A Secondary Mortgage Market for India: Notes on Feasibility and Structure

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Washington, D.C.

prepared for

U.S. Agency for International Development/India
New Delhi

September 1989
UI Paper 3960-1

Contents

Acknowledgements

The work reported in this paper was undertaken at the request of the Ministry of Urban Development and was sponsored by the U.S. Agency for International Development, India. The work was heavily dependent upon a number of individuals in the public and private sectors who provided expert opinons in the course of interviews and more general discussions on various aspects of Indian housing finance and financial markets. Principal among these persons are the following:

National Housing Bank: P. K. Parthasarathy, S. D. Hosangdai, T. V. Ramachandran, S. P. Ghosh

Government of India Ministry of Urban Development: P. S. A. Sundaram, A. K. Samantray

Housing Development Finance Corporation, Ltd.: Deepak Parekh. Deepak M. Satwalekar, S. N. Shroff, Nasser M. Munjee, Satish Saraph, Milind Barve

Government of India Ministry of Law and Justice: Dr. V. K. Agrawal

Life Insurance Corporation: G. Chidambar, P. R. Singh, C. V. Satyanarayan, Chintaman B. Gokhale

General Insurance Corporation: B. D. Shah, Ashok P. Pradhan

Housing and Urban Development Corporation: Anoop Aggarwal, D. R. Nakra

National Institute of Public Finance and Policy: Dr. Devendra B. Gupta

Society for Development Studies: Dr. Vinay D. Lall

National Institute of Urban Affairs: Om Praskash Mathur

Unit Trust of India: Mr. Hirianniah

In addition, the discussion at a seminar organized by Mr. H. C. Joshi and others at the Delhi Co-operative Housing Finance Society, Ltd. gave important insights. Finally, Michael Lee at USAID/India offered thoughtful guidance throughout and gave careful comments on a draft of the report. While I am indebted to all of these persons, any errors in the paper remain my responsibility.

Executive Summary

The Indian housing finance system is in a time of very rapid change. There has recently been an enormous expansion in the number of entities making mortgage loans, including the planned establishment of housing finance subsidiaries by the Life Insurance Corporation (LIC) and the General Insurance Corporation (GIC) and the entry of the huge commercial banking system into direct lending for housing. Combined these developments mean that housing finance is available on a much wider geographic basis than heretofore. In addition, there has been an expansion in the volume of lending, as these new loan originators access specific pockets of funds.

We think it doubtful that the growth in the volume of lending can be sustained rather than simply settling down at a somewhat higher level. The critical issue is funds mobilization for the sector. The idea of creating a secondary mortgage market as a way to attract funds from a broader range of investors and to integrate housing finance more fully with overall financial markets has been offered as one way to accomplish the mobilization. While conceptually appealing, the feasibility of establishing a secondary mortgage market in India must be carefully analyzed before any decision is taken. Indian financial markets have a unique and complex structure which will at a minimum complicate the establishment of such a market.* Our summary and guarded judgement is that a secondary market for mortgage-backed securities may be feasible in several years, perhaps as early as 1992/93; but this statement depends crucially on developments in both housing finance and financial markets in the years ahead as indicated below.

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* The secondary mortgage market has been defined to cover all mortgage transactions that occur after the original lender closes a loan, i.e., it includes all mortgages except those kept in the originating institution's portfolio. Thus it includes all financing of mortgage lending under which the funds are raised by a secondary facility using individual mortgages or pool of mortgages as explicit collateral (as in the sale of mortgage-backed bonds) or under which interests in mortgages are sold (as in pass through certificates). Beyond this, a secondary market implies that the mortgage-backed securities are quite liquid to those investing in them--requiring that there be a large number of investors in the securities who create a continuing market for trading them. Note that as a first step mortgage-backed securities can be sold to investors who will hold them in their portfolios until maturity, with the active trading market developing later.

Five Areas to be Considered

We have identified five areas that need to be addressed as part of the overall evaluation of a secondary mortgage market.

Quality of Asset Issues. A prerequisite for an investor to purchase a mortgage-backed instrument is that he have confidence in the underlying assets. Two particular quality-of-asset considerations are relevant in the Indian context: timely foreclosure of defaulted loans and the quality of mortgage underwriting, which in turn effects the incidence of default. Two initiatives are being taken which may produce an expedited foreclosure process: the development of a mortgage insurance scheme by the GIC and drafting of amendments to the National Housing Bank Act; both would permit certain housing lenders to avail themselves of an expedited foreclosure process. Both initiatives would require legislative action, and the timing of such action is unclear.

A secondary market could be established in the absence of faster foreclosure, but probably only if Government guaranteed the timely payment of principal and interest on securities issued by the secondary facility. If such a guarantee is forthcoming, Government should stand prepared to make good on it, in the event that a housing finance company (HFC) sells a significant volume of poorly underwritten mortgages to the facility and then fails.

It is essential for the secondary facility to develop strong but realistic guidelines on the underwriting done on the loans which it will acquire. At present it is likely that underwriting standards vary widely among originators, although some HFCs have very strong procedures which should be built upon.

Assessment of Market Potential. To assess the possible market for mortgage-backed securities one must examine both the likely volume of mortgages to be offered for sale, and the number of probable purchasers and the extent of their demand. A minimum level of activity is required to provide investors with the liquidity they may seek (through being able to sell their securities at any time at a good price--a "thin" market may allow initial purchasers to sell but only at unfavorable prices).

The volume of mortgages to be offered for sale by lenders depends on the growth in mortgage lending in the years ahead and on the availability of financing from other sources to support mortgage lending. The growth in lending is extremely difficult to judge at present because of the rapidity of change in the sector. Using the planned disbursements of major lenders in the current year and rough projections of the growth in their lending over the next three years, and adding to this some allowance for the lending to be done by others, it appears that by 1992/93 there will very likely be a sufficient volume of loans available to support sales in a secondary market. The "effectiveness" of this volume is enhanced by the relative homogeneity of the terms under which mortgages are being written in India. Homogeneity means that large mortgage pools can be formed and that most MBSs will be the same, thereby increasing the number of "traders" for each type of instrument.

Against this must be weighed the possibility that housing lenders will be able to avail themselves of alternative easily available and possibly low cost sources of funds to support their lending. Very much expansion in the traditional sources appears doubtful. Because of various constraints on the ability of HFCs to compete for deposits, the household sector cannot be looked to for a major share of the funds; even the contract-savings schemes will very likely be net users of funds after the first few years when lenders must honor the contracts which require loans of 2 to 4 times the amount of funds saved. The prospects are not greatly better for additional term loans from the "big three" sources of long-term funds (LIC, GIC, and Unit Trust of India [UTI]). LIC and GIC have both initiated their own housing finance companies and will channel much of their housing sector lending to them; indeed, it seems probable that LIC Housing Finance, Ltd. at least will need to raise funds from other sources to meet its ambitious expansion plans. More funds could come from UTI, but these would most likely be at rates uncomfortably high for housing finance, given the mortgage interest rate structure. Thus, HFCs and other originators will be very actively searching for broader sources to finance their mortgage lending.

As to the market for mortgage-backed securities, with the major sources of long-term funds already quite heavily engaged in the sector, other purchasers--financial institutions, corporations, and individuals--will have to be sought. Whether additional purchasers can be attracted depends critically on the design and pricing of the mortgaged-backed securities.

Instrument Design and Pricing. In thinking about the pricing of securities whose proceeds would be used to finance the purchase of mortgages, one is immediately confronted with a contradiction: the structure of mortgage interest rates has been defined before the cost of funds has been determined. Stated alternatively, loan originators and the National Housing Bank (NHB) have adopted the schedule of mortgage interest rates established by HDFC a decade ago. That schedule was predicated on the ability of HDFC to attract low cost funds, both from deposits and, more importantly, from term loans from LIC and similar institutions at favorable rates. While seeking out low cost funds may be a viable strategy for a single institution, even a large one, it is not clear that the strategy can be sustained for the entire housing finance system.

