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CHAPTER 1: INTRODUCTION

1.1 Introduction to the topic:

There is a steady growth in the housing finance sector in India during last few years. The size of the housing transactions has increased but is still very less when compared to other developed and developing countries. The reason for the steady growth in the housing finance sector in India is the stable operating system. Housing sector plays a vital role in the growth of any country not just because it improves the standard of living of individuals but also because it helps in the growth of the GDP of country. Like it is estimated that for every one rupee invested in construction of houses, 0.78 rupee is added to the GDP. Housing sector also enhances the growth of many other industries. The increasing population and urbanization had also increased the importance of the housing finance.

The mortgage to GDP ratio is around 9% in India which is very low when compared to developed and emerging countries like UK have 91%, US have 80%, China have 20% , Thailand have 17% etc..

As per the report, India needs around 18.8 million housing units alone in cities. There are many new development schemes run by government in India in order to enhance the housing sector of India. Like Rajiv Rinn yogana,the credit risk guarantee fund trust for low income housing, Rs.6000 Cr. was allocated for rural housing fund in 2013-14, additional deduction of Rs.1 Lac for a person taking first home loan up to Rs.25 Lac during period 1.4.2013 to 31.3.2014.

The housing finance is given to the borrower or the house owner by commercial banks and financial companies (mortgage financiers).The same process is followed in almost every country. These mortgage financiers raise their capital in market known as secondary market. There are three basic models from which these mortgage financiers raise their capital,

1) Depository banking model

2) Refinancing body model

3) Capital Market Model

Countries follow combinations of the above models in various proportions and not just use a single model. Each and every model is associated with some merits and demerits. In the depository banking model, mortgage financiers are the depository institutions who have been the right to access to public savings like for example, banks which raise public deposits, etc. This model has been used through centuries and is very simple in it. After expending money in the all the necessary expenses, public require a place to deposit the savings for future use, thus this mortgage financiers provides an efficient and simple mode of deposit to public. Along with its simplicity it has attached some problems with it. One of the most significant problems is Asset Liability Mismatch (ALM). The deposits by public are generally of short term when compared to the mortgage finance which is long term. Along with it retail deposits requirements implies presence of a huge numbers of mortgage financiers in every country, thus these requires surveillance on mass depository accounts. The sound defeat of loan associations and savings in USA proves that a huge number of organizations with depository rights can cause threat to the system.

In The Refinancing model, there is Refinancing body just like National housing Bank in India that raises capital from its own on at a central level, and then funds the mortgage financiers. This model is costly and inefficient compared to depository model. Since there is an increase in intermediaries say NHB, there is increase in the share of profit which implies more interest. Apart from that this larger refinancing bodies also have financial problems.

Capital market model is not a simple way of raising money and definitely cannot be used to raise small amount of money. But it has several benefits attached to it. It is the known fact the ultimately the whole funding comes from the capital market- It’s just that the capital market connects the primary mortgage market to the provider of capital. If this integration between the primary mortgage market and provider of the capital is efficient, the model decreases the cost of funding, and solves problems attach with other models like interest rate mismatch, ALM, etc.. This model can be used along with other models and should be more explored to make the housing finance sector more efficient and cheaper. This model can be of two types the covered bond or pfand brief model as it prevails in Germany and mortgage passed through securitization which originated in USA.

Mortgage backed security

Mortgage backed Security (MBS) is a type of asset- backed security that is secured by a pool or collection of mortgages. Mortgages are sold to different investment banks or government bodies which securitize these mortgages together and sell to the investors. These securities are grouped into different rating groups as determined by accredited credit rating agency, and pay the interest just like coupon payments. ‘This type of securities is basically used by the mortgage financiers to take out their principal from the mortgages before the maturity and redirect the interest and principals to the shareholders. The mortgages can be residential or commercial depending on whether it is agency or non-agency MBS.

Collaterized Debt Obligation (CDO)

Collaterized Debt obligation is similar to MBS but involves not only mortgages related but any type of loans, like subprime loan, credit card loan, etc.

Suppose a bank buys a CDO, the bank may or may not know about its assets i.e. It may or may not know about the underlying asset of the CDO.

The bank just knows that the CDO has been given a good rating by the rating agency, thus they invest in it. But the real problem starts when the borrower of the loan starts defaulting. This will be later explained in detail in the case of ‘US Subprime Crisis’.

Credit default Swap

A credit default swap is the financial agreement between two parties, where the seller of the swap agrees to compensate the buyer in the event of the loan default by the borrower. The buyer of the swap pays a certain of premium in return of the security taken. So, in the complete process the risk of the buyer of the swap is transferred to the seller of the swap.

Credit default swap have existed from 1994, but had gained popularity and has been used mostly after 2003. There is not much regulation related to CDSs, like it is not required to report the CDSs transactions to a government agency neither it is traded in exchange. Regulator, Financial professionals and media use CDSs data in order to monitor how the credit risk of any entity on which a CDS is available and then can be compared to the ratings provided by Credit Rating Agencies.

Credit Crunch

Credit crunch is a situation occurred wherein it is difficult to get loan either from banks or any other agencies. This situation occurs due to a sudden change or tightening in the process of obtaining loans and also due to the reduction in the availability of the loans. One of the key explanations is that it becomes really difficult to obtain the investment capital in such situation, and banks become wary of lending money, which results in increase in the interest rate. Credit crunch generally leads to recession, since there is less money available in market for the corporates to use for the development and growth due to the increased interest rate as well the fear among the banks that if they are going to provide more loans then they may go bankrupt. There may be also a case where if a lender wish to lend further is not able to lend, due to earlier losses. This is the result of a long period of careless and inefficient lending done by the lenders. This will be discussed in detail in the case 'US Subprime crisis'

Global Scenario

The global housing market has grown rapidly in recent years if we look at the picture of developed and emerging countries and this growth is expected to increase in the coming years with more paces. The rise in demand of housing is the effect of several factors. First, economy is healthy around the world and is improving. Second, the government of every country is more dedicated to provide housing to their citizens. Third, there is a huge demand among the public. This increase housing market has enhanced the mortgage market globally.

Like for an example we take the scenario of Mexican mortgage based securities:

The first securitisation occurred in Mexico in 2003. Since, 2003, the sector has grown with a great pace. Mexico leads in securitisation volume, having almost 40% of all Latin American securitisation in 2005 across all asset types. Construction loan securitisations hold a good portion of Mexican securitisation. Mexican MBS has been given good rating by rating agencies. Similar is the case with different countries of the world.

US mortgage backed Securities

Traditional lending institutions

The financing of American mortgages has changed a lot in the last seven decades. Before 1940s, housing finance was done mainly by the depository model, wherein banks lend money to borrower the money received from public as a deposit. Banks thus gets interest on the amount lend to borrower. But in case of any default from the borrower, banks had to suffer a significant loss. Thus, banks were very strict in providing loans. Typically, banks used to lend money according to value of property worth, like they used to keep a loan amount to 50% of the property worthy in order to be on the safer sider. There was the presence some mortgage financiers who provide the 100% of the property worth as loan to subprime lenders in return of high interest.

The collapse of the prices of house due to the great depression leads to the entry of new forces into the American mortgage market. During this time many housing came to foreclosure due to decrease in demand as a result of which there was a reduction in the prices of houses. Banks were reluctant to provide loans to home buyers due to previous failures. This lead to the intervention of the government, which bought all this default mortgages from bank, rearranges them and finally reinstates them. This helped a lot to the US housing sector.

