

RISKS AND RISK MANAGEMENT IN THE **BANKING SECTOR**

The Banking sector has a pivotal role in the development of an economy. It is the key driver of economic growth of the country and has a dynamic role to play in converting the idle capital resources for their optimum utilisation so as to attain maximum productivity (Sharma, 2003). In fact, the foundation of a sound economy depends on how sound the Banking sector is and vice versa.

In India, the banking sector is considerably strong at present but at the same time, banking is considered to be a very risky business. Financial institutions must take risk, but they must do so consciously (Carey, 2001). However, it should be borne in mind that banks are very fragile institutions which are built on customers' trust, brand reputation and above all dangerous leverage. In case something goes wrong, banks can collapse and failure of one bank is sufficient to send shock waves right through the economy (Rajadhyaksha, 2004). Therefore, bank management must take utmost care in identifying the type as well as the degree of its risk exposure and tackle those effectively. Moreover, bankers must see risk management as an ongoing and valued activity with the board setting the example.

As risk is directly proportionate to return, the more risk a bank takes, it can expect to make more money. However, greater risk also increases the danger that the bank may incur huge losses and be forced out of business. In fact, today, a bank must run its operations with two goals in mind – to generate profit and to stay in business (Marrison, 2005). Banks, therefore, try to ensure that their risk taking is informed and prudent. Thus, maintaining a trade-off between risk and return is the business of risk management. Moreover, risk management in the banking sector is a key issue linked to financial system stability. Unsound risk management practices governing bank lending often plays a central role in

financial turmoil, most notably seen during the Asian financial crisis of 1997-98¹.

6.1. Definition of Risk

A risk can be defined as an unplanned event with financial consequences resulting in loss or reduced earnings (Vasavada, Kumar, Rao & Pai, 2005). An activity which may give profits or result in loss may be called a risky proposition due to uncertainty or unpredictability of the activity of trade in future. In other words, it can be defined as the uncertainty of the outcome.

Risk refers to ‘a condition where there is a possibility of undesirable occurrence of a particular result which is known or best quantifiable and therefore insurable’ (Periasamy, 2008). Risk may mean that there is a possibility of loss or damage which, may or may not happen.

Risks may be defined as uncertainties resulting in adverse outcome, adverse in relation to planned objective or expectations (Kumar, Chatterjee, Chandrasekhar & Patwardhan 2005).

In the simplest words, risk may be defined as possibility of loss. It may be financial loss or loss to the reputation/ image (Sharma, 2003).

Although the terms risk and uncertainty are often used synonymously, there is difference between the two (Sharan, 2009). Uncertainty is the case when the decision-maker knows all the possible outcomes of a particular act, but does not have an idea of the probabilities of the outcomes. On the contrary, risk is related to a situation in which the decision-maker knows the probabilities of the various outcomes. In short, risk is a quantifiable uncertainty.

¹ **Asian Financial Crisis:** The **Asian Financial Crisis** was a period of financial crisis that gripped much of Asia beginning in July 1997, and raised fears of a worldwide economic meltdown due to financial contagion. The crisis started in Thailand with the financial collapse of the Thai baht caused by the decision of the Thai government to float the baht, cutting its peg to the USD, after exhaustive efforts to support it in the face of a severe financial over extension that was in part real estate driven. At the time, Thailand had acquired a burden of foreign debt that made the country effectively bankrupt even before the collapse of its currency. As the crisis spread, most of Southeast Asia and Japan saw slumping currencies, devalued stock markets and other asset prices, and a precipitous rise in private debt. (Source: http://en.wikipedia.org/wiki/1997_Asian_Financial_Crisis)

6.2. Risk in Banking Business

In the post LPG period, the banking sector has witnessed tremendous competition not only from the domestic banks but from foreign banks alike. In fact, competition in the banking sector has emerged due to disintermediation and deregulation. The liberalised economic scenario of the country has opened various new avenues for increasing revenues of banks. In order to grab this opportunity, Indian commercial banks have launched several new and innovated products, introduced facilities like ATMs, Credit Cards, Mobile banking, Internet banking etc. Apart from the traditional banking products, it is seen that Mutual Funds, Insurance etc. are being designed/ upgraded and served to attract more customers to their fold.

In the backdrop of all these developments i.e., deregulation in the Indian economy and product/ technological innovation, risk exposure of banks has also increased considerably. Thus, this has forced banks to focus their attention to risk management (Sharma, 2003). In fact, the importance of risk management of banks has been elevated by technological developments, the emergence of new financial instruments, deregulation and heightened capital market volatility (Mishra, 1997).

