

An extract from
SUSTAINABLE FINANCING FOR HOUSING:
A CONTRIBUTION TO HABITAT II

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Submitted to Fannie Mae Office of Housing Research

March 13, 1995

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INTRODUCTION

Housing is a special consumer good and a special part of the financial markets. It is a major component of the world stock of physical capital. It is the largest single category of consumer expenditure, aside from food. It is the largest component of the typical asset portfolio, far exceeding average holdings of cash and financial assets. The result is that financial markets are very important for housing and housing is very important for the financial markets.

Housing is also a key component of social welfare, particularly for the poorest stratas of society, which in turn makes it a politically sensitive issue in most societies. As a result, governments in many developing countries at one time took a direct approach to meeting perceived housing needs, i.e., the government built houses. For a number of reasons, this approach proved to be very ineffective and inefficient and some countries switched to providing formal sector serviced plots. This approach has been largely superseded by the view that there is no good substitute for the potential energy and collective "wisdom" of a competitive market in providing housing. The task of the government has shifted towards "enabling" the market to operate as efficiently as possible.¹

Because housing finance is both a key part of the financial sector and a key method for enabling households to expand their effective demand for housing, it has become a focus of attention among donor agencies and many developing countries. Since the late 1980s, they have emphasized the gradual development of sustainable private housing finance *systems*, built up as an integral part of the overall financial system. Financial systems are now viewed as the "brain" for allocating investment in a market-oriented economy and it is essential that they be as undistorted as possible. This view sometimes has made for difficult policy discussions in the area of housing finance, where the social and political concerns over housing seem to conflict with the desire for an efficient financial system.

The perspective of this paper is that good social policy is not in conflict with good financial policy. The only truly effective housing finance system is one that is efficient, sustainable and appropriately manages the many risks involved. In other words, a housing finance system must first make good sense as finance. Subsidies and other forms of assistance to housing can be overlaid such a system, but only if they respect the efficient functioning of the system.

The paper starts by exploring the basic nature of finance and the basic problems that any housing finance system, however sophisticated or simple, must address. The goal is to develop a general conceptual framework for describing and evaluating housing finance systems, one that can be used for comparative analysis across countries. The second section considers the role of government in general in such systems. The third section applies these concepts to the historical experience in Canada, the United States, and Mexico. This experience has confirmed much of

¹See World Bank [1992] and Thahane [1993].

what is good or bad policy in many areas of housing finance, including deposit insurance, mortgage insurance, secondary markets, indexed mortgages, directed credit, and subsidies. The last section draws out these lessons in some detail.

THE BASIC ISSUES IN FINANCE

Saving: Saving is a simple act that is profoundly important for human civilization. It is not a modern concept; prehistoric people would put aside food and supplies for the long dry season or winter. They would devote effort to creating tools and shelters that would outlive their own span of consumption. With the invention of money, it became possible to accumulate wealth either for the purchase of particularly costly goods or for use at a much later date. It also created the possibility of lending this accumulated wealth to someone else for their immediate use in meeting their desires for consumption or use of some more durable product. But this last step, lending savings to others, creates an array of difficulties which are largely the topic of this paper.

Why do people save? Economists point to several distinct reasons for saving. First, people save in order to smooth out the ups and downs in their incomes, e.g., over a harvest cycle or over longer-term drought cycles. In those societies today where intergenerational income-sharing (e.g., multi-generational households) is not the rule, people may save to smooth out income over an entire lifetime, both within the working years and into non-working years ("retirement") and to protect against unpredictable "shocks" to their economic circumstances (i.e., insurance).

Second, people may save in order to make their surviving kin or others better off. This is called the "bequest motive" for saving.² Third, people may save in order to obtain a long-lived good. The good may be used for direct consumption (e.g., a house) or for production (e.g., a factory). In both cases, the good has the special characteristic of being more productive in some way than ordinary consumption goods without any durability, e.g., a concrete house in contrast to a plastic tent.

This special category of long-lived productive goods is called capital. A house is a special form of capital, because: (1) in most circumstances it has proven to pay in the long run to provide shelter using unusually durable structures;³ and (2) it is subject to being constructed by the end user. These features of houses mean that most houses provide shelter over a very long time and can be invested in directly by the saver. As a consequence, obtaining housing is both a strong motivation for saving and major form of saving. In this case, there is no need for any special relationship between the saver and the user of the savings; they are one and the same.

² To some extent, it is difficult to tell saving motivated by the desire to leave a bequest apart from saving solely for retirement. If the retirement savers are concerned about having funds despite living longer than expected, they on average will leave some residual savings. However, in a society with government and/or private pension plans or annuity contracts, the individual saver need not have this concern. Thus, if a saver leaves a large bequest, it implies a conscious intent to do so.

³This statement is not as obvious as it may seem. Certain groups, such as nomads, prefer less durable, but more portable housing. In other circumstances, less durable structures of reeds or mud and sticks may be more economical, depending on the cost of building supplies and labor.

