CHAPTER -IV

OPERATIONAL RISKS AND ITS MANAGEMENT IN HOUSING FINANCE-AN OVERVIEW
4.1. Introduction:

The previous chapter having discussed about the importance of housing and the various players in the housing finance, has highlighted the importance of the Scheduled Commercial Banks (SCBs) in financing housing in India. The SCBs as per the directives of RBI have been financing housing to a very large extent. Although the finance to housing by the SCBs has been considered as safe when compared to other advances, in reality these advances are not fool-proof. The SCBs face many types of risks in advancing loans to housing especially, the Operational Risks, which will not only have an impact on the profit of the banks but will also bring about a chain reaction in the economy due to its inter-linkages to the various sectors of the economy. The Sub-prime crisis of 2008 was to a very large extent due to the overlooking of the risks in general and the operational risks in housing finance in particular. The present chapter focusses on the risks and the operational risks in housing finance.

Risk is a component of financial decision. Financial decision is an integral part of the human life. Risk is generally thought to be “the danger of loss” it is associated with the down side and not the upside of a transaction. Risk as per the finance theory, has been defined as “dispersion of the unexpected outcome due to the movement of financial variables”. The word “Risk” has been derived from the Latin word “Rescum” which means, “Risk at Sea”. Risk is inherent in every walk of life. Risk in banking is associated with uncertainty and exposure which is integral part of banking business. Due to the competition for survival, the banks are compelled to do business and encounter various types of financial and non-financial risks. The risk therefore, is universal, it refers to the human behaviour in the decision making process. The measurement of the risk has been viewed in terms of distribution of potential outcomes of asset returns, asset values, loses etc. The potential outcomes and their possibility of occurrence are the two necessary parameters to evaluate risky situation, whether this evaluation is made consciously or unconsciously. The present chapter therefore, focusses on the discussion of the risks in general, and the operational risks in housing finance.
finance in particular, that the banks are prone to. For the convenience of the study the present chapter has been divided into 4 parts. Part-A discusses the definition of risks, The policy foundation to operation Risk Management-Basel-I, and Basel-II ,Part-B discusses the Risks in housing finance and its types and their management, Part-C, discusses the Operational risks in housing finance and its types. Part- D focusses on the Mitigating and management techniques adopted by the SCBs adopted in financing housing.

PART-A

4.2. Definition of Risk

The risk is defined as the “effect of uncertainty on objectives”. Uncertainty includes events (which may happen or may not happen) and uncertainty caused by a lack of information or ambiguity. There is no uniform or unique definition of risk. Different financial institutions have defined risks differently, depending upon their banking structure, operations and investment strategies. Risk is perceived as the probability and impact of a negative deviation, the probability or potential of sustaining a loss. Risks have been defined by various authors as “A condition in which there is a possibility of an adverse deviation from a desired outcome that is expected or hoped for” (E.J. Vaughan & T. Vaughan, “fundamentals of risks and insurance”, John wiley & Sons, 9th edition, 2003). Risks have also been defined as “An expression of the danger that the effective future outcome will deviate from the expected or planned outcome in a negative way.” (H. Geiger. Die Risikopolitik der Bankken, teil 1 and teil 2. Der Sachweizer, Treuhander, 73(6:7 and 8), and “Risks are future problems that can be avoided or mitigated, rather than current ones that must be immediately addressed. Risk can also be expressed in mathematical terms as :

\[
\text{Risk} = (\text{Probability of the accident occurring}) \times (\text{expected loss in case of accident})
\]
4.3. Risks faced by the Banks:

The banks in process of their day to day transactions are prone to different type of risks due to various reasons Some of the reasons are:

- Highly Automated Technology: - Introduction of the use of highly automated technology has the potential transformation of risks from manual processing errors to system failure risks.

- Emergence of E-commerce:-The enormous growth in e-commerce brings with its potential risk such as internal and external frauds and systems securities.

- Emergence of banks as service providers:-Banks acting as large service providers creates the need for continuous maintenance of high-grade internal controls and back- up systems.

- Increasing use of out sourcing:-Out-sourcing and participation in clearing and settlement systems has enhanced the risks of the banks.

- Large scale acquisition, Merger, de-mergers and consolidations viability of new or newly integrated systems also leads to risks.

4.4. Origin of Bank for International Settlement (BIS):

The Bank for International Settlement (BIS) has been recognized all over the world as an International organization, which fosters co-operation among Central Banks and other agencies in pursuit of monetary and financial stability. The BIS provides banking services exclusively to Central Banks, other official monetary institutions and International Organizations.

The BIS was established in the context of the young plan in 1930, which dealt with the issue of the reparation payments imposed on Germany by the treasury of Versailles following, the First World War. The new bank was to take over the functions, previously performed by the Agent. The General role of the bank was reparation Berlin-collection, administration and distribution of the annuities payable as reparations. Thereby the Bank’s name is derived from this original role. The BIS was
also created to act as a trustee for the Dawes and Young Loans (International loans issued to finance reparation) and to promote Central Bank Co-operation in general.

In the 1970’s and 1980’s the focus was on managing cross border capital flows following the oil crisis and the international debt crisis. The 1970’s crisis also brought the issue of regulation supervision of internationally active banks to the force, resulting in the origin of Basel-I capital Accord in 1988 and Basel-II Accord revision of 2001-2006.


Basel is a small town in the Switzerland; the Basel Committee on banking supervision was established by BIS as the Committee on Banking Regulation and Supervisory practices by the Central Bank. Governors of the G-10 countries at the end of 1974 after the disturbances in the international currency and banking market. The Basel Committee was formulated by Bank for International settlements (BIS) which is oldest international financial institution founded on 17th May 1930 at present 56 major central banks are members of the BIS. The first meeting of the committee was held on Feb. 1975 and the meeting have been held regularly three or four times in a year.

The primary objective of the Basel-I Accord was to create a convergence of national capital standards and provide a level playing field for internationally active banks, the accord advocated for the maintenance of minimum capital standards of 8% was designed to protect against credit risk. Basel-I Accord of 1988 has issued guidelines to its member countries in 1992 to maintain a minimum of 8 per cent of CRAR (Capital Risk Weighted Asset Ratio) with effect from 31.3. 1995. In the Indian context, the minimum capital requirements has been fixed at 9 per cent. In April 1993, the market risk was included into the scope of risk subject to capital requirement for discussion and finally it was implemented 1996.
The following are the important features of the Basel-I Accord

1. Focus was laid on the internationally active banks.

2. The main feature of the Basel-I accord is to maintain adequate capital for the banks, especially, for those banks dealing with the foreign business, leaving national authority’s discretion to prescribe higher ratios.

3. Basel-I policies were intended to be applicable to banks on a consolidated basis and their subsidiaries.

4. The Accord stressed the fact that capital adequacy was one of several dimensions of the financial strengths of the banks.

The Basel Committee on Banking Supervision (BCBS) recognizes the capital into two types:

1. **Core Capital:**
   
   The core capital which is also called as the Tier-I capital is the bank’s highest quality capital, because it is fully available to cover the losses. The core capital/tier-I capital includes Equity capital and Disclosed reserves.

2. **Supplementary Capital/Tier-II Capital:**
   
   The Tier-II capital consists of items such as undisclosed reserves, revaluation reserves, general provisions/general loan loss reserves, hybrid debt capital instrument and subordinated term debts. The loss absorption capacity of Tier-II capital is lower than that of tier-I capital.
4.5.1. Risk-Weighted Assets (RWA):

The Risk weighted Assets approach of the Basel-I Accord is a method to measure the risks of the Assets, weighted by their corresponding risks. The risk weight has been classified into four weighted categories:

1. Category-I (0% weight): 0% risk weighted assets are the least risk to the banks which includes cash. Claims on Central Government and Central banks, gold bullion, claims on Organization of Economic Co-operation and Development countries (OECD), Central Governments and Central banks among others.

2. Category-II (20%): Which includes, claims on multi-lateral development banks and claims, guaranteed by or collateralized by securities issued by such banks, cash receivables, among others.

3. Category-III (50%): Claims on domestic public sector entities, excluding central Governments and loans guaranteed by collateralized securities issued by such entities. The loans fully secured by mortgage property on residential properties.

Category-IV (100 %): Claims to private sector and public sector commercial companies. Claims on Central Governments other than the governments of OECD, Capital instruments issued by other banks, real estate and other instruments, premises, plant and equipment and other fixed assets among others.
The following table explains the Risk-Weight Assets categorized as per Basel-I Accord.