In short, the two most important developments that have made it imperative for Indian commercial banks to give emphasise on risk management are discussed below –

- (a) **Deregulation:** The era of financial sector reforms which started in early 1990s has culminated in deregulation in a phased manner. Deregulation has given banks more autonomy in areas like lending, investment, interest rate structure etc. As a result of these developments, banks are required to manage their own business themselves and at the same time maintain liquidity and profitability. This has made it imperative for banks to pay more attention to risk management.
- (b) **Technological innovation:** Technological innovations have provided a platform to the banks for creating an environment for efficient customer

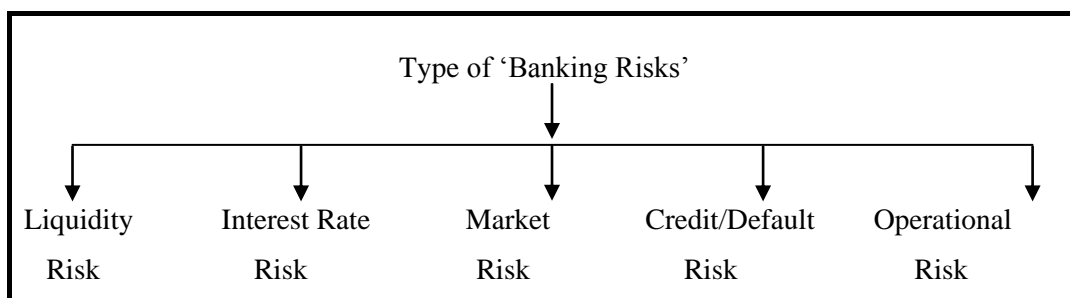
services as also for designing new products. In fact, it is technological innovation that has helped banks to manage the assets and liabilities in a better way, providing various delivery channels, reducing processing time of transactions, reducing manual intervention in back office functions etc. However, all these developments have also increased the diversity and complexity of risks, which need to be managed professionally so that the opportunities provided by the technology are not negated.

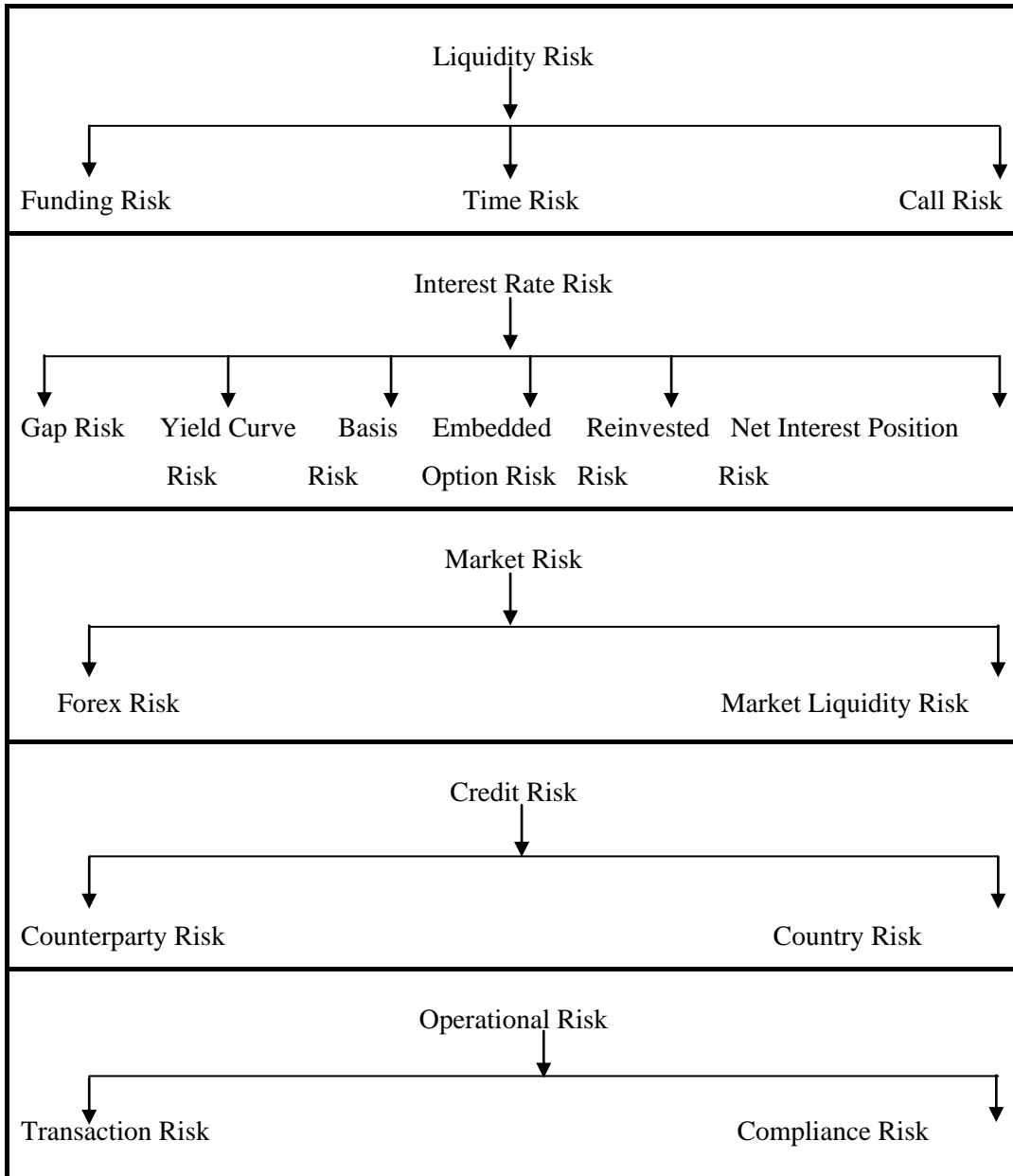
6.3. Type of Risks

Risk may be defined as ‘possibility of loss’, which may be financial loss or loss to the image or reputation. Banks like any other commercial organisation also intend to take risk, which is inherent in any business. Higher the risk taken, higher the gain would be. But higher risks may also result into higher losses. However, banks are prudent enough to identify, measure and price risk, and maintain appropriate capital to take care of any eventuality. The major risks in banking business or ‘banking risks’, as commonly referred, are listed below –

