in terms of its repayment that result in increase the possibility of NPAs.

In security wise classification of advances, secured advances refer to the advances secured by tangible assets and advances covered by banks/governments guarantees. To some extent, these collateral and guarantees reduce the default probability and so lead to lower NPAs. Excessive Reliance on Collaterals has led Institutions to long drawn litigations and hence it should not be sole criteria for sanction. On the other side, most countries facing NPAs problem have made extensive use of government guarantees and funding to try and solve the problem, due to the belief that government would have to bail out the banks in the crisis.

Methodology: The study is based on the linear regression estimated using OLS. Because, the parameters obtained have some optimal properties, the computational procedure is fairly simple and data requirement is not excessive. The basic assumptions of linear regression related to distribution of random variables, explanatory variables'relationships and finally relationship between these two groups makes it possible to get satisfactory estimates of the true parameters of relationship (56).

Since the sample contains thirty banks, we use the linear panel data using the fixed effects method. Panel data estimation is often considered to be
an efficient analytical method in handling econometric data. It allows the inclusion of number of cross sections and also number of observations or time series. The combined panel data matrix set consists of time series for each cross-sectional member in the data set, and offers a variety of estimation methods (57). The primary motivation for using panel data is to solve the omitted variable problems. As is often the case in the applied econometrics, the interest is in the partial effects of the observed explanatory variables in the population regression function. In fact, we would like to hold unobserved effects constant when obtaining the partial effects of the observable explanatory variables.

The key issue involving unobserved variables is whether or not it is uncorrelated with observed explanatory variables. The term fixed effect means that one is allowing for arbitrary correlation between the unobserved effects and observed explanatory variables. In fact, in the fixed effects method, the constant (unobserved components or random variables) is treated as group-specific. This method takes into account the individuality of cross-sectional units letting the intercept or unobserved variables vary for each unit, while still assumes constant slope coefficient across cross-sections (58). The generalized form of model is as:

\[ y_{it} = x_{it} \beta + c_i + u_{it} \quad t=1,2,\ldots,T \]

Where: \( x_{it} \) contain observable variables changing across \( t \) and/or \( i \), \( c_i \) is unobserved component and \( u_{it} \) is disturbance term changing across \( t \) as well as \( i \).

There are two basic assumption; first, \( E(u_{it}|x_i,c_i)=0 \) \( t=1,2,\ldots,T \) that is the strict exogeneity of explanatory variables conditional on \( c_i \), and second, for fixed effect analysis \( E(c_i|x_i) \) is allowed to be any function of \( x_i \).

The model is estimated for the time series, using fixed method. The coefficient tests and unit root tests such as; the Levin, Lin and Chu \( t \), the Im, Pesaran and Shin (IPS) test, the ADF-Fisher Chi-square, and Hadri Z-stat were applied, to check the time series stationarity. The residuals were also checked for serial correlation and unit root. The estimated equation is as follow:
With: R-squared of 0.93, F-statistic of 92.21, Prob. (F-statistic) of 0.0. The t-statistic for the all regression coefficients as are presented under the corresponding coefficients are more than two and with considering corresponding p-values, all coefficients are meaningful and acceptable (statistically insignificant) at 1% significant level.

Where:

- \( Y \) stands for the amount of net non performing assets in the sample banks
- The constant term (i.e. 125876) stands for unobserved effects as in fixed effects methods
- \( X_1 \) is representing Capital Risk Adjusted Ratio (Tier I) (%)
- \( X_{2(t-1)} \) is a lagged variable representing the magnitude of provisions & contingencies with one year lag
- \( X_3 \) is public sector advance/total advance (%)
- \( X_4 \) is the amount of term loans
- \( X_5 \) refers to the amount of secured advances