**Table 4.9: Risk Weights of Assets under Basel-I**

<table>
<thead>
<tr>
<th>Category</th>
<th>Risk Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>Cash</td>
</tr>
<tr>
<td>Claims on central govt. and central banks denominated in national currency and funded in that currency</td>
<td></td>
</tr>
<tr>
<td>Other claims on OECD central govt. and central banks</td>
<td></td>
</tr>
<tr>
<td>Claims collateralized by cash of OECD central govt. securities or guaranteed by OECD central govt.</td>
<td></td>
</tr>
<tr>
<td>10.26% or 50% (at the discretion of national authorities)</td>
<td>Claims on domestic public sector entities, excluding central govt. and loans guaranteed by or collateralized by securities issued by such entities</td>
</tr>
<tr>
<td>20%</td>
<td>Claims on multilateral development banks and claims guaranteed by or collateralized by securities issued by such banks</td>
</tr>
<tr>
<td>Claims on banks incorporated in the OECD and claims guaranteed by OECD incorporated banks</td>
<td></td>
</tr>
<tr>
<td>Claims on securities firms incorporated in the OECD subject to comparable supervisory and regulatory arrangements</td>
<td></td>
</tr>
<tr>
<td>Claims on banks incorporated in countries outside the OECD with residual maturity up to one year and claims with a residual maturity of up to one year guaranteed by banks incorporated in countries outside the OECD</td>
<td></td>
</tr>
<tr>
<td>Claims on non-domestic OECD public sector entities, excluding central govt. and claims guaranteed by or collateralized by securities issued by such entities</td>
<td></td>
</tr>
<tr>
<td>50%</td>
<td>Loans fully secured by mortgage on residential property that is or will be occupied by the borrower or that is rented</td>
</tr>
<tr>
<td>100%</td>
<td>Claims to private sector</td>
</tr>
<tr>
<td>Claims on banks incorporated outside the OECD with a residual maturity of over one year</td>
<td></td>
</tr>
<tr>
<td>Claims on central governments outside the OECD (unless denominated in the national currency and funded in that currency)</td>
<td></td>
</tr>
<tr>
<td>Claims on commercial companies owned by the public sector</td>
<td></td>
</tr>
<tr>
<td>Premises, plant and equipment and other fixed assets</td>
<td></td>
</tr>
<tr>
<td>Real estate and other investments</td>
<td></td>
</tr>
<tr>
<td>Capital instruments issued by other banks</td>
<td></td>
</tr>
<tr>
<td>All other assets</td>
<td></td>
</tr>
</tbody>
</table>

Source: BIS (1988), Basel Capital Accord, Updated to April 1998

**4.6. Basel Accord-II-2004:**

Basel-I suffered several drawbacks, in order to remedy the drawback the Basel Committee published a new Accord in December 2001. Basel Accord-II was more ambitious in scope than Accord-I. The new capital Accord of 1998 known as the “Operational Risk Management” Accord, was released in January 2001. The Basel-II has undergone a number of amendments and was finalized in June 2004. The Accord defines and sets detailed instructions on the capital assessment of operational risks and proposes several approaches that the banks may consider to estimate the
operational capital charge in addition to this it outlines necessary managerial and disclosure requirements. The deadline for the implementation of Capital Accord was been provisionally set as by the end of 2007. The following table shows the Risk-weights for Standard assets as per the Basel-II norms.

**Tabl.4.10: Risk-weights for SA of Basel II**

<table>
<thead>
<tr>
<th>Category</th>
<th>Risk Weights (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sovereigns</strong></td>
<td></td>
</tr>
<tr>
<td>Central Govt. (direct and guarantee)</td>
<td>0</td>
</tr>
<tr>
<td>State Govt. (direct exposure)</td>
<td>0</td>
</tr>
<tr>
<td>State Govt. (guarantee exposure)</td>
<td>20</td>
</tr>
<tr>
<td>Reserve Bank of India</td>
<td>0</td>
</tr>
<tr>
<td>Deposit Insurance and Credit Guarantee Corporation</td>
<td>0</td>
</tr>
<tr>
<td>Credit Guarantee Fund Trust for Small Industries</td>
<td>0</td>
</tr>
<tr>
<td>Export Credit Guarantee Corporation</td>
<td>20</td>
</tr>
<tr>
<td><strong>Schedule Commercial Banks with CRAR (%) level</strong></td>
<td></td>
</tr>
<tr>
<td>&gt;= 9</td>
<td></td>
</tr>
<tr>
<td>50 6 to &lt;= 9</td>
<td></td>
</tr>
<tr>
<td>100 3 to &lt;= 6</td>
<td></td>
</tr>
<tr>
<td>150 0 to &lt;= 3</td>
<td></td>
</tr>
<tr>
<td><strong>625 negative</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Other Banks with CRAR (%) level</strong></td>
<td></td>
</tr>
<tr>
<td>&gt;= 9</td>
<td></td>
</tr>
<tr>
<td>150 6 to &lt;= 9</td>
<td></td>
</tr>
<tr>
<td>250 3 to &lt;= 6</td>
<td></td>
</tr>
<tr>
<td>350 0 to &lt;= 3</td>
<td></td>
</tr>
<tr>
<td><strong>625 negative</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Corporates: Long term (L.T.) and short term (S.T.)</strong></td>
<td></td>
</tr>
<tr>
<td>L.T. Rated: AAA and ST Rated: PR1+, F1+, A1+</td>
<td>20</td>
</tr>
<tr>
<td>L.T. Rated: AA and ST Rated: PR1, P1, F1, A1</td>
<td>30</td>
</tr>
<tr>
<td>L.T. Rated A and ST Rated: PR2, P2, F2, A2</td>
<td>50</td>
</tr>
<tr>
<td>L.T. BBand ST Rated: PR3, F3, A3</td>
<td>100</td>
</tr>
<tr>
<td>L.T. Rated BB &amp; below and ST. Rated: PR4, PR5, P4, F5, B, C, A4, A5</td>
<td>150</td>
</tr>
<tr>
<td>Unrated</td>
<td></td>
</tr>
<tr>
<td><strong>75 Regulatory retail portfolio</strong></td>
<td></td>
</tr>
<tr>
<td>Loans secured by residential property</td>
<td></td>
</tr>
<tr>
<td>Up to Rs. 30 lakh</td>
<td>50</td>
</tr>
<tr>
<td>Rs. 30 lakh and above</td>
<td></td>
</tr>
<tr>
<td><strong>150 Commercial real estate exposure</strong></td>
<td></td>
</tr>
<tr>
<td>NPAs with specific provision of</td>
<td></td>
</tr>
<tr>
<td>&lt;= 20% of outstanding amount</td>
<td>150</td>
</tr>
<tr>
<td>&gt;= 50% of outstanding amount</td>
<td></td>
</tr>
<tr>
<td><strong>100 Banks' own staff</strong></td>
<td></td>
</tr>
<tr>
<td>covered by superannuation benefit/mortgage of house</td>
<td>20</td>
</tr>
<tr>
<td>otherwise</td>
<td></td>
</tr>
<tr>
<td><strong>125 Personal loans and credit card receivables</strong></td>
<td></td>
</tr>
<tr>
<td><strong>125 Capital market exposure</strong></td>
<td></td>
</tr>
<tr>
<td><strong>100 All other assets</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: RBI (2007)

The Basel-II Accord has proposed alternative methodology for calculating capital for credit risk under standardized approach. Banks can either engage external credit assessment agencies or internal rating system of the individual banks. Residential properties which are fully secured by mortgage either self-occupied by the borrower or rented, the risk weight up to the loan value of
Rs.30 lakhs is 50 per cent and above Rs.30 lakhs the risk weight is 75 per cent. However, the loan to value (LTV) in the Indian context, exceeds more than 75 per cent the risk weight is 100 per cent and for commercial real estate the risk weight is 150 per cent. Further, the Risk Weights for Standard Assets for claims on foreign entities is based on the ratings of the various rating agencies like Standard and poor/ Fitch, Moody’s among others.

### Table 4.11: Risk Weights for Standard Assets for claims on foreign entities

<table>
<thead>
<tr>
<th>Credit Rating</th>
<th>Risk Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>S&amp;P/Fitch</td>
<td>Moody’s</td>
</tr>
<tr>
<td>AAA to AA-</td>
<td>AA to AA</td>
</tr>
<tr>
<td>A+ to A-</td>
<td>A</td>
</tr>
<tr>
<td>BBB+ to BBB-</td>
<td>Bas</td>
</tr>
<tr>
<td>BB+ to B-</td>
<td>Ba to B</td>
</tr>
<tr>
<td>Below B</td>
<td>Below B</td>
</tr>
<tr>
<td>Unrated</td>
<td>Unrated</td>
</tr>
</tbody>
</table>

Source: RBI (2007)

### 4.6.1. Draw-Backs of Basel-II:

The Basel Accord has given room to, many doubts, and pressurized the banks to adopt these measures/guidelines, especially on the banks in the emerging economies. Some of the drawbacks that have been identified at large are:

- The Basel-II Accord insists on the adoption of an Internal Rating Based System (IRB). However, the IRB is not only expensive, but also tends to discriminate the small banks along with, flaming the cyclical fluctuations. In fact linking credit rating to regulatory capital standards may have severe macro-economic implications, as the sovereign ratings of the developing and emerging economies are not as high as the
industrialized and developed countries which will be an unfavorable effect on the credit flows to the developing and emerging countries.

- The Basel-II may significantly overestimate the risk of international lending to developing economies.
- Further, the credit ratings are found to be pro-cyclical. Credit rating agencies upgrade sovereign in times of sound market conditions and downgrade in turbulent times. This can potentially add to the dynamics of emerging market crisis.
- The banks in the emerging economies are sensitive to the sovereign downgrading than their sovereign upgrading. Thus, the incorporation of external credit ratings into regulatory capital requirement may lead to serious macro-economic instability.

PART – B

4.7. Risks in housing finance:

Housing finance is exposed to various types of risks. All advances in general and housing finance in particular involve a variety of risks. The risk in financing housing is unique, in the sense that the lending spreads over a period of 5 – 25 years which is quite a long period in identifying the risks involved, in fact inappropriate lending, pricing and risk management in home loans can create a problem for the broader financial systems.

The risk in housing finance triggers systemic risks which lead to major financial crisis globally. In fact the problem in the housing mortgage market has been identified as one of the important causes of the financial crisis of 2007-08. In most of the developed economies, during this period most of the banks and other financial institutions financing housing started facing significant losses on their investment in housing mortgagees and related securities in 2007. These losses triggered a full
blown financial crisis. The financial turmoil so created has been widely considered as the primary cause of the economic recession that began in the late 2007. In this backdrop efforts have been made to identify the major risks in general and operational risks in particular housing finance, and review the management of the risks.