- Liquidity Risk
- Interest Rate Risk
- Market Risk
- Credit or Default Risk
- Operational Risk

Fig. 6.1 : Type of Risks





6.3.1. Liquidity Risk

The liquidity risk of banks arises from funding of long-term assets by short-term liabilities, thereby making the liabilities subject to rollover or refinancing risk (Kumar et al., 2005). It can be also defined as the possibility that an institution may be unable to meet its maturing commitments or may do so only by borrowing funds at prohibitive costs or by disposing assets at rock bottom prices. The liquidity risk in banks manifest in different dimensions -

- (a) **Funding Risk:** Funding Liquidity Risk is defined as the inability to obtain funds to meet cash flow obligations. For banks, funding liquidity risk is crucial. This arises from the need to replace net outflows due to unanticipated withdrawal/ non-renewal of deposits (wholesale and retail).
- (b) **Time Risk:** Time risk arises from the need to compensate for non-receipt of expected inflows of funds i.e., performing assets turning into non-performing assets.
- (c) **Call Risk:** Call risk arises due to crystallisation of contingent liabilities. It may also arise when a bank may not be able to undertake profitable business opportunities when it arises.

6.3.2. Interest Rate Risk

Interest Rate Risk arises when the Net Interest Margin or the Market Value of Equity (MVE) of an institution is affected due to changes in the interest rates. In other words, the risk of an adverse impact on Net Interest Income (NII) due to variations of interest rate may be called Interest Rate Risk (Sharma, 2003). It is the exposure of a Bank's financial condition to adverse movements in interest rates.

IRR can be viewed in two ways – its impact is on the earnings of the bank or its impact on the economic value of the bank's assets, liabilities and Off-Balance Sheet (OBS) positions. Interest rate Risk can take different forms. The following are the types of Interest Rate Risk –

- (a) **Gap or Mismatch Risk:** A gap or mismatch risk arises from holding assets and liabilities and Off-Balance Sheet items with different principal amounts, maturity dates or re-pricing dates, thereby creating exposure to unexpected changes in the level of market interest rates.

(b) **Yield Curve Risk:** Banks, in a floating interest scenario, may price their assets and liabilities based on different benchmarks, i.e., treasury bills' yields, fixed deposit rates, call market rates, MIBOR etc. In case the banks use two different instruments maturing at different time horizon for pricing their assets and liabilities then any non-parallel movements in the yield curves, which is rather frequent, would affect the NII. Thus, banks should evaluate the movement in yield curves and the impact of that on the portfolio values and income.

An example would be when a liability raised at a rate linked to say 91 days T Bill is used to fund an asset linked to 364 days T Bills. In a raising rate scenario both, 91 days and 364 days T Bills may increase but not identically due to non-parallel movement of yield curve creating a variation in net interest earned (Kumar et al., 2005).

(c) **Basis Risk:** Basis Risk is the risk that arises when the interest rate of different assets, liabilities and off-balance sheet items may change in different magnitude. For example, in a rising interest rate scenario, asset interest rate may rise in different magnitude than the interest rate on corresponding liability, thereby creating variation in net interest income.

The degree of basis risk is fairly high in respect of banks that create composite assets out of composite liabilities. The loan book in India is funded out of a composite liability portfolio and is exposed to a considerable degree of basis risk. The basis risk is quite visible in volatile interest rate scenarios (Kumar et al., 2005). When the variation in market interest rate causes the NII to expand, the banks have experienced favourable basis shifts and if the interest rate movement causes the NII to contract, the basis has moved against the banks.

- (d) ***Embedded Option Risk***: Significant changes in market interest rates create the source of risk to banks' profitability by encouraging prepayment of cash credit/demand loans, term loans and exercise of call/put options on bonds/ debentures and/ or premature withdrawal of term deposits before their stated maturities. The embedded option risk is experienced in volatile situations and is becoming a reality in India. The faster and higher the magnitude of changes in interest rate, the greater will be the embedded option risk to the banks' Net Interest Income. The result is the reduction of projected cash flow and the income for the bank.
- (e) ***Reinvested Risk***: Reinvestment risk is the risk arising out of uncertainty with regard to interest rate at which the future cash flows could be reinvested. Any mismatches in cash flows i.e., inflow and outflow would expose the banks to variation in Net Interest Income. This is because market interest received on loan and to be paid on deposits move in different directions.
- (f) ***Net Interest Position Risk***: Net Interest Position Risk arises when the market interest rates adjust downwards and where banks have more earning assets than paying liabilities. Such banks will experience a reduction in NII as the market interest rate declines and the NII increases when interest rate rises. Its impact is on the earnings of the bank or its impact is on the economic value of the banks' assets, liabilities and OBS positions.