The equation’s output is presented in Table 4.2.
Table 4.2: The fitted equation's output (panel data using fixed effects method)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>125876.0</td>
<td>13654.63</td>
<td>9.218558</td>
<td>0.0000</td>
</tr>
<tr>
<td>X1_?</td>
<td>-5100.179</td>
<td>1214.391</td>
<td>-4.199782</td>
<td>0.0000</td>
</tr>
<tr>
<td>D(X2_?)</td>
<td>0.385917</td>
<td>0.082854</td>
<td>4.657817</td>
<td>0.0000</td>
</tr>
<tr>
<td>X3_?</td>
<td>1287.364</td>
<td>431.3985</td>
<td>2.984164</td>
<td>0.0031</td>
</tr>
<tr>
<td>X4_?</td>
<td>0.040653</td>
<td>0.006379</td>
<td>6.372482</td>
<td>0.0000</td>
</tr>
<tr>
<td>X5_?</td>
<td>-0.036607</td>
<td>0.005791</td>
<td>-6.321518</td>
<td>0.0000</td>
</tr>
</tbody>
</table>

Fixed Effects (Cross)
- State Bank of India--C 677097.2
- State Bank of Bikaner & Jaipur--C -50900.17
- State Bank of Hyderabad--C -60588.17
- State Bank of Indore--C 69323.72
- State Bank of Mysore--C 79913.34
- State Bank of Patiala--C -54656.34
- State Bank of Saurashtra--C 61818.52
- State Bank of Travancore--C 59032.10
- Allahabad Bank--C 20727.45
- Andhra Bank--C 55858.93
- Bank of Baroda--C 70094.06
- Bank of India--C 127933.8
- Bank of Maharashtra--C -76189.53
- Canara Bank--C 74088.91
- Central Bank of India--C 35936.54
- Corporation Bank--C 42257.04
- Dena Bank--C 24613.57
- Indian Bank--C 47408.09
- Indian Overseas Bank--C 10581.14
- Oriental Bank of Commerce--C 34538.54
- Punjab & Sind Bank--C -55515.80
- Punjab National Bank--C 71332.83
- Syndicate Bank--C 51098.12
- UCO Bank--C 12990.04
- Union Bank of India--C 35453.71
- United Bank of India--C -61225.00
- Vijaya Bank--C 79278.57
- HDFC Bank--C -85112.94
- ICICI Bank--C 52261.06
- Karur Vysya Bank--C -50571.03

Effects Specification

| Cross-section fixed (dummy variables) |
|-------------------------------|----------------|
| R-squared                     | 0.930275       |
| Adjusted R-squared            | 0.920187       |
| S.E. of regression            | 32324.03       |
| Sum squared resid             | 2486E+11       |
| Log likelihood                | -3167.933      |
| Durbin-Watson stat            | 0.955148       |

Mean dependent var 74755.90
S.D. dependent var 114416.6
Akaike info criterion 23.72543
Schwarz criterion 24.19189
F-statistic 92.21727
Prob(F-statistic) 0.000000

200
4.4.5 Findings

For the sample banks, NNPA has declined from Rs. 80916 lakhs for the year 1999, to Rs. 68556 lakhs in the year 2008 (growth rate of -15%). In the same period, NNPA as the percentage of total advances has also declined from 8.23% to 0.75% (growth rate of -91%).

Tier I capital ratio (core capital), with a negative coefficient of -5100.2, represents the adverse movement of the Tier I capital ratio and NNPA. In fact, 1% increase in the Tier I capital ratio leads to the decline in the amount of NNPA of Rs. 5100.2 lakhs. During the period of study, the average capital adequacy ratio (CARA) for the sample banks has increased from 10.99 in the year 1999, to 12.10 in 2008. The average amount of Tier I capital ratio shows no considerable changes during the period of 1999-2008, and its amount have been fluctuating between the maximum amount of 8.96 and minimum amount of 7.80. Tier I capital for the sample banks has changed from 8.34 for the year 1999 to 7.80 in the year 2008 (growth rate of 6.5%). The major part of increase in CARA has been in part of Tier II capital. Tier II capital ratio has increased from 2.6 for the year 1999 to 4.31 in 2008 (growth rate of 66%). Tier II capital as the supplementary capital, has provided banks with flexibility and lower cost, to improve their capital bases.