4.7.1. Types of Housing Finance Risks:

The banks and housing finance institutions face risks of different category and magnitude. The risks faced in financing housing can be categorised on different factors such as the nature of loss, the degree of expectancy, risk type, event type, business type, or loss type, and by the magnitude of loss and the frequency of loss. Following are the different types of housing risks

4.7.2. Credit risk:

Credit risk is one of the important risks faced by the banks financing housing. The credit risk is also referred to as 'Income Risks' or 'Default Risks'. Credit risk has been defined as “The inability or unwillingness of a customer or counter party to meet commitment in relation to advances.” That is to say, income risks or credibility risks, in housing finance is associated with risk of loan default, when, the borrower does not have the ability to pay interest and instalments through his income. The credit risk in housing finance can broadly be classified as:

(a) Probability of default and

The probability of default refers to the likelihood that the borrower will fail to make payment over the life of the housing loan.

(b) Loss given default:

The loss given default on the other hand, has been termed as a loss because the banks usually lose when it has to foreclose and sell a property especially, when the price of the house has declined. In
addition to this, the loss given default also includes the cost of maintaining the house if it remains vacant after foreclosure, or from the legal fees and other clauses of foreclosure.

One of the significant causes of credit risks faced by the banks in financing housing is the lack of credit information. The problem is a significant barrier in most of the emerging economies, as borrowers often do not have a credit history or ability to prove their income. In addition to this, most of the borrowers in these economies are employed in the informal sector and as such, their income is more volatile and difficult to substantiate. There are also instances where in some borrowers who have systematically underreported their income which enforces the banks to bear the loss.

4.7.3. Tools for managing of credit risks in housing finance:

Managing credit risk is tricky situation, where it is important to determine good loan applications from bad loan applications. Good credit risk assessment is based on the knowledge of the borrower. This knowledge includes both quantitative and qualitative source of information. The quantitative sources are relatively easier to evaluate than the qualitative sources, as the qualitative sources are more subjective and require different set of skills to assess their efficiency. Strategies to reduce the credit risks includes, building of long term relationship between the lender and the borrower. Tools for managing mortgage credit risk can broadly be classified into three categories:

3. Firstly, the front-end risk management, that is, screening by under-writing criteria,

4. Secondly, the back-end risk control, by reserving capital against expected and unexpected credit losses,

5. Thirdly, the risk sharing with the third parties through mortgage insurance and other credit lending mechanisms.

The housing credit risk management is based on three pillars.
4.7.4. PILLAR-1: Risk Based Mortgage Under-Writing:

Loan-to-value (LTV) and Debt-to-Income (DTI) are used as important indicators of mortgage default in most of the countries. In most developed and emerging mortgage markets the LTV is set in two tiers,

(i) those with mortgage insurance (MI) and

(ii) Those without mortgage insurance.

In most of the developed countries like USA, France, Germany and others the LTV without MI ranges between 60-80% and with MI 100%. However, in India in the absence of MI the LTV ranges from 50-70%.

The credit risk management further, depends upon the Debt- to -Income restrictions. Loan to income/DTI refers to the borrower’s ability to pay back the loan. However, there is no explicit threshold while determining the DTI unlike the LTV. The DTI threshold in most of the European countries ranges between 30-45% and around 50% in most of the Asian countries including India. However, the use of loan to income as a risk indicator has become less prevalent since the introduction of the Automated Under-writing System (AUS) and the mortgage scoring system introduced in the mid-1990s. Currently the maximum DTI is generally at a higher level of 40% globally. The DTI is determined by various factors such as consumption pattern and borrower’s wealth or cash reserve. The accurate measurement and the validation of the borrower’s income is however, a big challenge in many countries.

4.7.5. PILLAR-II-Risk-Sharing By Way Of Mortgaging:

Mortgage is a type of insurance of external credit enhancement which was first started in 1930’s by the Federal Housing Administration (FHA) in the United States to provide a government guarantee for long term fixed-rate housing loans. The FHA’S success led to the development of private mortgage insurance and MI then expanded to other countries during the 1990’s and 2000. MI
generally categorized into the Public MI and the Private MI and also categorized as Complete and Partial Coverage Programme. Mortgage Insurance can be either be a public or private initiative, or both. The Private Mortgage Insurance exists in countries like U.K., Italy and Spain. The advantage of Public Mortgage Insurance is that, it tends to target the wealth-constrained households as it sets maximum on the loan amount on the property value to enable them to get maximum loans coverage. Among the Asian countries the Hong Kong Mortgage Corporation established in 1997 as a joint venture private lending institution helped to raise the LTV on mortgage risk from 70% to 90%. In the Indian context, the Mortgage Insurance is yet to be introduced.

4.7.6. PILLAR-III- Risk Based Capital Requirements:

The adoption of Basel-II recommendation in many countries has enhanced measurement of mortgage credit risks. It is now possible for the lending institutions to utilise the Economic Capital (EC) as a tool for internal allocation of capital across different business lines or mortgage products. The EC is a Value-at-Risk (VaR) type sensitivity measure that can be used in estimating unexpected stress, credit losses and others. Apart from adoption of these three pillars in managing of the credit risks, effective servicing, active monitoring of repayment performance and corrective actions go a long way in reducing mortgage credit risks.

4.8. Market risks:

Market risks refer to the sensitivity of the value of housing property to changes in the value prices. Market risks originate from uncertainty with respect to expected inflation, actual inflation, real inflation rate, exchange rate and lending for a longer term. The macroeconomic environment and characteristics of the mortgage instruments are principal determinants of the cash-flow risks. For
instance, a low cost repayment may be a desirable feature of the mortgage for the consumer, but it significantly increases the cash – flow risks to the lender. The Macro-economic environment, that is volatile generates greater risk and thereby, reduces the affordability and availability of the funds.

The different methods of calculating market risks are, Traded Market Risks and Non-Traded Market Risks. Traded Market Risks are modelled and calculated using Value at Risk (VaR) methodology. VaR facilitates the generation of information like establishment, trading limit and control of trading operations, performance, assets and resource allocation which include hedging decision in addition to risk overwrite and regulatory reporting.

Under the Basel II Accord market risk can be measured by using different approaches. The Standardised Approach is a formula based model, while the Internal Model Approach requires extensive data collection systems and quantitative expertise.

Non-Traded Market Risks

4.8.1. Management of market risks in housing:

Different methods have been adopted to mitigate market risks in housing finance, by both the lenders (banks) and the investors. The Fixed Rate Mortgages (FRMs) place market risk in the hands of the lenders, which requires matching funds and protection from pre-payment risks. On the other hand, the Floating Rate of mortgage and Inflation Indexed loans place market risks in the hands of the borrower, and safe-guards them against the payment shocks and to any mismatch between the nature and timing of the indices to which the loans and liabilities that fund them are linked. Economies having less liquidity fixed income markets have difficulty in establishing a reliable index for floating rate markets.
4.9. Liquidity Risks:

Liquidity means the ability to effectively accommodate bank deposit in such a way to not only reduce the liabilities but to fund the loan growth and the possible off-balance sheet claims. The concept of liquidity is very important in managing financial risks. Liquidity risks has been defined by Bank for International Settlement(BIS) as “The risk of inability to fund increases in assets and meet obligations as they come due, such as inability to raise money in the long term or short term debt capital markets or an inability to access the repurchase of the securities lending markets”.

Liquidity risk which has been considered as part of market risk has also been alternatively defined as “The liquidity risk is the risk that the institution will not be able to execute a transaction at the prevailing market price because there is, temporarily, no appetite for the deal on the “other side” of the market” .(M.Crouhy, D. Galai, and R.Mark. Risk Management. Mc Graw –Hill, New York, 2001). Liquidity risk is not unique to housing finance but it is rather a broader financial sector stability issue. The housing loans are long term in nature which creates a greater liquidity risk than any other type of lending.

4.9.1.Types of Liquidity Risks in housing finance:

Liquidity risks based on the cash flows placed in different time baskets namely, the behaviour of assets, liabilities and off-balance sheet items can be classified into three different types:

(i) **Funding risks:** It is the need to replace net outflows due to unanticipated withdrawal/non-renewal of deposit. This refers to the ability to meet funding obligations by either financing through sale of assets or by borrowing.

(ii) **Time Risk:** it is the need to compensate for non-receipt of expected inflow of funds that is the performing assets turning into non-performing assets.
(iii) **Call Risks:** The call risks happen on account of crystallisation of contingent liabilities and inability to undertake profitable business opportunities when desired.

**4.9.2. Management of Liquidity Risks:**

Measuring and managing of liquidity risks is very important for housing finance companies. The Asset Liability Management (ALM) is a part of the over-all risk management in the banks. The ALM examines the assets and liabilities on a continuous basis ensuring a proper balance between mobilisations of funds and deployment according to maturity profiles, costs, yield, and risk exposures. It includes product pricing for deposits as well as advances and the desired maturity profile of asset and liabilities. Management of the liquidity housing finance companies not only examines how liquidity requirements are likely to evolve under different assumptions. Many a times the so called liquid assets like Government securities and other money market instruments could be illiquid when the market and the players are uni-directional. It is therefore necessary that the liquidity has to be tracked through maturity or cash flow mismatches. The tools like the use of maturity ladder and calculation of cumulative surplus or deficit or funds at selected maturity dates are adopted as a standard tool for measuring and managing net funding requirements.

**4.10. Agency Risks in Housing Finance:**

The Agency risks occur at the primary market level, where lenders may depend upon brokers to market and process loans and appraisers to value the collateral. In the secondary markets, investors depend on the third party originators and servicers to underwrite, collect, and remit the payment. The Agency Risk is also a major concern in Government guarantee programmes
as the government is exposed to a moral hazard. The presences of agency risk increase the cost of lending and securitization.

4.10.1. Management of the Agency Risk:

The agency risk is managed by the lenders and investors with contract terms, quality controls, and technology. Nevertheless, the agency risk materialises at various levels of the lending chain, from unscrupulous bankers and appraisers to moral hazards in securitised portfolios. A good example for this is the U.S. where the agency risks were one of the important drivers of the sub-prime crisis.