6.3.3. Market Risk

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 is termed as Market Risk (Kumar et al., 2005). This risk results from adverse movements in the level or volatility of the market prices of interest rate instruments, equities, commodities, and currencies. It is also referred to as Price Risk.

Price risk occurs when assets are sold before their stated maturities. In the financial market, bond prices and yields are inversely related. The price risk is closely associated with the trading book, which is created for making profit out of short-term movements in interest rates.

The term Market risk applies to (i) that part of IRR which affects the price of interest rate instruments, (ii) Pricing risk for all other assets/ portfolio that are held in the trading book of the bank and (iii) Foreign Currency Risk.

(a) **Forex Risk:** Forex risk is the risk that a bank may suffer losses as a result of adverse exchange rate movements during a period in which it has an open position either spot or forward, or a combination of the two, in an individual foreign currency.

(b) **Market Liquidity Risk:** Market liquidity risk arises when a bank is unable to conclude a large transaction in a particular instrument near the current market price.

6.3.4. Default or Credit Risk

Credit risk is more simply defined as the potential of a bank borrower or counterparty to fail to meet its obligations in accordance with the agreed terms. In other words, credit risk can be defined as the risk that the interest or principal or both will not be paid as promised and is estimated by observing the proportion of assets that are below standard. Credit risk is borne by all lenders and will lead to serious problems, if excessive. For most banks, loans are the largest and most obvious source of credit risk. It is the most significant risk, more so in the Indian scenario where the NPA level of the banking system is significantly high (Sharma, 2003). The Asian Financial crisis, which emerged due to rise in NPAs to over 30% of the total assets of the financial system of Indonesia, Malaysia, South Korea and Thailand, highlights the importance of management of credit risk.

There are two variants of credit risk which are discussed below –

(a) Counterparty Risk: This is a variant of Credit risk and is related to non-performance of the trading partners due to counterparty's refusal and or inability to perform. The counterparty risk is generally viewed as a transient financial risk associated with trading rather than standard credit risk.

(b) Country Risk: This is also a type of credit risk where non-performance of a borrower or counterparty arises due to constraints or restrictions imposed by a country. Here, the reason of non-performance is external factors on which the borrower or the counterparty has no control.

Credit Risk depends on both external and internal factors. The internal factors include –

1. Deficiency in credit policy and administration of loan portfolio.
2. Deficiency in appraising borrower's financial position prior to lending.
3. Excessive dependence on collaterals.
4. Bank's failure in post-sanction follow-up, etc.

The major external factors –

1. The state of economy
2. Swings in commodity price, foreign exchange rates and interest rates, etc.

Credit Risk can't be avoided but has to be managed by applying various risk mitigating processes –

1. Banks should assess the credit worthiness of the borrower before sanctioning loan i.e., credit rating of the borrower should be done beforehand. Credit rating is main tool of measuring credit risk and it also facilitates pricing the loan.

By applying a regular evaluation and rating system of all investment opportunities, banks can reduce its credit risk as it can get vital information of the inherent weaknesses of the account.

2. Banks should fix prudential limits on various aspects of credit – benchmarking Current Ratio, Debt Equity Ratio, Debt Service Coverage Ratio, Profitability Ratio etc.
3. There should be maximum limit exposure for single/ group borrower.
4. There should be provision for flexibility to allow variations for very special circumstances.
5. Alertness on the part of operating staff at all stages of credit dispensation – appraisal, disbursement, review/ renewal, post-sanction follow-up can also be useful for avoiding credit risk.

6.3.5. Operational Risk

Basel Committee for Banking Supervision has defined operational risk as ‘the risk of loss resulting from inadequate or failed internal processes, people and systems or from external events’. Thus, operational loss has mainly three exposure classes namely people, processes and systems.

Managing operational risk has become important for banks due to the following reasons –

1. Higher level of automation in rendering banking and financial services
2. Increase in global financial inter-linkages

Scope of operational risk is very wide because of the above mentioned reasons. Two of the most common operational risks are discussed below –

(a) **Transaction Risk:** Transaction risk is the risk arising from fraud, both internal and external, failed business processes and the inability to maintain business continuity and manage information.

(b) **Compliance Risk:** Compliance risk is the risk of legal or regulatory sanction, financial loss or reputation loss that a bank may suffer as a result of its failure to comply with any or all of the applicable laws, regulations, codes of conduct and standards of good practice. It is also called integrity risk since a bank's reputation is closely linked to its adherence to principles of integrity and fair dealing.

6.3.6. Other Risks

Apart from the above mentioned risks, following are the other risks confronted by Banks in course of their business operations (Kumar et al., 2005) –

(a) **Strategic Risk:** Strategic Risk is the risk arising from adverse business decisions, improper implementation of decisions or lack of responsiveness to industry changes. This risk is a function of the compatibility of an organisation's strategic goals, the business strategies developed to achieve those goals, the resources deployed against these goals and the quality of implementation.