The lower amount of lagged provision will increases the possibility of NPA in the current year, which followed by tighter policies and provisions in next year. The outcome will be decline in NPA. Therefore, it is expected that the incremental changes of lagged provisioning will be accompanied by increasing amount of current NNPA, and vice versa. The coefficient of X2 shows that Rs. 1 Lakh increase or decrease in provisions comparing the previous year will result in Rs. 0.386 lakh increase or decrease in NNPA. For the period of 1999-2008, the amount of provisions and contingencies has increased from 24767 to 97776 (29% growth rate), but as a percentage of total advances, there has been decline from 2.34% to 1.32% for the same period, which may be attributable to the different efforts of bank such as credit assessment process to avoid the risky and doubtful advances, and to improve their asset quality.
The ratio of public sector advance to total advances (X3) has a positive coefficient asserting the same direction of changes for this variable and the amount of NNPA. One percent change (increase/decrease) in this ratio will bring about Rs. 1287.4 lakh changes (increase/decrease) in the amount of NNPA. The public sector advances as a ratio of total advance has increased from 11.38 for the year 1999, to 19.55 in the year 2008 (growth rate of 72%). The amount of public sector advance has increased from 131745 to 540035 (growth rate of 310%) for the same period.

The coefficient of term loan (X4) refers to the direct correlation of term loans and the amount of NNPA. For Rs. 1 lakh increase in the amount of term loan bank has faced Rs. 0.041 lakh increase in the amount of NNPA. The amount of term loan advance has increased from Rs. 345173 lakhs to Rs. 3839115 lakhs (growth rate of 101%), for the period of 1999-2008, and as a percentage of total advances, there has been increase from 33.42% to 56.48% (growth rate of 69%) for the same period.

The secured advances are relatively safe due to their collateral or guarantees. The related coefficient indicates that increase of Rs. 1 lakh in the amount of secured advances will be accompanied with the Rs. 0.037 lakh decline in the amount of NNPA in the sample banks. The amount of secured advance has raised from Rs. 924775 lakh for the year 1999 to Rs. 5239156 lakh in the year 2008 (growth rate of 467%), but as a percentage of total advance, secured advance has declined from 91.44% to 80.34% (growth rate of -12%).

In the sample banks, in spite of decline in Tier II capital and lower ratios of provisions and secured advances, and increase higher ratios of public sector advance, term loan, there has been declining in NNPA for the period of study. The negative growth rate of -91% and -15% for NNPA as a percentage of total advances, and the amount of NNPA respectively, indicates the corrective measures taken by regulators and banks to contain NPAs.

The year to year growth rate of NNPA, NNPA ratio to net advance, and total advance for the sample banks, is given in Table 4.3 and Figure 4.4 represents the relevant variables for the period of study.
Table 4.3 Year to year growth rate of total advances, NNPA, and NNPA/Total advance, 1999-2000 to 2007-2008

<table>
<thead>
<tr>
<th>Year</th>
<th>Total advance</th>
<th>NNPA</th>
<th>NNPA/Net Advance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999-00</td>
<td>19.4</td>
<td>2.7</td>
<td>-15.1</td>
</tr>
<tr>
<td>2000-01</td>
<td>18.7</td>
<td>13.2</td>
<td>-1.6</td>
</tr>
<tr>
<td>2001-02</td>
<td>25.3</td>
<td>8.0</td>
<td>-13.4</td>
</tr>
<tr>
<td>2002-03</td>
<td>15.0</td>
<td>-10.0</td>
<td>-25.3</td>
</tr>
<tr>
<td>2003-04</td>
<td>16.0</td>
<td>-25.7</td>
<td>-36.8</td>
</tr>
<tr>
<td>2004-05</td>
<td>29.8</td>
<td>-13.1</td>
<td>-33.1</td>
</tr>
<tr>
<td>2005-06</td>
<td>33.3</td>
<td>-13.8</td>
<td>-35.4</td>
</tr>
<tr>
<td>2006-07</td>
<td>31.2</td>
<td>8.9</td>
<td>-27.8</td>
</tr>
<tr>
<td>2007-08</td>
<td>23.7</td>
<td>23.5</td>
<td>-14.2</td>
</tr>
</tbody>
</table>

Fig. 4.4: Year to year growth rate of total advance, NNPA, and the ratio of NNPA to total advance, 1999-2000 to 2007-2008.