Seeking funds in the open market (i.e., without fiscal advantages) from many corporate and individual investors will mean a substantially higher cost of funds and a corresponding increase in mortgage interest rates. The "open market" approach would insure the ability to raise the funds to support expanded housing lending; it would, however, have adverse consequences on housing affordability for some households. On the other hand, secondary markets--or other forms of funds mobilization--by expanding the volume of housing lending will gradually push mortgage originators to lend to lower income households than the formal sector has previously served on a commercial basis. These new mortgagees will benefit by not having to rely on more costly informal sources of finance. Still, it is doubtful that the formal sector will soon serve a large number of households with income well below the median household income level.

For the housing sector to be able to attract further funds from Indian financial markets, while maintaining current mortgage interest rates, will require that a variety of instruments be developed and marketed, each targeted to a different market segment. Financial markets have been deliberately segmented by Government through a complex system of taxes confronted by various investors depending on their income level and composition on the one hand, and the granting of the right to selected institutions to offer securities which exempt various types of income from taxation on the other. Some particulars on the array of instruments that might be marketed to different groups and the associated interest rates to investors are presented in the paper.

In summary, simply note that such a strategy would be complex, mirroring the structure of financial markets; but it does appear feasible. This conclusion is rather speculative and requires confirmation through careful study of the market potential for pass-through certificates to individual investors and a detailed analysis of the spreads needed by the secondary institution.

The Secondary Institution. The National Housing Bank is the natural institution to act as the secondary market facility. The Act establishing NHB provides it the essential powers to function in this capacity. And, indeed, the NHB has through its refinancing program taken a clear step in this direction. However, its decision to limit refinancing to small loans on small dwellings raises some question as to whether it will serve as a secondary facility to the balance of the market. At least currently the majority of the mortgages being originated by the HFCs do not qualify for refinancing. In short, it remains to be seen whether the NHB's motto will be "the small man first" or "the small man only". If it is the latter, then another institution may have to take up the larger secondary market function discussed above. Such institutional duplication would clearly be undesirable, but even less desirable would be not providing liquidity for loans up to at least Rs one lac and somewhat larger units than the 40 square meters now purchased by NHB.

Additionally, the NHB will need to change its refinancing scheme to a mortgage-backed one or add an explicit MBS program as the basis of a secondary market. In particular, to offer mortgage-backed securities will require NHB to purchase mortgages and base the securities issued on mortgage pools. Purchase of mortgages by NHB will be helpful to HFCs as it avoids the increase in debt on their books entailed by the refinancing scheme.

Operational Details. Beyond the factors already enumerated, there are a host of specific planning and implementation tasks that are part of the creation of a secondary mortgage facility. The amount of time, energy and technical skill required to execute these should not be underestimated.

Next Steps

Clearly, a number of questions remain to be resolved about a secondary mortgage market in India. These fall into two groups: (a) those concerning the feasibility of creating such a market, given the youth of the primary mortgage system and the fractured nature of financial markets; and, given a decision to go forward, (b) those dealing with establishment of secondary market operations.

Three related analyses of feasibility should be undertaken: estimation of mortgage volume to be offered for sale to a secondary facility; estimation of the volume of mortgage-backed securities that might be sold using alternative instruments and offering different interest rates; and, analysis of the relation between the cost of funds (i.e., interest rates paid to investors plus various spreads) and the existing mortgage interest rate schedule. Information on these points is fundamental for making a decision about the feasibility of establishing a secondary market. These studies should be given priority. At the same time it be may wise to defer undertaking them until the spring or summer of 1990, when the commercial banks and some young HFCs will have had more experience.

Given a decision to go forward, four broad implementation tasks lie ahead:

- o If Government decides that mortgage insurance is the proper way to tackle the mortgage foreclosure problem and is successful in passing the necessary legislation, the underwriting standards for qualifying lenders must be defined and lender-specific premium structures established.

- o The secondary facility must define the types of mortgages it will purchase. This should be done early in the process, as it will give originators time to adjust the types of mortgages they write before the secondary market begins; this will enlarge the pool of mortgages initially available for purchase.

- o Clarification as to whether pass-through certificates provide adequately defined collateral so as to be acceptable under Indian law, and, if not, amendment of the NHB Act giving them the necessary status.

- o The large range of operational matters noted above will have to addressed in a timely way.

The list of tasks to be done amply makes the point that establishing a secondary mortgage market is a large and complex undertaking. As such it should be guided by a well-constructed plan of action, including a fairly detailed time schedule. As suggested, a two or three year period appears to be a reasonable estimate of the time required to execute these various tasks. Fortunately, this corresponds to the date when the primary market will likely be sufficiently developed to support a secondary market.

1. Introduction

The housing finance system in India is undergoing extraordinary change and development. The newly formed National Housing Bank (NHB) has acted with authority and celerity to establish ground rules for the creation of new housing finance corporations (HFCs) and to increase the role of the commercial banking system in financing housing. Moreover, the Life Insurance Corporation (LIC) and other institutions have decided to enter the mortgage origination market as major players using their own funds. And the Housing Development Finance Corporation (HDFC) continues its role as innovator and the largest loan originator. Combined these actions mean an unprecedented expansion in the availability of housing finance and the emergence for the first time of competition among lenders.

Importantly, there appears to be wide agreement on three key points regarding the further development of the housing finance system. First, for the volume of funds in the system to increase significantly calls for housing finance be more completely integrated with broader financial markets. As the Honourable Minister for Urban Development recently emphasized: "housing finance would need to be integrated into the financial system as a whole if it is to assume the proportions that will be required to finance projected needs".[1] Such integration means that interest rates on mortgages will have to be competitive with those offered by other investments.

Second, there is agreement that there must be full cost recovery on funds lent and interest rates, as a group, are not to be subsidized. This position has been clearly taken by the NHB and by the Conference of State Housing Ministers. And, third, there is recognition that the central problem currently facing the system is generating additional loanable funds, i.e., dealing with the system's persistent liquidity problem. The very substantial expansion in lenders noted above may result in a simple one-time increase in funds lent as each lender taps a pocket of funds, rather than forming the basis for a steadily growing system, unless the issue of mobilization is dealt with on a systematic basis.

While there is agreement about the need for generating additional funds, there is less unanimity on how best to accomplish this. Clearly, to the extent possible more funds should come directly from households, including their participation in contract savings schemes like the Home Loan Account Scheme and HDFC's Home Savings Plan. However, deposits--earmarked for downpayments or otherwise--are unlikely to be sufficient (this is discussed further below). Several options for other actions have been put forward explicitly or implicitly in the past two years, including: the creation of new savings institutions; the refinancing scheme for small mortgage loans initiated by the NHB; sale of bonds or participations by individual mortgage lenders; and creation of a secondary mortgage market in which bonds or participations based on pools of mortgages would be sold to the public. While there has been some initial experience with some of these instruments, numerous issues remain to be analyzed in detail before firm recommendations for dealing comprehensively with the funds mobilization problem can be formulated.

This paper explores the options for generating additional funds from broader financial markets, with special attention given to the creation of a secondary mortgage market. The secondary mortgage market has been defined to cover all mortgage transactions that occur after the original lender closes a loan, i.e., it includes all mortgages except those kept in the originating institution's portfolio. Thus it includes all financing of mortgage lending under which the funds are raised by a secondary facility using individual mortgages or pool of mortgages as explicit collateral (as in the sale of mortgage-backed bonds) or under which interests in mortgages are sold (as in pass-through certificates). Beyond this, a secondary market implies that the mortgage-backed securities are quite liquid to those investing in them--requiring that there be a large number of investors in the securities who create a continuing market for trading them. Note that as a first step mortgage-backed securities can be sold to investors who will hold them in their portfolios until maturity, with the active trading market developing later.

We also focus on housing finance companies, both public and private, as a matter of convenience, although the discussion generally applies to commercial banks, housing cooperatives, and other retail lenders. Financing of HUDCO operations is not addressed since it does not issue mortgages. The next section begins by discussing in principle several of the options available for mobilizing funds. Section 3, then, evaluates the secondary mortgage market option in the current Indian environment. Finally, in Section

4 we discuss the next steps that could be taken to hasten the development of a secondary facility.

