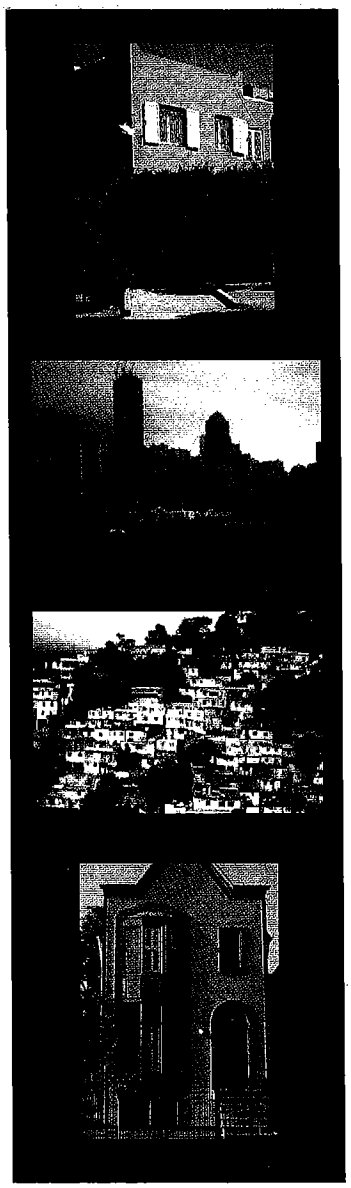
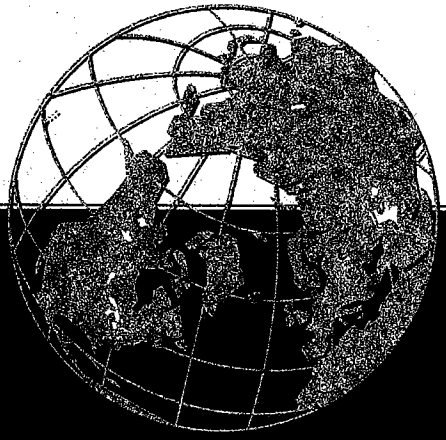


SECONDARY MORTGAGE MARKETS: INTERNATIONAL PERSPECTIVES

International Union for Housing Finance



SECONDARY MORTGAGE MARKETS: INTERNATIONAL PERSPECTIVES

Edited by Michael J. Lea, Ph. D.

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Contents

Part 1: Conceptual Underpinnings

Part 2: International Experience

About the International Union for Housing Finance

Effectiveness in housing finance will depend increasingly on an understanding of housing finance techniques from other countries. It is for this reason that the International Union for Housing Finance (IUHF) has produced this important book.

The IUHF is a non-profit trade association and serves its members by reporting trends, analyzing achievements, and keeping them informed of successful strategies used by housing finance organizations around the globe. International exchange is at the heart of our work. Members benefit from the experiences of other leaders who face similar challenges in management and public and business policy. There is a high value placed on diverse input and cross-cultural learning — one nation to another, one person to another.

The mission of the IUHF is to improve the effectiveness of housing finance professionals and the organizations they lead, with the ultimate goal of making housing credit more affordable and more available around the globe.

Our emphasis, therefore, is on new knowledge and how it can help create operating efficiencies, serve markets more fully, and lead to competitive advantage. Member services focus on international experiences, publications, conferences, training, and exchange with leading practitioners.

An 83 Year History. The IUHF is based in Chicago, Illinois USA. Our origins are traced to the first worldwide meeting of mortgage credit institutions in London in 1914. Over the years, the IUHF Secretariat has been located in both London and Chicago, twice in each city.

Membership Profile. Members come from nearly 50 countries and include Managing Directors/CEOs and other senior executives of primary lenders: savings institutions, building societies, Bausparkassen, mortgage banks, commercial banks, and other financial institutions in addition to insurance companies, government agencies, financial regulators, economists, consultants, academicians, and secondary market companies. The IUHF is proud of its affiliation with many national and regional trade associations in the field of housing finance. We also have a growing number of Corporate Members which serve the housing finance field. We provide opportunities for these firms to understand housing markets and to encourage business activity.

Leadership Structure. The IUHF is governed by an Executive Committee, comprised of members from representative regions of the world. A Council of Members meets once every two years at the World Congress. A new President and Officers are elected every two years.

SERVICES TO MEMBERS

Housing Finance International. Our quarterly magazine is considered the leading publication of its kind in the world. Each issue focuses on a country, region or topic of current interest. Authors are experts and practitioners in housing finance.

The World Congress of Housing Finance. Every two years, the IUHF sponsors its largest conference, the World Congress, which attracts hundreds of delegates from many countries. Long considered "the summit meeting of world housing finance," past Congresses have been held in Hamburg, San Francisco, Washington D.C., Cape Town, Berlin, Vienna, Sydney, Rio de Janeiro, Melbourne, London, and Bangkok. The World Congress is an ideal opportunity to meet housing finance professionals from many countries and gain their insights.

Special Publications. We publish periodic reference books, monographs and other publications which are included as benefits of membership. Many of these are then available on a purchase basis to non-members.

Research Library. The IUHF Library is a vital resource for members who seek to learn more about a topic or country. We stock past issues of Housing Finance International magazine and other reference materials from around the world. *This material represents an informational resource on housing and housing finance activities which is unique in the world.* For corporations operating internationally, the library can offer key data for business planning.

International Training Schools. The IUHF collaborates with the The International Housing Finance Program at The Wharton School, University of Pennsylvania in Philadelphia, USA to offer one and two-week training programs. Both modules are ideal for managers of housing finance organizations who seek to improve their understanding of a broad range of economic, management, operational, and structural topics in housing finance. Faculty is largely from the highly-regarded Wharton School.

Special Advisory Services. The IUHF responds to a broad range of questions from members. We also facilitate visitation programs to other countries and make introductions to leading practitioners—usually members—who will serve as knowledgeable resources.

Web Site. The IUHF maintains a Website at **htpp://www.housingfinance.org** to promote member communications and to reach others in the world who would benefit from our services.

Aid To Developing Countries. The IUHF has a long history of assistance to leaders from newly-founded housing finance organizations, typically in developing and transitional economies. Through the generosity of our members, these managers are enabled to attend our events to gain much-need technical and strategic information that will help them in their respective countries.

Seeking A Global Difference. The IUHF sees a world characterized by population growth, rapid urbanization, and economic uncertainty. In this context, home ownership is an important force with profound economic and societal benefits. Expanded access to credit is vital to increased home ownership. This is an exciting era for housing finance, with varied and positive efforts emanating from all corners of the world. IUHF programs are designed to support and lead worldwide exchange—to help expand the flow of credit and increase the number of families who own their own homes.

The International Perspective. A wider appreciation of foreign developments is no longer a luxury. It is needed by housing finance leaders to bring innovation to their own activities. The IUHF meets this need for its members.

Donald R. Holton
Secretary General
International Union for Housing Finance

About the Editor

Dr. Michael J. Lea is Director of Research for the International Union for Housing Finance and editor of *Housing Finance International* magazine. He has over 20 years of professional experience in 20 countries spanning 5 continents. Dr. Lea has provided advice on the creation of market-based housing finance institutions and systems as a consultant to the Inter-American Development Bank, the World Bank and the U.S. Agency for International Development as well as private lenders and insurers.

Prior to embarking on his international career, Dr. Lea was Senior Vice President of Finance and Capital Markets at Imperial Corporation of America from 1987 to 1991 and Chief Economist at the Federal Home Loan Mortgage Corporation (Freddie Mac) from 1983 to 1987.

Dr. Lea also is the President of Cardiff Consulting Services, Inc., a firm specializing in analysis of and research on domestic and international financial markets and institutions. He has published over 60 articles and book chapters, organized several conferences and made numerous presentations to government agencies, multi-lateral institutions, trade groups and academic and professional organizations. He has served on the faculties of Cornell University, the University of California, San Diego and the Wharton International Housing Finance Program. He received his Ph.D. in economics from the University of North Carolina, Chapel Hill.

Acknowledgements

The International Union for Housing Finance would like to acknowledge the contributions of the authors of the papers in this volume. These authors as well as others addressing different subjects in *Housing Finance International*, are the source of the rich material that sets HFI apart from other journals in this field. They provide their material on a voluntary basis. Almost all of the work is original and as readers of the journal appreciate, current and topical.

The Union would particularly like to thank three authors whose articles have not appeared in HFI or anywhere else previously. Jack Guttentag prepared the provocative manuscript comparing secondary market and depository-based systems especially for this volume. Mark Kinsey from OFHEO graciously turned his presentation from a Union conference into an article for this volume as well. Luiz Pinto Lima, the current president of the International Union, shares with us his extensive experience in Brazil and the exciting development of a new secondary mortgage market corporation.

Preface

A principal objective of the International Union for Housing Finance (IUHF) is "to promote the exchange of knowledge among members about housing finance throughout the world and to serve as a primary source of information about international finance." (Bylaws, 1995)

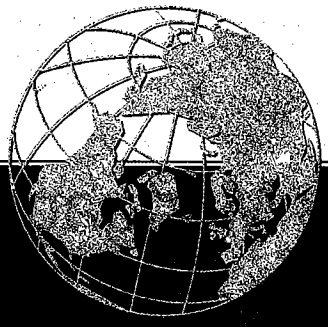
The publication of this book on secondary mortgage market activities meets this standard. As a collection of both previously published writings and new material, the book reflects a growing trend: the need for new and expanded sources of funding for housing finance. To this end, the book explores a range of activities, all intended ultimately to help more people in the world to build, buy, or improve a home.

The IUHF publishes this compendium with the belief that not all countries or regions of the world should embrace secondary mortgage market activities. These activities are diverse and represent a set of tools among many choices. The role of the IUHF is to facilitate the dissemination of knowledge; and therefore, the IUHF takes no position favoring one housing finance approach or another. We value this neutrality, respecting all systems and recognizing that housing finance practices are best determined by market forces and the combined efforts of both the private and public sectors.

In this same spirit, the IUHF welcomes suggestions for additional ways in which we can increase the exchange of housing finance information around the world.

Luiz Pinto Lima
President
International Union
for Housing Finance
Sao Paulo, Brazil

Donald R. Holton
Secretary General
International Union
for Housing Finance
Chicago, Illinois, USA



PART 1: CONCEPTUAL UNDERPINNINGS

Secondary Mortgage Markets: International Perspectives

By Michael J. Lea

OVERVIEW

Creation and expansion of secondary mortgage markets is perhaps the hottest topic in housing finance today. Mortgage-backed securities (MBS) have been issued in at least 16 countries. An additional 20 or more are discussing or contemplating the creation of a secondary market.

Why is secondary mortgage market development such a hot topic? There are a number of reasons. Secondary market development holds the promise of:

1 Tapping long term funds in the capital markets in order to expand the flow of funds to housing and improve risk management for lenders (particularly depositories);

2 Creating a flow of high quality fixed income securities to meet the demands of emerging pension and insurance investors (particularly in countries undergoing pension reform).

3 Expanding competition in a market long dominated by specialized circuits and institutions. Issuance of asset-backed securities can be done by thinly capitalized originators because the loans do not remain on balance sheet.

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4 Financing housing loans off-balance sheet (existing lender facing capital constraints) either as capital or crisis management tool.

Secondary market development is not a new topic. Mortgage securitization has its origins in European mortgage banking going back to late 1700s. The issuance of securities backed by pools of mortgages and the reputation and capital of a mortgage bank has been a staple of mortgage finance in Scandinavia, Germany, France, and Spain. A variant of the mortgage bank model that has enjoyed considerable success in the US is the liquidity facility with institutions acting as collateralized lenders and centralized bond issuers. However, these models address only one element of true secondary market development; funding. The origination, servicing and credit enhancement aspects of mortgage lending remain bundled in the originating institution.

The modern secondary market emerged in the US in the 1970s. This model is different from continental European mortgage banking in a couple of respects:

1 Functional separation. The modern SMM involves a unbundling of the functions of loan origination, servicing, credit enhancement and funding.

2 Issuance of asset-backed rather than institution-backed securities. Investors must depend on the pool of loans and external credit enhancement and not the assets or capital of the originator or servicer.

Unbundling is simply a convenient way to describe a system in which a number of functions and activities associated with originating, servicing, brokering, and investing in mortgages are accomplished by two or more specialists, as compared to a bundled system in which virtually all the functions reside in a single mortgage intermediary. The unbundled systems typically use mortgage securities as the financing vehicle as compared to the bundled intermediary system which relies on deposits and/or some on-balance sheet institutional financing source. The United States currently utilizes both systems, although the unbundled system is now the dominant.

Figure 1 provides a simple visualization of a bundled financial system. In this system, characterized by that portion of the US mortgage delivery system dominated by savings and loans and commercial banks, the depositories assume all the major functions of origination, servicing and portfolio risk management. These intermediaries still purchase a few services from third-party vendors, however, the primary functions are accomplished by a single firm. The depository originates a mortgage to a home buyer, services it and performs all the pipeline risk management and portfolio management functions, including funding.

Figure 1 The Bundled Home Mortgage Delivery System

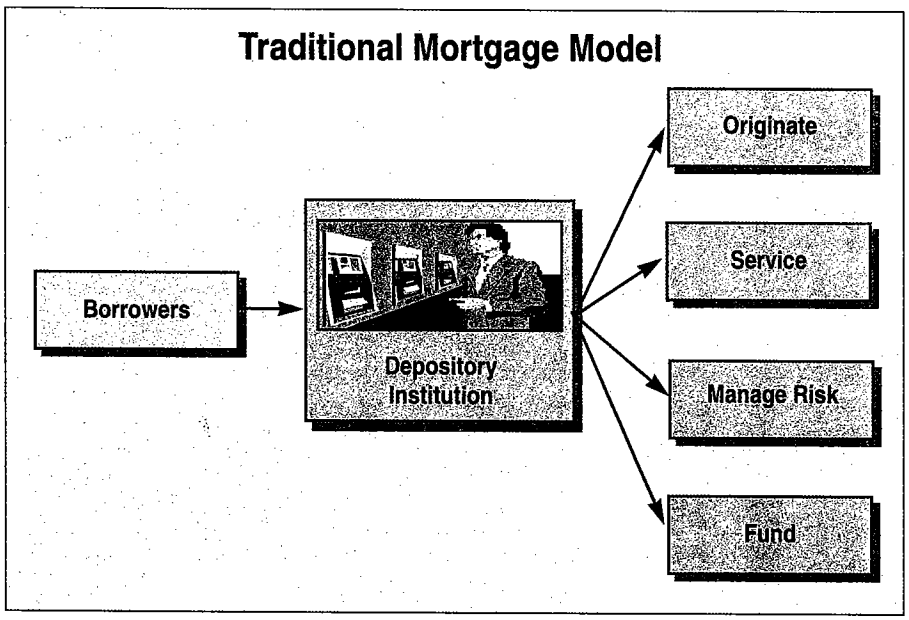


Figure 2 The Unbundled Home Mortgage Delivery System

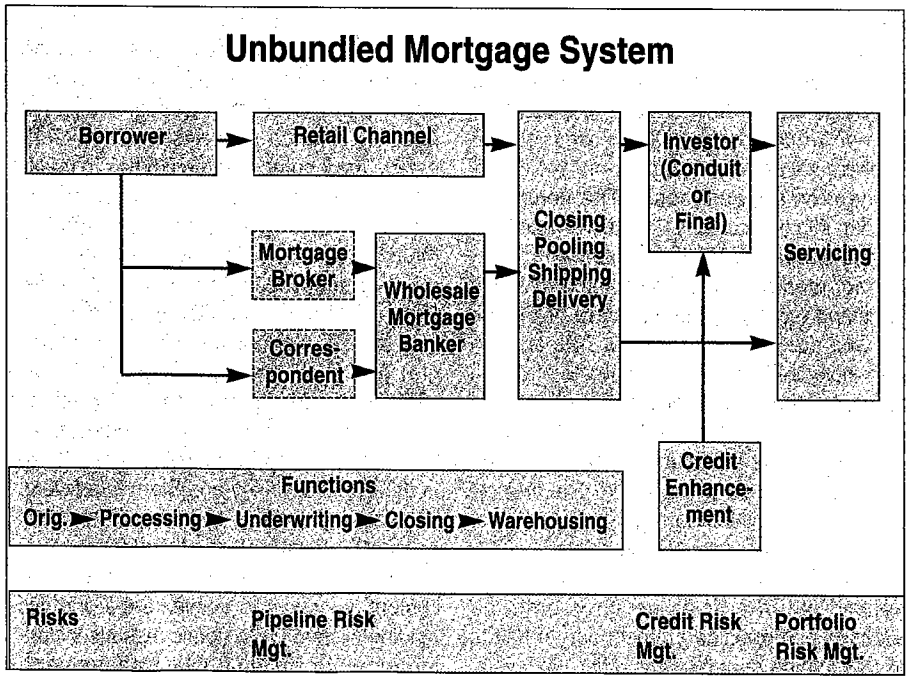


Figure 2 provides a visualization of an unbundled mortgage finance system dominated by security issuing firms. This system unbundles the mortgage delivery system into functions that are performed by a large number of specialized organizations which might include:

- Loan brokers who close loans on behalf wholesale mortgage banking firms.
- Loan correspondents who originate loans and sell them to wholesale mortgage bankers.
- Full service retail mortgage bankers who originate mortgages, assume pipeline risk, and deliver them to investors [conduits such as Fannie Mae and Freddie Mac or trusts [in the case of private-issue asset backed securities (ABS).
- Organizations, usually mortgage bankers, who service mortgages.
- Security issuance firms that perform certain portfolio management activities, issue securities and perform sub-servicing for investors.
- Investors who perform a variety of portfolio risk management activities.
- Mortgage and mortgage security credit risk guarantors and insurers, who may be either public or private.

Despite the interest expressed by investment bankers, analysts and others, secondary markets and securitization have been slow to take off outside of the US. Until recently development was mainly confined to English speaking, common law countries (UK, Canada, Australia). Attempts to introduce securitization in continental Europe have been slow reflecting difficulties in developing the proper legal framework (in civil law environment) and the lack of a need on the part of entrenched portfolio lenders to sell assets. This environment is beginning to change as the retail cost of funds for depository institution lenders is rising as is the pressure on managements' to

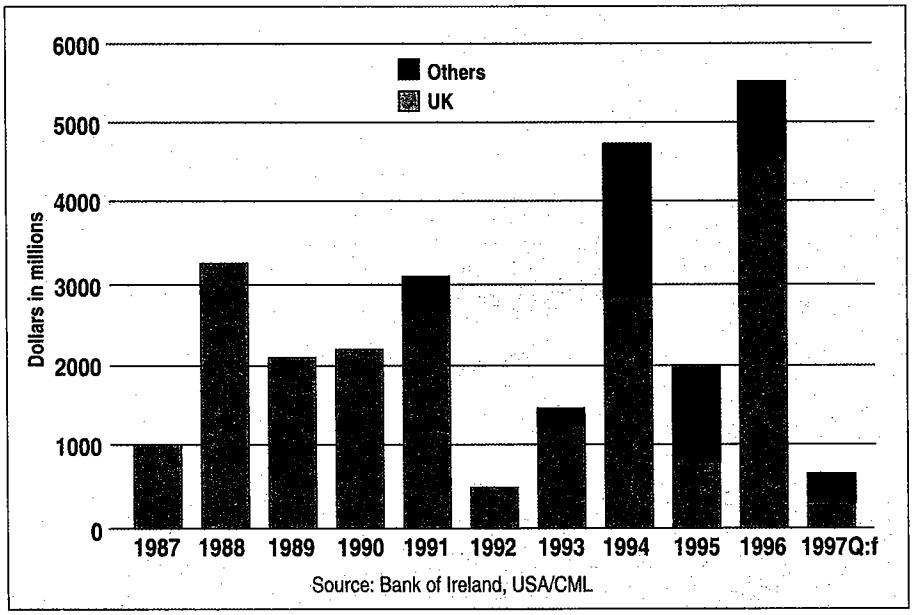
enhance shareholder value through active balance sheet management.

This change is reflected in the volume of MBS issuance in Europe. MBS have been issued in 9 European countries and non-UK issues are becoming a major factor. Perhaps more importantly, secondary markets have been created in a number of developing countries including Argentina, Columbia, Hong Kong, Trinidad and Tobago and Ghana. Why has this change come about? Through a combination of hard work to create the legal and regulatory framework as well as a growing interest in and need of domestic lenders to finance off-balance sheet.

Securitization may be a necessary first step towards secondary market development. The separation of the funding from the origination and servicing of mortgages is the first form of functional separation. The ability of mortgage banking institutions to fund off-balance sheet facilitates increased competition with retail funded depository institutions. As a more competitive market develops, there will be increased pressure for specialization in the origination function (moving from origination through branches with significant cost overhead to use of brokers and intermediaries who only get compensated for successfully closed loans) and servicing which through the application of technology is beginning to demonstrate the potential for significant economies of scale.

Housing Finance International (HFI) has been tracking the progress of secondary market development for a number of years since its inception in 1986. During the 1980s, HFI featured articles on US, and Canadian experience with securitization and the Danish mortgage bond system. The attention to secondary markets became more serious in 1994 with a special issue on the subject in the March. Starting with that issue through September 1997, HFI has published 19 articles covering SMM development in 11 countries and addressing the fundamental building blocks of SMM development.

Figure 3 Volume of European Mortgage Backed Securities Issues by Year



In this volume, the International Union for Housing Finance brings together a compilation of articles from 1994 to present that address secondary mortgage market development on a global basis. The volume is divided into two sections. Section 1 addresses the conceptual building blocks for secondary market development including the legal and regulatory infrastructure, technology, and credit enhancement. This section also includes 3 articles on the state of development of the US secondary market.

Section 2 looks at secondary market development in the rest of the world. The first set of articles examines the experience with secondary markets in developed countries (UK, France, Canada, Denmark, Australia). The second set of articles explores both the promise and practice of secondary markets in developing countries including Malaysia, Mexico, Argentina, Trinidad and Tobago, Ghana and Jordan.

The lead article in this volume is a previously unpublished comparative view of secondary market and depository-based housing finance systems by Jack Guttentag. Jack notes that the US has in reality two distinct housing finance systems; a portfolio lending system dominated by thrifts and banks with support from government-sponsored liquidity facilities (the Federal Home Loan Banks which are described in more detail in the Pollock article) and a secondary mortgage market (SMM) system dominated by mortgage banks and government-sponsored conduits (Fannie Mae and Freddie Mac, described in detail in the Kinsey and Stanton articles). These two systems have been in direct competition with each other for nearly 2 decades. In Guttentag's view, the SMM system has come to dominate the portfolio lending system for systemic reasons including superior pipeline risk management,

superior interest rate risk management, more efficient loan servicing, and a greater ability to meet diverse needs of borrowers.

Alex Pollock offers an alternative vision of SMM development in the March 1994 HFI. While recognizing the size and increasing importance of the SMM in the US, he notes that "Part of the financial romance of securitization lies in the baroque complexity which has evolved from the original idea of simply passing through payments from pools of mortgages to investors. . . . Securitization links residential mortgages and the bond market, but does so in a way that is financially complicated. . . . The assumption that all [the required] infrastructures does exist, can rapidly be created, or should even be a priority to create is dubious for most of the world". Pollock goes on to describe an alternative model, the SMF or liquidity facility, as embodied in the highly successful Federal Home Loan Bank system in the US. This model is significantly simpler in design than the modern SMM and may be a more realistic and achievable way to access the capital markets for housing for many developing countries.

There are a number of pre-requisites for SMM development. Michael Lea addresses these in an article published in the March 1994 HFI: "The Applicability of SMM to Developing Countries". Lea compares and contrasts depository systems, mortgage bond systems (further described in Gjede), a secondary mortgage facility (SMF) or liquidity facility system (Pollock) and an SMM system. The latter three systems allow accessing of the capital markets to fund housing. The ability of a country to create one or more of these systems depends on the state of development of the primary market, the legal and regulatory framework, and government policies. In addition, the state of development of the domestic capital market is important because most funds for housing for a country will come from domestic as opposed to international sources.

The legal and regulatory underpinnings of a SMM are explored in more detail in a series of two articles abstracted from a study done for the government of Mexico and published in the June and September 1996 issues of HFI. The goal of this study was to assess the readiness of Mexico for SMM development. The essential elements they addressed include:

- the adequacy of the origination process;
- the property appraisal system;
- the availability of adequate information;
- the degree of standardization of mortgages;
- the ability to transfer ownership of mortgage assets;
- the costs associated with transferring mortgages;
- the effects of bankruptcy on the transfer of assets;
- the vehicles available to transfer assets;
- the impact of investment eligibility of MBS for domestic investors; and
- the tax treatment of securitization for the originator, the issuer and the investor.

The importance of credit enhancement in securitization is discussed in two articles from the September 1996 issue of HFI. The second part of the Mexico article reviews types of credit enhancement and associated capital adequacy issues for issuers. The theme is developed in more detail by Mahesh Kotecha. Kotecha reviews the history of securitization, the mechanics of securitization, the role of the rating agencies and the use of guarantees in securitization. The article also reviews the participants in the financial guarantee industry, the expanding use of securitization and financial guarantees in Asia and returns to the theme of whether emerging markets are ready for securitization.

Mark Kinsey of OFHEO, the regulatory agency charged with oversight of Fannie Mae and Freddie Mae, contributes an article that addresses the role of the government sponsored enterprises (GSEs), the effect of technology on housing finance and the emerging use of automated underwriting systems in the US SMM. He describes the present role of the enterprises, OFHEO's regulatory mandate and how the enterprises use technology to manage credit risk. This article has not appeared in HFI but was presented at an International Union for Housing Finance Conference "Housing Finance in a Technology-Driven Market" in October, 1996.

A somewhat different perspective on the role of the GSEs and their use of technology emerges in the article by Thomas Stanton in the September 1995 HFI. Tom discusses the role and recent growth of these institutions, their impact on the primary market and the interaction between technology and the GSEs. Stanton concludes, "Many of these changes . . . promise to bring positive results to mortgage borrowers in the form of higher quality and lower costs. On the other hand, the new technologies represent an extension of market power of the two dominate firms in the secondary mortgage market; as such, these technologies are likely to accelerate changes among primary market institutions."

Section 2 articles explore the development of SMM outside of the US as chronicled in HFI. The starting place is the the March 1994 issue with articles on the UK and French experience with secondary markets. Tim Freeman reports on the historical development of the securitization market in the UK. The UK market was launched in 1987 without the involvement of a government-sponsored institution. The market flourished from 1988-1991 with centralized lenders (US-style mortgage banks) obtaining a market share as high as 13 percent. However, a combination a return of low relative cost of funding for retail depositories, uncertainty about the capital treatment of MBS, and

downgrades of mortgage insurers led to a substantial decline in new issuance volume. Only in 1996 did the MBS market re-emerge in the UK.

Charles Stone and Anne Zissu describe the secondary mortgage market in France circa 1994. They summarize the historical development of the market and contrast two competing versions; the Caisse de Refinancement Hypothecaire (CRH) liquidity facility model (similar to the US FHLBs but without government involvement) and true securitization. Although both systems remain rather small in France due to strong retail funding advantages for banks in their view that MBS are the more likely course of development in the market. Their discussion focuses on the differences in transactions costs and capital requirements of the two systems.

The contrasting mortgage bond model is described in the article by Torben Gjede in the March 1997 HFI. The Danish mortgage bond market has existed since 1797 and during that time there has never been a bond default. Unlike the more recent MBS market, the European mortgage bonds are on-balance sheet obligations of the issuing mortgage bank. The Danish mortgage bonds are in structure, however, nearly identical to pass-through MBS. The loans are sold into large pools and the investors receive pro-rata shares of pool cash flows which come from borrower principal, interest and prepayment. The mortgage bank provides credit enhancement to the investor as well as issuing the bond on behalf of the borrower.

The article by Larry Jones in the March 1995 HFI provides an overview of the entire Canadian housing finance system. We include it in this volume because of its extensive discussion of the Canadian MBS market. The Canadian SMM began much later than its American cousin and has a much smaller share of the market. MBS are issued almost exclusively with government guarantees and backed by government-insured mortgage loans. Jones notes that the relatively slow rate of development is based on the ability of Canadian lenders (mainly banks) to manage interest rate risk and their ample capitalization (which obviates the need for off-balance sheet finance).

Anthony Gill provides a current assessment of the secondary mortgage market in Australia, an article from the December 1997 HFI. Securitization has emerged as one of the fastest growing sectors in the Australian Capital Markets. From it's beginnings in the mid 1980s, securitised debt as a proportion of Australian debt outstandings (face value) has grown to approximately 18% (as at September 1997). The development of this market has been done without a major government involvement. The appearance of specialized lenders funding themselves through securitization has lower mortgage spreads and increased product variety and customer service in the market.

Also in the March 1995 HFI, the article by Barry, Castañeda and Lipscomb examines the structure of the mortgage markets in Mexico and the prospects for securitization. This article was written prior to the peso crisis in 1995 and thus paints a more favorable picture of the development of the market than exists today.[1] Even in 1994, however, they cited weaknesses in the origination practices, lack of default rate and prepayment history, legal and regulatory problems including expensive title transfer and lack of a reliable foreclosure process as barriers to SMM development.

The most successful secondary market institution in Asia is Cagamas, the National Mortgage Corporation of Malaysia. As described in the September 1997 HFI, Cagamas is a hybrid institution. It purchases mortgage loans and issues uncollateralized debt, thus functioning in a similar manner to the US GSEs when they fund themselves through the issuance of debt (rather than pass-through securities). However, Cagamas purchases loans with full recourse, leaving the credit risk and capital requirement with the primary market lender, and for a fixed term of 3, 5, or 7 years at which time the loan must be repurchased by the lender. In function, therefore, it more closely resembles the liquidity facility model than the mortgage conduit. At the end of 1996, Cagamas had provided 35 percent of housing finance and accounted for 38 percent of capital market debt outstanding in Malaysia.

More recent SMM experience in Trinidad and Tobago, Ghana, Argentina, Jordan, and Central America were chronicled in the June and December 1996 issues of HFI. As reported by General Manager Calder Hart, the Home Mortgage Bank (HMB) of Trinidad was created in 1986 in order to foster both capital market and mortgage market development.[2] The HMB purchases loans on recourse from primary market lenders and issues tax free and non-tax free mortgage-backed bonds for short-, medium- and long-term periods.[3] The HMB is an example of a successful public-private partnership. The ownership is 32.5% public and 67.5% private with the Central Bank being the largest shareholder. The International Finance Corporation, the private sector development arm of the World Bank Group, was a catalytic investor that helped to arrange technical assistance from the Canada Mortgage and Housing Corporation.

The Home Finance Company (HFC) in Ghana was established with World Bank assistance in 1991. As described by Managing Director Stephanie Baeta Ansah, the HFC is also the product of a public-private partnership with the government holding directly 7 percent of shares and indirectly through the social security fund and the Central Bank of Ghana another 30 percent. The HFC is closer in spirit to the SMM model as it holds 90 percent of credit risk on mortgages it purchases with the originator retaining 10 percent. The major problem faced by

HFC is inflation. High and variable rates of inflation have forced the company to use a variant of the dual index mortgages (described in Barry et. al.) which is difficult to market to borrowers and investors. In addition, high house price- to-income ratios limit affordability. These issues highlight the limitations of a secondary market institution which is not an appropriate vehicle for subsidies and cannot overcome the effects of expansionary monetary policy which creates inflation.

The Argentine secondary market has developed recently following the restructuring of the state housing bank, Banco Hipotecario Nacional, into a second tier finance facility. As described in the December 1996 HFI article by Luis Cerolini, the BHN has developed into a wholesale entity that purchases mortgages on recourse from primary market lenders funded through the issuance of mortgage-backed securities. The BHN has successfully placed two US and one domestic MBS issue. Cerolini emphasizes the importance of the passage of the securitization law in 1995 which accomplished the following changes necessary to SMM development:

- Restructured the foreclosure regime to allow quick and effective repossession;
- Allowed the possibility of assigning mortgages without requiring acceptance of the debtor;
- Reduced the notary costs of mortgage assignments and contract execution;
- Introduced a trust mechanism for securitization mortgages;
- Developed guidelines for mortgage loan standardization; and
- Provided greater tax certainty for new MBS.

The experience of BHN may provide an important model for both the restructuring of state housing banks and creating the appropriate legal and regulatory environment for securitization.

The last two articles in the volume describe works in progress. Douglas Diamond provides a conceptual view of the creation of a secondary mortgage facility in Jordan. The facility, the Jordan Mortgage Refinance Corporation (JMRC), was created in 1996 to provide term finance to primary market lenders. The structure of the JMRC is quite similar to the FHLB structure in the US as the corporation will make collateralized loans to lenders financed with simple bond issues on the domestic capital market. Diamond lays out the case for creating the JMRC by describing the limitations of the current Jordanian mortgage market, which is quite small and characterized by expensive short term loans. The SMF has the potential to foster both capital market and mortgage market development by acting as a source of medium- and long-term finance, allowing lenders to extend mortgage terms, and issuing high quality medium- and long-term bonds. A major uncertainty pointed out by Diamond is the continued existence of a retail housing bank competitor with funding advantages.

Michael Lea provides a feasibility analysis for the creation of a regional SMF in Central America. The SMF would operate cross border, making loans to and eventually purchasing loans from primary market lenders in several countries and issuing bonds in both the domestic and international capital markets. A regionally based facility presents several unique challenges. The first is one is overcoming the legal, regulatory and tax differences among the countries. Lea suggests that a treaty providing standardized treatment for the facility be negotiated between the countries. Exchange risk is another formidable obstacle. Lea shows that a well diversified portfolio of loans and bond issuance across the countries could produce a manageable level of risk. As a start-up company in a historically volatile region, the SMF would need guarantees on its initial debt issues. Provision of such guarantees by multi-lateral development agencies could be a promising way to develop the housing finance systems of these countries in a more market-oriented manner.

These articles provide the most comprehensive review of secondary mortgage market development on a global basis issued to date. They address the fundamental building blocks for SMM development, the historical development of the US market and the creation and expansion of secondary markets in the rest of the world. Given the rapid recent pace of development and the significant advantages capital market finance for housing offer, it is likely to be a subject of many HFI articles in the future.

Michael Lea
Director of Research
International Union for Housing Finance
and Editor, Housing Finance International

NOTES

1 See Lea, M., "Restarting Housing Finance in Mexico" in the December 1996 HFI for a more recent review of the Mexican housing finance system.

2 The HMB was also described in an earlier paper by Calder Hart in the June 1993 HFI.

3 From a functional standpoint the HMB more closely resembles the SMF model, providing liquidity and capital market access to lenders without taking the loans off-balance sheet for the lenders.

Secondary Market-Based Versus Depository-Based Housing Finance Systems

Jack Guttentag

The US is unique in having two distinct housing finance systems. The first is the depository-based housing finance system (henceforth DHFS), composed of savings and loan associations and some banks, who originate loans for portfolio and borrow when needed from their Federal Home Loan Banks. The Federal Home Loan Bank System is a quasi-governmental entity that can raise funds in the capital markets almost as cheaply as the US Treasury.

The second system is the secondary market-based housing finance system (henceforth SMHFS), which is more complicated. Mortgage bankers are temporary lenders who originate loans for sale in the secondary market. Retail mortgage banks deal directly with consumers, while wholesale mortgage banks buy loans from correspondents which are other (usually smaller) mortgage banks.

Wholesalers also acquire loans from mortgage brokers which, in contrast to correspondents, do not close and fund loans but deliver applications to wholesalers. Retail and wholesale mortgage banks assume "pipeline risk"—the risk that interest rates will rise between the time they have made a commitment to a borrower and the time the loan is sold. (Correspondents and mortgage brokers do not assume this risk.)

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Retail and wholesale mortgage banks, which I will henceforth refer to as "temporary lenders," sell loans to conduits, who convert them into securities which are sold to a variety of investors. The conduits include Fannie Mae and Freddy Mac, which are quasi-governmental entities with credit standing comparable to that of the Federal Home Loan Banks, plus a number of private conduits who operate in the segments of the market not served by Fannie Mae and Freddy Mac.

While there is overlap between the two systems—for example, many depositories deal in the secondary market and/or have some sort of cooperative relationships with entities belonging to the SMHFS—the two systems are fundamentally competitive. Hence, the US experience constitutes a unique laboratory for assessing their relative strengths and weaknesses. For the most part, this comes down to explaining why SMHFS has been clobbering DHFS for at least two decades.

I NON-SYSTEMIC FACTORS

It is not difficult to develop a list of country-unique or special historical factors that have affected the relative performance of DHFS and SMHFS, but which have little or nothing to do with the inherent differences between the two types of systems. Such a list would include differences in regulatory burdens, and in the relative generosity of Federal support programs. No attempt will be made in this paper to assess the importance of such factors in explaining the relative decline in DHFS. As we shall see, systemic differences favoring SMHFS are so important that they suffice in themselves to explain the relative decline in DHFS, without recourse to non-systemic factors.

My approach will be to examine the relative performance of DHFS versus SMHFS in executing a number of specific housing finance functions. In every case we will find that *SMHFS imposes a discipline, lacking in DHFS, that increases efficiency.*

I MANAGING PIPELINE RISK

I begin with pipeline risk not because it is the most important function that a mortgage lender must perform but because it illustrates so well the major reason that SMHFS is winning the war.

Pipeline risk is the risk that between the time a lender makes a binding commitment to a borrower and the time the loan is either sold or placed in portfolio, the value of the loan will decline. SMHFS manages pipeline risk more efficiently than DHFS, even though the people involved in the process are often unaware of it. Few people appreciate discipline that is applied to them.

I have heard temporary lenders complain that they are disadvantaged in managing pipeline risk, relative to depositories, because "if I make a mistake I must take a loss when I sell the loan whereas the depository simply places the loan in its portfolio." Of course, the reality is exactly the opposite — having to take the loss results in the temporary lender managing its pipeline risk better than the depository.

The depository who makes a mistake and books a loan at its commitment value rather than a lower market value that prevails at the time of closing does not avoid loss. What it does is to bury the loss by diffusing it through the income statements of many future periods. Whereas the temporary lender gets immediate market feedback on how well its pipeline risk is being managed, for the depository both performance and accountability are obscured.

It is a universal rule that when performance is not measured it suffers. While I don't have any direct evidence that temporary lenders manage pipeline risk better than portfolio lenders, there is persuasive indirect evidence. All the temporary lenders deploying the MARS System to provide rate/point quotations to mortgage brokers or the public adjust them daily as a matter of course, but the depositories using MARS adjust prices weekly. This is a telling indication that the depositories are less sensitive to the risk of value decline during the commitment period.

II MANAGING INTEREST RATE RISK

Under SMHFS interest rate risk is segmented into three components: pipeline risk, discussed above, is managed by temporary lenders; packaging risk, the risk of a price decline (rate increase) between the time loans are purchased and the time they are packaged for sale, is borne by conduits; and portfolio risk, the risk that the value of a portfolio of assets and liabilities will decline in response to a change in market interest rates, is borne by those widely dispersed portfolio entities who buy the securities issued by the conduits. To the degree that conduits retain any mortgages in their own portfolios, which both Fannie Mae and Freddy Mac do, they are among the group of portfolio entities.

It would be difficult to design a more efficient system than this for allocating interest rate risk in an optimal fashion. The temporary lenders are specialists in managing pipeline risk. The conduits can select from among the loans they buy those that they can manage most effectively in their own portfolios, taking account of their liabilities. The remainder they sell off in the form of multiple securities designed to meet the diverse portfolio needs of the investment community. These include securities that vary greatly in duration and price sensitivity to changes in market interest rates.

In the DHFS, depository lenders assume both pipeline risk and portfolio risk. Since depositories must meet the needs of customers on both sides of their balance sheet, and since mortgage borrowers want longer claims than depositors, their portfolios tend to be unbalanced. Where SMHFS can direct long-term claims to pension funds and other entities with long liabilities, depositories cannot. They either refuse to originate such claims, which means not meeting the full range of customers' needs, or they accept the interest rate risk and try to live with it[1].

III LOAN SERVICING

Loans are serviced more efficiently in SMHFS than in DHFS, for the same reason that pipeline risk management is more efficient in SMHFS: the information feedback and discipline generated by secondary markets.

Temporary lenders having servicing capacity have a choice of selling loans with servicing retained by the seller or servicing released to the buyer. The difference in price is the market's estimate of the value of the servicing, which generally runs from .5 to 1.5 points.

From the standpoint of the seller, retaining servicing is akin to an investment where the amount invested is the price foregone and the return is the net future servicing revenue. To the individual seller, the return is much affected by the seller's efficiency as a servicer. The market is constantly sending the message to high-cost servicers that their investment return is low, and to low-cost servicers that their return is high. High-cost servicers find that they do better selling loans with the servicing released to the buyer, with the result that servicing gradually drifts into the hands of the low-cost servicers. This process accelerates as the secondary market in servicing rights becomes increasingly efficient because low-cost servicers find that they can buy servicing in the market.

In contrast, originators in DHFS who portfolio their loans almost always service them as well, despite the fact that many of them are high-cost servicers. Since they are not selling the loans, they ordinarily do not know the return they are earning by investing in servicing. Further, even if they knew that the return was low many would be averse to having "their customers" serviced by others.

Of course, depositories who are high-cost servicers may well make a rational decision to service anyway if they can mine the information in the servicing file to create additional value, such as, e.g., by cross-selling other products to the borrower, or by forestalling loss of the borrower through a refinancing by another lender. This is important because it points up that DHFS does have potential advantages over SMHFS in that depositories are multi-product firms able to exploit potential synergies between mortgages and other products. But so far very few depositories in the US have exploited these potential advantages. Some reasons for this will be discussed in Section VI below.

IV MEETING THE DIVERSE NEEDS OF BORROWERS

In meeting the diverse needs of borrowers, SMHFS is far superior to DHFS...

In a recent article in Mortgage Banking[3], I pointed out that in the US there really is no such thing as a generic home loan. Rather, the market must be viewed as a collection of niches. As an illustration, a group of 12 lenders on the MARS System currently recognize the following categorizations either in pricing, in setting underwriting requirements, or both: 15 rate/point combinations, 5 lock periods, 5 loan size categories, 4 credit quality categories, 4 levels of required documentation, 4 LTV groups, 9 property types, 3 loan purposes, and about 100 loan types and options. Multiplying these out gives millions of niches, and while many of them are empty — for example, no lender will offer a no-doc loan to a D-credit borrower — the number remaining is nevertheless enormous.

The typical temporary lender offers loans in a much larger number of market niches than the typical depository. Temporary lenders offer any loan demanded by borrowers that can be sold in the secondary market, and salability in the secondary market depends ultimately on whether or not a loan can fit in the portfolio of some investor. The secondary market tells the lender the price that must be charged the borrower.

In contrast, loans offered by portfolio lenders without access to a secondary market must fit in the portfolio of that lender. And even some loans that might fit in the portfolio are avoided because, without the information provided by a secondary market, the lender doesn't know how to price them and/or how to adjust the underwriting requirements. Depositories seem to be particularly allergic to high-risk loans for this reason. They look for what the market terms A or A- credit ratings, whereas some temporary lenders price B, C and D-quality loans![3]

Furthermore, a large and growing share of the loans originated in SMHFS come through correspondents and mortgage brokers, who deal with multiple wholesalers, and who therefore can cover a much larger number of niches than any single lender. This is the major reason they have been growing so rapidly despite their handicap in not having recognized identities.[4]

As in the case of servicing, there is a partial offset. Depositories who design ARMs that precisely fit their portfolio needs generally can offer them at better terms than temporary lenders, since the depositories can avoid all the costs of transferring ownership from a specialized loan originator to an investor, including the costs of securitization.[5]

This suggests that there is merit in a mixed system such as that of the US where depositories originate loans of a type that meet their interest rate risk configurations, and temporary lenders originate other loans that fit best in the portfolios of investors who are not originators.

V HOME LOAN DELIVERY

In contrast to the other functions discussed above, SMHFS has not developed a method of delivering home loans that is unambiguously superior to that employed by DHFS. The commissioned loan officer system developed within SMHFS is a far more costly delivery system than the depository branch, but it offers a much higher level of commitment by loan officers, who cultivate relationships with real estate sales agents in a position to refer customers to them. In effect, potential customers don't get to the depository branch because they are intercepted at the real estate office. And while the branch office closes at 4pm, the commissioned loan officer is rarely in the office, and carries a beeper that may summon him to meet with a customer anywhere at any time.

The nichification of the home loan market over the last decade has heightened the comparative disadvantage of the depository office as a delivery vehicle. An office with little loan traffic cannot afford to offer full-time loan counselors with the expertise to deal with all the complexities involved in counseling and qualifying customers.

The upshot is that SMHFS has rendered the low-cost delivery system of depositories essentially useless, and forced them to adopt the high-cost commissioned loan officer system if they want to be major loan originators. Thrifts have usually elected to add loan officers within the firm while commercial banks have often opted to purchase a mortgage banking firm, but the results have been much the same: a clash of cultures,[6] and a lack of synergies between the home loan operation and other parts of the depositories' business. The typical depository runs two separate businesses, often with clientele having markedly different demographics, and with little connection between them.

VI CONCLUDING COMMENT: SYNERGY, FOCUS AND TECHNOLOGY

The struggle between SMHFS and DHFS may be usefully perceived as a struggle between the relative strengths of synergies associated with a depository system, and the focus associated with a secondary market system.

An advantageous synergy is the ability of the depository to fund its pipeline, without the costs and constraints faced by mortgage banking firms in obtaining and using warehousing lines. Unfortunately, that about ends the list of useful synergies. Depositories have generally not been able to cross-sell other servicers to borrowers, and they sell very few home loans to depositors. In part this is due to an unwillingness to offer complete product lines, as discussed earlier, and in part to the clash between mortgage banking and depository cultures.

To date, the advantages of focus have far outweighed the benefits of synergy. Focus within SMHFS arises not only because it deals with only a single product, but also because of the discipline and information provided by the secondary market in all the various areas discussed in this paper.

Focus stands the SMHFS in good stead in still another arena that I haven't mentioned as yet: technology. An entire software industry is devoted to mortgage banking,[7] and while in principle depositories could be just as effective as mortgage banks in deploying this software, in practice usually they are not. And the reason, I believe, comes down to focus, which manifests itself in a variety of ways. One obvious one is that the head of management information in a depository has much more on her plate than her counterpart in a mortgage banking firm, and delegation of authority may be derailed by the culture clash.

NOTES

[1] Of course, depositories in the US where DHFS and SMHFS operate side by side can sell their long-term loans in the secondary market, which is what most of them do.

[2] "A Marketplace of choices", December, 1996.

[3] The major problem in servicing different loan-quality niches is the reluctance of lenders to delegate authority to make quality determinations to the loan officer at the point of sale, and the related problem of having to inform the lower-quality applicant that he must pay a higher rate than others. This is why in SMHFS most of the B-D loans are made by specialized lenders who price them for the quality they are prepared to accept. An A customer who walks in by mistake will be offered the same terms.

[4] A second reason is that correspondents and mortgage brokers can often offer better deals within any particular niche. This reflects that the wholesaler offering the best deal in one niche, or at one point in time, is unlikely to be the one offering the best deal in another niche or at another point in time.

[5] Depositories that adopt this strategy, however, cannot take full advantage of the cross-selling opportunities open to a multi-product firm because they are not prepared to meet all the home loan needs of their customers.

[6] The culture clash arises partly out of tensions associated with compensation. A loan officer who makes $500,000 a year does not make waves in a mortgage banking firm because the CEO probably makes $1 million or more, but in a depository the CEO may make only $250,000.

[7] Of course, there is another (even larger) industry devoted to various aspects of depository operations, but there is no or virtually no overlap between the two. This reflects the lack of synergies noted above, though I suppose one could argue that to some degree the lack of synergies reflect specialization in the software.

Simplicity Versus Complexity in the Evolution of Housing Finance Systems

by Alex J Pollock

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A recent estimate puts total world wealth at $44 trillion, of which approximately half is real estate.[1] The study does not break out residential real estate on a global basis, but does in the United States, where 60% of real estate value is in the form of owner-occupied homes. If we extrapolate this relationship, it would suggest that residential real estate represents about 30% of total world wealth, making it the largest single component. By comparison, total equities represent about 19% of the world wealth and cash about 3%. The second largest component of total wealth is bonds, which represent about 27%. Thus in very round numbers, the largest sources of aggregate wealth in the world seem to be represented by perhaps $13 trillion of residential real estate and $12 trillion of bonds. This paper is concerned with how the markets for these two principal asset classes should be linked.

Two ways to make this linkage are securitization of mortgages and the Home Loan Bank model, which we wish to contrast. Expansion of securitized mortgage markets in the United States has led many commentators and consultants to recommend this technique to other countries in other economic situations. Part of the financial romance of securitization lies in the baroque complexity which has evolved from the original idea of simply passing through payments from pools of mortgages to investors. It is no wonder that theoreticians, both academic and corporate, should love the efflorescence of mortgage-backed security varieties, accomplished through "slicing and dicing" mortgage cash flows through collateralized mortgage obligations, planned amortization classes, Z tranches, interest only and principal only strips, and the related mathematically interesting problems of options valuation. It is not surprising that investment banking houses should promote such complex structures, because they represent a huge source of profit for them.

Securitization links residential mortgages and the bond market, but does so in a way which is financially complicated. Its development assumes a society which has already made massive investments in information systems, computing technology, and securities market infrastructure - in short, has highly developed capital markets. The assumption that all this infrastructure does exist, can rapidly be created, or even should be a priority to create is dubious for most of the world.

The U.S. Home Loan Bank model, on the other hand, accomplishes this linkage through much simpler means. The Home Loan Banks make loans, collateralized by mortgages, to lending institutions financed by the issuance of general obligation bonds sold in the capital markets. Both the technology and the investment necessary for this form of intermediation are far less than that required for securitization.

The debate over which model is appropriate or desirable frequently focuses on the sophistication of securitization and loses sight of the fundamentals.

What are the fundamentals? We believe there are two:

- Widespread property ownership is a desirable goal for every society.
- Achievement of this is significantly enhanced by an effective and economically efficient link between residential mortgages and the bond market.

The first point is a matter of basic philosophy. Thomas Jefferson, that giant of the Enlightenment, wrote in 1785, "The small landholders are the most precious part of a state."[2] To the American founding fathers, the combination of liberty and property was clear. Jefferson suggested a broadened vision: that the goal should be widespread property ownership throughout the society. We cannot improve upon this insight, except by updating it from his agrarian day to our industrialized, urban times, in which the most logical form of the goal is home ownership. However, widespread home ownership cannot be achieved without robust housing finance.

This brings us to consideration of the second point: that linking residential mortgages to the bond market makes housing finance more effective. In order to understand this point, it is necessary to view the relation-

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AN ALTERNATIVE MODEL

ship from a variety of perspectives: investors, borrowers, financial institutions, and society. We need to state what may seem obvious, for understanding advances further with what is fundamental and obvious than what is fashionable and obscure.

Investors

Bonds are among the most basic financial instruments and the earliest to develop in any financial system, thus accounting for their position as the second largest asset class in the world. The bond market by definition deals with investors who are looking to commit capital to long term uses at a variety of interest rates, but most importantly at fixed rates of interest. Bonds are a basic investment of institutions key to economic development, including banks, insurance companies, and trust funds of various kinds. Such institutions will always seek among their assets high quality instruments, having reliable debt servicing capacity. Experience clearly shows that diversified portfolios of amortizing residential mortgages are very good credits and thus are among the safest forms of collateral in the world. Furthermore, the form of the bonds can be tailored to the needs of issuers and investors. Bond markets, for example, regularly price and trade optional call features which are present in most mortgage contracts.

Borrowers

The financing of the purchase of a home is the largest and most important financial decision ever made by most households. Financial experience suggests a great advantage to borrowers is the ability to establish debt service with certainty through the alternative of fixed rate mortgage financing. Equally important is the availability of fully amortizing mortgage finance, so that temporary financial dislocations cannot cut off the ability to refinance principal, and trigger a downward spiral of debt deflation. At the same time, it is advantageous for borrowers to have various refinancing options, as opposed to refinancing requirements. (The current popularity in the United States of shorter term mortgages with a "balloon" final payment, requiring refinancing of principal at maturity, is an interesting contrast to the historical lesson of the advantage of fully amortizing mortgage debt.)

Thus, the central characteristics of what bond investors are seeking in assets and what mortgage borrowers seek in liabilities are a good match, but obviously the match can be made only through intermediation.

Financial Institutions

The most efficient mortgage financing will always be created by private firms which must balance profit and risk. In competitive markets, such firms will have the incentive to innovate and make constantly more productive use of resources. Mortgage lending organizations must operate at local levels, although the local operations may be part of very large organizations. Private depository institutions, in either stock or mutual form, are demonstrably effective creators of mortgage finance. Their deposit base can finance a significant portion of mortgage assets, but does need to be supplemented by access to the bond market. This is because lenders funding mortgages with deposits require:

- Liquidity backup and funding alternatives,
- Long term fixed rate liabilities often not available in deposit markets, and
- Ability to hedge the options embedded in mortgage contracts.

These requirements cannot be met with deposit funding alone. Thus, when financial institutions engage in mortgage finance, they should always have the ability to access the bond market and expand their intermediation capabilities.

Society

To help achieve the Jeffersonian ideal of widespread property ownership on an efficient economic and financial basis, financial systems should be built on private institutions with market incentives as the principal agents for mortgage finance. Such financial institutions are more basic and more important to have or create than are secondary markets. However, such institutions need to be linked to the bond market. Is there a simple, direct, easily designed way to do that which does not require as a prerequisite complex capital market infrastructure?

The Home Loan Bank Model

We suggest there is: the Home Loan Bank model. This model meets the requirements of investors, borrowers, financial institutions and society in an elegant fashion.

It begins with the fact that inside the private financial institutions which make mortgage loans are implied assets of very high credit quality: namely, aggregate mortgage loan portfolios. A Home Loan Bank is, in essence, a way to extract the credit quality of widely diversified mortgage loan portfolios and use it to obtain centralized bond market financing at very attractive rates. A Home Loan Bank pools the inherent credit quality of thousands of mortgages in many financial institutions and gives to those institutions, in turn, the advantages of large-scale financing they could not achieve on their own.

An advantage of the Home Loan Bank model is that it works well with the issuance of simple, classic debentures, ranging from short to long term maturities, although more complex forms of debt may also be issued as the bond market develops. The U.S. Home Loan Banks are able to finance in the bond market at very attractive interest rates and terms because of this credit quality, as indicated by their being one of only a handful of AAA/Aaa rated banks in the world.

Home Loan Banks today are doing exactly what they were designed to do in 1932 when the Federal Home Loan Bank Act became law. President Herbert Hoover, introducing the proposed Act, stated, "As a

AN ALTERNATIVE MODEL

people we need at all times the encouragement of home ownership," which the Home Loan Banks have provided ever since. The key function is to make advances (loans) to financial institutions to finance their portfolios of residential mortgage loans. To secure the advances, these mortgage loans are pledged as collateral to the Home Loan Banks with wide collateral margins. The advances are often at long term fixed rates and may contain prepayment options.

This financing structure has proved to be so sound that since 1932 no Home Loan Bank has experienced a single dollar of credit loss. This track record has enabled the Home Loan Banks issue very high quality bonds, whose low cost and attractive terms allow the advances to be correspondingly attractive to the borrowing financial institutions. As this structure has developed over six decades, the Home Loan Banks have become one of the largest issuers of publicly-traded debt in the world.

Home Loan Banks are organized as twelve separate, regional corporations throughout the United States, each a cooperative in corporate stock form. Each has its own board of directors, of whom two-thirds are elected by the stockholders and one-third appointed by a federal government agency, the Federal Housing Finance Board. The capital of the Banks is provided by the financial institutions who must purchase it in order to become members and have access to borrowing. The aggregate net worth of the Home Loan Banks is today more than $11 billion. Net profit for 1993 was $895 million. It is essential that the Home Loan Banks themselves operate as for-profit, market-oriented enterprises, not as government departments.

From 1933 to 1989, the Home Loan Banks were, in addition to being mortgage financing wholesale banks, the regulators of savings and loans. With the benefit of hindsight, this combination was unfortunate. The American savings and loan system ultimately experienced a major debacle in the 1980s, culminated by the failure of one third of the industry. The Home Loan Banks and Home Loan Bank Board as regulator and deposit insurer of the savings and loans could not escape being embroiled in the debacle. Moreover, as savings and loans failed or were merged, this meant a rapid decline in membership and volumes for the banking functions of the Home Loan Banks.

Figure 1 : Federal home Loan Bank System Membership Composition, December 1991 to December 1993

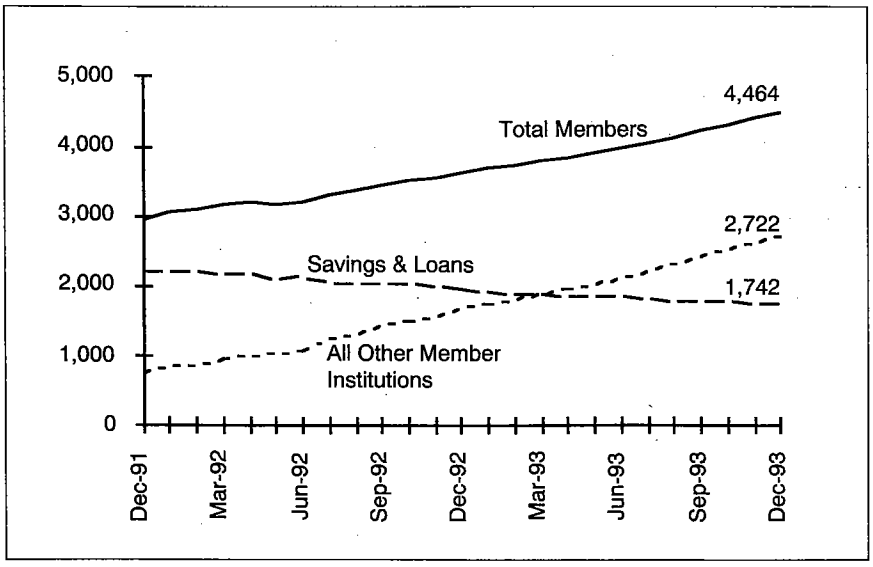


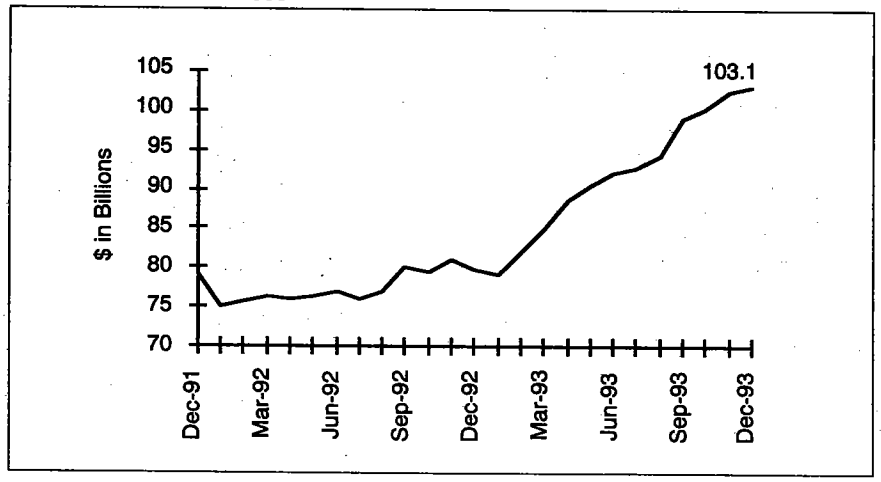
Figure 2 : Federal Home Loan Bank System Membership Composition as of December 1993

Savings & Loans	1,742
Savings Banks	441
Commercial Banks	2,208
Credit Unions	57
Insurance Companies	16
Total	**4,464**

The 1989 Financial Institutions Reform, Recovery and Enforcement Act was the government's reaction to the problems. Among other provisions, the Act divided the regulatory function and the banking function into two entirely separate organizations. Membership eligibility in the Home Loan Banks was expanded to include commercial banks (as had been the original intent in 1932). Thus was set up a noteworthy experiment in the design of housing finance systems: would the Home Loan Banks as pure wholesale banks for housing finance survive and prosper?