4.11. Systemic Credit Risk in Housing Finance:

Systemic credit risk arises when there is a sudden decline in the property values, the decline may be local or national in nature. A market failure may be due to the inability of the lenders to diversify the mortgage risks. Real estate prices have the tendency to move in cycles, sometimes with tremendous volatility, which is risky not only to the lenders but also to the stability of financial systems. Volatile real estate prices make it difficult to value the collateral, underlying the mortgage, and to assess the credit risk of the mortgage portfolios. The sub-prime crisis of the U.S. demonstrates how real estate bubbles can be propagated across the global financial system. The real estate bubble in the U.S. due to the loose monetary policy was further intensified by a mortgage bubble which led to a mortgage and real estate explosion, affecting all types of lenders in the U.S. and abroad.
4.11.1. Management of systemic Credit risks:

The management of the systemic credit risks depends upon the policies to deflate the price bubbles from time to time. The policies in the developed countries, includes greater price transparency, efficient markets for urban land, better market infrastructure, efficient lien registry system, lower transaction costs, strong legal framework for ownership and contract enforcement, and sophisticated financial system have been adopted to lessen the effect of the bubble and provide more rapid adjustment to collapse in the prices. However, the same is not true in the emerging economies, as the information is not only adequate, but the mortgage markets are less efficient.

4.12. Political Risks in Housing Finance:

The changes in a country’s or a region’s political and economic system will have adverse impact on the bank’s activities, as it adversely affects the ability of clients to perform their obligations to the banks. The political risk in mortgage lending relates to the events that reduce earning from mortgage lending because of political intervention in the selection of borrowers, the rate adjustment process, the mortgage terms and conditions, or the foreclosure and eviction process.

In conclusion, housing finance has globally been exposed to various risks such as the market risks in housing finance, credit risk in housing finance, systemic credit risks, agency risks and political risks. However, there may not be a `one-size-fit-all` risk management model for all the banks to be made applicable uniformly. Balancing risk and return is not an easy task as risk is subjective and not quantifiable. Apart from these risks, the housing finance institutions are
exposed to the operational risks. Operational risks, have of late occupied great dimensions in the mortgage finance. The Financial crisis of the 2007-08 is to a very large extent was due to the operational risks in mortgage financing. It is in this context that Part-C, of this chapter discusses the Operational risks in housing finance and its types.

PART-C

4.13. Operational Risks in Housing Finance an Over View:

Part-A discusses the definition of risks, the policy foundation to operation Risk Management-Basel-I, and Basel-II, Part-B discusses the Risks in housing finance and its types and their management. Part-C, of this chapter discusses the Operational risks in housing finance and its types.

4.13.1. Definition of Operational Risk:

The general definition of operational risk was evolved over the years. Initially it was defined as every type of ‘unquantifiable risk’ faced by a bank as operational risk.

Basel Committee –I has defined the operational risk as, “any risk which is not categorized as market or credit risk or the risk of loss arising from various types of human or technical errors.” (BCBS 1988, Banking Committee on Banking Supervision).

Further, Basel Committee –II defined operational risk as “The risk of loss resulting from inadequate or failed internal processes, people and systems or from external events”. This definition includes legal risk but excludes strategic and reputational risk.

The important types of operational risk involves breakdown in internal control and corporate governance, these break downs can lead to financial losses through errors, frauds or failure. The
Basel committee –I has further opined that, due to the lending officer or staff exceeding their authority or conducting business in an unethical or risky manner the banks may incur loss. In addition to these causes, the other major causes of operational risk are failure of information, technology, systems or major events like fire or any other disasters also leads to operational risk.

4.13.2. Operational Risks (Or) In Housing Finance:

Among the risks faced by the housing finance institutions, the operational risks are the most important and a more recent phenomenon. Operational risks have been defined by the Basel committee in January 2001, as “the risk of direct or indirect loss resulting from inadequate or failed internal process, people or systems or from external events”. Operational risk is a relatively new term for some very old problems, which happen on a small scale every day in financial markets and are managed with little or no incidents, which may however, may occasionally explode with dramatic and devastating effect. The transaction intensity of the mortgage business makes mortgage lenders more prone to Operational Risks. The long term maturity of the housing loans, the lengthy mortgage lien documents increases the likelihood of many errors. OR can become more important, as the mortgage value chain is “unbundled” through securitization as many participants work in different stages of the process like origination, servicing, securitization, and hence more actors are involved and therefore there are more chances of OR. Unlike Market and Credit risks, the Operational Risk factor in housing is largely internal to the bank. The OR in mortgage in housing includes risk of loss from incomplete documentation, automated system failures, data entry errors, rogue traders, internal and external frauds and computer security breaches.
4.13.3. Types Of Operational risks In Housing Finance:

The OR in housing finance stems from four important factors like people, process, systems, or external factors. The Basel-II Accord has identified seven different types of OR like internal frauds, external frauds, employment practises and work place safety, client’s products and business practises, damage to physical assets, business disruptions and system failure and execution, delivery process management. The involvement of internal and external people in frauds amounts to operational risks. The OR in housing finance can broadly be classified as

(i) Internal factors and

(ii) External factors.

4.13.4. Internal factors:

The OR in housing finance which involves certain factors within the banking transaction is referred to as internal factors. The internal factors which lead to:

(i). Internal frauds:

Internal frauds can be defined as ‘Acts intended to defraud, misappropriate property or circumvent regulations, the law or bank policy which involves at least one internal party’ for instance unauthorised activities, thefts and so on.

There is no single accepted definition of fraud. It is impossible to provide a comprehensive definition of fraud. Indeed, it may be possible to distinguish between two general types of definition: a general broader one and a criminal narrower one. However, all definitions have one thing in common “an element of dishonesty or deceit”. There are many dictionary definitions of the word ‘fraud’; each is similar but not exactly the same. According to Webster Merriam Webster has defined fraud as “Deceit, trickery, intentional perversion of truth in order to induce another, to part
with something of value or to surrender a legal right”. “An act of, deceiving or misrepresenting”. or “A person who is not what he or she pretends to be, one that is not what it seems or is represented to be”. Fraud can be considered as any falsification or misrepresentation by customer, employee or any third party with the intention to gain undeserved benefits. Generally speaking an act is considered fraud when losses occur, whilst the gain from this act is not simply about of money. Any type of advantage is a gain.

Fraud has also been defined by the Study Group on Large Value Bank Frauds set up by the Reserve Bank of India in 1997, as “A deliberate act of omission or commission by any person, carried out in the course of a banking transaction or in the books of accounts maintained manually or under computer system in banks, resulting into wrongful gain to any person for a temporary period or otherwise, with or without any monetary loss to the bank”. The banking frauds constitute a considerable percentage of white-collar offences being probed by the police. Unlike ordinary thefts and robberies, the amount misappropriated in these crimes runs into lakhs and crores of rupees. Bank fraud is a federal crime in many countries, defined as planning to obtain property or money from any federally insured financial institution. It is therefore, considered as a white-collar crime.

The frauds in housing finance are broadly committed in two stages.

(a) Pre-sanction stage and

(b) Post-Sanction stage

(a). Pre -Sanction Stage

The frauds at the pre-sanction stage are due to

1. Non-adherence to the Know-Your-Customer (KYC) norms,

2. Failure to identify fictitious accounts,
3. Sanction of higher amounts on the basis of fake/forged income documents without verifying, and


(b). Post –Sanction Stages:

In the post –sanctioned stage, failure to verify the forged title deeds, photo-copy of the title deeds and other property documents, are predominant.

Banks have however, not encountered high levels of collusion of employees, the incidence if the internal frauds are stray incidents where most of the employees have been sincere and honest. The following table shows the number of internal frauds in the public sector banks during the period of May 2011 and August 2011. The table shows that around 105 scale I & II officers, 121 Scale III to V officers, 28 officers between Scale VI to VIII, and 15 of the subordinate staff are involved in the internal frauds.

Table 4.12: internal frauds/ involvement of bank employees in fraud for the month of May & August

<table>
<thead>
<tr>
<th>Grade</th>
<th>MAY 2011</th>
<th>AUGUST 2011</th>
<th>CUMULATIVE FIGURE DURING THE YEAR AS ON AUGUST 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reg</td>
<td>Investigation</td>
<td>Trial</td>
</tr>
<tr>
<td>SCALE I &amp; II</td>
<td>8</td>
<td>36</td>
<td>4</td>
</tr>
<tr>
<td>SCALE III-V</td>
<td>9</td>
<td>56</td>
<td>11</td>
</tr>
<tr>
<td>ABOVE VI-VIII</td>
<td>1</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>TOP MANAGEMENT/BORAD APPOINTEES ABOVE SCALE VIII</td>
<td>1</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>SUBORDINATE STAFF</td>
<td>0</td>
<td>8</td>
<td>5</td>
</tr>
</tbody>
</table>

*Source: Monthly crime report of CBI for the month of May 2011 and August*
(ii). External frauds:

External frauds commonly originate with or involvement of customers and vendors. Common frauds include cheque and credit card frauds, shoplifting, vendor and telemarketing frauds, and fraud perpetuated by ID theft. Like frauds committed internally in a business by its employees, external frauds can cause serious damage to the bank’s finance. These types of frauds are abundant, to say the least. Only by staying alert 24/7/365 days can a business owner recognize and nip these scams in the bud.

(ii.i.) The types of external frauds include:

Fabrication of income documents such as income tax returns, salary slips, balance sheets are instances of external frauds. The borrowers in connivance with the builders, promoters, estate agents, sellers, with a view to get larger amount of loans than the capacity of the borrower to repay, leads to frauds in financing housing.