(b) **Reputation Risk:** Reputation Risk is the risk arising from negative public opinion. This risk may expose the institution to litigation, financial loss or decline in customer base.

6.4. Risk Management Practices in India

Risk Management, according to the knowledge theorists, is actually a combination of management of uncertainty, risk, equivocality and error (Mohan, 2003). Uncertainty – where outcome cannot be estimated even randomly, arises due to lack of information and this uncertainty gets transformed into risk (where estimation of outcome is possible) as information gathering progresses. As information about markets and knowledge about possible outcomes increases,

risk management provides solution for controlling risk. Equivocality arises due to conflicting interpretations and the resultant lack of judgment. This happens despite adequate knowledge of the situation. That is why, banking as well as other institutions develop control systems to reduce errors, information systems to reduce uncertainty, incentive system to manage agency problems in risk-reward framework and cultural systems to deal with equivocality.

Initially, the Indian banks have used risk control systems that kept pace with legal environment and Indian accounting standards. But with the growing pace of deregulation and associated changes in the customer's behaviour, banks are exposed to mark-to-market accounting (Mishra, 1997). Therefore, the challenge of Indian banks is to establish a coherent framework for measuring and managing risk consistent with corporate goals and responsive to the developments in the market. As the market is dynamic, banks should maintain vigil on the convergence of regulatory frameworks in the country, changes in the international accounting standards and finally and most importantly changes in the clients' business practices. Therefore, the need of the hour is to follow certain risk management norms suggested by the RBI and BIS.

6.5. Role of RBI in Risk Management in Banks

The Reserve Bank of India has been using CAMELS rating to evaluate the financial soundness of the Banks. The CAMELS Model consists of six components namely Capital Adequacy, Asset Quality, Management, Earnings Quality, Liquidity and Sensitivity to Market risk

In 1988, The Basel Committee on Banking Supervision of the Bank for International Settlements (BIS) has recommended using capital adequacy, assets quality, management quality, earnings and liquidity (CAMEL) as criteria for assessing a Financial Institution. The sixth component, sensitivity to market risk (S) was added to CAMEL in 1997 (Gilbert, Meyer & Vaughan, 2000). However, most of the developing countries are using CAMEL instead of CAMELS in the performance evaluation of the FIs. The Central Banks in some of the countries like Nepal, Kenya use CAEL instead of CAMELS (Baral, 2005). CAMELS

framework is a common method for evaluating the soundness of Financial Institutions.

In India, the focus of the statutory regulation of commercial banks by RBI until the early 1990s was mainly on licensing, administration of minimum capital requirements, pricing of services including administration of interest rates on deposits as well as credit, reserves and liquid asset requirements (Kannan, 2004). In these circumstances, the supervision had to focus essentially on solvency issues. After the evolution of the BIS prudential norms in 1988, the RBI took a series of measures to realign its supervisory and regulatory standards and bring it at par with international best practices. At the same time, it also took care to keep in view the socio-economic conditions of the country, the business practices, payment systems prevalent in the country and the predominantly agrarian nature of the economy, and ensured that the prudential norms were applied over the period and across different segments of the financial sector in a phased manner.

Finally, it was in the year 1999 that RBI recognised the need of an appropriate risk management and issued guidelines to banks regarding assets liability management, management of credit, market and operational risks. The entire supervisory mechanism has been realigned since 1994 under the directions of a newly constituted Board for Financial Supervision (BFS), which functions under the aegis of the RBI, to suit the demanding needs of a strong and stable financial system. The supervisory jurisdiction of the BFS now extends to the entire financial system barring the capital market institutions and the insurance sector. The periodical on-site inspections, and also the targeted appraisals by the Reserve Bank, are now supplemented by off-site surveillance which particularly focuses on the risk profile of the supervised institution. A process of rating of banks on the basis of CAMELS in respect of Indian banks and CACS (Capital, Asset Quality, Compliance and Systems & Control) in respect of foreign banks has been put in place from 1999.

Since then, the RBI has moved towards more stringent capital adequacy norms and adopted the CAMEL (Capital adequacy, Asset quality, Management,

Earnings, Liquidity) based rating system for evaluating the soundness of Indian banks. The Reserve Bank's regulatory and supervisory responsibility has been widened to include financial institutions and non-banking financial companies. As a result, considering the changes in the Banking industry, the thrust lies upon Risk - Based Supervision (RBS). The main supervisory issues addressed by Board for Financial Supervision (BFS) relate to on-site and off-site supervision of banks.

The on-site supervision system for banks is on an annual cycle and is based on the 'CAMEL' model. It focuses on core assessments in accordance with the statutory mandate, i.e., solvency, liquidity, operational soundness and management prudence. Thus, banks are rated on this basis. Moreover, in view of the recent trends towards financial integration, competition, globalisation, it has become necessary for the BFS to supplement on-site supervision with off-site surveillance so as to capture 'early warning signals' from off-site monitoring that would be helpful to avert the likes of East Asian financial crisis (Sireesha, 2008). The off-site monitoring system consists of capital adequacy, asset quality, large credit and concentration, connected lending, earnings and risk exposures viz., currency, liquidity and interest rate risks. Apart from this, the fundamental and technical analysis of stock of banks in the secondary market will serve as a supplementary indicator of financial performance of banks.