A last but potentially important source of saving is government saving. If a government collects revenues in excess of its expenditures on immediate consumption items (e.g., both services and income transfers), it may invest them in various types of capital goods or financial instruments. This may include housing as well as infrastructure, public health, education and so on. Not only may this type of collective saving be important quantitatively, but it may have other important effects on the society, including raising incomes through productive investments or discouraging income generation because of high taxes. It does not replace directly the desire of households to provide for their heirs, but may discourage savings for other reasons because the government will intervene to cushion economic adversity or because the government will provide capital goods such as housing out of the public funds.

Borrowing: The reasons for borrowing are the mirror image of the reasons for saving, since borrowing is essentially negative saving. People (and governments) borrow to alter their pattern of consumption and to acquire consumer durables, such as housing. People (and governments) also borrow to finance the acquisition of producer durables, goods which are used in intermediate processes in the production of goods and services for sale. This includes rental housing.

Interest rates are the prices of borrowing. The risk-free real interest rate is the cost of funds net of any premiums for each of the risks noted below, including the risk of reduction in the value of the currency due to inflation. The risk-free real rate for savers differs from that for borrowers by an amount equal to the operating costs and profits of intermediaries. It is interesting to note that the real interest rate for savers need not be positive in order for them to want to save; most savings is done for reasons other than seeking a positive return. However, a negative real rate on financial savings will encourage direct investment in consumer durables (e.g., real estate) or physical assets that can easily be resold (e.g., gold) rather than giving funds to financial intermediaries. The real rate to borrowers will tend to be greater than zero as long as there are opportunities in the economy to invest in productive capital (this need not be the case in a very depressed or distorted economy).

Intermediation: In principle, it is possible for capital goods to be financed out of personal (or governmental) savings. But in the era of industrialization, mass-marketing, consumer finance, and government deficits, financing the production capital and the excess of desired consumption over income requires drawing on a large pool of savings. The need to connect large numbers of savers with large borrowers becomes unavoidable. This is the job of financial intermediaries.

As noted above, there are a lot of difficulties involved in intermediating funds between savers and borrowers. Many of those are mechanical: collecting the funds, keeping track of all aspects of the transactions, operating the offices involved, communicating with all parties, and so on. These do not differ substantially from other types of service industries. What makes finance different from fast food is the major role of certain risks, the risks inherent in granting use of funds to an unrelated party over a long period of time. These risks can be generally classified into six categories:

- 1) *Credit risk*: the risk that the money will not be returned, with whatever interest or other charges are due, on a timely basis;
- 2) *Liquidity risk*: the risk that the money will be needed before it is due;
- 3) *Cash flow risk*: the risk that changes in market conditions will alter the scheduled cash flows (real or nominal) among the parties involved in intermediation. This includes interest rate risk, prepayment risk, inflation risk, and exchange rate risk;
- 4) *Agency risk*: the risk that a divergence of interests will cause an intermediary to behave in a manner other than that expected;
- 5) *System risk*: the risk that a crisis at one institution or in one part of the system will spread to the rest of the system;
- 6) *Political risk*: the risk that the legal and political framework within which the lending takes place will change;

All of these risks are associated with a potential loss, either in the form of money or in anxiety and painful adjustments (e.g., for borrowers facing higher monthly payments). The extent of the actual loss is not certain, but past experience usually gives some indication. This expected loss is one component of the risk. A second component is the degree of uncertainty about how large or small the actual loss will be. The latter matters separately because people tend to dislike such uncertainty and because losses that exceed some limit have extreme consequences, such as collapse of the intermediary or foreclosure on a borrower.⁴

In light of all these risks, it is surprising that any financial intermediation takes place. In fact, finance has been one of the late bloomers on the world economic scene. While goods and even services have been traded over thousands of miles for centuries, money has only relatively recently freely flowed to and from all areas of the globe. Even within the most developed countries, finance for housing has only been available for at most 150 years and more broadly only for a few decades.

The Role of Private Markets: As with other human wants, private individuals will engage in efforts to meet a demand, in this case, a demand to obtain other people's money to buy or produce housing. Private financial markets operate essentially like any other private market. Individuals choose to devote their time and money to meeting the desires of other, unrelated individuals to save and borrow. Private financial intermediaries do this, despite the risks noted above, in return for a profit, plus coverage of operating expenses, the expected amount of losses from the risks noted above, and a premium for taking on the sheer uncertainty of the magnitude

⁴ This aversion to uncertainty motivates individuals and institutions to buy insurance against certain types of losses, thereby taking on a known cost and shedding the uncertainty. Insurance companies are in the relatively advantageous position of being able to average their loss experience over a diversified pool of situations, thus sharply reducing the variability of the losses. This degree of variability of loss is the focus of most analysis of risk in the finance literature, as opposed to the probabilistic expected loss.

of the actual losses. This profit plus expenses plus risk coverage causes there to be a gap between the return to savers on their savings and the cost of funds to borrowers. The wider this spread, the more likely that the borrower will choose to save more towards the house himself (rather than borrow) and the less housing will the borrower choose to buy.

How does a financial market work in general? Financial institutions are organized to offer savers some formal or informal arrangements whereby their funds will be safeguarded and returned in the future under prescribed circumstances and with an agreed-upon return (if applicable). The savers may or may not specify what the funds will be used for. The institutions then provide the funds to others under some terms and conditions designed to moderate risks and seek compensation for remaining risks. Borrowers choose among lenders according to the stated costs of the funds and the terms under which they are offered.