1. Many a times, the other income of the applicants like agriculture, future rental incomes, income of non-working spouse, purportedly running hobbies like cooking classes, beauty parlors, and computer job works etc., are clubbed to inflate the income and secure higher loans. This too, is one of the reasons for the external frauds.

2. Disbursement of loans by way of demand drafts/bankers cheques are encashed by third party/agent/borrower also lead to external frauds. Frauds committed are encashment of bankers cheques/demand draft handed over directly to the borrower/agent and many times the borrower/agent himself will resort to fraud by opening a false account in the name of the payee which would be actually the vendor or the builder. In this case, the borrower will have not purchased any property but the amount will be paid by the banker which was encashed fraudulently by the borrower/agent himself.
3. Forged document. The title deeds are being forged by the borrower and builder by way of colored photo - copies of various document including nil encumbrance from the sub-registrars, fake stamp papers, and laminating the documents, etc., which are difficult to distinguish from the original documents.

4. The over-valuation of the property. The borrower in connivance with the builder/valuer will over-value the property and exorbitant valuation report and, induce the banks to lend higher loans than what the property is worth. The value of the property is also inflated by including various expenditures, additional amenities, fixtures, legal charges, society advance, and maintenance charges etc., which are non-existing leads to the external frauds.

5. Multiple financing. The fraudsters with an intention to defraud the bank in connivance with chairman секретaries of housing co-operative society and borrowers prepare a number of original documents in respect of single flat and avail loans from several banks using those fake documents. In the process, the miscreants get the owners clear and marketable titles to the property certified by lawyers and in turn create equitable mortgage by depositing fake title deeds. On the other hand the borrower will make one genuine document and pay the stamp duty, register the same with the sub-registrar and thereafter they take colour Xerox with some changes and submit to various banks for the same property.

6. Cancellation of booking flats/property/. After the sanction and release of the first installment of loan amount, the booking of the flat/property by way of cancelling directly by the borrower with the collusion of the builder / promoter .In this case, under construction of the flats are booked and documents are registered and after availing the loan the borrower would go to the builder and cancel the booking and the builder refunds the money to the borrower without the knowledge of the bank.
7. The sale of the property by the loanee without clearing the loans is one of the factors of the external fraud. In this case, the property is sold by the borrower by way of duplicate/fake title deeds fabricated by the borrower even though the original title deed has been deposited with the bank.

8. Misrepresentation of the end use of the loan. The borrower avails a loan for the purpose of residential property however; he constructs / purchases commercial building. In this case, the borrower misuses the interest concession extended to the residential property.

9. Sale of the property by the builder without clearing bank’s due availed by the builder. The builders sell the half constructed/semi-constructed flat /houses without clearing the bank loans which leads to huge loss to the banks.

10. Multiple registrations. There is a provision for the registration of the property at any one of the joint-sub-registrar’s office where there are multiple registration offices. The fraudsters take advantage of this situation and register the same property at different sub-registrar offices and avail multiple loans on the same property from different banks which in due course will be a loss to all the loan advancing banks.

(c) The Extent and Impact of Frauds:

There have been many attempts to measure the true extent of frauds but, compiling reliable statistics around frauds is not easy .As one of the key aspects of fraud is deception, it is difficult to identify and survey results often only reflect the instances of frauds that have actually been discovered .It is estimated that the majority of frauds go undetected, and even when a fraud identified it may not be reported for the reason that this may be that a company that has been a victim of fraud does not want to risk negative publicity, and more often it is hard to distinguish fraud from carelessness and poor record-keeping as such the extent of fraud is difficult to be measured.
The following table shows the bank-wise frauds of the public sector in housing finance. The frauds during the period 2009-10 has been alarmingly increasing. During 2009 the total number of frauds was 654 to the extent of Rs.13,850.32 lakhs which increased to 706 frauds and the extent of fraud was around Rs. 21,964.10 lakhs. However, due to the fraud risk management techniques the frauds in the housing finance has marginally declined compared to past few years. The number of frauds declined to 596 and the amount decreased to Rs.18,052.80 lakhs in 2011.

### Table 4.13: Bank-wise Frauds of Public Sector Banks (PSB) Amt. in Lakhs

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Name of the Banks</th>
<th>Year 2009</th>
<th>Year 2010</th>
<th>Year 2011</th>
<th>Year 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>State Bank of India</td>
<td>37</td>
<td>1643.36</td>
<td>101</td>
<td>5863.04</td>
</tr>
<tr>
<td>2</td>
<td>SBBJ</td>
<td>9</td>
<td>347.2</td>
<td>15</td>
<td>238.17</td>
</tr>
<tr>
<td>3</td>
<td>SBH</td>
<td>5</td>
<td>144.06</td>
<td>11</td>
<td>499.84</td>
</tr>
<tr>
<td>4</td>
<td>SBM</td>
<td>7</td>
<td>139.08</td>
<td>5</td>
<td>1078.87</td>
</tr>
<tr>
<td>5</td>
<td>SBP</td>
<td>11</td>
<td>237.95</td>
<td>17</td>
<td>159.65</td>
</tr>
<tr>
<td>6</td>
<td>SBS</td>
<td>5</td>
<td>186.25</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>7</td>
<td>State Bank of Indore</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>20.4</td>
</tr>
<tr>
<td>8</td>
<td>SBT</td>
<td>9</td>
<td>118.47</td>
<td>4</td>
<td>62</td>
</tr>
<tr>
<td>9</td>
<td>Allahabad Bank</td>
<td>6</td>
<td>67.21</td>
<td>23</td>
<td>490.85</td>
</tr>
<tr>
<td>10</td>
<td>Andra Bank</td>
<td>1</td>
<td>4.53</td>
<td>6</td>
<td>58.27</td>
</tr>
<tr>
<td>11</td>
<td>BOB</td>
<td>65</td>
<td>754.5</td>
<td>61</td>
<td>1167.6</td>
</tr>
<tr>
<td>12</td>
<td>Bank of India</td>
<td>33</td>
<td>386.79</td>
<td>44</td>
<td>609.28</td>
</tr>
<tr>
<td>13</td>
<td>Bank of Maharashtra</td>
<td>11</td>
<td>454.12</td>
<td>14</td>
<td>679.5</td>
</tr>
<tr>
<td>14</td>
<td>Canara Bank</td>
<td>28</td>
<td>954.84</td>
<td>27</td>
<td>537.41</td>
</tr>
<tr>
<td>15</td>
<td>Central Bank of India</td>
<td>35</td>
<td>691.03</td>
<td>29</td>
<td>4447.67</td>
</tr>
<tr>
<td>16</td>
<td>Corporation Bank</td>
<td>12</td>
<td>173.14</td>
<td>21</td>
<td>274.19</td>
</tr>
<tr>
<td>17</td>
<td>Dena Bank</td>
<td>13</td>
<td>315.92</td>
<td>18</td>
<td>341.04</td>
</tr>
<tr>
<td>18</td>
<td>IDBI</td>
<td>81</td>
<td>813.28</td>
<td>42</td>
<td>988.81</td>
</tr>
<tr>
<td>19</td>
<td>Indian Bank</td>
<td>23</td>
<td>870.21</td>
<td>23</td>
<td>395.48</td>
</tr>
<tr>
<td>20</td>
<td>Indian Overseas Bank</td>
<td>8</td>
<td>91.41</td>
<td>14</td>
<td>152.41</td>
</tr>
<tr>
<td>21</td>
<td>Oriental Bank of Commerce</td>
<td>11</td>
<td>168.57</td>
<td>50</td>
<td>629.19</td>
</tr>
<tr>
<td>22</td>
<td>PNB</td>
<td>27</td>
<td>284.72</td>
<td>18</td>
<td>178.03</td>
</tr>
<tr>
<td>23</td>
<td>Punjab &amp; Sind Bank</td>
<td>11</td>
<td>84.93</td>
<td>4</td>
<td>61.83</td>
</tr>
<tr>
<td>24</td>
<td>Syndicate Bank</td>
<td>57</td>
<td>2194.68</td>
<td>26</td>
<td>369.8</td>
</tr>
<tr>
<td>25</td>
<td>Union Bank of India</td>
<td>14</td>
<td>215.7</td>
<td>22</td>
<td>459.84</td>
</tr>
<tr>
<td>26</td>
<td>United Bank of India</td>
<td>18</td>
<td>473.87</td>
<td>17</td>
<td>260.93</td>
</tr>
<tr>
<td>27</td>
<td>UCO Bank</td>
<td>36</td>
<td>691.71</td>
<td>62</td>
<td>1127.46</td>
</tr>
<tr>
<td>28</td>
<td>Vijayaya Bank</td>
<td>81</td>
<td>1342.79</td>
<td>30</td>
<td>812.53</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>654</td>
<td>13850.32</td>
<td>706</td>
<td>21964.10</td>
</tr>
</tbody>
</table>

Source: www.jaabali.com
(d). Impact of Frauds on Housing Finance:

The impact of the frauds is worrisome to any banker as the Frauds have a multi-dimensional impact on the banks. Apart from influencing the image/reputation of the bank it also impacts on the management, culture, ethics and more importantly the share-holders money. The Reserve Bank of India has time and again issued various guidelines in plugging frauds and has directed the banks to provide 100 per cent provision or write-off such advances and claim tax benefits., which affects the profit of the banks and also the quality of the assets and providing regulatory capital.. The impact of the frauds in housing finance has been analysed in the following table. The write-off of the all bad loans including housing loans and compromise during March 2009 was to the extent of Rs.7084.48 crores which jumped to a whooping Rs. 17291.52 crores.

Table 4.14: The extent of write-off for the period 2010-212, Sept..

