CHAPTER 2

REVIEW OF LITERATURE
REVIEW OF LITERATURE

2.1 ASSET BACKED SECURITISATION VIS-A-VIS MORTGAGE BACKED SECURITISATION:

As detailed in the previous chapter, securitisation is termed as the process of converting asset/mortgage backed loans into securities. The essential procedure is that an originator, a bank or a housing finance company or any lending institution in direct contact with borrowers originates loans. It then sells these loans to an issuer or an investment bank or an evaluator of a bank that pools and structures them, either individually or together with the loans made by other lenders, into a security. To make the security more acceptable to investors, and also to meet the requirement of rating agency, another institution/firm adds the value, if required, by way of credit enhancement. The security is then sold to investors- both individuals and/or institutions such as pension funds, insurance companies and banks. The originator services the loan for a fee, passes payments to the investors direct or to the trustee who distributes the funds to the investors.

Lowell Bryan from McKinsey & Co. published a book in 1988 entitled, Breaking Up the Bank: Rethinking an Industry Under Siege. The fundamental thesis of the book as stated by Bryan is as follows:

*Structured securitised credit is a new technology for lending that has been developed essentially by non-bankers. It is better on all counts than the traditional lending system. It is growing very rapidly precisely because it is a superior technology - one that, in fact, is rendering traditional banking obsolete*.¹

Banking organisations, overseas, have long been associated with Mortgage Backed Securitisation (MBS), both as investors and major participants. In the recent years, they have stepped up their involvement by increasing

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¹Lowell L. Bryan; Breaking Up the Bank: Rethinking an Industry Under Siege-Homewood, II: Dow Jones
operations in the markets for securities backed by various type of assets/receivables. In developed financial markets like United States, securitised debt has become an important tool for mobilisation of resources and popular instruments from the investors point of view. In United Kingdom and other European countries, the securitisation market is expanding. In developing financial markets, the concept has started picking up. Securitisation, in its true sense, is an off-balance sheet financing technique of conversion of cash flows from the portfolio of assets into negotiable instruments or assignable debts which are sold to the investors. It is, at times, used even when the assets continue to remain on the balance sheet. In the Indian financial system, assets securitisation has recently been introduced and mortgage securitisation is yet to find a place. The process offers an enormous scope for raising resources through the capital market and introducing a variety of instruments for investors.

Asset Backed Securitisation is a broader concept comprising different type of assets including mortgage loans, housing loans, automobile loans, credit card receivable, trade receivable lease receivables and industrial loans etc. Recently, even the unexpected type of assets like telephone receivables, movie receivables and remittances from overseas are becoming part of the ABS markets.

Securities backed by financial assets other than residential mortgages were introduced in 1985 with the sale of computer lease backed notes in USA by Sperry Lease Financial Corporation. Later in the same year, securities backed by automobile installment sales contracts were introduced with the sale of undivided interests in a pool of newly originated installment sales agreements on new automobiles and light trucks by a special purpose trust set up by General Motors Acceptance Corporation (GMAC). That issue involved a straight pass through of principal and interest and was supported by a limited guarantee provided by GMAC. In October 1986, First Boston Corporation created the first CMO like issue of automobile loans-backed
securities, which had the sequential pay structure of the early CMOs and was supported by a limited guarantee from GMAC, a letter of credit from Credit Suisse, and the equity of the special purpose issuer so as to insulate investors from default risk. The first credit card receivable-backed securities were issued in 1987. The development of the structures for other asset-backed securities has generally followed a pattern very similar to the development of the mortgages backed securities market.

Since mid-1989 to end-June 1997, approximately $240,000 million of non-mortgage asset-backed securities were outstanding in US market. The size of MBS outstanding was of the order of over US $2,550,000 million at end-June 1997. Most of the mortgage assets that have been securitised have homogeneous characteristics, including similar terms, structures and credit enhancements. In view of the commonness of features, it becomes easy to predict future payments and analyse credit as well as pre-payment risks. On the contrary, other type of assets lack homogeneity necessary for credit risk analysis and therefore are just beginning to be securitised.

The first securitisation of assets outside the United States occurred in the United Kingdom in 1985. It developed slowly in the United Kingdom because of differences between the US and UK markets. The regulatory environments in these markets have been markedly different. Also, most residential mortgages in the UK have floating rate structures and some other features that required modifications to the securitisation techniques which had been in use previously in the United States. A market for sterling floating rate mortgage-backed securities gradually developed in United Kingdom. The first sterling CMO appeared in 1989, six years after CMOs first appeared in the United States. Mortgage-backed securities markets also developed in Canada and Australia during the latter half of the 1980s.

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1 John D Finnerty, Sources of Value added from Structuring ABS to reduce risk or reallocate risk (Ed The Global Asset Backed Securities Market by Stone, Zissue and Lenderman 1993)
While commercial mortgages, export-import bank loans, and leases have been securitised in the UK, automobile loans and credit card receivables have not been brought into this ambit to any meaningful degree. Both markets are very small relative to the UK mortgage market, making economies of scale in securities issuance difficult to achieve. UK stamp duty and UK consumer credit laws are also inhibiting automobile loan securitisation. Lack of homogeneity in financial lending methods and UK title law, which is not conducive to transferring and bundling assets, are inhibiting the securitisation of credit card receivables as well as automobile loans.

The Asset Backed Securitisation generally deals with assets and the receivables with a life tenor ranging between short and medium term, whereas mortgage backed securities are structured with life span of medium to long term period. Another striking feature of the twin securities is that whereas the value of assets in ABS, generally though not necessary, depreciates, the value of mortgages (real estate properties) most of the times appreciates with some exceptions.

Though the mortgage backed securities came into existence much ahead of the Asset backed securities, yet the former (MBS) is considered as a sub-class of broader Asset Backed Securities. The present study mainly concentrates on the Mortgaged-Backed Securitisation-its economic rationale, associated problems and alternate structures.

2.2 REVIEW OF LITERATURE:

The origin of modern MBS, as stated in the foregoing chapter, dates back to 1930s during post depression period with legislation establishing the federal housing related agencies such as Federal Housing Administration (FHA) in 1934 and Fannie Mae in 1938. Fannie Mae's first purchases of Veterans Administration (VA) mortgages in 1948, which provided veterans with means of financing homes, marked the beginning of secondary market. The re-emergence of private mortgage insurance in 1957 laid the foundation necessary for the growth of institutional secondary mortgage market. In 1968,
congressional legislation spun off Fannie Mae as a Government chartered private corporation and the Government National Mortgage Association (GNMA or Ginnie Mae) was created. With the introduction of the Ginnie Mae security in 1970, the residential mortgage market was opened to a broad range of investors in USA, enabling the secondary mortgage market to flourish into a multi-billion dollar industry. At present, the mortgage banking community in USA includes saving institutions, commercial banks, other lenders and independent mortgage bankers.

In USA as the mortgage banking business has progressed well and reached at an advanced stage, evolution of new institutions, concepts, methodologies, procedures and regulations have also taken place alongside. Sufficient literary material on many of these aspects relating to MBS, written by foreign authors is available. An attempt is being made to make a review of such important reference material.

2.2.1 Review of Indian Literature:

In Indian context, a concrete work on the subject of Mortgaged Backed Securitisation and Secondary Mortgage Market is yet not available. In the past couple of years, in financial magazines/newspapers, a few articles have appeared, wherein attempts have been made to touch upon some basic aspects of Securitisation and the associated problems. Policy documents of the Government and other concerned institutions have emphasised on the need for introduction of Mortgage Backed Securitisation and Secondary Mortgage Market in the country. The process is yet to begin. A review of literature available on the subject is attempted below.
2.2.1.1 **National Housing Policy Statements:**

First draft of National Housing Policy⁴ (1988) brought out by the Government of India stated that the housing finance system needs to have an elastic and wide-spread resource mobilisation strategy that covers the ultimate source of savings in the economy, namely, the household sector. Innovative savings and mortgage instruments were proposed be developed for this purpose. The Policy statements (1988) also included the proposal to set up a National Housing Bank at apex level to, inter alia, identify legal, fiscal institutional and other constraints to the development of housing finance system and recommend measures to remove them.