Securitisation and Secondary Mortgage market

The period of 'Stagflation' during the 1970s changed the mortgage lending radically by realigning investor incentives. Banks were not able to match the returns provided on capital due to the presence of high inflation. This resulted in transfer of money to US treasury bonds from banks. People started withdrawing their money from banks and invested in capital market to gain more profit. This is time when securitization of mortgage evolved. Mortgage were securitized and sold to the investors and banks were able to regenerate their principal before the maturity. This helped banks to provide loans to people in a regular basis and on less interest rate. The whole process is as like first the originator provides loan to the borrower in return of interest and principal at the time of maturity. The banks then pass this mortgage to an investment bank or financial institutions. This financial institution makes a pool of these types of mortgage. Once pooled and packed together, the mortgages are passed down to a special purpose vehicle (SPV), which generally acts as a trustee of these mortgages. By doing so, he financial institution achieves two benefits first it reduces its tax exposure and second it gets out these mortgages from its balance sheet. And finally these pooled mortgages are securitised and issued to the investors.

US Subprime Crisis

US subprime crisis was a nationwide banking emergency that led to recession of December 2007- June 2009. It was initiated by the decline in the prices of the houses which was the result of large number of loan defaulters. This recession result in the economic slowdown in the country.

The stock market crash in 2000 and the dot com bubble burst led to recession in US in 2001. The tragic event of September 11, 2001 further led to the market decline. Thus to improve the economy of the country, the Federal Reserve reduced the interest rate. This also led to increase in demand. Loans were easily available to people in a reduced rates. The demand for houses was increased during this regime. But the problem was that the supply was unable to match with this increase in demand which led to the increase in the general prices of the commodities i.e. inflation. Thus in counter federal reserve reduces the short term interest rate.

During 2001, when Federal Reserve reduces the rate, many subprime lenders were give housing loan. This mortgage was then passed to the investment banks and financial institution by the banks. The investment banks pooled this mortgage and passed it to the SPV. This SPV had securitize and issued this mortgage to the investors. Most of this security was also insured by many insurance agencies like AIG, since these securities were highly rated by the rating agencies.

These subprime borrowers started defaulting on their loans on a very large scale. As a result, banks started to take possession of the property bought by the borrower with the borrowed money (foreclosure). Still, this did not solve the problems of the bank, since due to presence more of the seller of houses than buyer, the demand more homes reduced. As a result, there was a decrease in the prices of homes. Thus, even selling this foreclosed homes banks were unable to recover their principal amount. And thus they have to incur huge losses.

Now how this led to recession in US. Since most of the mortgages was securitised and issued to the investors, investors demanded money from SPVs which asked the same from banks. But banks were themselves suffering from huge losses due to loan defaulters and reduce in prices. Thus this mortgage backed securities affected the whole US economy. Starting with the banks to the financial institution and the investors. In this whole process one more party is affected the insurance banks who have insured these securities and had took the risk to themselves.

This whole recession occurred due to the careless and inefficient lending by the lenders. With the advent of MBS, lenders no longer look after the riskiness of the loan default. They easily sanctioned loan to any borrower and sold it to others who ultimately risks if borrower defaults. The reason for initial success of MBS is that earlier MBS was created on mortgages granted to more prime borrowers. Thus it was much in demand and investors demanded for more n more of such types of MBSs. And thus to cater such demand lenders simple the process of sanctioning the loans and also reduced the criteria of getting the loan. This attracted the subprime lenders, and they borrowed heavily for construction of houses. Thus when borrowers started defaulting, MBS began to perform poorly.

Due to this effect in the market much other chaos occurred. The next impact was to the builders. There was a increase in the foreclosed homes which reduced the prices the homes to a very low level which led to the decrease in the demand of new houses constructed by the builders. Supply was increasing and the demand for homes was decreasing. Due to the decrease in the performance of MBS, most of the biggest institutions were laden with securities. The portfolios of investment bank were full of these non performing MBS. The share price of big investment bank reduced. For example Bear Stearns which were traded at $70 were sold to JP Morgan at a price of $2 per share. This was one of the reasons of the bankruptcy of Lehman Bro.

And the credit Default swap had led to bankruptcy of many insurance agencies. But most of these Insurance agencies were bailed out by the US government because insurers were something of a last backstop in the CDS market. On the one side where banks and hedge funds who are playing on both sides of the CDS market- buying and selling them and thus offsetting whatever losses they took- Insurance companies was only providing insurance onto them. If the insurance would have been defaulted many of the person who had bought a CDS contract would had suffered causing their own credit problems.

The other cause of financial crisis is leverage. Housing follows a cycle wherein with every boom there is downturn following. There was a much increase in the prices of home almost doubled before the downturn. The real reason for such a downturn is the amount of leverage used in the market. Leverage always have two aspects, it can be your best ally in boom times and can act as the worst enemy in recession.

So, what actually is leverage and how it works can be better understood through an example.

- Suppose, In case1, Mr X buys a house of Rs.25, 00,000 without taking any leverage. Now the prices of the house increases to Rs.30, 00,000 during boom. So, the return of Mr. X is Rs.5, 00,000/25, 00,000 = 20 %
- In case 2, Mr. X buys a house of worth Rs.25,00,000 by taking a loan amount of 15,00,000 at an interest rate of 10% during boom, And the prices goes up to 30,00,000.

The interest to be paid by Mr. X is Rs.1, 50,000 in one year. So the return of Mr X is Rs.3, 50,000/10, 00,000 = 35%

- In case 3, Mr. X buys a house worth Rs.25,00,000 by taking a loan amount of Rs.22,00,000 at an interest rate of 12%. And the prices go up to Rs.30, 00,000. The interest to be paid by Mr. x is Rs.2, 64,000. Now the return of Mr. X is 2, 36,000/3, 00,000 =78%

From, the above example we can see that as the price of the property is increasing, leverage works so efficiently for the borrower. But, now let us look after the Scenario when the asset price is decreased.

- In case1, let's suppose the price of the house reduces by Rs.5, 00,000. But this will not affect Mr. X as long as he is not going to sell the house. If he sells the house he is going to have a loss of Rs.5.00, 000.
- In case 3, if the price of the house reduces by Rs.5, 00,000. And if the bank decides that the value of the house is not enough to cover the loan. They may ask Mr. X to come up with the current value Rs.20, 00,000 and collateral debt Rs.22, 00,000. Thus they will demand for Rs.2, 00,000 with Mr. X

Now Mr. X is left with two options:

- First pay Rs.2, 00,000 to the bank, but most probably Mr. X did not had that amount so had gone for a loan from bank.
- Secondly, Mr. X can refinance his mortgage with other bank. But this may also not work because of the Rs.2, 00,000 of negativity equity of Mr. X. So, no bank will be willing to give loan to Mr. X

As a result most probably, Mr. X has likely to lose the house to foreclosure. This is what happened to most of the houses in US which caused the recession.

This caused credit crunch in US market, due to which banks were reluctant to provide loans either due to fear of bankruptcies or they actually didn't had cash to provide to public. And this credit crunch endangered many corporate bankruptcies due to unavailability of cash in market.