Table 2.1
Summary of the Distribution of Risk Under Alternative Ways of Mobilizing Funds
(entity bearing risk)

source of funds	credit risk	intermediation risk	interest rate risk	prepayment risk
			type of risk	
deposits	originator	originator	borrower or originator++	originator
term loans*	originator	originator	borrower or originator++	originator
bonds**				
fixed rate	originator	none	investor	issuer
variable rate	"	none	borrower	issuer
participations**				
fixed rate+	originator	none	investor	investor
variable rate+	"	none	borrower	investor
refinancing (NHB)	originator	none	issuer	originator

Notes:

* Assumes these loans are at a fixed rate. Intermediation risk occurs only if the loan has a call option.

** Assumes that the bonds have the same term as the underlying mortgages; bonds could be issued either by an individual lender or by a secondary facility but in either case use a pool of mortgages as the asset base. "Fixed rate" and variable rate refer to the interest rate structure on the underlying mortgages.

\+ Whether the participation is fixed or variable rate depends on whether the mortgages in the underlying pool are fixed rate or adjustable rate mortgages.

++ Depends on whether fixed rate or adjustable rate mortgage is employed.

2. Options for Resource Mobilization

This section presents a brief introduction to several options for mobilizing funds for housing finance. The primary emphasis is on how different mobilization vehicles deal with the allocation of various forms of risk associated with mortgage lending among the borrower, the loan originator (e.g., a housing finance company or commercial bank), the issuer of mortgage-backed instruments (if any), and the investor in the mortgages, if different from the issuer or the investor. (Table 2.1 gives a summary of the different sources of funds and the allocation of risks.) Risk allocation is important in itself because an efficient allocation will reduce the cost of mortgage credit to the borrower, i.e., the savings from specialization will more than offset the additional administrative cost of multiple institutions being involved in the mortgage origination and investment process. For example, if prepayment risk (defined below) is shifted to an investor who is routinely reinvesting funds or who is hedging risks by using various instruments to take forward positions, then he will charge less for bearing this risk--in terms of the interest rate he demands--than investors who have less flexible and hedged investment programs. Moreover, there may be some forms of risk which investors are simply unwilling to accept at this point (at any reasonable price); and this will condition the range of feasible financing arrangements. But beyond the issue of risk _per se_, ordering the discussion in this way provides a useful framework for thinking about the various elements involved in a secondary mortgage market.

2.1 Types of Risk

There are four types of risk involved in mortgage lending: credit risk, intermediation risk, interest rate risk, and prepayment risk. Credit risk is the risk of non payment associated with any loan. While in the case of housing this risk can be shifted to a specialized institution through creation of mortgage insurance, we think that in India such insurance should only be introduced if it fosters prudent underwriting standards; the lack of such standards is evident in the unacceptability high level of delinquencies at some HFCs. Insurance should also deal squarely with the problem of the lengthy foreclosure process.[2] In India it seems likely that the credit risk under all options will be borne at least in part by the loan originator, i.e., even if mortgage insurance is introduced, the lender will still be liable for part of any loss experienced.

Intermediation risk is the possibility that the lender will have difficulty replacing liabilities (deposits or term loans) that might be withdrawn prior to the repayment of a mortgage loan; this risk arises when there is not a close congruence between the term of the lender's assets (primarily mortgages for an HFC) and his liabilities. It is the classic problem of "borrowing short and lending long" traditionally faced by building societies and other depository institutions. Note that this risk exists for lenders relying on term loans, if the loans are for periods shorter than the length of the mortgage contract or if the loans have a call option. Exactly this risk has already contributed to the failure of at least on HFC. This risk is borne by the loan originator unless it is successful in selling the mortgage or debt based on the mortgage to other investors for the term of the mortgage. Indeed, the avoidance of this risk, in addition to the quest for more loanable funds, is the primary motivation for lenders to sell mortgages to secondary institutions (note in the table the entry of "none" for this type of risk under arrangements for selling the mortgage to investors).

Interest rate risk to a lender occurs when the interest rate on liabilities can vary independently of the interest rate on mortgages already in force. For example, if the mortgage carries an interest rate fixed for its life while the rates on liabilities used to finance it can vary over the life of the mortgage, then it is possible for the cost of funds to rise above the interest rate on the mortgage thereby creating a loss for the originator. HUDCO, for example, has experienced this situation in recent years as its cost of funds has drifted upward while its lending terms have not changed. In some countries, the standard protection against this form of risk has been use of adjustable rate mortgages (ARMs) under which the interest rate on the mortgage is varied with changes in the cost of funds over time. Under a fixed rate mortgage and assuming the originator holds the mortgage as an investment, interest rate risk is borne by the originator; however, under an ARM the borrower bears this risk.

Alternatively, under a fixed rate mortgage if the mortgage (or participations in it) is sold, then the originator's risk is shifted to the investor. A specific case of this phenomenon may occur under the NHB's refinancing scheme. NHB is refinancing fixed rate mortgages, if interest rates rise over the 15 year commitment period[3] and if the NHB sources of funds are for less than 15 years, then it will lose money. This would be avoided if it uses its power to change the refinancing rate, in which case the lender absorbs the risk.

Lastly, prepayment risk is the risk which arises because mortgages may be paid off before the end of their term at a time when interest rates are low compared to the rate on the mortgage. The investor--either the originator or other investor--then has to reinvest its funds at a less favorable rate. In India, prepayment risk is significant.[4] A study of prepayment of mortgages originated by HDFC over the 1978-1985 period found that about 25 percent of mortgages were fully prepaid in the first six years of their 15 year terms; typically prepayment increases near the end of the loan term, so quite high overall prepayment rates can be anticipated. Reducing the magnitude of risk associated with prepayment in India is the stable interest rate environment. Since prepayment risk accrues to the investor, who bears it varies with the method of generating funds. The originator is at risk when deposits or term loans are the source of funds. If bonds based on a pool of mortgages are used to finance the loans, then the issuer of the bonds--the originator or a secondary institution--is at risk; but if financing is through participations--which entitle the investor to a share of all proceeds, including prepayments--then the investor is at risk.

The basic message is that there are many ways to allocate the various risks associated with mortgage lending. The selection among options ultimately depends on which institutions are best able to deal with them, whether the necessary institutions exist, and the acceptance in the market, i.e., the price, of alternative instruments, both mortgages and investment vehicles which allocate the risk in different ways.

2.2 Mobilization Alternatives

Households and Term Loans. As noted, there is hope in many quarters that the household sector can be induced to contribute more directly to the pool of funds lent for housing. However, there is keen competition for retail deposits in India, and housing finance companies (HFCs) have little comparative advantage in this market. Indeed, the pressure to keep mortgage interest rates at fairly low levels, especially on small loans, makes price competition exceedingly difficult (in addition, rates paid on deposits by HFCs are subject to a 14 percent cap). Partially for these reasons, the housing-linked contract savings scheme has been introduced by the NHB. One study indicates that in India such schemes will increase the share of household savings held in financial form among those participating in them and thereby make the housing sector more self sufficient financially.[5] It is too early to know how popular the scheme will prove with would-be home purchasers. However, offsetting the advantages which the contract savings scheme give HFCs is the recent directive by the Reserve Bank of India (RBI) prohibiting HFCs from accepting deposits of less than two years maturity. This, combined with the already existing prohibition against their accepting demand deposits, makes tapping the household sector all the more challenging.

Because of the difficulty in generating household savings, the largest HFC, HDFC, has turned to term loans as its principal source of funds. It appears likely that the other major new HFCs will follow HDFC's lead in this regard; this will certainly be the case for the LIC and General Insurance Corporation (GIC) affiliates, for example. While such loans are attractive because of the comparatively low cost per Rupee mobilized, they have two disadvantages for the housing finance system as a whole. First, the borrowing HFC bears all of the various risks associated with housing lending, assuming that a fixed interest rate mortgage is employed. Second, the sources of such loans are limited and it is unlikely that all HFCs will be able to obtain access to them; they will probably be insufficient to ultimately support a growing housing finance system.

Almost by default, then, the housing finance system is being forced to look to broader financial markets for sources of funds. There are two general alternatives available. One is for each institution to try to tap into financial markets using bonds or raising equity; the other is for a more collective approach under which one or more secondary institutions access financial markets on behalf of a number of institutions. To date the investor community has been drawn upon to a limited degree by individual institutions. Only HDFC among the housing finance companies has been able to successfully tap broader financial markets, in both selling bond issues and raising equity. At the "wholesale level" HUDCO routinely sells its bonds, with their various advantages; and the Delhi Co-operative Housing Finance Society has sold bonds with a government guarantee which it uses to make loans to member cooperatives.