Second draft Housing Policy¹ (1990) of the GOI, in order to improve access to housing finance and mobilisation of resources for the sector, emphasised on the need for creation of Secondary Mortgage Market (SMM) and introduction of Mortgage Insurance. As per the said draft policy, idea of creating a SMM was to attract funds from broader range of investors and to integrate housing finance with the finance market. Main functions of the SMM, as outlined in the Policy, were to enable holders of functioning instruments i.e. Mortgage or Mortgage-Backed Securities (MBS) to obtain cash for them by passing them to other holders, liquidity into instruments and eventually capital into the market. The draft Policy suggested action on the five crucial areas for introduction of secondary market for MBS, viz. (i) quality of assets; (ii) assessment of market potential; (iii) instrument design and pricing; (iv) secondary institution; (v) operational details. The Policy suggested that major investors like Life Insurance Corporation, Unit Trust of India, General Insurance Corporation, Provident Fund etc. may be advised to participate in the Scheme. The SMM could be promoted simultaneously with the existing schemes of National Housing Bank (NHB) for the mobilisation of resources.

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¹ Government of India, Ministry of Urban Development, New Delhi, Draft Housing Policy, May, 1990
With regard to Mortgage Insurance, the draft Policy enunciated that in order to promote larger finance for housing activity in the country, it would be necessary to provide an insurance cover to the lender against non-repayment by the borrower through a suitable Mortgage Insurance Scheme under the appropriate enabling legislation. It was further stated that this would be accompanied by suitable legislative provision for a speedy foreclosure system to enable realisation of defaulted dues by housing finance institutions.

2.2.1.2 National Housing Policy*

After necessary revisions in the draft housing policy statements and including the views of state governments, final draft NHP was placed before the Parliament in July 1992 and the same was adopted in August 1994. While envisaging the increased requirement of funds for housing, Policy reiterated the need to introduce a secondary mortgage system in order to attract funds from a wide range of investors, including insurance and provident funds and also to integrate housing finance with the overall financial system. The NHP also recommended NHB and HUDCO to set up Mutual Funds for Housing, apart from their access to external aid. The Policy further stressed that in the interest of long term development of the Mortgage Market and assured resources for the Housing Finance System, increasing proportion of resources of insurance sector, Unit Trust, Commercial banks be channeled into housing with lending rates reflecting the average yield on these resources.

From the NHP text, it is derived that the Policy appreciated an urgent need for creation of Secondary Mortgage Market and introduction of innovative instruments for raising additional resources for the housing sector.

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*Government of India, Ministry of Urban Development, New Delhi; National Housing Policy; May 1992*
2.2.1.3 Report of the Working Group on Finance for Housing Sector for Eighth Five Year Plan (1992-97)\(^7\)

The Working Group on Finance for Housing Sector for the Eighth Plan (1992-97) in its Report brought out in June 1992, emphasised on the need for securitisation of mortgages. In order to tackle the housing shortage in the country, the Working Group estimated a fund requirement of Rs. 975 billion during the Plan period, of which an amount of Rs. 250 billion was expected to be contributed by the formal sector institutions. For mobilising such huge amount of resources, there was a need to have innovative techniques. The Working Group estimated that of the projected formal sector’s share of Rs. 250 billion, the process of securitisation of mortgages should contribute Rs. 20 billion during the Plan period. These estimate were based on the assumption that the legal and organisational bottlenecks would be taken care of by end 1993. Table 2.1, shows projected flow of credit to the Housing Sector during Eighth Five Year Plan (1992-97).

Table No. 2.1: Projected Flow of credit to the Housing Sector during Eighth Plan (1992-97)

<table>
<thead>
<tr>
<th>Institution/Organisation</th>
<th>Flow of Funds (Rs. in billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Insurance Corporation</td>
<td>55</td>
</tr>
<tr>
<td>General Insurance Corporation</td>
<td>7</td>
</tr>
<tr>
<td>Scheduled Banks</td>
<td>50</td>
</tr>
<tr>
<td>Provident/Pension Funds</td>
<td>54</td>
</tr>
<tr>
<td>Housing Finance Companies</td>
<td>50</td>
</tr>
<tr>
<td>Securitisation of Mortgages</td>
<td>20</td>
</tr>
<tr>
<td>Others include. HLA &amp; UTI</td>
<td>14</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>250</strong></td>
</tr>
</tbody>
</table>

The Group stressed that for effective functioning of secondary mortgage market, it was necessary that instruments to be traded in the market possess

\(^7\) GOI, Planning Commission; Report of the Working Group on Finance for Housing Sector for Eighth Plan (1992-97); June 1992
marketability, irrespective of the sources of origination. For that, standardisation of documents and the presence of participants/institutions having expertise in the area was necessary. The Group observed that despite the existence of reasonably developed financial system, secondary mortgage market has not taken off due to a number of constraints. These constraints related to rationalisation of stamp duty, absence of mortgage insurance, non-existence of foreclosure laws. The Group recommended that an early removal of these bottlenecks would go a long way in making available large funds for the shelter finance system. The group also recommended that the Central Government as well as State governments may consider remission of stamp duty on securitisation. The Report further suggested that in the interest of cost efficient financial system at the initial stages, securities should be placed on “private placement basis” to be followed by its extension to the public.


The Working Group on Urban Housing for the Ninth Five Year Plan, while reviewing institutional flow of funds during Eighth Plan, observed that as against the expected contribution of Rs. 20 billion through securitisation of mortgages, no funds could be mobilised during this period. Reiterating the need for an early introduction of mortgage securitisation, the Group recommended removal of major constraints coming in the way. The Group observed that there was need of reduction in stamp duty and its uniformity across the States. There was also need for amending statutes to provide for foreclosure of mortgages in the event of defaults. It was further recommended that fiscal incentives would facilitate mobilisation of savings in the MBS Market. Regulatory measures included modifications in the provision governing investment pattern of institutions like Provident Funds and Insurance Funds. The need for developing standard accounting guidelines

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for uniform approach, trading and custodial matters have also been brought forth. The Report emphasised the role of NHB as a facilitator, catalyst and guarantor in the whole exercise of securitisation.

The Working Group projected a resource need of Rs. 1500 billion to cover backlog of housing during Ninth Plan period. Twenty-five percent of this amount i.e. Rs. 380 billion was expected to be mobilised through formal sector organisations. The projected flow of funds, as estimated by the Group, is furnished at Table No. 2.2.