This was all about the US subprime crisis which described the working of Mortgage backed securities; their advantages, their drawbacks and how mortgage backed securities should be controlled in order to avoid such chaos. Following are some steps taken by US government to revive from such a recession:

1) Fed purchased stocks of bank showing the public that banking system is going to revive and thus increasing the confidence to some extent
2) Subprime lending was made to come under regulation. Inefficient and careless lending activities by banks was regulated
3) Credit default swaps market was regulated

4) The LIBOR rate was cut down to around 4.6% from 6 %

Scenario of India

Housing Status of India

The percentage of housing to population in India has risen from 24.26% to 40% in 2011. In absolute terms the numbers of houses grew by 32% from 24.9 Cr. s 2001 to 33 Cr in 2011. The percentage of households living in permanent structures rose from 51.7% in 2001 to 61% to 2011.According to the TOI," majority of Indians have per capita space equal to or less than 10 ft. * 10 ft. room for their living, cooking, sleeping, and toilet needs." The average is 102 sq. feet per person in rural areas and 116 sq. feet per person in urban areas. These statistics shows the poor position of infrastructure in India.

When we talk about financing through organized sector, it totals to only 28% of the total housing finance. There is a growth of around 40% on an average in the past three years. India stands nowhere when we compare the mortgage to GDP ratio which is mere 9% for India, 91% for UK, 80% for USA, 20% for china etc.

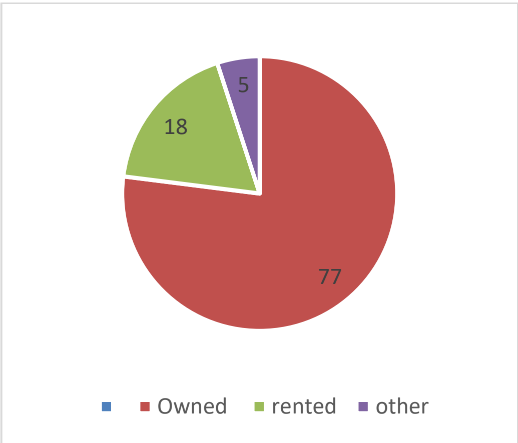
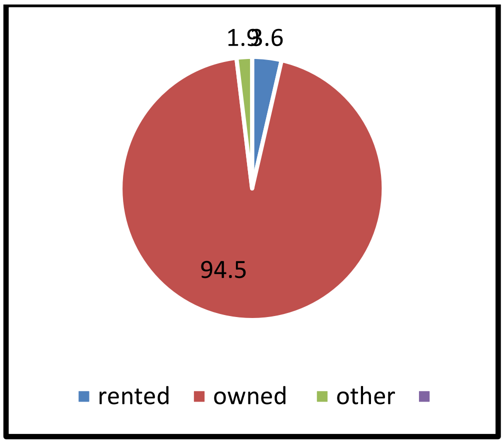


Figure 1:

Source:-Wikipedia

The above chart shows the total owned, rented and other households in India in total. The figures show that majority of the household's lives in owned houses.



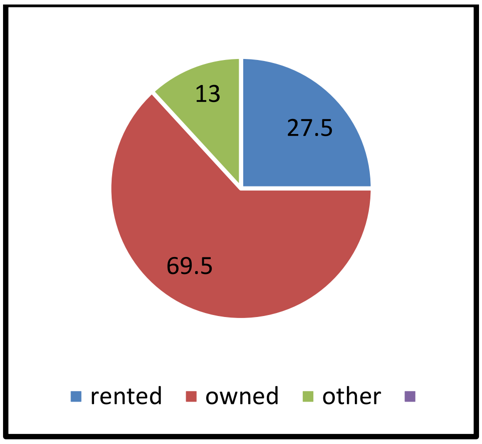


Fig 2 Fig 3

Source:-Wikipedia

Fig 2 indicates the percentage of households living in rural region and having owned, rented and other households.

Fig 3 indicates the percentage of households living in urban region and having owned, rented and other households.

There is steady growth in the housing finance business in the last five years, and this is all due to the interest shown by the commercial banks in this sector. This commercial has slowly but significantly has changed them from being a development bank to consumer banks. Banks his providing many attractive offers to attract consumers towards housing loan. The current monetary as well as the monetary has accelerated the growth of this sector. The emerging middle class, the increasing purchasing power of people, scaling down the real estate price and softer interest had increase the demand of house as a result there is increase in housing finance sector. But still there is a long way to go to have a developed housing finance sector.

<u>Mortgage backed securities in India</u>

India's first mortgage backed securities was issued in 2001 by National housing bank of a sum of Rs.597 million. A total of 12 MBS was made by NHB till 2004 having a total size of about Rs.515 Cr. s and comprising of around 35,000 housing loans. The details of all exhibit has been shown in the exhibit 5

There is not much increase in the number of MBS even though there is a significant increase in the number of housing loans. Also the Residential mortgage backed security activity remains limited even though there is a zoom in the volumes of general securitisation. The MBS issued so far has touch the principal of Rs.663.91 Cr. s, which is shown in Exhibit 6.There was a decrease in the percentage of loans converted to MBS in 2003 but from 2004 there has been comparative increase in the conversion of loans to MBS.

Thus the overall performance of MBS in India is not so satisfactory.

One possible reason for such a declining interest in issuing MBS is that there is drastic come down of the spreads in mortgage market. Along with the decline in the interest rate there is a tough competition among banks. Housing finance is considered to be greatly desired asset by banks to have it on their balance sheet becoming the reason for contracting of spreads. So if the spreads are of relatively small extent, it is unlikely that mortgage originators will securitize mortgage. Since the main motive of the mortgage originators is profit on sale. Thus it can be easily inferred that where spreads are small, the profit on sale will become less and thus no motivation for securitization. On the other hand profit on sale is not only the motivation factor for securitization. One of the other factors is the reduced cost of funding; an efficient securitization market will reduced the weighted average cost of funding. If the weighted average cost of funding does not reduced then there may be two main reasons behind it:

1) The credit rating agencies are giving very high ratings
2) Investors are demanding high premiums perhaps due to less understanding of the risks involved in RMBS.

The securitization generally drives down the cost of funding of mortgage originator, which clearly says that there securitizations should not be only 0.5% of disbursements. The spreads being reduced in a competitive should promote securitization rather than reducing. Thus looking after the above facts, it is obvious that the liveliness securitization activity in India is to be traced in external inefficiencies. These external inefficiencies have slowed down the number of transactions in the market. If the inefficiencies in the market is removed, a large number of transactions will enter the market. This will result in the reduction of cost of funding; as a result will reflect in lowering of housing finance cost. There will be other benefits like investors will have more market to invest in which will overall lead to the growth of the economy

Scope of MBS in India

The potential market of MBS in India can be estimated through the following:

1) On the basis of report of the technical group on estimation of urban housing shortage, there is about 24.71 mn housing shortage in India. Of these 14.51 million dwelling units were required in rural areas & 10.40 million dwelling units were required in urban areas. Even if taking more conservative estimate, about 8 million dwelling units is required. The total number of houses requirement is estimated around 25 million units and if we take the average housing loan in India as Rs.3 Lac. There is requirement of INR 7500 billion to provide housing of 25 million units. This figure itself shows the huge potential of MBS in India.
2) If we consider US where two-third of the home loans is securitized, there is huge potential for MBS in India, because percentage loans securitized is much less when compared to US. If India is to achieve the US mark of two-third of home loans to be securitized then this will lead to MBS issues of INR 32010.71 Cr. s per annum(based on disbursals figures of 2010-2011)
3) Mortgage Securities form an important part of bond market in many countries the proportion of mortgage securities to that of bond market in India is very low when compared to other countries. This shows that there is a huge potential of MBS in India.

Issues related to Securitization in India

1) Stamp duty

   Stamp duty structure plays one of the major hurdles in the securitization market in India. Stamp duty is payable on every instrument which is entitled to change its rights or receivables. Thus, the process of transfer of rights from originator to SPV involves outlay of stamp duty, which makes it difficult to commercialize in states having high stamp duty.
2) Foreclosure laws:

   There are no effective foreclosure laws in India which also prohibits securitization.
3) Taxation related issues

   There is a confusion regarding the tax treatment of MBS, SPV trusts, NPL trusts. Presently, investors pay tax on earnings from SPV trusts. And trustee pays no tax by making income pay-outs.