Thus, on the basis of RBS, a risk profile of individual Bank will be prepared. A high-risk sensitive bank will be subjected to more intensive supervision by shorter periodicity with greater use of supervisory tools aimed on structural meetings, additional off site surveillance, regular on site inspection etc. This will be undertaken in order to ensure the stability of the Indian Financial System.

6.6. The BASEL Committee on Banking Supervision

At the end of 1974, the Central Bank Governors of the Group of Ten countries formed a Committee of banking supervisory authorities. As this Committee usually meets at the Bank of International Settlement (BIS) in Basel, Switzerland, this Committee came to be known as the Basel Committee. The

Committee's members came from Belgium, Canada, France, Germany, Italy, Japan, Luxembourg, the Netherlands, Spain, Sweden, Switzerland, United Kingdoms and the United States. Countries are represented by their central banks and also by the authority with formal responsibility for the prudential supervision of banking business where this is not the central bank.

The Basel Committee does not possess any formal supra-national supervisory authority, and its conclusions do not, and were never intended to, have legal force. Rather, it formulates broad supervisory standards and guidelines and recommends the statements of best practice in the expectation that individual authorities will take steps to implement them through detailed arrangements – statutory or otherwise – which are best suited to their own national systems (NEDfi Databank Quarterly, 2004). In this way, the Committee encourages convergence towards common approaches and common standards without attempting detailed harmonisation of member countries' supervisory techniques.

The Committee reports to the central bank Governors of the Group of Ten countries and seeks the Governors' endorsement for its major initiatives. In addition, however, since the Committee contains representatives from institutions, which are not central banks, the decision involves the commitment of many national authorities outside the central banking fraternity. These decisions cover a very wide range of financial issues.

One important objective of the Committee's work has been to close gaps in international supervisory coverage in pursuit of two basic principles – that no foreign banking establishment should escape supervision and the supervision should be adequate. To achieve this, the Committee has issued a long series of documents since 1975.

6.6.1. BASEL I

In 1988, the BASEL Committee decided to introduce a capital measurement system (BASEL I) commonly referred to as the *Basel Capital Accord*. Since 1988, this framework has been progressively introduced not only in member

countries but also in virtually all other countries with active international banks. Towards the end of 1992, this system provided for the implementation of a credit risk measurement framework with minimum capital standard of 8%.

The basic achievement of Basel I has been to define bank capital and the so-called bank capital ratio. Basel I is a ratio of capital to risk-weighted assets. The numerator, Capital, is divided into Tier 1 (equity capital plus disclosed reserves minus goodwill) and Tier 2 (asset revaluation reserves, undisclosed reserves, general loan loss reserves, hybrid capital instrument and subordinated term debt). Tier 1 capital ought to constitute at least 50 per cent of the total capital base. Subordinated debt (with a minimum fixed term to maturity of five years, available in the event of liquidation, but not available to participate in the losses of a bank which is still continuing its activities) is limited to a maximum of 50 per cent of Tier 1.

The denominator of the Basel I formula is the sum of risk-adjusted assets plus off-balance sheet items adjusted to risk. There are five credit risk weights: 0 per cent, 10 per cent, 20 per cent, 50 per cent and 100 per cent and equivalent credit conversion factors for off-balance sheet items. Some of the risk weights are rather 'arbitrary' (for example, 0 % for government or central bank claims, 20 % for Organisation for Economic Cooperation and Development (OECD) inter-bank claims, 50 % for residential mortgages, 100 % for all commercial and consumer loans). The weights represent a compromise between differing views, and are not 'stated truths' about the risk profile of the asset portfolio, but rather the result of bargaining on the basis of historical data available at that time on loan performance and judgments about the level of risk of certain parts of counterpart, guarantor or collateral (Lastra, 2004). The risk weights have created opportunities for regulatory arbitrage.

Interestingly, there is no strong theory for the 'target' ratio 8 per cent of capital (tier 1 plus tier 2) to risk-adjusted assets plus off-balance sheet items. The 8% figure has been derived based on the median value in existing good practice at the time (US/UK 1986 Accord): the UK and the USA bank around 7.5 per cent, Switzerland 10 per cent and France and Japan 3 per cent etc. Basel I was a

simple ratio, despite the rather ‘arbitrary’ nature of the definition of Tier 2 capital, the risk weights and the 8 % target ratio. It is a standard broadly accepted by the industry and by the authorities in both developed and developing countries.

6.6.2. BASEL II (Revised International Capital Framework)

Central bank Governors and the heads of bank supervisory authorities in the Group of Ten (G10) countries endorsed the publication of ‘*International Convergence of Capital Measurement and Capital Standards: a Revised Framework*’, the new capital adequacy framework commonly known as **Basel II**. The Committee intends that the revised framework would be implemented by the end of year 2006.