Table No. 2.2 : Projected flow of funds from formal sector during Ninth Five Year Plan period (1997-2002) for housing

<table>
<thead>
<tr>
<th>Institution</th>
<th>Flow of Funds (Rs. billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I (i) Plan and non plan outlays of Central Govemment</td>
<td>60</td>
</tr>
<tr>
<td>(ii) Plan and non-plan outlays of State Governments</td>
<td>60</td>
</tr>
<tr>
<td>II Employers - House Building Contribution</td>
<td>20</td>
</tr>
<tr>
<td>III Formal Sector Institutions</td>
<td>380</td>
</tr>
<tr>
<td>Life Insurance Corporation of India</td>
<td>45</td>
</tr>
<tr>
<td>General Insurance Corporation of India</td>
<td>10</td>
</tr>
<tr>
<td>Scheduled Commercial Banks</td>
<td>55</td>
</tr>
<tr>
<td>Employees Provident Funds</td>
<td>50</td>
</tr>
<tr>
<td>Housing Finance Companies</td>
<td>95</td>
</tr>
<tr>
<td>Housing &amp; Urban Dev. Corporation</td>
<td>25</td>
</tr>
<tr>
<td>National Housing Bank</td>
<td>30</td>
</tr>
<tr>
<td>Securitisation of Mortgages</td>
<td>25</td>
</tr>
<tr>
<td>Co-operatives</td>
<td>30</td>
</tr>
<tr>
<td>Others (Unit Trust of India etc.)</td>
<td>15</td>
</tr>
<tr>
<td>TOTAL</td>
<td>520</td>
</tr>
</tbody>
</table>

While the Group noted that as against the target amount Rs. 20 billion to be raised in Eighth Plan period through securitisation, no amount could be mobilised, however, it again projected a fund flow of Rs. 25 billion during the Ninth Plan period (1997-2002) by way of securitisation of mortgages for housing through formal sector.
It is observed from the reports of the Working Group on Housing Finance for Eighth and Ninth Five Year Plans that although no funds have been raised by way of securitisation in 8th Five Year Plan, yet the Group recommended for an early introduction of Mortgage Backed Securitisation and development of the Secondary Mortgage Market. Both the Groups uniformly suggested that the Government/Appropriate authorities to look into the removal of bottlenecks in the process of an early introduction of the innovative instruments in the financial markets.

2.2.1.6 Report on Trend and Progress of Housing in India (1994)

The Report, while discussing prospects of housing in India, has referred to channelising of funds into the housing sector through the introduction of MBS and developing sound Secondary Mortgage Market. The Report has highlighted a number of legal fiscal, accounting and regulatory constraints. It has been stressed that an early solution to these problems would not only enhance the credibility and efficacy of the instruments but lower the transaction costs and boost volume of operations. A new set of guidelines modifying investment pattern of institutional investors shall ensure the market to acquire desired maturity and depth. Role of implicit Government guarantee backing the papers issued in India, on the lines of Federal Government Guarantee to the instruments issued by the Fannie Mae in US has been suggested.


The Study Group appointed under the auspices of National Housing Bank and U.S. Agency for International Development (USAID), in its report, has highlighted the need for generating additional resources for meeting back-log in the housing stock. As per the Report, the formal financial system is limited

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9 National Housing Bank; Report on Trend and Progress of Housing in India-June 1994
10 National Housing Bank; Report of the Group to study the Secondary Mortgage Market and Securitisation in India-May 1995
in its reach and access leaving a vast majority uncatered and out of its hold. The system needs enormous gearing up. The Group has recognised the factors which continue to restrict the flow of capital into the housing sector. The Report has highlighted that Securitisation is potentially most viable market oriented alternative. It is unfailing in its objective as is evident in other developed countries.

The Report has outlined the likely course of developments and a possible institutional route for the purpose of securitisation. The Group has identified several legal and operational issues for the launch of the securitised instruments. Among the legal issues, the Report stressed the rationalisation of stamp duty, registration charges and the need for easy foreclosure procedures for all-round confidence in the efficiency of the Housing Finance System. The Report recommended that institutional investors like LIC, Provident Funds, Pension Funds, may be encouraged to invest in the MBS instruments and their investment pattern may be suitably modified. The Report has further recommended for evolution of guidelines by the appropriate authorities for regulation of mortgage backed securitisation and the Secondary Mortgage Market. It is recommended in the Report that Government may take necessary steps to remove the constraints and NHB to act as an intermediary between the borrowers, lenders and the National programmes for the housing. An issue of Pilot nature has been recommended for an early launch to test the waters.

Report of the Group brought out in May 1995 serves as a document outlining the need for developing a Secondary Mortgage Market in the country. It is learnt that NHB, the apex Bank in the Housing Sector, has initiated follow up steps on the recommendations and is likely to come out with a Pilot Issue as recommended by the Group.

In order to have a smooth float of the securitised issue, there is a need for having necessary operational guidelines and business logic in place. In order to compress time cycle, reduce resource expenditure and paper work, an
extremely efficient utility processes and systems with highly skilled work force shall have to be in place. The transaction processing capacity has to be competitively advantageous, leveragable and taking care of the customer service and operational risk to a business acceptable level. From the experience of Fannie Mae, Freddie Mac and Ginnie Mac in USA, it is observed that securitised paper of the order of US $ 5 trillion has been issued. The key to success behind such issuances is the use of modern technology like Mornet, Tape to Tape Transfer of mortgages, their processing through the computer network and availability of structured instruments to the investment bankers through networking. The lights out MBS processing involves:

- Seamless MORNET to pool production System
- Automated distribution of pool/work assignment
- Automated pool closing process
- Electronic pool file folder

The researcher, during the course of visit to various MBS related renowned institutions in USA, observed that the Securitisation process with MORNET Network, at Fannie Mae, passes through the following stages:

a) Customer inputs loan and pool information into MORNET Poolsub (fannie Mae pool submission software)

b) Mortgage data is transmitted

c) Custodian receives MORNET transmission

d) Fannie Mae Operations receive MORNET transmission and edit loan and pool information

e) Custodian validates loan documents against electronic data and transmits electronic certification to Fannie Mae

f) Customer representative processes, resolves discrepancies, and closes pool.
   Pool and Cusip data are transmitted to Federal Reserve Bank

g) Fed wires Mortgage-Backed Securities to Investors

Fannie Mae edits loan and pool data against (i) Contract parameters, (ii) Pricing parameters & (iii) Selling/Servicing guidelines. With the help of data capturing through MORNET Poolsub, the Pool processing turnaround is 6
days for Standard MBS and 4 days for Flash MBS. For successful launch of securitised papers in India, it is necessary to have perfect technology driven infrastructure at place, complete interface and coordination with the originators as well as investors.

2.2.1.8 The India Infrastructure Report (1996)

An Expert Group under the Chairmanship of Dr. Rakesh Mohan, Director General, National Council of Applied Economic Research (NCEAR) (formerly Economic Advisor to the Govt. of India), in its report on the Commercialisation of Infrastructure Projects, has emphasised the need for securitisation of assets. The Report has stated that as a financial mechanism, the securitisation can enable financial intermediary to overcome asset liability mismatch. While borrower could get access to funds with "elongated" maturities, lenders are able to convert assets into cash to meet repayment obligations. The Group has assessed the total resource requirements for infrastructure as well as non-infrastructure sectors in the country upto 2005-06. Some of the projected figures from the Report are given at Table 2.3.

Table No. 2.3: Resource Requirements for infrastructure and non-infrastructure

<table>
<thead>
<tr>
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<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Gross domestic Investment/Gross Capital formation</td>
<td>1449</td>
<td>2826</td>
<td>4512</td>
<td>7178</td>
</tr>
<tr>
<td>Total investment in Infrastructure @</td>
<td>287</td>
<td>598</td>
<td>1075</td>
<td>1823</td>
</tr>
<tr>
<td>Gross domestic Investment/Capital Formation in non-Infrastructure @</td>
<td>562</td>
<td>1467</td>
<td>2517</td>
<td>4216</td>
</tr>
</tbody>
</table>

@ Includes both private and public sector

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11 Dr Rakesh Mohan (Chairman, Expert Group on the Commercialisation of Infrastructure Projects) Director General, NCEAR; The India Infrastructure Report -Policy Imperative for Growth and Welfare, June 1996
As is evident from the data, there is a requirement for huge amount of funds, of the order of Rs. 4000-4500 billion in the next five years, for meeting infrastructure needs of the country. So far, budgetary allocation has been the principal source of financing capacity additions in infrastructure. However, with the increasing gap between the demand and supply of infrastructure facilities in India and the budgetary resources to support capacity additions becoming scarce, the funding has to be through alternate sources. With major chunk (about 85 percent) of the requirements being expected to be financed by domestic savings, the balance has to come through innovative approaches to financing. The Report has recommended various measures to raise funds through avenues like Equity Funding, assistance from Insurance and Provident Funds, Pension Funds, tapping of foreign sources of funds, bringing out the institutional innovations for activating debt markets, introduction of municipal bonds and the securitisation of assets in the country.