1.2 Objectives of the Study:

- To study the present scenario and future prospects of mortgage-backed security (MBS) in India.
- To study and examine the reasons as to why are banks in India adopting mortgage-backed security (MBS)
- To make special emphasis on assessing potential of mortgage –backed security (MBS) in India.

CHAPTER 2: LITERATURE REVIEW

Research the reasons and factors for the 2007 global financial crisis citing the references

The global financial crisis of 2012-2014 began in July 2007 when loss of confidence by investor in the value of securitized mortgage in US resulted in a liquidity crisis that prompted substantial injection of capital into financial market by the US Federal Reserve, European central Bank and Bank of England. In Sept 2008, the crisis deepened, as stock markets worldwide crashed & entered a period of high volatility, & a considerable no. of banks, mortgage lenders & insurance companies failed in following weeks resulting in failure of key businesses & substantial financial commitments incurred by govt.

<u>Background</u>

The immediate cause of the crisis was the bursting of United States housing bubble which peaked in approx. 2005–2006. High default rates "subprime" and Adjustable Rate Mortgages, began to increase quickly thereafter. An increase in the loan incentives like easy initial terms & a long-term trend of rising housing price had made borrowers to assume difficult mortgages in belief of a quick refinance at more favorable terms. But once interest rates began to rise & housing price started to drop moderately in 2006–2007 in many parts of the U.S., refinancing became more difficult. Defaults & foreclosure activities increased a lot as easy initial terms expired, house prices failed to increase as anticipated, & ARM interest rates reset higher.

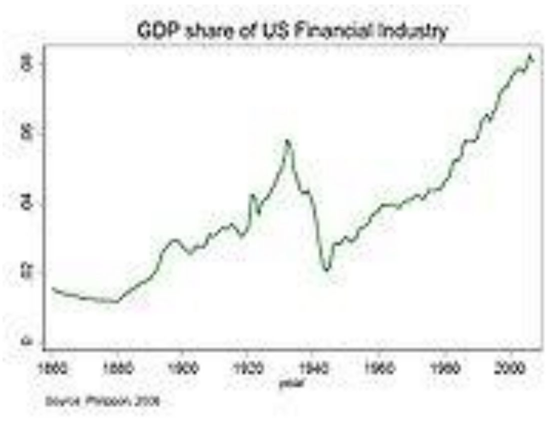


Figure 4: Share in GDP of U.S. financial sector from 1860.

Source-Wikipedia

In the years leading up to the start of the crisis in 2007, significant amounts of foreign money flowed into the U.S. from fast growing economies in Asia & oil-producing countries. This inflow of funds made it easier for the Federal Reserve to keep interest rates in the United States too low (by the Taylor rule) from 2002–2006 which contributed to easy credit conditions, leading to the United States housing crisis. Loans of various types were easy to get & consumers assumed an unprecedented debt loads. As part of housing & credit booms, the amt. of financial agreement called MBS, and they derive their value from mortgage payments & housing prices greatly increased. Such type of financial innovation enabled institutions & investors around the world to invest in U.S. housing market. As housing price declined, global financial institutions that borrowed & invested heavily in subprime MBS reported significant losses. Falling prices also resulted in houses worth less than the loan, providing financial incentive to enter foreclosure. The foreclosure epidemic that began in late 2006 in the U.S. continued to drain wealth from consumers & erode the financial strength of banking institution. Defaults & losses on other types of loan also increased as the crisis expanded from housing market to other parts of economy. Total losses are estimated to be in trillions of U.S. dollars globally

While the housing and credit bubbles built, a series of other factors caused the financial system to expand as well as become increasingly fragile. Policymakers were not able to recognize the important role played by financial institutions like investment banks and hedge funds, known as the shadow banking system. Experts believe these types of institution had become as important as commercial banks in providing credit to U.S. economy, but were not subjected to the same regulations. These institutions along with certain regulated banks had assumed significant debt burden while giving the loans described above & did not had a financial cushion sufficient enough to absorb large loan defaults. These losses impacted the ability of the financial institutions to lend, resulting in slow down of economic activity. Concern regarding the stability of the key financial institutions drove central bank to provide funds to encourage lending & restore faith in the Government.

The Crash of 1929 and the ensuing Great Depression has always been a subject of interest and fascination for many of us. Most of us grew up understanding that such a financial calamity could never happen again. The history books tell us rules and regulations were created to prevent this type thing from happening again. These regulations were contained in the Glass-St ea gall Act of 1933 and the Banking Act of 1933.

Some of the new conditions created in the 1930s included the creation of the FDIC to give bank customers confidence that their deposits in banks would be safe. Also included were rules to prevent banks from owning other financial institutions such as insurance companies, and vice versa, in order to prevent financial institutions from becoming so big and intertwined, that the failure of one huge company could bring down the entire financial system. By the way, this particular provision of Glass-Seagull was repealed with the passage of the Gramm-Leach-Bliley Act of 1999. Another aspect of Glass-Seagull sought to control speculation. There was more too.

In the post-Depression and post-World War II era, the economy and the markets performed well. There were periods of normal business cycle recessions and expansions and there were bull and bear markets with an occasional crash mixed in, like in 1987, but nothing that threatened the entire financial system. As scary of the crash of 1987 was, it had more to do with specifics to computerized program trading than anything that was happening in the economy as a whole. The financial system was not in jeopardy in 1987.

So how did we go from fairly normal, cyclical ups and downs to the disaster that culminated in the collapse or near collapse of the entire financial system of the whole western world in 2008?

Here is one of the biggest culprits: in addition to stripping away the Glass-Steagall protections throughout the 1980s and 1990s, the biggest factor laying the foundation for our recent financial meltdown was the ridiculously low level of interest rates from 2000 to 2008.

After the crash of 1987, the Federal Reserve, under the then new Fed chairman, Alan Greenspan, lowered interest rates, not to pump up the economy, but to help Wall Street pump up stock prices. This was not a traditional role for the Fed. The Fed took on a new role with this move and, more and more, become a protector of asset prices. They would step in time and again whenever there would be a big sell-off on Wall Street.

In January 2001, the Fed under Greenspan started cutting rates at an unprecedented pace. By the summer of 2001, the Fed lowered the Fed Funds Rate from 6% to 3.5%. After September 11th 2001, the interest rate cuts began in earnest. By December of 2001, they moved the Fed Funds rate down to 1.75%. By 2003, they brought it down to 1%. This was the lowest Fed Funds rate since 1962.

From December of 2001 to September of 2004 Greenspan kept the Fed Funds rate at no higher than 1.75% for a total of 33 months. In November of 2002, this key rate was moved to

1.25% and it was kept it there for 21 months. In June 2003, the rate was moved to 1.00% kept there for over 12 months.

So in 2000, the Fed Funds Rate was 6.5% but it was ultimately moved down to 1.75% where it stayed for 33 months. It was then moved lower still to 1.25% where it stayed for 21 months. It went all the way to 1.00% where it stayed for 12 months. Anyone who had money in a money market fund during this period remembers it well.

The bottom line is that never before in our history had the fed funds rate been this low for this long. There were significant ramifications resulting from these extremely low interest rates. One ramification was that ultra-low interest rates caused speculation, including speculation in housing prices, mortgage backed securities, derivatives and more.