The strengthening of economic activities in Indian economy in recent years has been underpinned by a steady upward trend in the saving and investment rates leading to higher amount of loans provided through financial institutions. The increasing growth rate of NNPA for the period of 2006 onward refers to the slowdown in domestic as well as international economic growth reflected in the decline in the amount of total advance in this period. Real GDP growth was placed at 9% during 2007-08, moderating from 9.6% recorded...
during 2006-07 and 9.4% during 2005-06. As it is obvious, any period with deceleration in economic growth rate, has been followed by increase in default risks probability, leading to increase in the rate of NPA.

The review of statistics on the movement of NPAs of public sector banks reveals NPA trends since introduction of prudential norms in 1992 – 93. The magnitude of gross NPAs and net NPAs have sliding down from 23.18% in 1992 –93 to 2.4% in 2007 – 2008 whereas the net NPAs has gone down to 1.1% from 14.46% for the same period. In absolute term, there have been increases in both GNPA and NNPA. It is to be treated as a serious crisis in view of its mounting NPAs in absolute terms. However the magnitude of direction is in descending order which shows government and banks are taking corrective measures to contain NPAs.

4.5 Conclusion

A lasting solution to the problem of NPAs can be achieved only with proper credit assessment and risk management mechanism. The responsibility of containing the factors leading to NPAs rests with banks themselves at the first step. However, in a situation of liquidity overhang, the enthusiasm of the banking system to increase lending may compromise on asset quality, raising concern about their adverse selection and potential danger of addition to the stock of NPAs. This necessitates that banking system to be equipped with prudential norms to minimize if not completely to avoid the problem of NPAs.

The success to contain the problem of NPAs and to improve the stability of financial system can be attributed to the number of corrective measures applied by the central bank and banking system which can be summarized as follows:

The banking system to contain the problem of NPAs, as preventive measures, have initiated organizational restructuring, improvement in the managerial efficiency and skill upgradation for proper assessment of credit worthiness. The banks have put in place rigorous and appropriate credit appraisal mechanism to avoid NPA.
The curative measures so far attempted include Debt Recovery Tribunals, Lok Adalats, Asset Reconstruction Company, Corporate Debt Restructuring, circulation of information of defaulters, recovery action against large NPAs, and credit information bureau.

The Reserve Bank’s broad approach to financial sector restructuring has been to develop institutional and financial infrastructure and lay down appropriate regulatory and supervisory regime to ensure financial stability consistent with overall objectives of growth with price stability. The pack of reforms has been contingent upon putting in place appropriate systems and procedures, technologies, and market practices with the aim of increasing capacity to meet the growing demand of economy. One of the challenges for the financial sector in the context of inclusive growth has been how to extend itself and innovate to meet the demands for financial inclusion and respond adequately to new opportunities and risks.

While NPA and its accumulation has been one of the permanent factors in financial crisis, the management of this problem is just a part of general approach towards the restructuring of the system. The asset quality and soundness parameters of Indian banking sector have improved significantly in recent years and now are comparable with global levels. The resultant improvements assert some efficient efforts towards the restructuring of the financial system as follows:

With the emergence of globalization; India has followed the process of gradual harmonization with the international best practices. Almost all banks have migrated to the risk approaches under Basel II, from March 31, 2009. Following international norms, the RBI has been continuously up-grading risk management practices in banks and supervisory processes so as to meet the challenges arising from financial innovations and simultaneously laying down robust arrangements dealing with stress in the financial system.

As the strength of individual institutions is often the first line of defense against any crisis, the policy initiatives have been increasingly focusing on the need for banking institutions to adopt and promote strong corporate
governance, integrity, internal control and risk management practices specially liquidity risk and ALM.

There has been considerable improvement in the supervisory process exercised by a quasi-independent Board carved out of RBI’s Central Board. The regulatory guidelines are supplemented by moral suasion and supervisory review.