The Group reported that asset securitisation had not emerged as a viable technique of financing in India. There have been some securitisation deals but the volume is quite small when compared with the turnover overseas. The Report further identified various areas where constraints were required to be removed so that securitisation could serve as a catalyst for faster economic growth. The Group has observed that, as a matter of fact, this vehicle of financing should prove to be more promising and viable for funding operations for the infrastructure projects down the line. In view of the complexities and the risks involved in the process, the Report has appreciated the need for various credit enhancement including issue of Government guarantee. The Report has recommended that a new financial institution which is of higher credit quality than the existing bodies, should be set up to jump-start debt market.

The Group further felt that it is feasible to have such an institution with higher credit quality in order to enhance the credit quality of the lower quality instruments as well as institutions. Such Financial Institution would promote the competition in the debt market. Given the complexities inherent in the
infrastructure projects and the relatively high risks perceived in them, the Report stressed, the debt funding has to be through the sources beyond market borrowings. An Infrastructure Development Bank could be a possible institution to play this role on the lines of similar Development Institutions having been set up by the Government earlier.

In response to the recommendations of the Committee and with an objective to provide impetus, the Government decided to set up a specialised financial intermediary, i.e. Infrastructure Development Finance Company Limited (IDFC) under the Companies Act, 1956. IDFC was established on January 30, 1997 at Chennai and received its certificate for commencement of business effective February 13, 1997.

The authorised capital base of IDFC totaling to Rs. 50 billion comprises of Rs. 40 billion equity capital and unclassified shares aggregating Rs. 10 billion. The broad structure of shareholding consists of (i) Government of India and the Reserve Bank of India, (ii) Domestic Institutional Investors, including FIs and, (iii) overseas institutional investors and multilateral agencies. As at end-March, 1998 the Corporation has raised an amount of Rs. 16.50 billions by way of equity of Rs. 10 billion and subordinated debt of Rs. 6.5 billion from Government of India (Rs. 3.0 billion) and the Reserve Bank of India (Rs. 3.5 billion). As on date, the Government of India and the Reserve Bank of India are largest equity holders with initial subscription of Rs. 2.0 billion and Rs. 1.5 billion respectively, in addition to the contribution of Rs. 2.5 billion from six domestic financial institutions (ICICI, SBI, IDBI, HDFC, UTI and IFCI) and Rs. 4.0 billion from nine overseas financial institutions/investment bankers.

The focus of IDFC is to develop expertise in infrastructure financing of five core sectors: power, telecom, ports, roads and urban infrastructure. In order to attain the stipulated objectives, IDFC’s activities center around (i) augment the availability of debt and equity funds for infrastructure projects through

[12 Source: Business Standard April 3, 1998]
provision of financial products, (ii) play a proactive, policy-oriented role by interacting with the government, sponsors and other agencies involved in infrastructure development, (iii) broaden the spectrum for mobilising infrastructure finance by tapping both domestic and overseas funds, (iv) act as a source of incremental finance for financial entities involved in infrastructure financing through various mechanism viz. co-financing, financial guarantees.

2.2.1.9 Other reports/papers

Raymond 13 (1990) in the paper prepared for US Agency for International Development, has studied various alternatives of resource raising for housing finance in India and the risks associated with each alternative.

The study has opined that the housing finance system has to look to broader financial markets for sources of funds and there are two major options viz. (i) each institution to try to tap into the financial markets independently using bonds or equity routes; and (ii) to follow collective approach under which one or more secondary institution(s) access financial markets on behalf of a number of institutions.

Among the Housing Finance companies, Housing Development and Finance Corporation (HDFC) has successfully tapped the broader markets by selling both bonds and equity. Housing Urban Development Corporation (HUDCO), being the Government owned body, sells bonds only. The Study Paper has observed that no institution had sold mortgaged-backed securities in the Indian financial market. The bond sales of HDFC and HUDCO are either unsecured or supported by their total assets.

National Housing Bank (NHB), being an apex level housing finance institution is better placed to tap the broader financial markets for the sector and lend
the same to the originating institutions (HFCs, Banks and Cooperatives). But the oblique feature of its refinancing on "Negative Lien" delimits scope for smooth creation of a secondary market based on its tangible assets, as it is not possible to sell Bonds or Pass Through Certificates (PTCs) based explicitly on pool of mortgages unless policy change from "Negative Lien" to "Creation of Charge" is effected. Any bonds sale by the apex Bank, if secured, will have support of its general assets and not the pool of mortgages.

It is felt that although the above feature of "Negative Lien" may restrict the scope of issuing instruments based on its Portfolio, yet the Bank is a natural institution to act as a Secondary Market facility. The Act establishing NHB provides it many of essential powers to function in this capacity, not only as an issuer but also to act as trustee for the investors in terms of section 17 and section 18 of the National Housing Bank Act, 1989.

P.S. Jayakumar and Rahul Yadav in their paper presented at a Workshop on Securitisation of Mortgages in February, 1994 have suggested possible legal structure of the instrument. Because of the non-availability of securitised paper and the novelty of instrument, investors experience in India was quite limited. The paper called for development of behavioural model to measure the effective duration of MBS instrument in Indian environment and the need for research on management of interest rate and liquidity risk.

G. Sreerama Murthy in his article "Mortgage Securitisation -Some Issues and Problems" (1993) has illustrated the process of securitisation as an innovative technique to generate funds. The article indicates possible methods of securitisation by assignment of the loan and relative security as also by transfer of beneficial interest in respect of loans. Each method has

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14 P S Jayakumar & Rahul Yadav, A Practitioner's View of Mortgage Securitisation, February 1994
15 G Sreerama Murthy (ex-Legal Advisor, IDBI); Mortgage Securitisation-some issues-Problems involved, The Eco Times Oct 21, 1993
got relative pros and cons. Securitisation of mortgages vis-a-vis fiscal implications thereof have been highlighted in the paper.

In another paper, "Mortgage Securitisation: Some Legal, Accounting and Tax-Related Issues" 16 (1994) prepared for Indo-USAID Housing Finance Expansion Program, Murthy, Esq. has suggested possible methods of securitisation and the main issues connected therewith. The paper stresses that in India there is urgent need to evolve a proper legal framework which would provide for simpler procedure involving payment of nominal stamp duty for transfer/assignment of mortgage loans. Changes in present tax laws may also remove the impediments in the development and growth of the new concept. Government sponsored agencies in India on the lines of Ginnie Mae or Fannie Mae in USA to provide credit enhancement to the transactions may make the instruments attractive.

R.V. Verma, in the article "Looking Westward"17 (1994), has brought out the main features and benefits of securitisation. The paper stresses that debt securitisation is a sure-fire way out of the cash crunch in housing finance and a viable instrument. In the Indian context, it is stated that secondary mortgage market could be akin to the growth of bills market and the success of the scheme would largely be determined by the solution of constraints-institutional or otherwise-of the financial environment. Effective intervention would be needed from agency (ies) undertaking to promote the culture of such debt instruments. In the on-going process of liberalisation and the economic reforms, mortgage securitisation market with an objective of making large-scale resources available to the housing sector, would be a well-timed exercise.

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16 G. Sreemana Murthy, Esq, MD, Investor Services of India Ltd; Mortgage Securitisation: Some Legal, Accounting and Tax-Related Issues, February 1994
17 R.V.Verma, (General Manager, National Housing Bank); Looking Westward, The Economic Times: January 30, 1994
Indrani Dattagupta in the paper "Stamp duty reduction-Not quite the right answer"¹⁸ (1994) has pointed out that the reduction in the stamp duty on asset securitisation is not the right answer to all the problems. It is the shedding of inhibitions by all related institutions that will help in triumph of securitisation.