If Greenspan hadn't keep interest rates so low for so long there would not have been a housing bubble. Without a housing bubble, there would have been fewer mortgage-backed securities, fewer derivatives and no sub-prime crisis. You get the idea. The collapse was caused by mistakes that were made by so-called experts who should have known better.

<u>Causes</u>

The immediate cause of the global financial crisis was the massive growth and then collapse of a new asset class securitized subprime mortgages. On one level, subprime montages have a positive social role.-helping people with relatively poor credit ratings to own their own homes. However, the scale of lending, the way these mortgages were sold and how they were developed into huge complex financial instruments that many do not understand led to a led to a shock to confidence in the global financial system not seen since the Depression of the 1930s.

Probably the weakest link in subprime mortgage assets as they developed was that they depended on US house prices continuing to rise. Subprime mortgages were structured typically with either the first two or three years of a 30 year mortgage at a fixed interest rate, and the remainder of the loan at a variable rate. Borrowers had two reasons to refinance their loans with the same lender at the end of the fixed rate period. First, the variable rate was usually very high (and higher than the fixed rate), and second, there were usually high penalties for paying out the loan early. As long as the value of houses continued to rise, subprime borrowers could easily refinance their loans every two or three years. But when house prices began to slow and then fall, the whole process began to quickly unwind.

At the big end of town, the rapidly growing subprime mortgages were being repackaged and sold to banks and other financial institutions. The amounts of money involved were staggering. In 2000, subprime and the similar Alt- A mortgages totalled USD 125bn or 4% of the US mortgage market. By the first quarter of 2007, they amounted to USD 1,495 billion or 25% of the mortgage market. When these mortgages were repackaged, the new asset was divided into various segments or 'tranches', each with a different level of security (up to AAA). The security allegedly reflected the exposure to default of the underlying mortgage, but did not really reflect the true risk. Once defaults gained momentum, all the various tranches began to fall like dominoes, making the assets unsaleable.

As it became apparent that the assets of some major US financial institutions were worthless, confidence in the financial system as a whole rapidly deteriorated, to the point where banks were reluctant to lend to each other, except at very high interest rates (as shown by the sharp rise in LIBOR – the London inter-bank offer rate). If banks were reluctant to lend to other banks, they were even less willing to lend to non-banks. And those with funds outside the banking sector were unwilling to lend to banks. The result was a sharp fall in the availability of credit. This became the basis for transmitting the crisis from the financial sector to the rest of the US and other developed country economies. In order to reduce the impact of the crisis on the real economy, first the US government and then governments in numerous developed produced massive assistance packages to inject liquidity into their financial systems and to restore business and consumer confidence. Confidence in many countries, however, remains low, as evidenced by the dramatic drop in US consumer spending.

Beyond the immediate sub prime mortgage cause, however, are larger and more basic forces. An extended period of excessively easy credit in the US encouraged many to increase their consumption and more importantly their debt. Many (both borrowers and lenders) gave little thought to the possibility of interest rates rising; leaving them highly vulnerable when higher rates eventually arrived. As well, greed and even criminal behaviour was evident among some of the organizations selling subprime mortgages. People who did not understand the loans or did not have sufficient income to support them were convinced to take on what quickly proved to be crippling levels of debt.

CHAPTER3: RESEARCH METHODOLOGY

Research Design

The study is mainly a descriptive analysis of Mortgage backed security. Data related to housing in India like population to housing ratio in India, outstanding home loans, etc. has been collected from different sources. And then this data are studied and analyzed and are then compared with other countries to find out the scope of Mortgage backed securities in India.

Data Sources

Secondary Data

- Articles in Newspapers, Magazines and Internet
- Websites of different Investment Banks.
- Journals and Study Reports on Investment Banking.
- Desk Research under the guidance of my guide
- Books on Investment Banking.

Data Collection Tools

- Books
- Internet
- Magazines

CHAPTER 4: ANALYSIS AND INTERPRETATION DATA

	POPULATION			CENSUS HOUSES			% OF HOUSES TO POPULATION		
	1981	**1991**	**2001**	**1981**	**1991**	**2001**	**1981**	**1991**	**2001**
Total	682	846	1027	149	196	249	21.87%	23.01%	24.26%
Rural	524	628	742	114	144	178	21.7%	22.73%	23.92%
Urban	158	218	285	35	52	71	22.25%	23.91%	25.11%

All units in million. Source: Census 2001

Table 1: Statistics of Population and Housing in India

The above table shows the population of India and the number of houses present for this population So, this small percentage of houses to population predicts a huge demand for houses in the coming years. This increasing demand will lead to increase in the demand of housing loan. As a result it can be said that there is huge scope for growth Mortgage backed securities in such situation in India.

	1995-1996	**1996-1997**	**1997-1998**	**1998-1999**	**1999-2000**	**2000-2001**	**2001-2002**	**2002-2003**
HFC	NA	4627.74	5767.55	7399.69	9812.03	12637.85	14614.44	17832.01
Banks-Direct					3597.4	5553.11	8566.41	23553.37
Banks-Indirect	842.03	1805.62	1454.77	3951.99	9911.35	9787.24	14744.85	33840.53
ACHFs	NA	NA	519.57	665.88	700.86	867.72	677.58	641.48
Total					14110.29	19058.68	23858.43	42026.86

Note: HFC: Housing Finance Company

Table 2: Amount Disbursed by Various Institutions in India

Banks – Direct: It refers to lending done by the banks to the home loan buyers directly

Banks – Indirect: It refers to amount lend by the banks to HFCs besides the home loan buyers

From the above table which shows the amount sanctioned towards home loan by banks both directly and indirectly as well as from housing finance company. Thus by proper analysing the data it can be easily inferred that most of the housing loans are provided by the housing finance company. Which clearly shows the huge market for banks in the home loan field, since banks have more credibility than finance companies. And this market will help in the growth of MBS market.

Loan slab	**2000**		**2001**		**2002**		**2003**	
	No. of A/c	**Amt**	**No. of A/c**	**Amt**	**No. of A/c**	**Amt**	**No. of A/c'**	**Amt**
<25000	417271	454	536572	552	244376	280	442944	556
>25000 & <2 Lac	1627721	8919	1620279	9544	1133744	10841	1316608	12874
>2 Lac & <5 lac	185519	5498	285328	9233	350284	10980	513798	15974
> 5 lac & < 10 lac	17735	1140	30933	1996	67146	4306	127959	8242
>10 Lac & <25 Lac	3873	497	7639	1053	16870	2198	36202	4625
>25 Lac & <50 Lac	712	184	1278	323	2773	773	5466	1385
>50 Lac & <1 Cr.	280	142	380	208	610	314	1414	605
>1 Cr. & < 4 Cr.	171	298	252	432	344	483	1163	630
> 4 Cr. & < 6 Cr.	49	193	49	198	55	182	226	275
> 6 Cr. & < 10Cr.	25	192	25	184	40	220	132	405
>10 Cr. & <25 Cr.	19	336	41	643	37	496	111	844
> 25 Cr.	15	672	21	1046	36	1754	58	2652
Total	**2253390**	**18525**	**2482797**	**25412**	**1816315**	**32826**	**2446081**	**49067**

Table 3: Outstanding loans of Scheduled Commercial Banks

The above table tells us about the different loan slabs as well as number of accounts in different slabs with the total amount disbursed in each slab year after year by Scheduled commercial banks. By proper analysis we can infer from the table that most of the transactions which occur are in the slab Rs.25000 to Rs.5 lac. Thus this indicates that banks can handle more housing loan accounts with less amount and make more profit by securitization of these mortgages.