Secondary Mortgage Market. The secondary facility approach has significant advantages. First, the price of funds to lenders will be appreciably lower if the securities sold by the secondary facility carry an implicit government guarantee, something unlikely to be enjoyed by an individual HFC. Second, a secondary facility permits small, relatively unknown institutions to access these markets. Third, collectively entering the market may well lower transactions cost as fewer, larger issues can be marketed.

Note that to date no institution has sold mortgage-backed securities in the Indian financial market. All of HDFC's bond sales are supported by all of its assets. A major step will be in collateralizing bond issues or pass through certificates (herein often referred to a "participations"[6]) with a pool of mortgages.

The choice between bonds and participations is very important because the two instruments allocate interest rate and prepayment risk differently. Bonds provide the investor with a predefined return and a certain repayment schedule. Pass through certificates or participations, on the other hand, represent undivided interest in an underlying pool of mortgages, and payments of interest and principal on the mortgages are passed through to the certificate holders as they are collected. Participations provide a stated rate of return but the pattern of payment is somewhat uncertain, as it depends in part on the rate at which households prepay their mortgages.[7] Many investors dislike receiving such irregular payments as it requires additional work to invest the "unscheduled" flows. Hence, the premium associated with certificates is due to prepayment interest rate risk. Under bonds, the issuer bears the interest rate and prepayment risks, while with participations the investors do. Clearly from the perspective of a secondary facility, participations are generally more attractive; and for this reason most mortgage-backed securities sold in the United States are of the pass-through type.[8]

Lastly, a quick look at the NHB refinancing scheme is in order. Under the program, the NHB is refinancing small mortgage loans (the limit is Rs 50,000 and the floor area of the unit cannot exceed 40 square meters). The NHB is refinancing loans issued by commercial banks, and HFCs with capital of at least Rs one crore (a minority of companies).[9] Although it is now financing these purchases from equity and term loans, the NHB could sell tax exempt or government guaranteed bonds to do so, thereby tapping broader financial markets.

Under the refinancing scheme, if the NHB does not vary the cost of funds to lenders, it bears the interest rate risk, i.e., if its cost of funds shifts upward during the period of the loan, the NHB is locked into a negative spread. On the other hand, the loan originator is bearing some prepayment risk, since the terms of the scheme require the originator to make payments over the full 15 year life of the loan, regardless of when the mortgages are actually paid off. It is conceivable in the case of a prepaid loan for the reinvested funds to earn less than interest rate on the original loan, thereby causing the originating institution to suffer a loss. The NHB has acted to insulate lenders from this risk by permitting them to pay off the loan for refinancing with two months notice; but, of course, it then bears the prepayment risk if mortgage originators take advantage of the option.

Importantly, under refinancing the underlying loans are not acquired by NHB. Hence, refinancing does not offer a stepping stone to the creation of a secondary market, since it is not possible to sell bonds or pass-through securities based explicitly on pools of mortgages.

With this overview of instruments in mind, we now turn to a more detailed discussion of issues surrounding creation of a secondary mortgage market in India.

Table 3.1
Key Factors for Development of a Secondary Mortgage Market in India

A. Quality of asset issues

   1. amended foreclosure proceedings
   2. standardization of underwriting guidelines; mortgage instrument

B. Assessment of potential market

   1. supply for mortgages

      -- adequate supply of qualifying mortgages being generated to support reasonable volume of issues to permit trading
      -- "qualifying": meeting underwriting and other standards

   2. market for mortgage-backed instruments

C. Instrument design and pricing

   1. basic instrument structure

   2. pricing the instrument

D. The secondary facility

   1. candidate institutions: relationship to NHB

   2. initial capital requirements & sources; gearing ratio; fiscal advantages

E. Operational details of secondary operations

3. Issues about Creation of a Secondary Mortgage Market in India

We have identified five blocks of issues, summarized in Table 3.1, that must be addressed in pursuing the creation of a secondary mortgage market in India. Some of these have already been given considerable attention by the National Housing Bank, the Housing Development Finance Corporation, or other principal actors in the sector; some have not. This section reviews these issues and summarizes the current status of their resolution. In Section 4, we discuss what might be done to help with those which are unresolved.

3.1 Quality of Asset Issues

A prerequisite for an investor to purchase a mortgage-backed instrument is that he have confidence in the underlying assets. Two particular quality-of-asset considerations are relevant in the Indian context: timely foreclosure of defaulted loans and the quality of mortgage underwriting, which in turn effects the incidence of default. A third point, not discussed here, is that there be consistency in the mortgage instruments employed.

Loan default. The difficulties with mortgage loan foreclosure in the event of default in India are legend. Making the process of foreclosure vastly more efficient is essential for a secondary mortgage system.

The investor in mortgage-backed securities issued by a secondary facility is protected at two levels from the direct impact of loan default, even in the absence of a government guarantee of timely payment by the facility. First, the secondary facility typically has recourse to the loan originator in the case of a loan in default. Generally, such a loan will be replaced in the pool of loans by a similar loan; otherwise, the lender must pay the outstanding principal. Second, should the originator be unable to compensate the secondary facility for the loss of the loan, the secondary facility should stand ready to cover the loss from its reserves. Thus, the risk to the investor appears modest, unless defaults are of sufficient scale to cause the originating institutions to fail and the secondary facility to exhaust its reserves.

While the possibility of these deleterious events occurring seems remote, the chances of them occurring are vastly greater when the procedures for effecting foreclosure of loans in default are as lengthy as in India because during the 8 to 10 years of trying to foreclose the lender is still paying interest on the liabilities but not receiving income from the mortgage. The chances are sufficiently great that investors could be discouraged from buying securities explicitly backed by pools of mortgages unless payments by the secondary facility were explicitly guaranteed by Government. However, the presence of such a guarantee does not eliminate the risk borne by the secondary institution.

The foreclosure problem has been widely recognized, and two distinct initiatives have been taken to deal with it. One is the development of a mortgage insurance scheme, which would be offered by the GIC. Individual housing lenders would opt for coverage and all mortgages written by a covered institution would be insured. In order to protect GIC from the losses attendent with defaults under the current system, the proposed legislation would create a streamlined mortgage foreclosure process, which those familiar with its details say would take comfortably less than a year to complete.

Under current lending practices the chances of losses to the lender under such a "quick take" procedure are small. Mortgage loans carry low loan-to-value ratios--usually around 0.6. In addition, house prices enjoy steady appreciation. Hence, purchase of mortgage insurance would--if current conservative underwriting practices were maintained--primarily secure the right to expedited foreclosure proceedings and only secondarily buy protection from losses incurred in the ultimate disposition of the property.

There are other points worth noting about the insurance scheme. First, the higher loan-to-value ratio being advocated by the NHB would increase the risk of actual loss occurring even under expedited foreclosure procedures. Second, the application of insurance premiums appears to raise the cost of funds to the borrower. However, in fact, the cost of loan default is in all cases included in the mortgage interest rate and is already being borne by the borrower; under mortgage insurance--with the expedited procedures--the cost of defaults will fall, assuming the default rate does not change. Some reduction in the mortgage interest rate could be aniticpated.

The second avenue being explored for dealing with the foreclosure problem would be an amendment to the National Housing Bank Act which would simplify and expedite the process of foreclosure. As now envisioned, only those housing finance institutions and scheduled banks who have used the refinance or credit facilities of the NHB could use the new procedure apparently, due to a legal technicality of establishing a coincidence of interest between the lending institution and the NHB.

The two measures appear to be substitutes for each other in their key feature of expediting foreclosure. However, as now structured each has a limitation. The GIC scheme could encourage lenders to take greater risks, unless implementing regulations and supervision deal carefully with the problem by giving clear underwriting guidelines. The NHB amendments would help only a subset of mortgage originators, i.e., those using its refinancing facilities, something some HFCs are hesitant or unable to do in light of the far ranging supervision they are thereby potentially subject to by the NHB.

The proposal for mortgage insurance is under consideration at the Ministry of Law and Justice, while drafting of the amendment to the NHB Act is nearing completion. It is probable that the earliest either measure could be taken up by Parliament is the second half of 1990. To some degree the timing of the development of a secondary mortgage market depends on the pace at which at least one of these measures advances into law. Of course, secondary market operations could be initiated in the absence of expedited foreclosure; but Government would probably have to extend a (at least implicit) guarantee of timely payment of principal and interest and be prepared to make potentially large outlays to cover them.