The experiment has yielded the unambiguous answer that they can and have. Membership by financial institutions in the Home Loan Banks has grown rapidly and now exceeds 4,000 (Figure 1). Members include savings and loans, savings banks, insurance companies, credit unions, and more than 2,200 commercial banks (Figure 2). By 1995, there will be more than 5,000 financial institution members of the Home Loan Bank System, of which more than 60% will be commercial banks. The aggregate advances by the Home Loan Banks to financial institutions secured by mortgage collateral now exceed $100 billion and the total assets of the Home Loan Banks $180 billion (Figure 3). As one example of growth, in the Chicago Home Loan Bank over the two year period 1992-93, financial institution members grew 60%, borrowing mem-

Figure 3 : Federal Home Loan Bank System Advance History, December 1991 to December 1993



bers grew 97%, and advances grew 147%.

The rapid growth of the Home Loan Banks demonstrates the importance of their central function: linking portfolios of residential mortgages to the bond market.

We draw three lessons from this history:

- The fundamental linkage performed in this fashion works very well. The Home Loan Banks have experienced no credit loss in their entire history; they have demonstrated success in providing long term fixed rate liabilities to match the fixed rate mortgage assets of their members; and as evidenced by the rapid growth in new members and business volumes in the 1990s, provide high value as judged by contemporary financial institutions.

- The Home Loan Bank model works for many kinds of financial institutions which make mortgage loans, including savings and loans, savings banks, commercial banks, credit unions, and insurance companies.

- The organizations created to perform the mortgage-bond market linkage should stick to banking and not dilute their efforts with regulation and politics.

FINANCIAL MARKET EVOLUTION

From the point of view of financial system development, there are three major types of financial systems in the world: highly industrialized economies with advanced financial institutions and capital markets; developing economies and financial systems; and former socialist economies working to create market systems. The importance and size of mortgage finance makes it an important topic in all three. The theoreticians of securitization, drawing on the evolution of capital markets in the most advanced financial systems, often recommend complex structures to developing and newly market-oriented countries. We think it is appropriate to suggest an alternative approach, one that is consistent with historical patterns of financial market evolution. The following evolutionary pattern should guide the development of mortgage finance to success:

- The first requirement is private credit institutions which can create the primary residential mortgage loans. These institutions may have various institutional forms or charters, with corporate stock or mutual ownership, and may be funded by retail deposits or wholesale sources.

- The second requirement is a bond market, the base market of traded securities.

- The third natural step is to link the private credit institutions to the bond market in a Home Loan Bank organizational model. This will both promote the growth of mortgage finance and the development of the bond market, by making long term amortizing mortgage instruments more liquid and giving the market attractive, high credit quality bonds to trade. The Home Loan Bank model has the advantage of demonstrated historical success, in periods as various as the Great Depression, the 1970s inflation, and the restructuring of the 1990s.

In the longer run, as world financial evolution proceeds and more advanced financial systems develop, many forms of mortgage finance will co-exist. For example, in the deep financial markets of the United States today, Fannie Mae and Freddie Mac, mortgage-backed securities and all their complex derivatives operate along side the simpler patterns of Home Loan Banks and local financial institutions. The mortgage financing markets co-exist and interact with markets in equities, futures, options, junk bonds, mutual funds, swaps, and so on. As capital market infrastructure gets built, there is apparently no limit to the variety and complexity of financial instruments or the breadth of investment desires or speculative urges they may satisfy.

However, it is simple organizational common sense to suggest that the development of a financial system will have a far greater probability of success if it starts with primary factors in straightforward ways, and lets the more complex structures evolve later. For housing finance, we believe the Home Loan Bank model can be a very useful element in the fundamental design. ■

NOTES

[1] Roger G. Ibbotson and Gary P. Brinson, *Global Investing*, McGraw-Hill, 1993.

[2] *Macmillian Book of Business and Economic Quotations*, Macmillian Publishing, 1984.

The Applicability of Secondary Mortgage Markets to Developing Countries

by Michael J Lea[1]

Originally Published March 1994

INTRODUCTION

As countries develop, housing demand, particularly for owner-occupied units, increases. The resultant demand for mortgage credit often outstrips the supply reflecting rigidities in and lack of development of domestic financial systems. A solution that is frequently proposed for developing countries is the introduction of a secondary mortgage market. The rationale for this proposal is that a secondary market can tap broader sources of funds than domestic banking institutions and can facilitate improved risk management for primary market lenders.

Proposals for secondary mortgage markets frequently focus on mortgage securitization. However, mortgage securities, which involve a sale of mortgage loans and a transfer of risk are only one form of secondary market structure. A secondary market facility which purchases mortgages from or makes collateralized loans to primary market lenders, funded by general obligation bonds, is also a form of secondary market. The adoption of one or both forms of secondary market depend on the needs of primary market lenders and the state of development of accounting and legal systems as well as the housing and bond markets in these countries.

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The purpose of this paper is to review the concept and forms of secondary mortgage markets and assess their applicability in developing countries. The paper begins with a review of different forms of funds mobilization for housing in order to define more precisely the concept of a secondary market. The rationales for a secondary mortgage market are reviewed followed by a discussion of the requirements for successful implementation of a secondary market. The experience with secondary markets in a number of countries is summarized and the paper concludes with an assessment of the likelihood of success in creating such markets in developing countries.

HOUSING FINANCE SYSTEMS

Description

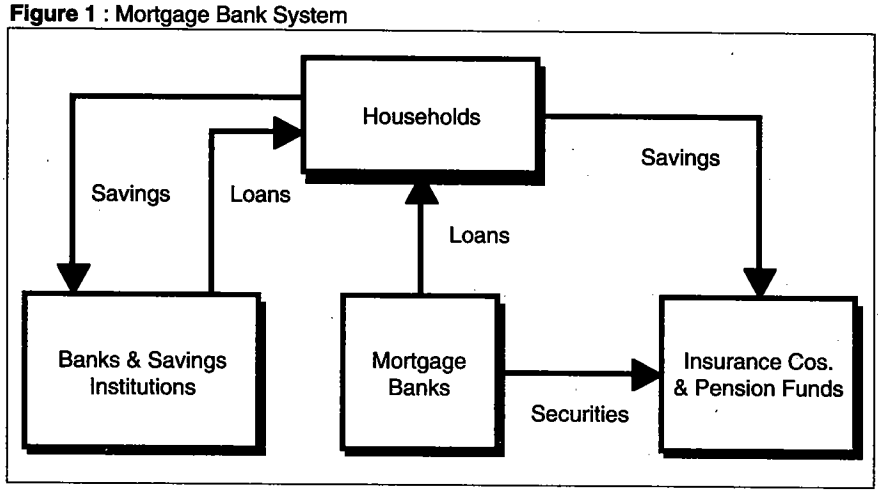
The aim of a housing finance system is to provide the funds which homebuyers need to purchase their homes.[2] This simple description has spawned a broad array of institutional arrangements, ranging from contractual savings schemes, to depository institutions specializing in mortgage finance, to the issuance, sale and trading of mortgage-backed securities (MBS). All of these arrangements have been created with the same purpose in mind, to channel funds from savers to borrowers.

A sign of financial sector development is the funding of owner-occupied housing by formal financial institutions (as contrasted with informal savings clubs, relatives or landlords). These institutions can be private sector entities, which can be shareholder owned or mutual organizations or special circuits (i.e., government-backed institutions operating apart from the broader financial markets). As economies develop, provision of housing finance often moves away from extensive reliance on special circuits towards integration of housing finance into the broader financial markets.

The traditional model of formal financial sector finance of housing is the deposit taking system. In this model, an institution gathers savings from households and enterprises and makes loans to homebuyers.[3] Thus, it originates, services and funds the loan. There are several types of deposit taking institutions, including commercial banks which offer a complete range of banking services, savings banks which deal largely with the household sector, and specialist housing finance institutions (building societies or savings and loan associations) which focus their lending primarily on housing. The United Kingdom is an example of a country which relies largely on depository institutions for housing finance. In Asia, housing finance in both Malaysia and Thailand is provided primarily by depository institutions. Depository institutions are prominent in Latin American housing finance.

An alternative to the depository institution model is the mortgage bank system

Figure 1 : Mortgage Bank System



(Figure 1). In such systems, specialized institutions (mortgage banks) originate and service portfolios of mortgage loans which are funded by securities they issue. The securities are general obligations of the mortgage bank and are typically purchased by institutions with long term sources of funds (e.g., pension funds and insurance companies). The mortgage bank model has been around since the mid-1800s and is extensively used in continental Europe (particularly Denmark, Germany and Spain). Asian mortgage banks exist in India and Pakistan.

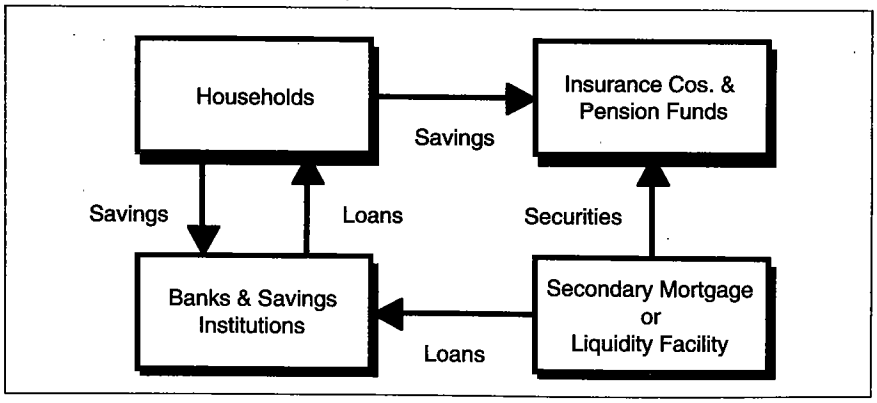
A depository system is frequently referred to as a retail approach as institutions deal directly with the public in lending and borrowing funds. The mortgage bank system is a combination of a retail and a wholesale approach. Its wholesale character comes from the funds raising side wherein funds are obtained primarily from institutional sources through the broader capital market rather than directly from the public.

In many countries, purely wholesale institutions exist to facilitate the flow of funds to the primary mortgage market (Figure 2). These institutions, referred to as liquidity, rediscounting or secondary mortgage facilities, are typically government owned or supported. They issue general obligation bonds in the capital markets and use the proceeds to refinance the portfolios of primary market lenders. In the U.S., the Federal Home Loan Banks have been making collateralized loans to mortgage lenders since the 1930s (see the Pollock article in this issue). In France, the Caisse de Refinancement de Hypothecaire ("CRH") (earlier known as the Marche Hypothecaire) performs a similar function (see the Stone-Zissu article in this issue). In Asia, the National Housing Bank of India and the National Home Mortgage Finance Corporation ("NHMFC") of the Philippines were created for this purpose[4]. Cagamas in Malaysia purchases mortgage loans from primary market lenders (with recourse and buy back agreements). Its securities are general obligations of the company and not collateralized by the loans. This model is referred to as a secondary mortgage facility ("SMF").

A fourth approach is a secondary mortgage market ("SMM"; see Figure 3). A SMM involves the sale of mortgage loans (or loan portfolios) or MBS backed by specific pools of mortgages[5]. As such, it involves the transfer of the risks and ownership of mortgage loans to a third party. The loans may be sold to specialized institutions called conduits or special purpose, separately capitalized vehicles. These entities raise funds through issuance of securities backed (or collateralized) by the loans. The majority of residential mortgage loans in the U.S. are funded through the SMM. MBS have been issued in Australia, France, Spain, Sweden and the U.K. (see the Freeman, Roche and Stone-Zissu articles in this issue).

The SMM model was originally developed in the U.S. as a method to sell mortgage loans (i.e., achieve off-balance sheet financing) in order to reduce the interest rate risk associated with fixed rate mortgage lending. The provision of payment guarantees with the securities issued by government sponsored conduits facilitates investor acceptance. The investor in a guaranteed security does not have to worry about default risk (but still is exposed to interest rate risk). In recent years, private SMMs have developed in the U.K. and U.S. without the aid of government. These markets developed because wholesale sources of

Figure 2 : Secondary Mortgage Facility



funds were cheaper than retail and lenders were capital constrained.

The use of one or more of these systems depends on the stage of development of a country's financial markets as well as government policies. As housing finance involves lending to individuals, it usually emerges as a retail activity. Wholesale funds mobilization develops if the banking system is constrained from supplying sufficient mortgage credit to meet demand or if capital market sources of funding are more cost effective. The issuance of securities is, however, premised on the existence of well developed capital markets. The creation of secondary market institutions has been motivated by the desire to expand the supply of credit available to homebuyers.

RATIONALE FOR SECONDARY MARKETS

Why Primary Market Lenders May Not Lend

The need for secondary markets arises when primary market (retail) lenders are not viewed as providing sufficient funds for owner-occupied housing. There are a number of reasons why mortgages may not be attractive investments for retail lenders. First, because mortgages are obligations of individuals, secured by property in a particular location, assessment of credit risk can be costly and time consuming. The ability of the lender to foreclose on loans in default in a reasonable time period with reasonable costs is a major determinant of credit risk.

Second, even if credit risk is manageable retail lenders may perceive significant risk in funding mortgage investment. Mortgages are long term assets (typically 15 to 30 year maturity although with amortization and early repayment their duration are frequently 5 to 7 years). Lenders with primarily short term liabilities are subject to significant liquidity risk if they allocate a substantial portion of their assets to mortgages. Also, mortgage borrowers may demand fixed rate loans. Lenders with primarily short term liabilities are subject to considerable interest rate risk if they invest in such loans (e.g., U.S. savings and loans in the 1970s).

A third factor influencing mortgage investment may be capital. If a lender is capital constrained, it cannot expand its balance sheet significantly without being able to sell the loans it originates. The concept of capital adequacy is fundamentally risk based. If mortgages are viewed as more risky than other forms of investment (e.g., government securities) the lender may choose to invest in lower risk assets which do not use significant amounts of scarce capital.

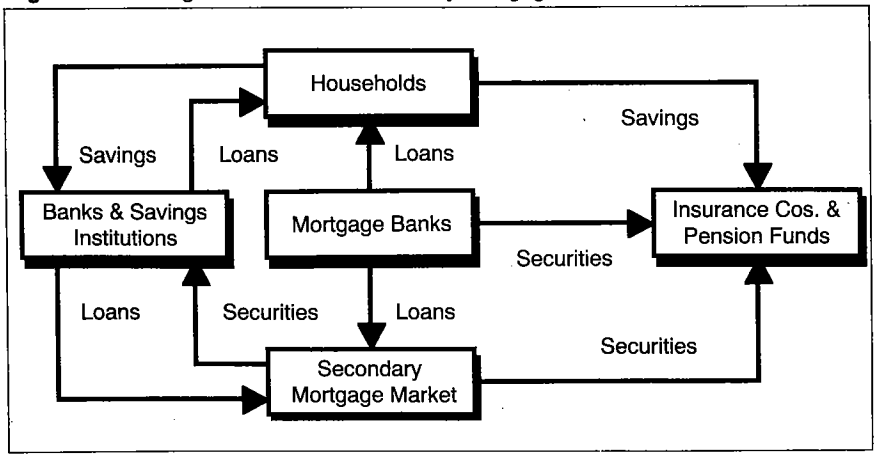
A fourth factor influencing mortgage investment activities by private sector lenders is the presence of a state subsidized competitor(s). If one or more institutions in the primary market have preferential access to low cost (government subsidized) sources of funds, they can crowd out private lenders from the market by offering lower rates and/or better terms. Borrowers will often queue to receive below market rate loans, depriving private lenders offering market rate products a profitable customer base.

Solutions to the Lack of Lending

The proper solution to the perceived lack of mortgage lending depends on the primary cause of the market breakdown. If default risk arising as a result of underdeveloped systems of property ownership or an inefficient foreclosure process is viewed as a major barrier, government provision of mortgage insurance (e.g., similar to the Federal Housing Administration or "FHA" in the U.S.) may stimulate more lending. If the difficulties are primarily due to the costs of underwriting loans or achieving broader geographical diversification, a private mortgage insurance system may suffice. Insurance or security guarantees remove concern over the lack of standardization in or information about mortgages for institutional investors.

A SMF is appropriate if primary market lenders have poor access to the broader capital markets or concerns exist about their ability to manage interest rate or liquidity risk. Security issuance is a more efficient way of raising funds than individual loan sales. A SMF may be able to issue longer maturity bonds than individual institutions. If the institution is well capitalized (or supported by the government) it can achieve a higher credit rating on and lower cost funding for its activities than private issuers. A centralized institution may be able to issue securities with lower transactions costs. Issuance of a large volume of standardized securities can result in greater liquidity than

Figure 3 : Housing Finance with a Secondary Mortgage Market



issues of individual institutions.

SMMs have been created when true off-balance sheet financing is desired. Transfer of ownership enables lenders with relatively little capital to participate in the mortgage market. Although MBS can be issued by private sector concerns, they are complex, unique and costly to issue. In addition, the issuing entity still must confront the problems associated with introducing a new security and assuring investors of its liquidity and credit worthiness.

Establishing a conduit can facilitate creation of a successful SMM. A conduit can work with mortgage originators and servicers to standardize mortgage design, documentation and underwriting, ultimately lowering the transactions costs of mortgage lending. Second, by purchasing mortgages from banks on a nationwide basis, it can achieve geographical diversification, lowering its credit risk relative to that of an individual bank. Third, it can expand the investor base for mortgages, increasing the availability of funds and management of risk. It can do so through credit enhancement, tailoring securities to meet the needs of investors and providing a centralized source of standardized securities. Fourth, it can lower the transactions cost of and develop a market for MBS or debt securities. Finally, a conduit can be a catalyst for innovation in the housing finance system, for both loans and securities.

The problem of competition with a subsidized direct lending competitor cannot be solved through introduction of a secondary market. The lending activities of such competitors must be targeted to those in greatest need. Introduction of a secondary market can facilitate greater availability of funds for the remainder of the home buying population (i.e., those borrowing at market rates).

Benefits of Secondary Markets

Properly structured, a secondary market can provide significant benefits to a housing finance system, and ultimately to the entire economy. The primary benefit is an increase in the availability of funds for housing. A secondary market can overcome a geographic mismatch between the suppliers and demanders of funds (e.g., if there is a lack of nationwide banking or efficient payments system). It can overcome an institutional mismatch between institutions wherein the capacity or inclination to hold and originate long term assets differs. By expanding the pool of funding options available to primary market lenders, there is less pressure on governments to provide direct (and often subsidized) credit to homebuyers. In turn, governments can target scarce resources to the most deserving groups.

A SMM also can lower the cost of mortgage credit through a more efficient allocation of risk. For example, a SMF may improve interest rate risk allocation through matching of long term mortgages with long term sources of funds.[6] A SMM may lower credit risk through nationwide diversification. Liquidity risk may be reduced through expansion of funding opportunities for primary lenders.

A SMF can reduce the transactions costs of mortgage lending and investment through standardization of mortgage loan documentation, underwriting and servicing and creation of standardized securities. Expansion of the market and functional specialization can reduce costs through economies of scale. By expanding the funding sources for mortgages, a SMM improves the competitive environment which can lead to cost reductions for participants and borrowers.

All of these factors can lead to lower relative mortgage rates. A secondary market also can improve affordability of housing finance for borrowers through the offering of longer maturity mortgages and alternative mortgage instruments (e.g., indexed loans and GPMs).

Finally, an active secondary market enhances the marketability of the securities, reducing the risk of investment and ultimately mortgage rates. For example, in the U.S., the trading volume of MBS has surpassed that of Treasury securities. Not only will improved marketability lower the relative costs of mortgage securities, it can also be a catalyst for the development of the overall bond market.

PRINCIPLES OF SECONDARY MORTGAGE MARKET OPERATIONS

Primary Market

The starting place for the discussion of the requirements for a successful SMM is the primary mortgage market and within that the mortgage instrument itself. First and foremost, *mortgages must be attractive investments*. The interest rates on the mortgages must be market determined and provide investors with a positive, real, risk-adjusted rate of return. Thus, the mortgage rate must be sufficient to cover the investor's marginal funding cost (both debt and equity), the risks of mortgage investment (i.e., credit, interest rate and liquidity risk) and the administrative cost of servicing mortgages (and MBS). In addition, the mortgage market must be at a sufficient stage of development to produce a significant volume of loans to justify the up-front costs of developing the SMM infrastructure.

A second key primary market characteristic is *standardization* of the mortgage instrument. There can be many types of mortgages present in the housing finance system, but only those with sufficient volume are candidates for sale and securitization.[7] In order to reduce the transactions costs of evaluating mortgage loans and the processing costs of issuing and administering MBS, the characteristics (e.g., rate adjustment, amortization schedule, term) of the mortgages should be uniform. In addition, standardized documentation must be available for all loans. Typical documentation includes the mortgage note (document describing the mortgage obligation) and deed (document conveying ownership to lender as security for the repayment of the mortgage) the application, property appraisal and borrower credit report.

Along with standardization of mortgage instrument and design, the *underwriting* of mortgages should be performed in a comprehensive and consistent manner. The underwriting process establishes guidelines ensuring that a borrower has the ability and the willingness to repay the debt and that the property provides sufficient security for the mortgage. Assessment of the ability to pay generally consists of relating borrower income, assets, liabilities and net worth to proposed mortgage payments and overall housing expenses. Debt-to-income guidelines help to standardize underwriting. Willingness to pay is based on the downpayment (borrower investment in the property) and credit history. The appraisal determines the value of the property through examination of the sales prices of similar properties, construction costs of new properties and market conditions and trends.

The *servicing* of mortgages is a critical component of a viable secondary mortgage market. The collection of mortgage payments and the periodic remittance of these payments to the investor (or conduit) is the major task of servicers (whether they are originators or third parties). In addition, servicers are the primary repository of information on the mortgage loans. Thus, they must maintain accurate and up-to-date information on mortgage balances, status and history and provide timely reports to investors.

Ultimately, the attractiveness of mortgages and MBS depends on the ability of investors to understand the instruments and quantify their risk and return potential. Standardization of mortgage instruments is an important step in reducing the *information* costs to investors. In addition, historical performance data on mortgage payments (e.g., default and prepayment) is important in risk assessment. Because of the importance of data in the assessment of risk, the demands on servicers (and conduits) are potentially great. These institutions must be able to process and disseminate large amounts of information. Thus, they must develop effective, automated management information systems.

An important part of the servicing is establishment of clear guidelines for the *collection* of mortgage payments. The documents must spell out payment obligations (dates, amounts, terms of adjustments, obligations for taxes and insurance) and procedures to be followed in the event of default. Although lender discretion in working with borrowers is an important part of the collection process, third party investors must know what those procedures are before making their investment (in order to assess the degree of default risk) and what latitude exists in dealing with the borrower (e.g., forbearance or restructuring). Servicers also must make decisions about and implement procedures leading to foreclosure and repossession in the case of defaulted loans.

Legal and Regulatory Framework

A successful housing finance system is premised on a well developed legal and regulatory structure. The primary concern for investors is the security interest. In other words, how enforceable is the claim the investor has on the collateral (house) in the event of default. The answer depends on the clarity of land title, the ability to establish priority of liens on the collateral (i.e., an effective title and lien registration system) and the ability to enforce foreclosure and repossession over a reasonable time period.[8]

Enforceable security interest is a necessary but not sufficient condition for a successful housing finance system. For transactions involving asset sale or pledging (i.e., as collateral), security interests must be transferable and investors must have the ability to perfect their security interest after transfer. Furthermore, the transfer of interest must be at relatively low cost. Thus, transfer and recordation fees should be nominal and borrowers should not have to approve the transfer.

An additional legal concern for investors is the solvency of seller, servicers or other third parties (i.e., credit enhancers, trustees). In the event of insolvency, payments to investors may be delayed while a court reviews the merits of various claimants. Thus, the rights of investors to the cash being collected on their behalf is important. Also, investors should be able to monitor the financial condition of servicers. Investors may demand the right to "pull" or transfer servicing in the event the solvency of a servicer becomes impaired (i.e., to avoid the hazards of diverting cash flow, delaying payments or inadequately collecting loan payments).

In general, the regulatory environment also must be supportive of a secondary mortgage market. Capital requirements on mortgages and MBS must reflect the relative risks and ensure a "level playing field" (i.e., one that does not favor certain institutions or instruments). Proper accounting standards (including the requirements for off-balance sheet or sale treatment) should exist to provide institutions, investors and regulators with accurate and consistently defined information. In many countries, imposition of withholding taxes on asset transfer have proved to be a formidable impediment to the development of a secondary mortgage market.

Appropriate Role of Government Institutions

In a well developed capital market, wholesale funding and secondary mortgage markets can be developed by the private sector. However, in less well developed capital markets, government support may be necessary to achieve investor acceptance and increased access to funds. Careful attention must be given to the organization and mission of institutions with such support.[9]

Secondary market institutions must have sufficient scale and capital to absorb the start-up costs of developing the systems, procedures and marketing as well as the risk associated with making a market in mortgages. A back-up guarantee by the government (either explicit or implicit) can provide the necessary comfort to investors

to encourage acceptance of the securities. The use (and maintenance) of private capital in government institutions can encourage appropriate risk management and efficiency. Private capital reduces the potential moral hazard associated with the dispensing of government guarantees.[10] The use of private capital does involve a tradeoff, however. A government-supported conduit is a monopoly. Therefore, careful attention must be given in defining its mission and monitoring its pricing and risk taking.

Secondary market institutions are not appropriate vehicles for subsidizing mortgage credit. Their primary mission should be to mobilize private capital, broaden the financial markets and improve risk allocation. If the funds for subsidizing mortgage borrowers come from savers or private investors they will not supply sufficient capital to meet demand. As a result, the institutions will have to resort to non-price rationing of mortgage credit during periods of rising demand. Their lending activities will crowd other intermediaries from the market and potentially distort capital allocation. Affordability issues can be better addressed through mortgage design and direct borrower income or downpayment support.

Secondary markets by definition involve the separation of the functional activities associated with mortgage lending (i.e., the institution that owns the mortgage may not have originated it and may not service it). In such a system, principal-agent problems exist. The owner (principal) of the mortgages relies on the actions of the originator and servicer (the agents) to undertake prudent and conservative actions consistent with long-term preservation of capital (this is also the case with collateralized lenders). The agents may have different incentives. For example, a cash short servicer may divert some mortgage payments (claiming the borrowers are in default) to meet short-term needs. Or an originator may relax underwriting guidelines to increase the volume of loans sold or fee income. The principal (or the guarantor) must conduct proper due diligence of servicers and sellers and develop effective incentives to safeguard against such actions.

EXPERIENCE WITH SECONDARY MORTGAGE MARKETS

United States of America

The SMM mobilizes a majority of funds for owner-occupied housing in the U.S. Over one-half of new originations are sold into the SMM and the lending of the FHLBs has been increasing during the past three years. The SMM was created in the U.S. to deal with geographic mismatches brought on by the regulatory prohibition of nationwide banking. The other major factor in its development (as well as that of the FHLBs) was the regulatory prohibition of adjustable-rate mortgages in the U.S. until the early 1980s. Historically, the FHLBs acted in a countercyclical manner, providing funding to thrifts suffering disintermediation due to ceilings on deposit interest rates.

Both the SMM and the FHLBs enjoyed strong growth during the 1980s. The former was driven by the combination of technology, broader capital market development and growing need for off-balance sheet financing by thrifts. Advance borrowing by thrifts also grew until the late 1980s when regulatory changes forced the closure of many institutions and the shrinkage of many others. The recent growth of FHLBS reflects in large part borrowing by commercial banks (which were allowed to join the system beginning in 1990).

The development of the U.S. SMM has not been without controversy. The FHA suffered significant default losses during the 1980s and subsequently had to tighten its qualification standards and raise its insurance fees. Fannie Mae had several years of negative earnings and a negative mark-to-market net worth in the early 1980s, the result of investments in fixed-rate mortgages in a volatile interest rate environment. Portfolio lenders claim that the economies of scale and implicit government backing of the secondary market agencies crowd them out of the mortgage market by reducing spreads to the point where it is no longer profitable (on a risk-adjusted basis) to hold mortgages (this is probably true for fixed-rate mortgages, less so for adjustable-rate mortgages). The U.S. appears to have weathered all of these problems. Congress has passed and the agencies currently meet new capital requirements (as do the remaining thrift institutions). FHA's non-subsidized activities are once again actuarially sound. Throughout this entire time period, U.S. homebuyers benefited from ample availability and a relatively low cost of mortgage credit.

United Kingdom

Unlike the U.S., the SMM in the U.K. developed without any government involvement (Freeman). In the mid-1980s, centralized mortgage lenders entered the market in response to wide spreads between mortgage rates and money market rates. These institutions (private conduits) lend through a network of brokers and insurance agents and fund themselves entirely through wholesale sources, primarily MBS. The centralized lenders were able to build a share as high as 13 percent of the market over a short period of time, aided by favorable wholesale-to-retail funding rates and aggressive marketing and product differentiation, Their share fell in the early 1990s to less than 5 percent of the market, reflecting the aggressive pricing of building societies, which benefited from significant deposit inflows in the wake of the October 1987 stock market crash. Downgrading of insurance companies, which provide credit enhancement for centralized lender MBS, and unfavorable risk based capital treatment of MBS (until recently at 8 percent, rather than the 4 percent level of residential whole loans) adversely affected the cost of funds of the centralized lenders.

Europe

Unlike the U.K. and U.S., MBS markets have not yet developed in Europe. In recent

years there have been isolated issues (in France, Spain and Sweden) but no ongoing programs. The primary reasons for the slow pace of securitization has been the lack of capital pressure on lenders, low rates on mortgages (particularly in France), high costs of developing securitization programs and legal and regulatory uncertainty.

Wholesale funding of mortgages is well established in Europe. France, Germany, Spain and the Nordic countries have active and well developed mortgage bond markets. Bonds are issued by private and state-owned mortgage banks. Investors (particularly insurance companies and pension funds) are major holders of mortgage bonds. They typically have restricted investment opportunities or incentives to hold mortgage bonds. Government supported wholesale banks exist in France, Germany and Spain. These institutions refinance the portfolios of primary market lenders. It is notable that all of these countries have highly developed securities markets.

Asia

The only Asian country with a true (but small) SMM is *Australia*. MBS were introduced in Australia in 1986 (Whitehead & Yates). By 1991 over $6 billion had been raised through this approach. Most of the MBS issuance has been by mortgage companies specializing in low start rate loans guaranteed by state housing authorities.

A secondary market institution, Cagamas, was created in *Malaysia* in 1987 to purchase loans from primary market lenders. Both market rate and government subsidized loans are purchased with the intent of reselling them to the lenders after a period of 3 to 7 years (selected by the lender). The loans are acquired on recourse from the lenders which administer them on behalf of the company. The mortgage acquisitions are financed with the proceeds of general obligation bond issues. Both fixed and floating rate bonds have been issued corresponding to the characteristics of Cagamas' loan purchases. The government has created incentives for the holding of these securities through tax preferences, assignment of the lowest risk based capital weight for depository institutions, authorization for investment by pension funds and insurance companies and inclusion of the securities as part of the investments that can be held as liquid assets. Cagamas is by far the largest issuer of private debt securities in Malaysia. It issued over RM 3.3 billion of debt securities in 1992 and had over RM 5.1 billion outstanding at the end of the year.

A number of Asian countries have created wholesale institutions to provide liquidity through refinancing primary market loans. In *India*, the National Housing Bank ("NHB") has achieved a degree of success in mobilizing new funds for owner-occupied housing (Struyk and Ravicz). Most of its funds have come from government directed sources or through bond issues carrying special tax advantages. In general, NHB's access to new funds lags its commitments and it has had only limited success in tapping the broader financial markets.

The Government Housing Bank (GHB) in *Thailand* obtains its funds primarily through deposits. The GHB has been noted as a constructive source of innovation and competition in the system (Mayo). It began offering to refinance (at lower interest rates) existing mortgage loans held by commercial banks in the mid-1980s, using its cost advantage in raising funds (as a government-backed institution). The banks responded by significantly increasing their volume of mortgage lending in order to retain their customer base.

The experience of the *Philippines* with government supported mortgage institutions has not been positive. The major government lending entity, the NHMFC, mobilizes funds from government pension plans and mutual funds to provide mortgage loans to their members. As such, it is a combination retail/wholesale institution. It has suffered from very high default rates and currently is undergoing its second "rehabilitation" in the last 6 years. The current plan calls for it to be reconstituted as a SMM conduit purchasing loans from banks and developers and issuing MBS.

The existence of specialized housing banks in *Sri Lanka* and *Korea* does not appear to have significantly improved the availability of housing finance. Both countries are plagued with severely repressed financial systems in which the government actively attempts to direct credit (Renaud, Struyk and Ravicz). Housing finance is provided primarily through specialized state mortgage banks that operate on a retail (direct lending) as well as wholesale (security issuance) basis. Mortgage rates are not market determined and what funding is available comes from directed sources (e.g., state pension funds). The volume of lending is small (relative to the size of the economy) and private sector participation is limited.

DEVELOPING COUNTRY NEEDS

Many developing country economies have been undergoing rapid change and growth. As a result, the demands on the financial system become greater with each passing day. With growth and change comes increased awareness of the financing needs of particular sectors. One of the major roles for government is to identify and prioritize the principal problems affecting provision of credit for important social and investment needs and adopt appropriate policies to solve those problems. One of its major goals should be the increased participation of the populace in the formal financial sector and the increased importance of private sector entities in this sector.

High real interest rates are a major problem in the area of housing, as they reduce affordability particularly for low and moderate income households. Secondary markets are not the primary solution for this problem. The development of a secondary market can modestly lower mortgage rates relative to other market interest rates through an increased supply of funds, better allocation of liquidity and interest rate risk and increased competition. Development of a

secondary market can lead to the use of longer term mortgages which can improve affordability. However, targeted subsidy programs and the introduction of alternative mortgage instruments are better solutions to affordability problems of low and moderate income groups.

The second significant issue is credit risk in mortgage lending. The ultimate solution to this problem is improvement in the land titling and court systems - both of which are long term projects. Provision of mortgage insurance through the government could reduce or eliminate credit risk for mortgage investors. However, it could expose the government to significant liabilities if it is not properly priced and underwritten. In many countries, private banks find creative ways to deal with mortgage credit risk including third party guarantees, payroll deduction and direct debiting of bank accounts.

A third market need is greater access to long term sources of funds. There are frequently substantial sources of long term funds that could be invested in mortgages if proper investment vehicles are made available (e.g., insurance and pension funds). A SMF may be the most appropriate way to improve access to long term sources of funds for mortgage lending. Private banks could obtain long term advances (collateralized loans) from a SMF funded by general obligation bond issuance. The bonds would be purchased by pension plans, insurance companies and other banks.

The appeal of this alternative is that it is relatively simple to implement. If the collateralized lender can get prompt access to the borrower's payments in the event of loan default, the risk of such lending should be modest (as it is typically done on an over-collateralized basis). If the SMF has some form of government involvement, it will have a ready demand for its bonds among long term investors. The activities of the SMF can spur general bond market development.

If mortgage lenders are unable or unwilling to significantly expand their mortgage investments then a mechanism for sale of the loans need to be developed. One alternative could be for a SMF to purchase loans, funded by its bond issues. However, this approach may be more time consuming to develop reflecting the uncertain legal status of mortgage sales and the need to develop procedures for monitoring and managing servicing risk.

A true SMM may be necessary if primary market lenders are undercapitalized (relative to the risks of mortgage investment) or if it is desirable to stimulate competition from smaller more entrepreneurial companies (e.g., the centralized lenders in the U.K.). The drawback of this model is that it is expensive and time consuming to form. Systems for tracking and transferring cash and information may have to be developed. Mortgage design and underwriting may have to be standardized to permit an MBS issue. Legal obstacles to ownership transfer may have to be resolved as well as determining how credit enhancement would be provided. Investors need to be educated about the cash flow characteristics and risks of mortgage-backed securities. In many countries, it may be more appropriate for a SMM to develop naturally, in response to a funding cost differential, capital market development and the demand for off-balance sheet financing. ■

NOTES

[1] This study is based on work done by the author in Indonesia, funded by U.S. Agency for International Development in 1993. The opinions expressed herein are those of the author and not USAID.

[2] For a comprehensive description of housing finance systems in the early 1980s, see Boleat [1985]. For a recent analysis of European and U.S. housing finance systems, see Diamond and Lea [1992 a,b].

[3] Contract savings systems can be viewed as specialized depository institution circuits. They are most prominent in France and Germany.

[4] A number of countries have national housing banks which operate primarily on a retail basis. Examples in Asia include Bank Tabungan Negara in Indonesia, the Government Housing Bank in Thailand and the Korean Housing Bank. NHMFC has both retail and wholesale functions.

[5] An MBS also is referred to a pass-through security in which borrowers' monthly principal and interest payments and loan payoffs are passed directly to the investor net of servicing and guarantee fees.

[6] Prepayment risk is a form of interest rate risk arising from the early repayment of mortgages. Specialized securities (derivatives) have been created in the U.S. to more efficiently allocate prepayment risk. A SMF may be exposed to significant prepayment risk if it purchases mortgages funded with fixed term, non-callable debt. However, by virtue of its scale it may be in a better position to manage this risk than individual lenders.

[7] Standardization is less important for collateralized lending. Pools of diverse mortgages can provide effective collateral as long as they can be identified, legally pledged and valued.

[8] In the short run, a government mortgage insurance fund can overcome these concerns. However, a reasonable and enforceable title and foreclosure process is a necessary condition of a viable mortgage insurance fund. Once a functioning legal process for protecting investor rights is in place, private mortgage insurers can provide default guarantees to investors. A government insurance fund can provide targeted assistance to certain groups (e.g., low to moderate income first-time homebuyers).

[9] After a secondary market is successfully introduced, any government support can be withdrawn. This was the case with the

➪ 34

Legal and Regulatory Issues Related to Securitization in Mexico: An Analysis

Originally Published June 1996

INTRODUCTION

At the Mexico/United States Bi-national Commission meetings in May 1995, the two countries began a collaborative effort to assist where possible in facilitating development of a secondary mortgage market in Mexico. The effort has been led in the US by the Office of Federal Housing Enterprise Oversight and in Mexico by the Secretariat of Social Development (SEDESOL) and by the Institute of the National Housing Foundation for Workers (INFONAVIT).

This paper is an abridged version of a study to explore the legal and regulatory framework of securitization in order to identify obstacles that are preventing the development of securitization as a viable financing mechanism in Mexico. This study is the work of a group comprised of representatives of the Ministry of Finance and Public Credit (Hacienda), the National Banking and Securities Commission (CNBV) and the Banco de México, as well as outside advisors.

This study examines the importance of securitization for the Mexican financial system and explores the history of securitization in Mexico to date. The study goes on to examine the specific legal and regulatory issues affecting securitization. For purposes of this study, the legal and regulatory issues have been divided into the following categories:

A. Issues related to the origination of assets.
B. Issues related to the transfer of assets.
C. Issues regarding the vehicles used to hold assets and issue securities.
D. Issues regarding investment eligibility rules for regulated entities.
E. Issues regarding taxation.
F. Issues regarding attachment and execution.

The Importance of Securitization

Securitization can be characterized as the refinancing of existing income-producing assets by packaging them into a tradable form through the issuance of securities. In a traditional securitization, the securities created are secured by the assets and serviced from the principal and interest which they yield. In addition, securitization can also refer to a variety of different types of secured transactions involving the issuance of securities.

Securitization has developed as a means for channeling different sources of investment capital into consumer lending. Securitization provides the link between the primary market for consumer credit and investors. Most large institutional investors (i.e., pension funds, insurance companies and mutual funds) have restrictions on the types of investments they are permitted to make. Securitization transforms ordinary loan assets such as mortgages, auto loans and credit card balances into a form that can be readily sold to investors that could not otherwise participate as lenders in this market. For institutional investors, securitization provides a means to participate in traditional consumer lending without having to originate or service consumer loans. As a result, banks and other lenders have increasingly become originators and servicers of consumer loans, receiving fee income, rather than acting as lenders.

In Mexico, securitization has yet to develop as a financing mechanism for banks and other financial institutions. Many of the same changes, however, that have led to securitization in other parts of the world are occurring in Mexico today. Most Mexican banks do not have sufficient capital to support sustained growth in their consumer loan portfolios. At the same time, Mexicans are increasingly looking outside the traditional banking system for places to invest their savings, including mutual funds and life insurance contracts. It is anticipated, moreover, that reforms of the SAR (National Savings System) and the IMSS (National Social Security System) will create additional substantial pools of savings outside the traditional banking system. Securitization needs to be developed as a mechanism to channel these other sources of investment capital into consumer lending so that banks and other financial institutions can continue to meet the growing demand for consumer credit.

A Brief History of Securitization in Mexico

Although wide scale securitization of consumer loans does not yet exist in Mexico, there have been a number of different transactions that fall within the broad definition of securitization. These transactions have typically been directed toward the international capital markets.

The majority of securitization transactions that have occurred in Mexico to date are future receivable transactions, generally traveling offshore dollar cash flows. The offshore dollar cash flow transactions are secured financings backed by future dollar receivables that can be isolated outside of Mexico. In these transactions, the rights to receive future dollar cash flows are transferred to a special purpose vehicle outside of Mexico. The securities are issued by the offshore vehicle. As a result, the cash flows will never enter Mexico. Since the dollars never enter Mexico, it is possible to receive a rating on the securities higher than the Mexican sovereign ceiling.

The typical offshore dollar receivables transactions are the credit card securitizations done by several banks. Unlike traditional credit card securitizations that are backed by existing amounts due from card holders, these transactions involve the securitization of the future flow of dollars due to Mexican banks that have processed credit card charges made by foreigners in Mexico.

Because the primary goal in these transactions is to isolate the Mexico risk, offshore dollar receivables transactions are always structured using special purpose vehicles outside of Mexico. The securities that have been issued, moreover, have been dollar denominated and directed to investors outside of Mexico. Consequently, these transactions do not raise the Mexican legal and regulatory issues of a traditional securitization.

Another type of securitization transaction in Mexico is the repackaging of various types of Mexican government securities. In these transactions, Mexican government peso-denominated securities were used to back dollar denominated bonds. Although these transactions were structured as securitizations, they were more in the nature of derivative transactions. The subordinated securities were intended to absorb a devaluation of the peso. The senior securities were protected against a decrease in the value of the peso up to a certain level. This level of protection was a function of the size of the senior security (denominated in dollars) vis-à-vis the total collateral (in pesos). Since the senior security holder would bear the risk of a decline in the value of the peso (after a certain exchange rate was reached), the senior security holder had effectively sold a peso option.

The repackaging transactions were structured using offshore special purpose vehicles, and the securities created were directed to the international capital markets. Therefore, these transactions did not raise many issues with regard to Mexican law.

An example of transactions that have involved a Mexican issuance vehicle have been the toll road securitizations done by Tribasa (Mexico Toluca) and the Mexican government (Mexico Cuernavaca). Toll road securitizations used trusts established under Mexican law (fideicomisos) that issued ordinary participation certificates (CPOs) primarily to investors outside of Mexico. These transactions confronted several issues under Mexican law regarding the use of a trust as a vehicle for securitization, and the issuance of CPOs.

An example of securitization transactions involving a Mexican government agency were the Credibure transactions of Nafin, a development bank. The Credibure transactions involved loans made by Nafin to Mexican banks to fund back-to-back loans to other borrowers as part of various Nafin loan programs. The Credibure transactions packaged these obligations of the banks to Nafin into a trust that issued CPOs.

The Credibure transactions were divided into dollar and peso programs. Where the loans were denominated in dollars, the CPOs were sold to international investors. The first Credibure transactions were guaranteed by Nafin. The subsequent Credibure transactions, however, were not guaranteed by Nafin but were sold based on the credit of the underlying bank obligors.

Overview of Assets in Mexico

Consumer credits have become an increasingly large component of the assets of Mexican banks. Consumer credits (not including residential mortgages) constituted approximately 6% of total bank credits in September 1995. Mortgage credits have gone from approximately 13.7% of total bank credits in 1991 to approximately 27% of total bank credits in 1995.

The growth in the demand for consumer credit has strained the existing sources of funding. As a result, there is at present an acute shortage of consumer credit in the Mexican market. In the long term, it is expected that securitization may play a significant role in funding consumer and mortgage lending in Mexico. There are, however, serious obstacles to securitization in Mexico. The following sections of this paper examine different areas of the law in order to identify and analyze the different legal and regulatory issues affecting securitization.

ISSUES RELATED TO ORIGINATION OF ASSETS

An essential element in the process of securitization is credit origination. Credit-granting is the first stage and the cornerstone of the securitization process. This section reviews the most important aspects of credit origination.

Financial Institutions Involved in Mortgage Credit Origination

Under Mexican law, credit granting alone is not considered as an activity subject to regulation. However, if credit granting is made with resources funded by the public, through deposit taking or securities issuance, then it is considered financial intermediation and is subject to financial regulation.

The Mexican financial system adopts a universal banking approach under which all sorts of financial services can be provided through a financial group. However, unlike other countries like Germany or Spain, where a single financial institution can provide all types of financial services (including commercial and investment banking services, securities intermediation and insurance), under Mexican law each financial entity can only engage in the financial activities expressly authorized for that type of institution. In accordance with the Financial Holding Companies Act, a financial holding company is permitted to have a majority interest in any type of financial institution, and operate using the same branch network for all of the financial institutions of the group.

The financial entities authorized to originate credits in Mexico are banks, limited scope financial institutions (SOFOLs), credit unions and mutual savings and loans.

Mexican financial institutions are regulated exclusively by Federal laws and regulations, and therefore supervised only by Federal regulatory authorities including Hacienda, Banco de México, the CNBV, and the National Insurance and Bonding Commission (CNSF). Financial institutions can operate nationwide without any restrictions. Credits granted by financial institutions are considered as commercial transactions and are regulated by the Commercial Code. However, transactions related to real estate, like mortgages, are regulated by the Civil Code of each State (depending on where the property is located).

Banks. Banks are by far the most important financial institutions involved in credit origination in Mexico. Banks are authorized to take deposits from the public, including demand deposits through checking accounts, and grant credits to all sectors of the economy. After the deregulation process that took place during the late 1980s and the beginning of the 1990s, banks are no longer required to maintain reserve accounts with the Banco de México or channel fixed portions of their funding into specific sectors of the economy. Although the Banco de México still has the authority to regulate credit transactions, there are no limits on interest rates either on deposits or credits. Banks, thereore, are free to grant credits to all sectors of the economy on terms that are a function of the market conditions that prevail at the time of credit origination.

Because banks take deposits from the public, they are highly regulated. There are specific regulations applicable to banks for their credit operations, including capital adequacy (in line with the Basle Accord), credit ratings for loan portfolios, regulatory accounting rules, lending limits and related party lending. The CNBV is in charge of bank supervision. Unlike other financial institutions, all commercial bank liabilities (excluding subordinated debentures) are covered by the Fondo Bancario de Protecciòn al Ahorro (FOBAPROA). FOBAPROA is a trust funded by commercial banks and administered by the Banco de México, although, in order to face the current banking crisis, a portion of the funding of FOBAPROA has been provided by the federal government.

Limited scope financial institutions. Limited Scope Financial Institutions (SOFOLs) may fund through issuance of securities or bank credits and may grant loans only to a specific sector or activity of the economy. These financial institutions were created in 1993 through a reform to the banking law. Since then, 28 licenses for domestic controlled institutions and 12 licenses for foreign financial affiliates have been issued. Of the 28 domestic licenses, 16 are authorized to participate in the mortgage sector. Foreign controlled SOFOLs are in both mortgage and consumer lending (including auto finance). It is expected that these financial institutions will play an important role in the securitization of credits.

Unlike banks, SOFOLs are for the most part unregulated. There are no specific regulations for their operations such as capital adequacy, credit ratings, lending limits and related party lending. Their liabilities are not covered by FOBAPROA, and there is no alternative liability protection mechanism available to them. If a SOFOL is part of a financial group that includes a commercial bank or has important economic links with a commercial bank, however, it is subject to the same regulations (including capital adequacy requirements) that are applicable to commercial banks. This is to prevent a regulatory arbitrage between banks and SOFOLs.

The Property Appraisal Process

The issue of the property appraisal process is of particular relevance to the securitization of mortgages. This is because no other type of credit depends as much on the value of the underlying collateral.

In the mortgage origination process, one of the most important factors is the loan-to-value ratio (commonly referred to as LTV). The LTV is considered especially important because borrowers who make larger downpayments (i.e., have more equity in their homes) are statistically less likely to default. The LTV is generally calculated by taking the amount of the loan and dividing by the lower of the purchase price of the home or the appraised value. The appraisal is, therefore, a very important part of the credit analysis process. If the loan is sold or securitized subsequent to origination, investors will look closely at the original LTV. Likewise, they

may have new appraisals done in order to determine the current LTV if they believe that property values have declined dramatically.

In the United States and many other countries it is possible to get very accurate appraisals because large amounts of information are publicly available on the market value of homes. In Mexico, however, the appraisal process is not always reliable because accurate information about home prices is not readily available. The job of the appraiser is made more difficult by the lack of a centralized source of information on the sales price of comparable homes. The sales prices registered with the public registry are often unreliable and difficult to access efficiently. Therefore, the appraisers must rely on more anecdotal knowledge of the local real estate market. As a consequence, the appraisal process is highly localized, as it is difficult for individual appraisers to have accurate information on a large number of different geographical areas.

To address the problem of a lack of a centralized database of home values, the government, through Fondo de Operación y Financiamiento Bancario a la Vivienda (FOVI), is planning to develop a database of home prices. Such a database would facilitate the appraisal process.

The problems with the property appraisal process could, in part, also be addressed with reforms to the regulations governing appraisers. At present, the regulations governing appraisers and the appraisal process are not centralized and there is a resulting lack of standardization and consistency. The system has a large number of different self-regulating associations and several government agencies with overlapping jurisdiction.

An appraiser in Mexico must be a member of one of 13 different appraiser associations. In order to become a member of an association, an individual must have at least a university degree in architecture or engineering. In addition, depending on the type of appraisals to be done, they must register with one or more governmental agencies. Each agency maintains its own registration, testing and reporting requirements.

The criteria for qualifying an appraiser and monitoring performance are, in some cases, inconsistent. There are, moreover, no established criteria for the appraisal process. While there are sanctions with which to punish appraisers that do not comply with regulations, these are rarely enforced. This is partly the result of the number of organizations that have overlapping jurisdiction over appraisers. As a result, appraisers are free to operate with effectively no regulation or supervision.

Availability of Accurate Credit Information

The availability of accurate credit information is important to the credit origination process and consequently to securitization. Prior to 1994, centralized credit information was available either through Central de Informes y Cobranzas, S.A. de C.V. (primarily for individuals) or through Datum, S.A. de C.V. (primarily for businesses). Both of these companies are owned by the commercial banks and administered by the Banco de México.

These institutions were formed to collect and verify credit information on bank customers from the participating banks. As comprehensive credit bureaus, however, they had several shortcomings. Their services were only available to commercial banks that were contributors to the database; and they only collected data on bank credit customers.

With the amendments to the Financial Holding Companies Act in July of 1993 and the issuance of the regulations for credit bureaus in February of 1995, the groundwork was laid for the development of comprehensive national credit bureaus. Three credit bureaus have since been authorized by Hacienda, including TransUnion de México, Comcred and Equifax.

The regulations for credit bureaus provide that any party can have access to the information services granted by the credit bureaus, so long as they have the written authorization of the party to be investigated. The written authorization must include the signature of the investigated subject and must establish that the subject is aware of the nature and consequences of the investigation and the information that will be provided.

Credit bureaus and their officers and employees are subject to the bank secrecy regulations, as are the financial institutions that access the information of the credit bureaus. It is not considered a violation of the bank secrecy laws, however, for financial institutions to provide information on their customers to the credit bureaus. It is considered a violation for the credit bureaus to provide information to any third party without the prior written authorization of the person being investigated, except that credit bureaus may share information among themselves. Credit bureaus are required, moreover, to share with other credit bureaus their primary database of negative credit information (defaults, overdue accounts, etc.).

Although still new to the market, it is anticipated that the recent regulatory changes will permit the development of comprehensive credit bureaus along the same lines as exist in the U.S. These credit bureaus will strengthen the credit origination process, thereby resulting in improved loan portfolios. Ultimately, the improved credit quality of the loan portfolios will make securitization easier and less costly (in terms of required credit enhancement) for lenders.

Standardization

Standardization is generally considered positive for the development of securitization. Standardization in the context of securitization

typically refers to banks and other lenders adopting common formats, practices and procedures for the following:

1. Loan Documentation;
2. Loan Applications;
3. Loan Origination; and
4. Servicing (Administration).

Standardization does not necessarily mean that all lenders must extend credit using the same criteria or on the same terms but rather that certain fundamental aspects of the lending process are standardized among lenders. For instance, lenders may adopt a standard form of mortgage loan agreement that provides adequate legal protection to all lenders. Standardized loan documentation is beneficial to securitization in that it ensures that investors in a pool of loans (or the rating agencies) do not have to analyze the risk of several different legal documents.

Lenders may also agree to use loan applications that request the same information from borrowers. This does not mean that each lender must grant credits on the same criteria but that each lender is obtaining the same basic information from borrowers. If each lender collects the same basic information, it is easier for investors to compare loans originated by different lenders. If applications ask different questions, it is more difficult for investors to evaluate loans originated by one lender against loans originated by another lender.

In certain circumstances (such as government-sponsored loan programs) lenders may adopt the same loan origination criteria.. Such characteristics could include loan-to-value ratio, borrower income, size of loan and interest rate, among other things. This type of standardization also can be very important to securitization because it can generate homogeneous pools of assets from many different originators. A homogeneous loan pool will be easier to analyze by investors. It may also be possible to assemble larger pools of assets because the loans can be originated by different lenders. Having loans from different lenders also means greater diversification of risk. This can diversify risks related to the originator (i.e., poor origination practices) as well as regional risks from a concentration of loans from one part of the country. This type of standardization typically is achieved in cases where a government agency is subsidizing mortgages to a certain sector of the market and wants to ensure that the mortgages all have the same characteristics. It also could occur where a large private institutional investor desires a homogeneous pool of mortgages and has sufficient resources to influence the market.

Another aspect of standardization that is important to securitization is in the servicing of loans. Standardization of servicing makes it easier to transfer loans and change the servicer. The ability to change servicers is important for securitization. Rating agencies will want to ensure that servicing can be transferred to a new servicer if for any reason the originator is unable to service the loans. Otherwise, the transaction could not be isolated from the credit risk of the originator.

Standardization of servicing typically involves the standardization of the type of information that is monitored (i.e., balance, payment history, address, etc.). In addition, there can be standardization of the documents and information that are maintained in each loan file. Standardization of servicing can also refer to the standardization of data processing systems and software. The more that servicing is standardized among market participants, the more straightforward it will be for a new servicer to take over servicing if required.

The Mexican financial system is presently characterized by a lack of standardization in all aspects of the loan origination and servicing process. One exception to this is the FOVI loan program for low- and middle-income housing. FOVI has standardized the type of loan that may be offered by banks. In addition, FOVI has proposed standardized loan documentation and application forms. FOVI requires that banks and SOFOLs that make FOVI loans provide certain basic information on the performance of the loans they originate and service. FOVI, however, has not yet established servicing guidelines or standards. Therefore, putting aside other regulatory obstacles, it would be difficult to transfer servicing for FOVI loans from one servicer to another.

Another example of standardization is for UDI-type loans resulting from the government-sponsored programs for restructuring consumer loans.[1] UDI loans have standardized terms for maturity and interest rates. Each bank, however, uses its own form of contract. Standardization of UDI loans will facilitate securitization of these credits, should the government seek to do so.

ISSUES RELATED TO THE TRANSFER OF ASSETS

The transfer of assets is a very important part of securitization. This is because securitization typically seeks to isolate the risk of the issuance from the risk of the originator. The transfer of assets also has important consequences related to the capital required to be held by the originator where the originator is a regulated financial institution subject to capital adequacy rules.

As a general matter, sale contracts are valid and binding upon the agreement of the parties. There are special rules and formalities, however, pertaining to contracts for the transfer of ownership of certain types of assets, including negotiable instruments and mortgages on real property. In addition, with regard to loan agreements, the law requires that the debtor be notified of any transfer of the loan agreement for the transfer to be effective vis-à-vis the debtor.

Transferring Nonmortgage Assets

The majority of credits that are eligible for securitization, such as credit card receivables, auto loans, trade receivables and other consumer credits, can be transferred easily and inexpensively. This is because they typically are documented as negotiable instruments that can be freely transferred without notifying the account debtor. Credits that are not documented as negotiable instruments require that the debtor be notified of the transfer. Without notification, the debtor could satisfy his obligation by paying his original creditor.

The transfer of a negotiable instrument is very straightforward. All that is required is the signature on the document endorsing it over to the new holder. Notification of the debtor is not required.

Costs Associated With Transferring Mortgages

The transfer of a mortgage has to be done by a contract formalized by a notary public and registered with the public registry in the jurisdiction where the property is located. In addition, the borrower must be notified of the transfer in order for the borrower to be directly obligated to the transferee.