S.No.	**Year**	**No. of Issues**	**No. of Loans**	**Principal outstanding**	**Issue Size**	**Total Disburse ment**	**% of loan issued as MBS**
1	2000	2	11106	135.86	103.54	14110.29	0.96%
2	2001	2	8549	137.62	91.69	19058.68	0.72%
3	2002	1	4256	85.35	58.19	23858.43	0.36%
4	2003	2	5555	141.28	114.1	42026.86	0.34%
5	2004	3	5650	163.8	144.75		
TOTAL		**10**	**35116**	**663.91**	**512.27**		

Table 4: Issuance of MBS in India

The above table shows the total issue of MBS till 2004 and also the percentage of loan issued as MBS. From the data it can be said that percentage of MBS issued is very less which when compared to other countries (data is provided above). Thus this clearly shows that there are certain issues related to MBS due to which there is less growth in MBS. And if issues are redeemed then it will create a huge market for MBS.

Sno.	NHB SPV	Originator	Credit Enhancement	Rating (with Agency Name)
1	HP1	HDFC Ltd	A-B Structure & Guarantee of Rs. 1.10 Cr	AAA (So) by CRISIL
2	LP1	LIC HFL	A-B Structure & Cash Collateral	AAA (So) by CRISIL
3	LP2	LIC HFL	A-B Structure & Collateral	AAA (So) by CRISIL
4	CP1	Canfin Ltd	A-B Structure & Cash Collateral	AAA (So) by CRISIL
5	CP2	Canfin Ltd	A-B Structure & Cash Collateral	AAA (So) by CRISIL
6	BP1	BOB HFL	A-B Structure & Cash Collateral	AAA (So) by CRISIL
7	CP3	Canfin Ltd	A-B Structure & Cash Collateral	AAA (So) by CRISIL
8	DP1	Dewan HFL	Bank Guarantee @2% of PTC A Rs. 1.24 Cr. at time of issue	AAA(So) by FITCH
9	AB-1	Andhra Bank	A-B Structure & Cash Collateral of Rs.68 Lacs	AAA(So) by CRISIL
10	BH-1	Birla HFL	A-B Structure & Cash Collateral of Rs.9.81 Cr.	AAA(So) by ICRA

Table 5: MBS Issued by NHB in India

Sno.	NHB SPV	Originator	DOI	Pool Size		Issue Size (Crs)	PS	MBS Coupon
				No. of Loan	PO			
1	HP1	HDFC Ltd	Aug-00	8329	59.7	59.7	Par	11.85%
2	LP1	LIC HFL	Aug-00	2777	43.84	43.84	Par	11.85%
3	LP2	LIC HFL	Apr-01	4292	46.84	46.84	Par	10.25%
4	CP1	Canfin Ltd	Apr-01	4257	44.85	44.85	Par	10.25%
5	CP2	Canfin Ltd	Jun-02	4256	58.19	58.19	Par	8.90%
6	BP1	BOB HFL	Apr-03	3548	77.15	59.65	Par	6.89%
7	CP3	Canfin Ltd	Jun-03	2007	64.13	54.45	Par	6.25%
8	DP1	Dewan HFL	Mar-04	3155	69.79	61.83	Par	6.98%
9	AB-1	Andhra Bank	Mar-04	1437	50.36	42.95	Par	6.15%
10	BH-1	Birla HFL	Mar-04	1058	43.65	39.97	Premium	6.60%

Table 6: MBS Issued by NHB in India

PO – Prinicpal Outstanding

DOI : Date of Issue

PS : Pricing Structure

The above two table shows the originator, ratings of the MBS, issue size as well as the coupon rate of MBS. From the table it can be seen how the coupon rate fluctuates according to the collateral, loan size as well as the ratings given by different rating agencies. Future coupon rate can also be estimated through the table.

OUTSTANDING LEVEL OF PRIVATE & PUBLIC BOND MARKET DEBT								
1985 - 2004 (USD Billions)								
	Municipal	**US Treasury (1)**	**Mortgages Related(2)**	**Corporate***	**Fed Agencies**	**Money Market(3)**	**Asset Backed*(4)**	**Total**
1996	1296	3445	2486	2122	926	1394	404	12073
1997	1319	3442	2680	2359	1023	1693	536	13051
1998	1403	3341	2955	2709	1301	1978	732	14417
1999	1457	3266	3334	3047	1620	2339	901	15964
2000	1481	2952	3565	3359	1855	2663	1072	16945
2001	1604	2968	4126	3835	2150	2567	1281	18530
2002	1763	3205	4705	4094	2293	2546	1543	20149
2003	1899	3575	5309	4462	2637	2526	1694	22101
2004:Q2	1959	3755	5358	4570	2725	2648	1772	22787

Table 7: Outstanding debt in various categories in the US Debt Market

(1) Interests bearing marketable public debt.

(2) Include GNMA, FNMA, & FHLMC mortgage-backed securities & CMOs and non-agency MBS/CMOs.

(3) Include commercial paper, bankers' acceptances, & large time deposits.

(4) Includes public & private placements.

Sources:

The U.S. Department of Treasury,

Federal Reserve System and

Federal National Mortgage Association

The above table gives a picture of the bond market in US. From the table we can see that out of total of $22787 billion debt market $5300 billion market is related to mortgage i.e around 23.25%. which is far more than India. And us has a high percentage of MBS issued yearly. This indicates that there can be a good market for MBS in India.

Institutions	Before July 1998	July'98 to June 1999s	July'99 to June 2000	July'00 to June 2001	July'01 to June 2002	July'02 to June 2003	Cumulative disbursal till June 30, 2003	July'03 to March 2004
Scheduled Banks	198	38	2.5	101	76.99	790	1232.41	518.25
Cooperative Sector Institutions	575	164	187	140	219	138	7303	479.14
Housing Finance Companies	2852	545	652	761	705	1766	1425	37.78
Under Gujarat Scheme					23.34	13.26		
Total	**3625**	**747**	**841**	**1003**	**1024**	**2708**	**9961.08**	**1035**

Table 8: MBS Issued by NHB in India

Note: All amounts in INR Cr.

Source: National Housing Bank – Annual Reports

The above table shows the total MBS issued by National housing bank in India. The table indicates the fluctuation of MBS on yearly basis. So the issues related to it should to solved to make it more constant practice.

1980 - 2004* (USD Billions)				
	GNMA	**FNMA**	**FHLMC**	**Total**
1995	72.90	110.40	85.90	269.20
1996	100.90	149.90	119.70	370.50
1997	104.30	149.40	114.30	368.00
1998	150.20	326.10	250.60	726.90
1999	151.50	300.70	233.00	685.20
2000	103.70	211.70	166.90	482.40
2001	174.60	528.40	389.60	1092.60
2002	174.00	723.30	547.10	1444.40
2003	220.00	1198.60	713.30	2131.90
2004*	72.90	297.80	209.77	580.40

**Sources: GNMA, FNMA, FHLMC

Table 9: Issuance of Agency Mortgage-Backed Securities

Finally the above table shows the total issuance of Agency mortgage backed securities in US. And if it is being compared with Indian scenario. India is way behind the US. And even being much conservative it can be easily said that if problems related to Mortgage based securities are resolved , it will create a good market for MBS which will not only benefit banks but also the finance companies or investors and borrowers. As a result it will help in development of India as a whole.

Under the present Scenario of institutional framework National housing Board (NHB) is the top level financial institutions for the housing sector in the country & Securities", Review of Financial Study 8: 677-708. Performs the role of promotion & development, regulation & supervision, development, financing, of secondary mortgage market through securitization of housing loans, & promotion of rural housing.