<table>
<thead>
<tr>
<th>Year</th>
<th>Amt. in Crores</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-2009</td>
<td>7084.48</td>
</tr>
<tr>
<td>2009-2010</td>
<td>10965.75</td>
</tr>
<tr>
<td>2010-2011</td>
<td>17291.52</td>
</tr>
</tbody>
</table>

Source: Business Line-Feb 24, 2009)

Operational Risk in housing finance has further been classified by Basel Committee –II as:

- People,
- Internal processes and systems
- External events.

(a) People:

People refer to the human resources and employees who are involved in handling the housing finance portfolios in banks. The failure in management of the people is the main cause for the OR in housing finance. The under-trained or un-trained overworked employees may subject the bank
to the OR. Failing to understand the mandate, lack of confidence in the institution, non-adherence to the bank policies and strategies are some of the causes for the OR by the people in housing finance. The Board of Financial Supervisor (BFS) RBI has expressed grave concern that fraudsters with the involvement of bank officials could engineer system-wide breakdown of controls across months, while putting through fraudulent transitions. Further, fabrication of income documents, like Income Tax Documents/Salary Slips/ Balance Sheets committed by borrowers in connivance with the direct selling agents, estate agents or builders, title documents forged by borrowers, over -evaluation of the property to get higher loans, multiple financing, which are extensions of the fake documents produced to get multiple financing, cancellations of booking of property in collusion between customer and builder, sale of property by loanee without clearing the existing loan, misappropriation of end use of loan, inappropriate legal opinion, account take-over, impersonation, bribes and kickbacks are some of the instances where involvement of the people internally and externally, exposes the bank to a huge loss in the housing finance portfolio.

**(b) Internal. Process And Systems:**

The complex or poorly designed systems and procedures are responsible for the wide range of problems faced by the banks. This is because, most systems and procedures are either unfit for the purpose or they malfunction. In addition, to this the increasing automation of systems and banks reliance on Information Technology (IT) has the potential to transform minor Manual processing errors to major systemic failures. Likewise, there will be losses arising from system failures due to failure in hardware, software, telecommunication, utility outrage and others.
(e). External Factors:

The external factors have a major impact on the Operational Risks in financing housing. The external factors include both expected and unexpected changes. The major types of OR due to external factors can be categorized as:

(a) Disruptive Events: The losses arising from loss or damage to physical property or assets are referred to as disruptive events. The major factors of the disruptive events are natural calamities or disasters like fire, flood, and earthquakes. Human involvement like terrorist activities, vandalisms, eviction, acquisitions among others are also responsible for the disruptive activities in housing finance, which leads to OR in housing finance.

(b) Consultant and Out-sourcing: The dependence on out-sourcing and use of consultants for house building activities has become a serious threat to the banks. Of late, excessive use and dependence on the use of Consultant and out-sourcing of services related to financing housing has increased in a big way. The use of Consultants and outsourcing on the one hand, enables the banks in processing the housing loan portfolio, but on the other hand the concern is the loss of control over the bank’s process. Miscommunication, data entry maintenance or loading errors, missed dead-lines, system misappropriation, accounting errors, entity attribution error, collateral management failure, failure of reference data maintenance among others are some of the factors that contribute to OR in housing finance.

PART-D

4.14. Measurement/Mitigation and Management:

The operational risks are a recent phenomenon, it is a very tricky as it can be identified only when there has been considerable damage; the sub-prime crisis of 2007-08 is an illustration to this. It is therefore, necessary to measure the OR and prevent it by mitigating it. However, not always it is possible to mitigate the OR, It is paramount importance to identify and assess the operational risk.
The operational risk is that it can accrue in all material products, activities, process and systems. It is in this contest the banks have to ensure that before the introducing new products, activities, process and systems the operational risk inherent in these products is identified well in advance and subjected to adequate assessment procedures. In addition to this identification of inherent Risk of Operation risk it is also important to assess the vulnerability of the risk events. The effective risk assessment allows banks to understand the risk profile and effective risk management.


Measurement of Operational Risk is very important, it is necessary to measure the size and the scope of the risk that the banks are exposed to. The Basel committee has laid down three approaches to measure the Operational Risk.(BIA ,SA, and AMA)

There are two main ways to assess Operational Risks are:

- The Top-Down Approach :
  
  Under the top-down approach, operational losses are quantified on a macro level only, without attempting to identify the events or causes of losses. Top-down approach includes multifactor equity price models, capital asset pricing model, income-based models, expense-based models, operating leverage models, scenario analysis and stress testing and risk indicator models.

- The Bottom-Up Approach:
  
  The bottom-up approach quantifies the operational risk on a micro level and is based on the identification of internal events. The advantages of this model lie in a profound understanding of operational risk events (the way how and why are these events formed).

  Bottom-up approach encompass three main subcategories:

  (i) Process-based models (causal models and Bayesian belief networks, reliability models, multifactor causal factors),

  (ii) Actuarial models (empirical loss distribution based models, parametric loss
distribution based models, models based on extreme value theory) and

(iii) Proprietary models.

The best way for operational risk management is a combination of both approaches. The main advantage of these models is their relative simplicity and no requirement for collecting data. It has been considered effective, to follow this best practice and employ both the approaches for operational risk management.

Basel II provides an operational risk framework for banks and financial institutions. The framework includes identification, measurement, monitoring, reporting, control and mitigation of operational risks. It requires different procedures for the proper measurement of Operational Risk losses (i.e. Ex-post activities such as reporting and monitoring) as well as for active management of operational risk (i.e. ex-ante activities such as planning and controlling). The Basel Committee distinguishes seven main categories of Operational Risk and eight business lines for Operational Risk measurement.

Basel II distinguishes three main approaches to operational risk measurement:

1. Basic Indicator Approach (BIA),
2. Standardized Approach (SA) and

The BIA which is the simplest approach, the gross income serves as a proxy for the scale of operational risk of the bank. Hence the bank must hold capital for operational risk equal to the average over the previous three years of a fixed percentage (denoted as alpha, $\alpha$) of positive annual gross income. Alpha was set at 15%.
1. Basic Indicator Approach (BIA):

It can be expressed as

\[ KBIA = \frac{\sum (GI \times \alpha)}{n} \]

Where

- \( KBIA \) = the capital charge under the Basic Indicator Approach.
- \( GI \) = annual gross income, where positive over the previous three years.
- \( \alpha = 15\% \) set by Basel II committee, relating the industry-wide level of required capital to the Industry-wide level of the indicator.
- \( n \) = Number of the previous three years for which gross income is positive.

2. Standardized Approach (SA):

The SA is very similar to the BIA, only the activities of banks are divided into eight business lines. Within each business line, gross income is a broad indicator of operational risk exposure.

\[ KTSA = \frac{\sum (GI_{1-8} \times \beta_{1-8})}{3} \]

Where

- \( KTSA \) = the capital charge under the Standardized Approach.
- \( GI_{1-8} \) = annual gross income in a given year for each business line.
- \( \beta_{1-8} \) = a fixed percentage set by the Basel II committee, relating the level of required capital to the level of the gross income for each of the 8 business lines. The value of the \( \beta \) is detailed below. The capital requirement ranges from 12 to 18% (denoted as beta, \( \beta \)) of gross income in the respective business line.
### 3. Advance Measurement Approach (AMA):

Under the AMA (Advance Measurement Approach) approach, the capital requirement will be equal to the risk measure generated by the bank’s internal operational risk measurement system using the quantitative and qualitative criteria.

Under the Advanced Measurement Approach (AMA), the regulatory capital requirement shall equal the risk measure generated by the bank’s internal operational risk measurement system. The bank must meet certain qualitative (e.g. quality and independence of operational risk management, documentation of loss events, regular audit) and quantitative (internal and external data collection, scenario analysis) standards to qualify for using the AMA. For instance, a bank must demonstrate that its operational risk measure is evaluated for one-year holding period and a high confidence level (99.9% under Basel II). The use of the AMA is subject to supervisory approval. The emerging market banks usually, lack long data series needed for the appropriate application of the AMA. A key question from a regulatory perspective arises

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**Table 4.15: Business line and activities for calculation of new capital adequacy norms.**

<table>
<thead>
<tr>
<th>Business line</th>
<th>Indicator</th>
<th>Beta factor</th>
<th>Beta values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corporate finance</td>
<td>Gross Income</td>
<td>$\beta_1$</td>
<td>18%</td>
</tr>
<tr>
<td>Trading and sales</td>
<td>Gross Income</td>
<td>$\beta_2$</td>
<td>18%</td>
</tr>
<tr>
<td>Retail banking</td>
<td>Gross Income</td>
<td>$\beta_3$</td>
<td>12%</td>
</tr>
<tr>
<td>Commercial banking</td>
<td>Gross Income</td>
<td>$\beta_4$</td>
<td>15%</td>
</tr>
<tr>
<td>Payment and settlement</td>
<td>Gross Income</td>
<td>$\beta_5$</td>
<td>18%</td>
</tr>
<tr>
<td>Agency services</td>
<td>Gross Income</td>
<td>$\beta_6$</td>
<td>15%</td>
</tr>
<tr>
<td>Asset management</td>
<td>Gross Income</td>
<td>$\beta_7$</td>
<td>12%</td>
</tr>
<tr>
<td>Retail brokerage</td>
<td>Gross Income</td>
<td>$\beta_8$</td>
<td>12%</td>
</tr>
</tbody>
</table>

Source: Base II report 2004
whether the AMA approach is suitable for the banks suffering by the lack of operational risk events data, the best approach for these banks is to use its own database supplemented by data obtained from international databases.

In the Indian context, there is no clear cut and single established way of measurement of operational risk. RBI has directed the banks initially to adopt the BIA (Basic Indicator Approach) for measurement and calculation of Capital. The banks however, are at liberty to adopt any other methods but once the banks have adopted higher methods or approaches they cannot come back to BIA method.