The notarial system and notary public cost. Unlike common law countries that rely more on legal precedents, Mexico is a civil law country where all aspects of the law are governed by specific legislation. As a result, the role of a notary public is much more important than in the United States and other common law countries. In Mexico, a notary public is required to formalize and make valid any contract for the sale of real property. The notary public serves an important function in property transfer by assuring that purchasers obtain a clean title and that their rights are protected against the claims of others. As a result, mortgage title insurance has not developed as a necessary product because most market participants believe that the notarial process provides adequate protection against title problems. This section discusses the requirements for the participation of a notary public in real property transfers.

Transfers of real property are governed by the Civil Code of the state in which the property is located. Under the Civil Code of the Federal District, all mortgages and contracts involving real property with an appraised value of more than approximately N$7,300 must be in the form of what is known as a public deed that is signed in the presence of a notary public and filed with the public registry. As a practical matter, because most homes are worth more than N$7,500, all mortgages and home sales have to be documented as public deeds and formalized by a notary public.

The formality of a notary public is very important to ensure an enforceable contract. The participation of the notary public is a required formality without which the contract is not valid. However, if a contract is valid but for the lack of a required formality, either party may petition a court to order the fulfillment of the formality. To grant a mortgage, the borrower and the lender must appear before a notary public. The notary public will prepare a public deed where the complete background of the transaction is described and documented. The identity and authority of the persons executing the document is verified and described. The notary public then verifies and certifies the existence of liens and unpaid taxes. He will then issue a series of official copies (testimonios) of the public deed and is responsible for the registration of the first deed with the relevant public property registry. The law further provides that subsequent transfers of mortgages must also be documented before a notary public and filed with the public registry.

The problem with the notarial process for the transfer of mortgage credits is not that it does not work as it should but rather that the cost and time involved when dealing with thousands of mortgage loans may be burdensome. The fees charged by notary publics for their participation in the execution of a mortgage can vary significantly. Notary publics are licensed locally, and their fees and schedules are determined in accordance to local practices. The official rates for notary publics in the Federal District depend on the value of the property being sold or mortgaged. Under the official fee schedule, the notary public fee for the sale of a home of N$100,000 would be approximately 15.5% or N$15,500.

Most notary publics, however, do not charge the official rates. The average notary public fee in connection with the sale of a residential property is approximately 8%. The principal Mexican commercial banks, the largest originators of mortgages, have generally entered into agreements with notary publics fixing the fees that will be charged for a particular transaction. It is possible that similar arrangements could be made for the transfer of mortgages in connection with a securitization.

Registering with the public registry. In order to protect the rights of a purchaser or lender it is essential that any transaction involving real property be registered with the appropriate public registry. Each state and the Federal District maintain a public registry for the registration of real property.

In Mexico, the first person with a properly executed contract to file with the public registry (thereby giving notice) has priority over prior purchasers or lenders, if they have not filed, and subsequent purchasers or lenders, whether or not filed. Public registries in Mexico use either the sheet or the folio system. With the sheet system, the records of transactions are all kept chronologically in a single book. In order to check for transactions related to a particular property, it is necessary to look through the book for all transactions pertaining to that property. With the folio system, a separate file is created for each property and all transactions are recorded in the file pertaining to that property.

The main problems with regard to the public registry system in the context of mortgage securitization is the time and expense involved. The average time required to register a mortgage in the Federal District is approximately four months. This does not mean that the lender is exposed to the risks of intervening creditors or subsequent purchasers, because the notary will file a notice that the transfer is pending, and this notice will give the transferee priority against subsequent filers. The process, however, may still take a very long time. The problem is likely to be exacerbated in the case of securitization where literally thousands of loans are being transferred.

Another problem is that the public registries are not the same in every state. The degree of efficiency and cost vary significantly from one registry location to another. In some jurisdictions the local governments have taken the view that the fees charged for the registration of deeds is one of the few sources of revenue for the municipalities. In such places the registration fees can be quite substantial. Sometimes the financial difficulties of municipal authorities result in registries not having the necessary infrastructure and staff to provide adequate service. These factors result in enormous differences among the public registries. Although some registries may be partially computerized, the majority of records are still kept by hand.

As a result of these differences, it is difficult to predict the time and cost involved in the registration of a pool of mortgages that come from more than one jurisdiction.

In the Federal District, the fees for the public registry are as follows:

Act	*Cost*
Registering the transfer of real property and the creation of any rights in real property (such as a mortgage).	N$2926
Certification of the existence of any liens going back a period of 20 years.	N$100
Certification of the existence of any liens for each preceding 5 year period in excess of 20 years.	N$66.90
Substitution of a creditor on a mortgage.	N$195.63
Consulting the public registry for any preceding registrations.	N$13.03
Inscriptions, annotations or cancellations of existing registrations.	N$292.75

Proposed reforms to the civil code. With the goal of streamlining the mortgage transfer process, reforms were proposed in 1994 to the Federal District Civil Code with regard to the transference of mortgages in connection with a securitization. Although these proposed changes were not adopted in the Federal District, several states, including the Estado de México, Aguascalientes, Durango, Oaxaca and Sonora , have enacted similar legislation. The changes that were previously proposed to the Federal District Civil Code would have provided that when mortgages are transferred by a financial institution to another financial institution or a fiduciary for the purpose of issuing publicly registered securities backed by such mortgages, the transfer of the mortgages need not be documented before a notary public or registered with the public registry. In addition, the proposed legislation provides that if the originator remains the servicer of the loan, the debtor need not be notified of the transfer.

There were several problems with the proposed changes. First, while the changes in the law would permit transfer without registration, this may not protect the transferee against claims of third parties. If a mortgage is transferred to a *fideicomiso* (trust) in connection with a securitization without being registered and subsequently another lien is filed with the public registry, it is unclear who will have priority. While the first mortgage was granted first, the transfer was not filed. Therefore, the subsequent filer was not notified of the transfer or the true creditor. Unless it is clearly established under the law that a mortgage has priority as of the date of its initial filing, regardless of subsequent transfers without notice, the investors in a securitization transaction could be exposed to the claims of subsequent creditors.

Second, the proposed changes to the Civil Code apply only in the case of public securitizations of mortgages. It does nothing to aid the development of a broader secondary market for mortgages.

Effects of Bankruptcy on Transfer of Assets

Generally speaking, the legal provisions outlined above would govern the transfer or sale of credits. There are certain special circumstances, however, where even though a transfer has legally occurred, the transferor or the creditors of the transferor may be able to nullify or cancel the transfer. This is sometimes the case in the event of the bankruptcy of the transferor. This is of particular concern in connection with securitization where the goal is to isolate the assets completely from the credit risk of the transferor/originator. For this reason, it is important to examine exactly what constitutes a "true sale" for bankruptcy purposes (i.e., a sale that cannot be nullified by the transferor or his creditors in the event of a bankruptcy or insolvency of the transferor).

If the transfer of assets is declared invalid, the assets will be considered property of the bankrupt seller. If the assets had been part of a securitization, the investors may end up as creditors of the bankrupt seller.

In the case of a securitization transaction, the originator and the issuer may enter into

administration agreements for the servicing of the assets. Any payments collected by the administrator will be exclusively owned by the issuer. Such cash flow should be registered in a third party account in the name of the issuing vehicle or the trustee (as the case may be) in order to avoid any possible confusion of ownership.

There are rules that protect the assets owned by third parties which are in the possession of an administrator, but there still is the risk of the attachment of assets until the judge rules over the liquidation procedure. This situation could affect the cash flow to the investors. It is important that the issuer file a petition before the judge for the recognition of his property rights once the liquidation resolution has been approved.

In the case of asset securitization using a trust structure, if the trust is granted as a revocable trust, the creditors of the originator may exercise their rights to revoke the trust and take back the assets.

Bank Secrecy Laws

Under Mexican law, banks are required to keep confidential certain information pertaining to bank clients. More specifically, the banking law provides that banks may not provide any detailed information regarding deposits, services or any other operation to third parties unless: (1) there is an express authorization in writing from the client or his legal representative; (2) pursuant to a court order in a trial where the client is plaintiff or defendant; or (3) the fiscal authorities request the information through the CNBV.

Bank secrecy may be an obstacle to credit securitization if the securitization process requires specific loan-by-loan information. However, debtors can on a case-by-case basis authorize the release of information by a bank to third parties.

Restrictions on Bank's Ability to Transfer Assets

Under Mexican banking law, banks are not permitted to transfer any assets (other than to another bank, the Banco de México or a public trust) without the prior authorization of the Banco de México. This restriction has meant that banks cannot securitize assets without the permission of the Banco de México, because securitization involves the sale of assets.

The Banco de México has indicated that it will only permit transfers of assets in connection with a securitization where the transfer of the assets is complete and the transferring bank does not retain recourse on the assets. The Banco de México, however, may permit securitization in the case where the bank retains recourse in the form of a subordinated interest, so long as the bank holds sufficient capital against the subordinated interest.

ISSUES REGARDING VEHICLES

In Mexico, most securitization transactions have used trusts. However, there are several other alternatives, including special purpose corporations and mutual funds.

Trusts

A trust (fideicomiso) is a legal vehicle that has been used successfully in several securitization transactions in Mexico. Although trusts have certain limitations, these have not proven to be insurmountable for the securitization transactions that have been completed to date. Attempts at securitization, however, on a larger scale or with more complex transaction structures could possibly be affected by some of the trust's limitations.

The principal issues with regard to the trust are:

Trustees. Generally, a bank must serve as a trustee of a trust, although the law permits a securities firm (casa de bolsa) to act as a trustee for a trust that holds securities. Because of the relative novelty of the structures required for securitization and the support required from the trustee, the time and cost involved can be substantial.

Instruments. The majority of instruments which have been issued by trusts and registered for public distribution are the ordinary participation certificates, or "CPOs". In the international capital markets, the CPOs have received a mixed reception.

The principal problem with the CPOs is that they resemble an equity instrument more than a debt instrument. As provided for in the law, the CPO entitles the holder of the instrument to an undivided interest in a pool of assets. A debt instrument would typically entitle the holder to the payment of principal in accordance with a repayment schedule and interest at a stated rate. The efforts to transform CPOs into debt instruments have generally resulted in structures that are cumbersome and difficult to explain to investors.

It should be noted that under recent rules issued by Banco de México, if a trust is to issue securities that will be placed with the investor public at large, the Mexican bank acting as trustee must verify that the trust assets are sufficient to meet the payments required to be made. This provision may result in trustees taking a more direct involvement in the structuring of transactions with a consequent increase in time and cost.

Corporations

Another type of special purpose vehicle that may be used in connection with a securitization is a corporation. Although Mexican law provides for several different types of corporations, the one best suited for a special purpose vehicle is a sociedad anonima. There are some disadvantages in using a corporation as a special purpose vehicle.

Although some issues will need to be resolved, such as the classification of asset-backed securities as debt or equity, the regulations regarding investments by mutual funds do not contain any provisions that should prove problematic for securitization.

Pension Funds

In December 1995, reforms were enacted to the Social Security Law in order to strengthen the pension system and authorize the participation of private pension funds to receive, administer and invest resources given by employers, workers and the federal government for retirement pension accounts.

According to the new Social Security Law, the specific regulation of the organization and operation of pension funds shall be through the Ley para la Coordinación de los Sistemas de Ahorro para el Retiro (SAR) which is expected to be reformed in the next legislative period of the Congress.

The reforms to the SAR will form an investment framework over the resources of the SAR. Once the amendments to the law are enacted, the authorities will be able to issue regulations governing portfolio investments.

The objective of the pension funds is to promote long-term savings. Therefore, it is likely that long-term bonds, such as result from the securitization of mortgages, will be included as eligible investments.

TAX ISSUES FOR SECURITIZATION

A primary goal in structuring any securitization transaction is to avoid any adverse tax consequences. In general, the goal is to avoid an increase in the overall tax liability as a result of the transaction. In some cases, a transaction may be structured to realize a tax saving.

Tax Consequences for the Originator

Income tax. Generally speaking, all transfers of assets are considered transfers for tax purposes, resulting in a corresponding gain or loss to the transferor.

A trust can be structured such that the transfer of assets to it may or may not be recognized as a transfer for tax purposes. By structuring the trust as revocable with the originator as a beneficiary in last place, it is possible to have the securitization transaction viewed as a debt financing for fiscal purposes. On the other hand, if a taxable transfer is more advantageous, so long as the transferor is not a beneficiary of the trust, the transfer will be viewed as a transfer for tax purposes.

If a corporation is used as a special purpose vehicle, the transfer to the vehicle would in all cases be viewed as a transfer for tax purposes. There is a special tax consequence for commercial banks upon the transfer of assets. Banks are allowed a special deduction for reserves created in connection with loan originations of up to 2.5% of the average amount of loan assets that they hold in a given tax year. If the loan asset is sold in the same tax year as it is originated, the deduction is simply disallowed. If the loan assets are sold in a subsequent tax year and because of this sale the average reserves of the bank are less than 2.5%, the reserves created for the loan assets would be released and the amount previously deducted must be included as income.

Asset tax. Corporations and trusts engaged in commercial activities must pay a tax of 1.8% of financial assets, fixed capital, real estate and inventory, owned during the fiscal year. Financial institutions are exempt from the asset tax; therefore the transfer by a financial institution of assets in connection with a securitization would have no effect on the institution. If the lender is a non-regulated entity, however, the transfer would decrease the amount of financial assets held by the lender subject to the asset tax.

Tax Consequences for Borrowers

Income tax. In general, corporations, businesses and individuals engaged in commercial activities are allowed to deduct their interest payments from the interest they receive. However, adjustments are made for inflation such that the gain or loss is only recognized on the "real" component of interest paid or received. The way that inflation is adjusted for depends on whether or not the interest is payable to a financial institution.

The transfer of credits by a financial institution to a special purpose vehicle would affect the calculation of the inflation component for the borrower. The difference in the amount of tax resulting from this calculation, however, may not be substantial.

Tax Consequences for the Issuing Vehicle

Income tax. Generally, a securitization using a corporation or trust would be structured so as to avoid any income tax at the entity level. In Mexico, however, when weighing the impact of income taxes on a special purpose vehicle, it is important to consider the impact of adjustments required for inflation. Under Mexican fiscal law, each individual item of income and expense related to debt must be adjusted for inflation between the date of occurrence and the date of the payment of taxes. Because of this, differences in the timing of payments due on the assets and payments due on the securities could result in inflationary gains or losses to the corporation. Only a true pass-through, where the payments on the assets were immediately passed to investors, would be able to avoid this inflationary gain or loss.

Asset tax. The asset tax would apply to a special purpose vehicle organized as a corporation. Therefore, even if there were no gain

or loss for income tax purposes with a corporation, the asset tax may still be applicable.

If the special purpose vehicle were a trust engaged in commercial activities (as is discussed above), the asset tax resulting would be payable by the beneficiaries. As in the case of income taxes, the trustee must make provisional payments, but the final payment is the responsibility of the beneficiary.

Real property transfer tax. In the event of a default, if the special purpose vehicle were to execute on the property, a real property transfer tax would be payable by the special purpose vehicle. The same tax would, however, apply to any person who executes on a real property guarantee, regardless of whether the loan has been securitized.

Under current law, states are free to set the rates as they choose.

Tax Treatment of Holders of Securities

Income tax. If the vehicle issues debt instruments, the holders will have to pay income tax for the interest income generated by such securities. If the issuer is organized as a trust, and issues CPOs, earnings generated thereby are considered as interest income (as if from debt). This tax will be withheld by the vehicle. If instruments are placed in a securities market, the withholding tax will be 20% of the first 10% of interest paid. If the interest is received by an individual, the amount withheld is considered as payment in full. If the interest is paid to a corporation, the payment is considered a provisional payment against taxes due from the corporation. When the maturity of debt instruments exceeds one year and the holder is an individual, interest payable is not subject to income tax.

If the debt instruments are not considered as issued in the securities market, the issuer has to withhold 20% of the interest payable. Such amounts withheld will be considered as provisional payments only, and the exemption mentioned above for securities with maturities in excess of one year is not applicable.

If the issuer is organized as a corporation and issues equity, profits will be taxed at a rate of 34%. Tax has to be paid by the corporation. Dividends, however, would not be taxable to the recipients.

Profits or losses will be recognized when the shareholder transfers the shares. However, an individual who holds shares issued on a securities market is exempted from recognition of gain or loss on the sale of shares.

In the case of qualified foreign residents, the withholding tax rate would be 4.9% for debt issued in a securities market. To qualify for this rate of withholding, the foreign resident must reside in a country that has a treaty with Mexico to avoid double taxation and the issuer must be registered with Hacienda. In addition, the withholding tax on interest payments to any foreign bank that is domiciled in a country that has a treaty with Mexico to avoid double taxation and is registered with Hacienda will be 4.9%. In either case above, if the required conditions are not satisfied, the withholding tax will be 15%. Other rates of withholding tax may apply to other types of debt instruments not likely to be issued in a securitization.

Dividends payable to foreign residents are not subject to withholding tax, so long as the corporation has paid income tax on the amounts distributed. For capital gains on transactions not done through a securities market, the foreign shareholder will be subject to a 20% flat tax upon the sale of any securities calculated on the principal amount of such transaction. If the buyer is a resident of Mexico, he shall be responsible for withholding this amount. Transactions conducted through a securities market are exempt from this tax.

Foreign pension funds that are exempt from income tax in their own country and register with Hacienda are exempt from any withholding tax.

ISSUES REGARDING ATTACHMENT AND EXECUTION

A critical issue for securitization, as well as any other form of secured lending, is the ability to protect the rights of the creditor in the event of a default on the part of a debtor. The legal means for protection of creditors' rights typically consist of attachment of property or assets in advance of judgment and (upon receipt of judgment) execution. These issues are governed in Mexico by the Federal Commercial Code and, in the case of mortgages for real property, by the Civil Codes and Civil Procedure Codes of each state and the Federal District (depending on where the property is located).

The following analysis is based on the Civil Code and Civil Procedure Code of the Federal District. The laws of each state tend to follow the Federal District, but there are differences in certain cases.

The issues related to attachment and execution relevant to securitization have to do with the difficulty, length of time and cost of these proceedings. While there is little doubt that a creditor will ultimately prevail in a proceeding against a defaulting debtor, the process can be time consuming and costly.

The issues regarding attachment and execution affect the credit risk of a securitization transaction. While strictly speaking these issues are not obstacles to securitization, the uncertainty that they create will make securitization more costly for issuers. Ultimately, someone has to take the credit risk associated with the loan assets to be securitized. An important component of this risk is related to the procedures for attachment and execution in that they affect the creditor's ability to recover value in the event of a default.

Ordinarily in Mexico, consumer credits, credit card receivables and sale receivables have the legal status of titulos de crédito (negotiable instruments). Negotiable instruments grant certain executory rights in an event of default against any asset owned by the debtor. The Commercial Code establishes a special summary procedure to attach and execute against the debtor's assets.

Mortgages of real property are governed by the Civil Code and Civil Procedure Code. Pursuant to the Civil Code and Civil Procedure Code, mortgages that are valid and binding grant certain executory rights in case of default. These laws establish a special procedure in order to attach and execute the mortgage and fulfill the payment obligation of the debtor.

With regard to mortgages, the Civil Code and the Civil Procedure Code grant legal rights to the mortgagee in any event of total or partial default in payment, due performance or observance of any obligation pursuant to the contract constituting the mortgage.

It should be noted that the Mexican Constitution grants hearing and due process of law rights in Articles 14 and 16. The consequence of these provisions is that any legal action to request the fulfillment of any right against any private or public person has to be heard in front of a court of law. Therefore, any legal action pursuing payment of any negotiable instrument or seeking to execute on any mortgage must be heard before a court. As a result, some legal precedents have declared out-of-court sales of property a violation of these due process of law rights.

Attachment

Depending on the legal nature of the assets, a creditor may use the mercantile executory procedure or the mortgage executory procedure to attach property in advance of judgment in order to ensure that the payment obligations of the debtor will be satisfied. In addition, the creditor always has the right to file an action using the ordinary civil or mercantile procedures pursuant to the Civil Procedure Code and Commercial Code. If the loan is backed by a mortgage, the former applies.

The mortgage executory procedure is the procedure through which a creditor can attach and execute on a mortgage. The court will order the public registry where the property is registered to make a notation indicating the attachment of the asset for the benefit of the first mortgagee. The court will then notify the debtor of the action, at which point the debtor will have nine business days to challenge the plaintiff's petition.

With the regard to real property, it is generally not possible to take possession of the property upon attachment. However, pursuant to the Civil Procedure Law, when the court order is registered with the public registry, the owner of the property is transformed temporarily into a depository for the benefit of the attaching creditor until the court renders judgment. As such, the owner of the property has the obligation to conserve and maintain the property for the benefit of the creditor.

When the court renders judgment in favor of the creditor, the depository has the obligation to give possession of the property to the creditor. If the depository does not fulfill this obligation, the creditor has a legal action to enforce the court's resolution in order to take possession of the property. Although this procedure may last a couple of months, the creditor will ultimately prevail since the court's resolution is definitive and the defaulting debtor has no legal basis upon which to challenge the action.

The time required for the mortgage executory procedure theoretically should last no longer than 11 months. In the best case, when the debtor does not challenge the action, the time required could be as short as five months. In both cases, this represents the time from the presentation of the complaint until the execution and payment of the debt or the appropriation of the assets by the creditor. It should be noted, however, that in practice the mortgage executory procedure can last as long as three to four years.

Execution

In both, the mercantile and mortgage executory procedures, after attachment of assets the plaintiff and the defendant will offer proofs, allege their rights and receive the judgment of the court. If the court finds in favor of the plaintiff, the Civil Procedure Code and Commercial Code provide for the sale or appropriation of assets by public auction and payment of the debtor with the funds thereby obtained.

At the same time, in the case of real property, the court requests from the public registry notice of the existence of any lien registered in the real property sheet. The court then notifies all creditors calling for a public auction in order to grant them the opportunity to challenge the validity of the auction and allege the priority of their rights.

Pursuant to the Civil Procedure Code and the Commercial Code the court has the obligation to publish a notice of public auction (three times with three days in between for negotiable instruments and three times with nine days in between for real property assets) in two local newspapers.

NOTES

[1] As part of a mortgage loan restructuring plan instituted after the devaluation, a majority of mortgage loans are indexed to a new unit of account, the UDI (Unidades de Inversión). The UDI designed to maintain a constant real value. The value of the UDI in New Pesos daily based on changes in the national consumer price index. UDI loans have a fixed real interest rate of 9% and have their payments and balances converted from UDIs to New Pesos at the prevailing exchange rate.

MEXICO

Credit Enhancement for Mortgage Securitization and Related Capital Adequacy Issues in Mexico

This article is based on a larger study of legal and regulatory issues related to securitization in Mexico. It is the work of a group comprised of representatives of the Ministry of Finance and Public Credit (Hacienda), the National Banking and Securities Commission (CNBV) and the Banco de Mexico, as well as outside advisers. It is part of a collaborative Mexico/United States effort led in the U.S. by the Office of Federal Housing Enterprise Oversight, and in Mexico by the Secretariat of Social Development (SEDESOL) and the Institute of the National Housing Foundation for Workers (INFONAVIT). The legal and regulatory issues related to securitization were discussed in the June 1996 issue of *Housing Finance International.*

INTRODUCTION

A mortgage securitization transaction typically requires some form of credit enhancement in order to achieve an investment grade rating. Without an investment grade rating, it is very difficult to market the transaction to institutional investors, many of which are only permitted to purchase securities with an investment grade rating. This is particularly important if the securities are to be effectively marketed to foreign investors. The treatment of credit enhancement in capital regulation of financial institutions that accept or retain a portion of the credit risk can significantly affect the choice of the type of credit enhancement employed, as well as the overall attractiveness of securitization as an alternative to whole loan portfolio investment.

TYPES OF CREDIT ENHANCEMENT

Credit enhancement refers to measures that are taken in connection with a securitization to ensure that securities have an investment grade rating. In most mortgage securitization transactions, the senior or credit enhanced securities must be rated in the highest rating category by at least one of the major US rating agencies (Standard & Poor's, AAA; Moody's, Aaa). Therefore, the credit enhancement process is closely tied in with the rating process.

Credit enhancement can be classified either as internal or external. Internal refers to measures that are taken inside the structure of the transaction in order to receive the desired rating on at least a portion of the securities. External credit enhancement refers to things that are done outside of the transaction to improve the credit. External credit enhancement usually consists of some sort of fill or partial credit guarantee provided by a third party. [See the article by Mahesh Kotecha in this issue of the journal].

The process of determining the appropriate credit enhancement involves an analysis typically performed by the investment bank that is structuring the transaction and negotiations with the rating agencies as well as the third party credit enhancers. This involves a determination of the most efficient way to achieve the desired rating.

Typically, the rating agencies will evaluate the structure of a transaction and determine the appropriate "credit enhancement level." The credit enhancement level is a percentage of the assets that represents the amount of required credit enhancement to achieve the desired rating. The credit enhancement could come in any form so long as the securities being issued are protected against credit losses in an amount equal to that percentage of the collateral backing the transaction.

Often a similar negotiation process will occur with third-party credit enhancers. Aside from government agency guarantors, third-party credit enhancers are usually credit insurance companies with high ratings that will put their guarantee on a transaction for a fee, although it could also be a bank or other institution that provides partial credit enhancement in the form of a letter of credit or a loan to fund a reserve account.[1] The negotiation process with the third party credit enhancers is very similar to the process with the rating agencies. In many cases, credit insurance companies require some form of internal credit enhancement in order to achieve the equivalent of at least a low invest-

ment grade rating, at which point they will put their triple A rating on the transaction.

The following sections discuss in more detail the types of credit enhancement that are typically used in securitization transactions that raise capital adequacy issues when banks are involved.

Subordinated Securities

One of the most common forms of internal credit enhancement in the U.S. and other countries consists of subordinated classes of securities that are intended to absorb the risk of loss so that a senior class of securities can achieve an investment grade rating.

The following is a simple example of how subordination works. Assume a pool of 100 mortgages of one dollar each. Assume the goal is to create a senior security with an investment grade rating. Assume the rating agencies assess the risk of loss on the portfolio and determine that 10% credit enhancement is required to achieve an investment grade rating. The easiest way to achieve this would be to create a subordinated security in the amount of 10 and a senior security in the amount of 90. Subsequently, if a loan were to default, the amount of the loan would be deducted from the balance of the subordinated security. Therefore, 10 loans could go bad before the subordinated security would be completely depleted. The senior security would only bear the risk of loss after the 10th loan defaulted.

The use of subordinated securities is one of the most common forms of credit enhancement in securitization transactions. While a single subordinated class of securities is often used, it is possible to have multiple classes of subordinated securities as well. An example would be the creation of a mezzanine (or second loss) class that bears the risk of loss after the junior (or first loss) class is depleted. The reason that mezzanine securities are typically created is because it is possible to receive a rating on the mezzanine securities that will make them more marketable.

Reserve Accounts and Excess Spread

Reserve accounts are accounts that are funded at the beginning of a transaction (usually by the originator or seller of the assets) and used to absorb losses. The party that deposits into the reserve account will hold a residual interest in the reserve account to the extent it is not depleted to cover losses. The difference between a reserve account and a spread account (described below) is that a reserve account is not funded or refunded from excess spread. Reserve accounts can be used alone or in conjunction with other types of credit enhancement.

The way the reserve account works in a securitization of mortgages is as follows. If a loan is declared a loss the unpaid principal balance of the loan is deducted from the reserve account and paid to the holders of the securities. Therefore, the result of the loss to the security holder is a prepayment. If amounts are subsequently recovered in foreclosure or otherwise, these amounts are either used to replenish the reserve account or are paid over to the holder of the residual interest in the reserve account.

The major drawback of reserve accounts is what is called "negative carry." This refers to the negative spread between the yield on the securities being issued and the yield on the reserve account. Typically, the reserve account may only be invested in highly liquid investment grade securities that yield lower than the securities being issued. If the transaction has a long maturity and the reserve account is expected to be in place for a long period of time, the present value of the difference can be substantial.

Spread accounts are a form of reserve account (described above) that can be used to absorb losses. The term "spread" refers to the difference between the interest that is earned on the assets and the interest that is paid on the securities that are created (net of any servicing fees or other ongoing transaction expenses). This amount of income is typically referred to as "excess spread" or "excess servicing." In practice, spread accounts are often funded in part up front for a minimum amount from the proceeds of the sale of the securities. Subsequently, the excess spread is used to increase the size of the spread account to some pre-specified level. Typically, when a loss is charged against the spread account, the excess spread is used to refund the spread account up to some required level. Often, as a securitization transaction amortizes, the required spread account amount is allowed to step down, which allows the cash in the spread account to be released. The terms of the spread account are typically dictated by the rating agencies as the basis for obtaining an investment grade rating.

Even without a spread account, excess spread can be used as a form of credit enhancement for a securitization. In this case the excess spread is not trapped in a spread account but can be used on a period-to-period basis to cover losses. Any amounts not used in any given month would be released.

Letters of Credit

Another way of providing the credit enhancement that the rating agencies require is through a standby letter of credit issued by a bank. The bank essentially grants a line of credit to the transaction that can be drawn in order to cover losses or shortfalls. The bank receives a fee for issuing the letter of credit and will receive interest if the letter of credit is in fact drawn. Generally speaking, letter-of-credit providers never expect to have to fund the letter of credit. Letters of credit are usually just a back up or a form of insurance, and some other internal credit enhancement is used to fund shortfalls or losses up to a certain level.

ISSUES REGARDING CAPITAL ADEQUACY

Capital adequacy is one of the most important issues for securitization. This is because a large portion of securitization transactions are done by deposit-taking institutions, like banks, that are subject to capital adequacy rules. In many instances, capital adequacy issues are a key factor in the decision whether to securitize or not. Because securitization usually moves assets off the balance sheet of the bank, it generally has a positive impact on capital treatment.

Regulators require that banks maintain adequate capital to cover the risks that the bank has assumed in making a loan or extending credit. The issues regarding capital adequacy in the context of securitization are primarily related to determining when banks have effectively transferred or disposed of the risks inherent in the assets to be securitized. If a bank sells assets without any form of recourse or guarantee, it is clear that they have transferred the risks and should therefore no longer have to hold any capital against the assets. However, when the bank transfers the assets with an implied or explicit guarantee, a repurchase obligation, or makes representations and warranties with regard to the assets, it may still effectively bear the risk of the assets and therefore should be required to hold capital against the assets as if it had not sold them.

Because securitization is not yet widely developed in Mexico, most of the capital adequacy issues relevant to securitization have not been resolved. Mexican financial authorities have expressed concerns in the context of proposed securitization transactions that bank issues could be perceived by investors as having the credit risk of the bank and that banks will feel an implicit obligation to repurchase non-performing assets in order to protect the performance of the transaction and the reputation of the bank.

The position of financial authorities has been that a transfer of assets by a bank will only be considered a sale if the bank transfers without recourse of any kind. In addition, in the context of other transactions, the Banco de Mexico position has been that subordinated securities must be capitalized in an amount equal to 100% of the face amount of such securities. At present, these restrictions make several types of credit enhancement commonly used in other countries impractical or difficult for Mexican banks. Moreover, because of the generality of these provisions, they leave unclear the capital adequacy treatment of a variety of potential securitization transactions.

Capital Treatment of Different Types of Credit Enhancement

Capital adequacy issues arise when the securitization is done by a bank and the credit enhancement is in some way provided by the issuing bank or some other bank. The issue also comes up when banks hold securities. This section looks more specifically at the capital treatment of different forms of credit enhancement under Mexican capital adequacy regulations and compares that with the treatment under U.S. regulatory capital rules.

Under current Mexican law, the capital adequacy treatment of a bank holding mortgages or other consumer loan assets would be to hold 8% in capital against the assets. Theoretically, the maximum potential loss to the bank at this point could be 100%.

Now let us examine the capital treatment for a bank in Mexico that does a hypothetical securitization transaction. Assume a loan pool of 100. Assume that 10% credit enhancement is required. Assume in the first instance that the bank provides the required credit enhancement by creating a subordinated security in the amount of 10, which it keeps on its balance sheet. Subsequent to the securitization, the reserve requirement would be 10 (i.e., 100% of the subordinated security) as compared to 8 before the transaction, even though the maximum potential loss to the bank at this point is 10 (i.e., the amount of the subordinated security) compared to 100% before the transaction. The effect of the securitization is to increase the amount of capital that the bank is required to hold despite the fact that the risk to the bank is arguably less. If on the other hand, the required credit enhancement is only 5% and the subordinated security is therefore 5, the required capital would only be 5.

The issue of subordinated securities retained by banks has been the subject of a great deal of debate in the United States and is still not fully resolved. The problems have had to do primarily with inconsistencies between the treatment of banks providing credit enhancement on their own transactions and banks providing credit enhancement on other transactions.

Prior to recent reforms, if a bank in the U.S. were to retain a subordinated interest in a securitization of its own assets, the capital charge would be 8% on the theory that the bank has really retained the risk of the loan pool and should therefore have to hold capital as if it had not been transferred.[2] However, this leads to illogical results in cases where the amount of the subordinated security is less than 8%. In this circumstance, the bank is required to hold capital in an amount in excess of the face amount (i.e., the maximum loss) on the security. As a practical matter, banks would merely write the entire subordinated interest off as a loss, thereby limiting the capital charge to the amount of the subordinated interest.

An incongruous result is obtained when a subordinated security is purchased by another bank or when a bank provides credit enhancement to another bank's transaction in the form of a letter of credit or loan. Under U.S. regulatory accounting rules, the bank would only be required to hold 8% of the face amount of the subordinated security. Assuming credit

enhancement of 10 and an asset pool of 100, this would mean that the third party bank would only have to hold reserves of 0.8, as opposed to 8 if a bank did the same thing in connection with a securitization of its own assets.

An additional complication occurs when there are multiple classes of subordinated securities, such as a junior and a mezzanine security. Current Mexican practice would give a mezzanine security a capital charge of 100% of the face amount of the mezzanine security. Under U.S. Regulatory Accounting Principles (RAP), a bank that retains a mezzanine security in connection with a securitization of its own assets would continue to have to hold reserves as if it had not securitized the assets, even though the mezzanine is in a second loss position.

There have been a number of proposals in the United States to rationalize the capital treatment of subordinated securities for banks. In order to address this inconsistency, the U.S. regulators responsible for establishing capital adequacy rules have adopted certain changes and proposed others that will substantially change the regulatory, accounting and capital treatment of different forms of credit enhancement.

CONCLUSION

The issue of credit enhancement is critical for development of a mortgage-backed securities market in Mexico. If the government chooses not to follow the U.S. in providing government explicit or implicit guarantees on such securities, issuers will have to use one or more of the techniques described in this paper to satisfy the credit risk concerns of investors. The capital treatment of different forms of credit enhancement will be a major factor in the design of individual security transactions.

NOTES

[1] In the U.S., the vast majority of mortgage-backed securities are guaranteed by either the Government National Mortgage Association (Ginnie Mae), which is a government agency, or Fannie Mae and Freddie Mac, which are government-sponsored enterprises. The latter are private, shareholder-owned corporations, chartered by the U.S. Congress. Their corporate guarantees are viewed by the market as implicitly backed by the government. The forms of credit enhancement discussed in this paper are used with securities not guaranteed or issues by these three entities.

[2] In the U.S. and other developed countries, residential mortgages are accorded a 50% risk weight (4% capital) because of their lower perceived risk. However, in Mexico and many developing countries banking regulators have maintained a full 100% risk weight on residential mortgages.

The Role of Financial Guarantees in Securitization

by Mahesh Kotecha

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Transactions involving securitization and credit enhancement techniques have taken on an increasingly significant role in United States capital markets in recent years. The use of financial guarantees, a form of third-party credit enhancement, in the mortgage-backed and non-mortgage asset-backed securities markets has proven a cost-effective way for borrowers to tap domestic and international debt capital markets to satisfy their funding needs. The use of this valuable financial tool is set to expand rapidly to other parts of the world, especially Asia where rapid infrastructure growth and business expansion create the need for enormous sums of capital.

Generally, securitization is the method by which loans, mortgages and other receivables are pooled and enhanced in order to be converted into investment-grade securities. The process makes it possible for firms to separate otherwise non-marketable assets from their balance sheet and, often with the help of credit enhancement, turn them into negotiable instruments. The use of a financial guarantee to enhance the rating of a securitized transaction can lower the cost of funding for the issuer and provide other advantages, including diversification, off-balance sheet treatment, effective asset utilization, ease of documentation and stable funding, all while limiting risks and offering an attractive yield for the investor.

This article will outline the history of securitization in U.S., European and other developed capital markets; explain the basics of securitization and financial guarantees; and, finally, discuss the potential for their use in the developing mortgage- and asset-backed markets of Asia.

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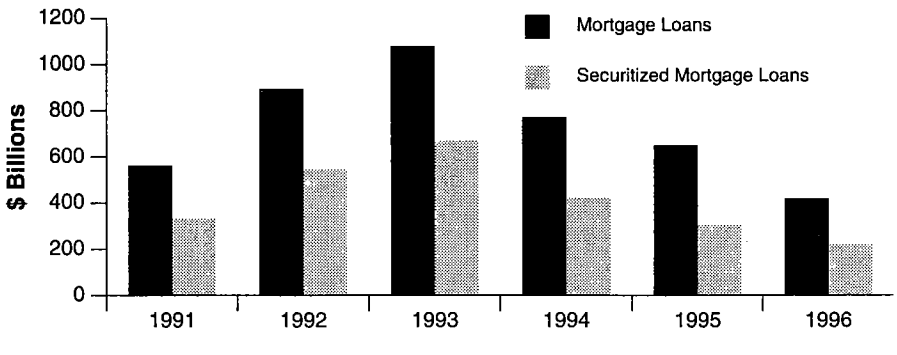
A BRIEF HISTORY OF SECURITIZATION AND FINANCIAL GUARANTEES

Securitization

The origins of securitization date back to the founding in 1938 of the Federal National Mortgage Association (FNMA), popularly known as Fannie Mae, which was established by the U.S. government following the Great Depression to buy and sell federally insured residential mortgage loans made to lower income individuals. In the late 1960s, due to the federal government's increasing concern for the availability of housing and mortgage credit, the mortgage-backed securities (MBS) market was greatly expanded. In 1968, the Government National Mortgage Association (GNMA or Ginnie Mae) was created as part

Figure 1. Securitized Segment of US Residential First Mortgage Market



Source: Inside Mortgage Securities

of the U.S. Department of Housing and Urban Development. Its guarantee represents the further obligation of the U.S. government on pools of loans guaranteed by two government agencies, the Federal Housing Administration and the Veterans Administration. In 1970, the Federal Home Loan Mortgage Corporation (FHLMC or Freddie Mac) was established to insure securities backed by pools of non-government (conventional) mortgages. Both FHLMC and FNMA now have this mandate. Their mission is to provide stability in the secondary market for residential mortgages and to promote access to mortgage credit throughout the U.S. by increasing the credit quality and liquidity of mortgage investments.

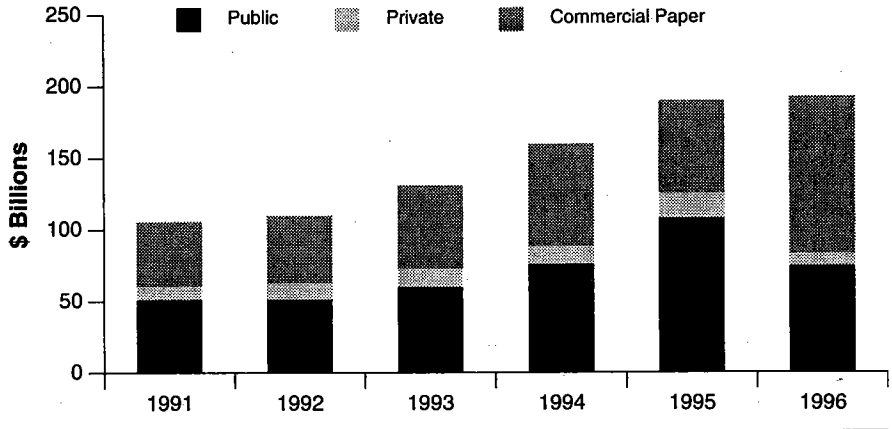
Both FNMA and FHLMC are viewed by the market as equivalent to triple-A credits based on the implicit support of the U.S. government, although there is no record of the need for actual government financial support in recent history. These two agencies purchase and securitize conventional mortgages. Unlike Ginnie Mae, which is a government owned and operated entity, Fannie Mae and Freddie Mac are publicly owned, traded on the NYSE and privately managed. FNMA is one of the largest issuers of U.S. dollar denominated debt after the Department of the Treasury, with $606 billion outstanding in MBS at mid-year 1996, representing roughly a 25% share of the U.S. residential mortgage market. It enjoys an excellent credit performance with a delinquency rate at half of the industry average and loan losses at about 0.06% of its total mortgage loans.

The establishment of these federally sponsored agencies has led to the development of securitization and the growth of an active secondary mortgage market for U.S. government guaranteed mortgage securities. Nearly 50% of the over $3.6 trillion of the total mortgage debt outstanding by year-end 1995 had been securitized. In addition, over $70 billion of the outstanding home equity loan (HEL) market (which is dominated by private lenders with virtually no role for the secondary mortgage agencies) has been securitized since 1990, representing between 2% - 4% annually of outstanding HELs during that period. In the first half of 1996 alone, private label MBS issuance totaled over $21 billion HEL issuance topped $19.4 billion. Pricing of MBS is much more efficient owing to the implied government support in addition to the underlying collateral cash flows. Standardization of mortgage types and documentation, and homogenization of underwriting to conservative standards have been additional benefits. Some market participants have estimated that the mortgage rates for consumers might have been 25 to 50 basis points higher in the U.S. without development of the MBS market.

In 1985, the first non-mortgage asset-backed security (ABS), a securitization of computer leases for the Sperry Corporation, was sold. Since then, there has been a proliferation of new asset classes that have been securitized (and, to varying degrees, credit enhanced by financial guarantee companies). Examples of consumer assets that are often securitized include, in addition to real estate mortgages, auto loans, home equity loans, and credit cards issued both by banks and retailers. Corporate assets that are commonly securitized include trade, lease or loan receivables. In project finance transactions (an area of great interest for emerging market countries), cash flow streams for toll roads and bridges, power plants, airports, telecommunications projects, water supply and waste water treatment systems, to cite a few examples, have all been securitized.

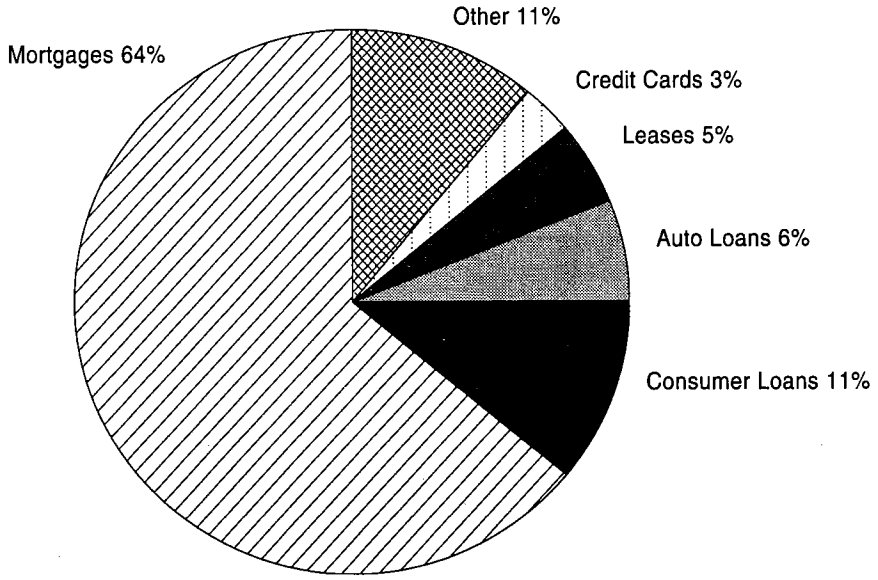
United States. The ABS market in the U.S. is made up of public, private and commercial paper segments, all of which have experienced considerable growth in the last 10 years. Issuance of asset-backed securities in the U.S. public market alone has grown from US$1.2 billion in 1985 to over US$107 billion in 1995. The market in publicly issued credit card-backed securities in the first half of 1996 alone was $27.5 billion or 18% of outstanding credit card debt. The commercial paper segment of the ABS market was pioneered in the 1970s by Citibank, and asset-backed commercial paper vehicles have flourished since that time. By second quarter 1996, outstanding issuance of asset-backed commercial paper in the U.S.

Figure 2. Traditional ABS Market in the U.S.



Sources: Dean Witter; Goldman Sachs Money Markets, LP; MCM Corporate Watch; Securities Data Co.; CapMAC estimates

Figure 3. International ABS Issuance by Asset Type, January 1987 to March 1996



totaled over $120 billion, according to Goldman Sachs. Outstanding asset-backed commercial paper is dominated by trade and term receivables (59%) with credit card receivables the next largest segment (12%). Like other ABS, receivables-backed commercial paper typically is issued through a special purpose vehicle whose sole function is to finance the receivables and support repayment on the commercial paper through payments on the receivables.

Europe. In Europe, the market for securitized issuances has developed more slowly than in the U.S. but shows similarities. Factors affecting slow growth in Europe include the lower stage of development of capital markets as compared to the U.S., regulatory and legal impediments, conservatism in adopting new financial tools and the slow growth rates of securitizable assets. Nevertheless, European issuance rose from $1.7 billion in 1987 to nearly $12 billion in 1994, only to decline to $8.4 billion in 1995. The majority of issuance, roughly 68% between 1985 and 1996, has been MBS. Other assets that have been securitized in Europe include pools of consumer loans, auto loans, credit card balances and leases. Securitizations in the UK market alone accounted for nearly seven-tenths of all European issuance during the last decade, with France accounting for roughly one-sixth.

Australia. The Australian MBS market opened in 1985 with state governments seeking alternatives to direct funding of public housing. There have also been a limited number of non-mortgage ABS transactions completed in Australia. With an aggregate volume of over A$10 billion, the Australian ABS/MBS market is comparable in size to that of France, the second largest in Europe. Public structured financings—those backed by mortgages, commercial property leases to government agencies, financial securities and commercial receivables—dominate the market. Government-sponsored residential mortgage-backed programs were 30% of the market. FANMAC Trusts, Victorian Housing Bonds and Keystart Bonds Limited are among the major players. Consumer receivables—credit card receivables, motor vehicle loan receivables and lease receivables—have not emerged as an important part of the Australian securitizable market as they have in the U.S. and U.K., although two major credit card-backed transactions, by David Jones and Diner's Club, have been completed.

Japan. Not all developed markets have embraced securitization to the same extent. Unlike the U.S., U.K. and Australia, Japan has a very limited ABS/MBS market. The amount of outstanding asset-backed issuance by mid-year 1995 was only US$4.8 billion, none of which has been credit enhanced by financial guarantees. Ministry of Finance and MITI regulations discourage the use of securitization, as does the lack an of incentive for off-balance sheet financing under the Japanese tax and accounting systems.

MECHANICS OF SECURITIZATION AND THE ROLE OF FINANCIAL GUARANTEES

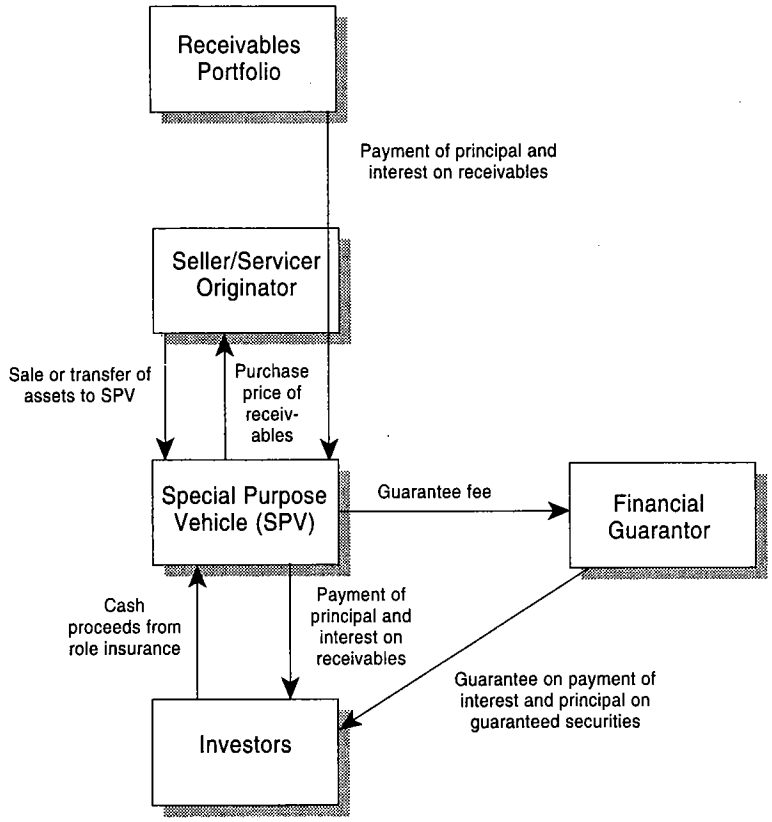
As mentioned above, many types of assets have been securitized in the U.S., Europe and Australia. Any known and predictable payment stream has the potential to be securitized. This section describes how a typical asset- or mortgage-backed transaction would be structured and rated; gives, as an example, an explanation of the use of MBS and financial guarantees; and illustrates how all parties in an ABS or MBS transaction can benefit from the use of financial guarantees.

Most commonly in a securitization, the "originator" of the assets, such as a mortgage lender with a pool of mortgage loans (see Table 1) or a growing company with a pool of trade receivables, sells these assets to a Special Purpose Vehicle (SPV). The SPV is a

Table 1. Securitization of Mortgage Loans

- Originator sells a pool of mortgages to a mortgage agency or SPV.
- SPV then securitizes the pool of mortgage loans.
- Credit enhancer and rating agency check that the loans meet credit quality guidelines.
- SPV issues debt securities backed by the cash flow from the pool.
- Cash collections are used to pay interest and principal on debt.
- Guarantor issues 100% guarantee on payment of principal and interest.

Figure 4. Standard Mortgage-Back Security Transaction



legal entity that is designed to segregate the ownership of the asset pool and associated cash flow in case of the originator's bankruptcy. Working with a financial guarantee company, the SPV purchases the assets from the originator and structures the pool to a level acceptable to the international rating agencies, investors and the financial guarantor. The SPV then issues securities that are bought by investors, with the pool of assets becoming the collateral that supports principal and interest payments on the securities. These payments of principal and interest to investors (or the payments on the underlying assets) are guaranteed by the financial guarantor, and carry its high investment grade rating (see Figure 4).

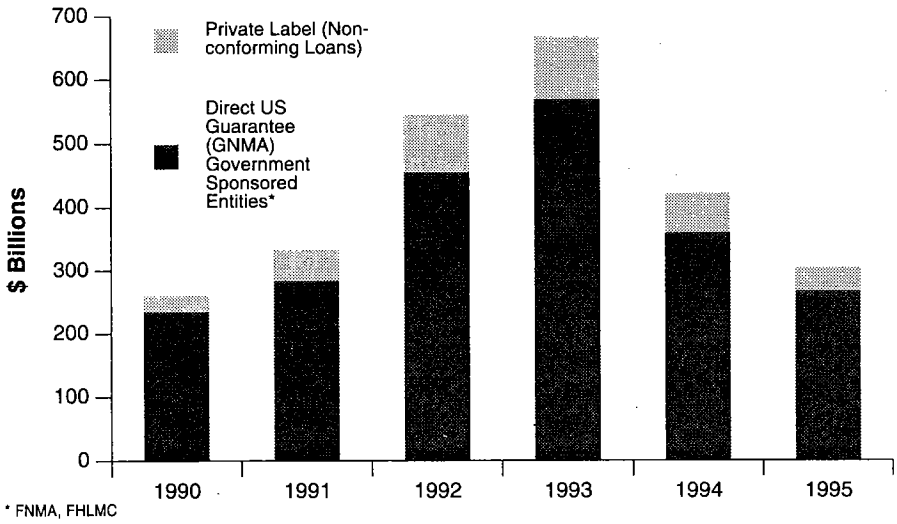
Role of Rating Agencies

The role of ratings has expanded rapidly in the international and domestic Asian capital markets over the last decade. Ratings aim to provide an objective and independent credit evaluation and they assess the probability of timely payment of principal and interest according to the terms of the issue. The benefits of ratings are that: (1) highly rated issuers can save money on financings and widen their investor base both domestically and internationally; (2) investors can compare alternatives across given ratings categories; (3) they provide a relative and absolute measure of credit risk. Costs, such as ratings fees and a time consuming ratings process, are also involved.

The process of establishing a rating on an MBS is roughly as follows: (1) The agency develops a "prime" mortgage pool for a specific market to serve as a benchmark portfolio in that market. (2) The agency then develops a benchmark level of credit loss protection required to cover expected losses in a worst case economic scenario, based on a simple analytical framework. The benchmark level is established on the "prime pool" and then adjusted for actual pools based on inevitable deviations from the "prime pool." (3) The product of frequency of foreclosure and severity of loss serves as the expected level of loss under worst case economic stress. (4) If the deal structure provides an acceptable form of credit enhancement to cover such a worst case loss potential, it receives the appropriate rating.

Investor appetite for all types of MBS and ABS in developed markets are influenced by their credit ratings, and this influence will be especially significant in the emerging ABS and MBS markets of Asia. Formal ratings can open up a much wider investor base, as many international investors either will not or may not buy unrated securities. International rating agencies are interested in rating Asian MBS, but an international rating would be constrained by the sovereign rating of the country in question, unless a means is used to overcome it such as a financial guarantee. For example, a guarantee of ASIA Ltd, a financial guarantor rated AA by Duff & Phelps and A by Standard and Poor's, would elevate the rating of an Indonesian MBS to its ratings, which are above the Indonesian foreign currency sovereign ceiling. [For information on ASIA Ltd, the first financial guarantee company to be domiciled outside the U.S., see page 41.] In such a transaction, the guarantor would request, for due diligence purposes only and not for use by the public market, a "deemed" rating on the underlying securities from a rating agency. With assistance from the financial guarantee company, international rating agencies make a credit assessment of the transaction based on the structure of the transaction, the quality and performance of the asset pool under stress test assumptions, and on the condition of the issuer itself. Most commonly, a securitized transaction is "deemed" to be rated investment grade prior to the guarantee. In the case of ASIA Ltd, however, some transactions may actually be "deemed" to be sub-investment grade prior to the guarantee. The rating agency will issue its public rating, taking into account the financial guarantee once it is given and, therefore, the final rating on the transaction will be equivalent to the rating of the guarantor itself.

Figure 5. Credit Enhancement of Securitized Mortgages



Source: Inside Mortgage Securities

Financial Guarantees

The growth of securitization of both mortgages and non-mortgage assets since the 1980s, first in the U.S. but soon elsewhere, has led to a surge in the use of credit enhancement techniques. As a means of credit enhancement, financial guarantees have been applied to transactions involving such collateral assets as first mortgages, home equity loans or second mortgages, major bank and private label credit card balances, auto loans, bank loans, recreational vehicle loans, manufactured housing loans, timeshare vacation apartment loans, perpetual floating rate notes, high yield bonds, senior loans to highly leveraged companies, commercial real estate leases and municipal leases. While securitization allows companies access to capital markets, credit enhancement facilitates this process by raising the rating and safety of a particular debt issue. Credit enhancement gives investors additional comfort that interest and principal payments will be made on a timely basis. Moreover, the high investment grade rating made possible by credit enhancement increases the demand for the issue by widening the pool of eligible and interested investors.

Credit enhancement techniques have taken various forms, including structures such as senior/subordination and cash collateral accounts, or third-party credit support from financial guarantee companies or banks providing standby letters of credit. While rating downgrades of banks have led the market to abandon letters of credit as a mode of credit enhancement, no financial guarantee company has ever been downgraded, nor has any security with a financial guarantee ever defaulted. Moreover, financial guarantees have increasingly been relied upon as the preferred mode of credit enhancement for newer collateral types and structures as well as longer dated or more complex transactions.

A financial guarantee issued by a financial guarantee company (sometimes also referred to as "bond insurance" or a "surety bond") is used in MBS and ABS to enhance the credit rating of a security to the triple-A level, based on the financial guarantee company's triple-A rating. Essentially, financial guarantee com-

panies "rent" their high, investment-grade credit ratings, thereby enhancing the creditworthiness of the guaranteed debt instrument. The guarantee is designed to ensure that investors will receive timely payments of principal and interest, regardless of whether the underlying collateral assets, or other sources aside from the guarantor, are able to support such payments. Financial guarantors not only impose stringent conditions at the outset, but also continue to monitor the credit of the transaction and quality of the asset pools. Investors also benefit from the oversight of the rating agencies on both the transaction and the financial guarantee company. Therefore, investors can be confident that the transaction structure is inherently safe and will remain so.

The financial guarantee industry has its roots in the U.S. tax exempt municipal bond market. The first such guarantee is believed to have been issued in 1971 for the city of Juneau, Alaska. Events such as New York City's financial crisis in the 1970s and the default by the Washington Public Power System on $2.5 billion in debt in 1982 caused investors to realize the value of financial guarantees. The importance of financial guarantees in the municipals market was highlighted during the recent default in Orange County, California, where investors holding guaranteed Orange County bonds continued to receive timely payments of principal and interest. Today, financial guarantee companies credit enhance approximately 44% of all new municipal issues and over 15% of all new ABS issues. CapMAC is a market leader in credit enhancement of ABS generally and asset-backed commercial paper specifically—no other financial guarantor or letter-of-credit bank has nearly the same market share—with $15 billion (or 12.5% of total) commercial paper enhanced.

The first mortgage market is dominated by the federally sponsored secondary market agencies who securitize the mortgages and issue securities. Therefore, as most MBS have the implied or explicit support of the U.S. government, private market sources of credit enhancement do not factor as largely into the mortgage market. However, private sources of credit enhancement do play a role in the securitization of non-conforming and jumbo mortgages, and of HEL. To illustrate, the securitized portion of the outstanding first mortgage market has now reached $1.8 trillion, of which less than 15% has been credit enhanced by private market sources, whereas, the securitized portion of the outstanding HEL market has totaled over $70 billion since 1990, of which roughly 75% has been credit enhanced in the private market.