Jayashree Bose, in an article titled "Mortgage Securitisation: The Missing block"¹⁹ (1995), has attempted to cover the modus operandi of MBS and factors luring such an exercise. A few options for securitisation have been discussed. The author says that though the development has generated optimism, there is no euphoria. The paper further quotes that in the absence of congenial climate, securitised debt market would automatically end up stymieing the MBS sector, even if the amendment to the foreclosure norms does kickstart it. The need for it is perhaps being felt acutely only by HFCs.

The observations given in the article, though to a large extent depict the real state of affairs, however, inspite of the insurmountable obstacles the beginning has to be made even within the existing set of framework.

S.D.Hosangadi in his paper "Asset Securitisation-still a mirage"²⁰ (1996) while highlighting the legal and tax hurdles states that despite its inherent advantages, securitisation still remained a distant dream. The paper suggests that as a preparatory step drawing up a blueprint for securitisation, the Government should constitute a high powered commission (on the lines of Banking Commission) or committee with members drawn from Government of India, Ministry of Finance, Ministry of Law, Central Board of Direct Taxes (CBDT), Reserve Bank of India (RBI), Securities and Exchange Board of India (SEBI), Industrial Development Bank of India (IDBI), National Housing Bank NHB) and major Housing Finance Companies (HFCs) and Financial Institutions (FIs) as also banks and credit rating agencies.

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¹⁸ Indrani Dattagupta, Stamp duty reduction-Not quite the right answer; The Economic Times April 21, 94
¹⁹ Jayashree Bose, Mortgage Securitisation. The Missing block, QMM, August-October 1995
²⁰ S D.Hosangadi; Asset Securitisation-Still a mirage: Economic Times January 19, 1996
In an article titled "Securitisation: A new profit area" (1996) the researcher has opined that so far banks, financial institutions and other asset originating agencies have kept themselves away from the securitisation exercise due to the non-availability right type of environment. However, in the emerging scenario, these institutions cannot afford ignoring new engineering of financial instruments. To develop an atmosphere conducive for the origin of secondary mortgage market and to convert such atmosphere into opportunities, there is need for removal of legal, fiscal, regulatory constraints and initiating steps like foreclosure laws, rationalisation of stamp duty structure and provision of sovereign guarantee to the initial few issuances for developing investors' confidence. To cover most of these issues, a comprehensive legislation and its execution by the authorities appears a possible panacea.

D. Thyagrajan in the paper "The asset of Securitisation" (1998) has critically examined the problems coming in the way of securitisation. The article highlights the role played by credit rating agencies in the context of asset securitisation in India. It is stated that in order to comply with the restriction imposed by the Reserve Bank of India on Non-Banking Financial Companies (NBFCs) for raising further deposit and even to make refund to the existing depositors, NBFCs were contemplating to resort to fund raising through their assets securitisation.

The move of asset securitisation by NBFC driven by either circumstantial compulsion or commercial purpose has to be treaded carefully by rating agencies as well as regulatory authorities. The alternate novel funding mechanism should prove self-sustaining and developmental in nature rather being a short-cut method of raising money and leaving investors in lurch at a nascent stage.

21 Securitisation: A new profit area; The Observer of business and Politics March 22, 1996
2.2.1.10 Project reports of Independent researchers/students:

Gautam Mukharya\(^2\) from FMS, Delhi University in his summer training project for completion of MBA (1996) has compiled historical events of the process of securitisation in United States and the attempts made in India with respect to assets securitisation. The report enlists constraints in the way of development of secondary mortgage market in the country.

Jaishankar in his project report (1997)\(^2\) for MBA under the guidance of Prof. V.K.Bhalla, FMS, University Delhi has attempted to examine the constraints coming in the process of mortgage-backed securitisation in India and suggested ways to overcome these.

2.2.2 Overseas Literature:

William W. Barlett in the book "Mortgage-Backed Securities-Products, Analysis, Trading" (1989)\(^2\) has covered the structural characteristics and cash-flow dynamics of the mortgage-backed securities. Barlett's work explores in depth the key concepts relating to prepayments phenomenon and option characteristics of mortgaged securities together with their related analytical techniques. The book provides matter from introductory level to more complex techniques of trading and portfolio valuation. The book covers various concepts of structuring options including form of instruments, negative convexity, call options, interest rate both fixed & variable, prepayment pattern embedded in the mortgage backed securitisation. Valuation techniques such as option-value-adjusted-spread, break even analysis and derivation of net effective margins are illustrated with their applications on investing and trading. A section of the book deals with specific trading techniques ranging from basic coupon swaps, dollar spread trades and dollar rolls to the more rigorous techniques of risk controlled and arbitrage transactions. The book

\(^{23}\) Gautam Mukharya, Debt Securitisation-Issues & Implications, FMS, DU, July 1996
\(^{24}\) P.R. Jaishankar, Securitisation of Mortgages, FMS, Delhi University, March 1997
covers the aspects of prepayment analysis, threshold for refinancing and differentiating the prepayments sensitivity of new versus seasoned loans and the impact of pool age (seasoning) on prepayment patterns.

The pricing techniques, risk/reward measurement and the impact of prepayment on price and yield have been analysed. Alternate structure forms e.g. Adjustable-Rate Mortgage Securities (ARMS), Multi-family MBS, Collateralised Mortgage Obligation (CMO) variation on MBS structure and the Stripped Mortgaged-Backed Securities (SMBSs) with Interest only (IOs) and Principal only (POs) elements have been discussed. The investment risk considerations of strips and residuals are discussed and their application to a number of hedging techniques explored.

Zoe Shaw's edited book "International Securitisation - The Scope, Development and Future Outlook for Asset Backed Finance" (1991) is a collection of around 30 articles contributed by various authors on the subject. The book covers developments on securitisation in various countries outside United States. A number of articles concentrate on developments on Asset Backed Securitisation as well as Securitisation of Real Estate in United Kingdom. Aspects relating to the issuers' perspective, building societies perspective, and the background of United Kingdom Commercial Property Lending have been covered. Besides the status of ABS/MBS in United Kingdom, the book covers the position of Securitisation in financial markets of European and other countries like France, Italy, Australia, Newzeland, Belgium, Switzerland, Austria, Denmark and Sweden. The role of mono-line financial guarantors and other techniques of credit enhancement and aspects relating to the rating have been elaborated in the work.

The book gives an idea on the progress of securitisation in these countries and the obstructions coming in their way. The study provides an insight and a useful guide for taking up similar exercise in the developing financial markets.

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Frank J. Fabozzi’s edited collection “The Handbook of Mortgage-Backed Securitisation”27 (3rd ed. 1992), contains contributions by over 50 authors and gives introduction to various mortgage products, structuring options and the portfolio strategies including hedging and creation of synthetic mostly in US market. Various types of pass-through securities such as agency pass-throughs, private label pass throughs and multi-family project securities, as well as adjustable rate mortgages and adjustable rate pass throughs have been explained in the book. Forecasting of pre-payment, for both fixed rate and adjustable-rate pass throughs, is also elaborated.

The Handbook also covers wide range of CMO products, including Planned Amortisation Classes (PACs), Targetted Amortisation Classes (TACs), accrual (Z) bonds, floaters, inverse floaters, POs, IOs, residuals and various types of stripped mortgage-backed securities. Issues like valuations techniques, portfolio strategies and hedging etc. are reviewed in the edited version. Important features of various securities is the context of US system have been highlighted. Different valuation techniques and the federal income tax considerations have been included in the work. The book provides a guiding note for professional money managers.