**Control//Mitigation of Operational Risk:**

The organization of the Basel-II uses a three-pillar structure and addresses three types of risks: Credit risks. Market risks and Operational risks.

### 4.14.2. Three-Pillar-Structure:

- **PILLAR-I: Minimum Capital Requirement:**
- **PILLAR-II: Supervisory review of an institution’s capital adequacy and interest assessment process.**
- **PILLAR-III: Market discipline through public disclosure of various financial and risk indicators.**

#### 4.14.2.1. PILLAR-I: Minimum Capital Requirement:

The Minimum Capital Requirement was suggested by the BIS in 2001 for the mitigation of the Operational risks.

As the figure shows, regulatory capital should cover (e.g. in the form of provisions) both expected losses and unexpected losses (but excluding extreme events) while economic
capital should cover unexpected losses. In addition, economic capital should cover both risk capital with 99.9% scenarios and capital for extreme events. As the examples of extreme events, we can list 9/11 events in 2001, Hurricane Katrina in 2005 or Hurricane Gustav in 2008 and Mumbai terrorist attack in India.

Chart 4.2: Classification of bank’s capital requirements according to risk

Source: BIS 2005

4.14.2.2. PILLAR-II: Supervisory review of an institution’s capital adequacy and interest assessment process:

Pillar-II requires banks to develop their risk management beyond the minimum requirements set out in pillar one to manage the OR. Pillar-II also encompasses the risks such as interest rate risk as
this a more comprehensive risk management system. Furthermore, it indicates that the BIS framework should be an integral part of the bank’s activities. The bank’s general management should be aware of BIS and should be involved in the decisions surrounding BIS. The supervisory review process of the Pillar-II Framework 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.

The Pillar-II four principles of supervisory review have been discussed:

1. **Banks** should have a process for assessing their overall capital adequacy in relation to their risk profile and a strategy for maintaining their capital levels.

2. **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 take appropriate supervisory action if they are not satisfied with the result of this process.

3. **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 the minimum.

4. **Supervisors** should seek to intervene at an early stage to prevent capital from falling below the minimum levels required to support the risk characteristics of a particular bank and should require rapid remedial action if capital is not maintained or restored.

4.14.2.3.PILLAR-III: Market discipline through public disclosure of various financial and risk indicators

The New Basel Capital Accord is based around three complementary elements or “pillars”. Pillar 3 recognizes that market discipline has the potential to reinforce capital regulation and other supervisory efforts to promote safety and soundness in banks and financial systems. Market
discipline imposes strong incentives on banks to conduct their business in a safe, sound and efficient manner. It can also provide a bank with an incentive to maintain a strong capital base as a cushion against potential future losses arising from its risk exposures. The Committee believes that supervisors have a strong interest in facilitating effective market discipline as a lever to strengthen the safety and soundness of the banking system.

In the June 1999, the Committee outlined its intention to incorporate market discipline as a fundamental element of the New Basel Capital Accord. The committee suggested some general types of public disclosure that should be released by banks on a timely basis. These included the key features of the capital held as a cushion against losses, and the risk exposures that may give rise to such losses. These would enable market participants to assess the bank's ability to remain solvent. The Committee has widened its analysis to consider other elements of the New Basel Capital Accord where disclosure may make an important contribution. Where appropriate, the Committee has outlined templates to provide a suggested format in which disclosure could be made.

The Committee’s guiding principles of Pillar III is to complement the operation of 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 recommendations which will allow market participants to assess the key information on the scope of application, capital, risk exposures, risk assessment and management processes, and hence the capital adequacy of the institution. The Committee believes that such disclosures have particular relevance under the New Basel Capital Accord, where reliance on internal methodologies gives banks more discretion in assessing capital requirements, and therefore set out separate disclosures where internal methodologies are used. The Committee does not expect that the incremental costs of making such information public to be high, since banks will be collecting this data for internal purposes and they will be benefiting from the more risk sensitive capital requirements that result from the use of bank specific inputs.
4.15. Management of Operational Risk:

Managing of operational risks is not new to the banking industry; it is true that banks are struggling over the years with varying degrees of success in managing the OR. As per the Basel Accord of 1988, the Banks and financial Institution were not required to specifically set aside a proportion of capital to cover operational risk. However, the revised Basel Capital Accord “international convergence of Capital measurement and capital standards-A revised fame work” Basel –II of June 2004, the operational risk has been identified as a separate area of risk. The accord required banks and financial institutions to establish minimum level of operational capital through a sound and effective risk management system.

4.15.1. Policy Formulation and Strategic Approach:

The operational risk management framework provides the strategic direction and ensures that an effective operational risk management and measurement process is adopted throughout the bank. Each bank’s operational risk profile is unique and requires a tailored risk management approach appropriate for the scale and materiality of the risk present, and the size of the bank. There is no single frame work that would suit. Every bank different approaches will be formulated. In fact man, many operational risk techniques continue to evolve rapidly to keep pace with new technologies, business models and applications. Operational risk is more a risk management than measurement issue.

The following are the objectives of ORM policy.

Objectives of the ORM (Operation Risk Management) policy:

The main objectives of the operational risk management are:

1. Risk identification,
2. Risk assessment,
3. Risk controls/mitigation plans,
4. Risk measurement,
5. Capital calculation and
6. Risk monitoring and reporting—covering “key risk indicators (KRI)s) risk reporting, validation of RCSA(Risk Control and Self-Assessment) loss data” as proactive risk monitoring tools.
7. Synergy with existing risk based audit plan and internal audit department,
8. Improvement in quality of services/products/processes through risk management system.

The recognition of the potential outcomes is the first task of risk management to identify; secondly, to assess the probability of occurrence and finally, to measure, monitory and manage the uncertainty are functions of the decision maker. The risk management is therefore, a combination of Equivocality risk, uncertainty and error, which are the drivers of unexpected outcomes. Uncertainty arises due to lack of information, once the decision maker possesses information the uncertainty decreases. Risk can be reduced by increase in knowledge, Equivocality arises when there is lack of judgement when there is conflicting interpretations regarding a situation, even though there is adequate knowledge of the situation and error is due to lack of care. The following chart shows the drivers of the unexpected outcomes.

**Chart 4.3: Drivers of Unexpected Outcomes**

![Chart showing the drivers of unexpected outcomes: Uncertainty, Risk, Equivocality, Error, Lack of information, Lack of Knowledge, Lack of judgement, Lack of Care.](chart)

**Source:** Cris Marshall(1997) Manage your knowledge or risk, in Risk Management for Financial Institutions, Risk Publications,
4.15.2. Organizational Set-up for Operational Risk Management:

As per the Basel Accord an ideal organizational set up for Operational Risk Management comprises,

I. The Board of Directors,

II. The Risk Management Committee of the Board,

III. The Operational Risk Management Department,

IV. The Operational Risk managers and

V. The Support group for Operational Risk Management.

The following chart shows the organizational support for risk management.

Chart 4.4: Organizational Chart for Supporting Risk Management
The board of the bank is responsible for implementation of effective management of the operational risk in the bank. Senior management is responsible for implementing the operational risk management framework approved by the Board of Directors and it will be implemented in the bank and all levels of the staff should understand their responsibilities in respect of operational risk.

### 4.16. Management of Operational Risks in Housing Finance in India:

The operational risk policies are initiated by the Reserve Bank of India (RBI) in the Indian context. The Reserve Bank of India (RBI) has framed guidelines for the banks pertaining to the risk mitigation in compliance of the Basel-I and Basel-II Accord guidelines. The Operational Risk guidelines broadly cover management of credit, market and operational risks. RBI introduced the Asset-Liability Management System very popularly referred to as the ALM guidelines, intended to mainly cover the liquidity and interest rate risks. The guidelines are claimed to serve as a benchmark to the banks, which are yet to establish an integrated risk management system. The banks are however, free to evolve their own systems compatible with the type and size of operations as well as risk perception. The RBI has directed the banks to critically evaluate their existing risk management system in the light of the guidelines and make proper changes for covering the existing deficiencies.

In pursuance of RBI and recommendations of Basel-II Committee the Indian Banks adopted their own operation risk management policy for systematic and proactive identification, assessment, measurement, monitoring, mitigating and reporting of the risk. The RBI has directed all the Indian Banks to adopt their own ORM (Operational Risk Management) policy. It has given direction to the banks, the concerned Board and senior management that they create and enable organizational culture placing high priority on an effective ORM and adhering to sound operating processes.
According to the recommendation of RBI it is important for the banks to have a formal, written policy and procedures through a strong control culture, which promotes strong and sound risk management practices. The board of directors and senior management should establish a strong internal control culture, in which control activities are an integral part of the regular activities of a bank. To mitigate the inherent risk banks are adopting several methods like insuring the mortgage property, stock in trade etc. Further in cases of natural disaster, data back up facility should be adopted protect the banks from business disruptions. In addition to this the banks are adopting strong internal audit system to control the losses due to internal frauds committed by the employees and product flaws if any.

Banks and financial institutions are engaged in risk mitigation by way of collateral, derivatives, Disaster recovery plan, netting arrangements and asset securitization to minimize the risk, on the other hand the banks may involve in legal risks. The RBI has been evolving and upgrading the Operational Risk Management techniques on a regular basis to keep pace with the new technologies, business models and applications, as it considers risk management as the need of the hour, than its measurement. The key elements of the ORM guidelines of RBI have stressed on the appropriate policies and procedures, efforts to identify and measure OR, effective monitoring and reporting, adopt a sound system on internal controls and appropriate testing and verification of the OR framework. The policy requirement of the RBI encompasses the following parameters:

1. Each bank must have policies and procedures that clearly describe the major elements of the ORM framework including identifying assessing, monitoring and controlling/mitigating operational risk.