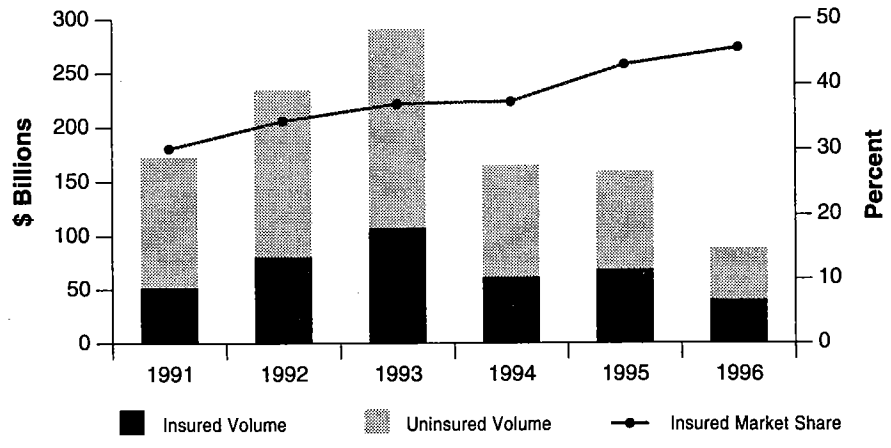
The process of obtaining a financial guarantee usually requires the following steps: inquiry by the client to the financial guarantor, screening of the client and the proposed transaction, specification of premiums and structural requirements by the financial guarantor, due diligence, underwriting commitment, detailed negotiations, pricing and sale of the securities, closing, additional and ongoing research, and monitoring by the financial guarantor. A financial guarantor credit enhances the pool of assets and the security receives a higher rating.

PARTICIPANTS IN THE FINANCIAL GUARANTEE INDUSTRY

A financial guarantee company is generally a monoline, that is, it has one line of business: it guarantees financial obligations (typically debt securities). Financial guarantors' activities are governed in the U.S. mainly by state insurance regulations (in the case of ASIA Ltd by the Monetary Authority of Singapore) and by the need to satisfy the rating agencies' strict rating criteria. Factors important to regulators, rating agencies and investors include single risk limits, aggregate risk limits, contingency reserve requirements, loss reserve requirements, the maintenance of a large capital base and a high quality investment portfolio, and annual reviews of the company's business plan and performance.

Currently, there are 11 providers of financial guarantee insurance or reinsurance specializing in this form of coverage throughout the

Figure 6. Market Share of Insured Municipal Financings



Source: Bond Buyer

Benefits of Financial Guarantees to Issuers

The opportunity for companies to grow is partly based upon their ability to raise inexpensive funding to finance growth. If a company has an identifiable, predictable and diversified revenue stream, most commonly receivables for the sale of goods and services, it may be able to use those receivables to fund business growth through securitization. Additionally, by using off-balance sheet financing, the issuer can improve capital adequacy, boost its return on equity and better manage its customer portfolio. The issuer can increase investor confidence and awareness of its firm, better match assets and liabilities and better manage interest rate risk. By tapping into the regional and international capital markets, companies access alternative sources of funding at a significantly lower cost through the use of financial guarantees. Guaranteed securities are issued at lower interest rates on the strength of the guarantor's investment grade ratings and of having passed the guarantor's tests of economic attractiveness. Most of these savings are passed along to the issuer.

Benefits of Financial Guarantees to Investors

Through the use of financial guarantees, investors can capture a superior yield while limiting their credit risk. A financial guarantor has the experience and expertise to assess the risks involved in the transaction and structure the deal appropriately. Investors receive a guarantee of timely payment of principal and interest, as well as the increased liquidity that can come with guaranteed securities. Additionally, investors can better manage their portfolio by matching assets with liabilities, and better control interest rate and maturity risk. Perhaps most importantly, a financial guarantor like CapMAC or ASIA Ltd constantly monitors all of the transactions it guarantees to assure that the underlying assets perform as expected. A financial guarantee company has the resources and expertise to provide proper surveillance on guaranteed transactions, as its capital is at risk. Investors, therefore, can benefit from the specialized expertise of financial guarantors in the assessment and monitoring of credit risks of securitized transactions. As a result, no financial guarantee company has ever been downgraded and no securities with a financial guarantee have ever failed to pay the investor the principal and interest due.

By tapping into the international pool of investors, emerging markets issuers will enjoy increased access to funds which are needed to finance future growth. Conversely, through securitization and credit enhancement, regional and international investors have a wider pool of investments from which to choose. In this manner, the needs of both sides of the financing equation are met to finance the continued growth of emerging economies.

Benefits of Financial Guarantees to Sovereign Governments

Asian governments have a long history of timely repayment of their debt, and this is reflected in the relatively high credit ratings of countries across the region. Many developing countries outside of Asia are also working to build attractive credit profiles. However, if these countries hope to continue their phenomenal economic growth rates of the past 10-15 years, there must undoubtedly be an increased amount of private sector financing. Multilateral lending institutions such as the Asian Development Bank and the World Bank are encouraging countries to seek additional credit sources to leverage their limited funds (particularly for the longer maturities). Securitization is one method that can be used, and financial guarantees are a way of increasing the safety of this financing and enlarging the pool of investors willing to participate.

To facilitate the desired increase in private sector financing, there exists a strong incentive to develop capital markets in these emerging economies. A good starting point in this development process is the creation of an MBS market which can then serve as a yield curve benchmark for other markets. The efficient pricing of mortgage-backed securities owing to government support and underlying cash flows translates into more affordable mortgage rates for home buyers. In addition, the proceeds of the housing loans, with the use of securitization, can be used to grant new housing loans or loans for other growth activities. The result, in emerging markets as elsewhere, is that investors are attracted early, which is an important factor in the development of a secondary market and for attracting cash flows. Thus, as in the U.S., the promotion of housing finance can be a crucial aspect in the development of capital markets which can benefit the rest of the economy.

EXPANDING USE OF SECURITIZATION AND FINANCIAL GUARANTEES IN ASIA

There is strong investor and issuer interest in the development of MBS and ABS markets in Asian countries such as Malaysia, Indonesia, Hong Kong and Thailand. Emerging Asia's financing needs are well known: U.S.$1-2 trillion or more will be needed to build infrastructure and to finance business expansion in line with continued strong economic growth. While Asia's savings rates will remain high, traditional methods of financing (equity, bank financing and loans from official sources, banks and credit agencies) will likely be insufficient. New methods of financing are needed to attract savings from regional and international investors otherwise averse to the risks involved in Asian securities and to satisfy long-term capital requirements. In emerging markets, such as those in Asia, financial guarantees can help attract investors early and serve as the foundation for the issuance and purchase of securities backed by mortgage loans and other assets.

In these countries, there has been a rapid growth in the number of securitizable assets, including residential mortgages, other consumer loans, trade receivables and lease receivables. Local financial institutions must meet newly imposed BIS-style capital ratios and reduce single-risk or market-segment exposures. Foreign financial institutions operating in Asia are increasingly looking to ABS and MBS markets to provide local currency funding. There has been a rise in the number of non-bank finance companies which lack a deposit base. At the same time, large domestic and regional pools of funds, such as employee-provident and pension funds, which have resulted from the high sustained growth rates of Asian economies, are searching for attractive investments.

The total volume of Asian structured finance is currently estimated to be in excess of US$2 billion. These issuances include US$1 billion of MBS in Hong Kong, over US$120 million of consumer and corporate asset-backed deals in India and credit card receivables-backed private placement issues by CMCI, an affiliate of CapMAC in Indonesia, totaling over US$100 million. The growth of these markets is poised to accelerate over the next several years.

Hong Kong started securitizing mortgages in 1994, thereby developing Asia's first private mortgage market. Asia's first cross-border credit card-backed securities transaction followed in October 1994 and auto loans were first securitized in April 1995. By mid-year 1995, there were HK$4 billion of ABS and MBS outstanding (of which HK$3.5 billion were MBS). In recent years there has been a strong appreciation of Hong Kong property values, contributing to the growth of this market. Hong Kong's residential mortgage market is estimated at over US$30 billion and offers ample opportunities for securitization with supportive legal and regulatory regimes. Banks and property developers will need to sell mortgage assets because of balance sheet constraints and already see securitization as an attractive alternate funding source. Consequently, the government is spearheading the establishment of a Fannie Mae-type institution in Hong Kong.

In India, a decline in the domestic equity market has increased borrowers' incentives to raise debt capital. More than a dozen ABS issuances, involving Citibank, ICICI and SBI have been transacted. Mortgages, credit cards and auto loans are some of the areas most likely to experience a growth in the use of securitization. Likewise in Indonesia, consumer assets provide the most immediate opportunities for securitization, especially in the area of bank credit cards. The first auto-backed deal from Indonesia, PT Astra, was completed recently. The Indonesian bond and commercial paper markets are evolving rapidly, and each totals about US$3 billion equivalent. Securitization potential also exists in the area of Indonesian mortgage loans. A popular mortgage product features a 15-year term with fixed rates for three- to five-year periods. There has been some interest to invest in these mortgages by insurance companies seeking to match asset and liability tenors. In Thailand, the number of companies with underwriting licenses is expanding, and financial institutions, such as leasing companies, are looking at ABS. The Thai government is also formulating securitization law to facilitate securitization of mortgage and other assets. The first public securitization out of Thailand, a US$250 million transaction backed by auto loans, issued via a special purpose vehicle, Thai Cars Ltd., was also transacted recently.

Cagamas, the National Mortgage Corporation of Malaysia was established in 1986 to issue secondary mortgage securities and is now the largest issuer of private debt securities in Malaysia. Though not MBS, strictly speaking, Cagamas issues "quasi-securitized" fixed-rate bonds with three-, five-, and seven-year maturities and floating rate notes which have coupons pegged to the six-month KLIBOR. Secondary trading of Cagamas-issued triple-A RAM-rated securities rose sharply to RM16.1 billion in 1995 from RM8.6 billion in 1994. By December 1995, Cagamas' housing loans portfolio had expanded by almost 20% to reach a total of RM11,882 million, compared with RM9,944 at the end of the previous year.

The outlook for Asian ABS/MBS is good for several reasons. All over Asia, governmental authorities and multilateral financial institutions such as the World Bank and the Asian Development Bank support the growth of private debt markets. Investors view Asia as having a strong investment potential—eight countries in the region are already rated investment grade or better by Standard & Poor's and nine by Moody's. In other parts of the world, investment grade emerging markets include Chile, Colombia (where securitization of first mortgages has already begun), Oman, Qatar, Slovenia, Poland, and the Czech and Slovak Republics.[1] U.S. and other Western investors have committed significant funds for international diversification in fixed-income securities and the demand for emerging market fixed-income securities, especially those with maturities less than five years, exceeds supply.

ARE THE EMERGING MARKETS READY FOR SECURITIZATION?

Securitization is a complex financial tool that requires certain legal concepts to be recognized by the relevant authorities to function smoothly. For example, in some countries securitization involving the sale of receivables is not recognized under local law. In other instances, the sale of assets is permissible, but is taxed so heavily that the resulting transaction becomes economically unfeasible. In some jurisdictions, the issue of bankruptcy is a sensitive one: Are companies allowed to go bankrupt, and if so, what happens to claims on the assets previously sold by the bankrupt entity?

The legal, regulatory and accounting issues affecting the feasibility of securitization can be roughly grouped into the following areas:

- *Legal issues*

  The possibility of a "true" sale and perfection of a security interest.

  The feasibility of establishing a Special Purpose Vehicle that is bankruptcy remote.

  The legal right to transferred assets upheld even in the event of bankruptcies.

- *Regulatory and accounting issues*

  Authorities' willingness to consider the use of securitization.

  Viability and feasibility of off-balance sheet and non-recourse financing.

- *Tax issues*

  The ability to do transactions while maintaining tax-neutrality in regard to withholding taxes, stamp duties or other tax constraints.

From the standpoint of financing requirements, there is little doubt in the minds of market participants that given the right conditions, securitization could flourish in Asia and other emerging markets. Whether or not the "institutional infrastructure" necessary for securitization is in place in these developing economies is open for discussion; but in many countries, these types of transactions are achievable in one form or another. The learning curve may be steep in some countries; but the experience of the U.S. market shows that once issuers, investors, regulators and others learn of the benefits of securitization, the market will begin to realize its vast potential.

There seems to be little doubt that debt securities of good credit quality will find ready investors in Asia, where the past decade of sustained economic growth has led to the formation of large pools of capital. Public and private pension funds, insurance companies, and high net worth individuals in the region all seek high-quality debt securities. This need will be further served by securities that are denominated in local currencies. Multinational insurance companies, for example, will be able to buy securities denominated in currencies that match the currency in which their policies are written, giving them a hedge against currency risk. Furthermore, U.S. and other Western institutional investors have committed significant funds to achieve international diversification of their portfolios.

Although the bond markets of many emerging market countries are underdeveloped in comparison to the U.S. and Europe, the World Bank expects that over the next decade bonds will be an important segment of Asia's financial markets. The disproportionate reliance on equity by Asian corporations to finance growth has already begun to diminish, as a growing amount of debt is issued in Asia every year. The development of the capital markets is a necessary condition for the widespread issuance of debt securities, as it is essential that these securities be able to trade once issued.

Securitization flourishes with bank disintermediation, and although banks in Asia are still strong especially compared to their American counterparts, they are starting to come under some of the same risk-based capital adequacy constraints that affect banks worldwide. As in more developed financial markets, corporate entities in Asia are starting to look at bonds of varying durations as a substitute for bank loans. Banks no doubt also will seek the off-balance sheet benefits of securitization as a way of better utilizing their own more restricted capital. If they are up against their internal single or aggregate concentration limits, securitization is one means by which they can reduce balance sheet assets, thereby freeing up capital to finance new business.

Securitization in many emerging markets does face obstacles, however. In some markets there may not be a large enough volume of securitizable assets and no recorded or recordable payments track records on securitizable receivables. Legal, regulatory, accounting and tax hurdles are always larger for initial transactions then for subsequent ones. Accounting and disclosure practices are not always up to par with international standards. In many of these emerging economies, there is a lack of sufficient regulatory oversight and legal protections for investors and issuers. Currency and foreign exchange risks unknown to domestic transactions arise, as do issues concerning political and sovereign risk, economic policy and business environment stability.

SUMMARY AND CONCLUSIONS

Although securitization is still a relatively new concept in the capital markets of Asia and other emerging markets most of the necessary ingredients for its success are in place. There are large investors, both regionally and internationally, who have an appetite for Asian fixed-income securities of good credit quality. Governments' ability and willingness to be the main financier of economic growth is receding, and banks and finance companies are increasingly facing capital adequacy and other regulatory and competitive requirements that will force them to monitor loan activity more carefully. Also, the credit ratings of most Asian countries are at least investment grade, making it easier for international institutional investors to participate via the purchase of debt securities.

The establishment in Asia of a financial guarantee company with expertise in structuring and enhancing asset-backed securities is a key component of the development of the Asian securitization markets. An unrated or low-rated entity that possesses strong, predictable streams of revenues can use a financial guarantee to raise the credit rating of its debt issuance,

thereby lowering the interest rate on the securities and the cost of funds to the borrower. Many Asian banks and finance companies are experienced at lending to their countries' blue-chip companies, and securitization allows less well-known, but otherwise credit-worthy entities to access a heretofore unavailable, and less expensive, means of raising capital. Securitization also allows banks and other financial institutions to manage and mitigate exposure concentrations and free up scarce capital resources to finance growth.

Because the bonds will carry the high credit ratings of the financial guarantor, the pool of eligible investors will be widened, and many international investors hungry for Asian paper will be able to participate in the region's continued economic success. These higher ratings and larger investor market will lower interest rate costs and save sponsors money.

Securitization has little impact on the government's ability to control the monetary system but adds another layer of financing options. Therefore, it is important that the proper legal and regulatory framework for securitization be in place so that the country may benefit from its use. There must be an articulation of the process by which assets may be removed from the originator's balance sheet. Taxes must not be burdensome on the sale of these assets. The special purpose vehicle must be recognized as the true owner of the purchased assets, and the SPV must be bankruptcy remote from the originating institution. After all, the originator must be convinced that securitization is a cost-effective and tax-neutral alternative to on-balance sheet financing.

In sum, securitization and financial guarantees are logical steps in the evolution of capital markets in Asia and other emerging markets. Securitization and the use of financial guarantees allow credit-worthy borrowers to raise funds in the international and regional capital markets in a cost effective and efficient manner, while enabling investors to invest in high quality and attractive investments in the emerging markets. As the benefits of securitization are more widely recognized in emerging markets, issuers, investors, regulators and other market participants are likely to follow the example of the more developed capital markets in the U.S. and turn increasingly to financial guarantees as a means of providing investors with greater confidence to invest in structured financings.

NOTES

[1] Securitization of Latin American receivables has been under way for nearly five years and has been aimed primarily at raising offshore funds on the basis of future receivables from the exports of goods and services in transactions that often seek to rise above the generally non-investment grade sovereign rating "ceiling" of the originator's country of domicile. Recently, some purely domestic transactions have begun to emerge and mortgage securitization is of interest to several countries, including Argentina, Mexico and Colombia.

Housing Finance in a Technology-Driven Market: OFHEO's Role as a Regulator

Mark Kinsey

Rapidly changing technology is having a significant impact on the housing finance market in the United States. Technology is streamlining the mortgage finance process and enhancing risk management, but mortgage lenders are still hesitant to embrace the new technologies. As the safety and soundness regulator of the Federal National Mortgage Association (Fannie Mae) and the Federal Home Loan Mortgage Corporation (Freddie Mac), the Office of Federal Housing Enterprise Oversight (OFHEO) has a significant interest in how these technological changes affect the activities of the Enterprises. Consequently, OFHEO examines how each Enterprise uses technology and how they manage the risk that results from technological change. While OFHEO's interest in new technologies is focused on their impact on the Enterprises' activities, technological changes such as automated underwriting and mortgage scoring affect the entire housing finance industry.

OFHEO'S REGULATORY ROLE

OFHEO was established as an independent agency within the Department of Housing and Urban Development (HUD) in 1992 by an act of the Congress (the 1992 Act). OFHEO's primary mission is to protect the interests of the U.S. taxpayer and contribute to the strength and vitality of the nation's housing finance system through the independent and fair regulation of Fannie Mae and Freddie Mac (the Enterprises). As the regulator of the Enterprises, OFHEO is responsible for ensuring that they are adequately capitalized and operate in a safe and sound manner. In carrying out this mission, OFHEO's regulatory authority is similar to other U.S. financial regulators such as the Federal Deposit Insurance Corporation, the Office of the Comptroller of the Currency, the Office of Thrift Supervision, and the Board of Governors of the Federal Reserve System.

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In order to fulfill its mission, OFHEO employs two major strategies: (1) requiring the Enterprises to meet applicable capital standards and (2) conducting examinations. Requiring the Enterprises to hold adequate capital is a critical responsibility because capital is the cushion that ensures the financial viability of the Enterprises in stressful times. Currently, OFHEO classifies the Enterprises' capital on a quarterly basis using a minimum capital ratio. The minimum capital level, however, is a leverage ratio that is not designed to address specific credit risk exposures or the overall exposure to interest rate changes. Consequently, OFHEO is developing a sophisticated risk-based capital standard that will require the Enterprises to hold sufficient capital to withstand a ten-year stress period.

In addition to monitoring capital adequacy, OFHEO conducts a comprehensive program of examination activities in order to ensure the financial safety and soundness of Fannie Mae and Freddie Mac. These activities include on-site examinations and off-site financial analysis and supervisory monitoring, as well as ongoing communication with the boards of directors and management of each Enterprise. The examinations identify the significant sources of risks inherent in each Enterprise's current and planned business activities and products. In the examination process, OFHEO also evaluates the effectiveness of each Enterprise's system for identifying, measuring, controlling, and monitoring risks. OFHEO's examination program complements the quarterly capital classification in providing comprehensive oversight of the financial safety and soundness of the Enterprises.

THE ENTERPRISES

Fannie Mae and Freddie Mac, the nation's largest housing finance institutions, are government-sponsored enterprises (GSEs). The Congress created Fannie Mae and Freddie Mac to fulfill specific public policy objectives but they are, nonetheless, private firms owned by stockholders. According to their federal charters, the mission of both Enterprises is to provide stability in the secondary market for residential mortgages and to promote nationwide access to mortgage credit by increasing the liquidity of mortgage

investments and improving the distribution of mortgage investment capital. In the process of providing ongoing assistance to the secondary mortgage market, the Congress also required the Enterprises to promote affordable housing activities by assisting low- and moderate-income families in obtaining mortgage financing.

In order to assist the Enterprises in achieving their public mission, the Congress granted them specific benefits that are not available to fully private firms. The benefits include exemptions from state and local income taxes, access to a $2.25 billion line of credit each at the U.S. Department of the Treasury, exemption from the registration requirements of the Securities and Exchange Commission (SEC), and favorable capital treatment of Enterprise securities held by banks and thrifts that is similar to the treatment of bank and thrift investments in U.S. Treasury securities. These benefits have created the perception among investors that the Enterprises have an implied U.S. government guarantee on all their obligations, which provides the Enterprises with their most important benefit. Because investors believe that the U.S. government would never allow either of the Enterprises to default on their obligations, Fannie Mae and Freddie Mac have the ability to raise funds in the domestic and international capital markets at narrow spreads over U.S. Treasury rates.

Fannie Mae and Freddie Mac are involved in two principal lines of business: purchasing mortgages and issuing mortgage-backed securities. Both Enterprises purchase residential mortgages from the mortgage originators or lenders and either package the mortgages into mortgage-backed securities (MBS) for resale to investors in the capital markets or hold the mortgages in their own portfolios. The Enterprises also purchase mortgage-backed securities for their own portfolios. To fund their portfolios, the Enterprises issue a mixture of straight and callable debt in the domestic and international capital markets. Fannie Mae and Freddie Mac primarily purchase conventional (non-government guaranteed) residential mortgages. The Enterprises' charters specify the maximum size of an individual residential mortgage that they are permitted to purchase. For 1997, the conforming loan limit — the maximum size of the original principal amount of a single-family mortgage that the Enterprises can buy—is $214,600. In addition to loan size, mortgage loans must meet the Enterprises' underwriting guidelines before they are eligible for purchase.

As of the end of the second quarter of 1997, Fannie Mae and Freddie Mac either owned or guaranteed a combined total of $1.48 trillion in mortgages. Of that total, $1.03 trillion was MBS guaranteed by either Fannie Mae or Freddie Mac and $446 billion consisted of mortgages or MBS held in the portfolios of the Enterprises[1]. Based on assets of $366 billion, Fannie Mae is the largest corporation in the United States and Freddie Mac, with $184 billion in assets, is the 15th largest corporation. In different terms, the total assets plus off-balance sheet MBS of the Enterprises almost equaled the gross domestic product of France in 1996.

Other secondary mortgage market institutions support the segments of the market where the Enterprises do not or can not purchase mortgage loans. The Government National Mortgage Association (Ginnie Mae) which is part of HUD, supports the government-insured (FHA and VA) mortgage loan market. (Because the U.S. government explicitly guarantees its securities and the mortgages it securitizes are insured or guaranteed by the U.S. government, Ginnie Mae's securities trade at more favorable spreads over U.S. Treasury securities than the securities of Fannie Mae and Freddie Mac.) Private mortgage conduits operate in the markets for jumbo loans, that is loans whose original principal balance exceeds $214,600, and sub-prime or B & C-rated loans[2].

In addition to their secondary mortgage mission, the Congress requires the Enterprises to finance affordable housing. The 1992 Act gave the Secretary of HUD the authority to set and enforce annual affordable housing goals for Fannie Mae and Freddie Mac. These goals set specific annual purchase targets for mortgages made to very low income households (below 60 percent of the area median income), low income households (below 80 percent of the area median income), and moderate income households (80 to 100 percent of the area median income), and for mortgages made in geographically underserved areas of the United States.

In the same legislation that established annual affordable housing goals and created OFHEO, the Congress also required four government organizations (Treasury, the Congressional Budget Office (CBO), HUD and the General Accounting Office (GAO)) to prepare reports on the desirability and feasibility of severing the government's ties to Fannie Mae and Freddie Mac. The studies concluded that Fannie Mae and Freddie Mac receive substantial benefits from the government and provide substantial benefits to borrowers. The Treasury study, which had findings similar to CBO and GAO's findings, estimated the government subsidy to Fannie Mae and Freddie Mac was worth nearly $6 billion in 1995:

- The majority, about 95 percent, of the subsidy was in the form of lower borrowing costs for the Enterprises as compared to fully private firms (**in 1995, for example, their** estimated fund-raising advantages were 18 basis points for short-term debt, 55 basis points for long-term debt, and 35 basis points for MBS).

- About $400 million of the subsidy resulted from exemptions from state and local income tax and SEC registration requirements.

The studies estimated that roughly $4 billion or about two-thirds of the total subsidy was passed on to lenders and ultimately borrowers in the form of lower mortgage rates (approximately 30-35 basis points for conforming mortgages). The balance of the subsidy, about $2 billion, was retained by Fannie Mae and Freddie Mac and reflected in higher earnings, dividends, salaries, and taxes.

USING TECHNOLOGY TO MANAGE CREDIT RISK

A primary function of Fannie Mae and Freddie Mac is to bear credit risk. By successfully managing credit risk, Fannie Mae and Freddie Mac are able to sell mortgages to investors whose risk preferences would normally prevent them from investing in mortgages and mortgage-backed securities. Advances in technology—credit scoring, mortgage scoring, and automated underwriting systems (scoring technology)—are changing how credit risk is measured and the way that mortgage loans are made. These changes are impacting how Fannie Mae and Freddie Mac and other participants operate in the secondary mortgage markets.

In 1994 and early 1995, the Enterprises introduced automated mortgage loan underwriting systems and related technologies. These initiatives paralleled the developments at large mortgage lenders and mortgage insurers. Automated underwriting systems offer several economic benefits to the Enterprises and other mortgage market participants.

- First, automated underwriting systems can mitigate credit losses by reducing the acceptance rate for loans with high credit risks and minimizing the rejection rate for loans with low credit risk. This can be achieved because automated underwriting systems permit the use of statistical models that can more accurately measure and categorize risk and allow a more consistent application of underwriting guidelines. OFHEO views this as a positive development because it enables the Enterprises to improve their management of credit risk. The ability to quantify credit risk also allows the Enterprises and other purchasers of mortgage loans processed through automated underwriting systems to adjust the prices and fees to reflect more precisely the riskiness of the loans.

- Second, automated underwriting systems reduce the cost of originating loans by simplifying the decision making process for low risk loans and by reducing the required documentation.

- Third, the Enterprises can increase their share of secondary mortgage market business because automated underwriting systems can enhance customer service. When a mortgage originator underwrites a loan using either Fannie Mae's *Desktop Underwriter* or Freddie Mac's *Loan Prospector*, the borrower quickly knows whether the loan meets the Enterprise's purchase standards. In addition, the loan data are stored on the Enterprise's information system, which reduces the cost to the originator of selling the loan to Fannie Mae or Freddie Mac.

Despite the potential cost savings, however, many market participants are reluctant to embrace these new systems. Mortgage lenders, for example, are proceeding cautiously because of up-front costs associated with implementing new technology, changing lending policies and procedures, and training originators to work with applicants. Lenders realize that to use the technology effectively, they must rethink their business processes. There are also potential hazards in working with borrowers who are not familiar with credit scores or mortgage scores and do not have access to their own scores. Finally, risk-scoring has yet to be proven effective in predicting loan performance in periods of severe economic distress. Risk scores, by definition, predict the expected performance of future loans based on the performance of past loans of similar characteristics. All of the loans used to build today's risk scores were originated in fairly good economic times.

Mortgage scoring employs statistical models that use data from a prospective borrower's loan application and credit report to estimate the risk that the borrower will pay as promised relative to the risk of other borrowers. The mortgage score can quantify the different types of risks and express them as a single score that can be compared across applications. Mortgage scoring is potentially a better predictor of mortgage performance than credit scores because it takes into account other factors that affect mortgage performance beyond just the borrower's credit history. For example, mortgage scoring can combine LTV and credit risk and evaluate the trade-off between the two factors. An individual who applies for a high LTV mortgage would generally be regarded as a higher risk than an individual who applies for a low LTV mortgage if their credit histories are comparable. If the high LTV borrower has a better credit history than the low LTV borrower, however, the high LTV borrower could be a better risk, which would be reflected in a higher mortgage score.

Fannie Mae and Freddie Mac are using technology to both redefine the types of information required for underwriting and the processes by which the lender evaluates the information and makes the underwriting decision. The Enterprises' systems evaluate a loan application, advise the lender whether the Enterprise will purchase the loan and, if not, provide feedback on the application's weaknesses. If the loan is not accepted, the lender may refer the loan to a human underwriter for further evaluation. If the system approves the application, the loan's underwriting is complete.

The Enterprises' systems are either currently capable, or will soon be capable, of obtaining the information needed to underwrite a

mortgage loan directly from the information source. Examples of information that will be obtainable from the source include:

- a credit report on the borrower (a credit or FICO score rather than a traditional mortgage credit report),
- an appraisal of the property,
- verification of mortgage insurance coverage, and
- (possibly in the future) verification of the applicant's income, employment, and assets.

Since the Enterprises' systems compete with each other and with other commercially available systems, the Enterprises have added components to their systems that will enable lenders to underwrite FHA/VA loans, jumbos, and subprime (B&C) loans. This will allow lenders to use the Enterprises' systems for all of their lending activities. It will also allow the Enterprises to generate fee income on the origination of non-conforming loans (loans that the Enterprises cannot purchase).

The Enterprises, as well as large wholesale lenders who purchase loans from brokers and correspondents, derive an additional benefit from scoring technology. The capitalization and the historical credit quality of loans purchased from a mortgage loan originator become less important as the credit quality of the loans purchased becomes more independently verifiable. Scoring technology provides a structure for verifying loan application data and applying underwriting standards consistently across many originators. Consequently, the purchaser of the loan need not rely on the broker or the correspondent to evaluate the creditworthiness of a borrower.

The Enterprises may also use technology and scoring systems to manage credit risk over the life of the loan. From OFHEO's perspective as a safety and soundness regulator, this is also a positive development that has the potential to minimize loan defaults and loan loss severity. There are two types of systems that are in use or being tested. One type predicts the likelihood that a delinquent loan will ultimately go into foreclosure rather than return to current payment status. This allows mortgage servicers to concentrate their collection efforts on the loans that are most at risk. The second type of system allows the mortgage servicer to evaluate the financial impact of alternative loss mitigation strategies. Both of these systems have positive financial implications for the Enterprises and mortgage servicers.

CONCLUSION

As the industry continues to evolve, Fannie Mae and Freddie Mac will play an important role in leading the pace of change. While the Enterprises will benefit from technological developments, technology is also changing the relationship between Fannie Mae and Freddie Mac and other market participants. For example, as the Enterprises' customers—the seller/servicers from whom the Enterprises buy mortgages—consolidate, they acquire more market power, which may change their market position with respect to the Enterprises. The increased use of technology and the resulting economies of scale are speeding up the process of seller/servicer consolidation.

As part of its role as the safety and soundness regulator of Fannie Mae and Freddie Mac, OFHEO examines their use of technology, focusing on the effectiveness of management's processes to identify sources of risk, measure the level of risk exposure, implement risk controls, and monitor risk exposures. In addition to the examination process, OFHEO follows technological developments in the housing finance industry in order to determine what impact they may have on the Enterprises. OFHEO's role as a regulator will continue to evolve in response to technological advances in the industry.

NOTES

[1] At the end of 1996, total residential mortgage debt outstanding was $4.22 trillion.

[2] The B&C or subprime market encompasses a wide range of mortgage products, including mortgage loans to borrowers with imperfect credit histories; several forms of second mortgages, including both closed and open-ended home equity loans; and so-called "125 percent Loan-to-Value" loans where the total indebtedness exceeds the estimated home value.

Government-Sponsored Enterprises and the Transformation of the American Housing Finance System

by Thomas H. Stanton

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The residential mortgage market of the United States has been subject to successive transformations in financial institutions and instruments. First came government programs to insure and guarantee long-term self-amortizing mortgages in the aftermath of the Great Depression. Then, in the late 1950s, the conspicuous success of these government activities helped to encourage the growth of private mortgage insurance. In the 1970s, the success of government and private mortgage insurance, combined with new data processing technologies, fostered the development of the mortgage-backed security (MBS) into a major source of mortgage funding.

A significant institutional development over the past two decades has been the emergence of two dominant firms in the secondary mortgage market, Fannie Mae (the Federal National Mortgage Association) and Freddie Mac (the Federal Home Loan Mortgage Corporation). The financial advantage conferred by their federal charters has permitted Fannie Mae and Freddie Mac to hold or securitize literally over a trillion dollars of mortgages, largely fixed-rate mortgages, that earlier would have been held in the portfolios of primary lenders, especially thrift institutions.

Now Fannie Mae and Freddie Mac are beginning to combine their market power with new technologies to transform the system of mortgage finance in the United States in an even more profound way. The mortgage market is undergoing dramatic changes in the processes of origination, servicing and purchasing of home mortgages.

This article looks at the apparent contours of that transformation. It begins by surveying some of the major institutional changes that have occurred in the mortgage market in recent years. These changes include the diminished state of the thrift industry following the debacle of the 1980s and the concomitant growth of Fannie Mae and Freddie Mac to become the dominant institutions in the residential mortgage market.

The second section of the article looks at Fannie Mae and Freddie Mac as institutions created by the government and compares their federal charters to those of primary lenders such as banks and thrifts. The third section examines the nature of emerging mortgage market technologies and suggests some of the possible consequences of those new technologies for the system of residential mortgage finance in the United States.

Many of these changes involve consolidation of previously distinct parts of the loan origination and servicing processes. As the conclusion suggests, they promise to bring positive results to mortgage borrowers in the form of higher quality and lower costs. On the other hand, the new technologies represent an extension of market power of the two dominant firms in the secondary mortgage market; as such, these technologies are likely to accelerate changes among primary market institutions.

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THE ROLE OF FANNIE MAE AND FREDDIE MAC IN SHAPING THE RESIDENTIAL MORTGAGE MARKET

Fannie Mae and Freddie Mac as Government-Sponsored Enterprises (GSEs)

Fannie Mae and Freddie Mac are government-sponsored enterprises. A government-sponsored enterprise can be defined as a privately owned, federally chartered financial institution with nationwide scope and specialized lending powers that benefits from an implicit federal guarantee to enhance its ability to borrow money.[1] As can be seen from this definition, GSEs have many characteristics in common with banks and thrift institutions.

Fannie Mae and Freddie Mac each are chartered by an Act of Congress to serve as a secondary market institution that purchases and otherwise deals in residential mortgages up to a specified size (this year, $203,150 for a single-family mortgage). They are investor-owned companies whose shares trade on the New York Stock Exchange. The two companies are among the largest financial institutions in the world. They purchase roughly half of all residential mortgage debt originated in the United States each year.

It should be noted that the distinction between the primary and secondary markets is rooted in law rather than the marketplace; Fannie Mae and Freddie Mac are authorized to purchase, service, sell and otherwise deal in residential mortgages but are not permitted to originate them.

In return for the limitations upon the business activities in which they may lawfully engage, the GSEs receive special benefits. These include an implicit government guarantee of their debt obligations and mortgage-backed securities, and various tax and regulatory benefits.

Fannie Mae and Freddie Mac have grown dramatically. In terms of their combined assets and mortgage-backed securities, on average they have more than doubled in size every five years since 1970. As can be seen in Figure 1, at year-end 1994, Fannie Mae had assets of $272.5 billion and mortgage-backed securities outstanding of $486.3 billion, for a total size of $758.8 billion. Freddie Mac had assets of $106.2 billion and mortgage-backed securities outstanding of $460.7 billion, for a total size of $566.9 billion. Together, the two GSEs represent a federal contingent liability of over $1.3 trillion.

Fannie Mae and Freddie Mac today are very profitable, with returns on common equity last year of 24 percent and 23 percent, respectively. This return is far superior to the average of thrift institutions, commercial banks or other private lenders. In part, the return on equity relates to the low capitalization of the two companies compared to lenders in comparable lines of business. The high leverage of these companies means that changes in business and the market can have dramatic effects upon the profitability in a given year. .This is seen in the contrast of the 1994 returns on equity with the significantly different ROEs ten years earlier.

Fannie Mae and Freddie Mac Compared to Thrift Institutions

In many ways, the legal framework of these government-sponsored enterprises resembles that of savings and loan associations (i.e., thrift institutions) in the United States. Like thrifts, Fannie Mae and Freddie Mac are confined by their charters so that they will serve as specialized lenders in support of the residential mortgage market; like thrifts that receive deposit insurance, Fannie Mae and Freddie Mac benefit from government backing for their liabilities; and like thrifts, Fannie Mae and Freddie Mac are institutions whose activities are considered to embody a public purpose.[2]

There are also some significant differences between thrifts and the two GSEs. Fannie Mae and Freddie Mac are confined by their charters

Figure 1. The Growth of Fannie Mae and Freddie Mac, 1984-1994

	Total Assets	MBS Out-standing	Total Assets + MBS	Equity/ Assets + MBS	Return on Average Equity
			Fannie Mae and Freddie Mac, 1984		
Fannie Mae 1984	$87.8 billion	$35.7 billion	$123.5 billion	0.74%	(7.4%)
Freddie Mac 1984	$13.2 billion	$70.0 billion	$83.2 billion	0.73%	52.0%
			Fannie Mae and Freddie Mac, 1994		
Fannie Mae 1994	$272.5 billion	$486.3 billion	$758.8 billion	1.26%	24.3%
Freddie Mac 1994	$106.2 billion	$460.7 billion	$566.9 billion	0.91%	23.2%

Source: Office of Federal Housing Enterprise Oversight, *Annual Report to Congress 1995*

to the secondary market and must purchase loans from other lenders, such as thrifts, who originate them. By contrast, thrifts are permitted both to originate and to purchase loans.

On the other hand, Fannie Mae and Freddie Mac may use their government backing to securitize mortgages, while thrifts may securitize mortgages only out of special purpose affiliates and without use of a government guarantee. The law requires that thrifts pay a sizable deposit insurance premium to the government; Fannie Mae and Freddie Mac pay nothing for their government backing. Thrifts are required to hold at least four percent capital to back the residential mortgages that they hold; Fannie Mae and Freddie Mac are subject to much lower capital requirements, especially for the mortgages that they securitize.[3] Perhaps most importantly, the law provides for a competitive primary market, including thrifts, commercial banks and mortgage bankers; by contrast, Fannie Mae and Freddie Mac constitute a duopoly in the secondary market for mortgages under $203,150 and thus may wield considerable market power.

The Impact of Fannie Mae and Freddie Mac Upon the Primary Market

Fannie Mae and Freddie Mac benefit from low transactions costs, especially in the securitization of mortgages, compared to thrift institutions. The Congressional Budget Office (CBO) recently reported on the effects of Fannie Mae's and Freddie Mac's activities upon the thrift industry:

> "The increased competition [from the two GSEs] and lower interest rates . . . have sharply reduced the profitability of certain aspects of thrifts' portfolio lending. Thrifts with average operating costs can no longer earn a market return by holding fixed-rate conforming mortgages. Only the best-run thrifts with the lowest operating costs can possibly remain in this segment of the market."[4]

The CBO adds that, as a consequence, many thrifts earn their profits by holding adjustable rate mortgages or nonconforming loans that are not eligible for purchase by Fannie Mae or Freddie Mac, or that do not meet their underwriting guidelines, or by originating mortgages for sale to one of the secondary market institutions. The proportion of residential mortgages that thrift institutions hold in portfolio has declined markedly in recent years.

Figure 2 gives one indication of this trend. The market has grown several fold, from $203.7 billion in home mortgages originated in 1984 to $773.1 billion originated in 1994. Commercial banks and mortgage companies have increased their shares of this growing market and thus have increased their mortgage origination businesses substantially. By contrast, the market share of thrift institutions has declined dramatically while the dollar volume of their originations has remained fairly flat.

Thrift institutions formerly originated over half of all single-family mortgage loans, but now originate less than one-fifth; mortgage companies, who rely upon Fannie Mae and Freddie Mac to purchase their loans, now originate over half of all home mortgages.

The mortgage banking industry itself, while growing in market share, seems to be undergoing some consolidation into a smaller number of larger companies. As will be discussed below, the emergence of new technologies in the secondary mortgage market is likely to accelerate such consolidation.

Figure 3 presents statistics that help to illustrate the profound transformation of the system of mortgage finance over the longer term. It compares market share, in terms of the dollar volume of mortgage debt held by the various housing finance institutions in 1970, with market shares in 1994. 1970 was the year that Freddie Mac was created and that Fannie Mae was first permitted to pur-

Figure 2. Mortgage Originations: Changes in Market Share

	Volume	Market Share
Single-Family Originations by Lender, 1984		
Thrift Institutions	$108.9 billion	53.5%
Mortgage Companies	$47.6 billion	23.4%
Commercial Banks	$41.9 billion	20.6%
Other Lenders	$5.3 billion	2.6%
Total	$203.7 billion	100%
Single-Family Originations by Lender, 1994		
Thrift Institutions	$150.6 billion	19.5%
Mortgage Companies	$408.1 billion	52.8%
Commercial Banks	$206.1 billion	26.7%
Other Lenders	$8.2 billion	1.1%
Total	$773.1 billion	100%

Source: U.S. Department of Housing and Urban Development, *U.S. Housing Market Conditions*, May 1995

chase conventional (i.e., privately insured) mortgages; it therefore provides an appropriate benchmark for looking at longer term trends.

In 1970, total outstanding single-family home mortgage debt amounted to $294.4 billion. Thrift institutions held 55.7 percent of this amount ($164 billion), followed by banks with 14.4 percent ($42.3 billion) and life insurance companies with 9.1 percent ($26.7 billion). Government-sponsored enterprises were a small part of the market, holding 5.3 percent ($15.5 billion) of the total. Mortgage pools, largely mortgage-backed bonds of Ginnie Mae and the Farmers Home Administration, two U.S. government agencies, amounted to only one percent ($3.0 billion) of total mortgage debt outstanding.

By year-end 1994, these proportions had changed completely. The market had grown about elevenfold, to a total of $3.3 trillion of mortgage debt. 47.5 percent of outstanding mortgage debt ($1.6 trillion) is now financed through MBS securities, including MBS pools of Fannie Mae and Freddie Mac ($985 billion), Ginnie Mae ($441 billion), and private mortgage conduits ($184 billion).

Together, Fannie Mae and Freddie Mac hold or securitize well over a third (36.2 percent) of the outstanding market, followed in the private sector by commercial banks (18.3 percent), thrift institutions (14.3 percent) and the private mortgage conduits (5.5 percent). Life in-surance companies are virtually out of the market.

In 1993, Fannie Mae and Freddie Mac together purchased over half of all mortgages originated ($610 billion out of total single-family mortgage originations of $1.01 trillion, or 60.3 percent); the drop in the volume of new mortgage originations in 1994, combined with an increase in the proportion of adjustable rate mortgages originated that year, resulted in a decline in the volume of loans purchased by Fannie Mae and Freddie Mac and in their share of the market in 1994.

Figure 3. Mortgage Holdings: Changes in Market Share

Type of Holder	Volume	Market Share
Single-Family Mortgage Debt Outstanding, 1970		
Thirft Institutions	$164.0 billion	55.7%
Commercial Banks	$42.3 billion	14.4%
Life Insurance Companies	$26.7 billion	9.1%
GSE Portfolios	$15.5 billion	5.3%
Ginnie Mae MBS Pools	$3.0 billion	1.0%
Household and Other Holders*	$42.9 billion	14.6%
Total Mortgage Debt	$294.4 billion	100%
Single-Family Mortgage Debt Outstanding, 1994		
GSE MBS Pools	$984.7 billion	29.5%
GSE Portfolios	$224.8 billion	6.7%
Ginnie Mae MBS Pools	$441.2 billion	13.2%
Commercial Banks	$609.5 billion	18.3%
Thrift Institutions	$447.1 billion	14.3%
Private Mortgage Conduits	$183.6 billion	5.5%
Households and Other Holders*	$418.3 billion	12.5%
Total Mortgage Debt	$3.34 trillion	100%

* Other holders include mortgage companies, REITs, state and local credit agencies, pension funds, credit unions, finance companies and U.S. government agencies.

Source: Federal Reserve Board, *Flow of Funds Accounts: Annual Flows and Outstandings, Supplement, 1946-1993,* September 20, 1994; and *Federal Reserve Bulletin,* June 1995.

NEW DEVELOPMENTS IN THE RESIDENTIAL MORTGAGE MARKET

There have been two types of recent development in the residential mortgage market. First, the secondary mortgage market institutions have been able to relax some of the statutory and regulatory constraints that traditionally have confined their activities. Second, Fannie Mae and Freddie Mac have begun to deploy new information technologies that have the potential virtually to erase the financial distinction between the primary and secondary markets.

Changes in the Law and Supervisory Authority with Respect to Business Activities of Fannie Mae and Freddie Mac

The growth of Fannie Mae and Freddie Mac in the marketplace has been accompanied by a growth in their political power. The Secretary of the Treasury raised this issue in a 1991 report:

"The principal GSEs are few in number; they have highly qualified staffs; they have strong support for their programs from special interest groups; and they have significant resources with which to influence political outcomes."[5]

Fannie Mae and Freddie Mac are now applying this influence to loosen the terms of the law and regulations that traditionally had constrained their permitted business activities. An important development in this regard was included in the FIRREA legislation enacted in 1989. In that law, the Congress amended Fannie Mae's charter authority by deleting language that had limited the GSE to providing only "supplementary assistance to the secondary market for home mortgages."

Fannie Mae's regulator, the Department of Housing and Urban Development (HUD), had relied upon that language as the basis for denying approval for Fannie Mae to engage in some forms of new business activity. FIRREA made conforming changes to Freddie Mac's charter as well so that neither GSE would be limited to mere "supplementary assistance."

In 1990 Fannie Mae asked the Secretary of Housing and Urban Development to permit Fannie Mae to purchase debt obligations secured by conventional mortgages or securities backed by such mortgages. This would have permitted Fannie Mae to offer advances (i.e., collateralized loans) to thrift institutions, commercial banks and other mortgage lenders on quite favorable terms compared with those offered by the Federal Home Loan Bank System (FHLBS) to its members. In particular, while the FHLBS has based much of its business upon the practice of making advances that are highly over-collateralized (to control credit risk), Fannie Mae proposed to reduce over-collateralization. This change would appear to make the proposed Fannie Mae advances quite attractive compared with those currently offered by the FHLBS. The Department of Housing and Urban Development refused to approve Fannie Mae's 1990 request.

This year Fannie Mae and Freddie Mac are taking steps to confine or eliminate HUD's authority to approve new business activities.[6] Freedom from the need to obtain government approval for new business activities would permit the GSEs to expand their services in new directions. One possibility would be the entry of the two GSEs into the business of providing advances to primary lenders who are currently eligible to be served by the FHLBS. Other possibilities involve the application of new technologies to real estate settlement services and to the provision of services to support origination and servicing of mortgages. The realities of the financial marketplace are such that displaced firms are unlikely to be effective in their complaints.[7]

The Impact of Emerging Technologies

Application of the new technologies to mortgage finance has been well described in a recent analysis.[8] Fannie Mae and Freddie Mac today are dynamic investor-owned institutions that combine market power with an impressive ability to deploy these new technologies to reshape the American mortgage market in ways that few of today's market participants may completely appreciate.

The new mortgage origination products that the two companies are developing include the Freddie Mac Loan Prospector automated underwriting system and a new Fannie Mae group of "Desktop" technologies, currently including Desktop Originator and Desktop Underwriter. These and related products can be expected to permit Fannie Mae and Freddie Mac to reduce the cost structure of the primary mortgage market.

The new technologies are likely to have a significant impact upon federal government programs. Take the Federal Housing Administration (FHA) single-family mortgage insurance program. Today, FHA mortgage insurance helps to facilitate the flow of mortgage credit to lower income and first-time borrowers—including a disproportionate number of racial and other minorities—who otherwise might not be served by the privately insured (i.e., conventional) mortgage market.

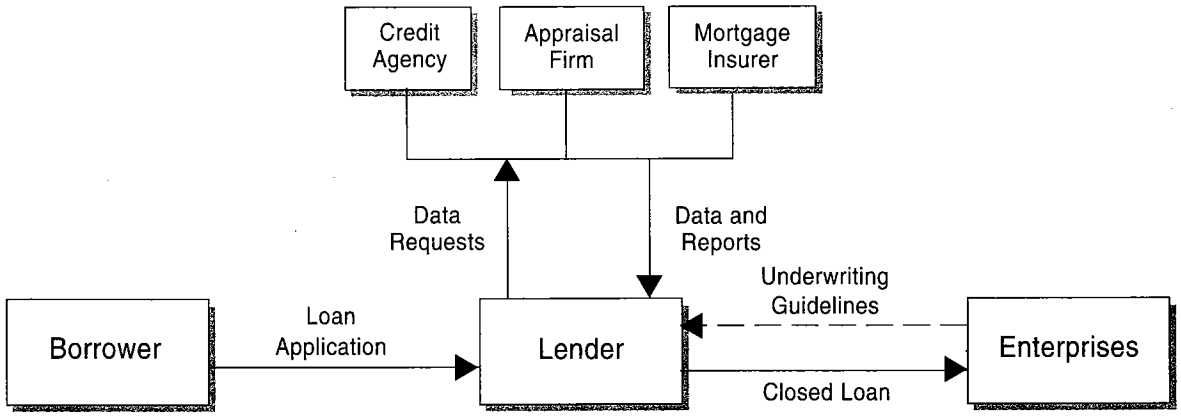
The mortgage borrowers served by FHA are of two types: (1) largely creditworthy borrowers who exhibit some form of nontraditional profile that makes private lenders reluctant to extend credit, but who are good credit risks, and (2) people who are poor credit risks and who are likely to default in disproportionate numbers and thereby cause financial losses to the government program. The FHA program can only remain financially sound if it serves the creditworthy borrowers in sufficient numbers to permit payment for the losses from defaulting borrowers. FHA-insured mortgages must carry higher fees than conventional mortgages because of the higher overall default rate on FHA mortgages. The result is a form of cross-subsidization, with the creditworthy borrowers paying higher than market rate fees as a way to help pay for the defaults of the other FHA borrowers who are not creditworthy.

As the conventional mortgage market has grown, it has benefitted from a process of attracting the more creditworthy borrowers away from FHA. This process is likely to accelerate once Fannie Mae and Freddie Mac implement their new automated underwriting systems. The new systems are likely to identify many new creditworthy FHA-type borrowers who will then be able to receive a conventional mortgage with lower fees than they would have to pay for an FHA-insured mortgage. The new systems will also prompt reductions in closing costs that will increase the affordability of conventional mortgage loans.

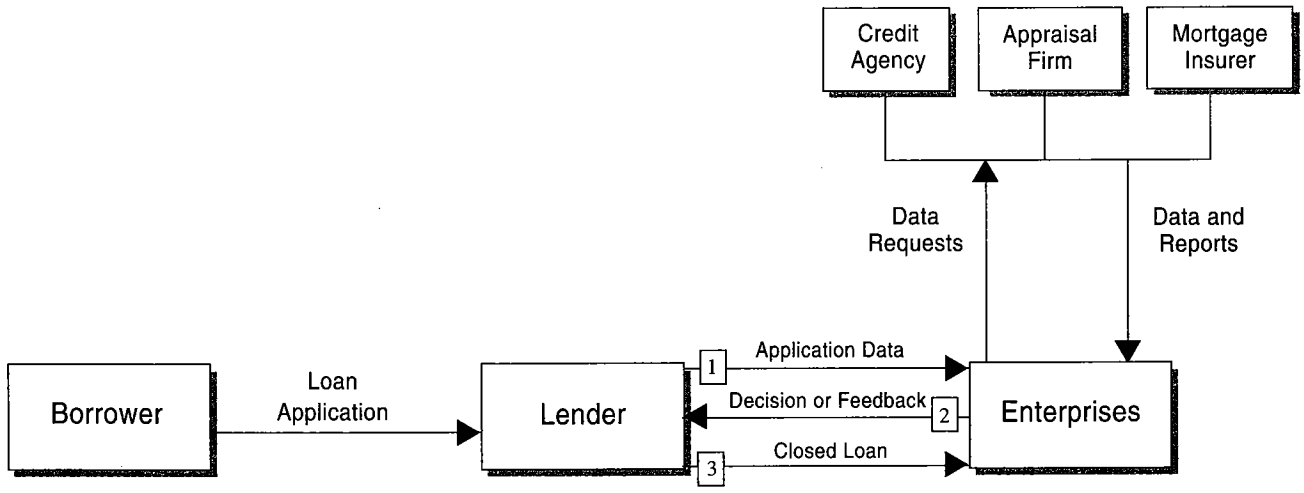
One possible result would be an increase in the number of creditworthy borrowers who leave FHA for the conventional mortgage market and a consequent increase in the percentage of FHA mortgages made to less creditworthy homeowners. Any resulting increase in the average credit risk of the FHA single-family mortgage portfolio would increase the pressure upon the financial soundness of the FHA program. Federal

Figure 4. The Effect of Automated Underwriting on the Enterprises' Role in the Loan Origination Process

Traditional Role of the Enterprises in Underwriting a Loan



Alternative Enterprise Role Using Automated Underwriting



Note: Lender has the option to do business directly with appraisal firms and mortgage insurers.

Source: Office of Federal Housing Enterprise Oversight, *Annual Report to Congress 1995*, p.4.

policymakers have not yet devised an approach that will deal with this issue.

The new technologies will also affect the conventional mortgage market. As the new technologies drive down the cost of originating and servicing mortgages, they are likely to hasten the process of consolidation of mortgage lenders in the primary market. Lenders will face the need to re-engineer the mortgage origination system of the United States. Also, the new automated systems will prompt change in the real estate settlement system and its myriad of expensive services that could usefully be bundled with the loan origination process.

One should not underestimate the impact of applying new technologies to the massive data bases represented by mortgages held in the secondary market. For example, the GSEs may be able to use statistical models and streamlined verification procedures to substitute for the detailed home appraisal that traditionally has been conducted for each individual house at the time of closing of the mortgage loan. Similarly, the GSEs are likely to dispense with the traditional requirement that lenders use independent credit reporting services to analyze borrowers' creditworthiness. Instead, they would rely upon merged computerized files and statistical models, combined with more detailed analysis only in marginal cases.

The Office of Federal Housing Enterprise Oversight (OFHEO) is the government financial supervisor of Fannie Mae and Freddie Mac. OFHEO recently released a report[9] that documents these trends. Underwriting decisions and relationships with settlement service providers and mortgage insurers are likely to migrate from the primary market to the two secondary market GSEs.

Figure 4, taken from the OFHEO report, shows how the two government-sponsored enterprises may absorb an increasing amount of the loan origination process into their own operations. Ultimately, OFHEO reports, "The Enterprises will soon give lenders the ability to sell loans at the point they are closed, thereby eliminating the need to manage the interest rate risk associated with loans before selling them . . . "[10]

The Office of Federal Housing Enterprise Oversight reports that many of these developments are likely to be popular with home buyers. OFHEO reports that application of the new technologies will translate into lower loan origination costs, possible improved credit quality of loans sold into the secondary market and increased ability to reduce disparate treatment of members of minority groups who apply for conforming mortgage loans.

We are only beginning to piece together the changes that these technologies, backed by the market power of the two government sponsored enterprises, will bring to the American system of housing finance, including private firms and government housing programs. Stay tuned.

NOTES

[1] Ronald C. Moe and Thomas H. Stanton, "Government Sponsored Enterprises: Reconciling Private Management with Public Accountability," *Public Administration Review,* July/August 1989, pp.321–329, at p.321.

[2] Banks, thrifts and government-sponsored enterprises also appear to follow similar lifecycles. See Thomas H. Stanton, "Non-quantifiable Risks and Financial Institutions: The Mercantilist Legal Framework of Banks, Thrifts, and Government Sponsored Enterprises," in Charles A. Stone and Anne Zissu, eds., *Global Risk Based Capital Regulations,* Vol. 1 (Homewood, IL: Irwin Professional Publishing, 1994), pp.57–97.

[3] 1992 legislation imposes minimum capital requirements for Fannie Mae and Freddie Mac of 2.5 percent of total on-balance sheet assets plus 0.45 percent of mortgage-backed securities issued or guaranteed by the GSE. The statute imposes additional risk-based capital that is to be determined by application of a stress test whose parameters are specified by law. The moderate nature of that stress test can be seen in its specification of interest rate stresses that are less severe than those that have actually occurred in the past twenty years. It is not certain when the federal regulator will develop and apply the stress test to establish risk-based capital requirements for the two GSEs.

[4] Congressional Budget Office, *The Federal Home Loan Banks in the Housing Finance System,* p.9 (Washington, DC: 1993).

[5] U.S. Department of the Treasury, *1991 Report of the Secretary of the Treasury on Government-Sponsored Enterprises,* p.8 (1991).

[6] John Connor, "HUD to Revise Proposed Rule for Two Firms," *Wall Street Journal,* June 5, 1995, p.A9.

[7] The *Washington Post* recently reported on Fannie Mae's use of market power to enlist political support: "Builders, real estate brokers and bankers across the country rely so heavily on Fannie Mae for mortgage funds that they live in fear of offending the firm and routinely defend it in Washington."

David A. Vise, "The Money Machine: How Fannie Mae Wields Power," January 16, 1995, p.A14.

[8] Jeff Lebowitz, "Technology and Mortgage Banking in the United States," *Housing Finance International,* March 1995, pp.36–43.

[9] Office of Federal Housing Enterprise Oversight, *Annual Report to Congress 1995,* June 15, 1995.

[10] *Ibid.,* p.5.

PART 2: INTERNATIONAL EXPERIENCE

Mortgage Lending in Brazil

The existing housing finance system and the new financing system for the real estate industry

by Luiz Pinto Lima

Housing finance in Brazil has proved a very interesting experience. If the study were to comprise the 1964-early eighties period, it is truly a success story. The 1983-1990 period can be viewed as a lesson of what has to be avoided to prevent the system from nearly collapsing. And the recent past tells us about the secondary mortgage market that is being introduced by the private sector to promote medium to long term financing to the real estate industry.

THE HOUSING FINANCE SYSTEM

In 1964, the Housing Finance System was introduced to provide medium to long-term financing for the construction or purchase of residential units for the low and middle-income families. Loans obtained by individuals had to be destined to the building or purchase a housing unit for their own use and were subject to a number of restrictions, such as limits on the financing amount, on the property value and on the loan to value ratio. The borrowers, on the other hand, were not allowed to own another house or flat in the same town or city where the financed residential unit was located. Interest rates charged on a large part of such loans are also subject to ceilings.

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Housing finance loans have been made possible in Brazil by the use of monetary correction, which was also introduced in 1964 to prevent the capital base of such loans and of government-issued securities to be eroded by inflation.