The financial intermediary may deal with only one or neither of the individual saver and the ultimate borrower, but may obtain funds from other intermediaries and lend to other intermediaries. For example, a bank in Germany may lend funds to a mutual fund on margin to invest in mortgage backed securities funding loans originated by a mortgage banker in the U.S. Similarly, a government pension fund in a developing country may lend funds to a bank for on-lending for housing. In each of these transactions, there is a "saver" providing the funds and a "borrower" receiving use of the funds, terminology we shall follow below.

This is only the skeleton of the financial markets. The actual complexity of real markets, even of the simplest transaction, is astounding. In each step, key issues of who is bearing each of the risks noted above have to be settled. Literally hundreds of clerks, bookkeepers, auditors, underwriters, appraisers, managers, lawyers, government regulators and inspectors, and so on are involved in the simplest financial transaction. Financial intermediaries include not only banks but also insurance companies, pension funds, mutual funds, unit trusts, limited partnerships, mortgage brokers, stock brokers, international donors, as well village mutual savings organizations.

As in all areas of economic life, government can and does override the workings of a free market, i.e., one based solely on voluntary contracts concluded between individuals. Government agencies may themselves be important financial intermediaries or the government may control, prohibit, regulate, supervise, or subsidize private institutions. In those cases, the institutions often have a very different attitude than the risk-averse, profit-oriented institutions discussed above.

The actual role of the government usually reflects the specifics of the politics, culture, and history of the particular country (e.g., past experience with inflation). In most cases, the interventions of the government, together with the way private financial markets have developed, usually determine at least the major institutional aspects of financial markets. We consider below some criteria for what are desirable types of government intervention.

THE BUILDING BLOCKS OF A HOUSING FINANCE SYSTEM

Clearly, housing is a big portion of the savings, borrowing, and capital-formation activities of any society. This does not necessarily mean that housing is a major part of the formal financial markets. In most rural societies, people build their own house directly from their own savings and often those of their extended family. Any provisions for repayment, in cash or in labor, are informal at best, although perhaps highly developed and clear to all based on long tradition. As a generalization, it may be true that most houses in the world today were built in such a manner.

This paper is about the financing of the rest of the world's housing, that which is constructed (or is desired to be constructed) using other people's money. The other people may simply be non-family members of the same settlement or they may be savers living on the other side of the planet. Most of the issues involved in this financing of housing are the same in all cases.

Why Not Save In Advance? It is worth considering for a moment the basic advantages of formal sector housing credit, by looking at the costs of doing without such credit. Assume for the moment that one is considering obtaining the services of a given size house to be lived in for 40 years and that the house would need total refurbishment at the end of the 40 years. One way or another, the household will have to pay the full price of the house and for its operation. With credit, the house could be bought now and paid for over 10-20 years, plus interest and other charges. Major alternatives to housing credit include saving the cost of the house in advance of purchase or building the house gradually over time. Other alternatives could include buying a minimal house and adding to it over time or borrowing from relatives (if such resources are available within the close family) or settling for a cheaper but less permanent form of construction.

These alternatives might be attractive if the cost of formal sector finance were very high, say a premium of 50-100 percent over the basic cost of the house. A real cost of financing (net of the inflation premium) of 5 percent per year for a self-amortizing loan over 15 years in fact implies a premium of 47 percent in the sum of the real repayments over the initial amount of the loan. But there are at least three offsets to be considered when comparing between saving the funds in advance or borrowing them instead. First, a part of any rent paid during the saving period is a net cost (roughly the excess of rent payments over the operational costs borne by the landlord). If, instead of renting, the household lives with parents or others during the savings period, there may be significant psychic costs. Second, buying the full house already built, instead of building it gradually, usually involves substantially lower construction costs or higher quality. Third, in many countries, the cost of houses rises in real terms over time. Immediate purchase with credit avoids having to face this possibility.

Thus, while under some circumstances (e.g., high costs of financing, social norms of living with parents), households would rather save the entire cost in advance, in most societies, especially in urban areas, there is a willingness to pay a reasonable cost to be able to acquire housing sooner rather than later. The basic question is how much financing will be available at what cost to the individual household. A second question of interest to the policymaker is the efficiency of the system, i.e., what are the total costs to the society of the system, including subsidies and other hidden costs.

General Structure of Housing Finance Systems. Housing finance could be expected to be similar in structure to commercial finance or regular consumer finance. But housing has some characteristics that alter the risks inherent to finance. First, housing can be a very long term investment. Usually it pays to build housing of such durable materials that it is very expensive relative to current incomes and it provides valuable services for a very long time. Thus the borrower wants to extend repayments over a long period and the lender is inclined to do so because the collateral is also very long-lived. However, extending the term of a loan exposes the lender to more of all of the risks. It is very hard to assess the situation of the borrower, the financial intermediary, inflation, politics, and so on even ten years into the future.

Second, most housing is immobile. This has the advantage that the borrower cannot hide the collateral, but the disadvantage that the value of the house, to the borrower and to the lender, depends on the economic circumstances of the very specific location of the house.

Third, shelter is such a basic need that having the legal capacity to deprive people of their home often provokes strong fears. This situation often results in laws and procedures which severely limit the ability of a borrower to grant an effective right of foreclosure and eviction in return for credit.