Quality of Underwriting. Ensuring good underwriting practices is a less thorny problem than timely foreclosure because the secondary institution can establish clear guidelines which originators would have to follow to be able to sell their mortgages to the secondary facility. Detailed guidelines have, for example, been developed by secondary institutions in the United States for assessing the ability of the home purchaser to make his mortgage payments and for appraising the value of the property.[9] For example, the guidelines indicate the maximum share of income which can be devoted to monthly mortgage payments (and carefully define income) and they specify maximum loan-to-value ratios for different types of loans (e.g., fixed rate, ARMs). In many instances the underwriting on the mortgage being offered for sale is reviewed by the secondary facility prior to a commitment to purchase being made. Mortgages on which risk of default is judged excessive are routinely rejected. Because the liquidity and protection offered to originators from sale of the mortgages is so great, originators have conformed to these demands by buyers.

To date in India there is a limited degree of uniformity in underwriting standards. HDFC and the newer housing finance companies in which it has taken an equity position have generally common underwriting practices which have been judged to be quite rigorous.[11] LIC has its own standards. And the commercial banks, HFCs, and cooperatives just initiating direct lending, can be expected to have a wide range of standards.

The above suggests two points. First, the secondary facility would define demanding but realistic underwriting guidelines in order to minimize its future problems with defaults. Second, it can be anticipated that some lenders will have to alter their underwriting procedures in order to be able to sell mortgages to the secondary facility.

3.2 Assessment of the Potential Market

To assess the possible market for mortgage-backed securities one must examine both the likely volume of mortgages to be offered for sale and the number of probable purchasers and the extent of their demand. A minimum level of activity is required to provide investors with the liquidity they may seek (through being able to sell their securities at any time at a good price--a "thin" market may allow an initial purchaser to sell only at unfavorable prices). Owing to various uncertainties, the following discussion lays out factors that should be considered and speculates on markets that may evolve over the next several years.

The Supply of Mortgages. The volume of mortgages to be offered for sale by lenders depends on the growth in mortgage lending in the years ahead and on the availability of financing from other sources to support mortgage lending. The growth in lending is extremely difficult to judge at present because of the rapidity of change in the sector. However, some idea of the magnitudes involved are available by looking at the potential of the two largest HFCs--HDFC and LIC Housing Finance, Ltd. Using their expected disbursements in 1989/90 as a base, projecting a fairly conservative growth rate of 35 percent per year, and assuming the necessary funds can be mobilized, then in 1992/93 these two lenders will originate about Rs 2,000 crores in mortgages. Easily half of these could be available for sale. Additional mortgage volume will come from other HFCs, commercial banks, and, possibly, apex housing cooperatives. Moreover, the possibility of selling mortgages will spur more lending.[12] (All of this assumes that housing units of the type desired for purchase will be supplied.) Note that even if the loans offered for sale come from only a few lenders, the feasibility of the market will not be affected.

The "effectiveness" of this volume is enhanced by the relative homogeneity of the terms under which mortgages are being written in India. Homogeneity means that large pools can be formed and that most MBSs will be the same, thereby increasing the number of "traders" for each type of instrument. Both with respect to interest rate and maturity there is significant commonality. There are, however, differences that may need some adjustment. For example, LIC's HFC is offering loans with 25 year terms, while other HFCs are offering 12 and 15 year terms.

The previous statement on the anticipated volume of loans that might be offered for sale obviously is conditioned upon the amount of alternative funding that might be easily and/or more cheaply secured. As suggested above, the household sector cannot be looked to for a major share of the funds; even the contract-savings schemes will very likely be net users of funds after the first few years as lenders must honor the contracts which require loans of 2 to 4 times the amount of funds saved.

With respect to term loans, the principal sources have been LIC, GIC, and the Unit Trust of India (UTI). LIC has indicated to us that it does not intend to increase the share of its total investments accounted for by the housing sector. Much of the increase in its lending volume for the sector which results from its accretions--perhaps about Rs 500 crores per year--will likely be channeled to its housing finance subsidiary.[12] On this basis LIC Housing Finance will very probably be looking for other funds. GIC, like LIC, is establishing a housing lending subsidiary; however, in this case staff report that some expansion in its total portfolio in favor of housing is in prospect. Hence, the need for other finance by GIC's subsidiary is unclear, but GIC is an unlikely source of terms loans to others. UTI is already making some term loans to the sector, notably to HDFC, and is reported to have promised sizable loans to NHB. However, while additional funds may be forthcoming from UTI, they are likely to carry rates uncomfortably high for the mortgage lenders--14.5 to 15.5 percent.[14] Lastly, commercial banks are unlikely to be a significant source of additional funds to the rest of the housing finance system in the future, especially given their new direct lending for housing.

If the foregoing assessment is generally accurate, then the major HFCs will be seeking funds from sources other than the "big three"; and the smaller HFCs, who even now have acute liquidity problems, will continue to seek funds from wherever possible.

We have deliberately omitted consideration of the NHB's refinancing role, as this is considered to be, in effect, part of a secondary finance system. One point appropriate at this stage, however, is that if NHB confines its refinancing to the type of loan it has now defined a eligible, then its operations will probably not significantly affect the situation just described. (Even so, NHB's own projections indicate expected disbursements for housing loans to be over Rs 600 crores in 1990/91.)

Possible Demand for Mortgage-Backed Securities. Contrary to often-heard comments, housing finance is already rather integrated with the financial markets, through the term loans being provided by the major sources of long-term funds in the country. Indeed, the institutions making term loans to the housing sector are exactly those which are usually looked to as investors in the housing sector because of the match between the long-term nature of their liabilities and the maturities on mortgages, or, under present arrangements, term loans of up to ten years. The problem is that the

Indian financial market is dominated by a few very large institutions.

With these institutions already heavily engaged in the housing sector, one must raise the fundamental question about who will purchase whatever mortgage-backed securities that may be offered. For a secondary market to exist requires that there be a large number of purchasers whose interest in holding MBSs is in part conditioned by their ability to sell the securities in an active market. True, LIC, GIC, and UTI could shift from term loans to MBSs; this would help form a market for MBSs, although these buyers are likely to hold the securities until maturity. However, this shift would do little to increase the volume of finance in the sector. How, then, to bring more purchasers into the market? After addressing some pricing issues, we return to this question in the next section.

3.3 Instrument Design and Pricing

In thinking about the pricing of securities whose proceeds would be used to finance the purchase of mortgages one is immediately confronted with a contradiction: the structure of mortgage interest rates has been defined before the cost of funds has been determined. Stated alternatively, loan originators and the NHB have adopted the schedule of mortgage interest rates established by HDFC a decade ago. That schedule was predicated on the ability of HDFC to attract low cost funds, both from deposits and, more importantly, from term loans from LIC and similar institutions at favorable rates. While seeking out low cost funds may be a viable strategy for a single institution, even a large one, it is not clear that the strategy can be sustained for an entire housing finance system.

To seek funds in the open market (i.e., without fiscal advantages) from many corporate and individual investors will mean a substantially higher cost of funds and a corresponding increase in mortgage interest rates. The "open market" approach would insure the ability to raise the funds to support expanded housing lending; it would, however, have adverse consequences on housing affordability--consequences Government appears unwilling to accept. However, secondary markets--or other forms of funds mobilization--by expanding the volume of housing lending will gradually push mortgage originators to lend to lower income households than the formal sector has previously served on a commercial basis. These new mortgagees will benefit by not having to rely on more costly informal sources. Still, it is doubtful that the formal sector will soon serve a large number of households with income much below the median household income level.

For the housing sector to be able to attract further funds from Indian financial markets, while maintaining the current mortgage interest rates, will require that a variety of instruments be developed and marketed, each targeted to a different market segment. Financial markets have been deliberately segmented by Government through a complex system of taxes confronted by various investors depending on their income level and composition on the one hand, and the granting of the right to selected institutions to offer securities which exempt various types of income from taxation on the other. In addition some bonds are guaranteed by Government to enhance their marketability, and the Planning Commission directly allocates credit to priority sectors. To reach additional investors means the secondary facility must market an array of securities to tap various market segments and obtain the necessary assistance from Government to tap particular market niches.