The System uses two basic funding sources, namely savings deposits held by the public with financial institutions authorized by the Central Bank of Brazil to make housing finance loans available with such funds and mandatory deposits made by employers in the accounts held in the names of their employees in the *Fundo de Garantia do Tempo de Serviço* - FGTS, a workers compensation fund administered by the Federal Savings Bank. Both deposits accrue interest, of 0.5% and 0.25% per month respectively, and monetary adjustment.

The Housing Finance System worked very well till the early eighties. In 1982, the System financed six hundred thousand residential units, of which about two hundred and fifty thousand were made with savings deposit funds.

However, the upsurge in inflation rates together with strict wage policies increased payment delinquencies and promoted the government to extend a series of subsidies to all borrowers of the system in the 1983-85 period. Subsequently borrowers were further favored by several economic stabilization plans carried out during the 1986-1991 period, imposing mortgage installment freezes which increased the gap between the monthly or quarterly adjustment of the loan balances and the adjustment of installments, of which many are still being adjusted on a yearly basis.

The result of such policies was a dramatic fall in the repayment flow of housing finance loans, reducing the lending capacity of financial institutions which make such loans available (see table 1).

The Savings and Loan System, which is the part of the Housing Finance System which fund their loans with savings deposits, was further hurt by the dramatic decline in those deposits following the Economic Stabilization Plan of March 1990. At the time, a considerable part of the US$ 30 billion savings deposits was transferred to the Central Bank of Brazil. Today, housing loans with savings deposits finance approximately thirty six thousand units per year totaling US$ 1.6 billion (see table 2).

Several factors, such as growing unemployment and underemployment and high delinquency rates of borrowers also reduced the availability of FGTS resources for housing finance loans. Loans with FGTS resources financed about 52,248 residential units last year. These loans were destined to lower income families, that is to say families with a

Table 1. **HOUSING FINANCE SYSTEM LOANS**
(Thousands of financed units)

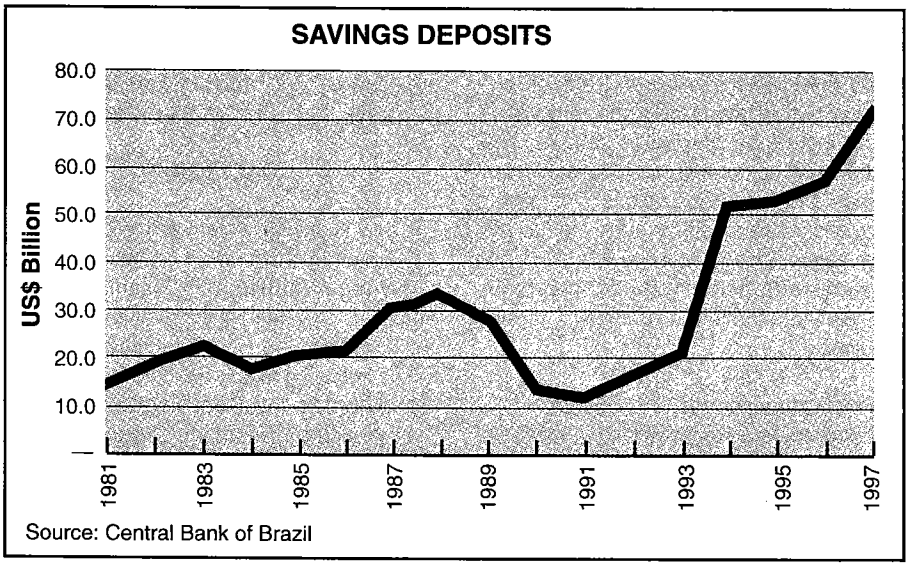
YEAR	FGTS funded loans	Savings dep. funded loans	Total loans	Yearly average
from 1965 to 1979	1,561	913	2,474	165
from 1980 to 1982	848	786	1,634	545
from 1983 to 1989	375	566	941	118
from 1990 to 1993	573	235	808	202
from 1994 to 1997	102	183	285	71
TOTAL	3,459	2,683	6,142	192

Source: ABECIP / National Housing Bank and Central Bank of Brazil

Table 2. **SAVINGS & LOAN SYSTEM**

	Thousands of financed residential units			Loan volume in US$ Million		
YEAR	Building	Purchase	Total	Building	Purchase	Total
1994	40	21	61	1,253	678	1,931
1995	22	25	47	850	1,081	1,931
1996	21	17	38	673	735	1,408
1997	20	16	36	750	850	1,600
1994-1997	103	79	182	3,526	3,344	6,870

Source: Central Bank of Brazil



Source: Central Bank of Brazil

monthly income of up to twelve minimum wages or R$ 1,440,00.

Savings deposits at end-1997 added to approximately US$ 80 billion and FGTS deposits to some US$ 50 billion (see chart at left).

There are presently about 68 million savings accounts held by the fifty public and private financial institutions authorized by the Central Bank to make housing loans available with savings deposit funds. The National Monetary Council establishes the rules for the use these deposits. These rules were made more flexible recently to enable housing finance loans to be granted to a larger number of families.

Housing finance loans are also made available by state or local-government-run housing companies and by private and public housing cooperatives. These loans are funded mainly with the FGTS resources mentioned previously.

NEW FUNDING SOURCES

Since the early nineties, new funding sources for real estate financing have been introduced in Brazil but most became operative only after the 1994 economic stabilization process started producing results.

One of the new funding sources comprises the Real Estate Investment Funds. The law introducing such funds in Brazil was passed in 1993. The funds are supervised by the *Comissão de Valores Mobiliários*, the Brazilian Securities Exchange Commission. Today there are about 60 real estate investment funds, most of which financing non-residential projects. The scope of each fund, though, is limited to the project for which it was set up. The fund is divided into quotas which are sold to investors, mainly pension funds and other large institutional investors.

In view of the lack of financing for the middle class and the restrictions imposed on borrowers by the Housing Finance System, real estate developers and builders came up with their own financial schemes to raise capital for their projects. They started selling flats or offices well before construction was started. Construction began when the flow of installments was sufficient enough pay for the building costs. By the time the purchaser received the keys to his home or office, normally after 48 months, most of the costs had already been paid for. The purchase, however, continued paying installments for another 12 to 52 months, pending on the project. It is estimated that about 100,000 units have been financed and built this way.

This resulted in a large volume of real-estate-backed receivables held by the building company or real estate developer. Some companies resorted to discounting such receivables with banks to obtain working capital. A few have resorted to placing real-estate-receivables-backed debentures in the domestic capital market and abroad, in the last two years, giving rise to the first securitization operations in the Brazilian market.

In 1995, mortgage companies were authorized to be set up in Brazil. Their funding sources are mortgage bills (letras hipotecárias), debentures, foreign loans and other loans. However, they may freely use their funds in any type of real estate financing. Three mortgage companies have already been set up so far and other are on the "line assembly". Financing operations though are still on the slow side.

THE SECONDARY MORTGAGE MARKET IN BRAZIL

About three years ago, ABECIP - the existing trade association of the Savings and Loan institutions started studying a new system aimed at providing a larger volume of financing for the real estate sector. The result of these studies was the implementation of a secondary mortgage market in Brazil with the creation of a securitization company, named Cia Brasileira de Securitização - CIBRASEC.

The basic guidelines of the new financing system were set forth as follows:

- social-oriented operations are to be treated separately from the market-oriented loans;
- the four risks of a loan are to be borne amongst the various players of the new market;
- mortgage loans will be be market-oriented and financed with multiple funding sources;
- contracts will have to be respected by all parties; loans shall be fully honored by the borrowers and guarantees must ensure a speedy recovery of the loan in case of default.

The secondary mortgage market was introduced by Law 9514, of November 20, 1997. The law also provides on the creation of securitization companies and of a special security which will be issued solely by these companies, the certificates of real-estate receivables.

CIBRASEC, which was created on July 31, 1997, will be playing the role of Fannie Mae / Freddie Mac in Brazil. It will be purchasing real estate credits and receivables from mortgage companies, banks, real estate credit companies, savings banks and savings and loan associations and issuing securities guaranteed by such credits and receivables. These securities will be placed primarily with pension funds, insurance companies, investment funds and foreign investors.

The main purposes of CIBRASEC are:

i) to implement and centralize operations of the secondary mortgage market in Brazil;
ii) to raise medium and long term funding with institutional investors (i.e pension funds, investment funds and insurance companies) domestically and abroad, at terms which are compatible with those of real estate loans granted to individuals;
iii) to divide the risks of a real estate financing operation between the originator, the securitization company and the investor;
iv) to ensure liquidity to the originating companies;
v) to provide standard procedures and guidelines for the market and
vi) to create a data bank of all real estate financing products and operations throughout the country.

The shareholders of CIBRASEC are public and private financial institutions most of which have a long experience in housing finance loans in Brazil. It is expected that they will also be selling their credits and receivables to the company. No shareholder, however, is allowed to acquire more than 10% of the capital of CIBRASEC.

The secondary mortgage market will be an important player in the future development of real estate financing in Brazil, providing a new and increasing source of financing for housing loans, along with the Housing Finance System, as well as for the building and the purchase of non-residential units. Its is expected to finance in the next ten years the same amount of units which have been financed by the Housing Finance System during the thirty years of its existence.

CONCLUSION

The new financing system will be operating in a free market environment as opposed to the highly-regulated Housing Finance System. However, they will be complementary for in the long term the Housing Finance System will be financing mostly builders and developers, whereas the Real Estate Financing System will be financing the purchase of ready to use residential and non-residential units. In spite of the enormous pressure, it has been exciting to manage the existing Savings and Loan System and the implementation of the new Real Estate Financing System.

Mortgage Securitisation in the UK : An Emerging Market ?

by Tim Freeman

Originally Published March 1994

INTRODUCTION

The UK mortgage securitisation market has developed from its first public bond issue by a little known company in 1987 to a point where it now features in the financial planning of many of the country's largest banks and building societies. The market has developed against the background of the boom and bust of the UK's housing and mortgage markets in the second half of the 1980's and early 1990's. It is a testament to the resilience of the technique itself and the financings it has spawned that securitisation is now more widely regarded than ever before amongst UK mortgage lenders and no mortgage-backed security - senior or subordinated - has defaulted despite the worst housing market in living memory. The next challenge for mortgage securitisation in the UK is to become an accepted financing technique by the mainstream lenders. The next few years will determine whether securitisation is to the 1990's what swaps were to the 1980's or just a minor chapter in the history of the markets.

HISTORICAL BACKGROUND TO UK MORTGAGE SECURITISATION

The residential mortgage market in the United Kingdom has experienced more change since the beginning of the 1980's than in its previous 150 years of history. Building societies, whilst remaining the dominant force in the mortgage industry, no longer control the market or determine in isolation the levels of retail savings and mortgage rates. From the early 1980's, the major banks began both to compete actively for retail savings and, with the removal of restrictions on their lending, to compete for a share of residential mortgage lending - increasingly seen as the linchpin of personal customer relationships. Suddenly, after a century and a half of relative comfort, building societies were under attack on both sides of their balance sheets.

By 1983, the challenge to the building societies was recognised by government and regulators with the result that new legislation allowed societies to make active use of wholesale funding markets as a supplement to their traditional retail savings based funding. From just a few hundred million pounds in 1983, building societies were borrowing over fifty billion from the wholesale markets by the end of 1993. Most societies now take between 15% and 25% of their funding from wholesale sources and that proportion is gradually increasing as retail savings become more scarce and expensive.

From 1984 onwards, a number of factors combined to make residential mortgage lending attractive to a variety of institutions which had not previously been involved in the industry. Mortgage Rate-to-LIBOR margins had begun to maintain a consistent and attractive level (as shown in Figure 1); credit losses had always run at a very low level in the UK and booming house prices made the risk of loss seem even more remote; business was plentiful as the government encouraged home ownership with incentives at every rung of the housing ladder. No wonder then that foreign banks spotted (what they thought was) a quick and profitable asset play and the pension and life assurance companies provided their sales forces with attractive mortgage products to aid the sales of their core products. Between 1984 and 1987, bank and insurance company mortgage lending grew at twice the rate of building societies' lending.

It was also the economic conditions and development of the UK's mortgage and housing markets during the mid 1980's that led to the establishment and spectacular growth during the second half of the decade of a new breed of mortgage lenders. Specialist mortgage companies, or "centralised lenders" as they are often called, sought to carve out a niche in the market by combining a low cost base with modern, efficient systems and a revolutionary approach to product development with the latest techniques in financing. From a standing start in 1985, companies such as National Home Loans Corporation, The Mortgage Corporation and Household Mortgage Corporation were quickly achieving together a market share in excess of 10% of net new mortgage advances in both 1987 and 1988.

The success of the centralised lenders in

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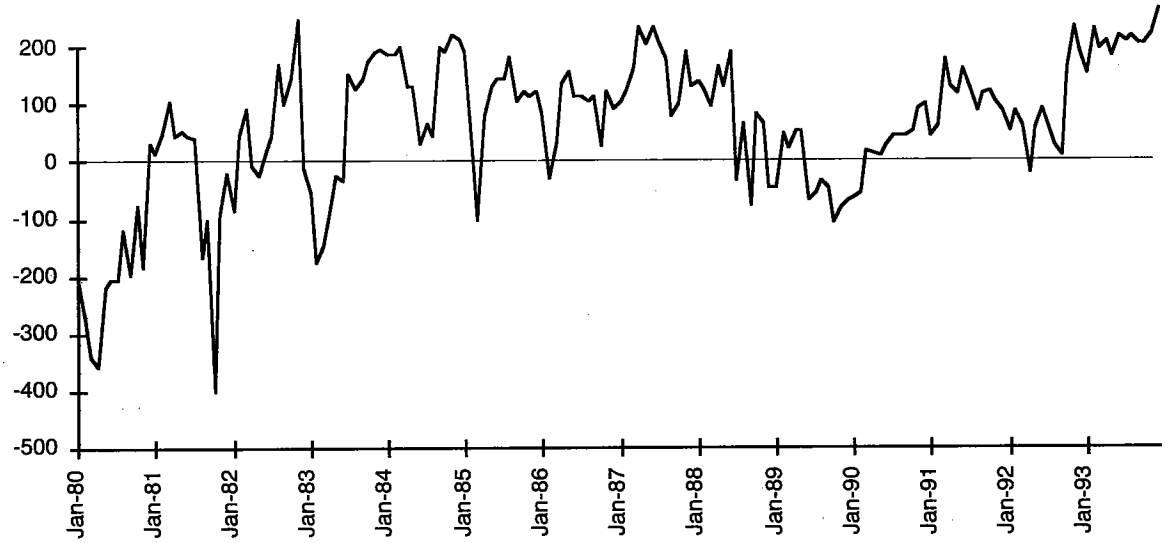
Figure 1 : Mortgage Rate / LIBOR Differential 1980 - 1993



Average Differential = 59.9 basis points

competing for new business depended upon a healthy margin between mortgage rates and wholesale funding costs, their ability to develop non-status, deferred interest and treasury based (e.g., fixed rate, capped and collared) mortgage products which met borrower requirements and, by no means least, their early recognition that mortgages would be sold increasingly via brokers and intermediaries and ever less through the branch networks of banks and building societies. From just a few hundred million pounds in 1985, centralised lenders' new business commitments rose rapidly to over £5 billion in 1988 before virtually disappearing over the past two years. It would not have been possible for these mortgage companies to finance their growth if it had not been for the introduction to the UK of the technique known as securitisation.

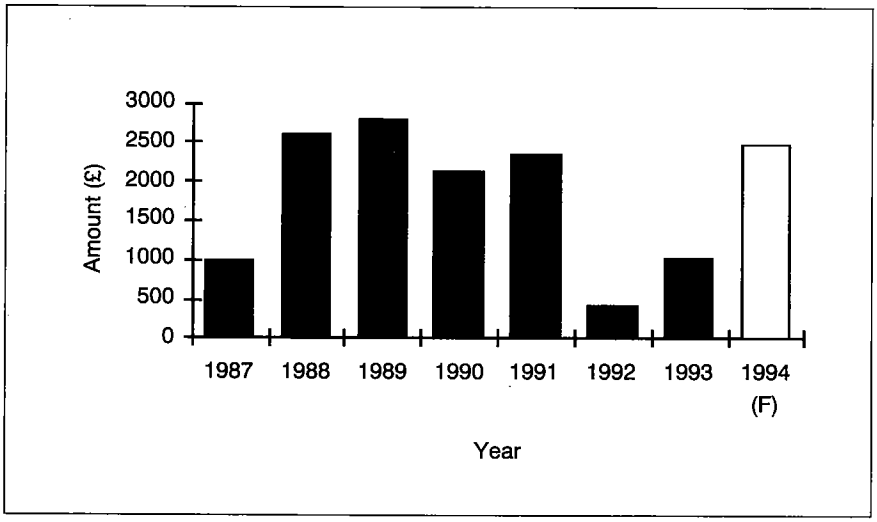
DEVELOPMENT OF THE SECURITISATION MARKET

Securitisation of mortgages and other assets had been big business in the United States since the early 1980's, but was virtually unknown in the UK until 1987. Honourable mentions must be given to Bank of Scotland and Bank of America, both of whom undertook pilot securitisation exercises in 1985 and 1986 using many of the techniques that are now recognised as standard. Credit for the first UK mortgage securitisation, however, is usually given to National Home Loans Corporation for the £50 million issue by NHL 1 in March, 1987. This issue set the tone for the first couple of years of the market by being triple A rated and relying on pool insurance for its method of credit enhancement.

Whilst National Home Loans Corporation was first out of the blocks, it was followed within months by The Mortgage Corporation and Household Mortgage Corporation. All of these companies were established specifically with the intention of securitising their mortgage assets; by December, 1987, however, Chemical Bank had become the first foreign bank to securitise its UK mortgages, basing its Domus Mortgage Finance issue on "old" mortgages written in the early 1980's. The next two years saw rapid development in the securitisation markets on the back of booming housing and mortgage markets. The trend in new issuance of mortgage-backed securities is shown in Figure 2, with a £5 billion market growing from scratch in less than three years.

The speed of development of UK mortgage securitisation can be gauged by comparing the level of issuance with the capital markets funding activities of the building societies. Figure 3 demonstrates that for several years, the UK capital markets absorbed a greater volume of mortgage-backed securities than building society issues. The key to this was the triple A ratings enjoyed by almost all new mortgage-backed issues. This feature encouraged a variety of investors which had previously avoided the typical single or double A ratings accorded to the building societies to finance the burgeoning UK mortgage market. As volumes began to outstrip the appetite of traditional investors and in response to rapidly changing mortgage products, merchant and investment bankers quickly adapted the struc-

Figure 2 : Trend in Issuance of UK Mortgage - Backed Securities



tures and profiles of mortgage-backed securities to meet issuer and investor requirements. The changing shape of UK mortgage-backed securities and the more important innovations in the UK market are discussed in more detail below.

With hindsight, yields to investors on mortgage-backed securities were reasonably stable over the first few years. The first few issues were pitched successfully at about 0.25% to 0.30% over LIBOR (London Interbank Offered Rate) and margins varied mostly in a range between 0.20% and 0.40% over LIBOR. The first investors were, quite naturally, the banking community which quickly recognised the attractive yields and high credit quality of mortgage-backed securities. Inevitably, new issuance grew faster than the investor base which resulted in an upward pressure on required yields. However, by the latter half of 1988, corporate treasurers, insurance companies and money funds had begun to invest in mortgage-backed securities. The high level of corporate liquidity in the UK in the late 1980's allowed the margins on some mortgage-backed securities to be squeezed right down to just 0.18% over LIBOR. At this point, there was only a few basis points differential in yield between building society and mortgage-backed floating rate notes.[1]

A more typical differential has been 0.10% to 0.20%, increasing with the higher absolute level of margins. Figure 4 shows how the margins offered to investors at the time of launch of new mortgage-backed issues has varied over time.

One of the most promising features of the development of UK mortgage securitisation in 1988 and 1989 was the arrival of issuers other than the specialised mortgage companies. Intrigued by the technique and wishing to manage their exposure to the fast growing mortgage market, first issues were made by Bank of Ireland, Trustee Savings Bank, Canadian Imperial Bank of Commerce, Barclays Bank and, from the insurance sector, Legal & General and Allied Dunbar. 1990 saw the market's largest issue by Citibank with an initial £475 million offering under its £2 billion STARS Programme. At this point, however, the steady flow of new issuers dried up, reflecting underlying difficulties in both the mortgage and the securitisation markets.

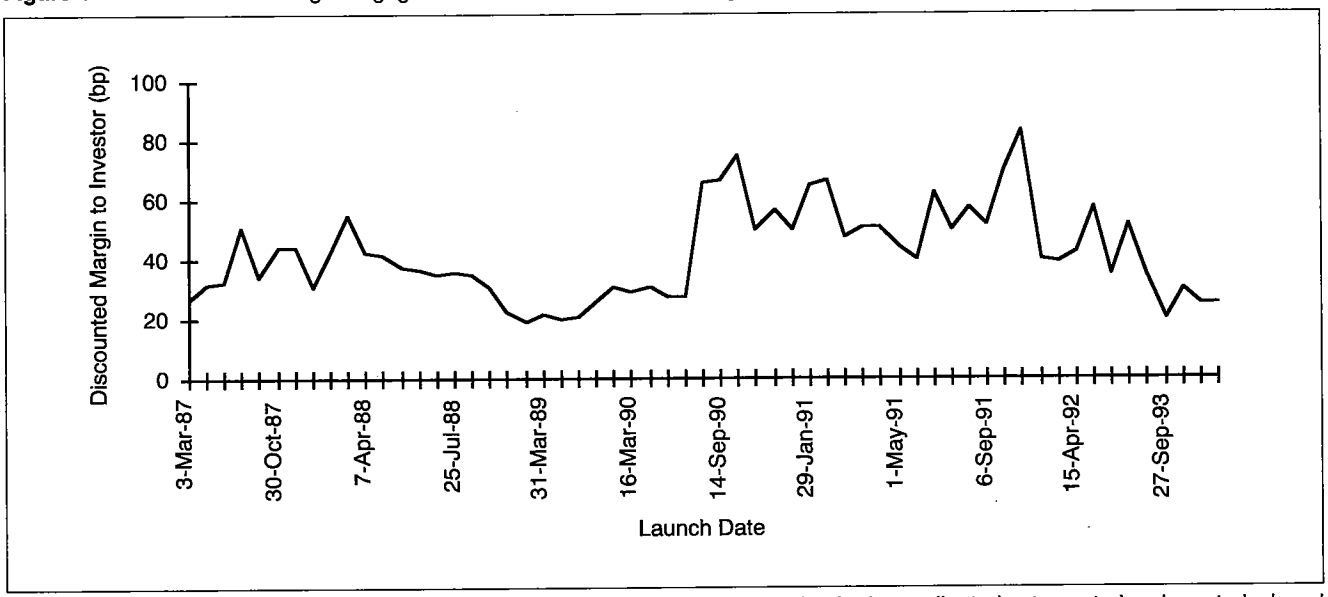
Before examining what went wrong after such a promising start, it is useful to consider in more detail some of the technical features of UK mortgage securitisation. With the benefit of experience and ideas imported from the United States markets, the UK markets quickly evolved to a fairly sophisticated level and embarked upon innovations of their own.

THE STRUCTURE OF SECURITISATIONS

For the investment bankers and lawyers involved, the first securitisations brought a number of new problems. Investors would

Figure 3 : UK Sterling Mortgage - Backed Securities and Building Society Sterling Issues

Figure 4 : Public Sector Sterling Mortgage - Backed Securities Issue Margins



buy floating rate mortgage-backed debt but they needed some form of credit enhancement to protect against losses. Finding the credit enhancement was quite simple: it could come from banks (like Bank of America in Mini 1) and insurance companies (through pool policies). The difficulty was in deciding how much to have. In the US, the rating agencies had been doing this for years, but they were new to the UK. By 1987, however, they were ready to rate UK mortgage securitisations and Standard & Poor's were there first with an "AAA" rating for NHL1. By December 1987, Moody's had also rated their first deal.

Though investors credit needs could be met, there were potential problems with their maturity requirements. The problem here was that the mortgages required financing for 20 to 30 year periods but investors needed a far shorter maturity on the debt that they purchased.[2] The solution was to allow the debt to be callable by the issuer and provide for a margin increase on the call date to make its exercise more likely. Household Mortgage Corporation's issue in July, 1987 first used the technique in this form.

With investor demand for mortgage-backed FRNs developing rapidly, the next step was to split the notes into a "fast pay" tranche to which principal repayments were applied first and a "slow pay" one. National Home Loans' CMS 1 issue in 1989 used this approach. Fixed rate investors could also be reached. Household Mortgage Corporation's HMC 101 issue in November, 1988 used an interest rate swap to create a fixed interest bullet maturity security from floating rate mortgages. In 1991, HMC took the technique a stage further by combining a "fast pay" FRN issue (HMC Mortgage Notes 7) with a fixed rate bond, secured on the "slow pay" tranche of the FRN (HMC Mortgage Notes 103). The two tranches were distributed to different investor bases, successfully reducing the overall cost of the issue.

If these financings showed fresh thinking about the maturity and interest rate needs of investors, attitudes to credit enhancement were also changing. By 1991, the issuers whose pool policies had protected investors were facing huge losses on their mortgage exposures. With insurers unable or unwilling to provide credit enhancement, issues began to rely upon tranches of subordinated notes, rated and unrated, placed with yield seeking investors. Whilst the Japanese financing community was heavily relied upon for the placement of these subordinated notes at first, there now exists a much wider investor base encompassing both North American and European institutions.

Investors have now come to prefer senior notes enhanced by a subordinated tranche rather than the pool insured equivalent due to the many down-gradings of senior notes reliant on the credit rating of their insurance company credit enhancer. Although investors have suffered no losses on UK mortgage-backed securities (however credit enhanced), the market currently demands a premium of several basis points per annum in yield for pool insured senior notes. The choice of credit enhancement is, however, in practice between subordinated notes and a financial guarantee provided by a monoline insurance company (i.e., insurance companies such as Financial Security Assurance or FGIC which exist for the single purpose of providing financial guarantees). The providers of pool insurance in the UK mortgage market have effectively withdrawn from writing new business.

A final innovation worthy of mention in the UK mortgage securitisation markets is the concept of "arrears bonds". On four occasions, portfolios of mortgages in arrears (typically at least six months down) have been securitised by way of issuing highly rated mortgage-backed securities dependent on high levels of credit enhancement. This development is in itself a testament to the sophistication of the securitisation market that now exists in the UK and the flexibility of the investor base for such securities.

CONSOLIDATION AND DECLINE

After an initial period of rapid growth and a pace of technical development which compared favourably with any securitisation market around the world, the UK mortgage securitisation markets moved, almost equally rapidly, into a period of consolidation and decline in issuance in the 1990s. Citibank's STARS 1 issue at the end of 1990 at a margin of 0.40% over LIBOR was the last issue before yields to investors moved up dramatically. 1991 saw a level of issuance similar to the previous year, but this was all driven by mortgage business written in an earlier period and, significantly, no new sponsors of issues emerged. What had happened to cause such a sudden change in the fortunes of the mortgage securitisation markets?

In fact, a number of factors combined in a way which highlighted the weaknesses which often arise in rapidly developing markets. Securitisation is a volume driven business and the single most important factor in the decline of the market was the rapid tailing off of new business volumes. From a peak of over £40 billion in 1988, net new mortgage business fell to £27 billion in 1991 and just £18 billion in 1992. Worse still, the market share of centralised lenders - the mainstay of the securitisation markets - fell from 13% in 1988 to 8% in 1991 and in 1992 the centralised lenders suffered a net outflow of £1.4 billion of business - redemptions actually exceeded new lending!

One might have expected the lean and flexible centralised lenders to prosper in a more highly competitive mortgage market. In practice, no amount of clever product development or paring of costs could counter the basic change which had occurred in the UK in the relationship between mortgage rates and wholesale money rates represented by LIBOR. Flush with cheap retail funds following the Stock Market debacle of the late 1980's, building societies held down mortgage rates as the absolute level of wholesale money rates increased from 7% to over 15%. Figure 1 shows that the differential between mortgage rates and LIBOR was negative for a while and did not recover to normal levels (by mid 1980's standards) until well into 1992. In this economic environment, it was impossible for the centralised lenders to compete effectively for new mortgage business.

From 1991, investors in mortgage-backed securities also became nervous at a number of developments. Although no issues were down-graded due to the performance of the underlying mortgage portfolio, many issues did cede their triple A ratings due to the down-grading of the insurance companies providing credit enhancement. Investors attracted by top-notch ratings suddenly began to feel uncomfortable about their portfolios. They could not ignore the fact that house prices, after rising at 15% per annum through the 1980's, had suddenly begun to fall. Credit losses were widely reported in the press and causing major increases in bank and building society provisions - even if the mortgage-backed securities remained intact. The final straw for many bank investors was the announcement in January 1991 by the Bank of England that, due to the proposed implementation of the EC Solvency Ratio Directive from January 1993, mortgage-backed securities would move from a 50% to a 100% risk asset weighting for capital adequacy purposes from that date. Whilst the Bank of England expressed strongly its desire to maintain a 50% risk asset weighting on mortgage-backed securities, bank investors immediately revised upwards their yield expectations.

It was, with hindsight, a blessing in disguise that mortgage-backed issuance tailed off in 1991 and fell to less than £500 million in 1992. Even at these low volumes, yields to investors were forced up to over 0.60% over LIBOR and issues were frequently divided into different risk and maturity tranches to obtain the best possible access to the limited investor base. When the low level of issuance - barely £1 billion - continued in 1993, yields did gradually fall back into the historical range of 0.30% to 0.40% over LIBOR. This process was greatly assisted by the Bank of England's ultimate confirmation at the end of 1992 that mortgage-backed securities would, after all, continue to carry a 50% risk asset weighting.

Although this phase of the market's development did seem very gloomy to practitioners, a number of positive points emerged. First, the structures and levels of credit enhancement applied to UK mortgage-backed securities demonstrably survived the greatest crisis ever to befall the UK mortgage markets. During the same period, several building societies ran into difficulties and were forced into mergers with stronger societies. Second, the management of centralised lenders had the opportunity to consolidate their businesses and those that have survived are the stronger for this process. Finally, the stresses placed on financial institutions generally and the mortgage market in particular demonstrated that securitisation does have a role to play as a source of funding, to optimise the use of capital and to control the variety of risks inherent in mortgage lending.

THE CURRENT SITUATION AND FUTURE PROSPECTS

The UK mortgage securitisation markets are currently in limbo for a number of reasons. Although the UK economy and residential property prices are now seen to be recovering, mortgage lending remains at a

very depressed level. Net new lending in 1993 was about £14 billion and expectations for 1994 are only slightly higher. Competition for new business has certainly not decreased; in fact, the banking sector has increased its market share of net new business to over 50% at the expense of building societies and mortgage companies. Banks have increasingly sought to replace very low levels of corporate lending with increased residential mortgage lending. They have been particularly well-placed to do so in an environment of historically low absolute rates and a rapid shift in borrower preferences from variable to fixed rate mortgages.

On the regulatory side, two matters of importance remain as yet unresolved. First, for some years the UK's Accounting Standards Board ("ASB") has been reviewing the accounting rules governing the off balance sheet treatment of certain financial transactions, including securitisations. Since the accounting treatment of securitisations and the capital adequacy treatment for banks and building societies are now inextricably linked by EC legislation, the resolution of FRED 4 (the proposed accounting standard) is vital to the future development of securitisation. FRED 4 is now expected to be published as a Financial Reporting Standard in April and to provide consistency between accounting and capital adequacy treatment of securitisation. The accounting standard will require disclosure of the gross amount of assets securitised as well as the net amount of assets on which some risk is retained. However, only the residual risks retained by the issuer will be reported as on-balance sheet assets necessitating the provision of capital by banks and building societies.[3]

Second, as the major providers of residential mortgage loans in the UK (still over 60% of outstanding lending at the end of 1993), building societies do not yet have a complete set of regulatory guidelines on which to base any securitisation. The Building Societies Commission (the regulator of building societies) has been considering this matter for some time and is now expected to finalise its views and publish a Prudential Note on the capital adequacy treatment of building society securitisations in the middle of 1994. As interest in securitisation grows amongst the building societies, the publication of these guidelines becomes much more important.

A useful by-product of the low level of mortgage-backed issuance over the last two years has been a return to more attractive (for issuers) yields. Mortgage-backed securities are again perceived by investors as a safe and attractive home for their funds and competition for scarce paper in both the primary and secondary markets has driven new issue yields back down to between 0.25% to 0.30% over LIBOR. A recent £500 million issue sponsored by UCB Home Loans Corporation was devoured by the market at these levels suggesting that there is room for both a considerable increase in primary issuance and further decline in yields to investors.

In considering the future prospects for UK mortgage securitisation, it is impossible to ignore one fundamental change in the structure of the industry. The mortgage companies which were responsible for the advent of the market and the great majority of the issues are unlikely to be the mainstay of any future market revival. In many cases, these companies have stopped originating new business and they (or their mortgage portfolios) have been sold to the banks and building societies who have happily accepted this alternative supply of new business. Indeed, it is estimated that as much as £5 billion of mortgages have changed hands in this way over the last few years, much of which may otherwise have been securitised. In some instances, for example Abbey National's recent purchase of CIBC Mortgages plc, the acquisition of a centralised lender may provide a bank or a building society with a quick route to securitisation if it wishes to use this financing technique. Of course, some of the mortgage companies have survived and lenders such as Household Mortgage Corporation can be expected to remain important supporters of the securitisation market.

However, if UK mortgage securitisation is really to prosper, it will be due to the involvement of the major bank and building society lenders. As their exposure to mortgage lending grows, the clearing banks are known to be planning a return to the securitisation markets they tested in 1988 and 1989. Faced by scarce and expensive retail funding and artificial limitations on the amount of wholesale funding they may undertake, a number of major building societies are also implementing the necessary documentation and operational capabilities for securitisation. Any upturn in new mortgage lending volumes is expected to lead to the first building society securitisations.

Even if capital and funding do not remain an issue for the UK mortgage industry, securitisation has already proved its value in providing balance sheet flexibility and imposing operational disciplines which improve the overall quality of an organisation's business. Whilst the jury is still out on the timing of the growth of mortgage securitisation in the UK, the weight of evidence suggests that it will inevitably become a widely used financing technique.■

NOTES

[1] Building society floating rate notes are unsecured but rank ahead of all retail funding of the society. Margins quoted for both MBS and building society FRNs are yields quoted to investors and do not include issuance or credit enhancement costs.

[2] The great majority of residential mortgages originated in the U.K. during the 1980s and early 1990s were variable rate, interest-only mortgages backed by life assurance or pension policies as a means for the ultimate repayment of the loan. In practice, most borrowers remortgage several times during their lives which substantially reduces the duration of the loans.

[3] Similar to the treatment being adopted in

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The French Secondary Mortgage Market

by Charles A Stone and Anne Zissu

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INTRODUCTION

This paper is a description of the secondary mortgage market in France. A secondary mortgage market provides the legal and economic mechanisms by which individual mortgages, interests in pools of mortgages, or claims collateralized by mortgages can be refinanced and traded. Secondary mortgage markets serve to link local markets for personal savings and mortgage credit to the broader capital markets and thus stabilize the flow of funds to the primary mortgage market.

There are three categories of mortgages in France: free market, regulated and subsidized. The terms of free market mortgages are determined within a relatively competitive market for financial instruments and according to the security offered by the collateral and stability of the borrower's income. Free market mortgages composed 68% of originated mortgages in 1990, see Diamond & Lea, 1992 (D&L). Prêts Conventionnés (PC) are regulated loans whose terms and supply are set by Credit Foncier de France (CFF). The fixed rate mortgage is the preferred instrument issued to finance residential property in France. Mortgagors have the right to prepay their mortgage prior to maturity but can be charged a prepayment penalty up to an amount that is the lesser of six months interest or three percent of the outstanding mortgage principal.

Subsidized mortgages are of two types: loans that are tied to a savings plan (Plan Epargne-Logement or E-L) and PAP loans (prêt aidé á l'accession á la propriété). The E-L is a savings plan offering below market interest rates on deposits in return for a below market interest rate on a mortgage after the savings account has been maintained for 5 years.[1] The PAP loans are subsidized by the government and originated by CFF.[2]

Mortgages in France are originated by banks, finance companies and specialized mortgage institutions. The banks were funding 65% of the outstanding mortgages collateralized by residences in France as of 1990, finance companies were funding 13.5% and CFF was funding 14% (D&L). Credit Foncier de France, a private institution, acts on behalf of the state in regulating the primary and secondary mortgage markets and makes regulated, subsidized, and free market mortgages. CFF raises funds by issuing mortgage backed bonds. CFF bond issues are examples of asset based finance rather than securitization. CFF obligations seem to carry an implicit government guarantee or at least a "too big to fail guarantee".

In France the secondary mortgage market is characterized by three different mechanisms by which institutions, other than the specialized lenders such as CFF, can refinance and/or sell mortgages. Each method allows the originating institutions to alter the maturity and composition of its capital structure and mortgage portfolio to a different degree. Sections two, three and four describe the three systems. In section five we compare the three systems and in section six we offer a brief analysis of the prospects for mortgage securitization in France.

THE 1965 SECONDARY MORTGAGE MARKET

A formal secondary mortgage market (SMM) in France was introduced in 1965 (1965 SMM). The objectives of the 1965 SMM were to enable institutions to increase the maturity of mortgages without increasing the gap between the maturity of their assets and liabilities, and to increase the supply of capital available to fund mortgages by enabling institutions to effectively mobilize mortgage assets. The 1965 SMM specified which mortgages were eligible to be refinanced and the types of instruments the originating institution could issue to refinance its mortgage portfolio.

The mortgages eligible for refinancing via the 1965 SMM must have the following characteristics:

- Mortgage must be for the construction or acquisition of a primary or secondary

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residence;

- Maturity of the mortgage must be between 10 and 20 years;
- Minimum LTV must be 80% with the exception of Prêts Conventionnés (LTV 90%).

To qualify for access to the 1965 SMM credit institutions are required to have at least 20 million Francs of capital. Institutions with less than the required 20 million FF have to obtain a guarantee from a bank with at least 40 million of capital. Only institutional investors are permitted to buy the notes issued in the 1965 SMM. Notes issued to refinance a mortgage portfolio in the 1965 SMM are bullet bonds that pay interest annually. The principal amount of the mortgage collateral must be maintained at a level which is equivalent to the outstanding principal of the mortgage bonds. The implications of this constraint is that as mortgages amortize or are refinanced the credit institution must originate new mortgages to replenish the collateral.

CFF is charged with making a market in SMM bonds. The 1965 SMM is not a liquid market and is becoming less so as the volume of notes issued in this market declines. The mortgage bonds issued in the 1965 SMM can be called after seven years at par plus 100 basis points. It is this call option that undermined the 1965 SMM. Investors had not valued the call option properly and in 1987 were unexpectedly confronted with significant losses as premium bonds were called.

CAISSE DE REFINANCEMENT HYPOTHECAIRE

In July 1985 the secondary mortgage market in France was refined by the creation of the Caisse de Refinancement Hypothecaire (CRH). CRH is a conduit between mortgagees and the capital markets. The objective of CRH was essentially the same as was the creation of the 1965 SMM. CRH was intended to enable banks to lower the gap between the duration of their liabilities and that of their mortgage portfolios and allow the banks to recapture and retain funds that were flowing from the banking sector to the capital and money markets. CRH is a substitute for the 1965 SMM, and like the 1965 SMM, the notes refinanced by credit institutions via CRH are regulated by Credit Foncier de France.

CRH issues bullet bonds to finance the purchase of mortgage backed bonds from credit institutions. To date all bond issues have been fixed rate obligations, except FF43 billions indexed to the Paris Interbank Offer Rate (PIBOR) in 1988. The notes discounted by CRH are collateralized by eligible mortgages. Institutions that refinance mortgages through CRH must be shareholders of CRH. Refinancing via CRH does not remove the mortgages from the balance sheet of the original lender. Bonds issued by CRH can not be called but CRH makes tender offers for its bonds. The criteria for the mortgages that qualify to be refinanced with CRH are the same as those that can be refinanced via the 1965 SMM except for the additional restriction that mortgages must be the priority lien on the property. To have access to CRH, institutions must own a share of CRH's capital. In order to own shares in CRH, institutions must meet CRH's solvency and underwriting standards. Figure 1 shows the distribution of CRH's ownership as of December 1992. Mutual and commercial banks own a majority of CRH. This is consistent with their dominant share of the mortgage market and their reliance on retail deposits.

CRH is a valuable hedging vehicle for short funded mortgage lenders. Institutions can use CRH to match the duration of their assets and liabilities and thus decrease the volatility of their net worth. The shortcoming of CRH as a hedging vehicle is that it does not enable institutions to re-sell prepayment options they have sold to mortgagors.

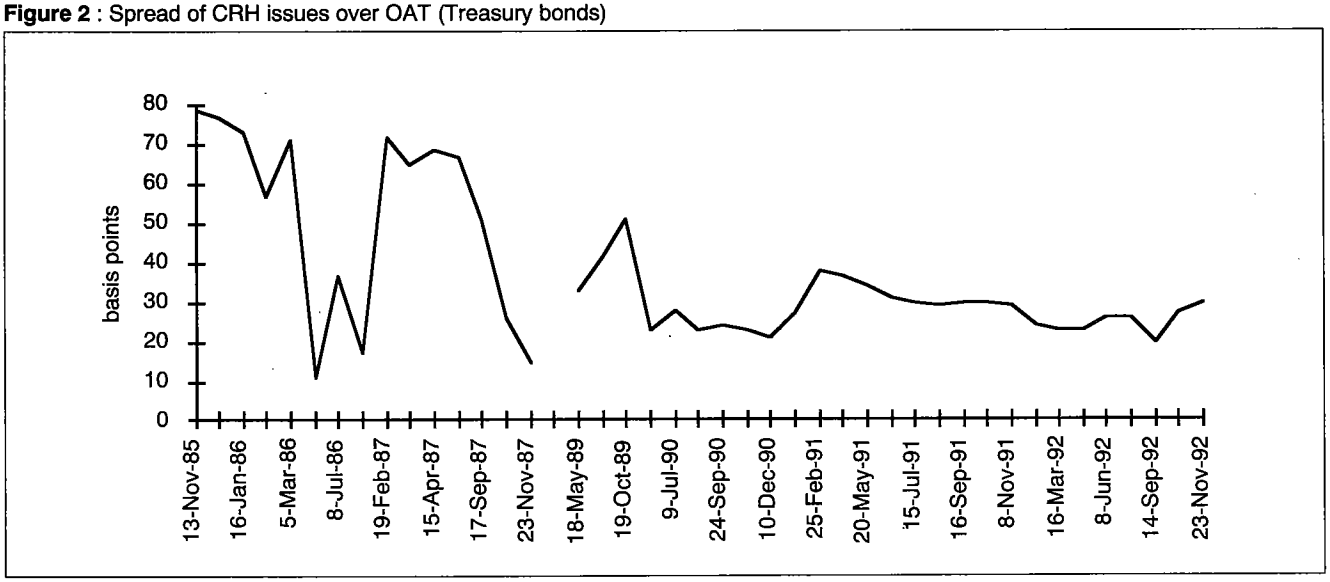
The mortgage bonds issued by CRH were guaranteed by the Government until 1988 after which the government guarantee was withdrawn.[3] After the government withdrew its guarantee, CRH changed the underwriting standards for mortgage pools it was willing to finance. Pools refinanced via CRH must be over-collateralized by 25%. As with the 1965 SMM the mortgage principal collateralizing CRH's liabilities must be replenished as mortgages are prepaid and amortize. The spread of CRH bonds to the yield on government bonds (OAT) of similar maturity is actually lower today than it was when CRH bonds carried the government guarantee (see Figure 2). This may indicate that the liquidity of CRH bonds has increased by enough to compensate for the increased credit risk, and/or that investors still count on a quasi government guarantee.

Figure 1 : Shareholding Pattern of CRH as of March 1994

Caisse Nationale de Credit Agricole	25.20%
Union du Credit pour le Batiment	14.30%
Banque National de Paris	16.60%
Comptoir des Entrepreneurs	5.70%
Credit Lyonnais	9.90%
Societe Generale	4.90%
Banque La Henin	4.10%
Banque Sovac Immobilier	3.70%
Midland Bank S.A.	1.90%
Caisse Federative du Credit Mutuel	1.70%
Banque Federative du Credit Mutuel	2.20%
24 other credit Institutions	9.80%

CRH periodically discounts collateralized notes of (i.e., buys mortgage-backed bonds from) its shareholders and issues bonds backed by the pool of mortgage backed paper. CRH bonds give investors an undivided interest in the pool of collateralized mortgage notes. CRH serves as a marketing collective for its owners. Pooling the notes of individual institutions has permitted CRH to float larger issues than is possi-

Figure 2 : Spread of CRH issues over OAT (Treasury bonds)



ble in the 1965 SMM. CRH's transparency, explicit underwriting standards and ability to float larger issues has contributed to the liquidity of CRH obligations. The institutions that underwrite CRH bonds are responsible for making a market in the bonds. Underwriting contracts are awarded via a competitive auction process.

If an institution owning a share of CRH becomes insolvent, the pools of mortgages refinanced through CRH become the assets of the CRH. This transfer of mortgages from the insolvent institution to CRH would be much less cumbersome than transferring and allocating mortgage collateral to individual investors which would be necessary for mortgage bonds issued in the 1965 SMM. The credit quality of CRH bonds are supported by the capital of CRH, the issuing bank, and the value of the mortgaged property.[4]

The capital requirements for users of the CRH are higher than those for the SMM.[5] First, participating institutions must purchase equity in the CRH equal to no less than 0.8% of the principal amount. The 0.8% is derived by multiplying the risk weight for mortgage backed bonds, 50%, by the risk weight of interbank loans, 20%, by the 8 percent capital requirement.[6] One half of the .8% must be composed of core or tier I capital and one half can be supplementary or tier II equity. Tier I is raised by selling shares of CRH to the institutions that demand the discounting services offered by CRH. Shares are allocated in proportion to each institution's utilization of CRH's capital. CRH raises tier two capital by issuing prets participatifs (participating loans, PP) to the owners of the institutions which own the shares of CRH. The PP are allocated to the institutions in the same proportion as tier I equity. The funds raised by issuing the PP are used to finance the operating expenses of the CRH, and profits are periodically distributed to the shareholders.[7]

Institutions using CRH financing must maintain FF 1.25 of principal for every FF 1 refinanced via the CRH. Thus, institutions financing mortgages through the CRH must use other sources of funds for the overcollateralized amount potentially reducing their ability to match fund the assets.

SECURITIZATION

In 1988 the law enabling French banks to securitize their assets was adopted.[8] Securitization offers banks an efficient mechanism for liquidating as well as refinancing their mortgage portfolios. Unlike the 1965 SMM or the CRH, securitization enables a bank to isolate prepayment, interest rate, and credit risk associated with a pool of mortgages and then sell all or part of its exposure to these risks. Securitization enables institutions to reallocate capital from funding amortizing assets to supporting a portfolio of servicing rights.

The vehicle created by the 1988 securitization law to purchase financial assets from credit institutions is the Fond Commun de Créance (FCC). The FCC is the functional equivalent oi the special purpose vehicle utilized in the U.S. asset backed securities market. The FCC is a closed end debt mutual fund that finances mortgages by issuing securities backed by the mortgages which are in turn collateralized by real property, thus mortgage backed securities. The mortgage backed securities issued by the FCC give investors an undivided interest in the pool of mortgages owned by the FCC. The laws governing the securitization process have been revised since 1988, to allow insurance companies as well as credit institutions to securitize assets, and permit the FCC to use cash

flows derived from the original asset pool to purchase additional assets. These amendments to the original laws lower the transaction costs of securitizing mortgages and increase the flexibility of the FCC.

The structure of mortgage backed securities in France is subject to the following constraints:

- securities issued by the FCC must be enhanced by either a third party guarantee, a subordinate class of securities, or over collateralization,
- mortgage backed securities must be rated by a recognized independent third party,
- the FCC can not borrow funds.[9]

The first two constraints are not serious impediments to securitization. Ratings provide valuable information to investors especially when the market is immature. Credit enhancement is simply a technique used to capitalize debt securities that are issued through passive vehicles such as the FCC. The ability to borrow would enable the FCC to tap funds when necessary, if the cash flowing into the FCC were insufficient to service the obligations of the FCC. In lieu of borrowing, the mortgagee can make a cash advance to the FCC. The FCC may issue multiple classes of securities which segment the cash flows derived from the mortgage collateral across risk and timing dimensions. There are no restrictions regarding which credit institutions can securitize assets or to the type of mortgages that can be securitized.

The capital requirements for securitization have been quite favourable for FCC securities credit enhanced through senior subordination. For example, if a bank creates a subordinate tranche equal to 10% of the securitized pool of mortgages, the capital requirement against this tranche is currently 8% of its principal amount (100% risk weight). As a result of this relative leniency in treatment, the technique of enhancing multiple classes of securities by issuing a subordinate class of securities has been the primary source of credit enhancement on asset backed securities in France.

As of June 1994 the capital requirement to fund the subordinate tranche(s) of an asset-backed security will be 4% of the principal amount of the total pool. This change raises the capital requirement from 80 to 400 basis points. The immediate result of this change will be to remove any regulatory arbitrage opportunities that existed due to the relatively low capital needed to fund the expected losses associated with a mortgage pool. The paucity of mortgage-backed securities ("MBS") issued to date indicates that this arbitrage opportunity was not strong enough to induce institutions to securitize mortgages. The other implication in the revised capital weighting of subordinate tranches is to make alternative forms of credit enhancement, such as financial guarantees or standby letters of credit coupled with financial guarantees, more competitive. A long term effect of the revision in capital regulation may be the development of a market for subordinate classes sold to institutions not bound by risk based capital regulations.

COMPARISON OF THE THREE SYSTEMS

Although all three techniques that permit credit institutions to refinance their mortgage portfolios co-exist, the CRH has grown at the expense of the 1965 SMM. This phenomena is illustrated in Figure 3.

Of the approximately 70 French securitization transactions 2 have involved mortgages. In 1991 Credit Foncier de France securitized FF1,637 billion of mortgages via the FCC "Foncier-FCC-1991". The FCC issued three classes of securities. Class A and B are senior to class C with respect to credit risk, while class A has a claim on all principal until it amortizes at which point principal would be paid to the class B securities. The lead underwriters for the transaction were Bear, Stearns International Ltd and Credit Lynonnais. Bear, Stearns and Credit Lyonnais, through their joint venture have also structured and privately placed an MBS issue for Crédit Martiniquais.[10]

In order for the theoretical advantages of securitization relative to the CRH and 1965 SMM to be attained, transaction costs must be brought down to an acceptable level and investors must be confident that the securities will be liquid and that prepayment and credit risk are being priced correctly. French banks have had access to a stable supply of relatively low cost funds which has allowed mortgages to be funded at unrealistically low rates given their risk. The sources for French banks' relatively low cost of funds are identified by Diamond and Lea (1992):

- by law no interest can be paid on deposits of three months' maturity or less (including sight deposits), and

Figure 3 : Mortgage Notes in the SMM (1965 SMM + CRH)

Year	Total Notes in FF Billion	1965 SMM in %	CRH Notes in %
1985	81.9	95.6	4.4
1986	98.1	86.2	13.8
1987	96.4	73.9	26.1
1988	96.3	60.6	39.4
1989	95.9	51.4	48.6
1990	94.1	41.9	58.1
1991	93.5	32.2	67.8
1992	94.8	23.8	76.2

- their (French banks) major savings accounts have rates regulated, and sometimes subsidized, by the state.

Thus, for example, for the commercial banks in 1989, deposits were 56 percent of their liabilities, of which 78 percent were sight deposits or special, regulated accounts.

As individuals in France reallocate their liquid savings from interest free deposits to money market funds, and the state sells its shares in French banks, these traditional sources of funds will be replaced with capital raised in the securities markets. Securitization provides capital relief through asset sale allowing institutions to meet regulatory and market requirements and/or to concentrate on fee producing activities such as loan servicing, the supply of credit enhancement and liquidity services.

Refinancing mortgages via the 1965 SMM or CRH enables institutions to create a closer match between the duration of their assets and liabilities and thus lower the volatility of their net worth, but does not enable institutions to separate the origination, servicing and risk management components of mortgage lending. Securitization can both alter the volatility of net worth and be a source of equity, while refinancing via CRH or 1965 SMM can only accomplish the former. The fact that refinancing via CRH requires more capital than it does via the 1965 SMM or securitization, has so far been offset by CRH's lower transaction costs and better pricing. The decision of Comptoir des Entrepreneurs, a shareholder of CRH (see Figure 1) to securitize mortgages may be a sign that securitization will grow at the expense of CRH.

Figure 4 summarizes the factors that an institution would have to quantify and analyse to measure the efficiency of refinancing via the 1965 SMM, CRH or by means of securitization.

Column 1 indicates if the refinancing system enables the mortgages to be removed from the credit institution's balance sheet. Column 2 is the capital (tier I + tier II) an institution must allocate to fund the refinanced mortgages. Column 3 indicates how prepayment risk can be allocated. Refinancing via the 1965 SMM permitted institutions to partially shift prepayment risk to the investors (I) while refinancing via CRH forces the mortgagees (M) to fund the prepayment option. MBS offer institutions a way of shifting prepayment risk to the investors (I). Each refinancing method enables an institution to lower the volatility of its net worth by reducing its duration gap, (column 4) although refinancing by way of both CRH and the 1965 SMM exposes the mortgagee to basis risk. The source of the basis risk is the constraint that institutions must maintain a level of mortgage principal that generates sufficient cash flow to service their mortgage backed obligations. If rates fall and mortgages are prepaid, or the demand for credit falls, institutions may have to borrow or issue equity. As column 5 indicates, only securitization permits an institution to substitute fee income for spread income.

Figure 4 : Refinancing FF1 Million of Mortgages

	(1) On/off	(2) Capital	(3) Prepay	(4) Gap	(5) Fee for Spread	(6) Costs
SMM	on	4%	I/M	✔		
CRH	on	4.8%	M	✔		
MBS	off	0-4%*	I	✔	✔	S+CE+MF+R+T

** If credit enhancement is obtained through third party pool insurance or financial guarantees, the lending institution may have no risk based capital requirements. Alternatively, if credit enhancement is accomplished through senior subordination, the capital requirement would currently be 80 basis points rising to 400 basis points in June 1994.*

The additional transaction costs (column 6) associated with securitization that can be avoided when refinancing takes place via the 1965 SMM or CRH, are structuring costs (S), the cost of credit enhancement (CE), management fees (MF), rating fees (R), and fees paid to a trustee (T). The upfront transactions costs associated with the first MBS transaction in France "Foncier-FCC-1991" were approximately 48 basis points on the initial pool to cover the underwriting and credit enhancement and 30 basis points for the rating and administration of the security. In addition, "Societe de Gestion" (the management company responsible for legal, operational and financial management of the FCC and the monitoring of the servicing) will receive 28 basis points per year of the outstanding pool, the "Etablissement Gestionnaire" (the servicer) will receive a monthly commission of 50 basis points of the outstanding pool and the trustee for the FCC will receive a yearly commission of 2 basis points of the remaining pool.

It is not apparent whether these additional costs are not simply costs that are concealed in the intermediation system and made explicit by the securitization process. In other words rating fees which make a security more liquid may take the form of increased marketing costs or a larger discount when securities are not rated. Fees paid to a company that is responsible for managing the FCC (Société de Gestion) may be funds that would otherwise be required to pay personnel responsible for managing the mortgages if they remained on the bank's balance sheet. The equivalence in notation across the columns of Figure 4 is not intended to state quantitative equality. For example securitization may be a more efficient hedging vehicle than CRH. The checks in columns 4 and 5 do not address this point.

CONCLUSION

Theoretically securitization is a superior refinancing technique than the 1965 SMM and the CRH because it offers an institution more choices with respect to capital structure and risk profile. The theoretical benefits of securitization will only be realized if the pricing of MBS, underwriting costs, structuring costs, rating agency fees, legal fees, management fees and trustee fees do not consume the added value afforded by securitizations' relative flexibility. Better information and more competitive financial markets will go a long way toward increasing the depth and scope of the French mortgage backed securities market. These developments would not only allow investors and mortgagees to correctly price default and prepayment risk, but force them to do so.[11]

Two factors, one accounting and one economic, have slowed the development of securitization in France. Credit institutions have not been willing to securitize mortgages that would force them to realise losses on existing loans. Also, the demand for credit has been relatively low due to the general economic and specific housing sector depression. An economic recovery in France and the positive net present value projects that will accompany a recovery would give institutions an incentive to take their losses to free up valuable funds for new lending.

CRH may be able to utilize its position in the secondary mortgage market to facilitate the development of a market for MBS. CRH has the information regarding mortgage yields and mortgagors' behavior necessary to price MBS effectively. CRH's expertise in pooling the notes of credit institutions, enforcing underwriting standards, and issuing securities collateralized by relatively homogenous pools of mortgages is a solid foundation on which to build a securitization capacity. CRH could allocate capital to establish a management company that administers an FCC. The FCC would periodically discount pools of mortgages originated by the shareholders of CRH. The FCC would fund the mortgages by issuing MBS. The traditional method of refinancing via CRH could be used when institutions want to retain the benefits that accrue from financing mortgages, while securitization would enable credit institutions to raise capital, substitute spread income for fee income and re-sell positions in prepayment options. Securitization enables different dimensions of a pool of mortgages to be isolated and financed (credit, interest rate and prepayment risk) and thus offers investors unique opportunities for hedging and speculating. CRH would continue to act as a collective conduit to the capital markets for its owners.

A model for CRH's involvement with the securitization process exists in the Caisse des Dépôts et Consignations' (CDC) establishment of CAR. (Caisse Autonome de Refinancement). The CDC is a conduit for the tax free savings accounts known as the Livret-A. CDC allocates the funds collected via the Livret-A to fund public projects. CAR is a financial institution through which CDC refinances loans that were traditionally funded with the tax free Livret-A savings accounts that are collected by savings banks. In 1987 53% of French household savings were allocated to the Livret-A accounts, by 1990 the Livret-A only attracted 34% of savings, and in 1991 the Livret-A accounts composed 30% of savings.[12] In reaction to the flow of funds from Livret-A to savings vehicles more closely tied to the expected and current value of real interest rates, CDC established CAR to refinance its loans. The CAR has developed two methods of financing loans originated by CDC. The first method involves issuing fixed and floating rate notes to finance the purchase of CDC loans. The second method is the securitization of CDC loans. CAR owns 14% of EUROTITRISATION (ET) a management company for FCCs. CAR structures the securities and (ET) manages the FCC. As of 1991 ET managed 4 FCCs.