Fourth, housing is an important item of social welfare. As such, the sector tends to attract government subsidy. Unfortunately, attempts to subsidize housing through the housing finance sector can be both wasteful of resources and actually deleterious to the functioning of the financial system.

As will become evident in the discussion below of concrete examples of housing finance, it could easily appear that every country seems to have a completely different system. The funding may be from bonds, deposits, or government funds; the term may be long or short; the credit risk high or low; the government own the system or ignore the system. In each case, the system is addressing the exact same set of general issues, but it has been shaped by the environment it operates in, much as trees take on many different manifestations depending on the past and current natural environment.

Before looking at specific systems adapt to their environment, it would be useful to examine more closely the elements common to any system of housing finance. In addition to the six risks discussed above, the design of a housing finance system must address two other operational issues, (1) fund raising and (2) origination and servicing of loans. This section starts by exploring the general parameters of these operational aspects before examining the issues associated with the six risks. The following section discusses the roles government policies and subsidies can play in shaping a system.

Fund Raising. Probably the single most notable aspect of any system is how the funds are raised. The nature of the mechanism whereby the funds of many individuals are pooled determines their attitudes towards risk and a major part of the intermediary's risk assessment also. Any differences between the intermediary's liabilities (debts to savers) and its assets (loans to home buyers) create risks which have to be dealt with.

There are essentially four entirely different ways of raising funds for housing loans, (1) private equity, (2) long-term private debt, (3) deposits, or (4) government or government-directed credit. Is there a best way to raise funds? Yes and no; it depends on the operational costs and the difficulties of risk management. The operational costs are generally lowest for raising debt funds in large amounts from long-term private institutional investors.⁵ Liquidity and cash-flow risk are also better managed in such a system. But this system is only feasible under certain narrow conditions, e.g., there are large investors with pools of long-term savings and they are allowed to invest in mortgages, the credit risks are minimal or shifted elsewhere, agency risks are minimal, the mortgage instrument is standardized, and laws are supportive of securitization. Most of these conditions do not occur naturally in most developing countries, but they can be met if there is a focused desire to do so.⁶

In the absence of directed credit or major private long-term financial intermediaries such as insurance companies and pension funds, the primary vehicle to raise funds is the deposits of individuals. Such funds are usually short-term, mostly with terms of one year or less, because the underlying reason for the saving is simply as a precaution against misfortune or to purchase some consumer durable. Funding housing in such a manner potentially increases the liquidity risk, the agency risk, and the cash flow risk. It also is relatively expensive, since there tend to be many more personal interactions involved.

Why should the liquidity risk be higher when funds are pooled through a deposit-taking entity? The deposits are made for a mix of reasons, some for immediate use in transactions, others for longer-term savings. Unfortunately, individuals strongly prefer to retain a right of almost immediate access to their funds and also are subject to many other factors that might affect their desire to remove their funds at the end of the deposit term. The institution faces relatively high volatility in its deposit base and also a legal obligation to have the depositors' funds available within a relatively short term. In contrast, insurance companies face relatively predictable flows of funds and pension funds even more so. However, various government policies can greatly improve the liquidity of mortgage assets and will be discussed below.

Do agency risks need to be higher? There are some differences between the risks of handing one's money to a pension fund and a local private bank, simply due to the fact that the bank tends to undertake riskier lending and also promises to return deposits more or less immediately upon request. But the effective additional risk depends on the quality of information available on the institution, on the quality of regulation of its activities, and the presence of any implicit or explicit third-party guarantees. In practice, reliance is often placed on government ownership or guarantee of depository institutions. Government guarantees can work well if accompanied by suitable regulation and supervision, but can be very costly to honor otherwise.

⁵ There are additional costs for the institutional investor to gather the funds from the individual savers. Even counting these, the operating costs for an institutional investor system are generally lower than for a depository system.

⁶ The creation of the Chilean system of *lettras hipotecario* and private pension investment is a good example of the results of a focused effort to fund housing through long-term private debt. These so-called secondary market funding systems can take many different shapes, some of which will be discussed later in this paper.

Do cash flow risks have to be higher, just because the term of deposits are so short relative to the term of housing loans? Having a variable interest rate on the loan will solve this problem for the intermediary. However, this also shifts the risk to the borrower, who faces uncertainty about the level of payments due. As will be discussed below, it is difficult to really reduce cash flow uncertainties, rather than simply shift them, even when relying on long-term investor funding. The question becomes whether the saver, borrower or intermediary are best positioned to deal with it and whether cash flow predictability is more desirable in nominal or real terms.

This analysis points to a conclusion that deposit-based home lending is not necessarily a significantly riskier system. The question is not whether depository fund raising can support lending for housing, but whether public policy and institutional management have taken the steps necessary to reduce the risks in such an approach.⁷ As we will illustrate with the experience in North America, depository based systems are viable if benefiting from certain government policies. That still leaves the problem that depository systems tend to be more expensive operationally.⁸

What about equity-funded or government-funded systems? Equity funded systems include truly mutual savings arrangements where the intermediary organization, whether a village collective today or mutual savings bank in the 19th century, makes no guarantees as to the return of savings. In this case, all savings are essentially equity investments in a pool of mortgages. This arrangement can work well in a small group with strong social ties, but it faces significant agency and credit risk in larger, more anonymous contexts. It also creates significant liquidity constraints on its investors. Developed countries no longer rely on such funding for funding loans in a major way, but it should be recognized that equity investors in financial intermediaries are critical suppliers of operating capital and bearers of risk in private market systems.