Frank J. Fabozzi and Franco Modigliani in their book “Mortgage and Mortgage Backed Securities Markets”28 (1992) have covered various developments of the Secondary Mortgage Market in United States. The work includes various types of instruments in vogue in United States financial market. The mortgage origination process and risks associated therewith are covered. The drawbacks of the mortgages are highlighted in terms of the mismatch problem and tilt problem which have led to the creation of variable mortgage designs. The book illustrates some of these models in securitisation which provide solutions to inflation problem. Some aspects relating to pass-through, their

investment characteristics and prepayments have been covered. Ideas on technologies to value mortgage backed securities have been provided in the book. The work is helpful in structuring of the instruments with various pricing options.

Jess Lederman’s edited book “The Handbook of Mortgage Banking-Trends, Opportunities & Strategies”29 (1993) gives an overview of the mortgage banking industry and analyses the experiences of late 1980s and early 1990s in United States of America. Compiled work deals with the broad perspective of strategic, legal and economic dynamics of the mortgage banking industry. The technique of secondary marketing and hedging interest rate risk, including description of Fannie Mae and Freddie Mac’s programmes have been discussed. The work has drawn conclusions that mortgage bankers can use the technique of MBS more successfully in the years ahead. The book has covered traditional and innovative origination strategies as well as issues in production management and automation. Several other aspects relating to the process viz. mortgage loan servicing, cover cost factors, purchase and sale, warehousing and underwriting etc. have been covered. With advent of new technologies, the authors see number of benefits to early entrants in the field.

Charle Stone, Anne Zissu and Jess Lederman in their edited work “The Global Asset Backed Securities Market- Structuring, Managing and Allocating Risk”30 (1993), have included articles from various authors on the subject of Asset Securitisation. The book mainly embodies issues pertaining to techniques of structured finance, risks in such transactions and the management thereof. The Securitisation of Credit Cards Receivables have been covered in the article by Gregory C. Raab, Neil Baron and Deborah W. Madden.

Aspects of Mortgage Backed Securities and the developments in United Kingdom, Canada and Australian markets have been provided in the work. The role of Mortgage Insurance in reducing the credit risk has been highlighted. Some of the accounting issues, Multi-currency Securitisation and Currency Hedging Programmes have been discussed. The book facilitates an understanding the aspects of securitisation of Assets and other mortgages.

Daniel R. Amerman in the book "Mortgage Securities - The Low Risk Alternative to Stocks" (1993), details various investment techniques when the interest rates are low. The author has attempted to show how high yield, monthly pay characteristics of MBS can survive inflation, taxes and safely help in building wealth over time. Various features of prepayments, relationship between prices, yield and prepayments have been dealt with in the book. The work analyses different types of risks associated with MBS and making investment in such instruments for minimising the risks and maximising yield thereon.

Helena Morrissey in the edited work "International Securitization" (1994) has explored the issues relevant to securitisation on a global basis such as legal and accounting and includes the perspectives of various parties involved in the process of securitisation. The book has dealt with wide range of other countries' status on secondary mortgage market covering both the characteristics of primary lending markets and framework & incentives for the asset backed securitisation. The work is an effort to provide cohesion to the debates taking place between diverse groups of professionals and in different countries. The book covers country profile of 18 European/Asian countries, in addition to US, and the status of securitisation therein. Though the concepts discussed in the book are in the backdrop of asset backed securitisation, however, the fundamentals are applicable to mortgage securitisation as well.

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31 David R. Amerman; Mortgage Securities - The Low Risk Alternative to Stocks (Probus Publishing Co. 1990)  
Experiences of other countries, as enumerated in the work, are useful for evolving strategies for the developing countries.

Marshall W. Dennis and Michael J. Robertson in their book "Residential Mortgage Lending\textsuperscript{33} (1995) explain the fundamentals of Residential Mortgage Lending and also examine the similarities and differences those existing among mortgage lenders. The topics on Underwriting, and Mortgage Insurance have been covered. The published work covers details of MBS issuances of Fannie Mae, Ginnie Mae and Freddie Mac. A few case studies are included in the book which provide information on operational areas of securitisation exercise.

Paul W. Feeney, in the book "Securitisation-Redefining the Bank" (1995)\textsuperscript{34}, features impacts of securitisation on the banking system. A view on the futuristic financial system has been taken through the study of symbiotic relationship between banking and securities market. Macro and micro influences leading to the growth of securitisation have been examined. The author feels that securitisation, through the integration of financial product markets and the concurrent growing sophistication of participants, would force banks to acquire a whole new skill base.

The book presents generic view emphasising that securisation is a market based intermediation (of credit) as opposed to institutional intermediation. It states that securitisation at its truest level raises a finance (debt) through the issuance of securities in the capital and money markets. By this method, a borrower will raise funds directly from the market investors as opposed to seeking finance from the banking system in the form of a bank loan or overdraft. It is this type of securitisation which will ultimately breed disintermediation as the traditional role of banks as providers of loan capital is

\textsuperscript{33} Marshall W. Dennis and Michael J. Robertson; Residential Mortgage Lending (4\textsuperscript{th} Ed) (Prentice Hall 1995)
\textsuperscript{34} Paul W. Feeney, Sr VP, National Westminster, Bancorp, USA, Securitisation-Redefining the Bank, (St. Martin Press Inc., New York)
eroded. Examples of instruments in this category include commercial paper and bonds.

There are different interpretations for this model as regards its implications for the structure of financial system and the future role of banks within the given system. Some of the authors opine securitisation is merely one more step (albeit a quantum leap) in the development of the modern banking form.

In the Indian context, it is felt that whereas under asset backed mortgage securitisation, bankers are acting both as originators as well as investors, with respect to MBS floatations (which are yet to take place) ab initio, bankers are expected to be one of the institutional investors rather than being originators. Though at a later date, there is possibility of their securitising the assets from off the balance sheets, more particularly in the light of Narsimham Committee recommendations on higher Capital Adequacy Ratio (CAR) of 10 percent to be achieved by the year 2002.

Mortgage backed securitisation-A UK Perspective brought out by IFR Publishing Ltd. (1988) is a compilation of articles contributed by various authors like Zoe Shaw, Phillip Mos, Stephen Menman etc. The edited version mainly covers issues related to MBS in United Kingdom, securitisation relating to the assets of Building Societies and tax issues on mortgage repackaging. Practical aspects of developing securitised mortgage markets have been provided in the article by Kevin J Milnae. Moody's approach to rating UK MBS and how the mortgage finance can be supported by the specialist financing risk insurance broker are given in Stephen Wanmen's article. The edited work provides insight into the techniques of MBS in United Kingdom.

Frank J. Fabozzi and David P Jacob in their work "Hand Book of Commercial Mortgage Backed Securities"35 (1997), provide detailed information on the whole loan commercial mortgage market. The edited work provides details of

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35 Frank J. Fabozzi and David P Jacob; Hand Book of Commercial Mortgage Backed Securities (1997)
various types of commercial mortgage loans and the possible commercial mortgage backed securities transactions. On the passage of advancement in the securitised transactions Commercial Mortgage Backed Securitisation is finding acceptability amongst investors. Aspects relating to rating of the CMBS, risks associated therewith and providing requisite credit enhancement have been covered. The articles by David P Jacob and Galia Gichon cover high yielding varieties of CMBS and option approach as well as valuation of commercial mortgages. The presentation of various articles in the book on the extended form of mortgage backed securitisation provides additional information as well as area for further studies on the subject.