All the functions that are carried out by NHB are essential & many more function will also had to be carried out, if we intend to provide roof over millions of Indians who does not own a house, the present institutional framework is not sufficient enough to meet the needs of the future.

First of all, National Housing Bank is currently engaged, mainly in the role of being a refinancing body apart from its regulatory position. Though NHB directly does not take the risks of mortgage pools that it refinances but it is not immune from the same. Funding of NHB's own balance sheet come from various sources, which includes the capital market. There are also some tax subsidies in certain for the funding liabilities of the NHB like capital gain bonds.

This structure is surely not so efficient – if the aim is to provide a capital market window where ultimate investment in mortgage loan can be funded (an investment in National housing ban is essentially an investment in mortgage loan), the same can be achieved efficiently by securitization. The practice of NHB is to give with-recourse funding to the mortgage institution, where there is no integration of credit risk of the mortgage loan pool with effective capital of mortgage originator. All National Housing Bank does is to lay down the regulatory capital requirement – which obviously do not distinguish b/w the risks of different portfolios. On other hand, securitization will directly link level of credit enhancement with scientifically measure of stressed risk of the pool, therefore ensuring more good investment avenue for capital market investors.

Thereby, we recommend that NHB may slowly increase its role in intermediating in securitization market, rather than refinancing mortgages originators.

The intermediation in securitization market can take three forms:

- By being a buyer of mortgages loans with NHB providing warehousing funding and also securitizing the portfolios thereafter. This is called as **pool-of-pools approach**.
- By facilitating a securitization transaction like providing SPV support, as it is doing at present;
- By providing a facilitation role as above, along with a credit enhancing role, where National housing bank absorbs credit risk above certain first loss piece retained by mortgage originator. There are models like KfW in Germany that may be either modified to suit requirements. This is called as **NHB-credit-enhanced approach**.

The second model is being pursued by National housing bank currently, along with all the inefficiencies of system on which we will dwell later.

The third model provides a more active role for National housing bank – where being a loss absorber, NHB inherently also provide a degree of comfort to the retail investors that the pools has been analyzed by apex institution. If the objective is to attract retail investors to invest in mortgage market, this type of role would really be commendable. Along with it, if the govt. considers tax incentive to be necessary to attract retail saving, the tax benefits that is attached with NHB's bonds today may be granted to NHB-credit-enhanced securitization form suggested above.

The first model should be the ultimate goal. As the supervisor of mortgage financing business, no one else is better suited to buy mortgage loans than National housing bank. With or without first loss support, NHB can buy mortgage loans minus the servicing, leaving servicing fees, origination profits & a compensation for first loss support, if any, with originator. These pools may thereafter be securitized. In this type of "pool-of-pools" securitization, there is a far greater diversification than possible in any securitization.

In the suggested model, there is little additional credit burden on National housing bank – thereby, hardly any need for additional capital infusion. On the contrary, it can be argued that the credit risk of National housing bank will substantially decrease , as also its balance sheet size – National housing bank might even think of returning some part of its capital to the govt. The credit risk with NHB in the models will be no more, & in fact will be arguably less than the risk taken currently in its refinancing role.

<u>Private label securitization service providers:</u>

It is not expected that the entire mortgage origination markets will be ruled by NHB. In fact, as developments in most markets increase, GSEs and private label transactions co-exist. There are various reasons for private label transactions – they includes securitization of non-conforming mortgage, or for reason of staying outside NHB supervision over the transactions.

Currently, in the RMBS segments, there is no private label transaction. However, there are several private securitizations service providers in the ABS markets, who, as needed, can provide support to securitization transaction in the MBS segment as well. These services are typically provided by investment banks that have focused themselves on structured financial transactions. The other ephemeral service are those of SPVs which can easily be developed to accommodate market need

<u>Specialized securitization agency for RMBS</u>

It is also considered whether it would be preferred to have NHB get into this type of securitization promotional role, or reserve the same for specialized secondary market agency. The advantage of retaining National housing bank as securitization agency albeit with enhanced roles as suggested is that we are not proliferating institution. After all, every new institutions needs capital, manpower, & above all it might lead to an overlap of role.

On the other side, a separate specialized body for secondary markets in RMBS might have its own advantage – primarily that of focus. National housing bank is currently also assign a regulatory role – it registers & regulates housing finance institution.

The question of separate body or National housing bank in an enhanced way is essentially a question that require more interaction & since the rest of the recommendation are not affected by the specialization question, it is deferred for further thought.

Growth of other agencies:

The securitization markets will also need at least 2 more agencies: private label securitization service provider, & insurance or external credit enhancement provider. Both of these are market-related development, and left to itself, the market can cause them to come up. Nevertheless, below are some of these agencies:

<u>Mortgage Insurers</u>

In most countries, insurance companies covers pool loss beyond a particular level – this are common in USA, Australia, UK, , etc.

Under the current refinancing models, most of the mortgages originator has not felt the need of these external credit enhancement. Insurance company does not provide insurances against credit risk – but mortgage pools insurance covers may be provided, as need is felt. This is purely market-based, & there is no specific regulatory interventions required to make it happen.

Permitting and encouraging bank to invest in Mortgage-backed securities (MBS):

Much of the effort at developing a securitization market could be of no use, if there is not sufficient investor appetite. To develop the securitization market, we need to develop strong investors demand, which has to come from the two broad classes – institutional investors & retail investors.

Among institutional investors, bank, insurance companies, mutual fund, employee benefit fund, etc are major investor in senior classes of RMBS, and hedge fund, private equity fund, ABCP conduits, structured finance CDOs etc. are investor in junior classes of RMBS.

Currently in India, major buyers of securitization papers are insurance companies & banks.

Banks have huge treasury position. The current investment by bank in RMBS papers are driven by an RBI circular. The language of the circular is far from simple understanding. It does nothing by way for incentivizing banks to invest in RMBS paper; neither does it provides any guidance on how to assess the risk of RMBS investing. On the other side, by giving down several conditions that banks should monitor, some are impractical, it just creates an impression of being a piece that regulate banks' investment in RMBS.

Though the circular does provide a 50% risk weight for investment in RMBS, what is required is comprehensive guidance to bank wanting to invest in RMBS. Not necessarily that the RBI should do – even some industry association, like, FIMDA, can do it. Bond Market Associations in the USA have easily-understandable guidance on investing in MBS papers. In absence of a guide, it's quite easy for bank to either over-estimate or under-estimate the risk of MBS investing. In practice, in situation of ignorance, over-estimation of risks is more common.

The other significant investor class is mutual fund. So far, there were several apprehensions as to whether mutual fund could invest in MBS, as same was not defined as "securities" under sec. 2 (h) of Securities Contracts (Regulation) Act, & under SEBI's current scheme, mutual fund might invest only in "securities". An important step in this direction has been taken - the Union Budget 2005 propose an amendment of definition of 'securities' in sec. 2 (h) of aforesaid law, so as to clearly include the asset-backed and mortgage-backed securities (MBS). This will open the avenue for mutual funds & foreign institutional investor to invest in MBS paper.

Employee benefit funds (EMF) may also find investing in senior tranche of MBS paper interesting. The government interference here is very helpful – it may recommend/permit limited MBS investments by provident funds & pension fund.

Risk Assessment of Investing in MBS:

In any market, to encourage investor to invest in securitization transaction, easy-to-understand guides from a body who carries reliability & faith would be highly helpful. It is seen that in absence of such a guide, the risks of investing in the MBS have generally not been understood.