Equity is an important component of rental housing finance in Canada and the U.S. Sufficient equity in a project can improve the likelihood and reduce the cost of obtaining a loan. Equity capital can be scarce or non-existent in the presence of rent control or regulations on the return that can be earned by investors. Frequently such programs can have the unintended effect of diminishing the stock of affordable housing. Rent control has been eliminated or substantially softened in most areas of Canada, Mexico and the U.S. Its elimination has been quite recent in many areas of Mexico, however, and private investors have yet to return to the rental market.

Of course, equity investment plays the central role as the engine of all private financial markets. Even though usually a negligible source of actual funding (most goes into operating

⁷This conclusion is reinforced by the reliance until recently on depository institutions in North America, the United Kingdom, France, and other countries. This partly reflected the fact that the higher operational costs could be shifted to the saver, because the saver had few other choices. It is the effective competition for deposits by lower cost entities that has reshaped the home lending business in the United States, while the presence of subsidies to depository institutions that has instead preserved their hold on home lending in France. Any extra costs of raising deposits relative to other means of fund raising may be borne by the depositors in the form of lower interest rates if there does not exist an alternative form of easily accessible temporary savings, e.g., money market funds.

capital), equity bears most if not all the risks of what is often a perilous venture. As such it is the cushion supporting both debt and government guarantees of financial institution. The North American experience demonstrates the importance of equity in shaping the behavior of the owners and managers of financial institutions. Although we do not discuss it here, the quality of the equity market in a developing country can be as important for the development of housing finance institutions as the nature of the debt or deposit markets.

Government or government-directed funding is utilized typically when adequate pools of long-term savings or equity investment do not exist. Although such approaches have major drawbacks as the basis of lending for housing, they may be worthwhile pursuing if there are no other options. Government direction of funding through private institutions in particular may leave sufficient incentives for the management of risks. We defer the discussion of incentives under direct government intervention until the section on the potential roles of government.

Another dimension of fund-raising is the degree of specialization of purpose that is appropriate. It is sometimes argued that institutions specializing in raising funds and lending for housing offer some operational and risk management advantages. In particular, drawing upon small retail deposits gives an institution greater access to potential borrowers and potentially more information as to their credit worthiness. This may be true in some contexts, but in developed financial markets it is unlikely that personal interaction in offices is the best way to gather funds. Whatever advantages there are to specialization in raising funds and lending for housing are probably in loan origination and servicing (discussed next) rather than fund raising.

Loan Origination and Servicing. In many contexts, it seems obvious that the originator and servicer of a loan will be the same as the entity which raises the funds. But in the United States in particular these links have broken down in the face of pressures towards specialization. Most loans originated currently will not be funded directly by the originator and many, if not most, will be serviced by another entity during their terms. This specialization permits adoption of an optimal scale of operation, large scale operation in the case of funding and servicing, small scale in the case of origination. These economies are generally not huge, but even cost advantages of 5-10 basis points can prove determinant in financial markets.

Despite the potential for economies of specialization, there are at least two reasons to expect that fund raising, lending, and servicing to be unified. First, any division of identity opens up the potential for divergence of interest and thus more agency risk. Resources must be spent on incentivizing and policing against poor performance and adverse selection. Second, there are some apparent economies of joint operation. For example, direct contact with savers may involve a retail network that can then be used for origination and servicing. There may be some potential for cross-selling of financial services, such as insurance and home loans to the same customer base.

The U.S. system today reflects radical shifts toward large-scale fund-raising through multiple intermediaries (thus breaking the link of the originator to the saving public) and large-scale, geographically "remote" servicing, all powered by computing and telecommunications that is very cheap relative to labor and retail space. The potential cost advantages are magnified by the size of the country, the relatively high amounts of mortgage

debt, and the traditional restrictions on nationwide banking; they may not be so great in many other systems. However, the Canadian system that also has a secondary market is still dominated by large depository institutions. We will explore the reasons why in the section on historical development.

Credit Risk. Risk of repayment can be managed through use of a mortgage on the home or through other forms of collateral or influence over the borrower. For mortgage-based lending, credit risk primarily depends on (1) the risk that the collateral can not be disposed of for the outstanding balance on the loan (plus costs of foreclosure) and (2) the collateral cannot be accessed in a reasonable manner. But these are not the only considerations. Many borrowers do not default even if the value of the house is less than the loan amount. Thus, attitudes towards default and the probabilities of default through causes such as unemployment, illness or divorce are also important.

Managing these risks is enough of a challenge for a housing lender in a developing country. Unfortunately, such a lender may not be able to look to a mortgage as collateral because of the absence of strong and clear individual-based property titles. In most developed countries, clear title to land (or at least to its use) is usually taken for granted today. But clarity and strength of title developed only over years of slow legal evolution from a feudal society. In many developing countries, issues related to land title remain a major barrier to housing finance. In addition, in both developed and developing countries, there are often legal impediments to the ability of a property owner to pledge residential property as collateral (i.e., to consent to loss of the collateral in case of default). An accurate and comprehensive land registration system is a necessary condition for effective property rights.