Research Papers by Foreign Authors/Mortgage Securities Research Journals:

John J. McConnell and Manoj Singh in their paper on Valuation and Analysis of CMOs\(^{36}\) (1993) have suggested a model for the valuation of Collateralised Mortgage Obligations. The model is based on a two factor model of the term structure of interest rates and embeds an empirically estimated mortgage prepayment function. The model is used to analyse various CMO tranches, including standard sequential pay fixed rate tranches, Planned Amortisation Class (PAC) tranches, Targeted Amortisation Class (TAC) tranches, Floating Rate Tranches, Interest Only (IO) and Principal Only (PO) tranches, Z bond and Residuals. The results of the analysis illustrate the sensitivity of various tranches to differences in CMO structure, changes in interest rates, characteristics of the underlying collateral, and mortgage prepayments.

In another paper\(^{37}\), the same duo has presented a procedure for evaluating CMO tranches (1994). The solution procedure is in the spirit of a dynamic programming problem in wherein individual mortgagor's decision to prepay is the feedback control variable. The authors employ a two-step procedure to solve this problem with the help of extensive sensitivity analysis. The results of the study point out the importance of accurate estimation of distribution of

\(^{36}\) John J. McConnell and Manoj Singh; "Valuation and Analysis of Collateralised Mortgage Obligations" Management Science/Vol. 39, No. 6, June 1993 p-692-709
refinancing costs when the rational valuation model is used for the analysis of CMO tranches.

Eva Marikova Leeds in the paper “The Development of Mortgage Market in Czech Republic”\textsuperscript{38} (1996) has furnished the status of house ownership, creation of building saving banks and mortgage banking in Czechoslovakia. The mortgage market in the Czech Republic is a developing market within a transitional economy. While appreciating the fact that an efficient mortgage market is vital for the private housing sector, the author adds that the emergence of mortgage market was hampered by basic disagreement between the government and the Central Bank about mortgage banking. The Czech Republic adopted universal banking, which the government viewed as a system in which banks would have diversified portfolio and government believed that all banks should be allowed to extend mortgage credit. The Central Bank wanted to follow the German model whereunder only mortgage banks with highly limited portfolio were to be allowed to issue MBS because it wished to create a safe secondary mortgage market. The German mortgage system is known for its safety, as no Mortgage Backed Bond has ever defaulted. The system is based on issue upto 30 year mortgages whose contract rate is adjusted when the bonds mature. The system thus precludes any interest-rate risk.

The German mortgage system relies on issues of “Mortgage-Backed Bonds (MBB)” for its supply of long-term funds, according to Dimond and Lea, and these bonds differ from general Mortgage-Backed Securities because i) they are backed by only low loan-to-value (LTV) ratio mortgages and thus need no insurance; ii) they represent obligations of the issuing bank and are carried on its balance sheet along with the originated mortgages; iii) they are backed by the whole mortgage portfolio, not just a special pool; and iv) as obligations of the issuing bank, they are accorded only 20% capital risk weight.

\textsuperscript{37} Rational Prepayments and the Valuation of CMOs, The journal of Finance Vol XLIX, No. 3, July 1994
\textsuperscript{38} Eva Marikova Leeds, “The Development of Mortgage Market in Czech Republic” (Housing Finance International Issue Vol X/No 3 p 11-19 March 1996) (brought out by Int Union for Housing Finance)
Finally, in Czechoslovakia, the mortgage market was developed along the lines of German and French systems, in a way that was consistent with its own procommunist pattern. The amendments enacted from time to time by the Government have increased the safety of both mortgages and mortgage-backed bonds and complete the legal structure for mortgage markets. Thus, it is felt that in any country support of the government as well as the central banking authority are crucial for developing mortgage markets.

In the Housing Finance International Journal (brought out by International Union for Housing Finance) vol. X/No. 4 (June 1996), a few article on prospective/existing secondary mortgage market facilities in various countries viz. Jordan, Trinidad & Tobago, Ghana, West Africa, Mexico, and in Central America have been presented by authors. While giving an overview of housing finance in Jordan, Douglas B. Diamond, indicates that the Government of Jordan, in cooperation with the World bank, the commercial banks and the Social Security Corporation (SSC), is in the process of setting up a Secondary Mortgage Facility (SMF). From Jordan's point of view, such an intermediary will be in a position to offer medium to long-term debt securities to the SSC, insurance companies and other long-term investors that currently have few long-term debt options. Based on these subscriptions, SMF would be in a position to make long-term loans to the banks in return for pledges of residential mortgages as collateral. The basic legal environment for such a facility already exists in Jordan.

Calder Hart, while elaborating status of home mortgages in Trinidad states that the Home Mortgage Bank of Trinidad and Tobago (HMBTT) is a secondary mortgage institution and has no direct interface with the public. It serves as a bank to the primary mortgage lenders. The primary lenders maintain interface with the public and continue to administer the mortgages. The HMBTT has issued $ 744.53 million in tax-free and non-tax free mortgage bonds which have been issued for short-medium and long-term periods. the introduction of the instrument has helped mortgagors, lenders,
shareholders and the investors. It has helped in meeting the public goals and objectives.

Michael J. Lea in the article "The Feasibility of a Regional Secondary Mortgage Facility in Central America" (June 1996) asserts that Secondary Mortgage Facility is more than desirable in Central America as it would help access to affordable mortgage credit. As a regional facility, the SMF could reduce risk through diversification and achieve economies of scale in debt issuance and that a facility operating in only one of the countries in the region could not accomplish. As a start-up company in an historically volatile region, the SMF would, to be viable, need guarantees on its initial debt issues. Provision of such guarantees by multilateral development agencies could be a promising way to develop the housing finance systems and housing markets of Central American countries. The critical variable, of course, in the whole exercise will be funding costs of the SMF (both debt and equity) and the management of foreign exchange risk.

Jacques Beaupre in the article "Public Mortgage Loan Insurance in Canada" (1996) has examined the public mortgage loan insurance system in Canada under the auspices of the National Housing Act (NHA). NHA mortgage loan insurance was established in 1954 by the Parliament of Canada to allow approved lenders to make mortgages with a lower minimum downpayment. Mortgage loan insurance compensates the approved lender for financial losses arising from borrower default, making mortgages with less owner equity as safe as those with more. Through default insurance, borrowers with down payments as low as 5 percent have access to mortgage financing at terms and conditions comparable to those with much higher equity. NHA mortgage loan insurance is administered by the Canada Mortgage and Housing Corporation (CMHC), a Crown Corporation established by the Government of Canada. In 1995, CMHC provided

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mortgage insurance for approximately 41 percent of all mortgages in Canada. Since its introduction over 40 years ago, public mortgage loan insurance has assisted nearly 3.1 million borrowers in the financing of some $120 million worth of real estate, in a nation of approximately 30 million people.

Mark Boleat in the article "The Mortgage Indemnity Insurance Market in the United Kingdom" (1996), while explaining the status of mortgage market in UK has highlighted that the mortgage indemnity insurance market is still in a state of considerable change. The major problems of early 1990s have now largely been resolved with lenders and insurers having reached an accommodation about outstanding claims. A new business is being developed based on much sounder underwriting criteria, where the risk is more reasonably shared between the borrower, the lender and the insurer. The market in UK is no longer the preserve of a single basic product offered by large composite insurers on the back of their household policies. Rather, there are variety of products by a number of insurers, including those traditionally in the market, and also Lloyd's underwriters and monoline American insurers.

The research papers discussed above deal with the obstructions coming in the way of securitisation in different countries and also the risks associated with such an exercise. The papers suggest various methods to overcome such risks and add to the credit of the instruments in order that build faith of the investors.

Robert Van Order, in his paper "Secondary Mortgage Markets in the United States: Their evolution and some Management Issues", provides summary evolution of Secondary Mortgage Market in United States and important issues like origination of mortgages, servicing, accepting the risk of default and funding thereof have also been covered. Various types of risks

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associated with the securitisation exercises have been discussed and the
author has shared operational experience of Freddie Mac dealing with such
issues. Case studies pertaining to multi-family lending have also been
covered in the article. The work further elaborates that proper management
of risk issues is the basis of successful launch of mortgage backed issuances,
both at Fannie Mae and Freddie Mac.