To support a "menu" approach to raising funds from the segmented financial markets requires an array of mortgage-backed bonds and pass-through securities. Below are listed a half-dozen different market segments, defined by a combination of instruments and audiences:

market segment	interest rate	maturity
tax exempt bonds	9%	7 years
capital gains bonds	10	3
gov't guaranteed bonds	11.0-11.5	20
provident funds: bonds	12	10
UTI & corporate: MBS	14.5-15.5	15
MBS - individual investor	13	15

The tax exempt and capital gains bonds are all designed to reach market segments defined by the income status of purchasers.[14] The Planning Commission would have to give permission to issue each of these bond types and would control the volume of bonds issued by the secondary institution. All of these markets are well defined and selling to them should not require any particular innovation.

Government provident funds, with their annual accretions of about Rs 1,000 crores, offer another limited market. Managers of these funds could be directed to purchase some volume of bonds or MBS. These securities would almost certainly be held until maturity.

All of the sources of funds just reviewed carry favorable rates, ranging from 9 to 12 percent.[16] The idea would be for mortgage purchases by the secondary institution to be supported by these funds on a pooled basis which combined would produce the necessary interest rate spreads. For example, funds with an average cost of 10.5 percent could support purchase of mortgages with an average interest rate of 12.5 to 13 percent. (Spreads are discussed further below.)

On this latter point, the term of the bonds listed above are mostly substantially shorter than those on the mortgages being written. The degree of mismatch in maturities may be less severe than might first appear owing to the difference in the stream of payments of a self-amortizing mortgage and a bond. Financial analysts have developed the concept of durations to measure, in years, the length of time the average rupee lent is outstanding under different types of instruments. Mortgages, which involve payments of principal as well as interest throughout their term, have shorter durations than bonds. Calculations of durations for the interest and principal payments for mortgages and bonds indicate that mortgages with a 15 year term are well matched in terms of durations by bonds with a 6 or 7 year term, exclusive of any mortgage prepayments. Hence, the intermediation and interest rate risks associated with mortgage-backed bonds may be lower than imagined at first.[17] (This analysis also points out that the secondary institution will be enjoying payments on the mortgage in excess of its payment on the bonds until the bonds mature; these funds can be invested in other securities and the earnings will lower the spread needed by the institution.)

The bond sales could be complemented by the sale of pass-through certificates aimed at a broader market. For example, small denomination certificates could be sold through agents to individual investors. If these investors are looking for an annual return of 10 percent on a bond, then a 10.5 percent return on a MBS could be marketable. This would support mortgages with rates of about 13.5 percent, which is approximately the average interest rate on mortgages issued by HDFC, for example. The spread is accounted for (on an illustrative basis) as follows:

base cost of funds	10.0 %
prepayment risk premium	.5
secondary facility*	2.0-2.5
stamp duty (amortized)	.2

	13.2-13.7%

*Covers operating expenses, issue underwriting, agent commissions, contribution for reserves.

Note that the spread for the secondary facility includes an allowance for reserves. Establishment of such a reserve is essential in light of the earlier discussion on the necessity of the facility being able to withstand failure of a HFC. While in the United States major secondary facilities (which enjoy an implicit government guarantee) have ratios of reserves to outstanding securities as high as 1:60, this is generally viewed as too low a ratio. A prudent ratio is reckoned to be in the 1:30 to 1:40 range. The actual margin factored into the cost of funds for the reserve would depend on the size of the initial reserve established, the project growth in outstanding securities, and the form in which reserves are kept (i.e., the rate of return on reserves).

If the pass-through securities just described were indeed readily tradeable, then the rate to the investor might be somewhat lower. Sales of pass-throughs to the corporate and UTI markets, as well as state banks and LIC for the share of its portfolio not allocated by the Planning Commission, at their substantially higher interest rates (e.g. 17-18 percent) is more questionable, since none of the mortgages currently being written carry interest rates high enough to cover the cost of funds plus the necessary spreads.[18] For this market, the presence of an implicit government guarantee of timely payment of principal and interest by the secondary facility could lower the rates significantly and make such instruments a more feasible vehicle.

Obviously, careful analysis of the marketability of such securities and the potential size of the market would be essential. One of the factors to consider in the analysis is whether it would be necessary for the secondary facility to stand ready to purchase the pass-through certificates in order to make the instruments attractive to potential purchasers while a market for these securities is still developing. The facility would take on substantial risk, since if the structure of interest rates in the country rose many holders of the securities would sell them back to the facility.

Another factor to consider is the possible gains from introducing variable rate mortgages and securities based on them. Recall that under fixed-rate mortgage-backed securities the investor bears the interest rate risk. With the interest rate structure shifting slowly upward in India in recent years, investors may well expect this to continue and consequently demand increasing larger premia to buy long-term securities. This could be offset by shifting to variable rate securities based on variable rate mortgages, under which the borrower bears the interest rate risk. Based on the experience in other countries, the cost of funds would be cut by 100 to 200 basis points (a basis point is one one-hundredth of one percent). There is a legitimate fear that should interest rate rise, borrowers will have difficulty making the higher loan payments. This problem can be controlled by (a) setting a limit on the interest rate increase possible, say to 4 or 5 percentage points, and (b) setting the amount of the mortgage principal on the basis of an interest rate somewhat higher than that actually in effect at the time of loan origination, thereby creating a cushion against future possible rate increases. (For example, if the interest rate at origination were actually 10 percent, the size of the loan, given a specified share of income devoted to monthly payments, could be determined on the basis of a 12 percent rate; the mortgagee's payments would, therefore, begin at somewhat less than its maximum carrying capacity; if rates went up it would have this "cushion" to use in making payments.)

In summary, development of a strategy for selling mortgage-backed securities--either bonds or pass-throughs--appears feasible in India. The strategy would be complex, however, mirroring the structure of financial markets. This conclusion is rather speculative and requires confirmation through careful study of the market potential for pass-through certificates to individual investors and a detailed analysis of the spreads needed by the secondary institution.

As a final point note that it is unnecessary, and possibly undesirable, to attempt to launch a full-fledged secondary market with easy trading of mortgage-backed securities at the outset. Rather, a phased process in which the secondary facility sells mortgage-backed securities to investors who expect to hold them to maturity is a sensible first step.

3.4 The Secondary Institution

The National Housing Bank is the natural institution to act as the secondary market facility. The Act establishing NHB provides it many of the essential powers to function in this capacity. And, indeed, the NHB has through its refinancing program taken a clear step in this direction. However, its decision to limit refinancing to small loans on small dwellings raises some question as to whether it will serve as a secondary facility to the balance of the market. At least currently the majority of the mortgages being originated by the HFCs do not qualify for refinancing. For example, HDFC expects that only 10 to 12 percent of the loans on which it will make disbursements this year will qualify.

In short, it remains to be seen whether the NHB's motto will be "the small man first" or "the small man only". If it is the latter, then another institution may have to take up the larger secondary market function discussed above. Such institutional duplication would clearly be undesirable. It would be even less desirable, however, not to provide liquidity for loans up to at least Rs one lac and somewhat larger units (than the 40 square meters now purchased by NHB). Lack of funds to finance such loans will significantly retard the growth of the housing finance system.

The NHB has two other impediments to being a true secondary institution. First, its refinancing scheme as now structured is not consistent with the sale of mortgage-backed securities because it is not purchasing loans but merely financing them. Hence, any bonds it sells will be supported by its general assets not pools of mortgages. It is recognized, however, that while explicitly mortgage-backed securities may be in the long term interest of the housing finance system, the NHB may prefer over the next several years to mobilize funds through term loans from LIC, GIC, and UTI, as its financial plan indicates. It is possible, of course, that these investors would be as willing to hold an MBS as to invest in term loans.

From the perspective of the loan originators, an MBS is likely preferred since it removes the loan from its balance sheet;

refinancing leaves the loan on the balance sheet and increases the institution's debt, thereby potential exacerbating problems of high debt-to-equity ratios.