Another model is that of the U.S. secondary mortgage market. Federal National Mortgage Association (Fannie Mae) and The Federal Home Loan Mortgage Corporation (Freddie Mac) were the driving institutional forces behind the growth, development and maturation of the conforming (non-government insured) mortgage market. These institutions add value by acting as collective conduits for U.S. financial intermediaries through their imposition of standardized underwriting and servicing requirements that enable them to issue relatively homogenous and fungible MBS.

The CRH is a collective conduit for its owners and imposes underwriting standards on the mortgages it will refinance. The structure and mechanics of the CRH has added value by transforming the relatively small issues of collateralized mortgage notes issued in the 1965 SMM into large homogenous issues. CRH has a strategic position in the secondary market from which it can manage a collective securitization program. The collective conduit model may be an efficient way to stimulate the development of a deep market for French MBS. The development of the non-agency market for MBS in the U.S. (MBS that are not guaranteed by Fannie Mae or Freddie Mac) and the MBS market in the U.K. is evidence that the securitization of mortgages does not depend on the provision of implicit government guarantees.

The developing French market for asset backed securities gives institutions access to a broader and more diversified group of investors than they have via the 1965 SMM or CRH. The demand for debt collateralized by French mortgages is mature. The market for mortgage backed securities is the next logical step in the development of the French secondary mortgage market. ■

NOTES

[1] All aspects of the E-L program are determined by the government. Deposit and premium rates have changed over time as market rates have changed. However, the loan rate is fixed at 1.7 percent over the bank's interest payment rate." (D&L). In 1991 the rates on those loans

were 6.32 percent, or 5 percentage points below market, while the rates on the savings tied up to those loans were equal to 4.62 percent, see Diamond & Lea 1992.

[2] See Diamond and Lea 1992 for a detailed analysis of the structure and relatively efficiency of the French mortgage market.

[3] There are still guaranteed bonds outstanding.

[4] Foreclosure in France is a long and difficult procedure and thus diminishes the value of the mortgage collateral to the investor.

[5] CRH is subject to the European solvency and prudential regulations which govern the qualitative and quantitative dimensions of credit institutions' capital structures. Own Funds Directive 89/299, OJ (1989) 124/16. Solvency Ratio Directive 89/647, OJ (1989)384/14.

[6] The notes discounted by CRH are treated as inter-bank loans for the purposes of risk based capital regulations.

[7] Maximizing the return on shareholder equity is not the objective of CRH's management. Shareholders do not evaluate their positions in CRH relative to alternative investments in financial institutions or the "market portfolio" but rather as a fee for access to the capital markets by way of CRH. CRH is managed as a passive conduit between the mortgagee and the investors in CRH obligations. In 1993 CRH earned a 8.44% return on its equity (tier I + tier II).

[8] Law No. 88-121 (23 December 1988) articles 32.

[9] The FCC can enter into interest rate and currency swaps.

[10] According to the newsletter Asset Sales Report there is currently a MBS that is being structured by Bear, Stearns & Co. for the Comptoir des Entrepreneurs (CDE). (Asset Sales Report, February 28, 1994) CDE is a specialized lending institution that funds its mortgages through the 1965 SMM, CRH and via the general market for secured and unsecured debt.

[11] Foreclosure is a time consuming process in France, primarily due to the considerable leeway mortgagors have vis-a-vis the mortgagee due to the Loi Neiertz. The Loi Neiertz establishes a formal legal process whereby individuals who are in financial distress and have acted in "good faith" can renegotiate their debts. In essence, it forces lending institutions to accept a judicially imposed debt restructuring plan for such borrowers.

[12] Source: CDC.

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Mortgage Finance in Denmark

by Torben Gjede

Originally Published March 1997

OVERVIEW

The first Danish mortgage bank was set up in 1797 as a direct consequence of the need to finance the rebuilding of Copenhagen after a great fire in 1795. Since the mid–19th century, the mortgage banks have taken up a predominant position in the financing of real property in Denmark.

The Danish mortgage market is based on effective and low-cost arrangement of credit of which the following features are characteristic:

1. The loans are granted against security in the real property of the borrower.
2. The loans are fixed-interest, long-term loans.
3. The loans are granted within certain limits laid down in the Mortgage Credit Act.
4. The effective interest is fixed by the market in a transparent manner.
5. The loans are funded entirely through issuance of bonds.
6. The bond investors have full knowledge of the security of the bonds, which is based on the mortgage on the real property, the legal framework and the solidity of the mortgage bank.
7. Through nearly 200 years all bonds have been repaid.

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Through the long-standing tradition as financial market players specializing in the granting of long-term loans against mortgages on real property, the mortgage banks have achieved a central position in the Danish economy. The significant dual role of the mortgage bonds—as an effective funding instrument on the one hand, and a secure investment on the other—has given the bonds a central position in the Danish capital market, and in the longer term also in a wider international perspective.

There are presently nine mortgage banks in Denmark. The key figures for the lending activities of these banks are presented in Table 1.

THE DANISH FINANCIAL MARKET

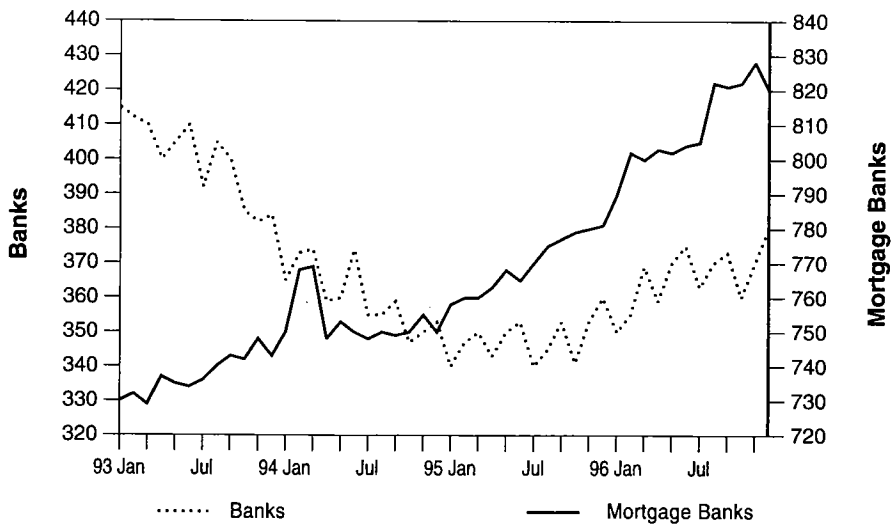
In Denmark, the financing of real property and other long-term real investments mainly takes place via the mortgage banks. In recent years the share of the market by the mortgage banks

Table 1. Key Figures for the Lending Activities of Danish Mortgage Banks

	1994	*1995*	*1996*
Gross new loans, total DKK bn	258.5	138.9	214.5
Percentage share of:			
Rental homes	14.0	12.5	11.2
Owner-occupied homes	54.6	60.3	53.7
Farms etc	13.5	10.2	11.2
Manual and manufacturing industries	4.3	5.2	8.0
Offices and shops	12.3	10.7	14.2
Other properties	1.4	1.1	1.7
Percent, total	100.0	100.0	100.0
Volume of bonds in circulation (DKK bn. 1)	861.6	904.0	945.4
No. of loans, end year (1,000)	2.534	2.393	2.247
No. of foreclosures (flow)	3.953	1.672	872

Source: The Association of Danish Mortgage Banks

Figure 1. Outstanding Loans of Danish Banks and Mortgage Banks, 1993 to 1996



Source: The National Bank of Denmark

Table 2. Credit Extension in Denmark to the Private Sector, Local Authorities, etc.

DKK bn	*Banks*	*Mortgage Banks*	*Other Bond Issuers* [1]	*Abroad*	*Credit Extension, Total*
1994	-39.6	7.3	6.4	-3.9	-29.8
1995	8.1	29.2	0.5	-8.5	29.3
1996	13.8	38.5	0.4	-0.7	52.0

[1] Comprises debentures, Kommunekredit, Danmarks Skibskreditfond, FIH, etc.

Source: The National Bank of Denmark and The Association of Danish Mortgage Banks

has been more than 90% of the total annual financing requirement against mortgages on real property. The commercial banks and savings banks play a minor role in mortgage financing.

In 1995 and 1996, aggregate lending expanded. In 1996, total new lending hit well over DKK52bn, of which mortgage banks contributed almost DKK39bn (equal to US$765m and US$597m, respectively). Mortgage banks accounted for about 70% of the total credit expansion, due in part to the prevailing relatively low interest level. (See Table 2.)

This development can be ascribed to the 1994–95 rebound in the general economy, with the ensuing surge in earnings for business and the revival of optimism among consumers leading to a boost in activity on the property market. Compared to the boom in the early 1980s, however, lending developments were considerably more subdued.

THE DANISH PROPERTY MARKET

Prices of owner-occupied dwellings in Denmark rose in 1996. Compared to 1995, prices on the different property categories rose by between 7% and 10%. However, the price increases masked regional differences and seemed to peter out at the end of 1996. (See Figure 2.)

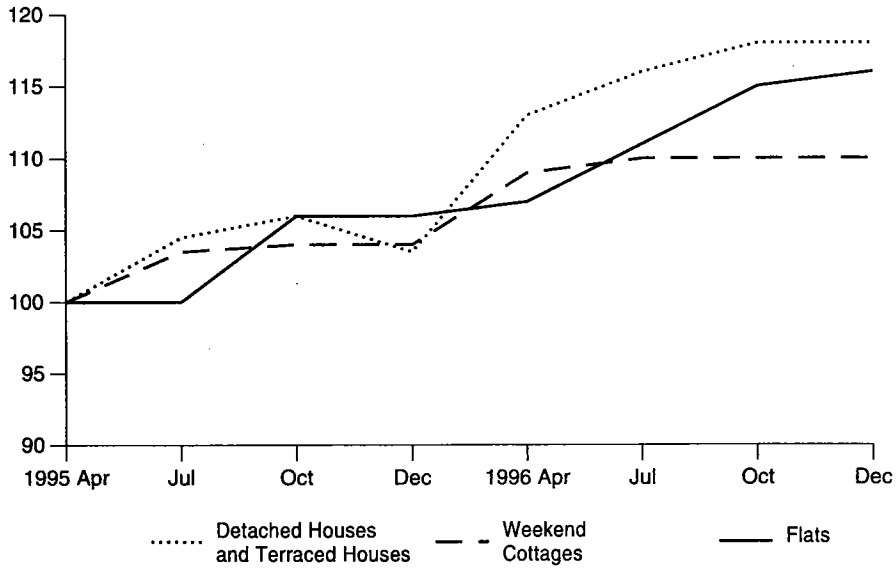
In recent years, the volume of house sales has remained at a relatively high level. New building has also taken a turn for the better. Thus, in 1996 total housing construction rose 20%. This development, however, should be viewed against the low level of construction in the early 1990s.

The number of announced compulsory house sales dropped by 28%. Developments in past-due payments, as recorded by mortgage banks, seem to underpin the belief that this favorable trend will continue. Thus, from 1995 to 1996 the ratio of accounts in arrears dropped from 0.46 to 0.35. Both these indicators seem to highlight the recovery in the general economy.

MORTGAGE ACTIVITY IN DENMARK

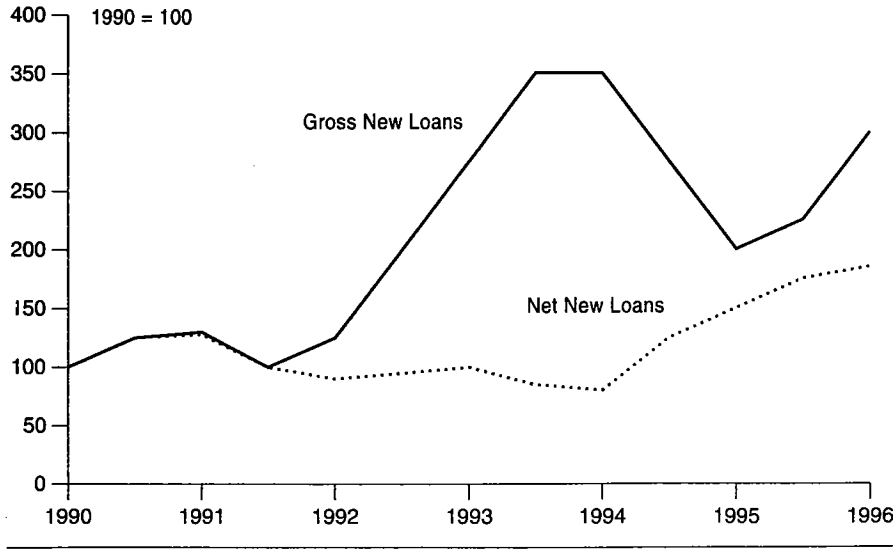
In 1996, gross new lending by mortgage banks amounted to DKK214bn versus DKK139bn in 1995 (equal to US$33bn and US$21bn, respectively)—a leap of more than 50%. This result reflected in particular the remortgaging wave during the first few months of the year. [Editor's note: Danish mortgage loans can be refinanced (remortgaged) by the borrower with no penalty. Danish mortgage bonds are thus callable. The magnitude of prepayment can

Figure 2. Price Development for Owner-Occupied Dwellings Since First Quarter 1995 (Index 1st Quarter 1995 = 100)



Source: The Association of Danish Mortgage Banks

Figure 3. Gross and Net New Loans of Danish Mortgage Banks, 1990–1996



Source: The Association of Danish Mortgage Banks

be seen by comparing the gross and net lending of the mortgage banks in Table 3.] In addition, the buoyant property market created major interest in mortgage credit financing. Demand has been mounting in all property categories; however, the most pronounced trend was experienced within gross new lending to industrial and trade properties on the one hand, and office and commercial properties on the other. (See Table 3 and Figure 3.)

Once again, mortgage banks recorded respectable performances in 1996. The loss ratio was halved compared to the previous year and is at an all-time low. Measured against total lending, losses amounted to 0.07% compared to 0.14% in 1995.

At the end of 1996, the average solvency ratio for mortgage banks was 13.1% compared to last year's 11.9%.

THE DANISH BOND MARKET

As mentioned above, the lending of Danish mortgage banks is solely financed by the issuing of bonds.

The volume of trading in mortgage bonds rose by 45% in 1996 against the year before. This jump is explained by the swell in remortgaging activity and mounting interest from abroad in mortgage bonds, since in 1996 mortgage bonds issued by several mortgage banks were given satisfactory ratings by the Moody's bond rating agency.

At year-end 1996, the outstanding volume of bonds amounted to about DKK1,700bn (equal to US$260bn), corresponding to 1.5 times the Danish GDP. Mortgage banks account for 55% of this volume, equal to just under DKK950bn (equal to US$145bn). (See Table 4.)

The primary buyers of Danish mortgage bonds are still insurance companies and pension funds, which between them hold almost 40% of all mortgage bonds. Danish Government

Table 3. Gross and Net New Loans of Danish Mortgage Banks Distributed on Property Categories

DKK bn.	*1994*		*1995*		*1996*	
	Gross	*Net*	*Gross*	*Net*	*Gross*	*Net*
Residential						
Rental	36.1	9.3	17.4	11.1	24.0	11.5
Owner-occupied	141.1	26.7	83.8	31.6	115.3	5.1
Manufacturing						
Farms	34.8	2.0	14.2	5.4	24.0	4.4
Manual and manufacturing industries	11.2	-3.3	7.2	2.2	17.2	2.7
Offices and shops	31.8	-3.8	14.9	2.7	30.4	2.8
Other properties	3.5	0.1	1.5	0.6	3.6	1.1
Gross new loans, total	258.5		138.9		214.5	
Transfer[1]	-164.0		-49.2		-96.2	
Prepayments[2]	-63.5		-36.1		-54.2	
Net new loans		31.0		53.6		64.1
Ordinary repayments[3]		-23.7		-24.4		-25.6
Net loans		7.3		29.2		38.5

Note: For 1994 and 1995 the chart comprises BRFkredit, DLR, Danske Kredit, LRF, Nykredit, Realkredit Danmark, TOTALKREDIT and Unikredit. For 1996 it also comprises FIH Realkredit.
[1] Transfers comprise loans prepaid in connection with the payment of a new loan in the same mortgage bank.
[2] Prepayments comprise loans prepaid without a new loan being taken out with the same mortgage bank.
[3] Ordinary repayments comprise the repayments made in connection with the regular amortization of loans.

Source: The Association of Danish Mortgage Banks

Table 4. The Danish Bond Market

DKK bn.		*Mortgage-Bonds[1]*	*Government Securities*	*Other Bonds[2]*	*Total*
Volume in circulation[3]					
	1995	904.3	649.6	91.6	1,645.5
	1996	945.4	670.5	95.4	1,711.3
Gross addition[4]					
	1995	141.6	234.9	8.5	385.0
	1996	214.6	200.6	18.3	433.5
Net addition[4, 5]					
	1995	38.9	32.6	-1.5	70.0
	1996	29.4	19.3	2.0	50.7

Note: The table comprises bonds denominated in DKK.
[1] For index-linked bonds, the addition has been calculated at the indexed value at the time of issuance, whereas the bonds in circulation have been calculated at the indexed value at the end of 1996.
[2] Comprises bonds issued by Danmarks Skibskreditfond, KommuneKredit, etc.
[3] The volume in circulation has been calculated at nominal value.
[4] The gross and net addition, respectively, have been calculated at market value.
[5] The net addition is defined as the gross addition of bonds less drawings and other elimination of bonds.

Source: The National Bank of Denmark and The Association of Danish Mortgage Banks

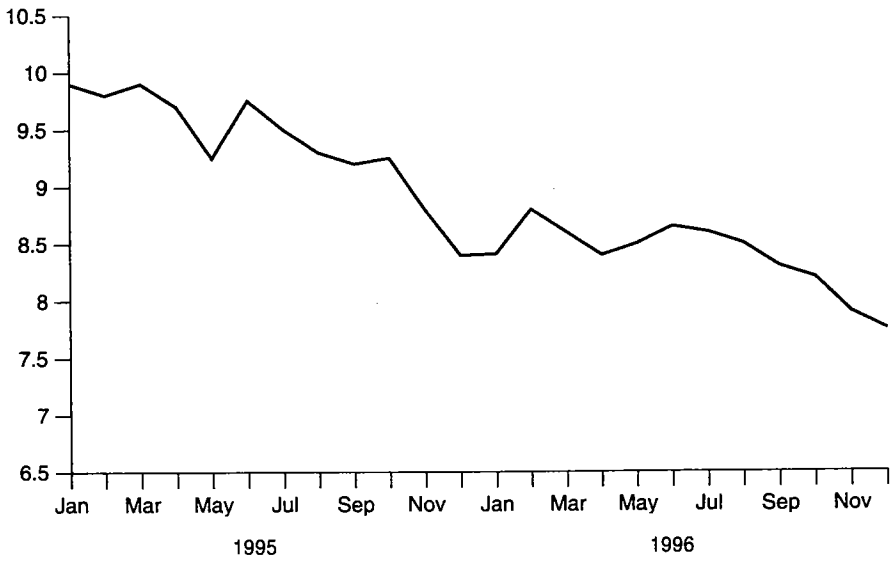
Table 5. Investor Distribution on the Danish Volume of Bonds in Circulation

End 1996 Distr. in %	*Mortgage Bonds*	*Government Securities*	*Other Bonds*[1]	*Total*
Financial institutions[2]	17	23	20	20
Insurance and pension funds	37	7	31	24
Public sector[3]	16	18	17	17
Other trades	9	7	6	8
Households	11	7	19	10
Foreign 5	35	3	17	
Undisclosed	5	3	4	4
Total 100	100	100	100	
Volume of bonds in circulation, DKK bn.	945.4	670.5	95.4	1,711.3

[1] Other bonds comprise debentures and bonds issued by KommuneKredit, Danmarks Skibskreditfond, et al.
[2] Including the National Bank of Denmark
[3] Including the central and local government sector, the Labour Market Supplementary Pension Scheme, The Social Pension Fund, etc.

Source: Danmarks Statistik

Figure 4. Interest Development for 30-Year Danish Mortgage Credit Bonds, 1995–1996



Source: The National Bank of Denmark

bonds remain the favorite of foreign investors, who hold almost 40% of all these bonds. (See Table 5.)

Danish interest rates have been declining since 1995, and during the past two years the leading interest rate has dropped by more than two percentage points. (See Figure 4)

MORE INFORMATION

More information about the Danish mortgage market can be obtained from:

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The Evolving Canadian Housing Finance System and the Role of Government

by Lawrence D. Jones

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INTRODUCTION

In some respects the Canadian housing finance system has been modeled on concepts borrowed from Canada's giant southern neighbor, the United States. Canadian government mortgage default insurance, deposit insurance and mortgage-backed security guarantees are all based on U.S. models. However, the influences have not all been in one direction. Analysts and policymakers in the U.S. have shown considerable interest in certain Canadian housing policies; these include government provision of mortgage interest rate insurance to borrowers and policies designed to subsidize household saving for home-ownership.

Despite these similarities, the Canadian and U.S. housing finance systems contain striking differences. In the U.S. rich mortgage menus provide borrowers with a wide range of choice over how much they expose themselves to the risk of sizable interest rate increases. Over the past quarter-century, however, Canadian mortgagees have offered a comparatively restricted menu that allocates most interest rate risk to borrowers. The general absence of prepayment penalties in U.S. home mortgage loans, together with the availability of long-term loans, provides homeowners with valuable refinancing options. Canadian homeowners, on the other hand, have been limited to short-term loans with stiff prepayment penalties.

Finally, the structures of both housing finance systems are undergoing transformation. In both countries the role of portfolio lenders that specialize in housing finance is rapidly diminishing. Given the central place of mortgage securitization in the U.S., government-sponsored enterprises are coming to dominate that market. In contrast, mortgage securitization is still at an early stage of development in Canada, and a few large portfolio lenders, in the form of chartered banks, now dominate the Canadian residential mortgage market.

In this paper I review basic characteristics of the Canadian housing finance industry and the role of government in housing finance. Section II provides a brief overview of the structure of the Canadian industry. I review borrower exposure to interest rate risk, and various government and market attempts to alleviate that risk in Section III. Section IV summarizes prepayment provisions in Canadian home loans and the determinants of prepayment and default behavior.

There has been renewed interest in savings programs targeted to homeownership. In Section V, I review Canadian savings programs. As a result of government initiative, mortgage securitization was introduced in Canada and initially grew in magnitude at a faster rate than most analysts expected. Section VI reviews the government's motivation and the securitization experience. Finally, I offer a few concluding remarks in Section VII.

THE STRUCTURE OF THE CANADIAN HOUSING FINANCE INDUSTRY

During the first decade following World War II, Canada's home mortgage financing industry consisted primarily of life insurance companies and a federal government crown corporation, the Central Mortgage and Housing Corporation, later renamed Canada Mortgage and Housing Corporation (CMHC). Some provinces also had governmental housing finance agencies that made direct loans to individuals unable to access the private market. Trust companies and mortgage loan companies played a marginal role in the market in this era, and the chartered banks were prohibited from holding mortgage loans. In this environment of limited institutional partici-

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pation, individual investors held a significant share of home mortgage loans. As late as 1970, individuals still held one-fifth of the dollar value of mortgage loans on single detached homes (Morrison, 1979).

In 1954 the National Housing Act granted CMHC the authority to provide mortgage default insurance on loans secured by new homes, and banks were permitted to originate and hold these insured NHA loans. However, bank mortgage lending was limited to NHA loans and interest rate ceilings were imposed on both NHA loans and bank loans. Under these restrictions bank mortgage lending remained relatively inconsequential through the 1950s and 1960s. The restrictions imposed on banks in part reflected concerns remaining from the default experience of the 1930s about the riskiness of mortgage loans. It appears, however, their imposition also reflected a desire to protect trust companies from bank competition in order to encourage the development of a specialized housing finance system.

As their name implies, trust companies were licensed to perform fiduciary, trusteeship and estate management functions. However, only a few of the larger companies have in fact provided these trust services. Most trust companies have operated as narrowly focused retail banks. During the 1960s they became the central feature of the specialized housing finance system in Canada with home mortgage loans accounting for nearly three-quarters of their assets. Mortgage loan companies were even more focused on home mortgage lending; however, most of these entities were subsidiaries of trust companies and banks.

With the trust companies well established, the government liberalized restrictions on bank participation. In 1966 CMHC default insurance was extended to loans on existing homes. Banking lending opportunities increased further after the creation in 1967 of Canada Deposit Insurance Corporation (CDIC) as a federal crown corporation chartered to provide deposit insurance to banks and trust companies.[1] The Bank Act of 1967 allowed banks to originate and hold conventional (non-NHA) mortgage loans and loans collateralized by existing properties. In addition all interest rate ceilings were phased out during the 1967-69 period. During the 1970s banks became an increasingly important player in the home mortgage market. In some provinces credit unions (caisse populaires in Quebec) also developed a significant niche in this market.

Throughout this period the Canadian financial system was built on the separation of the 'four pillars,' the securities, banking, trust and insurance industries. During the 1980s several regions in Canada suffered sizable declines in real estate prices. Mortgage defaults resulted in the failure of a number of trust companies and three regional banks, drawing down CDIC's reserves.[2] As a result trust companies were allowed to diversify into commercial and consumer lending and the trust industry quickly retreated from its role of housing finance specialist by reducing mortgage loans to less than half of its portfolio.

This action began a general relaxation of the separation of functions expressed in the 'four pillars.' In 1987 ownership restrictions that applied to investment dealers were relaxed and several of the large securities firms were acquired by banks. A 1992 Act reduced the barriers separating banks, trust companies and insurance companies. Subsequently, three of the Big Five banks have acquired large trust companies while the other two are developing their own trust subsidiaries. Only two sizable trust companies remain independent. The insurance industry is undergoing a major consolidation and banks are establishing insurance subsidiaries.

It appears the net effect of these changes will be to concentrate substantial market power in the Big Five banks. The chartered banks already hold over half of residential mortgage debt outstanding and dominate current mortgage lending activity. These rapid structural changes raise concerns about the degree of competition and innovation that will prevail in the home mortgage market. Competition with the banks is now largely limited to niche lenders, like credit unions and trust companies, and whatever new mortgage investors are attracted to mortgage-backed securities and their derivatives.

ALLOCATION OF INTEREST RATE RISK

As interest rates began increasing in the latter half of the 1960s, trust and mortgage loan companies became concerned about their exposure to interest rate risk. To reduce the duration gap between their assets and liabilities, they moved away from mortgage loans with terms of 25 years or more and reintroduced the five-year term loan.[3] Five years was selected, in part, because the liabilities of these institutions were concentrated in fixed-rate term deposits and certificates, most of which had five-year terms. However, the five-year term also freed these lenders from offering prepayment options; the Federal Interest Act requires that loans to individuals be prepayable after five years and limits any prepayment penalty to three months' interest.[4]

In 1969 CMHC followed the market and changed the requirement that NHA-insured loans have terms of 25 years or more, to five years or more. As a result Canadian mortgagees were able to shift most of the risk of both interest rate increases and decreases to mortgagors. By 1970 58 percent of NHA loans, and likely at least as large a share of conventional loans, were short term (Unger, 1977). Soon thereafter virtually all home mortgages were 'rollovers.' These short-term loans undoubtedly contributed toward maintaining the supply of mortgage funds, likely reduced volatility in housing starts and certainly were central to the maintenance of capital positions in the key mortgage lenders. Their benefits, however, were achieved at the

cost of allocating interest rate risk and payment burdens to households.

As interest rates continued to increase through the 1970s the deposit institutions offered even shorter term loans (as short as 3 months) as well as variable-rate loans. Again CMHC followed the market and extended NHA insurance to three-year terms in 1978, one-year terms in 1980 and to variable-rate mortgages in 1982. By the beginning of the 1980s, loans with terms of more than three years were unavailable and some lenders restricted their menus to terms of one year or less. Political pressures forced governments to respond to the financing burdens of homeowners and potential homeowners. To assist renters desirous of homeownership but facing high nominal interest rates (real payment tilt)[5], the federal government introduced the Assisted Homeownership Program (AHOP) in 1973. Under this program borrowers received monthly payments from CMHC designed to produce net monthly mortgage payments equal to those produced by an 8 percent per annum interest rate. These interest reduction loans were secured by a second mortgage; they were interest free for five years. Provinces supplemented these payments with grants to first time homeowners enrolled in AHOP. However, high ratio first mortgages plus the second mortgage debt induced high default rates in regions where house price appreciation was insufficient to produce positive homeowner equity. The program was discontinued in 1978.

Subsequently, CMHC and provincial governments encouraged other methods of dealing with the real payment burden. These included insured graduated-payment loans and experimentation with shared-appreciation mortgages. To alleviate both real payment tilt and payment uncertainty, variable-rate mortgages were usually written in a dual rate format in which interest rates were adjusted to market monthly, but mortgage payments remained constant throughout the term of three years (or less). When interest rates declined from a mortgage rate peak of 22 percent, governments exercised moral persuasion to urge lenders to rewrite existing contracts at current rates. In the spring of 1982 the largest bank responded by reducing rates in existing contracts to 17 percent. Also, in 1982 nearly every provincial government introduced a mortgage assistance program that used grants or (usually interest free) loans to reduce net mortgage payments; both loan renewals and new loans were eligible.

In addition to provincial assistance, the Canada Mortgage Renewal Plan (CMRP) was introduced in September 1981 to provide assistance to borrowers renewing loans. This assistance took the form of grants and deferred interest options. The CMRP program was terminated in late 1983 and replaced with the Mortgage Rate Protection Program (MRPP).[6] Under the MRPP, CMHC offers insurance protection from interest rate increases to NHA loan borrowers. However, Canada has a national capital market with essentially the same mortgage rates prevailing in all regions at any time. When interest rates increase significantly, therefore, most policyholders with loan renewals due will have claims; thus, the program is subject to serious catastrophic risk. In recognition of this fact CMHC designed a program that is (1) costly to the policyholder and (2) very restrictive in benefits.

Fair premiums on a mortgage rate insurance policy should be a positive function of (1) the loan term (2) the degree of interest rate volatility and (3) the spread between long- and short-term rates. However, CMHC established a flat premium of 1 1/2 percent of the loan amount covered regardless of loan term; the premium has not been altered since the introduction of MRPP. This premium is prohibitively costly for borrowers who select shorter term loans,[7] that is those most likely to desire protection.

Potential claims are restricted in several ways. Coverage is limited to $70,000 and sizable deductibles and coinsurance features are included. In addition, no coverage is provided for the impact of interest rate increases that exceed the loan contract rate plus 12 interest points.[8] A long period of declining interest rates following MRPP introduction, and the marketing of an expensive product with limited benefits, resulted in very little demand for these policies. To date, this has avoided the creation of a large latent liability for Canadian taxpayers. The recent sharp increase in interest rates, however, has renewed interest in MRPP. Late in 1994 the Canadian Home Builders Association asked CMHC to review the premium structure and the $70,000 ceiling in particular.

Capozza and Gau (1984b) believed CMHC could offer less restrictive policies by hedging their interest rate risk exposure in U.S. financial futures markets. However, because U.S. and Canadian interest rate movements have been imperfectly correlated and U.S. and Canadian mortgage instruments are quite different, costly hedging of foreign exchange risk would be required, so this proposal was not well received (Brennan, 1983; Pesando and Turnbull, 1985; Sharp, 1986). As an alternative to MRPP Brennan (1983) suggested borrower interest rate risk could be alleviated without increasing lender exposure by a more imaginative design of mortgage contracts.

In particular, Brennan proposed an Average Interest Rate Mortgage (AIRM). Borrowers using this contract would split their loan principal among a number of different loan terms, each tranche including the current interest rate for the term. Renewals would be rolled over at the longest term. Since only a fraction of the loan principal would be due for renewal at any time, the impact of rate changes on payment levels and loan costs would be reduced by term diversification. One trust company adopted the Brennan concept under the label Multiple Term Mortgage, but it diluted the contract's benefit by requiring renewals to be at the short end. Recently, however, the concept has been revived in Canada Trust's

Split-Level Mortgage and the Toronto Dominion Bank's Multi-Rate Mortgage.

In the past two years some attributes of U.S. Adjustable Rate Mortgages (ARMs) have found their way into the Canadian market. Several banks and trust companies offer variable-rate mortgages (VRM) convertible to fixed-rate loans. Some have experimented with initial 'teaser' rates on these loans. In 1993 two of the major banks introduced rate caps on their VRMs. However, these are rather expensive options. The VRM rate is indexed to about 100 to 150 basis points above the bank's prime rate, and the cap is based on a margin of 150 to 250 basis points above the going five-year term rate. Consequently, some financial columnists have concluded that consumers seeking interest rate risk protection are better off choosing one of the multiple-term options (Humble, 1994).

Ever since 'rollovers' replaced long-term loans, governments have been concerned about the sparseness of choices available to consumers. In order to stimulate provision of longer term options, CMHC was authorized to sponsor mortgage-backed securities in 1986. As a result of securitization, seven-year and ten-year terms were added to the mortgage menus of many lenders. Consumers, however, did not respond to these opportunities until interest rates dropped below 10 percent. In 1991 Toronto Dominion Bank reported increased consumer interest in their ten-year NHA loans designed for borrowers seeking high-ratio (over 75 percent of house value) loans. Although some banks have added ten-year loans to their portfolios, most trust companies only originate them for securitization. Some niche companies have offered 12 1/2-year and 15-year terms, and even 20- and 25-year term loans have appeared on the market.

In principle, inflation-indexed loans provide an efficient method of alleviating lender interest rate risk exposure and the borrower real payment tilt burden. In Canada, CMHC introduced an inflation-indexed loan in 1985 to finance cooperative housing. In 1991 the government of Canada introduced its first real return bond. Although inflation indexed deposits have not been offered, deposits indexed to stock market indices were made available in 1993. With this foundation it seems likely that inflation-indexed mortgages will become part of the mortgage menu if serious inflation concerns recur during the next few years.

PREPAYMENT AND DEFAULT RISK

When loan terms were twenty-five years or more, the Federal Interest Act ensured that home mortgage borrowers possessed a prepayment option once five years had passed, along with a prepayment penalty not to exceed three months' interest. Once the short-term rollover loan was introduced, however, typically only NHA loans contained prepayment options; during the 1970s most conventional loans included no prepayment provision whatsoever. A five-year term NHA loan can be closed to full prepayment until the third annual anniversary, after which full prepayment must be permitted with any penalty not to exceed three months' interest. NHA loans also permit penalty free partial prepayments of up to 10 percent of the original loan principal each year.

Prepayment options were introduced into conventional loans during the 1980s and have come to take several basic forms. Some loans are closed to prepayment during a portion of the loan term. Once open, these loans can be prepaid subject to a penalty fee; the most common forms of these fees seem to be the three months' interest penalty and the Interest Rate Differential (IRD) penalty. In principle, IRD penalties (known as Yield Maintenance Penalties in the U.S.) are intended to compensate a lender for interest earnings lost as a result of borrowers' refinancing at a lower interest rate. This amount should be determined by discounting future scheduled payments by the prevailing market rate that matches the remaining term on the loan.

The IRD penalty effectively removes any incentive on the part of a borrower to refinance when interest rates decline. However, many Canadian lenders use a lower rate than the appropriate mortgage rate to compute the present value; this produces a particularly costly penalty that more than compensates lenders for any lost interest. Moreover, the IRD penalties are not symmetrical; they do not produce discounts from balances owing when interest rates rise above the loan's contract rate. Indeed, many lenders appear to charge the greater of the IRD or the three months' interest penalty.[9] Homeowners who are potentially 'ruthless refinancers' presumably seek out loans with just the three months' interest penalty; this has likely been important in maintaining the NHA loan share of the market.[10]

Many conventional loans follow the NHA loan practice of including annual partial prepayment options. Some use the NHA rule that allows 10 percent of the original principal to be prepaid annually without penalty; however, 15 percent and 20 percent options are also available. Most of these options also allow the borrower to increase the mortgage payment annually by the same percentage. Paying off principal faster than scheduled often allows borrowers to skip one or more payments per year; this flexibility may have some value to borrowers with variable income streams.

Partial prepayment provisions allow homeowners to realize some advantage of declining market interest rates, when they occur. They are valuable options, however, only to those who are savers or receive a timely gift, bequest or other windfall. They do not benefit homeowners whose ability to take advantage of lower rates is limited to refinancing the full amount of their debt. This possibility is foreclosed to those with IRD penalties.

Partial prepayment provisions are widely used in part because Canadians cannot deduct interest in computing taxable income where

the borrowing in question is used to finance consumption. For this purpose capital expenditures to acquire or improve principal residences are treated as consumption expenditures. Therefore, the effective cost of mortgage debt is likely to exceed after-tax returns on investments available to most households. Consequently, it is commonly assumed that the optimal use of household savings is to pay down home mortgage debt, taking advantage of partial prepayment and payment increase options.

These considerations suggest that the optimal mortgage debt for Canadian homeowners is the minimum amount of debt necessary to own the optimum home given net wealth. Early studies of mortgage prepayment behavior (Fu, 1988; Zorn and Lea, 1989) provide evidence to support the hypothesis that the high after-tax cost of debt makes partial prepayments an important feature of prepayment experience. Although this behavioral response is quite plausible for relatively low-wealth households, it is less obviously correct for wealthier households. Wealthier households have the opportunity to link part of their mortgage debt (all of their debt in cases where household net worth exceeds the market value of their home) to other investments. Interest paid on borrowing used to finance most portfolio positions is deductible for tax purposes.

Jones (1993a) studies the extent to which Canadian households hold mortgage debt in excess of the minimum required. For younger Canadians (under age 40) Jones finds that about 40 percent of mortgage debt is excess; the proportion is certainly higher for older Canadians. In a subsequent paper Jones (1994a) provides evidence that the amount of excess debt held is a positive function of a household's marginal tax rate; higher marginal tax rates imply a lower after-tax cost of debt.

Investors in Canadian mortgage-backed securities are very interested in the mix between partial and full prepayments. Given the magnitude of prepayment penalties, full liquidations depend more on household mobility than is the case in the United States. Unlike full prepayments, partial prepayments have a dramatic impact on the remaining amortization period for a mortgage pool; associated with this is an increase in the share of periodic mortgage payments that represent amortization rather than interest payments. This has a particular effect on derivatives based solely (or largely) on the interest (or amortization) portion of payments.

A Wood Gundy study (Boyce et. al. 1992) indicates that 91 percent of prepayments represent full liquidations. However, in specific months partial prepayments have accounted for up to half of total prepayments. Overall, prepayments are sensitive to the refinancing spread (contract rates less current market rates) despite the existence of sizable prepayment penalties. The response is similar to that found in the U.S., but the overall prepayment rate is lower in Canada than the U.S.

In addition to the various prepayment options, mortgagors also possess an implicit loan termination option in the form of default. During the past fifteen years several regions of Canada experienced significant declines in real estate values. These regions also experienced sizable increases in mortgage defaults that produced heavy losses in CMHC's Mortgage Insurance Fund and resulted in the demise of the private mortgage insurance industry in Canada.[11]

A study by Jones (1993b) suggests that regional variation in default rates is, in part, attributable to differences in the enforceability of personal covenants in mortgage loans. Jones shows that the provinces of Alberta and British Columbia experienced similar large house price declines during the early 1980s, but that the default rate was two to three times higher in Alberta. This difference seems at least partly attributable to the existence of an Alberta law that prohibits enforcement of personal covenants; in contrast, lenders in British Columbia do successfully enforce actions on these covenants.

The Alberta experience contributed significantly to the ultimate failure of the largest, and last, of the private mortgage insurers, the Mortgage Insurance Company of Canada (MICC). During the period of peak claims in Alberta, payments on Alberta loans accounted for 76 percent of claims paid by MICC, even though Alberta only accounted for one-fifth of its business. Moreover, MICC faced a severe adverse selection problem once it became clear that CMHC's NHA loans were exempt from the Alberta legislation; personal covenants were enforceable on NHA loans.

Unlike the case of mortgage interest rate insurance, regional disparities in house price behavior do provide some independence of risks to an insurer of mortgage default. Nonetheless, there is also a large component of correlation among risks, particularly since it is the combination of house price and interest rate declines that raise the likelihood of default. In this light, and in view of the claims experience of recent years, several studies have recommended that public mortgage insurance be substantially downsized, if not eliminated.[12] Given this concern, many observers were surprised by CMHC's February 1992 decision to reduce the minimum downpayment requirement on NHA loans from 10 percent to 5 percent. Initially this First Home Loan Insurance (FHLI) plan was to be a short-term program, but in 1993 it was extended to February 1999.

These low-downpayment loans were initially restricted to first-time buyers, and those who have not owned a home for five or more years. In 1994, however, the 5 percent downpayment program was extended to those who were recently divorced, had to relocate for employment purposes or lost money on their previous home. The principal motive for this program is to provide assistance to the home building industry; due to weak demographic

factors underlying household formation, housing starts are well under the levels of the seventies and eighties. However, this weak rate of household formation also means it would be unreasonable to expect any significant real price appreciation in most markets, and house price declines are a distinct risk. Since the program has been popular (296,000 households used it in the first full calendar year, 1993), CMHC is exposed to the risk of repeating the AHOP experience of the 1970s.

SAVINGS FOR HOMEOWNERSHIP

Housing tenure choice models have conventionally assumed that the decision to rent or to own depends on (1) the real user cost of owning versus renting, (2) a household's lifetime income and (3) household mobility. Recognition of the real payment tilt burden produced by fixed-nominal-rate loans introduced the possibility that nominal rates as well as real rates, and current incomes as well as lifetime incomes, matter. More recently emphasis has shifted toward the importance of current net wealth accumulation in the decision to move from rental to ownership tenure. Jones (1989, 1994b) provides evidence of the central role of current wealth in determining the likelihood that a young household in both Canada and the United States is a homeowner. Current wealth is important both because of equity downpayments that lenders require and because of the riskiness of housing as an asset.

Lea and Renaud (1994) suggest there are several credible rationales for government subsidization of savings programs where savings is targeted to homeownership. These include the proposition that it is better to subsidize saving than borrowing and that subsidizing downpayments is preferred to default insurance as a means of subsidizing lender credit risk. Recent proposals in the U.S. would expand the scope of tax-sheltered Individual Retirement Accounts to include penalty-free withdrawals for use as downpayments by 'first-time homebuyers.'

Canada provides experience with two types of homeownership savings programs. The federal government's Registered Home Ownership Savings Plan (RHOSP) was enacted in 1974. Under this plan individual renters (each spouse in the case of a married couple) could establish a RHOSP account. Each contribution (limited to $1,000 per annum) made to the account was tax deductible and investment earnings on funds in the account were free of income tax. Lifetime contributions were limited to $10,000. Thus, a married couple could accumulate $20,000 in contributions, plus earnings on these contributions, to apply penalty free to a downpayment on purchase of a home.

Engelhardt (1994a, 1994b) reports results from a careful analysis of the RHOSP experience. He concludes that RHOSP participants were wealthier and had higher incomes than nonparticipants; this suggests the individual-specific tax value of the plan was important in determining who participated. Nonetheless, he also finds that the RHOSP contributed significantly to savings and to the incidence of homeownership. Engelhardt (1994b) reports that RHOSP funds accounted for about one-third of savings by renters and 30 to 40 percent of downpayments; he estimates that the RHOSP increased the ownership rate for younger households (primary maintainers under 44) by 4.8 percentage points.

The RHOSP was terminated in 1985. Subsequently, savings plans have been introduced in Ontario and Alberta. Of central interest in recent years, however, has been the RRSP-Home Buyers Plan (RRSP-HBP) introduced by the federal government in 1992. Registered Retirement Savings Plans (RRSPs) are tax-sheltered accounts designed primarily to provide a subsidized savings option for individuals who are not covered by employer-sponsored pension plans. Contributions are tax deductible up to a limit[13] and earnings in RRSP accounts are not subject to income tax. Although these plans were created to provide retirement income, the RRSP-HBP permits an account holder to withdraw up to $20,000 penalty-free for use as a downpayment in purchasing a home. If each spouse has a RRSP, a married couple could withdraw $40,000 for this purpose. The withdrawal takes the form of an interest-free loan which must be repaid to the RRSP; the minimum repayment rate consists of fifteen annual instalments.[14]

There has been a substantial response to the RRSP-HBP option. In its first two years over 250,000 individuals took advantage of the plan; the average withdrawal was about $10,000.[15] The participation rate compares with annual housing starts in Canada of about 150,000. However, the impact on homeownership and the inducement to saving for homeownership were quite modest. Initially the plan was not restricted to first-time homebuyers. Since many households do not begin building their RRSP accounts until they have achieved homeownership, much of RRSP-HBP withdrawals were targeted for downpayments on 'move-up' homes[16]. Beginning March 2, 1994, participation was restricted to first-time buyers. Only about 32,000 individuals used the program during the remainder of 1994, and the average withdrawal declined to under $7,700.

The initial impact of the RRSP-HBP on savings was most likely negative since it allowed substitution of past saving (in RRSP accounts) for future saving. No additional saving was induced (e.g., by initiating new RRSP accounts as savings vehicles for ownership) because the initial announcement of the Home Buyers Plan indicated it would only have a one-year life. Subsequently, it was extended for a second year. Only in March 1994 was it declared to be a 'permanent' plan.[17] It is too soon to evaluate whether that permanence will translate into an increase in young households saving for homeownership in RRSP accounts.

Given the magnitude of government budget deficits, any significant increase in tax-sheltered saving may endanger the RRSP-HBP program.[18]

MORTGAGE SECURITIZATION IN CANADA

The Canadian housing finance industry has been dominated by large nationwide banks and trust companies that serve all regions of the country. In this environment little perceived need existed for a secondary mortgage market. Mortgage securitization has evolved as a result of the decline in the importance of specialized housing finance institutions and a policy perception that insufficient mortgage options were provided to borrowers. In particular, the federal government was concerned that the market failed to offer borrowers loans with terms of more than five years.

As a result of these concerns, the government authorized CMHC to provide timely payment guarantees of principal and interest on mortgage-backed securities (MBS) pools composed of NHA loans. These securities, which have become known as 'Cannie Maes,' were modeled on the U.S. 'Ginnie Maes.' They were first issued in 1987 and have remained the dominant form of MBS in Canada; only a few private MBS issues have been marketed.

The bulk of Cannie Mae issues have taken one of two forms: They securitize either pools of market-rate loans collateralized by single-family houses or pools of subsidized social housing loans. There have been only a limited number of securitized pools containing loans secured by multifamily housing. NHA-MBS market-rate pools must contain loans with prepayment options that are no less generous than those reviewed above for NHA loans. Social housing loans are originated by private lenders; CMHC provides default insurance, and both the federal and provincial governments operate programs to provide interest cost subsidies. Social housing loans are not prepayable; therefore, they attract investors who are averse to prepayment risk. Initially, social housing loans comprised a sizable majority of NHA-MBS pools and most investors were individuals. Over time market-rate pools have become more important, as has participation of institutional investors.

As explained above, Canadian loans often contain sizable prepayment penalties. In most, but not all, NHA-MBS issues these penalties are passed through to investors.[19] However, the penalty amounts have proved to be difficult to estimate; Goldman Sachs (Cooperman et. al. 1994) reports that penalty pass-throughs only amount to 50 to 75 percent of estimated penalties due, based on issuer-specific generic prepayment provisions. This discrepancy may result from the practice of waiving or charging lower penalties in specific circumstances; for example, this is done in cases where prepayments are produced by arms-length house sales as opposed to refinancing.

Growth of NHA-MBS issues exceeded most expectations during the first several years of the program. Currently, there are about $17 billion in NHA-MBS outstanding, which represents slightly over five percent of residential mortgage debt. However, during the last two years the growth of securitized mortgage debt has slowed markedly. The most important reason for this slowdown is that legislated changes in the National Housing Act ended the creation of MBS issues from social housing loans backed by the federal government. As of August 1993, CMHC initiated a new direct loan program for federally supported social housing; the funds are obtained from CMHC borrowing in the capital market.[20] At that time the federal social housing loan pools accounted for about one-third of outstanding Cannie Maes. Maturing loans will be replaced by CMHC direct loans. Only provincial social housing pools will continue to be available for securitization.

The slowed growth of MBS issues may also reflect the reduction in housing demand produced by weak demographic underpinnings. In addition, the sharply up-sloping yield curve, prevalent in 1993 and at least part of 1994, induced more borrowers to elect quite short-term loans. These short-term loans provide good asset-liability duration matching for deposit institutions; therefore, they retain most of these originations in their portfolios. In addition, MBS issuance costs are high for pools containing loans with terms substantially less than five years.

Cannie Mae issuance costs also have been high because most issues have been quite small. Issues as large as $100 million (Canadian) have been rare and many issues have been under $10 million. Thus, the spread between the contract rates on loans included in MBS pools and the MBS coupon rate has been quite large.[21] Future growth in the Cannie Mae market would benefit from larger issues marketable to foreign, as well as Canadian, investors and the development of MBS derivatives.

The most promising route to achieving both objectives may come from repackaging of a number of MBS issues into a single security. The first Collateralized Mortgage Obligation (CMO) based on NHA mortgage-backed securities was issued in April 1993. This issue was followed by five additional CMOs during 1993; five of the six issues had principal amounts in excess of $100 million, with the largest at $346 million. Each had a residual class in addition to sequential pay classes. The residual classes receive excess interest (the CMO coupon rates are lower than the coupons on the NHA-MBS collateral) and prepayment penalties. To attract foreign investors, these structured securities were exempt from Canadian withholding tax requirements.

In 1994 a subsidiary of Goldman Sachs packaged various NHA-MBS issues into two large CMO issues; the largest included $543 million of securities. Among the eight tranches provided were a Principal Only (PO) tranche and a Class PIP tranche; the

latter class receives all prepayment penalties. Both of the 1994 issues were marketed to U.S. and European, as well as Canadian, investors.

CONCLUDING REMARKS

The specialized housing finance system is rapidly disappearing in Canada. It is being replaced by a mortgage industry dominated by a few large banks. In this environment the federal government is increasingly dependent on the growth of mortgage securitization to bring competition and innovation to the mortgage market. Securitization has contributed to the enrichment of mortgage menus by increasing the availability of loans with terms exceeding five years. Canadian homebuyers, however, still do not have the option of choosing loans free of prepayment penalties. The growth rate of securitization has slowed; its future appears to depend upon the ability of issuers to package securities that attract foreign investors. In the meantime, Canadian governments continue to experiment with high ratio loan plans and savings inducement programs as means of encouraging homeownership and providing support to the homebuilding industry.

NOTES

[1] There is little evidence to indicate that policymakers considered the establishment of deposit insurance and liberalization of bank, and subsequently trust company, portfolio choices as inconsistent actions. Prior to the establishment of CDIC no Canadian deposit institution had failed since 1923. Since deposit insurance was introduced in 1967 over 30 insured institutions have failed.

[2] CDIC was forced to exercise its option to borrow from the Treasury. Currently, CDIC is in debt to the Treasury for over $3 billion.

[3] These short-term loans typically require constant monthly payments based on amortization periods of 25 years or more.

[4] NHA loans must be fully prepayable after three years with any penalty limited to three months' interest.

[5] Brueckner (1993) contends that the central positive attribute of short-term and variable-rate loans is the reduced real payment tilt expected from these loans. However, these loans only partially reduced real payment tilt during the inflationary era of the 1970s.

[6] The MRPP initiative resulted from a consulting report prepared for CMHC by Dennis Capozza and George Gau. Published versions of their proposal are available in Capozza and Gau, 1984a and 1984b.

[7] Some idea of the level of fair mortgage rate insurance premiums can be found in the simulation results reported in Capozza and Gau (1984b). Their prototype policy is more attractive than a MRPP policy; in particular, it does not contain a coinsurance provision or a cap on interest rate coverage.

[8] Canadian mortgage rates are usually reported as nominal rates per annum, compounded semiannually. Interest rates and spreads in this paper are to be interpreted in this manner.

[9] Some lenders will charge the lesser of such penalties, or waive the penalty altogether, for prepayments resulting from bonafide arms-length sales of the home that secures the mortgage. Also, some loans include portability provisions that allow the borrower to transfer the loan balance and contract terms to a mortgage loan on a replacement home. In comparing prepayment penalty practices in Canada with the virtual disappearance of prepayment penalties in the U.S., it should be noted that up front 'points' are rarely charged in Canadian home loans. Discount points, which are common in the U.S., act as a form of prepayment penalty that declines with loan life.

[10] NHA loans account for about 25 percent of residential mortgage debt.

[11] The last of the private mortgage insurers, The Mortgage Insurance Company of Canada, ceased writing business in 1993. Many analysts believe that underpricing of mortgage insurance by CMHC contributed to the inability of the private insurers to build sufficient reserves to withstand periods of high default (Boyle, 1984). Recently, GE Capital Mortgage Corporation has acquired MICC's mortgage default insurance business and apparently plans to enter into competition with CMHC.

[12] Both a federal government task force report (Matthews, 1979) and an Economic Council of Canada (1982) report recommended that CMHC cease writing mortgage insurance and limit itself to reinsurance provision. These reports were written during the period (1978 to 1985) of the highest default rates CMHC's Mortgage Insurance Fund had experienced.

[13] For 1995 set at 18 percent of earnings up to a cap of $14,500.

[14] The first instalment is due no later than 60 days after the end of the second year following the withdrawal. Thus, the first instalment repayment of a 1995 withdrawal is due no later than March 1, 1998.

[15] About one-quarter of the 1993 participants in CMHC's five percent downpayment (FHLI) program also made RRSP withdrawals under the Home Buyers Program. According to a CMHC survey, the average RRSP withdrawal by these borrowers was $4,355 (CMHC, 1993).

[16] These homeowners also have the option of using their RRSP accounts as a source for their home mortgage funds; the mortgage loan on a planholders' home is eligible for its RRSP account so long as the loan is made at market terms.

[17] The announcement of the RRSP-HBP's permanent status removed the urgency of participation and no doubt contributed, along

with the restriction to first-time buyers, to the dramatic decline in participation during 1994.

[18] There are social and private costs to the program associated with smaller future RRSP accounts due to lost earnings on RRSP withdrawals. Withdrawals also reduce the RRSP tax-deductible contribution limit in the year of withdrawal by the amount withdrawn.

[19] To identify which practice prevails in an issue, CMHC now uses different prefixes on pool numbers where issuers retain penalty fees from the prefix used on penalty pass-through pools.

[20] The stated rationale for direct lending is that it will reduce the net cost to CMHC of financing social housing.

[21] Most market-rate issues appear to have a spread of 100 to 200 basis points between the average contract rate on loans in the pool and the MBS coupon.

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The Structure of Mortgage Markets in Mexico and Prospects for Their Securitization

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Abstract

This article examines the current state of the Mexican housing finance market, a market characterized by high real interest rates and a severe deficit in the housing stock. The article describes the institutional structure of the Mexican housing finance markets. It notes obstacles to the free flow of capital into the market, points out high relative risks encountered within the market, and describes the relative lack of competition in the banking system. Finally, it considers prospects for the expansion of capital via securitization and observes impediments that restrict the development of mortgage securitization in Mexico.

The article concludes that there remain in Mexico severe impediments to the securitization of mortgage credits but that these impediments are surmountable. The worst impediments relate to the infrastructure of the credit markets. Other limitations of the market can be or are being overcome.

INTRODUCTION

The Mexican housing market is characterized by severe shortage. According to Zearley (1993a), Mexico today suffers a shortage of approximately 3,000,000 units, and the shortage grows by 200,000 units annually. Real mortgage interest rates are high, and much of the housing that is constructed is not developed within the formal housing or credit markets. Mortgages are typically made at relatively low loan-to-value ratios and with relatively short maturities. Mortgage rates appear to reflect a substantial premium over the cost of funds into the mortgage finance system. Our purpose is to examine the Mexican housing finance system and to consider prospects for expanding capital into that system through the vehicle of national or international offering of mortgage-backed securities. This article introduces the housing finance environment in Mexico and initiates a discussion about creating a secondary mortgage market in that country.

In a competitive and efficient capital market that is fully integrated into the global financial system, real mortgage interest rates will—on a risk-adjusted basis—be constant across national boundaries, as will other investment opportunity costs. We find that from January 1989 through July 1993 real mortgage rates in Mexico averaged about 16.5 percent on floating-rate mortgages. This rate compares with real interest rates in the United States of approximately 6 percent over the same period and with more recent U.S. fixed rates of around 4 percent. Houses facing each other across the Rio Grande, literally within a stone's throw of each other, can be financed at real mortgage rates that have differed recently by a factor of four. Further, the level of the housing deficit in Mexico suggests that in a likely scenario, two to four times as many persons will live in the much smaller house on the southern bank of the river.

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MEXICO

In an efficient and integrated market, capital would tend to flow to high real-rate opportunities unless there were economic reasons for the differences in the relative real mortgage rates. Such differences might consist of institutional frictions, or they might reflect differential risks that are priced. We observe both sources of differences in the institutional structure and infrastructure of the Mexican banking system in general and the housing finance system in particular. One way to expand the market and facilitate the inflow of new capital is to package mortgages into securitized portfolios—which tend to reduce the risk of a given commitment to the market—and sell the resulting securities in global financial markets. There are impediments to the development of such a market, but they appear to be surmountable, and efforts are under way in Mexico to develop a mortgage-backed securities market.

A relatively small fraction of Mexico's housing is financed through formal credit markets. Accordingly, an important part of President Salinas's social and economic policies centers on housing and housing finance. The foundation of Mexico's housing policy goals is a 33 percent increase in the production of conventional housing, to be achieved by allowing the market to work. To accomplish this goal, the government has deregulated and privatized banks, modified national pension funds involved in housing finance, cut regulatory red tape and costs, and legislated land reforms. Ancillary goals include increasing the number of houses financed with mortgages from the current 14 percent of the existing stock to 28 percent and reducing mortgage interest rates and other costs of buying a home. Expanding mortgage financing to 28 percent of the existing housing stock would require a dramatic increase in the funds available to the housing sector.

The government's plan for increasing the availability of mortgage credit includes establishing a secondary mortgage market based on the securitization of mortgages. Mortgage securitization is an effort to integrate mortgage markets with domestic and international capital markets through the sale of mortgage-backed securities. The aim is to attract capital seeking to benefit from Mexico's high real mortgage rates. The expected results include an increased availability of mortgage financing, an increase in competition, and ultimately more affordable housing finance. We will examine the prospects for such a securitization process.

MEXICAN HOUSING FINANCE: INSTITUTIONAL STRUCTURE AND INFRASTRUCTURE

Formal housing finance in Mexico comprises a combination of social programs, union pension funds, and commercial bank lending. Recent evolutions in Mexican housing finance have been a response to a decade of economic instability followed by a return to relative stability. Mortgage loan terms typically offered by banks in Mexico are very different from traditional mortgage loans available in the United States. Since Banco Nacional de México (Banamex) introduced its middle-income lending program in 1984, mortgage terms have been financially engineered to cope with double-digit inflation, floating interest rates, and a recent history of declining real incomes. Because of the pent-up demand for housing credit caused by the lack of mortgage credit for middle-income home buyers from 1979 to the mid-1980s, lenders have been compelled to extend credit under circumstances that would seem implausible in the United States.