The emphasis has been on credit quality, improvement of credit delivery system and development of related innovative channels, intensified skill development in human capital. Due to these efforts, the quality of asset of Indian banking sector have improved significantly and are comparable with global levels.

Review of various norms reveals that financial stability in India has been achieved through perseverance with prudential policies preventing institutions from excessive risk taking, and financial markets from becoming extremely volatile and turbulent. If in contrast to global situation, India has been, by and large, spared of global financial contagion resulting from sub-prime turbulence, it is for variety of reasons. The credit derivatives market in India is in an embryonic stage. The originate-to-distribute model in India is not comparable to the ones prevailing in advanced markets. There are restrictions on investments by residents in such products issued abroad. The securitization at Indian banks occurs at a very low level due to the stringent RBI guidelines, and regulatory guidelines on securitization do not permit immediate profit recognition.

Obviously, in globally integrated financial markets and financial services industries, countries with the most efficient regulation (but not necessarily the least regulation) are likely to be more successful. The regulation of financial system should be to create stable, resilient, competitive and responsive system. Such a system should improve the flexibilities to diversification and risk management so as to meet the circumstances and needs in financial system empowering financial system to withstand in worldwide competition and financial crisis contagions.
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## Appendix A: List of circulars containing instructions/guidelines/directives related to prudential norms.

<table>
<thead>
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<th>Circular No.</th>
<th>Date</th>
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<tr>
<td>1</td>
<td>DBOD.BP.BC.105/21.01.002/2002-2003</td>
<td>7.05.2003</td>
<td>Monetary And Credit Policy 2003-04 - Investment Fluctuation Reserve</td>
</tr>
<tr>
<td>3</td>
<td>DBOD.No.BP.BC.89/21.04.018/2002-03</td>
<td>29.3.2003</td>
<td>Guidelines on compliance with Accounting Standards (AS) by banks</td>
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<tr>
<td>7</td>
<td>DBOD.Dir.BC. 62/13.07.09/2002-03</td>
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</tr>
<tr>
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<td>No.EC.CO.FMD.6/02.03.75/2002-2003</td>
<td>20.11.2002</td>
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<tr>
<td>10</td>
<td>DBOD.No.BP.BC.57/21.04.048/2001-02</td>
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<tr>
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<td>DBOD.No.BC.34/12.01.001/2001-02</td>
<td>22.10.2001</td>
<td>Section 42(1) Of The Reserve Bank Of India Act, 1934 - Maintenance of Cash Reserve Ratio (CRR).</td>
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<tr>
<td>14</td>
<td>DBOD.No.BP.BC.189/21.01.002/2000</td>
<td>03.05.2000</td>
<td>Monetary &amp; Credit Policy Measures</td>
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<td>16</td>
<td>DBOD.No.BP.BC.121/21.04.124/99</td>
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<td>DBOD.No.BP.BC.82/21.01.002/99</td>
<td>18.08.99</td>
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<td>19</td>
<td>FSC.BC.70/24.01.001/99</td>
<td>17.7.1999</td>
<td>Equipment Leasing Activity Accounting / Provisioning Norms</td>
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<td>20</td>
<td>MPD.BC.187/07.01.279/1999-2001</td>
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<td>Forward Rate Agreements / Interest Rate Swaps</td>
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<td>DBOD.No.BP.BC.24/21.04.049/99</td>
<td>30.03.99</td>
<td>Prudential Norms-Capital Adequacy-Income Recognition, Asset Classification and Provisioning</td>
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<td>DBOD. BP. BC. No.3/21.01.002/2004-05</td>
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<td>Prudential norms on Capital Adequacy – Cross holding of capital among banks/ financial institutions</td>
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<td>30</td>
<td>DBOD.No.BP.BC.91/21.01.002/2003-04</td>
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<td>Annual Policy Statement for the year 2004-05 – Risk Weight for Exposure to Public Financial Institutions (PFIs)</td>
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<td>F.No.11/7/2003-BOA</td>
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<td>Permission to nationalised banks to issue subordinated debt for augmenting Tier II capital</td>
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<td>26.07.2005</td>
<td>Risk weight on Capital market Exposure</td>
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