In principle, the new approach (Basel II) is not intended to raise or lower the overall level of regulatory capital currently held by banks, but to make it more risk sensitive. The spirit of the new Accord is to encourage the use of internal systems for measuring risks and allocating capital. The new Accord also wishes to align regulatory capital more closely with economic capital. The proposed capital framework consists of three pillars –

- Pillar 1 - Minimum capital requirements
- Pillar 2 - Supervisory review process
- Pillar 3 - Market discipline

Pillar 1: Minimum Capital Requirements

Pillar 1 of the new capital framework revises the 1988 Accord’s guidelines by aligning the minimum capital requirements more closely to each bank’s actual risk of economic loss. The minimum capital adequacy ratio would continue to be 8% of the risk-weighted assets (as per RBI, it is 9%), which will cover capital requirements for credit, market and operational risks.

Estimating Capital required for Credit Risks

For estimating the capital required for credit risks, a range of approaches such as Standardised, Foundation Internal Rating Based (IRB) and Advanced IRB are suggested.

Under the Standardised Approach, preferential weights ranging from 0% to 150% would be assigned to assets based on the external credit rating agencies, approved by the national supervisors in accordance with the criteria defined by the Committee.

Under Internal Rating Based (IRB) Approach, banks would be allowed to estimate their own Probability of Default (PD) instead of standard percentages such as 20%, 50%, 100% etc. For this purpose, two approaches namely Foundation IRB and Advanced IRB are suggested. In case of Foundation IRB approach, RBI is required to set rules for estimating the value of Loss Given Default (LGD) and Exposure at Default (EAD), while under Advanced IRB approach, banks would be allowed to use their own estimates of LGD and EAD.

Estimating Capital required for Market Risks

The Narasimham Committee II on Banking Sector Reforms had recommended that in order to capture market risk in the investment portfolio, a risk-weight of 5% should be applied for Government² and other approved securities for the purpose of capital adequacy. The Reserve Bank of India has prescribed 2.5% risk-weight for capital adequacy for market risk on SLR and non-SLR securities with effect from March 2000 and 2001 respectively, in addition to appropriate risk-weights for credit risk. Further the banks in India are required to apply the 2.5% risk-weight for capital charges for market risk for the whole investment portfolio and 100 % risk-weight on open gold and forex position limits.

Estimating Capital required for Operational Risks

For operational risk, three approaches namely Basic Indicator, Standardised and Internal measurement have been provided.

² Source: <http://www.rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/24157.pdf>

Under the Basic Indicator approach, banks have to hold capital for operational risk equal to the fixed percentage (Alpha) of average annual gross income over the previous three years.

$$K_{BIA} = GI \times \alpha$$

Where

K_{BIA} = the capital charge under the Basic Indicator Approach

GI = average annual gross income over the previous three years.

α = fixed percentage

In fact, under the above approach, the additional capital required for operational risk is 20% of the minimum regulatory capital (i.e., 20 % of 9 % = 1.8 % of the total risk weighted assets)

The standardised approach builds on the basic indicator approach. It divides the bank's activities into 8 business lines – corporate finance, trading and sales, retail banking, commercial banking, payment and settlement, agency services, asset management and retail brokerage. The capital charge for operational risk is arrived at based on fixed percentage for each business line.

The Internal measurement approach allows individual banks to use their own data to determine capital required for operational risk

Thus, under BASEL II, the denominator of the minimum capital ratio will consist of three parts – the sum of all risk weighted assets for credit risk, plus 12.5 times (reciprocal of 8 % minimum risk based capital ratio) the sum of the capital charges for market risk and operational risk. The multiplicative factor of 12.5 has been introduced in order to enable banks to create a numerical link between the calculation of capital requirement for credit risk and the capital requirement for operational and market risks. In case of capital requirement for credit risk, calculation of capital is based on the risk weighted assets. However, for calculating capital requirement for operational and market risk, the capital charge itself is calculated directly.

$$\frac{\text{Regulatory Capital}}{\text{Risk weight Asset for Credit Risk} \times 12.5 (\text{Market} + \text{Operational Risks})} = \text{Desired Capital Ratio (CAR)}$$

Hence, the regulatory requirements cover three types of risks, credit risk, market and operational risks.

Pillar 2: Supervisory Review Process

Pillar 2 of the new capital framework recognises the necessity of exercising effective supervisory review of banks' internal assessments of their overall risks to ensure that bank management is exercising sound judgment and had set aside adequate capital for these risks. To be more specific –

- Supervisors will evaluate the activities and risk profiles of individual banks to determine whether those organisations should hold higher levels of capital than the minimum requirements in Pillar 1 would specify and to see whether there is any need for remedial actions.
- The committee expects that, when supervisors engage banks in a dialogue about their internal processes for measuring and managing their risks, they will help to create implicit incentives for organisations to develop sound control structures and to improve those processes.

Thus, the supervisory review process is intended not only to ensure that banks have adequate capital to support all the risks in their business, but also to encourage banks to develop and use better risk management techniques in monitoring and managing their risks.

There are three main areas that might be particularly suited to treatment under Pillar 2.

Risks considered under Pillar 1 that are not fully captured by the Pillar 1 process (e.g. the proposed Operational risk in Pillar 1 may not adequately cover all the specific risks of any given institution).