Not all housing lending is mortgage-based. In some societies, there are other tangible or intangible assets that may be attached in an effort to either recover the amount of the loan or to discourage default. For example, in most of the formerly socialist societies, all employment was under the control of the state. Thus, garnishment of wages was a direct and effective form of collateral for housing loans; given legal restrictions on foreclosure and eviction, garnishment was in fact relied upon. Another approach is possible in those societies in which non-payment of debt is considered to be a social embarrassment or can be punished by imprisonment. In these cases, if there are guarantors on the loan, communication with those guarantors or threats of court-proceedings may be effective in producing repayment. This is especially true for loans made by small-scale mutual or cooperative organizations.

In all cases, actual credit losses can be managed by conservative underwriting and the exercise of some credible threat. One is not a substitute for the other. The ability to foreclose is not a sufficient protection if the collateral is not sufficient. Low payment-to-income or loan-to-value ratios are not sufficient if there are no consequences to non-payment. Both the nature of the credible threat and the incentives to underwrite conservatively are features of the "system" that are determined by public policy, as well as cultural norms reflected in the legal system.

An important aspect of credit risk that is sometimes overlooked is the benefits of geographic diversification in lending. Many economic, political and social shocks that depress

house values and incomes are geographically focused; a portfolio of loans over an array of areas is less likely to show extremes of default experience than one based exclusively on one area. Thus the default experience of large, geographically diversified housing finance entity cannot be extrapolated to a lender operating in one city or in a small country, especially countries without a diversified economic base. For example, credit risk due to volatility of house prices and real wages is likely to be much higher in a small African country with one export crop than in a larger country or one with a more diversified economic base. Similarly, a private mortgage insurance operation is much less likely to be viable in such a country.

Liquidity risk. Liquidity risk is inherent in any form of financial intermediation; even long-term intermediaries with no uncertainty about demands on their assets are concerned about their ability to alter their portfolio configuration through disposing of mortgage-based assets. But liquidity risk is a particularly critical issue for depository institutions, given their legal commitments to depositors and the uncertainty of their cash flows.

Liquidity risk is often cited as the reason that commercial banks do not lend for housing in some societies. But the magnitude of the risk has to be kept in perspective. A commercial bank with reasonable creditworthiness is not going to face a fluctuation in its demand for cash of over 50 percent of its assets. In theory, this could mean that up to 50 percent of its assets could be long-term in their maturity without significant liquidity risk.

A banker might protest that in reality much of a bank's short-term lending is also not that liquid if an economic crisis occurred. But that points up a frequent misunderstanding of liquidity. It is not the term structure of the debt alone that determines the ready availability of cash; it is ability to turn assets into cash. This kind of liquidity can be greater for mortgages, either in their ordinary form ("whole") or in some kind of securitized form, than for heterogeneous business loans either unsecured or secured by assets that are hard to obtain physical possession of or to dispose of. The effective liquidity of a mortgage loan actually may be stronger in an economic crisis than a commercial loan.

Of course, if an institution is perceived as having lost its creditworthiness and thus a run on it occurs, it may wish to liquefy all of its assets at once. The real public policy solution to this problem lies with other means of avoiding institutional failure and destabilization of the system, not in having all assets with terms of 30 days or less. In any case, the above observation applies. An asset's liquidity is not synonymous with its term.

Ultimately, the liquidity of housing loans is determined by how good an asset they are in general in the society and how well developed the financial system is. If they offer low risks in all of the other dimensions we are examining, they probably can be made liquid through direct sale or some kind of collateralized borrowing, or at worst interest rates on housing loans will need some moderate premium to compensate for the relative illiquidity. A mis-match in term between the funding and the lending need not be a barrier, as long as credit risk and cash flow risk are not problems themselves.⁹

⁹The great success that depository institutions in some countries have had in lending for housing is strong evidence that the short term of bank deposits is not a sufficient reason for commercial banks not entering this market.

Cash Flow Risk. This category of risk, uncertainty with respect to scheduled future cash flows (either real or nominal), is as pervasive to housing finance as the basic uncertainty of being repaid at all, i.e., credit risk. The uncertainty arises because the basic metric of the loan, money, may be worth more or less over time in real goods and because the cost of loanable funds may also vary over time. More specifically, the risk is related to uncertainty with respect to expected inflation, actual inflation, real interest rates, and exchange rates. It encompasses what is usually called interest rate risk and prepayment risk.¹⁰ Lending for a longer term, as for housing, greatly increases these risks.

How do each of these factors affect housing finance? Expected inflation affects the interest rate applied to loans denominated in nominal money terms, because savers seek to be compensated for the depreciation in the purchasing power of money as well as for deferring consumption. Actual inflation affects the system by its feedback effects on expected inflation and separately by its effects on credit risk, through effects on payment-to-income and loan-to-value ratios. Changes in real interest rates have the same effects as changes in expected inflation, but these effects extend to real-denominated (indexed) loans as well. Changes in exchange rates have the same effect as actual inflation in cases where different currencies are involved in the intermediation.