2. ORM policies, processes, and procedures should be documented and communicated to the appropriate staff/personnel at all levels in units that incur material OR.
3. The policies and procedures should outline all aspects of the institution’s operational Risk Management framework.

4. The capture and use of internal and external Operational Risk data including data potential events.

5. The development and incorporation of business environment and internal control factors assessment into the OR framework.

6. Enabling synergy with existing risk based audit plan and work carried out by the bank’s audit department

7. Enabling compliance with regulations stipulated by Basel Accord concerning ORM including support for ORM such organization/risk governance structure and technology

8. Enabling compliance with international good practices in respect of ORM through reference to ORM practices at leading reduce impact and probability of loss events.

9. Enabling compliance with regulations concerning internal concern assessment and Risk management as stipulated under Clause 49 of SEBI and Sarbones Oxley Act and

10. Improving the quality of services/products/ processes through robust risk management systems.
The following chart shows the framework for the Operational Risk Management

**CHART 4.5: ORM framework**

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**4.17. Operational Risk Policy /Regulatory Framework:**

Housing finance is contributing to economic growth of a country and welfare of an individual. The strong and stable regulations only can foster the resilient lenders and financial markets. The financial market participants are not always willing to hold adequate capital, disclosure of risks they engage in or manage the risks efficiently. The balance between the faster economic growth and lighter regulations results in failures of lenders. The stronger regulations such as financial reporting, disclosures of risks, and appropriate level of risk based capital of international standards. Emerging markets financial disclosures rules are often below the international standards for best practise, security trading are infrequent and liquid, the audit rules are often weaker under these circumstances the strong regulations may in prove disclosure regimes and by installing greater market discipline.
In India between 1995 and 2011 two distinct prudential regulations for financing housing were identifiable. During the period 1995 to 2001, restrictions comprised numerical restrictions in the form of leverage restrictions, explicit interest rate caps on deposits for both borrowing and lending for housing finance. From 2001 onwards, in addition to these numerical restrictions, the prudential regulations was framed as it was outlined in Basel-II, with risk weights being the primary instrument of regulatory policy. During this period, risks weights specially for housing assets were introduced and frequently modified. In the Indian housing finance context, two regulators operate namely the Reserve Bank of India (RBI) which regulates bank lending to housing and the National Housing Bank for Housing Finance Companies.

In the year 1992, RBI introduced a risk-asset-ratio-system for banks in line with the Basel-I Accord recommendation of 1988 for financing housing. During this period the risk weight for housing finance was 100 per cent, as housing finance was categorized as “other advances” under the heading real estate and other investment in the balance sheets of the banks. In accordance with the Basel-II recommendation the RBI has redefined the risk-weights for housing finance where the residential properties are owned or rented with borrowing up to 30 lakhs is 50 per cent and above 30 lakhs risk weight is 75 per cent provided the LTV should not exceed more than 75 per cent risk weight is 100 per cent and for commercial estate the risk weight is 150 per cent.

The following table explains the CRAR of SCBs during the period 2005-2008. The CRAR during this period ranges between 12.8 per cent to 13.0 per cent much above the prescribed rate of 9 per cent. The high percentage of CRAR maintained by the banks in India is an indication prevailing sound banking system.
Table 4.16: Capital to risk weighted asset ratio (CRAR) of SCBs as on march ended: 2005-2008

<table>
<thead>
<tr>
<th>YEAR</th>
<th>CAPITAL (Tier I+II)</th>
<th>RWA</th>
<th>CRAR%</th>
<th>TIER - I CRAR%</th>
<th>TIER - II CRAR%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>1,65,928</td>
<td>12,96,223</td>
<td>12.8</td>
<td>1,08,949</td>
<td>56,979</td>
</tr>
<tr>
<td>2006</td>
<td>2,21,363</td>
<td>17,97,207</td>
<td>12.3</td>
<td>1,66,538</td>
<td>54,825</td>
</tr>
<tr>
<td>2007</td>
<td>2,96,191</td>
<td>24,12,236</td>
<td>12.3</td>
<td>2,00,386</td>
<td>95,794</td>
</tr>
<tr>
<td>2008</td>
<td>4,06,835</td>
<td>31,28,093</td>
<td>13.0</td>
<td>2,83,339</td>
<td>1,23,496</td>
</tr>
</tbody>
</table>


The following table shows the CRAR range that has been computed and maintained by the SCBs as per the Basel-I and Basel-II Accords During the period 2009-2011. The CRAR computation as per Basel-I on an average is 13.0 per cent during 2009-2011. Similarly the CRAR as per the Basel-II norms is on an average is 14 per cent during this period.

Table 4.17: Capital to risk weighted asset ratio (CRAR) of SCBs as on march ended: 2009-2011

<table>
<thead>
<tr>
<th>BASEL-I</th>
<th></th>
<th></th>
<th>BASEL-II</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital (Tier I+II)</td>
<td>4,88,536</td>
<td>5,72,582</td>
<td>6,74,662</td>
<td>4,87,826</td>
<td>5,67,381</td>
</tr>
<tr>
<td>RWA</td>
<td>37,04,372</td>
<td>42,16,565</td>
<td>51,81,583</td>
<td>34,88,303</td>
<td>39,01,396</td>
</tr>
<tr>
<td>Tier-I</td>
<td>3,31,422</td>
<td>3,97,665</td>
<td>4,76,615</td>
<td>3,33,810</td>
<td>3,95,100</td>
</tr>
<tr>
<td>Tier-II</td>
<td>1,57,141</td>
<td>1,74,916</td>
<td>1,98,047</td>
<td>1,54,016</td>
<td>1,72,281</td>
</tr>
<tr>
<td>CRAR%</td>
<td>13.2</td>
<td>13.6</td>
<td>13.0</td>
<td>14.0</td>
<td>14.5</td>
</tr>
<tr>
<td>Tier-I</td>
<td>9.0</td>
<td>9.4</td>
<td>9.2</td>
<td>9.6</td>
<td>10.1</td>
</tr>
<tr>
<td>Tier-II</td>
<td>4.2</td>
<td>4.1</td>
<td>3.8</td>
<td>4.4</td>
<td>4.4</td>
</tr>
</tbody>
</table>

All lending involves a variety of risks that must be allocated, managed and priced. However, the 10-30 years maturities and the legal aspects of mortgage pose a unique risk. The inappropriate lending, pricing, and risk management can create problems for the broader financial system and macro-economy presents special challenges for regulators. It is in this context, that the mitigating of the operational risks in financing housing is posing a great danger and is the need of the hour.

The Operational Risks in housing finance lending is normally regulated and supervised by both the Regulatory authorities and Market-participants. The housing finance lenders in general, and the Scheduled Commercial Banks in particular establish risk measures and methods for mitigating risks that include credit, market, liquidity, foreign currencies, operation and political conditions. The following are some of the measures adopted by the housing finance institutions in general and the Scheduled Commercial Banks to mitigate the operational risks financing housing.

- As the Operational Risks in housing finance is a broad and catch-all topic, involves risks of different types have adopted robust effective controls, automated systems and business processes to manage the credit underwriting process and all of the associated paperwork.

- With reference to the housing finance by the SCBs, the RBI has adopted several methods such as the loss incurred due to natural disaster can be mitigated by way of insurance.

- The RBI has directed the SCBs to establish back-up facilities and adoption of business continuity and disaster recovery plan to mitigate the loss due to business disruption as a result of failure in telecommunications or electricity.
- Another method adopted by the SCBs to mitigate the operational risks in financing housing is through strong internal auditing procedures due to internal factors like employee fraud or product flaws and procedural lapses.

- A strong control culture promotes sound risk management practices have to be reinforced by both Board of Directors and Senior Management. A system of effective internal controls help to ensure that the SCBs will comply with laws and regulations as well as policies, plans, internal rules and procedures, and decrease the risk of unexpected losses or damage to the bank’s reputation. In addition to this, internal control is process affected by the Board of Directors, Senior Management and all level personnel.

- The Internal control emphasis on top level reviews appropriate activity controls for different department or divisions, physical controls, checking for compliance on exposure limits and follow-up on non-compliance, a system of approvals and authorisations and a system of verifications and reconciliations in financing housing by the SCBs.

- The internal control system also stresses on segregation of duties among the employees of the banks. The areas of conflicting interests among the employees should be identified, minimised, and subject to careful independent monitoring thereby minimising the loss due operational risks.

- The RBI has laid guidelines that the SCBs should have a strong information system which provides reliable, timely and accessible in a consistent format, regarding the internal financial, operation as well as external market conditions.

- Methods to secure the data in an electronic form, monitored independently and supported by adequate contingency arrangements have been implemented.
Another important measure adopted to mitigate operational risks by the SCBs in financing housing is by an effective internal audit function that independently evaluates the control systems within the organisation. Internal audit is part of the on-going monitoring of the bank’s system of internal controls and of its internal capital assessment procedure. Internal audit provides an independent assessment of the adequacy of, and compliance with, the bank’s established policies and procedures.

4.18. Conclusion:

To conclude, the financial crisis of 2007 and 2008 exposed serious problems with housing finance from sloppiness to outright fraud. As said “what cannot be cured, should be endured” Like-wise, Operational Risks in housing finance cannot be completely eradicated it can only be managed on a sound operation risk management framework. The framework includes clear strategies adopted by the Board of Directors and oversight exercised by the Senior Management, strong internal operational risk culture and internal control culture emphasising on dual controls, effective monitoring and internal reporting, contingency and business continuity plans, high standards of ethics and integrity and commitment to effective corporate governance, including, segregation of duties avoidance of conflicts of interest and clear lines of management responsibilities, accountability and reporting, as reflecting in the bank’s corporate governance documents. All levels of staff shall understand their responsibilities are the need of the hour to mitigate and manage the operational risks in housing finance.