- Those factors not taken into account by the Pillar 1 process e.g. interest rate risk
- Factor external to the bank e.g. business cycle effects.

Pillar 3: Market Discipline

Pillar 3 leverages the ability of market discipline to motivate prudent management by enhancing the degree of transparency in banks' public reporting. It sets out the public disclosures that banks must make that lend greater insight into the adequacy of their capitalisation. The Committee believes that, when market place participants have a sufficient understanding of a bank's activities and the controls it has in place to manage its exposures, they are better able to distinguish between banking organisations so that they can reward those that manage their risks prudently and penalise those that do not (NEDfi Databank Quarterly, 2004).

Thus, adequate disclosure of information to public brings in market discipline and in the process promotes safety and soundness in the financial system. The Committee proposes two types of disclosures namely Core and Supplementary. Core disclosures are those which convey vital information for all institutions while Supplementary disclosures are those required for some. The Committee recommends that all sophisticated internationally active banks should make the full range of core and supplementary information publicly available. The Committee also has emphasised the importance of timeliness of information. For the purpose, it has recommended disclosure on semi-annual basis and for internationally active banks on a quarterly basis.

6.7. Global Financial Crisis and the Indian Banking Sector

The impact of the global crisis has been transmitted to the Indian economy through three distinct channels, viz., the financial sector, exports and exchange rates. Fortunately, India, like most of the emerging economies, was lucky to avoid the first round of adverse affects because its banks were not overly exposed to subprime lending (Vashisht and Pathak, 2009). Only one of the larger private sector banks, the ICICI Bank, was partly exposed but it managed to counter the crisis through a strong balance sheet and timely government action. Excellent regulations by RBI and the decision not to allow investment banking on the US model were the two main reasons that helped to overcome the adverse situation. Further, RBI has also enforced the prudential and capital adequacy

norms without fear or favour. RBI regulations are equally applicable to all the Indian Banks, both in the public and private sector. Indian commercial banks are professionally managed and proper risk management systems are put in place. In short, it can be said that strict regulation and conservative policies adopted by the Reserve Bank of India have ensured that banks in India are relatively insulated from the travails of their western counterparts (Kundu 2008). Contrary to the situation in India, in U.S., certain relaxations were permitted in the case of large banks which were considered 'too big to fail' and this relaxation ultimately triggered the crisis. Thus, eventually it was proved that it is not the size that matters, but prudence and proper risk management systems. Interestingly, while the developed world, including the U.S, the Euro Zone and Japan, have plunged into recession, the Indian Economy is being affected by the spill-over effects of the global financial crisis only (Chidambaram 2008). In fact, the financial sector has emerged without much damage and this was possible due to our strong regulatory framework and in part on account of state ownership of most of the banking sector (Kundu, 2008).

Although, Indian banks escaped the contagion because they were highly regulated at home and not too integrated with the global financial system in terms of sharing the risks inherent in the trillions of dollars of worthless financial products (Venu, 2010), but the global financial crisis and its aftermath forced banks to introspect about the kind of financial sector architecture India should have in the years ahead apart from quantification of risk and appropriate risk management models.

Interestingly, over the years, there were significant developments in the area of quantification of risk and presently, the focus has shifted to statistical aspects of risk management – especially to risk modeling and other computational techniques of risk measurement. Although academic research advocates the use of VaR for market risk assessment, in respect of credit risk, there is no single 'best practice' model for credit risk capital assessment (Gopinath, 2006). The Basel II 'Internal Rating Based' methodology provides a portfolio model for credit risk management but bank managements will have to focus on the determinants of credit risk factors, the dependency between risk factors, the

integration of credit risk to market risk, data integrity issues like consistency of data over long periods, accuracy and so on. Likewise, models for assessing and managing other types of risk in the banking business need to be developed and simultaneously data availability and reliability issues with respect to the models need to be resolved.

Although researches are on to develop risk management models that can be used universally for assessing and managing risk, remarkable headway is yet to be seen. As far private sector banks are concerned, it was seen that irrational loan advances, and investments are prominent more than public sector banks. Therefore, private sector banks need strong and effective risk control systems. However, the in-built risk control systems that are being followed presently are equally strong for public and foreign sector banks (Subramanyam and Reddy, 2008).

6.8. Conclusion

Thus, as risk is indispensable for banking business, proper assessment of risk is an integral part of a bank's risk management system. Banks are focusing on the magnitude of their risk exposure and formulating strategies to tackle those effectively. In the context of risk management practices, the introduction of Basel II norms and its subsequent adoption by RBI is a significant measure that promises to promote sound risk management practices. BASEL II seeks to enhance the risk sensitivity of capital requirements, promote a comprehensive coverage of risks, offer a more flexible approach through a menu of options, and is intended to be applied to banks worldwide.

Moreover, the RBI has adopted a series of steps to ensure that individual banks tackle risks effectively by setting up risk management cells and also through internal assessment of their risk exposure. Apart from this, RBI has opted for on-site and off-site surveillance methods for effective risk management in the Indian Banking sector, so that systemic risk and financial turmoil can be averted in the country.