The nature of the cash flow risk is determined by the specifics of the way payments from borrowers and to savers are denominated, and the extent the intermediary accepts the risk of having these specifics differ. For example, if the saver commits to accept a fixed nominal amount over the term of the loan, the borrower and the saver will face no uncertainty of nominal cash flow, but both will face great uncertainty of real cash flow, i.e., the amount relative to the cost of living in that country. If it is the real payments that are fixed, both will be uncertain as to nominal cash flows. But if the saver demands a fixed real amount plus full immediate compensation for changes in the real value of the outstanding balance (i.e., the usual market nominal interest rate), both the saver and the borrower will face great uncertainty of both real and nominal cash flows.¹¹

Why does all this uncertainty about cash flows matter? The answer depends on the situation. If the uncertainty is with respect to the real level of payments by borrowers (i.e., because of an increase in the rate on a variable rate loan), the uncertainty may translate directly into uncertainty of how much funds will be available for spending on things other than housing. Whether this matters partly depends on the ability of borrowers to access other forms of consumer credit or cash savings to compensate for changes in real payment levels. To the extent that such options are not available, adjustment may be difficult for the borrowers and the likelihood of default may be increased. For savers, the increase in cash flows may only pose the

¹⁰Most risks related to cash flows are usually called interest rate risk, because they reflect forces which affect cash flows through changes in interest rates. We are calling them cash flow risks because it is the uncertainty of cash flow that directly matters, not the course of market interest rates. Also we will want to include in this category impacts of inflation and exchange rate fluctuations on the principle amount due, as well as on interest rates directly.

¹¹ Paradoxically, it is this latter arrangement relying on current payment of nominal interest, with its high amount of uncertainty of cash flows, which is practiced in most developed countries, because they have low-to-moderate inflation. On the other hand, once a country experiences such high rates of inflation that the public and institutions adopt the mental habit of thinking in "real" (inflation-adjusted) amounts, the preference is for stability in real cash flows, at least relative to real wages.

problem of having to reinvest the greater funds due to higher interest rates or consuming some capital if interest payments decline below cash needs.

However, if the saver or intermediary permits full repayment of the outstanding balance of the loan at any time, the saver may face additional uncertainty with respect to principal repayments as well as interest flows. This matters if aspects of the loan such as the interest rate are fixed or otherwise subject to being bettered on new loans available in the market. In this case the saver (or intermediary) is likely to face more prepayments just when the terms on its reinvestment options have become worse than what they were when the loans were made and receive fewer prepayments when the reinvestment opportunities are better. This potential for adverse selection of prepayment times is a serious drawback to fixing the terms (either real or nominal) of a long-term loan.

There is no simple answer as to how to manage cash flow risk for savers and borrowers, partly because the desirability of any particular approach depends on the circumstances of the parties and partly because changes in cash flow arrangements affect other risks and also affordability, i.e., how much can be borrowed to begin with. Unfortunately, another distinctly limiting factor has been that of the ability of the individuals involved to understand fully how complex contractual arrangements will work under various circumstances. The presence of all of these constraints has made the management of cash flow risk one of the most problematic aspects of housing finance in all countries.

The tradeoffs are clearly illustrated in considering the pros and cons of indexation of housing finance. Indexation for inflation of all amounts involved reduces uncertainty with respect to the real values of the cash flows (assuming an acceptable measure of inflation is available). If the real interest rate is permitted to vary over time, some uncertainty will remain, but much less than under most other arrangements. Moreover, if principle balances are indexed, the amount of current repayment is lowered, thus permitting more to be borrowed. Despite these advantages, indexation is generally practiced only in those countries where very high rates of inflation have forced ordinary citizens to think routinely in terms of real amounts. In countries with moderate rates of inflation, adjustment for changes in the price level are not routine in the media or in the public's understanding. Also, if other financial arrangements are not indexed, it may not be desirable to save or borrow in indexed form. If savers do not want indexed savings instruments and the tax and accounting systems are not adapted to indexation, intermediaries are reluctant to offer indexed loans.

For intermediaries, cash flow risk is a key business decision. There are substantial profits to be made by lending funds at rates set for a longer term than the term for which funds are raised, because there is a long-run tendency for short-term rates to be lower than long-term rates. In the past, it was felt in the U.S. that this difference reflected a discount savers were willing to take to have quicker access to their funds, i.e., a strong liquidity preference, and it was safe for intermediaries without such a short liquidity horizon to borrow at short rates and lend at long rates (with the protection of government limits on deposit rates). This ignored the other reason that long rates might be higher, that nominal short rates were expected to be higher in the future (either because of higher expected inflation or a cyclical rise in real interest rates). After hard

experience, this latter consideration has caused most intermediaries in the U.S. to attempt to match the term of the interest rates on assets and liabilities.¹²

These same comments can be made about intermediaries taking on exchange rate risk. Interest rates on funds raised in foreign currencies may be much lower than for domestic funds, but this partly reflects market expectations that the domestic currency will be devalued over time. In fact, exchange rate risk is difficult for any party to bear unless that party has some other asset or liability which is inversely exposed to movements in exchange rates. This generally excludes the saver and the borrower. Fortunately, there are many parties with inverse exposure to movements in exchange rates and there is a large market in selling this risk to others. Thus, although not commonly done, it is possible to have cross-currency transactions for housing finance.