Gordon W. Crawford, in his paper "Credit Risk Research and Pricing at
Fannie Mae" (1997) highlights modus operandi for proper evaluation of the
risk factors and how with the ability to perform complex research, the
performance of these mortgages has been dramatically enhanced. Fannie
Mae, the United States’ largest source of residential mortgage funds as well
as largest corporation in terms of assets, manages a US $ 286 billion
mortgages portfolio and US $ 651 billion in Mortgage Backed Securities. To
properly evaluate the risk exposure, Fannie Mae uses internally developed
financial and economic models employing advanced econometric and
statistical techniques based on data describing over 20 million mortgages.
With the help of such advance methods and technology, the analysis that
before required several days or weeks can now be completed in hours or
minutes at Fannie Mae.

The above papers stress on the need for proper evaluation of risks in the
MBS and how the research can improve efficiency of the products and the
system.

2.3 NEED FOR THE PRESENT STUDY:

Housing being a basic human need. There has been lot of emphasis in
National Housing Policy statements and Five Year Plans of the Government
of India for increasing housing stock in the country. In view of acute capital
deficiency, providing housing for all is a formidable task. In the last few years,

43 Gordon W. Crawford, Director of Financial Research, Fannie Mae, "Credit Risk Research and Pricing at
Fannie Mae" July 1997
even though, there has been extraordinary change in the Indian housing finance system and expansion of mortgage loans, yet the housing shortage continues to grow at an increasing rate.

Estimated housing shortage in the country by the turn of the century is likely to be around 39.1 million units. As per the projections of the Working Group on Urban Housing for Ninth Five Year Plan, estimated housing shortage by 2001 is likely to be 19.4 million units. The Working Group has opined that in view of improving housing scenario, the backlog may be less than what has been estimated earlier. The Eighth Five Year Plan envisaged an outlay of Rs. 975 billion for construction/up-gradation of 21 million houses during the Plan period. The Plan also projected formal sector's contribution to the extent of Rs. 250 billion for funding such an order of investment. This requirement of funds has been estimated to further increase in the Ninth Five Year Plan period (1997-2002). The Working Group has placed financial requirement for housing during Ninth Plan period of the order of Rs. 1500 billion. The contribution from the formal sector institutions, worked out on the basis of economic reforms and liberalisation and consequential shift in the financing pattern of financial institutions, is projected at Rs. 380 billion. In addition, a flow of funds to the tune of Rs. 140 billion is expected from Central/ State Governments and various employers' house building contributions. In order to meet such huge requirement of funds, there are a few options available. Each option for raising resources has certain risks associated with it. In various documents of national importance, emphasis has been laid on devising innovative techniques/instruments for sourcing funds. It is in this back-drop and in the wake of progressive deregulation that it has become important to have a suitable mechanism to attract funds for the housing sector.

Moving a little beyond housing sector, the India Infrastructure Report, presented by an Expert Group on Commercialisation of Infrastructure Projects, has estimated a resource requirement of Rs. 1075 billion and Rs. 1823 billion by the end of 2000-01 and 2005-06 respectively. To mobilise
such huge quantum of funds, there is a need for suitable financial engineering and moving beyond the traditional sourcing methods.

Capital markets are fast emerging as the central pool of resources which the housing sector as well as infrastructure sector can be able to access. Securitisation offers a viable mechanism and enormous scope for expanding the asset/mortgage finance options. It is potentially viable market oriented alternative for mobilisation of resources which provides comforts against risks. Introduction of Mortgage Backed Securitisation and the creation of Secondary Mortgage Market have been among the important recommendations of various policy documents of the Government. National Housing Policy statements brought out by the Government of India from time to time and the Policy finally approved by the Parliament in August 1994, while envisaging the increased requirement of funds for housing, reiterated that steps be taken to introduce a secondary mortgage system. The Policy asserted that the secondary mortgage market would help attracting funds from a wide range of investors and also integrate housing finance system with the overall financial system. During the Eighth Five Year Plan, an amount of Rs. 20 billion was estimated to be raised through the securitisation of mortgages. A target to generate an amount equivalent to Rs. 25 billion during Ninth Plan has been recommended. In the light of relevance attached to securitisation, it becomes important that suitable mechanisms are devised to tackle to the larger pool of resources for raising funds for the housing sector and its integration with the overall financial sector. In order to convert the environment into opportunities, there is a need for removal of various constraints, designing of appropriate/investors' friendly instruments, applying credit enhancement options and providing secondary market for such instruments.

Substantial research work has been done overseas, particularly in the United States and United Kingdom, on various aspects relating to Mortgage Backed Securitisation. In India, a concrete work on the subject requires to be attempted. In financial magazines/newspapers, some reports/articles have appeared, wherein efforts have been made to touch upon some of the basic
finance market, requirement of funds and various options to raise the required fund. MBS being a novel instrument shall need appropriate designing, pricing and application of credit enhancement options. Some of the options for structuring instruments and application of Credit Enhancement techniques are attempted in the study. Providing liquidity to the investors in the secondary market is important aspect. Some of the possible alternatives to this effect are also taken up.

An effort has been made to estimate availability of mortgages for securitisation and the likely generation of funds through the process within the given limitation. Also an attempt is being made to consider exploring the possibility of issuance of Commercial Mortgaged-Backed Securities, once the process of MBS takes off. The Concluding part covers some suggestions/recommendations for smooth introduction/development of the Mortgaged-Backed Securitisation and Secondary Mortgage Market. It may be worthwhile taking actions/initiatives on these steps by the appropriate authorities/agencies to accelerate the process of securitisation in the country. Once the flexible technique of raising resources through MBS gains maturity, it can help garnering huge amount of resources, capital formation and integration of housing finance sector with the overall financial sector.

An effort has been made to review important available references by various authors on the subject, keeping Indian perspective in mind. Hardly any concrete work in Indian context is available and there have been limitations on acquiring foreign references due to time and money factor. Though best efforts have been put in to cover as much literature as possible, yet the review of literature authored by overseas writers is not exhaustive. The studies and experience of developed countries act as stimulus to replicate the work in India. Nature of the activity being extremely novel, in our context, provides lot of scope for research work and devise alternate mechanism for enhanced fund-flow.
The methodology followed in the study (detailed in next chapter) is to assess the possible size of pool of mortgage available for securitisation. The assessment is based on the composition of Indian Mortgage finance market, taking into account the mortgage portfolios of formal sector institutions. Of the total outstanding portfolios, a discount factor is applied for arriving at the quantum of mortgages available.

A number of constraints continue to block smooth introduction/development of MBS. Some of these constraints are reported being resolved soon, while others may take some more time. In view of these constraints, it may be advisable to assess the economic efficacy of the whole exercise. It may be possible to float issues within the given constraints and gain experience. Such an experience, even if uneven, shall be useful in eliminating the bottlenecks coming on the surface. It is felt that the economic gains from the initiatives may outweigh the initial costs over the period of time.

There are number of structuring options available in the countries like USA and UK where securitisation process has reached at a stage of sophistication. During the course of a study at the leading organisations dealing with Mortgage Backed Securities in USA and United Kingdom, the researcher felt that some of the options available may hold relevance, with modifications, in the Indian context. Alternate structures can be designed based on the features like loan characteristics, behaviour of mortgages, pool coupon, pool credit rating, risk sharing and application of credit enhancement etc. There may be a need for secondary institution (s) to take up function of larger secondary market facility. In order to provide liquidity to the instruments, various alternates needs to be explored and operational norms to be in place. Within the given constraints, efforts have been made to cover the broad features as outlined above.

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