Mexican Dual-Index Mortgages

Mexican mortgage loans are commonly dual-index loans.[1] The essence of the dual-index mortgage (DIM), as its name implies, is the simultaneous use of two rates: the payment rate and the debiting rate. The payment rate is used to calculate the installments; this rate is generally linked to the inflation rate as a way to track the service capacity of the mortgagors. The debiting rate, which is short term, is used to calculate the interest that the borrower owes on the outstanding balance. Consequently, in each month that the nominal interest debited exceeds the nominal payment, the excess interest is accrued and capitalized into the loan principal. The Mexican mortgage industry refers to this process as "refinancing" the loan. Therefore, it is possible for mortgage loans to require refinancing every month during periods when loan debit amounts exceed the payments. However, as long as the nominal payment exceeds the real interest component of the debit amount, the principal of the refinanced loan is being reduced in real terms. With regard to the maturity of the debt, the term is ordinarily variable within a maximum specified maturity.[2]

One of the problems of lending in a high-inflation environment is that traditional amortization schedules require initial payment amounts that tend to exceed the borrower's ability to pay. This situation is referred to as the tilt effect. With DIM financing, the tilt effect can be eliminated. With a DIM, affordable initial payments are calculated by considering a long-term real rate and a desired maturity term in the formula of traditional amortization. Subsequent payments are adjusted for inflation, creating a schedule of level payments in real terms. This practice gives borrowers some confidence that they can meet their obligations in the future.

Most banks in Mexico now offer their own version of the DIM. The interest rate index most often used is called the *tasa líder* (leader rate). The leader rate is either the CETE (Certificados de la Tesorería de la Federación) rate (the 28-day Mexican treasury bill rate) or the CPP (Costo Porcentual Promedio de Captación, the average cost of funds for banks in Mexico), whichever is higher that month.[3] The actual debit rate for interest is typically determined by adding a mortgage loan premium of 500 to 1,000 basis points to the leader rate or by multiplying the leader rate by a factor between 1.25 and 1.37 (Fondo de

Operación y Financiamiento Bancario a la Vivienda [FOVI], private communication, 1992).

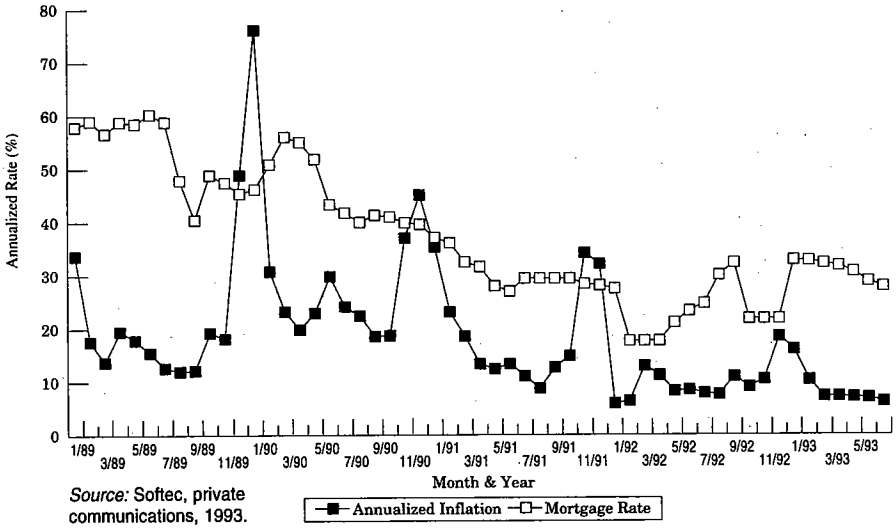
We have computed the average interest rates and inflation statistics from January 1989 through July 1993. The 90-day government CETE rate was 27.36 percent. The cost of funds (CPP) was 29.43 percent. The Consumer Price Index (CPI) was 18.51 percent. The nominal mortgage rate was 37.23 percent, and the real mortgage rate was 16.51 percent. Data sources include the publication *Indicadores Económicos del Banco de México* for the CETE, CPP, and inflation data and a compilation of Banamex mortgage loan data from Softec.[4] We computed the real mortgage rates from the monthly inflation figures and nominal mortgage rates.[5]

Note that real mortgage rates have averaged 16.51 percent from January 1989 through July 1993. This average compares with a U.S. real rate in the vicinity of 6 percent over the same period. The data are depicted across time in figures 1 and 2. Note the high seasonality in the inflation figures, which are not seasonally adjusted (figure 1). The seasonality reflects high inflation rates around the turn of the year, when the government normally adjusts wages and a number of regulated prices.

Seasonality in inflation is accompanied by seasonality in the real mortgage rate figures (figure 2). The banks do not appear to adjust the monthly amortization rate for concurrent inflation, resulting in low or negative real rates around the turn of the year.[6]

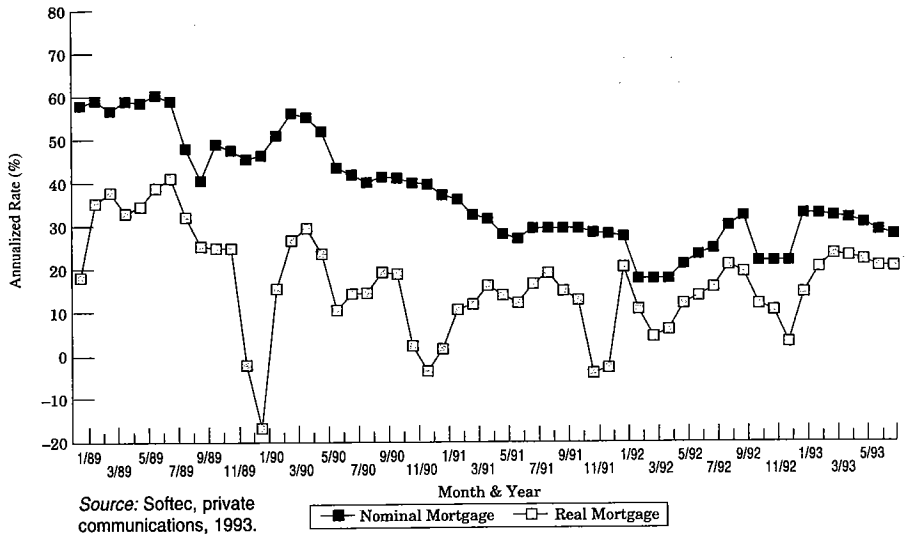
The index that controls the nominal payment amount depends on a measure of inflation. In the earlier DIMs, the minimum wage was the basis of the payment index, but minimum wages have lost 50 percent of their real value since 1987, so other measures are used today. The Mexican government typically resets the minimum wage rate every January but may do so more frequently if inflation is high. Most of the major banks reset

Figure 1. Real Mortgage Rates versus Annualized Inflation 1989–1993.



Source: Softec, private communications, 1993.

Figure 2. Real Mortgage Rates versus Nominal Rates, 1989–1993.



Source: Softec, private communications, 1993.

payments semiannually; some do so once a year.

Negative amortization will occur whenever the amount of interest debited exceeds the total payment amount. However, as long as the payment covers the real interest, the amount of accrued interest capitalized into the loan by refinancing will not increase the real value of the loan principal. The principal amount of the loan will grow in real terms if the payment amount does not cover the real interest rate

multiplied by the loan balance. Otherwise, the real loan balance will decrease.

To the extent that the nominal principal amount grows at a faster rate than nominal payments, the amortization schedule is recalculated to reflect a longer term for the loan. The principal may grow at a rate that causes the term of the loan to reach the maximum permitted under the agreement. A divergence between market rates and inflation rates could even become large enough to cause the value of the principal to grow beyond the borrower's ability to amortize the loan. Under these economic conditions, housing prices may or may not increase enough to maintain loan-to-value ratios needed to provide security against the loan.

The DIM system has functioned well during periods of high inflation and economic instability in Mexico. As of this writing (March 1994), inflation rates have remained in single digits for more than a year, and interest rates have fallen as well. For example, the CETE rate fell to single digits (9.72 percent) for the first time in history on February 10, 1994. The economy has experienced a period of sustained stability, and expectations are favorable. It is an election year, and uncertainty remains in the market, but significant changes are occurring. Recently, fixed-rate mortgages have appeared for the first time in more than two decades. Change is occurring rapidly in the entire financial system of Mexico, and we anticipate significant new developments during 1994 if the economy remains stable.

In summary, the DIM contract makes it feasible for borrowers to take on long-term mortgage loans in a highly inflationary environment at debit rates that should be profitable for lenders in the long term. However, the dual indexation does leave room for a significant risk that loan balances can rise out of control in an especially severe economic scenario. The risk in an unstable economy is that real incomes can decline by such a large amount that negative amortization in real terms could make loans impossible to repay. If the economy of Mexico remains stable and confidence in the continued stability of the market improves, the role of the DIM in the Mexican market can be expected to diminish.

Mortgage Lending and Its Infrastructure

The infrastructure for obtaining information on credit risk for individual borrowers and default history of populations is not developed. Credit history on individuals is difficult and expensive to obtain. Credit reporting agencies have personal credit information for credit card payment history only. That information can be obtained quickly for a reasonable fee (approximately U.S.$4 in July 1993). If more information is needed, a credit agency will perform a custom investigation and attempt to gain additional insight into a borrower's credit history. Custom credit investigations cost U.S.$100 to $200. There is no reporting of credit information, other than credit card information, to a central source. Consequently, credit information is inadequate by U.S. standards. As a result, a lender is unable to make an informed judgment about the credit quality of a prospective mortgagor, particularly one who is not a long-time customer of the bank.

Default rates and prepayment history are also not reliably reported in Mexico. Traditionally, mortgage default in Mexico has been thought to be very low, less than 1 percent. Part of the reason is cultural and pertains to Mexicans' attitude toward their homes. Also, most mortgages in Mexico require larger down payments than are typically required in the United States, which means that foreclosure would create larger equity losses for Mexican homeowners than for Americans. Banking officials have reported to us in private conversations that defaults appear to be increasing. Since the mortgage market has developed largely since 1987, comparatively few data would be available even if all banks reliably and regularly reported their default experiences.

Banks also do not report prepayment data, although with a floating-rate mortgage, prepayment to refinance at a lower interest rate is unlikely.[7] Mortgage interest on a personal residence is not tax deductible, and the banks are charging interest rates that are significantly more than the average homeowner can earn on safe short-term investments. Therefore, there are incentives to prepay, and financing sources other than traditional mortgages may be a less expensive alternative for buyers with access to such sources.[8]

Legal Environment for Mortgage Lending[9]

Title to property in Mexico conveys almost unrestricted use except for the normal limitations imposed by zoning and building codes. Property may be sold, passed by devise and descent, or mortgaged to secure financing. Notaries public play a very important role in property conveyance in Mexico, performing many of the same functions as title company escrow agents and lawyers in the United States.

The transfer of title is expensive. The country has few notaries, and competition is further reduced because the notaries belong to an association that sets fees for notary services.[10] Adding to the expense are taxes, costs of building permits when new construction is involved, and notary fees for title transfer and documentation. In the state of Puebla, for example, such costs recently totaled 18 percent of the cost of construction. Recent agreements initiated by the state have reduced those costs to 3 percent, suggesting that the costs were previously excessive.

The Public Registry of Property maintains a record of ownership interests in a system similar to the Torrens system in the United States. Its record of land ownership goes back to the Spanish conquest. Evidence of ownership is achieved by registration of the conveyance from seller to buyer with the Public Registry of Property. When property is sold,

the notary public must verify the seller's ownership and right to convey clear title by examining the public record. Once satisfied with the seller's title, the notary will register the transaction in the name of the buyer.

Security interests for mortgages are created by perfecting a lien against property. Like ownership interest, security interests are registered with the Public Registry of Property. The notary public searches the public registry to determine whether there are liens against the property. In Mexico, if mortgage loans are sold, it takes three to six months for the transfer of the lien on the underlying real estate to be registered in the name of the new mortgage owner. In addition, the borrower must be notified of the transfer. This situation is unlike the transfer of mortgage notes in the United States, where security interest is more easily passed to an assignee of the note. Securitization is a process that requires ease of transfer of the security interest. The difficulty of transferring a security interest with the conveyance of a note poses a problem for mortgage securitization.

The process of dealing with default in Mexico is similar to that in the United States. A borrower who is behind by three payments or fewer is considered to be in administrative default, and the lender tries to work with the borrower. After four payments in arrears, the borrower is in legal default, and foreclosure proceedings are begun. One of the shortcomings of the mortgage market is the lack of a sufficient history or reliable information on the rate of default among the different borrower profiles.

Foreclosure is a lengthy process. It generally takes five months of default and attempts by the lender to revive a borrower before the foreclosure suit is filed. After the foreclosure suit is filed, it usually takes one to two years for the court to order a foreclosure sale and eviction of the owner. Obviously, such a delay is very costly in terms of legal fees, lost interest, and possible loss of capital. Furthermore, in the Mexican system, borrowers are not liable for deficiency judgments when the foreclosed property sells for less than the amount owed. Legislation has been proposed to shorten the foreclosure process.

Mortgage Lending Activity by Commercial Banks

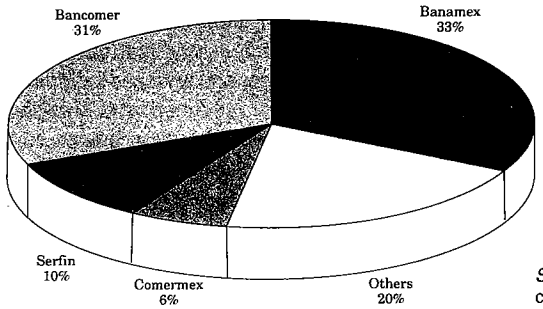
The recent history of commercial banking in Mexico has been turbulent. During 1982, Mexico experienced two major devaluations of the peso. On August 18, 1982, the government stopped allowing the transfer of dollar-denominated accounts from Mexico in an effort to stem capital flight. Dollar deposits were converted to pesos at the rate of 70 pesos to the dollar at a time when the market exchange rate was 100 pesos to the dollar. On September 1, 1982, President López Portillo nationalized the banks. The de la Madrid government, which came into office soon afterward, reprivatized many of the nonbank assets of banking companies (see Gruben, Welch, and Gunther 1993 for more details).

The government set very high noncash reserve requirements, which forced banks to invest heavily in Mexican government securities. After nationalization, the banks were required initially to place 70 percent of their assets in government securities (Shreeve 1992). Extensive regulation limited asset growth of the banking sector to 9 percent during 1982 to 1988. The nonbank financial sector experienced asset growth of 32.1 percent during the same period. Banking companies, which had numbered 50 before nationalization, consolidated to 18 banks that were eventually reprivatized. From 1979 to 1988, very few mortgage loans were available from banks in Mexico.

The Salinas government, which came into office in 1988, removed restrictions, including those regarding asset allocation. Mortgage lending began to reappear at commercial banks. Subsequently, the government passed a constitutional amendment to reprivatize the commercial banking system. The process of selling the banks to the private sector began in 1991. Additionally, legislation aimed at strengthening management and improving services and safety was passed to permit the creation of bank holding companies.

Commercial banks provided 70.5 percent (U.S.$6.56 billion) of the U.S.$9.31 billion in new mortgage loans in Mexico in 1992. Today, all banks participate in the conventional mortgage market in Mexico, but a few dominate. The two largest banks, Banamex and Bancomer, combined provide approximately 65 percent of the mortgages granted by commercial banks. Together with the two next largest banks, Serfin and Comermex, the four banks provide approximately 80 percent of the conventional residential mortgages. The relative market share of the top four banks making residential mortgage loans is shown in figure 3.

Figure 3. Housing Market Shares of Commercial Banks



Source: Softec, private communications, 1993.

The government has recently established a retirement saving system (similar to the Chilean system) that requires private employers to deposit 2 percent of a worker's wages into pension funds administered by commercial banks. This system will result in a substantial increase in savings and in long-term bank deposits available for housing finance.

Housing Finance Provided by Nonbank Institutions

FOVI (Housing Fund for Commercial Banks), a fund of the Central Bank (Banco de México), provides low-interest mortgage financing to low- to moderate-income home buyers earning between three and six times the monthly minimum wage. FOVI obtains loans from Banco de México and the World Bank and provides the funds to the banking system to be offered to individual home buyers at the CPP rate (the average cost of funds for the commercial banking system). The banks earn their spread by paying FOVI a discounted rate. Also, FOVI shares the risk of these loans with the banks by reimbursing the banks for 55 to 60 percent of losses caused by default on these loans. Allocation of these below-market funds was once based on patronage, which created problems until a market solution was established. Now builders and developers bid for FOVI funds through an auction process. Bids are transmitted to FOVI through a commercial bank chosen by the bidder. Funds awarded by auction are transferred to the commercial bank and loaned to the home buyers designated by the bid-winning home builder. One effect of this plan has been to favor new housing finance over preowned housing. Since the below-market funds are allocated by builder/developer bids, only new housing sold by the successful builders has FOVI's below-market funds available for home buyers. FOVI has phased out financing for houses costing more than U.S.$18,000 in an effort to encourage banks to use their own funds to make loans on more expensive houses, thus preserving FOVI funds for the smaller home buyer. Financing by FOVI accounted for only 3.5 percent of the market in 1992 (SEDESOL[11] 1993).

INFONAVIT[12] and FOVISSSTE,[13] two workers' pension funds, provide the second-largest source of housing finance in Mexico. According to SEDESOL, pension funds provided U.S.$1.9 billion in housing finance during 1992. INFONAVIT's operations are supported by a mandatory 5 percent payroll contribution from private employers, and it is Mexico's largest housing fund (Martin Group 1992; Nihill 1992; Zearley 1993b). INFONAVIT is the primary delivery system for government-sponsored affordable housing. It was created in 1970 and evolved into a builder/developer of housing for unionized workers. Because of inefficiencies, patronage, and a lack of accountability, it was reorganized and brought under the control of SEDESOL. Today its mission is to be a financial institution, providing financing for housing construction and purchases. It no longer functions as a builder/developer. INFONAVIT provides financing at rates that ensure INFONAVIT a fixed spread relative to an index of inflation. The agency is the only available source of housing finance for some individuals. It also provides construction financing to developers who can contribute substantial equity to their projects. Home buyers earning between 2.8 and 5 times the official minimum wage, acquiring housing typically priced between U.S.$11,000 and U.S.$20,000, are the target clientele for INFONAVIT (SEDESOL 1993).

FOVISSSTE is the public sector counterpart of INFONAVIT. A 5 percent payroll tax paid into a pension fund for public sector employees is invested in housing programs for government workers. FOVISSSTE follows the INFONAVIT model.

FONHAPO[14] is the federal government's primary low-income housing agency. This agency, together with state and local agencies, delivers housing to the poorest segment of the population. FONHAPO targets nonsalaried workers earning less than 2.5 times the monthly minimum wage, which was U.S.$160 in May 1993.

In table 1, prepared by SEDESOL, is a summary of the contribution of the major sectors of housing finance based on dollars, market share, number of housing units provided, and other useful statistics.

Informal Markets for Housing Finance

The fact that only 14 percent of housing is financed through normal channels raises the question, "How is the remainder of housing financed?" The answer is that most of the financing comes from equity sources or from credit sources other than those in the housing finance system, and some likely is provided by seller financing for preowned houses. A common practice among would-be home buyers in the low-income brackets is the "pay and build as you can" plan. Many individuals, after acquiring a site,[15] will save enough money to purchase one construction component, such as steel and concrete for the foundation and columns, and build that much. Later, after accumulating additional savings, they purchase and install the concrete block walls. Next comes the roof. Once the roof is on, the owners are likely to move in, save paying rent on their previous location, and apply this free cash flow to completing their house. Two aspects of this approach to acquiring housing are ideally suited to this housing environment. First, with inflation in double and even triple digits in the past decade, the intermittent acquisition of materials, as minimum denominations of capital were saved, allowed low-income savers to avoid loss of purchasing power. Second, by performing much of the labor themselves, they contributed "sweat equity" (the monetary value of their own labor), which may have been a necessity to many. Also, sweat equity is not taxed as income unless the house is sold.

Obtaining data on the informal sector is not easy. Official government statistics often fail

Table 1. Major Housing Finance Institutions, 1992

Feature	Commercial Banks	FOVI	Pension Funds	Public Agencies
Lending (U.S.$ millions)[a]	6,560	317	1,914	518
Lending share (%)	70.5	3.5	20.5	5.5
Total number of credits	129,362	24,638	126,611	112,444
Main type of housing financed	High-cost finished houses	Finished houses	Several[b]	Serviced lots/ core houses
Typical cost of housing unit (U.S.$)	18,000 and up	10,000–20,000	11,000–20,000	2,000–10,000
Predominant employment status of home buyer	Salaried	Salaried	Salaried/ contributor	Nonsalaried
Monthly income of primary beneficiary group (multiples of minimum wage)	Above 5	3–6	2–8	Below 5

Source: SEDESOL (1993).
[a] Exchange rate 3.2000 pesos per dollar.
[b] Includes credits for new and used dwellings, construction on own land, home improvements, and syndicated financing.

to recognize the existence of some parts of this market, so data are not reported. Further, we suspect that there are severe limitations on the development of the informal credit market because the foreclosure process—which is not simple in the case of the formal market—can be especially difficult in the case of housing finance. Housing is not fungible or liquid, and enforcing foreclosure rights can be extremely difficult where the formal market for credit has been avoided. See Ward (1990) for a more complete discussion of the informal housing and housing finance markets in Mexico.

Summary of Housing Finance

In summary, the housing finance system in Mexico is segmented in a way that provides a degree of access to housing for a broad spectrum of socioeconomic groups. Commercial banks finance high-cost, finished housing in the range of U.S.$18,000 and up. FOVI funds moderate-cost finished housing (U.S.$10,000 to U.S.$20,000) for salaried home buyers in the low- to middle-income range, three to six times the minimum wage. FOVI, a part of the Central Bank, lends at CPP to home buyers acquiring new houses from home builders who have been the successful bidders for the funds. The pension funds, primarily INFONAVIT and FOVISSSTE, service a clientele similar to FOVI's, the low- to middle-income group buying housing in the range of U.S.$11,000 to U.S.$20,000. The primary distinction is that the pension funds lend at favorable rates to their contributing union members and offer a wider range of options regarding the type and age of the housing purchased. The income range for the union pension funds is wider than others, two to eight times minimum wage. Finally, Mexico attempts to house the poorest of its citizens through the public housing agencies, which focus on nonsalaried individuals earning less than five times the minimum wage and acquiring serviced lots or core housing priced at U.S.$2,000 to U.S.$10,000. SEDESOL oversees all housing programs in Mexico.

Mexico has seen to it that the short supply of housing finance is allocated across the socioeconomic strata. The safety valve for the housing shortage has apparently been self-help housing for the low income and poor. Mexico's plan is to double the amount of financing available for housing and to significantly reduce the interest rate being paid for mortgage money. Mexico hopes that the creation of a secondary mortgage market will bring a larger supply of funds for housing finance and drive down mortgage interest rates.

COMPETITIVE MARKETS, INTEGRATED MARKETS, AND MEXICAN CAPITAL MARKETS

The Mexican banking system in general, and housing finance in particular, is not highly competitive. As statistics presented earlier in the article show, the system is highly concentrated. Because of the comparative lack of competition, banks do not experience intense pressure to operate as efficiently as possible, although they are plainly making strides in implementing information systems and cost control. Estimates suggest that

operating costs in the banking system are on the order of 200 basis points higher than those in developed economies, and our estimates of the real costs of mortgage loans are consistent with inefficiency and lack of price competition. In fact, one manifestation of lack of competition is the absence of pressure to reduce costs. The wide variety of loan types available in the market suggests competition in offering financial instruments with varying features, but that competition does not appear to extend to the pricing arena. In fact, such variety may serve (among other purposes) to confuse the borrowing public, making the comparison of loan terms extremely complex.

In interviews with various industry officials in Mexico, we were repeatedly told of the difficulties of obtaining reliable credit histories on loan applicants. Banks were said to be unable to obtain information on a borrower's credit history at other institutions. In fact, some claimed that even an applicant's record with the same bank at which he or she was applying for a mortgage might be inaccessible in a credit review. Furthermore, more than 50 percent of Mexico's workers are thought to receive their income from "informal" sources, for which there is no formal accounting, so incomes are difficult to verify.

Given the lack of sound information on the creditworthiness of borrowers, it is natural for mortgage rates to be relatively high. Consider the Akerlof (1970) "market for lemons" argument. In a market in which borrowers are unable to distinguish themselves in terms of credit quality, lenders will tend to price mortgages to reflect the average quality of all borrowers. It may even be difficult to measure reliably the average quality of borrowers, so that risk-averse lenders might increase the cost of credit above the value appropriate for the expected value of average quality. With such high rates, borrowers of especially high quality might withdraw from the formal housing finance market, leaving a mix of borrowers of relatively low quality. Given the empirical fact of low-quality borrowers, lenders will adjust rates even further, resulting in further withdrawal of the relatively high-quality borrowers from among the remaining set, and so on. In the end, the market will consist mostly of low-quality credit risks ("lemons" in terms of credit quality) who are appropriately charged high mortgage rates. In other words, high real rates can be a natural product of a lack of information in the credit system. The market will be smaller than would otherwise be the case.

One would expect that in such a setting a given bank could obtain a competitive advantage by developing information systems superior to those of the other banks. Acting against this development is the high cost for a single institution of developing its own credit information-gathering system, which would also require cooperation by competing institutions. The solution in the United States is specialized credit information services that aggregate information and provide it system-wide. Such specialized institutions can spread the fixed costs of setting up their credit reporting systems across a number of institutions. For a single bank, the startup costs of developing a competitive edge in that area in Mexico might simply be prohibitive. The ability to be profitable in the absence of such systems (by charging high real rates) may reduce the incentives to develop the market further.

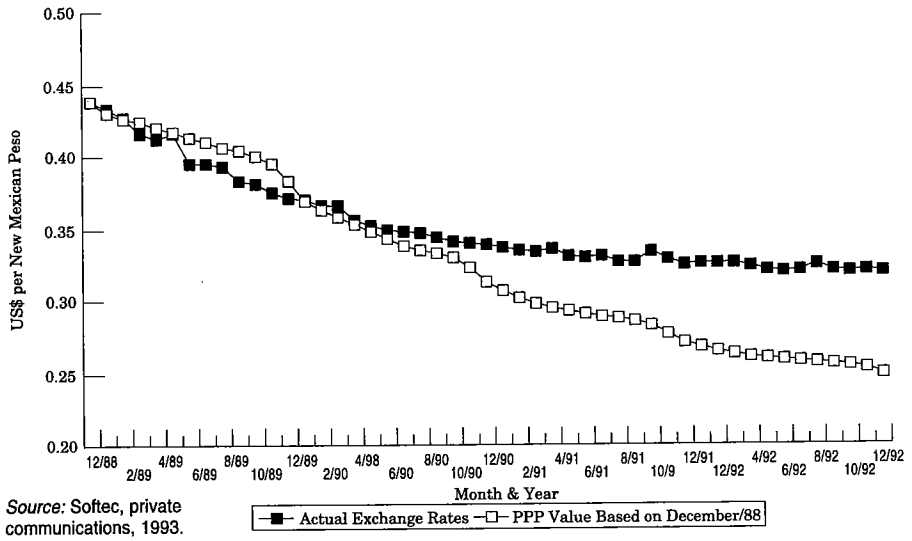
Mexican banks were nationalized in 1982 during the debt crisis. From that point until they began to be reprivatized in 1991, the banks lacked the infrastructure to manage adequately the mortgage lending process and the process of maintaining credit information. Spokespersons for various agencies suggested to us that the system is still about two years away from implementing the systems needed. Also, since economic conditions and policies in Mexico have changed dramatically in recent years under the Salinas government, historical data are relatively useless for inferring the quality of credits that had been previously granted. The relevant data period may be as little as two to four years.

When real rates of return are very high in one nation compared with others, all else being equal, capital is attracted to the nation with high rates. Hence, capital is naturally attracted to Mexico by the high real rates of mortgages. However, the information problems described above, government restrictions against the operations of foreign banking institutions, and concerns about legal and institutional circumstances in Mexico create risks and impediments that restrict capital market integration. Even under the proposals of the North American Free Trade Agreement (NAFTA), competition from foreign banks would be highly restricted.[16]

Another factor affecting foreign entry into the market has to do with currency valuation. The Mexican peso (the new peso) is not a free-floating currency. Rather, government policy controls the value of the peso (in U.S. dollars per peso) and keeps it within a band whose lower bound declines in a gradual "crawl."[17] The exchange rate from December 1988 through December 1992 is shown in figure 4. The lower curve in the figure reflects the value of the peso based on the application of purchasing power parity (PPP) to the peso, beginning with the end-of-1988 value of $0.438. The PPP value is computed by taking the initial value, multiplying by the U.S. CPI (from a base of 1.00 on December 31, 1988), and dividing by the Mexican CPI (from a value of 1.00 on December 31, 1988). We note a deviation of the official exchange rate from its PPP-estimated value so that by the end of July 1993 the official rate was $0.32 whereas the PPP rate was $0.249. On that basis, the peso was "overvalued" by 28.5 percent in July 1993.

Thus, on a PPP basis, foreign lenders who wish to invest in Mexican credits have to confront the very real risk of a significant devaluation in the peso, although government officials offer assurances that such a devaluation will not occur in the near future.[18] On the other hand, Mexico has greatly improved its macroeconomy, and capital flight has been dramatically reversed. Further,

Figure 4. Value of Mexican Pesos in U.S. Dollars, December 1988 through December 1992



Source: Softec, private communications, 1993.

massive capital inflows in the form of foreign investment in Mexico and in Mexican securities have occurred in recent years.[19] Such flows can cause a real increase in the value of the currency (i.e., the "real" value of the peso or new peso is logically above that implied by a simple PPP analysis; see Corbo and Hernández 1993). The band in the values at which policy makers will buy pesos instead of selling pesos had a spread of around 9 percent in early 1994, and this was approximately the percentage by which members of the investment banking community had suggested the peso was overvalued.[20]

While short-term coverage of the peso value is possible through the *cobertura* (hedging) market, such coverage is not without cost, and the overhanging peso valuation problem represents an impediment to the flow of capital into peso-denominated mortgages.[21]

In sum, the Mexican housing finance market is not highly competitive, and foreign competition is not apt to be the solution in the near term. While the Mexican banking system has recently been deregulated to a high degree, impediments remain that limit the system's ability or incentives to provide mortgages at lower real rates of interest.

SECURITIZATION OF MORTGAGE LOANS

There is a great deal of interest in developing a market for mortgage-backed securities (MBS) in Mexico. Both inside and outside Mexico, market participants are interested in participating in securitization, which could channel more funds into the system. As background for a discussion of the prospects for securitization in Mexico, in this section we describe the general requisites for the development of MBS, and in the following section we discuss those requisites in relation to circumstances in Mexico.

Securitization of mortgages refers to the creation of MBS. In essence, a pool or portfolio of loans is developed and used to support the issuance of one or more types of securities. The sale of the securities generates cash flow back to the originator of the pool, which can then use the funds to create additional loans. Thus, the process renews the availability of funds originally loaned out.

Creating portfolios of loans can greatly reduce the risk of investing in a single mortgage loan. That risk includes not only the risk of default and/or the risk that an appraised value is erroneous (and insufficient to cover default), but also the risk of prepayment. Further, the pools are arranged and serviced by specialized institutions that are capable of doing so at low cost. Thus, for example, an individual who could not invest in a single mortgage because of the high costs and risks of doing so can invest an equal amount of money in a diversified portfolio of mortgages that manages the individual loans efficiently. The investor does not need specialized expertise in loan origination, servicing, or, in the event of default, disposing of the resulting property. Typical MBS in the United States consist of mortgages that receive guarantees from institutions such as Fannie Mae or the Government National Mortgage Association (GNMA) that effectively eliminate the effects of default. Finally, the timing of cash flows can be smoothed out by participating in a piece of a large portfolio rather than owning a single mortgage.

Further, a pool of mortgages can be broken into distinct packages that have identifiable characteristics. For example, an investor who wants to avoid prepayment early in the life of the investment can participate in a tranche consisting of those mortgages that are prepaid last, if at all. In essence, portfolios can be tailored to fit the needs of a variety of investors, a feature that attracts additional capital.[22]

Sharfman (1992) describes critical elements for securitization, and Brueggeman and Fisher (1993) discuss prerequisites for such a market. Diamond and Lea (1993) also discuss conditions that enable MBS to function, and Roberts (1993) and Finnerty (1993) discuss benefits provided by MBS. Among other fac-

tors, there should be a need for such a market. The discussion above shows how MBS can reduce risk and can increase the flow of funds into the mortgage finance sector, and there is a need to reduce risk and to attract funds in Mexico. A second point is that MBS should be encouraged when there is a need to facilitate a geographic flow of funds. In the case of Mexico, the lack of integration with international capital markets and the resulting high real interest rates suggest the need for a geographic flow of funds from foreign capital markets.

It is essential to issue mortgages that are of uniformly high credit quality and performance. There has to be the perception of such quality (in addition to its existence). The securities in such pools need to be standardized in terms of many of the features of the loans, including quality of the documentation as well as the obvious terms of the loans themselves. It must be possible to carve the portfolios into tranches that can be tailored and marketed to specialized elements of the investor community.

Many authors emphasize the need for guarantees such as those provided by Fannie Mae and GNMA in the U.S. market. In some countries, private mortgage insurance has been successful in supporting MBS activity (see, for example, the discussion of the Australian case in Richardson 1993). These guarantees allow the creation of MBS of very high quality. While it is not necessary that such guarantees be provided by government or pseudogovernment agencies, it is essential that they be offered by a very credit worthy source. In the United States, the market for MBS backed by private insurance is still quite small relative to that part of the market backed by guarantees from GNMA, Fannie Mae, and Freddie Mac.

A point that is sometimes missed (perhaps because in highly developed markets data are assumed to be present) is that data are needed on default and prepayment. In other words, it must be possible to estimate the properties of the various tranches of a pool, and estimation requires excellent data. This is especially true for prepayment characteristics.

Diamond and Lea (1993) point out that there must be no subsidized alternatives to MBS that make MBS uncompetitive as a source of funds. They also point out that, since MBS are advantageous in large part because they reallocate risk, they will not be common in markets in which risk bearing is subsidized. Finally, they emphasize the importance of complete contracting technology, which would include the enforcement of contracts.

It is critical that no taxes be imposed on the mere swap of funds entailed in an MBS. Accounting or tax implications will hinder the development of the market.

Additional elements include the need for high-quality services for hazard and title insurance. These services are essential to ensuring the quality of the loan portfolio. Similarly, highly standardized and reliable appraisal and credit measurement systems must be in place.

It is of course essential that a quality servicer be part of an MBS deal. The servicer must operate efficiently, at low cost, so that a minimum of the income from the mortgages is lost in the system. In the United States, mortgage loan servicers are normally paid between 0.25 and 0.5 percent of the loan balance.

In sum, there are many requisites for a smoothly functioning MBS market. In the next section we discuss those requisites in the context of the Mexican housing market and housing finance system. We will see that a number of critical elements are missing or are in a state of flux and/or uncertainty.

PROSPECTS FOR SECURITIZATION IN MEXICO

The prospects for securitization in Mexico exist, but there are formidable impediments to overcome. The Mexican mortgage market contains more risk and uncertainty than those of other countries with MBS, and the infrastructure is severely lacking. The general areas of deficiency are product standardization, legal and tax issues, and information on credit and mortgage behavior characteristics. Furthermore, the characteristics of Mexican mortgages reduce the need for some of the more sophisticated risk-allocating mechanisms.

Product standardization is a serious problem in Mexico. Mexico's mortgage lending industry has evolved in a very different environment from that in the United States. The U.S. mortgage industry is characterized by standardization of all aspects of mortgages, including underwriting, loan terms, documents, appraisals, building design, and minimum construction standards. Standardization has been imposed on the U.S. market by the Federal Housing Administration or the Department of Veterans Affairs for government-insured or -guaranteed mortgages and by Fannie Mae or Freddie Mac for conventional loans. High loan-to-value ratio mortgages (above 80 percent) always carry some form of default insurance. Mexico, by contrast, has very little standardization. No government agency or institution dictates the standards in Mexico. Each of the 18 banks sets its own standards for underwriting, mortgage terms, contracts, and other documents. Not only do loans differ between banks, but loans with very different terms are available even within one bank.[23]

Possible solutions derive from the fact that each of the two largest banks, Banamex and Bancomer, funds more than 30 percent of the market. Currently they each offer many types of mortgages, but if either were to develop standards tailored to attract both borrowers and MBS investors, they would probably set the pattern for mortgage standards in Mexico.[24] It is conceivable that mortgage standards set by one of the two big lenders, if embraced by the secondary market, could emerge as the

standard for the industry. If securitization brings more capital and lower interest rates, market forces would encourage all lenders to comply with the standards. In 1992, Banamex and Bancomer each originated more than U.S.$150 million in residential mortgage loans per month. Either bank could independently supply enough mortgages to warrant securitization. With help and input from the investment community regarding desirable standards for Mexico, the standardization problems could be overcome rather quickly.

Obtaining information on credit and mortgage behavior is a difficult problem, but it too can be solved. Payment history on credit cards is available now. This service can be expanded to other forms of credit. If outside entrepreneurs fail to develop an acceptable credit information service, then the banks would need to create an association for sharing credit information. With strong leadership, such a system could be in place within a short time.

History on default and prepayment does not exist because the mortgage industry in Mexico was reborn so recently. Only time will provide more historical data. There is a need to collect information and make it available, and mortgage lenders should put in place the systems to collect and maintain such information. Currently, the lack of information and the accompanying risk and uncertainty are being compensated for by the high return on investment available in Mexico.

Tax issues regarding investment in Mexican mortgages are a problem, with or without securitization. First, there is the problem of taxes due on interest accrued but not yet paid. This is especially problematic because of the DIM. Contemporary Mexican mortgages normally accrue a portion of the interest owed. Taxation of earnings not yet received is excessively burdensome and counterproductive in a country lacking investment in mortgages. Banamex has addressed this issue with a mortgage scheme it calls "Espacios." Espacios are mortgages in which the debiting rate is below market early in the life of the mortgage contract and above market later in the life of the contract.

The second tax problem in Mexico is the 15 percent withholding tax on interest paid to foreign investors. The market merely passes this tax on to the borrowers in the form of higher interest rates on mortgages. NAFTA would minimize this problem by reducing the taxes U.S. investors pay to less than 5 percent, at which point the expense becomes tax deductible under the U.S. tax code (Cleary, Gottlieb, Steen & Hamilton 1993). These are serious problems for the prospects of securitization, although in Mexico such problems can be legislated away quickly if the government desires to do so.

The variable rate of Mexican mortgages effectively deals with some of the risks mortgage investors would otherwise face. For example, prepayment is less an issue with variable rates because principal payments will be reinvested at current rates, which are more or less mimicked by floating-rate mortgages. Prepayment introduces a risk primarily because the spreads in mortgages, which seem high at present, might decline in future mortgages (i.e., there is a basis risk in the present economic environment).

In addition, variable rates address the asset-liability gap created by fixed-rate mortgages and variable-rate sources. However, on a cash flow basis, a problem remains in that the dual-rate Mexican mortgages produce cash flow at a rate different from the income rate of the mortgages. In fact, this point introduces a complication in the establishment of MBS with planned or targeted amortization classes that would require the use of alternative classes to absorb the payment volatilities.

The fact that a sizable fraction of the housing finance offered in Mexico is subsidized also reduces the demand for and competitiveness of MBS. Of course, as shown in table 1, the bulk of mortgages (in terms of mortgage values rather than number of mortgages) are provided by the banking system rather than through agencies.

There is the issue of guarantees by a very credit worthy source; participants in the U.S. market have become accustomed to credit enhancement. The Mexican government and the Central Bank have said that they would not provide credit enhancement for the mortgage industry, but recently the Central Bank has begun offering guarantees out to 20 years on FOVI loans, perhaps suggesting a general softening of the position of the government or the Central Bank. The private banks are currently prohibited by law from offering credit guarantees. Other countries, including the United States, are issuing MBS with third-party credit enhancement and/or overcollateralization and senior/subordinated issues in addition to (or in lieu of) government guarantees. Thus, there are avenues to credit enhancement in the absence of a government agency empowered to assume the risk.

Exchange rate risk is one of the bigger issues in the minds of Wall Street investment bankers.[25] Our preliminary analysis of interest rates in Mexico indicates that they may carry a risk premium for the possible devaluation of the peso in relation to the dollar. If, in fact, the exchange rate risk premium is being paid by Mexican borrowers, solutions abound. The most obvious solution would be to pass the premium through, which would allow foreign investors to either self-insure or use the funds to purchase protection in the futures markets. If the premium is not being paid, or is only partially paid by borrowers, investors could gain some protection by taking positions in the more senior tranches of MBS, thereby limiting exposure to the short run.

In sum, there are significant impediments to the evolution of MBS in Mexico. However, government willingness to change the laws that inhibit development of a secondary market and the apparent willingness of borrowers to pay

high interest rates, which compensates for the high risk and uncertainty in that market, should result in the development of a secondary mortgage market for Mexico in the near future.

CONCLUSIONS

Mexico is characterized by an extreme shortage of housing, especially for low-income persons, and that shortage is growing. Real mortgage interest rates are high, seemingly creating an opportunity to attract foreign capital. One method for attracting such capital is to create portfolios of mortgage loans that could reduce the risks of investing in the Mexican housing finance system. Presently, serious impediments make the implementation of MBS problematic.

Legal impediments include the difficulty in transferring a security interest and the excessive time required for foreclosure. Tax code problems include the taxation of accrued interest and the 15 percent withholding tax on interest paid. However, if the government decides that a secondary market is needed, any legal and tax problems can be swept away by federal legislation.

Infrastructure problems are more difficult to overcome. Today in Mexico, credit reporting on individuals is costly and inadequate, record-keeping by the smaller banks is poor, and data on default and prepayment have too short a history and apparently have not been collected properly by some banks. Logic suggests that one of two sources will need to take the lead in providing the information infrastructure. Either the independent credit agencies will have to convince the banks to contribute credit information, or the banks will have to create an association to collect and share credit data. Either alternative could be accomplished in one or two years with some leadership from the two big banks, the bankers' association, or the Central Bank.

Standardization is particularly important to the securitization process. Uniformity and standardization are needed in underwriting, appraisal, documentation, construction, and especially in mortgage terms. The big banks are large enough to set standards for lenders wishing to deliver mortgages to the securitization industry. Jointly, Banamex and Bancomer originated more than U.S.$4 billion (Comisión Nacional Bancaria 1993) in mortgage loans in 1992. Since the two banks together can generate more than U.S.$300 million per month in mortgages, they should have sufficient volume and market presence to establish standards acceptable for securitization.

The mechanics of designing MBS without excessive risk and uncertainty will be a challenge, especially given that market participants are accustomed to viewing at least some tranches of MBS as practically risk free. There are some virtues in Mexican mortgages that should help solve most of the problems. Nominal peso payments on some common categories of DIMs only go up. Also, the nominal interest rates are high and are adjusted to maintain the real peso purchasing power of the loan balance. Therefore, it should be possible to design MBS that have sufficiently predictable cash flows and compensate most foreign investors for exchange rate risk. In sum, it seems feasible to design MBS of acceptable quality and marketable at reasonable rates of return using mortgage contracts similar to those now offered in Mexico.

The Mexican government has macroeconomic concerns that may prevent it from encouraging development of additional capital sources in the short run. Because of the real appreciation of the peso and the dramatic increase in recent years of capital inflows into Mexico, policy makers are concerned about overheating the economy. Control of inflation is the primary economic goal. So the government may be reluctant to encourage an activity that, on balance, further increases the pressure on the monetary system.

Another open question is, "Are there sufficient incentives for all the required participants?" The government has incentives to provide more affordable housing opportunities, which can help to reduce some of the social and economic problems of the Mexican people and thereby contribute to the political stability of the country. Investors in MBS need only an attractive return for the level of perceived risk involved. It appears feasible to create such an incentive for MBS investors. The big question mark is the banks. Will they see securitization to be in their best interests? The gains they are earning now on mortgages appear to be sizable. Since the domestic banking system has a near monopoly on mortgage lending, and two to four banks dominate, where is their incentive?

One answer to the banking question might be banks' ability to lever their economic rents through the attraction of more capital, if indeed the high real rates we have observed reflect economic rents. To the extent that returns are positive on a risk-adjusted basis (and we cannot yet be sure), the securitization of loan portfolios and sale of those portfolios at normal risk-adjusted levels can create capital inflows that can be reinvested to take more of the available rents. Clapham (1993) calls this process "synthetic capital production." In fact, this very process can ultimately eliminate the rents themselves. However, a major institution or group of institutions that could develop superior contracting technology, servicing ability, and credit origination might greatly expand its market share without thereby eliminating the rents associated with its efforts.

We cannot be sure whether the real rates we have observed in Mexico are excessive on a risk-adjusted basis. To answer that question, we must first identify and price all the risks that are implicit in such mortgages. Obviously, there are risks in the Mexican environment of today that are not present to such a degree in the United States, so direct comparison of U.S. real rates with those in Mexico is not meaningful. Those risks include currency risk,

uncertain credit quality, uncertain housing values, uncertainty in the future index values that will be used to determine interest charges and payments, and some institutional risks. Are those risks systematic? Do they merit higher returns on an ex ante basis? Certainly, if Mexico is viewed as a closed economy, the risks are highly systematic. If Mexico is viewed as an open component of a global economy, they are less systematic. Thus, to the extent that the Mexican economic system continues to be liberalized and opened to foreign investment, we would expect to see the real cost of mortgages decrease, even without decreases in the risks themselves but rather with changes in the allocation of those risks. In fact, the reallocation of risk by itself, without increases in the *amount* of capital committed to the market, can reduce the required returns to investors. Securitization of mortgage loans can play a role in broadening sources of credit, and thus can help to reduce the apparently high costs of buying a home in Mexico.

NOTES

[1] There are many variations in the types of mortgages offered in Mexico. Among other variables, the nature of the indexation itself varies, and these variations can affect the performance of the mortgages under various economic scenarios. See Barry, Castañeda, and Lipscomb (1993) for a discussion of some of these mortgage types and their risks.

[2] The terms are variable for loans whose payments are indexed to inflation rates but fixed for loans that are indexed to interest rates. The great majority of the mortgages are indexed to dual indices. Mortgages indexed to an interest rate have different payment and debit amounts.

[3] While some institutions in fact choose the maximum of the CETE and CPP rates, others also consider the cost of commercial paper, the TIPP (Tasa Interbancaria Porcentual Promedio, a rate that functions in Mexico much like the London Interbank Offered Rate [LIBOR] in the United Kingdom), bankers' acceptances, and the BONDES (Bonos de Desarrollo, a type of development bond).

[4] We encourage caution in the interpretation of the mortgage rate data, since it is based on a very limited sample from a single bank. The values reflect the floating-rate values at which monthly loan balance calculations are made.

[5] To calculate the real mortgage rates, we take the annualized nominal rates and inflation rates provided by Softec, and we compute the real rate as

$$\text{Real} = (1 + \text{Nominal}) / (1 + \text{Inflation}) - 1.$$

[6] Although the adjustment does not capture the real rate every month, it does adjust on an annualized basis.

[7] We note that mortgage debit rates are determined by adding a fixed number of basis points (the spread) to the leader rate, as specified in each mortgage contract. If the market softens and the spread declines, mortgagors will have an incentive to prepay and refinance in order to contract for a lower spread.

[8] Terrington (1993) notes that statistical analysis of mortgage market data is lacking also in the U.K. housing market, but that mortgage-backed securities have been developed in spite of that shortcoming.

[9] The information presented under this heading was derived from notes provided by Softec, a consulting firm in Mexico City.

[10] Historically, the government has chosen to limit the number of notary licenses it issues. The notaries serve the functions of collecting property transfer taxes on behalf of the government and registering the property and documenting its transfer.

[11] Secretaria del Desarrollo Social (Secretariat for Social Development), a powerful government agency that administers housing policy.

[12] Instituto del Fondo Nacional de la Vivienda para los Trabajadores (Institute of the National Housing Fund for Workers).

[13] Fondo de la Vivienda del Sistema de Seguridad Social de los Trabajadores del Estado (Housing Fund of the Social Security System for State Service Workers).

[14] Fondo de Habitaciones Populares (Fund for Low-Income Housing).

[15] "Acquiring a site" may not have the connotation it appears to have: It does not always mean "buying a site." In the informal sector, individuals may merely "invade" a site, occupying it illegally and constructing a home on it. A person who occupies a site long enough is ultimately granted the right to stay.

[16] In an article on the effects of NAFTA on the Mexican banking system, Gruben, Welch, and Gunther (1993) conclude that it will not be easy for foreign banks to compete in traditional lending areas even under NAFTA. During the phase-in period (from 1994 to 2000), foreign banks would be restricted to 8 to 15 percent of the assets of the banking system, and the authors conclude that even after 2000, foreign banks will be unable to compete effectively in primary lending areas.

In March 1994, however, the Mexican government announced that it would begin accepting applications from foreign banks and that the banks that were accepted for entry into the market would be granted the same rights and privileges as Mexican banks. Early expectations were that 25 foreign banks would apply. It remains to be seen how this apparent change in policy will affect Mexico's banking structure.

[17] Corbo and Hernández (1993) describe the peso devaluation scheme in detail. Basically, the value of the peso is reduced by a constant amount each day. In stages, as inflation has been gradually brought under control, the upper bound on the value of the U.S. dollar in pesos has been raised by 1 peso per day, then 0.8 pesos per day, then 0.0004 new pesos per day, then 0.0002 new pesos per day, and finally back to 0.0004 pesos per day.

[18] Central bank officials assert that the Mexican economy is so "dollarized" that the effects of a devaluation would be adjusted away within six months' time. Hence, they argue, an abrupt devaluation would not be effective in adjusting the value of the peso.

When presidential candidate Donaldo Colosio was assassinated in March 1994, the peso fell sharply in value relative to the dollar. After two weeks, the peso settled out at a decline of about 9 percent.

[19] Corbo and Hernández (1993) report that net capital outflows from Mexico occurred in 1988 in an amount of U.S.$1.355 billion, whereas net capital inflows have occurred in each year since 1988, reaching U.S. $24.358 billion in 1991 and U.S.$26.416 billion in 1992.

[20] Conversation with Latin American specialists at Goldman Sachs, New York, in the summer of 1993.

[21] Leahy (1993) describes the operations of the cobertura market, the Mexican market for futures transactions in the peso.

[22] Stone, Zissu, and Lederman (1993) offer a number of articles that describe alternative types of MBS, the process of designing asset classes that suit particular investors' needs, and the effects of MBS on a variety of risks faced by investors in mortgages.

[23] One exception is FOVI loans, but they are only 3.5 percent of the market, and FOVI loans are issued at below-market interest rates.

[24] Something similar to this took place in the United States when Fannie Mae issued its guidelines for conforming mortgages. Almost every conventional mortgage lender began to originate only conforming loans.

[25] These comments are based on interviews with the Latin American investment groups of Goldman Sachs and Merrill Lynch in New York on June 10, 1993.

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Capital Market Development in the Caribbean: The Home Mortgage Bank of Trinidad and Tobago

by Calder Hart

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BACKGROUND AND RATIONALE

The Home Mortgage Bank of Trinidad and Tobago is a secondary mortgage institution. As such, it has no direct interface with the consuming public, i.e., mortgagors and prospective mortgagors, but serves as a bank to the primary mortgage lenders, such as commercial banks, life insurance companies, trust companies, etc. It is a facilitating device for the movement of capital and savings from the investor through the primary mortgage lender to the prospective homeowner. The primary mortgage lender retains the interface with his customer and continues to administer the mortgage as if he still owned it. As a secondary mortgage institution, we expect to be invisible to the individual and specific customer, i.e. mortgagor.

One of the major objectives of a secondary mortgage institution is the transfer of capital that might not otherwise be available to the mortgage market by promoting the liquidity of the instruments used to securitize that investment. The Home Mortgage Bank acts as a self-adjusting mechanism to distribute capital from highly liquid areas and institutions to less liquid ones. It creates an equal and level playing field for lenders, regardless of the size of the institution or its geographic area of business. The Home Mortgage Bank, as a secondary institution, is a mechanism which effectively promotes the velocity of capital. Its administrative structure must impart confidence to, not only the investing public, but also the institutions that it is expected to serve. To this end, its operations must be conducted in a timely and efficient manner.

Calder Hart is Chief Executive Officer of the Home Mortgage Bank of Trinidad and Tobago.

STRUCTURE

The ownership of the Home Mortgage Bank is the result of a unique public/private shareholding comprising the Central Bank of Trinidad and Tobago, the International Finance Corporation (the private financing arm of the World Bank), the National Insurance Board (social security institution), and the commercial banks and insurance companies of Trinidad and Tobago. The ownership is 32.5% public and 67.5% private with the Central Bank being the largest shareholder at 15%.

The Home Mortgage Bank has entered into a Subscription Agreement with the International Finance Corporation which defines the standards, particularly the operating and financial standards, that the institution is expected to maintain as well as the determination of institutions deemed eligible for designation as approved lenders. Included in the criteria for designation as an approved lender are standards of net worth as well as operational expertise and experience in loan underwriting and administration. Approved lenders are expected to execute a Deed of Sale and Administration which sets out the responsibility of the lender in administering the individual mortgage loans and provides the Home Mortgage Bank with a beneficial legal interest in the mortgage deed which is achieved through supplemental deeds. Primary lenders receive a fee ranging from 1% to 1.5% for administering the Deed of Sale and Administration with full recourse to the lender. Other products include reduced fees for partial or non recourse to the lender by the Home Mortgage Bank. In addition, the lender receives a fee of 1%–2% for operating the bridging facility for new construction loans.

As the Home Mortgage Bank is essentially a wholesale operation, it provides an effective and efficient mechanism for accessing funds which is achieved with relatively low overhead and related expenses. Those overhead charges will reduce significantly over time because of the wholesale nature and the automated operating structure that is a fundamental prerequisite for secondary institutions.

As a result of the creation of benchmark residential mortgage interest rates, downward adjustments in our fee structure will be allocated both to lenders for their achievement of various policy initiatives (this forward looking approach was actually signaled in the International Finance Corporation Subscription Agreement), and the balance going to reduce the rate to the mortgagor and therefore enhancing affordability.

The Home Mortgage Bank has established a benchmark interest rate for new residential construction as well as the financing of existing homes. It will only purchase loans by the lenders that fulfill the policy envelope as defined in the IFC Subscription Agreement.

POLICY

The policy envelope is as follows:

1. Mortgage loans will only be purchased which are secured by a first mortgage deed or comparable type of instrument.
2. Second mortgage loans are not permissible.
3. The maximum loan-to-value/cost will be 90%.
4. The amortization term will be for a maximum of 30 years.
5. The home to be financed must be owner occupied.
6. The mortgage interest rate should be in a range not exceeding 3% over the cost of funds.
7. The price range of eligible housing in Trinidad and Tobago will be T.T. $150,000 and up with no ceiling.
8. Residential mortgage lenders must have a minimum net worth of T.T.$3 million, and their quantum or share of our mortgage portfolio cannot exceed 20% of the total portfolio.
9. To achieve a high level of security our mortgage portfolio is expected to show geographic diversity as well as prudent standards of risk assessment and underwriting.

DUALITY OF PURPOSE

The twin focus of a secondary mortgage institution has to deal with:

- Capital markets;
- Mortgage markets.

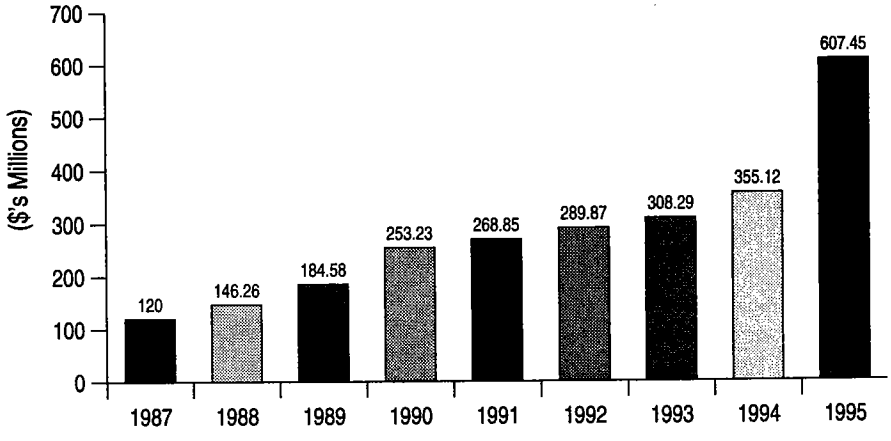
In respect to the capital markets, the role of a secondary mortgage institution is to influence the diversity and velocity of the actual money market. In Trinidad, the Home Mortgage Bank of Trinidad and Tobago has issued $744.53 million in tax-free and non-tax-free mortgage-backed bonds which have been issued for short-, medium- and long-term periods. As a comparison, more than 50% of our bond debt is five-plus years, and this ratio compares more than favorably with the length of maturities issued by the American secondary institutions. Mortgage pass-through securities provide a shorter term cash deposit-type instrument. These instruments are attractive because:

a. The interest is tax free on the bonds.
b. The mortgage pass-through securities are short-term deposit-type instruments which can be redeemed monthly.
c. The Central Bank had been the market maker for our bonds by operating as a buyer of last resort.

This window, however, was rarely utilized and at no time were any more than 1/2–of–1% of our bonds held by the Central Bank. In Trinidad and Tobago a bond market has been recently established as an adjunct to the stock exchange. Shortly, we expect to see more activity in respect to these types of instruments, as soon as the securities industry becomes as familiar with debt instruments as they are with equity ones. The recent enactment of a Securities and Exchange Commission will likely provide further impetus to this.

In respect to the mortgage market, the Home Mortgage Bank is obviously one of the financing mechanisms for the larger industry envelope which, of course, is the housing market. In Trinidad we have purchased $605.562 million in mortgages. While our

Figure 1. Total Bonds in Issue



initial focus was in the purchase of existing portfolios and assisting hard-pressed mortgagors, recent policy has been to encourage new construction, support public initiatives aimed at private lenders and strategic acquisition of existing portfolios. We have sought to establish a uniform mortgage policy through an advocacy position on the following:

- Standardized Mortgage Deed;
- Automated and streamlined Land Registry System;
- Abolition of prepayment penalties;
- Bridging interest rate to be at the takeout or completion mortgage interest rate;
- A National Mortgage Insurance System for balancing risks and allowing higher ratio mortgage loans to be considered.