Second, the NHB (or any other institution) appears to face a legal restriction on issuing pass-through certificates. Specifically, the law requires securities to be collateralized by defined assets--either all of an institution's assets or a particularly defined subset of assets. However, an interest in a pool of mortgages as under a pass-through certificate does not appear to meet this standard. This defect can be remedied through legislation amending the National Housing Bank Act.[19]

Should NHB elect to be the overall secondary institution, the National Housing Bank Act provides it with many of the essential powers to offer the array of instruments discussed in the previous section but not all. It can apply for a government guarantee of its securities and it has the ability to offer pass-through certificates (Sections 15 and 17 of the Act). It has been authorized to sell capital gains bonds. On the other hand, it does not have the powers to sell tax exempt bonds.

Clearly, early clarification of the NHB's intentions about the role it plans to play in the secondary mortgage market is pivotal to any further considerations of a secondary market.

3.5 Operational Details

In addition to the broad issues addressed above, there is a large number of specific operational matters which must be dealt with in the course of establishing a secondary mortgage market operation. The following list illustrates some of the procedures that must be defined.

a. process by which the secondary facility makes commitments to purchase mortgages, including satisfaction that the originator followed its underwriting guidelines

b. requirements for the lender/originator "delivering" the mortgages and details of "warehousing"

c. amount and type of secondary underwriting to be done by the secondary facility

d. procedures for mortgage purchases to be targeted to certain priority types of units, income groups, or locations (if any)

e. process of adjusting interest rates on adjustable rate pools

f. process for paying various fees and income, both by the secondary facility and the originator

g. originator obligations under the servicing contract, including actions to be taken when loans are delinquent or in default

h. procedures for the secondary facility to deal with originators who are not following prudent underwriting practices or guidelines for loan servicing: procedures for dealing with failing institutions.

While developing and codifying of each of these procedures in guidelines and directives is certainly not a daunting task, each still requires thoughtful consideration and time. And the overall level of effort required should not be underestimated.

4. Next Steps in Developing a Secondary Market

As suggested by the foregoing discussion, a number of questions remain to be resolved about a secondary mortgage market in India. These fall into two groups: (a) those concerning the need for and the feasibility of creating such a market, given the youth of the primary mortgage system and the fractured nature of financial markets; and, given a decision to go forward, (b) those dealing with establishment of secondary market operations. These are discussed in turn below.

It should be stressed from the outset that some secondary mortgage operations will certainly be feasible. Indeed, the NHB only has to begin purchasing mortgages and selling bonds to support its purchases for this to be realized. The issue under analysis is how far India can go--how large a volume of mortgage lending can be financed in this way; is it possible, for example, to structure widely marketable pass-through certificates? A second point, relevant to both topics cited in the previous paragraph is that launching a secondary market within the next couple of years would very likely be premature. Thus, there is ample time for the essential analysis and development activity that should in any event precede its establishment.

4.1 Need for and Feasibility of a Secondary Market

The principal issues concerning feasibility are those discussed in Section 3.2 on the volume of mortgages likely to be offered to the secondary facility for purchase and the extent of the market for mortgage-backed securities, both bonds and pass-through certificates.

The first step should be projections of the volume of loan originations over the next three or four years and an assessment of the interest of different originators in selling mortgages to a secondary facility. Projections of mortgage lending should be sought from all of the principal housing finance companies, including the new subsidiaries of LIC and GIC, a sample of the apex housing cooperatives, and the commercial banks. The commercial banks selected should be those which demonstrate the greatest initiative in direct housing lending, as evidenced by their total volume of loans and their use of the NHB refinancing facility. Note that this will likely entail more than simply interviewing lenders. Some may well require substantial technical assistance in preparing reasonable estimates.

The projections should be sought on two bases: (1) assuming that the housing finance system remains as currently defined, and (2) assuming that a secondary facility were to start operations in 1991/1992 and would purchase mortgages up to Rs 1 or 2 lacs (this early date is chosen to give the respondents a fairly concrete time frame). It is realized that in many instances the figures developed even under the first assumption will be quite speculative. Nevertheless, these should provide the order-of-magnitude estimates required. To complement these estimates one will need corresponding estimates of the volume of funds--particularly term loans--likely to be provided to the sector by the traditional sources: LIC, GIC, and UTI.

The resultant figures will form the basis for determining if a sufficient volume of mortgages will be offered in the next few years to support a true secondary market. Principal considerations here are the absolute volume of mortgages, the number of different types of mortgages being written, the minimum size and number of mortgage-backed security issues needed to sustain a viable market for these securities, and the interest rates to investors they would permit. The figures will also form the basis for discussion and analysis on who might purchase the mortgage-backed securities offered.

To complement these estimates for making a judgement of market feasibility estimates must be undertaken of the market for different types of instruments. One aspect of this process will discussions with the relevant government bodies as to whether the secondary facility will be permitted to sell certain types of instruments (and draw on the funds of the specific institutions which purchase them) and, if so, the volume which can be marketed this way. The second aspect is an analysis of the potential "market rate" market for pass-through certificates and bonds, and the prices likely to be required for significant sales. Specific types of instruments should be defined using the experience from other countries and in light of the specific Indian context.

With the information just outlined in hand it will be possible to determine if the secondary instruments can be sold under a cost structure that will permit the current mortgage interest rates to remain in effect. The first step will be to translate the figures on interest rates paid to purchasers of the mortgage-backed instruments into true cost of funds figures by adding the relevant spreads, including an allowance for building up a reserve at the secondary institution; it is the cost of funds figures that should be contrasted with existing mortgage interest rates.

Because the "cheap" sources of funds will be limited in supply, the analysis will more likely indicate the volume of mortgages that can be purchased while holding the interest rate structure constant, rather than indicating a simple "yes" or "no". That is, various blends of cheap and market rate funds will yield different aggregate costs of funds. Sensitivity analysis should be done at this stage showing how the volume of funds that could be purchased would change if the interest rates on the larger mortgages were raised by 50, 100, or 200 basis points. One might find, for example, that at these higher rates pass-through certificates based on pools of the larger (higher interest rate) mortgages could be sold at market rates making them "self sufficient" in the market and allowing the cheap funds to be devoted to the smaller mortgages. Alternatively, it may be determined that it is appropriate to shift upward the entire structure of mortgage interest rates.

Since the three analyses just outlined--estimation of mortgage volume to be offered for sale to a secondary facility, estimation of the volume of mortgage-backed securities that might be sold, and the analysis of the relation between the cost of funds and the existing mortgage interest rate schedule--are at the very heart of the feasibility of establishing a secondary market, they should be given priority. At the same time it may wise to defer undertaking them until the spring or summer of 1990, when the commercial banks and some young HFCs will have had more experience.

4.2 Implementation Steps

In considering implementation of the secondary market, we assume that the NHB will be the secondary institution. If this is not the case, then the list of essential tasks is rather longer.

While implementation appears here to follow the analyses just described, there are some steps leading to implementation that could and should start sooner. This is particularly the case since some of these are tasks the NHB should undertake to foster the healthy development of the primary mortgage market.

Four broad implementation tasks remain ahead, if it is decided that broad-based secondary operations are feasible. First, if Government decides that mortgage insurance is the proper way to tackle the mortgage foreclosure problem and is successful in passing the legislation, then great care must be taken in (a) designing and detailing the underwriting standards which participating lenders must follow, and (b) establishing the lender-specific insurance premiums based on their past delinquency and default records. The underwriting standards should be based on those already in use by HFCs with a strong record of repayment collections and should be developed in close consultation with the principal housing lenders.

Second, the NHB must set standards on the types of mortgages that it will buy. The sooner this is done, the better, as it will give originators time to adjust the types of mortgages they write before secondary operations begin; this will permit them to have qualifying, seasoned mortgages in their portfolios to sell to the NHB when it begins making purchases. Issues to be addressed include: What interest rates and loan maturities will be used in structuring the pools of pass-through securities? What type of mortgage instrument and underwriting standards will the secondary facility demand?[20] These are critical points, whose resolution will strongly affect both the homogeneity of the mortgage pools and the marketability of the mortgage-backed certificates. Decisions should favor adopting the instruments now in common use, subject to the proviso that they meet all the requirements of fiduciary prudence and market acceptance associated with responsible operation of a secondary facility.