Agency Risk. All of the other risks are viewed in reference to the intermediary considering its relationship with savers and borrowers. Agency risk is a concern about the intermediary from the point of view of the saver or borrower (either of which could be other intermediaries) or guarantors; it involves potential downsides from dealing with a particular intermediary. There are several sources of such risk, including (1) fraud or misfeasance by employees, (2) a divergence between management's incentives and saver or investor concerns, or (3) unexpected loss of funds by savers due to losses in excess of the capital of the intermediary. The first two sources apply even when agents are expected only to act as conduits between saver and borrower. The third applies as well when the basic understanding is that the intermediary is taking the credit risks (and keeping the risk premium).

Usually the focus of agency risk is on the saver (or the investor if the funding is from another intermediary) or any third-party guarantors. The borrower might be concerned about the degree of flexibility it might benefit from in case of repayment difficulties, but the potential range is relatively small. It is usually the saver or guarantor that must worry about all the above sources of agency risk. This worry can take the form of reliance on the rule of *caveat emptor* or it can be subject to a variety of consumer protections or regulation and supervision. In most modern financial systems, the government takes some or all of the agency risk on itself and accompanies it with a high degree of regulation and supervision, at least for those financial intermediaries which are essential to the stability of the financial system. We examine such system risk below.

One area where agency risk is paramount is in the operation of secondary markets (i.e., wholesale funding) based on pass-through type arrangements. If any part of the credit risk is borne or could end up being borne by investors, but the portfolio is being created and/or serviced by third party intermediaries, there is great potential for divergence of incentives between the intermediaries and the investors.

¹²It is difficult to conclude that today there would be much of a pure premium for lending long in the U.S. context, because savers can lend long and still maintain perfect liquidity in the very active resale markets for most long-term debt. Thus, any long-run tendency for long rates to be higher than short rates must reflect expectations that short rates will rise, plus a premium to compensate for the shear uncertainty about the future course of rates. There is also a market in some currencies for selling off the risks of future variability in short rates (called interest rate swaps) and thus convert an asset with a rate fixed for a longer term into a variable rate asset.

Another place that agency risks appear is in relationships between intermediaries in cases where there are divergences between fund raising, origination and servicing activities. Specialization in these activities can occur only when controls can be put in place to minimize these risks.

System Risk. The focus so far has been on the risks faced by individual savers, borrowers, and intermediaries. Presumably, these parties will strive to manage these risks as best they can, through the types of contracts they conclude. There is another dimension to risk in the modern financial world, a degree of interdependency that continues to grow. There is a fourth party to most formal sector financial transactions, and that is the rest of the financial system. Each intermediary is linked with other intermediaries and faces the possibility of not being able to fulfill its duties if other portions of the system fail.

There is a major recent example of this concern. As the downturn in commercial and residential real estate values in many developed countries deepened in the early 1990's, the capital base of many institutions was threatened. Such circumstances led to a loss of confidence in some institutions and their failure, causing further distress sales of real estate and further erosion in capital. The operational integrity of the system can be disrupted or even destroyed.

Managing this risk is partly the responsibility of the intermediaries. For example, it is desirable for a lender to use mortgage insurance from more than one company, in case one fails. But there also is a public interest in ensuring the stability of the system. This can take the form of explicit or ad hoc government guarantees, or government limitations on the amounts and patterns of risk that intermediaries can take on, or other regulatory restrictions. Unfortunately, excessive government regulation in the name of stability can deny significant benefits to the public and excessive guarantees can weaken the bonds of risk aversion. Achieving an appropriate balance is difficult and may even require international regulation (such as under the Basle capital adequacy rules).

Political Risk. Political risk is different from all the other risks. The term refers to uncertainty about governmental actions that do not usually directly cause losses, but do so indirectly through their impacts on the other risks. In this sense, political uncertainty is simply a catch-all term for a source of much the rest of the risk in the system, e.g., economic, social, and legal shocks that cause credit losses, liquidity problems, cash flow problems or system-wide instability. This type of uncertainty is singled out because it can be so important and because it is so difficult for intermediaries to control or manage.

In many developing countries, political risk is of paramount concern to private intermediaries; there is catastrophic credit risk involved in countries facing a potential civil war such as in Bosnia and Rwanda. Less extreme but nearly as catastrophic is the ability of governments in many countries to implicitly or explicitly undermine borrower repayment habits or abrogate abilities to foreclose or to expropriate property or otherwise alter contractual relationships. Political risk can also encompass major alterations of key economic parameters, such as inflation, real wages, and prospects for economic growth.

Some political risk remains in the most settled of societies. A mild example is the ability of government decisions to undermine collateral value through actions that significantly affect regional economic development. Other examples are unexpected statutory or regulatory changes that impact intermediaries. A recent example in the U.S. is activities of the Resolution Trust Corporation that undermined the position of equity investors in savings and loans.

The presence of very high levels of political risk is a common reason for the government to have to intervene strongly in order for any housing finance to be offered by the formal sector in developing countries. (The informal sector is less sensitive to political shifts because it operates outside the legal structure.) Unfortunately, such intervention, depending on the form it takes, can further discourage private intermediation. The positives and negatives of government intervention are discussed below.