Basically, there are two primary risks in MBS investing:

- Prepayment risk, which is essentially Interest rate Risk
- Credit Risk

Credit Risk

Similar to any other investment the basic involved in MBS is default risk or credit risk. A mortgage-backed security is not guaranteed by either the originators or the trustees – the credit support should come from the credit enhancement which is put in place at inception of the transactions. There is no continued credit support, & it would be foolhardy to think that any party would do anything to bail out transactions potentially into a default.

This risk is no different from risks of plain corporate bond. In the case of plain corporate bond, the bond-holders' primary source of comfort is existence of equity in corporation. To the extent equity is not wiped out due to loss, the bond holder is protected. As equity is wiped out, the bond will get into a default.

Credit enhancements do the same thing to securitization as equity does to corporate finance. Credit enhancement is economic equity of a securitization.

Investor need to understand that in structured finance transaction, the computation of size of the credit enhancements is based on rating agencies' stressed default scenarios. Every factor that contributes to credit of the portfolio – prepayment rates, excess spreads, delinquencies, contraction of the excess spread over time, are stressed, stretched, & the ability of the transactions to withstand the stress are analyzed. The size of the credit enhancements itself is a function of the desired ratings

Prepayment Risk

One of the most common misunderstood risks in MBS investing is risk of prepayment. Since mortgage tend to prepay (obligors exercises a prepayment options), the prepayments are passed over to the investors. Thus, investors get a part of principal before scheduled maturity, & hence, lose their interest to the extent they are prepaid.

The degree of the prepayment speed is always estimated in any of the MBS investing, & hence, the expected maturity is computed, but if actual prepayment speed is higher than that of estimated, it introduce a **maturity contraction risk** to the investment; on the other hand if the actual prepayment speed is slower than projected, it introduces **maturity extension risks**. In general, neither of the two risk affects the yield of the investor from the given investments – but they have a bearing on reinvestment return. Therefore, in a falling interest rate scenario, contraction risk results into reinvestment risks. In a rising interest rate scenario, extension risks become a loss of opportunity. Ironically, in portfolio of fixed rate mortgage, falling interest rates will generally be associated with increasing prepayment speeds, and rising interest rate will slow down prepayment speed.

Much of the literature on prepayment risk comes from the USA - where mortgage carry a contractual prepayment options. In India, as in most other market, there are prepayment penalty – which serve as a demotivation to prepayment. If the prepayment penalties are worked out as mark-to-market differential, the prepayments penalties may be sizeable for a mortgages which is not significantly burnt-out (i.e. substantially amortized). Those are the mortgage where there is a more strong urge to prepay based on interest rate change.

Beside the above differences, there is yet another significant difference b/w the US market & the Indian market – the predominant share of floating rate mortgage in India. If the mortgage lending rate are periodically reset based on interest-rate change, interest rate cease to be a motivation for prepayment to happen. These risk have not properly been communicated to investor. Being unaware, investor demand too high risk premium for investing in MBS, which implicitly include a fat premium for their own lack of understandings.

Legal infrastructure

By far, the most significant barriers to development of securitization in India is presence of certain antiquated law that date back to the 19^{th} century & are completely out of place with present market reality. Unfortunately, this law is stumbling blocks to development of securitization in the country. It’s not that this paper bring those issues to the notice for first time – this has been done by every committee that went into this matter, starting from the Andhyrujina panel to several consulting groups of Asian Development Bank. However, no concrete measure has been taken by the government to resolve these issues.

The Securitization Act – a futile exercise:

There is an enactment called the Securitization and Reconstruction of Financial Assets and Enforcement of Security Interests Act (SARFAESI) enacted in 2002. The long title suggest that the Act does something about securitization – in fact, the Act is focused on enforcement of security interest, & whatever skeletal provision it had enacted about securitization has been completely useless in practices. The whole scheme of Act was flawed – it envisaged concept of a ‘securitization company’, supposedly company in business of securitization, which will be licensed & regulated by RBI. No such company has come into existence, & therefore, the provision of the Act on securitization has been of no avail. Perhaps in realization, the Finance Minister has announced as a part of Budget Speech presenting the Union Budget that government will appoint a high-powered committee for examining all aspects of securitization transaction.

Problems of existing legal system:

The existing legal system in relation to mortgage backed securitization, suffer from two basic legal infirmity. It was easy to resolve these without involving any Centre-State issues & it’s only surprising as to why it has not been done.

Mortgages debt regarded as immovable properties:

The first problem is that mortgage backed security (MBS), being an interest in mortgage, are treated by law as an immovable properties. This may be resolved by providing a receivable which as security of a mortgages will not be seen to be an immovable property, thus taking mortgages receivable out of the domain of Transfer of Property Act, a law with the foundations in 19^{th} century.

Stamp duty issue:

The other issue is issue of stamp duty. Stamp duty also originate from an archaic concept of English law where a receivable is treated as a specific forms of property, for the transfer of which written instrument is required. If this provision was amended or deleted eliminating the need for written instrument, one would not require a conveyance to transfer a mortgage debt, & therefore, the whole issues of stamp duty could be resolved in single stroke.

At present the system works on an extremely inefficient structure of the stamp duty concession notification. Several states have issued such notification, notably, Maharashtra, Gujarat, West Bengal, Tamil Nadu, etc. As can be expected, the language of the notification is different, & interpretations are mind-boggling. It's easy to understand why securitization pool have been restricted to those states where these notification exist, thus, keeping the borrower from the rest of country outside the securitization framework.

The stamp duty issued is being made to look like a Centre-State issues, but in fact it is not. None of States would have projected huge revenue out of securitization stamp duty – in States which has not made the stamp duties practical enough, there are not any securitization transaction at all. So the option are clear – either make it practical, or transactions do not happen at all.

Mortgage foreclosure law:

Another difficulty commonly cited was the lack of mortgage foreclosure laws. Under traditional civil law, mortgages foreclosure necessarily required the permission of a civil court, which take anywhere between years to ages.

This problems has substantially been addressed in term of legal infrastructure - only requires institutional structures to handle foreclosure. The SARFAESI Act made it permissible for bank) to foreclose mortgages without approaching a Court. While the legal provision therefore exists, all that is required is development of institution that could carry out the law and logistic inherent.

Clarity on taxation:

Securitization structure is going on without any clarity on the tax treatment of special purpose vehicles. Securitization SPVs are created as trust, and it is believed, without any basis, that they will be tax transparent & that tax will be imposed on ultimate investors.

Given the fact that the pass-through rule in the US taxation are quite complicated & not every transaction qualify for pass-through treatment, believing securitization SPV to be tax transparent can be quite dare-devilish. In fact, with this kind of recycling, reconfiguration of cash flows & stripping of inflows, it likely that the transactions are not treated as through.

Lack of tax clarity promote malpractices - the smart one overdo things, which can be fatal. In the case of financial lease transaction, this was clear from history. Tax clarity is thus a must.

Findings & Recommendations

The recommendations mentioned here can be used to make the effective use Mortgage based securities in India. This as a result will help in the growth and development of India.

In-order to make it more effective, standards and documentation should be made simpler as mentioned below. American Securitization Forum and European Securitization Forum had documented a simpler form for reporting which can be easily used by India by making some necessary changes or modification in it.

- **Simpler Rules and Regulations for documents and underwritings:** A standard way for documentation as well as a standardized products and underwriting practices reduces the transaction cost of credit enhancement and due diligence. This implies that a standardization process should be followed in primary mortgages market.

- **Post-issue servicer reporting:** Regular review and control should be there before and after the transaction. A regular report should be with the parties to look after the progress of the financial instrument.

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