Note that multiple acceptable combinations of interest rates and loan maturities can be defined. However, because the mortgage pools underlying pass-through certificates must be quite uniform, more combinations mean a smaller volume of loans of any one type that can be sold, and, hence, a smaller number of "traders" of the certificates once they are sold. This, in turn, means less liquidity for investors and presumably a higher cost of funds to the secondary facility.

Third, clarification must be sought on the legality of pass-through certificates. If necessary the required amendments to the NHB Act must be drafted and submitted to Parliament.

Fourth, the large range of operational matters of the type listed in Section 3.5 must be addressed, particularly for developing pass-through certificates. Guidelines or handbooks of procedures will need to be developed for loan originators, investors, and for the secondary institution, each covering the elements of the operations germane to each. This is a major task. Considerable help may be found, however, in the materials that have been developed by secondary markets in other countries. For example, the Federal National Mortgage Association (FNMA) in the United States has a highly refined set of guidelines. In addition, there is a substantial literature on these matters that could be drawn upon.[21] Even with all of these materials available it may nevertheless be worthwhile to draw directly upon the experience and expertise of those who have been active in the details of secondary operations to advise those at NHB charged with developing these materials.

The foregoing amply makes the point that establishing a secondary mortgage market is a large and complex undertaking. As such it should be guided by a well-constructed plan of action, including a fairly detailed time schedule. As suggested, a two or three year period appears to be a reasonable estimate of the time required to execute these various tasks. Fortunately, this corresponds to the date when the primary market will likely be sufficiently developed to support a secondary market.

Endnotes

1. Quoted in Housing Development Finance Corporation, Twelfth Annual Report, 1988-89, (Bombay: author, 1989), p. 9.

2. This is discussed further in the Section 3.

3. Refinance is for 15 years to commercial banks and 20 years to HFCs.

4. R. Struyk and M. Friedman, "Mortgage Prepayment in India," (Washington, DC: The Urban Institute, Report to USAID/India, 1988).

5. R. Struyk and M. Friedman, "Impact of a Housing-Linked Contract Savings Scheme on Households' Holdings of Financial Assets in India," (Washington, DC: The Urban Institute, Report to USAID/India, 1988).

6. Note that as used here "participations" differ from the narrow definition of the term sometimes employed. Under the limited definition an investor purchases a fractional interest in mortgages while the originator retains a residual interest. Participations have been most widely used by the Federal Home Loan Mortgage Loan Corporation ("Freddie Mac") in its purchases of loans from member savings and loan associations. For a thorough discussion of alternative secondary market instruments see, B. G. Jacobs and C. L. Edson, Secondary Mortgage Market Guide, (New York: Matthew Binder & Co., 1989).

7. Under pass-through certificates the investors are considered to be the beneficial owners of the mortgages, though the issuer of the certificate may retain legal title. From the mortgage originator's point of view, the sale of the certificates constitutes a sale of the underlying mortgages, removing them from the originator's balance sheet. By contrast, the sale of mortgage-backed bonds leaves the mortgages as assets on the balance sheet and adds a corresponding liability for the bonds. In India, where HFCs are subject to debt-equity ratio limits, the use of pass-through certificates has the advantage of reducing the need by the lender to generate additional equity.

8. Pass-through certificates can be designed to more closely approximate the regular payment features of a bond. Under collateralized mortgage obligations (CMOs), the stream of payments on the underlying mortgages is used to create different classes (maturities) of securities. All principal payments and prepayments are channeled first to the shortest-term securities. When they have been retired, the payments then go to the next-shortest class, and so on, until all of the securities have been retired. CMOs issued to date for 30-year mortgages involve three or four classes, with the shortest term being five years. Given the lack of familiarity of

Indian investors with mortgage participations, it may be necessary to introduce CMOs from the start, if a secondary facility is created, in order to attract investors, even though the CMOs are more complex for the secondary institution to structure.

9. The refinancing program is described in detail in various National Housing Bank documents.

10. For details see Jacobs and Edson, op. cit., Chapter 9.

11. R. Buckley, J. Khadduri, and R. Struyk, "The Housing Development Housing Finance Corporation of India: Evaluation of the Housing Guaranty Loan," (Washington, DC: The Urban Institute, Report to USAID/India, 1985).

12. Another potentially major lender is CanFin Homes, Ltd. which plans to disburse Rs 100 crores loans in 1989/90, up from an annual rate of about Rs 33 crores for the six month period ending on March 31, 1989. (Sources: Economic Times, June 23, 1989; CanFin Homes Annual Report for 1988/89.) This experience suggests significant expansion in lending by some other HFCs can be expected to occur over the next few years.

The estimates presented in the text are much larger than those made a year ago in USAID's Project Paper for the Housing Guaranty Loan to the National Housing Bank. Note, however, that the two estimates have different purposes. Those in the Project Paper (pp. A6.5 - 7) are for the volume of loans that might be offered to NHB for refinancing from private and joint sector HFCs (other than HDFC); qualifying loans were restricted to those made to households with income below the median urban household income. The estimates presented in the text are primarily for HDFC and LIC Housing Finance, Ltd., both of which were excluded from the Project Paper estimates, and include all mortgages originated. USAID/India, "Project Paper: Housing Finance System Program, 386-HG-003," (New Delhi: author, 1988).

13. LIC was scheduled to contribute Rs 12,365 crores to the Seventh Plan, or Rs 321 crores on average per year to the housing sector, assuming that 13 percent of total investment goes to housing as it has it recent years. If accretions are 50 percent higher in the final year than in the first year, then Rs 482 crores is available for the housing sector in the last year. If 40 to 50 percent goes to support state housing bodies and apex housing cooperatives, then Rs 290 to 320 crores would be available for LIC Housing Finance. This compares with planned loan sanctions in 1989/90 of Rs 300 crores.

14. Term loans from USAID and the World Bank have also been an important source of funds to the sector; in particular, to HDFC and the NHB. To the end of March 1989, HDFC has drawn a total of Rs 227 crores from these sources and has an additional Rs 411 crores to draw. NHB is authorized to borrow about Rs 75 crores. The prospects

of additional loans from these sources is unclear and therefore are not factored into the analysis.

15. It is assumed that these would be fixed rate bonds. Introducing variable rate bonds at the same time that issues are first being collateralized by a pool of mortgages might be so innovative as to cause the market to reject them or demand very high prices for them.

16. For reference note that HDFC has marketed it bonds at 12.5 percent annual interest, or about 100 to 150 basis points above the rate on government guaranteed bonds.

17. The duration, D, of a fixed-rate mortgage with maturity T and interest rate r (expressed as a decimal), yielding a cash flow each year of CFi, is:

$$D = \frac{\text{sum } [(CFi * Ti) / (1 + r)^{Ti}]}{\text{sum } [CFi / (1 + r)^{Ti}]} .$$

summation over i = 1 .. T

For a further description, see A. S. Davidson, "Overview of Alternative Duration Measures for Mortgage-Backed Securities," in F. J. Fabozzi (ed.), Mortgage-Backed Securities: New Strategies, Applications, and Research, (Chicago: Probus Publishing, 1987), pp. 67-79.

18. Consideration could be given to seeking exemption of the income from certain classes of MBS from taxation through an amendment to section 80L of the Income Tax Act. An important question is whether doing this would enhance the attractiveness of these instruments to the corporate sector or open up a new market niche.
Also note that another market for MBS or bonds might be the financial service subsidiaries of the state banks. They are, however, prohibited from conducting banking business which has been defined to include the purchase of loans or participations in loans which would include mortgages. Apparently this stricture is being reconsidered.

19. Conversation with Dr. V. K. Agarwal, Joint Secretary, Government of India Ministry of Law & Justice, September 5, 1989. Dr. Agarwal also opined that an equitable mortgage could be sold to a secondary facility without registration (and the associated payment of stamp duties); consent of the mortgagor is, however, required for such a sale. Obviously, Cr. Agarwal's comments should not be construed as an official opinion.

20. Clearly, if mortgage insurance becomes a reality, GIC and the NHB should jointly develop common guidance on underwriting standards.

21. See, for example, Jacobs and Edson, _op. cit._, and J. M. Kinney and R. T. Garrigan, _The Handbook of Mortgage Banking: A Guide to the Secondar Mortgage Market_, (Homewood, Ill.: Dow Jones-Irwin, 1988).