Figure 2. Accumulated Value of Mortgages Purchased

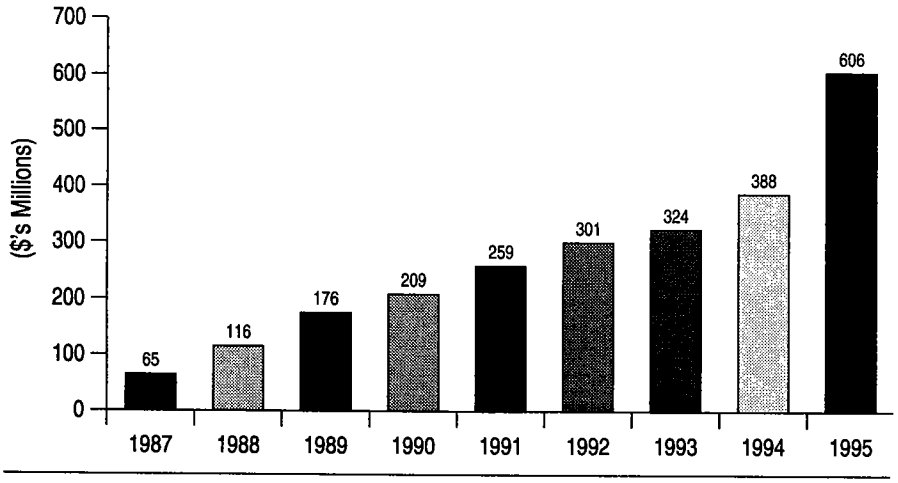
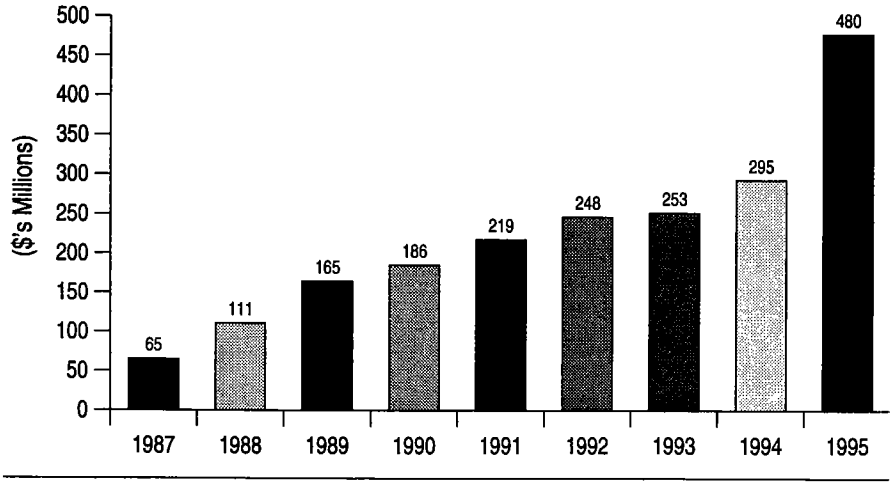


Figure 3. Mortgage Portfolio Serviced



SIGNALS OF SUCCESS

The major key to analyzing whether the Home Mortgage Bank has been a success is to evaluate how the various component players have benefited in its nine years of operation.

Shareholders

1. Since the Home Mortgage Bank was established, it has produced a profit each year, and the shareholders have received a yield comparable to the long-term government bond yield, or better, as dividend, with last year's dividend being 16%.
2. The earnings per share on shareholders' equity has been in the 20%-25% range, with last year's figure at 34.26%.
3. The institution in nine years has generated net profit after tax of $31 million.
4. The capitalized value of each $100.00 original share in the Home Mortgage Bank is now considered to be in the range of $250.00–$300.00.

Bondholders

Investors traditionally value security and liquidity as the two major elements for holding long-term instruments, and in support of those two major features:

1. Less than 1/2–of–1% of our bonds had been held by the Central Bank, and currently there is an active market for our bonds.
2. The Home Mortgage Bank is, after the government of Trinidad and Tobago, the

largest issuer of bonds. To date, 24 bond series have been issued. At the time of the Home Mortgage Bank's creation, no more than $200 million a year had been raised in the local bond market by all issuers. By 1992 that figure in Trinidad had climbed to $1.4 billion and has remained in excess of a billion dollars each year since.

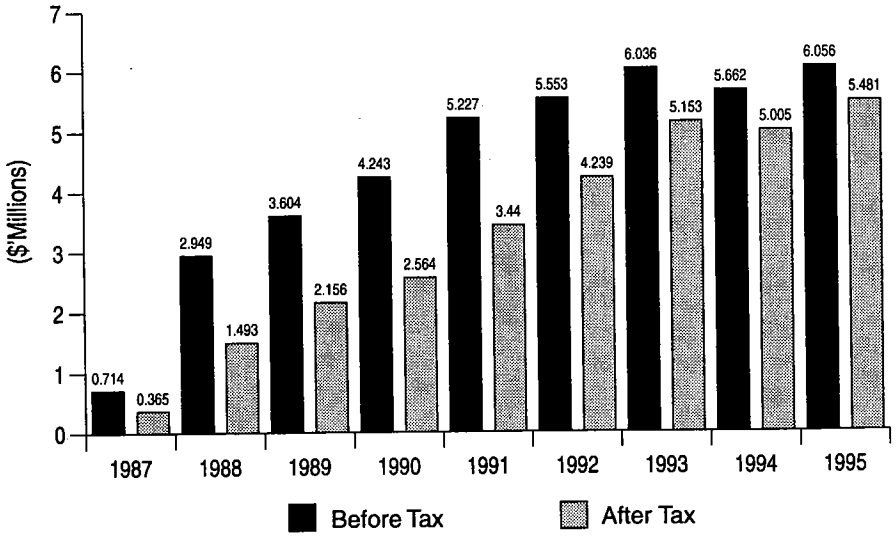
3. More than 50% of our debt has over five years to maturity.
4. The interest on our bonds is tax free.
5. Our bonds are eligible for inclusion in the statutory fund and reserve of insurance companies as well as collateral security for lending by commercial banks.

Mortgagors and Lenders

Initially, with the downturn in the oil-based Trinidad and Tobago economy, the major focus of the Home Mortgage Bank was relief of hard-pressed homeowners through a reduction in their gross debt service. Recently, however, as the asset growth of the Home Mortgage Bank allowed it to increase its influence over the overall residential mortgage market place, it has created a competitive and market-driven mortgage environment.

1. The Home Mortgage Bank's benchmark interest rates in Trinidad are 11% for new and existing homes, a rate comparable to or less than the government borrowing rate of the past several years.
2. This rate has allowed the smaller institutions to access the most prime mortgage market financing for their customers and in fact, has given all prospective homeowners in Trinidad and Tobago the opportunity to use their own financial institution, as opposed to using the major lenders, for the best deal.
3. It has allowed the institutions to provide bridging finance at the takeout or completion mortgage interest rate.

Figure 4. Comparative Net Income



4. It has brought a fully automated environment to support the primary institutions; and when the primary institutions become fully automated, this will enable all transactions to be carried out electronically, as is the case in the United States of America and Canada.

Government of Trinidad and Tobago

In looking at the public goals and objectives which cause the creation of a secondary mortgage institution, the following are pertinent:

1. Its creation has allowed the government to delegate to the private sector more of the responsibilities for the provision of mortgage financing.
2. By directing more emphasis to the private sector as well as enhancing the availability of mortgage financing through the private sector, the government has sought to shrink the size of the public safety net, both to ensure a more dedicated and targeted approach with the limited public resources available and to enhance a greater level of mortgage availability and affordability in the wider market place.
3. It has ensured that all prospective homeowners in the country have access to the most competitive mortgage terms possible.
4. It has allowed the Home Mortgage Bank to support the total market place with market driven policies and practices as opposed to segmented targeting by public institutions with diminished public resources to draw upon.
5. It also prefers to see market advocacy support through a secondary institution by putting private resources at work to achieve such elements as:
   - Standardized mortgage deeds;
   - Abolition of prepayment penalties;
   - Bridging interest rate to be takeout rate;

- National Mortgage Insurance; and
- A more streamlined land registry.

6. The Home Mortgage Bank has contributed approximately $15 million of corporation tax revenue through the end of 1995.

IMPLICATIONS FOR THE EASTERN CARIBBEAN STATES

In looking at the characteristics of the Eastern Caribbean States, it is quite apparent that a number of conditions exist which make the creation of a Home Mortgage Bank a timely response to not only the economic and financial conditions but to wider market needs as well.[1]

1. The region has a diversified financial market place as well as eight member states.
2. There have been times of variable liquidity patterns between states and lenders in the Eastern Caribbean region.
3. With a substantial number of lenders, there is a competitive financial market in virtually all states in the region.
4. Some states, e.g., St. Lucia, have an advanced and simplified means of land conveyancing which will greatly enhance the effectiveness of the financing instruments that are issued.

SUMMARY

The characteristics which mainly contributed to the success of the Home Mortgage Bank of Trinidad and Tobago include the following:

- Targeted marketing thrust;
- Technological strength, with support from Canadian and American institutions;
- Problem-solving and cost effectiveness due to a precise focus;
- High quality board composition and management;
- Private sector confidence and support; and
- Timely and efficient response to needs of primary market institutions.

NOTES

[1] Editor's Note: The Home Mortgage Bank is a shareholder in and advisor to the newly created Eastern Caribbean Mortgage Bank (ECMB). This institution will operate across the eight member countries of the Organization of Eastern Caribbean States (OECS). The structure is modeled after those of the HMB. Its authorized capital is $40 million, contributed by the Eastern Caribbean Central Bank and various commercial banks and insurance companies in the OECS, and its initial authorized bond issuance is $250 million. It is exempt from corporate tax and stamp duty, and interest on its debt securities will be tax exempt.

Housing Finance & the Secondary Mortgage Market in Australia

Anthony Gill

THE AUSTRALIAN SECONDARY MORTGAGE MARKET

Securitisation has emerged as one of the fastest growing sectors in the Australian Capital Markets. From it's beginnings in the mid 1980's, securitised debt as a proportion of Australian debt outstandings (face value) has grown to approximately 18%[1] (as at September 1997). Evidence that this rapid growth has been sustained is in Standard & Poor's report of a 94.9%[2] increase in new ratings during the six months to June 1997 (over the same period in 1996).

To date, the Australian securitisation industry has been dominated by the mortgage-backed sector of which the market leader is PUMA Management Limited ("PUMA"). Launched in 1990, PUMA is a wholly owned subsidiary of Macquarie Bank Limited. It currently has a staff of 115 managing a portfolio in excess of 50,000 loans.

Since it's inception, PUMA has accounted for a dominant share of all new mortgage securitisation business in Australia. PUMA has issued over A$ 6 billion of mortgage backed securities, with senior bonds rated "AAA" by Moody's, "AAA" by S&P and, for the recent E-2 issue, "AAA" by Fitch Investor Services. The E-2 Eurobond issue in London has taken PUMA's offshore outstandings to A$2.2 billion and it's total debt raisings in 1997 to A$3.2 billion.

Anthony Gill is the Managing Director of PUMA Management Ltd

The growth and development of the mortgage backed securitisation market has been inextricably linked to the Australian Mortgage Market. As the securitisation market has developed, it has served to effectively lower the barriers to entry into the mortgage market. Traditionally, financial institutions have required significant capital to support balance sheet lending practices and compete in the mortgage market. Securitisation of mortgage loans has eliminated this capital requirement allowing a new class of intermediary to develop. This class includes non-bank mortgage managers ("Managers") such as insurance companies, brokers and even real estate firms. Australia's largest non bank lender is Aussie Home Loans which, together with PUMA - it's strategic partner - has written more than 19,000 loans since January 1997. PUMA and Aussie Home Loans have radically changed the nature of the Australian mortgage market.

The pricing of mortgage backed issues (and consequently the pricing of mortgages) has declined as the attraction of highly rated and keenly priced bonds has developed. This is illustrated by the pricing of PUMA issues as follows (see table at top of next page).

Additionally, the banks have experienced a decline in their low-cost funding base, as demonstrated in the following, which has diminished their competitive position.

Arguably, these two factors, lower cost securitised funding and a weakened bank funding position, have allowed PUMA and the Managers to compete on an equal footing with the banks.

Further, the Managers' low-cost mortgages have served to focus attention on the high cost structure, overheads and operating inefficiencies of the banks' branch networks. Technology, communications, centralised processing, and new avenues of marketing have provided competitive advantage for the new entrants.

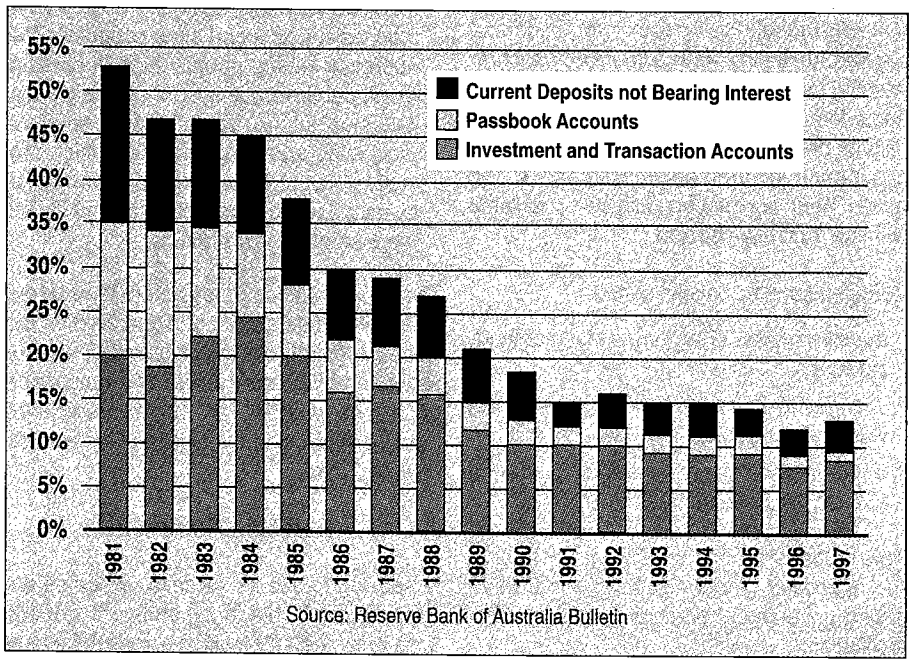
This competition was clearly evident in June 1996 and February 1997 when, arguably, PUMA prompted two rounds of mortgage rate reductions. These movements set a precedent in Australia as they were not accompanied by official rate reductions.

The reductions represented a re-positioning of the market. Bank lenders reduced their mortgage rates in line with securitised products. For example in 1993, the bank lenders' headline rate was approximately 4% over the official cash rate[3]. Currently this is approximately 1.5%.

HISTORY OF PUMA BOND PRICING

BondIssue	Issue Size (AUD) (AUD)	Margin over time (over 90 Day BBSW)	Issue Date
P1	$200 million	60.2 basis points	December 1994
P2	$300 million	57.2 basis points	February 1995
P3	$700 million	49.0 basis points	June 1995
P4, Series A	$600 million	33.8 basis points	October 1995
P4, Series B	$250 million	30.6 basis points	December 1995
P5, Series A	$800 million	32.3 basis points	May 1996
P5, Series B	$500 million	21.3 basis points	September 1996
P6, Series A	$500 million	16.6 basis points	February 1997
E1 Series 1	$912 million (US$700 million)	11.3 basis points (over US$ LIBOR)	March 1997
P6, Series B	$500 million	16.8 basis points	June 1997
E2 Series 1	$1,290 million (US$900 million)	17.2 basis points (over US$ LIBOR)	November 1997
Total	**$6.710 billion**		

Figure 1 Low Cost Deposites of Banks (Proportion of Total Liabilities)



Competition has improved borrower understanding of mortgage products, loan options and the service features available to them. The Australian home mortgage borrower has unprecedented access to mortgage products, service and product options and competitive interest rates.

Further evidence of the impact of the secondary mortgage market occurred in September 1996 when Westpac, a major Australian trading bank first sold pools of its own mortgages, presumably seeking to access similar low cost funding.

Whilst the Australian market continues to mature, some issuers have already found they have outpaced the local market and have taken steps to diversify their funding base. A good example was PUMA's E-1 US$700 million transaction executed in March 1997. It's pricing at 11.3 basis points above LIBOR was one of the reasons why it was ranked in Euromoney's Top 50 Global deals of the Year. It was the only Australian deal to receive this recognition as well as being the only public securitisation deal. This has proved that Australian transactions are now of a worldwide standard. A further affirmation of this was PUMA's recent US$900 million E-2 transaction which was launched and priced in November 1997 at 17.2 basis points over US$ LIBOR. We believe this represents a further step in paving the way for Australian securitisers to tap offshore markets and raise more competitively priced funds whilst providing a source of highly rated assets for investors.

The securitisers have made their mark as credible and substantive funders and the Managers are a viable, attractive and substantial alternative for Australian borrowers.

The mortgage market in Australia has witnessed a permanent realignment. Non bank mortgage lenders now represent almost 10% of the $180 billion (approx)

Australian Mortgage Market and around 15% of new Australian homeloans are being funded by securitisation. Home loan funding is, and will remain, cheaper because of securitisation. The development and growth of the secondary mortgage market has increased the affordability of housing in Australia.

TRENDS

GLOBALIZATION

The situation described above is not unique to Australia. Mortgage securitisation is an increasingly global phenomenon across America and Europe and in the emerging markets of Latin America, Eastern Europe and Asia. It has assisted many organisations in diversifying funding sources by tapping deep, liquid and competitive domestic and offshore markets. Obviously, this "Globalization" is not restricted to the securitisation market. The world's capital markets are driving this trend with far-reaching consequences.

PUMA believes that the key issue for the secondary mortgage market as a result of globalization is that international wholesale funding will increasingly fund retail assets. This extends beyond mortgage loans to personal loans and credit cards. The role for banks will increasingly become that of arranger rather than intermediary.

New mortgage products and features, a greater penetration into non-mortgage asset classes, changing consumer buying habits and new capital market instruments will feature in the industry's near future. Clearly in Asia, alternative asset classes have led rather than followed the market (except in Hong Kong where mortgages have been the major asset class) with auto loans and credit cards being the asset choice of arrangers.

GOVERNMENT INVOLVEMENT

An issue that has been a key factor in the Australian market has been the development and maintenance of a "level playing field". How this has been achieved and what it means is worthy of comment.

Australia has limited government involvement in the securitisation market. However, partially as a result of the corporate disasters in Australia of the late 1980's, but mainly because of the fundamental basis of the common law system, securitisation has flourished in an environment of comprehensive and well documented laws and guidelines.

Facilitation and not participation has been the hallmark of success for government involvement in the Australian securitisation industry. The Federal government has observed the emergent public benefit of the secondary mortgage market and has assisted its growth not with subsidies or government sponsored operations but through the medium of facilitation. The most recent example witnessed government assistance of the market through changes in regulations. In early 1997, the Australian government introduced changes to the regulation of interest withholding tax. This served to assist all participants in the market without preference and allowed Australian issuers to move offshore, passing on cost benefits to the economy and home loan customers whilst avoiding market distortions. At the same time, this method of assistance incurred negligible costs to the government, but increased its own popularity with the Australian people.

Further examples have included:

- the introduction of uniform consumer lending laws;
- changes to State taxation systems to provide uniformity; and
- development of securitisation guideline (C2) by the Reserve Bank of Australia.

This model stands in significant contrast to the approach of other countries that have strong government participation rather than facilitation.

In many cases the government sponsored organisations do not facilitate funding diversification and have failed to develop sources of long term, non speculative foreign capital or true risk diversified domestic funding. Additionally, home loan lending rates often continue at high margins because cheaper avenues of finance are not provided and the funds in many cases are only provided to existing lenders. The benefit to consumers is quite hard to measure.

If the above example serves to illustrate any point, it is that government involvement can take many forms but these predicate two clear possible outcomes which are:

1 Governments may choose to encourage markets through regulations, controls or government sponsored operations. However this is a potentially high cost option, which may well limit competition and benefits.

2 Alternatively, governments can facilitate the development of markets. This has been the case in Australia. In the Asian region, this also appears to be the approach of Indonesia, China and other countries. This approach (being equally high in commitment) does not use scarce sovereign capital and encourages participants via facilitating and enabling rules which provide a) regulators with confidence, b) gives a low cost approach and c) opens the market to best practice.

The overall attitude of regulators toward, and levels of understanding of, securitisation can influence greatly the development of securitisation in any country. Clear and reasonable guidelines together with suitable legislation must be in place for the benefit of lenders and investors alike.

PUMA IN INDONESIA

In seeking to use its success, expertise and experience, PUMA is expanding it's operations within Asia. In looking across the region,

we reviewed many countries. Owing to a number of factors, we are initially working in Indonesia, which, we believe will be every bit as successful as Australia. In devising our launch strategy, we are not only planning for a successful business, but also building the potential for social benefits for ordinary Indonesians and participating in the further development of its capital markets, particularly after the confidence-zapping effects of August.

We have been asked a number of times "Why Indonesia?", so, for your interest, we have recorded the following key factors:

- Critical mass. Given a population of 200 million people, Indonesia is a high potential long-term investment.
- Indonesia has a 'BBB' investment grade rating. This makes securitisation a suitable approach.
- During recent years we have maintained regular dialogue with key regulators. It is our experience that Bapepam and Bank Indonesia are thoughtful, sensible and consistent regulators who take the opportunity to explain their goals to interested parties. This makes the decision to enter the market a controlled rather than random risk.
- Despite the last few months, we believe that Indonesia's fundamental economics are good. Naturally, like most commentators we anticipate considerable benefits from the micro-economic reform that seems likely to result from this year's shock to it's capital markets.
- Computing power is a key ingredient in PUMA's success. Easy adoption of our computer system to Indonesian standards is achievable because the incorporation of characters to communicate in writing with our customers is not required.
- Indonesia's fast and growing investment in telecommunications, particularly in Jakarta, has made our initial transaction planning feasible and has provided confidence that our technology can be transferred.

HOUSING MARKET

- The home loan market is small at 16 Trillion Rupiah, but it is growing (with lower interest rates it is likely to recover within twelve to eighteen months) and will build into a substantial and sustainable market.
- Indonesia has passed recent laws that assist registration of property titles and mortgages.
- Housing demand exceeds housing supply with this situation forecast to remain for the foreseeable future.
- KPR (housing loans) amortise over 10 to 15 years on a floating rate basis. This is quite similar to Australian products, again aiding our development.

CAPITAL MARKETS

- Many Indonesian banks are short of capital. Clearly this is a strategic benefit to securitisers.
- New Bapepam regulations will allow domestic issuing capacity to be established.
- Indonesia's payment system is consistently improving. A direct debit system is forecast for introduction within two or three years.
- Notwithstanding recent liquidity issues, domestic and offshore swap markets are developing. This makes bond structuring an achievable goal.

In seeking to launch its products in Asia, PUMA is initially focusing on Indonesia. We believe that the dynamic growth in the region will, over the medium term, be positively affected by the events of the last few months but we continue to closely monitor the situation. The introduction of world class secondary mortgage market technology will obviously be to our benefit, however, it will also help Indonesian families and the market as a whole. We believe we have accomplished this "double benefit" in Australia, an achievement of which we are particularly proud, and we hope to emulate this success in Indonesia and other selected Asian countries where both economic success and social benefits will be substantial.

We believe that securitisation is the key to the long term financing of housing finance.

NOTES

Prepared by A J Bruce & A L Astridge

1 Macquarie Bank Economics Division - September 1997

2 Standard & Poor's Credit Focus August 1997 p.1

3 You will save on Home Loans, but watch the Bank Fees, the Daily Telegraph, 2 August 1996.

The Secondary Mortgage Market in Malaysia

Hwuang Sin Cheng

In Malaysia, it is not possible to discuss the secondary mortgage market without mentioning Cagamas as it is currently the only institution In the country undertaking securitisation activities. Without Cagamas, there is, therefore no secondary mortgage market as its activities form the heart of the market. The name Cagamas actually stands for Perbadanan Cagaran Malaysia or the National Mortgage Corporation. As implied by its name, the Company purchases housing loans from the institutions which originate the loans at primary level and issues bonds as well as short-term notes to finance the purchases. In effect, therefore, Cagamas turns the housing loans into debt securities at the secondary level through a securitisation process.

CAGAMAS BERHAD

Cagamas was incorporated in 1986 and commenced business in 1987 following deliberations between the Central Bank, the financial institutions and consultants from an American financial institution. Cagamas was set up with the blessings of the Government to facilitate and encourage home ownership in Malaysia and to contribute to the development of the debt security market. To achieve this, it acts as an intermediary between the primary lenders and long term investors. By doing so, the Company alleviates the maturity mismatch of the primary lenders which grant housing loans with repayment periods of up to 30 years and finance them with funds of mainly less than 1 year maturity. Additionally by purchasing the housing loans, Cagamas also takes over from the originators, the interest rate risks inherent in these loans. The debt securities, particularly fixed income securities, issued by the Company create additional investment options for investors. The secondary mortgage market in Malaysia thus began with the commencement of operations by Cagamas in 1987 and till today, Cagamas remains the only institution providing securitisation facilities in Malaysia.

Hwuang Sin Chen is the General Manager of Chagamas.

SHAREHOLDERS

Cagamas is owned to the extent of 20% by none other than Bank Negara Malaysia, which is the Central Bank. All the remaining shares of Cagamas are held by the financial institutions regulated by the Central Bank, comprising the commercial banks, the finance companies and the merchants banks.

The Chairman of the Board of Directors is the Governor of the Central Bank while the other members of the Board are prominent senior members of the banking industry.

The good pedigree of the company is an important factor to explain why Cagamas debt securities are so highly rated and well received in the market and is the foundation for its success in securitising housing loans.

SECURITISATION PROCESS

The securitisation process itself is very simple. The primary lenders such as the commercial banks, grant housing loans to the house buyers. They subsequently sell these loans to Cagamas. Cagamas would then raise funds from the market to finance these purchases by issuing debt securities in the form of the longer term Cagamas Bonds and the shorter term Cagamas Notes, to investors. Investors include the financial institutions, insurance companies, pension funds, non-resident companies and others who are interested in investing in short and medium term papers to obtain an income either at a fixed or adjustable interest rate. This is in effect the way the secondary mortgage market currently works in Malaysia.

Through the secondary mortgage market, therefore, Cagamas effectively converts a long term illiquid asset in the form of housing loans into debt securities which are tradeable in the secondary market. This process enables the investors to earn an income from Cagamas securities which is derived from the interest paid by the house buyers on their housing loans and also enables the primary lenders to turn their housing loans into cash at any time by selling them to Cagamas.

TYPES OF MORTGAGE PURCHASE FACILITIES

Cagamas stands ready to purchase, at any time, housing loans from the originators at a quoted interest rate known as the Cagamas Rate. The transaction will be subject to price review periods of 3, 5 or 7 years. At the end of the contracted review period, a new rate of interest is offered by Cagamas. The institution which sold the housing loans, has the option to repurchase the housing loans from Cagamas, if it deems the interest rate quoted by Cagamas at the end of the review period, to be unacceptable.

Cagamas purchases housing loans either at a fixed, floating or convertible rate. Fixed rate purchase means that the transaction is based on an interest rate that is not adjustable during the review periods of 3, 5 or 7 years. Under the floating rate purchase facility, Cagamas purchases housing loans based on an interest rate that is pegged to the 3-month or 6-month Kuala Lumpur Interbank Offer Rate ("KLIBOR"). The interest chargeable on such purchases is, thus, reset at 3 or 6 month intervals during the review period of 3 to 7 years. Convertible means that the selling institution can switch from a fixed to a floating rate or vice versa during the course of the review period. In addition, interest free housing loans granted under the Islamic principles can also be sold to the Company based on the principle of Bai al-dayn (debt trading).

STRUCTURE OF MORTGAGE PURCHASE FACILITY

The sale of housing loans to Cagamas is done with full recourse to the selling institutions, i.e. The selling institution is required to repurchase any housing loan which is subsequently found to be not of the quality specified by Cagamas. The housing loans in Cagamas' portfolio are, therefore, of good quality and the Company does not carry any credit risk. As an additional safeguard, Cagamas is very selective as to whom it purchases housing loans from. At present, the Company only purchases mortgage loans from the financial institutions regulated by the Central Bank and staff housing loans from selected large corporations which are majority-owned by the Government and the Government itself. The primary lender i.e. the selling institution would act as the servicer, trustee and custodian for Cagamas upon selling its loans. The primary lender as servicer, would, therefore, be responsible for collecting the monthly housing loan installments and remitting them to Cagamas.

TYPES OF MORTGAGE-BACKED SECURITIES

With regard to the funding side of the Company's business, Cagamas issues 4 types of debt securities to fund its mortgage purchase activities, namely fixed rate bonds, floating rate bonds, short term discount notes (known as Cagamas Notes) and Cagamas Mudharabah Bonds which are interest-free bonds issued under the Islamic principle of profit sharing.

Cagamas securities which are all unsecured obligations of the Company are issued scripless and are tradeable electronically in book-entry form through an electronic clearing house, known as the Scripless Securities Trading System, operated by the Central Bank of Malaysia.

The interest on the fixed rate bonds is payable semi-annually. The bonds are redeemed at face value on maturity. These bonds are issued for tenors of 3 to 7 years to match the price review period of the Company's mortgage purchases. The interest rate for the floating rate bonds is pegged to the 3 or 6 month KLIBOR and is reset accordingly at 3 or 6 month intervals. These bonds which are issued for periods ranging from 3 to 7 years, are redeemable at face value. Cagamas Notes are issued for short terms not exceeding one year. But unlike the fixed and floating rate bonds, they are issued at a discount from the face value. These discount notes are issued to obtain funds to meet Cagamas' short term liquidity and hedging requirements.

The Cagamas Mudharabah Bonds do not carry any interest but dividends are payable half yearly based on a specified profit sharing ratio. They are used to finance the Company's purchase of Islamic house financing debts.

SPECIAL ATTRIBUTES OF CAGAMAS SECURITIES

The Cagamas bonds and short term Cagamas Notes are recognised as liquid assets by the Central Bank for the purpose of compliance by the financial institutions with the statutory liquidity requirements. The eligibility of Cagamas securities as liquid assets has the effect of enhancing demand among the financial institutions for the securities and thus lower their coupon rate. This concession is given by the Central Bank to make the end-financing for houses more affordable.

Due to the good pedigree of the Company and in view of the fact that its debt securities are backed by the housing loans purchased, all debt securities issued by Cagamas have been assigned the highest rating of AAA (longer term securities) and P1 (short term securities) and AAA (longer term securities) and MARC-1 (short term securities) respectively by the local rating agencies, Rating Agency Malaysia and Malaysian Rating Corporation.

The fixed rate bonds comprise about three quarters of the total amount of Cagamas debt securities outstanding as at the end of December 1996, while the short term discount notes accounted for another 16%, with the balance consisting of floating rate bonds and Islamic bonds.

While the volume of Cagamas debt securities has been growing rapidly since the establishment of the Company, trading of these securities on the secondary market has been has been rather slow and inconsistent. As a result, one of the weaknesses in the Malaysian debt securities market is the lack of benchmark bonds. This is, therefore, one area of the secondary mortgage market that needs urgent development.

VOLUME OF HOUSING LOANS PURCHASED AND OUTSTANDING

As at end of	RM million	US $million (equivalent)	% Change
1992	5,345	2,138	-
1993	6,076	2,430	13.7
1994	9,944	3,978	63.7
1995	11,882	4,753	19.5
1996	16,142	6,457	35.9

AMOUNT OF CAGAMAS SECURITIES

As at end of	Issued and Outstanding RM million	US$ million (equivalent)	% Change
1992	5,137	2,055	-
1993	5,940	2,376	15.6
1994	9,485	3,794	59.7
1995	11,322	4,529	19.4
1996	15,737	6,295	39.0

FINANCIAL HIGHLIGHTS

Since the establishment of the Company about 10 years ago, the volume of housing loans securitised has grown rapidly, as shown at top right:

As at the end of 1996, Cagamas had securitised RM 16.1 billion (US$ 6.4 billion) or 27.2% of the total volume of housing loans granted in Malaysia, compared with RM 5.3 billion (US$ 2.1 billion) or 14.1% of the total as at the end of 1992. The commercial banks and the finance companies, which together granted RM 39.7 billion (US$ 15.9 billion) or 67.0% of the total housing loans of RM 59.3 billion (US$ 23.7 billion) outstanding in Malaysia as at end of 1996, were the main group of institutions that securitised their loans, accounting for RM 13.3 billion (US$ 5.3 billion) or almost 83% of the total amount (RM 16.1 billion or US$ 6.4 billion) of housing mortgages securitised by Cagamas.

Reflecting the success of the Company in securitising housing loan, the volume of debt securities issued has risen equally rapidly (see table at bottom right):

The operations of Cagamas have been profitable since commencement of business, with pre-tax profit rising from RM 4.3 million (US$ 1.7 million) in the Company's first year of operation in 1987 to RM 131.0 million (US$ 52.4 million) in 1996. Consequently, the shareholders' funds of the Company has risen from RM 52.3 million (US$ 20.9 million) at the end of December 1987 to RM 344.2 million (US$137.7 million) at the end of December 1996.

WHAT THE FUTURE HOLDS

Cagamas has, thus, been successful in developing the secondary mortgage market. Through its securitisation operations, the Company has provided the liquidity that is so essential for the development of the housing loans market. In fact, it is the availability of Cagamas facilities that has made housing loans so easily accessible in Malaysia and at an affordable cost too. Over the last 10 years, the securitisation facilities provided by Cagamas had enabled the average tenor of housing loans in Malaysia to lengthen from approximately 15 years to about 25 years and thus helped to place house ownership within reach of a large cross-section of the population, particularly the lower income group. This, in turn, laid the foundation for the rapid growth experienced by the Malaysian housing industry in the recent years.

For the future, the securitisation activities of Cagamas are expected to encourage further growth in the volume of housing loans extended by the financial institutions. Cagamas would enhance this trend by introducing new products such as pass-through securities to meet the evolving requirements of the secondary mortgage market. Given the low level of development in the capital market at the time when Cagamas was set up, purchasing housing loans with recourse to the loan originators was then the best course of action. With the rapid development of the capital market over the last 10 years, the transitional phase is over and Cagamas should soon be ready to introduce pass-through securities in order to bring the secondary mortgage market to a higher state of development.

The Home Finance Company Limited in Ghana, West Africa

by Stephanie Baeta Ansah

Originally Published June 1996

INTRODUCTION[1]

Any system of housing finance is sustainable only if it is relevant to the economic, social, political and regulatory environment of the country concerned.

In the United States, where the secondary mortgage market first emerged following the Great Depression, the housing finance system was built on a foundation in which depositors could confidently invest their money in federally insured savings and loans institutions, then the dominant source of mortgage lending. These institutions, in return, could offer home buyers longer term, amortizing mortgage credit at reasonable rates.

Whether intentionally or not, this emerging new system of housing finance was highly dependent on an economy with only minor changes in interest rates. To profitably provide a continuous flow of mortgage funds, savings and loan institutions needed interest-rate stability to fund long-term mortgages with short-term deposits. For about three decades, the process worked extremely well.

During the 1960s the U.S. faced severe regional capital shortages, as newer regions had more demand for mortgage credit than the regional savings available could reliably mobilize. At the time, savings and loans experienced debilitating competition as depositors sought other higher yielding investments. As a result, wide differences in mortgage rates appeared.

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New Institutions Created

In the following decades, secondary mortgage institutions like Fannie Mae and Freddie Mac stepped in to mobilize new sources of conventional mortgage funding, chiefly through securitization. The mortgage-backed security then developed and fundamentally changed the course of housing finance by linking mortgage finance directly to the capital markets. Functioning as pass-throughs, mortgage-backed securities proved to be a remarkably effective way to provide liquidity while minimizing interest-rate risk to the mortgage lender and the secondary market.

In the 1980s higher and more volatile interest rates presented a different set of challenges to the U.S. housing finance system's ability to keep affordable mortgage funds flowing. Despite the gains from securitization, funds continued to flow out of savings and loans as investors sought higher yielding investments. At the same time, these savings and loans experienced an interest-rate squeeze between the relatively low yields of their mortgage portfolios and the substantially higher yields they had to pay for large deposits. As a result, this second interest-rate squeeze in two decades placed a premium on a mortgage lender's ability to sell far more mortgages —many of which were by then under water (below market)—to the secondary market and other investors, and to better match their assets and liabilities. In short, the economic environment spurred the industry, including savings and loans, to adopt new mortgage banking practices.

HOUSING FINANCE PROBLEMS IN AFRICA

The problems of housing finance in Africa, many of which are unique to the continent, are even more spectacular. Most of our countries have since the early 1980s been in a state of prolonged economic, social and political difficulty. There have been wars, domestic problems and unfavorable climatic conditions. In addition, external shocks, such as declines in commodity prices, unfair trade cartels, abrupt drops in external resource flows, high inflation and steep increases in interest rates, have led to rapid decline in incomes and economic growth. This has resulted in high poverty levels and adverse housing conditions.

Ghana shares these problems, but it is managing the situation systematically. Habitat I called for integrated planning and provision of shelter, infrastructure and services. Under the Ghana Government's Urban I, II and III projects, all these issues are being addressed. It is under the Urban II program that the Home

Finance Company (HFC) was created in May 1990 to implement and manage a pilot housing finance program that is not subsidized and which is attempting to create a secondary market, while at the same time reviving housing finance in the country.

THE HOME FINANCE COMPANY

Incorporated initially as a private limited liability company, HFC's mandate is to promote a two-tiered, sustainable housing finance system in Ghana and address major barriers such as:

1. High inflation;
2. High variable rates of interest;
3. Declining real incomes;
4. Absence of a long-term household repayment of loans culture; and
5. Weak foreclosure laws.

Under the pilot housing finance program, it was proposed to establish a housing finance system indexed to inflation, based on Consumer Price Index (CPI) figures. Under this price indexation formula, both mortgages and bonds are adjusted monthly on the basis of the three-month average change in the CPI.

HFC functions as a second-tier lender, extending loans to qualifying borrowers through approved originating and servicing institutions (OSIs). The mortgages are in the joint names of HFC and the OSIs. As stated in the project and other documents of the pilot scheme, the mortgage default risk is shared on a 90% HFC and 10% OSI basis. The mortgages are on HFC's balance sheet. Currently OSIs view themselves as purely originators (or "post office boxes").

Special Mortgage Terms

The mortgages made by HFC are a variant of the dual index formula.[2] Mortgage repayments are fixed at 35% of the verifiable income of the borrower. This is paid by the employers through payroll deductions. As the borrower's income rises, repayments also are expected to increase proportionally. From experience, borrowers prefer declining loan balances and are often prepared to pay up to 50% of their income towards homeownership.

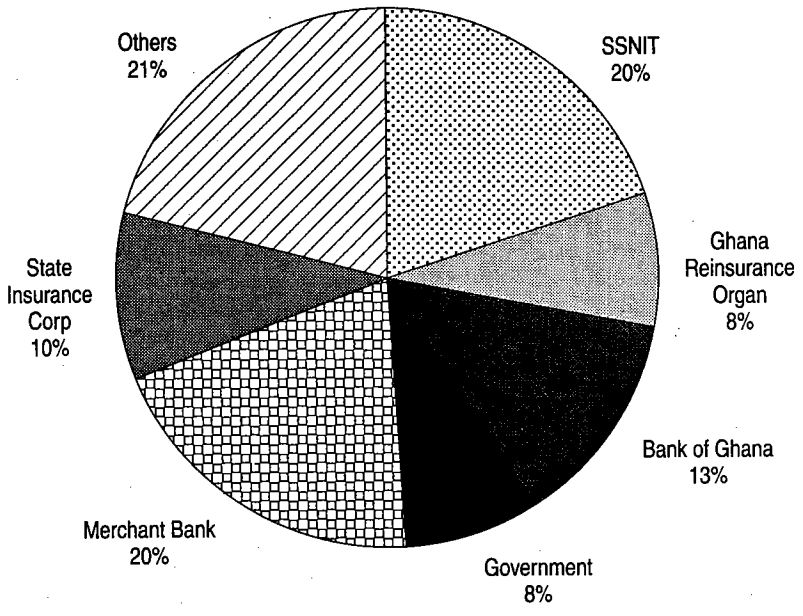
The interest rate on the mortgages is fixed at a 1% real rate. The term is initially 20 years. If real wages increase by more than 1% per year, the loan will amortize in less than 20 years. If real wages do not increase by 1% per year, the loan will take more than 20 years to pay off.

Initial plans were for HFC to finance about 2,000 new, private-sector-built one-, two- and three-room units. Houses were to be designed, marketed and built by private developers operating on the basis of commercial criteria. Construction financing was to be provided by the banks who were also to originate mortgages for sale to HFC.

HFC Structure and Ownership

HFC initially was a shell company, with very little stated capital, owned on an equal basis by government of Ghana (GOG), Social Security and National Insurance Trust (SSNIT) and Merchant Bank (Ghana) Limited (MBG). The shareholding was subsequently broadened to include three large insurance companies, namely State Insurance Corporation (SIC), Ghana Union Assurance (GUA) and Vanguard Assurance. Two of these companies are private. SIC is the largest corporation engaged in life and hazard insurance, now state-owned, but about to be divested. HFC opened up 25% of its shareholding to public subscription on the Ghana Stock Exchange (GSP) in 1995. This offer was over-subscribed by 15%, the first over-subscription on the GSE. The company is now owned by 300 shareholders with 12 institutions controlling over 98% of the capital. (See Figure 1.)

Figure 1. Shareholding Structure



HFC Objectives

The objectives of HFC include, among other things:

1. The overall program development and management of a new housing finance system, which involves indexation and securitization of mortgages.
2. The creation of a two-tiered financial system whereby mortgages are originated and serviced at the primary level by Originating and Servicing Institutions (OSIs), (banks and other primary mortgage lenders); and at a secondary level, funds are managed and made available by HFC to approved OSIs for relending to mortgagors under certain clearly defined limits.
3. Mobilization of funds from various sources, including:
   a. Issuance of long-term bonds of various maturities to SSNIT and other institutional investors.
   b. Issuance of long-term bonds to the government of Ghana and/or Bank of Ghana under the special pilot housing finance scheme, financed through an International Development Association (IDA) development credit extended through the government of Ghana to HFC under the Urban II project.
   c. The bonds are 30 years in maturity and will be repaid periodically through the repayments of principal on the mortgages. The bonds purchased by SSNIT and other institutional investors receive repayments prior to the bonds purchased by the government.

The total funding available under the pilot scheme is US$25.5 million, including the IDA portion of 40% which is the seed capital provided to HFC under the pilot scheme and made available for 40 years. By adopting price indexation, the company has been able to access funds amounting to US$16.5 million from the country's main pension fund, SSNIT, which previously (like other institutions) was reluctant to invest in long-term instruments. HFC has raised and continues to raise on its own, additional funds as follows:

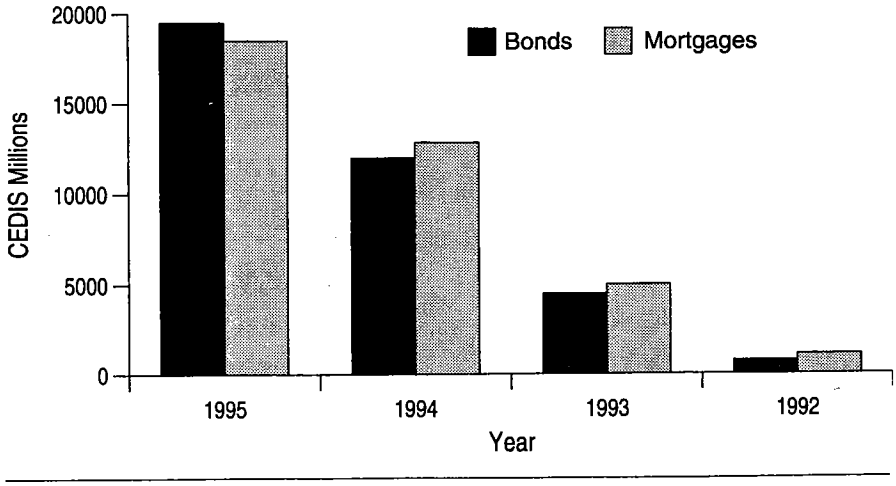
1. Through the medium of the country's first licensed collective investment scheme, the HPC Unit Trust established in 1991, the equivalent of US$4.2 million owned by approximately 2,000 individuals and staff provident finds.
2. Through the medium of the HFC Real Estate Investment Trust (REIT), also the first of its kind in Ghana, since December 1995, almost US$1 million equivalent for investment in housing and related real estate projects such as shopping centers and cluster housing development. Under a pilot program, REIT's first cluster housing development, comprising 14 three- and four-bedroom houses has been recently commissioned.
3. Through the sale of housing bonds, the first public sale of housing bonds is expected to raise an initial sum of US$2 million to refinance a mortgage portfolio that benefits foreign exchange-earning Ghanaians. Local currency (Cedi) denominated bonds also will be sold.
4. Through its capital and deposits, another US$5 million as of March 31, 1996.

Figures 2 and 3 show the progress of HFC in raising funds. The HFC-Unit Trust and the HFC-REIT are both open-ended tax exempt funds. Recent marketing efforts have targeted the corporate as well as so-called informal sectors.

The company is managed by three executive directors and a total staff of 41, mostly professionals. HFC has since its inception been managed entirely as a private commercial concern under the authority of its board of directors, comprised of experienced bankers and other professionals.

As part of the Urban II program, the government established the Housing Finance Institutional Reform Committee (HFIC) under the chairmanship of the Governor of the Bank of Ghana, to coordinate the relevant ministerial

Figure 2. Bonds and Mortgages Outstanding



activities to provide HFC with the needed public sector support and enabling environment. HFIC has been of immense help to HFC in its development.

Furthermore, the Home Finance Mortgage Law 1993 (PNDCL 331) was promulgated to reform foreclosure remedies available to HFC without the need to go to court, unless more than a certain percentage of the loan has already been paid by the borrower. Under this congenial regulatory environment, HFC's repayment record has been in excess of 98%, thus generating additional funds for mortgage lending. The company has since its inception been entirely self-supporting.

PROBLEMS AND THEIR SOLUTIONS

The following solutions to problems with the pilot program have been identified:

1. *The price indexation concept has been reviewed due to an unexpectedly high environment of inflation.* Following the election in 1992 and payment by the government of salaries not budgeted for (under pressure of unions and other staff groups); the negative effect of introducing VAT at a high level of 17% and then withdrawing it under political pressure; and bad harvests in 1994 and 1995, inflation took a sharp upward turn in 1995. From the previous position where adjustment to the inflation-indexed mortgages resulted in interest rates which were at least 8% to 9% below bank lending rates, 1995 was characterized by inflation in excess of 60%, whereas bank lending rates hovered around 40%. To avoid a severe credit shock that would have affected borrowers repayment of loans, an agreement was reached between HFC and its bondholders to provide a "cap and floor" on the interest rates charged to the company's pilot scheme portfolio. An adjustable ceiling of 2% below the average lending rates of three major banks operating in the country has been adopted and will continue until the economic situation improves. Currently the "cap" is 38%. The relationship between the mortgage rate and other rates is as follows:

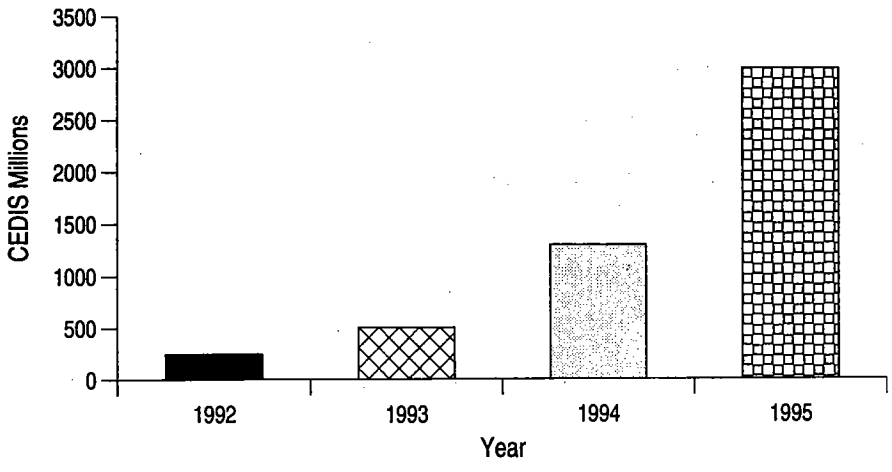
   - 91-day Treasury bill rate: 45%
   - 1-year Treasury bond rate: 39.45%
   - 2-year Treasury bond rate: 45%

   There is no fixed "floor," but in accordance with the agreement with the bondholders, they will recover any "losses" later when the economy stabilizes.

2. *The primary market has been slow to respond to the opportunity of refinancing under an emerging secondary market.* The banks have continued, despite incentives, to be unwilling to lend for construction financing and to originate mortgages for sale to HFC. Investment in Government Treasury bills provides the easiest way out for most banks, who are also required to maintain high levels of investment in Treasury bills as part of measures by the central bank to reduce liquidity in the system. The banks also have been slow in developing individual (consumer) banking relationships because of high personnel and other transaction costs, making it less profitable than the readily available corporate business. HFC, therefore, has had to rely heavily on its non-bank OSIs such as State Insurance Corporation of Ghana (SIC), who have the incentive to originate and sell mortgages to HFC. At least two private sector mortgage companies have been formed recently and have applied for licenses under the Financial Institutions (Non-banking) Law 1993. They are expected to undertake mortgage origination and servicing for HFC.

3. *Clarification of policy issues.* The central bank is soon expected to issue clear guidelines on HFC's apex secondary mortgage status. The risk weighting of mortgages, however, has been reduced from 100% to 50%, in line with the international convention which provides a good incentive for increased mortgage lending activity. HFC has prepared guidelines for its proposed secondary mortgage lending activity. These are to be refined under proposed "twinning" arrangements with a Malaysian mortgage financing company to provide

Figure 3. Shareholders Funds



practical assistance in developing the secondary mortgage system in Ghana. The Malaysian secondary mortgage system seems to be the most relevant model for HFC to follow.

4. *Inadequate supply of houses.* This continues to be a problem inhibiting the development of a secondary market. Under the auspices of the Ministry of Works and Housing, the Ghana Real Estate Developers Association (GREDA) was formed about the same time as HFC and is comprised mainly of private companies. GREDA is now a self-regulatory body which has just acquired vast acres of land around the suburbs of Accra. Infrastructure is being pre-financed by SSNIT. HFC is having to look into complaints by developers of inadequate construction financing.

5. *Prevailing high interest rates.* Prevailing high rates, particularly of Treasury bills, make it difficult to mobilize appropriate financing, particularly for low-income housing. A draft policy statement by the government to address this issue is being considered. The mortgage downpayment required of low-income borrowers is 10%, as compared with 20% or 30% for other categories of borrowers.

6. *Construction financing is inadequate.* HFC is taking steps to address this problem through two major local banks. Furthermore, additional funds are being raised by HFC through the HFC-REIT to augment the funds available for construction financing, an absolute requirement for a thriving housing industry.

7. *Land title and registration procedures are still inordinately slow.* Another component of the Urban II project is tackling this issue and aims to remove the bottlenecks in this system and merge the authorities of the Land Title Registry with the Lands Commission Registry.

8. *Inadequacy of serviced lands on which adequate infrastructure is provided.* This is being undertaken by site and service schemes commissioned by Tema-Development Corporation (TDC), one of the largest parastatals, and Social Security and National Insurance Trust (SSNIT), the largest fund available for long-term investment in Ghana. These schemes are being provided on a full cost-recovery and profit oriented basis.

9. *Low-income earners and rural housing are not provided for under the present HFC program.* The government's draft low-income housing policy document, however, is looking at ways to facilitate mobilization of appropriately priced funds for extending a housing finance scheme to these sectors.

10. *The informal sector accounts for over half the money supply in the country.* Many borrowers in this sector are still outside the tax and social security network and lack basic accounting know-how to enable the financial institutions to assess income for extension of credit on a long-term basis. HFC is tackling this sector with the assistance of HDFC of India and the Grameen bank of Bangladesh.

11. *Low-income levels continue to constrain the ability to pay for realistic loan amounts that would finance appropriate urban housing for the majority.* Through the implementation of a graduated payment method under the pilot housing scheme, HFC has been able to make homeowners of persons in regular employment with an average monthly "take-home" pay of c280,000—i.e., approximately US$186. By recognizing other household incomes and providing the facility for joint application by spouses, siblings and parent/child, it has been possible to extend the net wider. The requirement of the downpayment of 20% has provided the opportunity to mobilize household funds through the medium of the HFC Unit Trust and the company's deposit scheme, in respect of which realistic interest rates are paid by HFC.

12. *High cost of houses.* Efforts are continuing to address the high cost of houses, as a means of further reducing the affordability threshold. This is being done through the core house concept, which includes terraced houses. The use of alternative construction technologies is also being encouraged. More intensive use of land has resulted in infrastructure costs being spread over a larger number of homeowners, thus reducing the impact on house prices. The company sets aside yearly funding from profits to promote efforts in this respect.

Diversification into mortgage schemes for high net worth individuals, corporate bodies and the non-resident Ghanaian population has provided a better balance of profitability and sustenance of the new system.

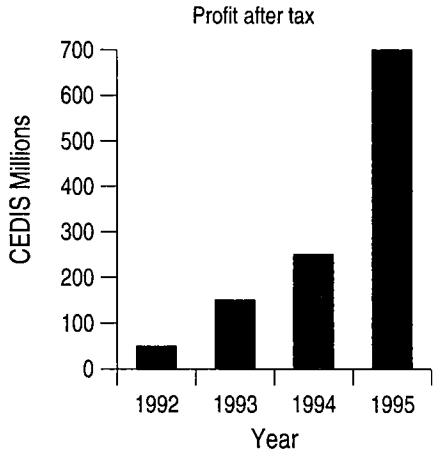
A total of approximately 1,800 new homes has been funded by HFC between January 1992 and March 1996. The opportunity also has been provided for two major parastatals to sell off unprofitable rental accommodation provided in the past to many employees and others who were paying less than an economic rent. This policy is meeting with some resistance but seems to be working. HFC's profit after tax for the past four years of active business is shown in Figure 4.

Because of the government's pragmatic policies on housing finance, fresh foreign investment recently has come into the country, but the housing deficit remains rather daunting, as the backlog of at least 300,000 is growing at 50,000 every year.

CONCLUSION

An effective secondary mortgage market operation requires and indeed develops out

Figure 4. Other Financial Highlights for 1995



	% Increase	*1995 c'000*	*1994 c'000*
Total assets	92%	22,698,133	11,792,628
Capital employed	128%	3,028,120	1,324,086
Gross income	120%	2,697,057	1,225,734
Net profit before tax	196%	944,753	316,943
Administrative expenditure	93%	852,776	440,084
Total expenditure	93%	1,752,304	998,791
Debit equity ratio		6.5:1	9.4:1
Return on shareholders funds		41%	36%
Return on assets		4.1%	2.9%
Interest cover		2.24 times	2.1 times
Earnings per share		*c*19.88	*c*7.67
P/E ratio		6.36	13
Dividend par		*c*6.93	*c*2.30

of an active primary market. In Ghana, the attempt is being made to jump-start primary market activity by making available the convenience of a secondary market, providing needed long-term funds. The response of primary operators has been slow, largely due to competing business interests This is particularly due to the availability of low-risk high returns on Government bonds and Treasury notes, as well as other short-term trade financing activity.

The key role of government in ensuring the survival of secondary market operations through the provision of support, granting of necessary concessions and funds mobilization is recognized and is being actively pursued.

NOTES

[1] This section is based on Glenn, David, "Pivotal Periods," *Mortgage Banking,* May 1995, pp. 20-25.

[2] Editor's Note: For a discussion of the dual indexed mortgage, see the articles by Barry et. al. and Lea in the March 1995 issue of *Housing Finance International.*

Creating a Secondary Mortgage Facility for Jordan

by Douglas B. Diamond

Originally Published June 1996

The government of the Hashemite Kingdom of Jordan, in cooperation with the World Bank, is sponsoring the creation of a secondary mortgage facility (SMF). There are three things notable about this statement. First, this will be the first SMF of any type in the Middle East. Second, the government is only sponsoring the privately owned SMF, not owning it. Lastly, the SMF will not function as a secondary market for mortgages but rather as a refinance facility relying on mortgages as collateral, in a fashion similar to the Federal Home Loan Banks in the United States and the Caisse de Refinancement Hypothecaire in France.

Why is Jordan moving ahead with this project now? Are its banking sector and bond markets ready to support such an institution? Is liquidity an important enough barrier to housing finance and will it be significantly improved by the SMF? These are all good questions, for which there are not always clear-cut answers. But, after a discussion spanning over 10 years, the judgment has been made that the likely benefits significantly exceed the costs.

Dr. Douglas B. Diamond is an independent consultant on housing and housing finance in developing countries. The views expressed here are solely his and not necessarily those of the Government of Jordan or the World Bank.

This article reviews the current structure of housing finance in Jordan, how a secondary mortgage funding mechanism would help, how the planned SMF would operate, and what are the major outstanding questions to be answered.

AN OVERVIEW OF HOUSING FINANCE IN JORDAN

Jordan was long blessed with large net inflows of remittances from expatriate workers. It has also been burdened with sudden inflows of additional people to be housed (due to wars) and general uncertainty about the stability of the economy and the security of investments. Fortunately, the blessings seem to have outweighed the burdens so far in Jordanian economic history, and most of the populace is relatively well-housed.

The housing sector has not depended heavily on formal-sector housing finance to accomplish this. In the aggregate, there is a clear reliance on financing through cash and intra-family financing, especially from remittances. However, the opportunities for expatriate remittances has declined, signaling what will probably be a shift towards greater reliance on formal credit for housing in the future.

Most lending for housing and other real estate is currently intermediated through the commercial banking system.[1] There do not appear to be any accurate public data on the stock or the flow of loans for housing, but an informed guess is that the aggregate figure could not exceed JD 200 million for all of the banks (about 6% of bank credit), with up to an additional JD 200 million in directed credits made at concessional terms funded through other channels.[2] This implies a maximum total of JD 400 million, or almost 10% of GDP, in contrast to a figure of 50% in the United States and 25% in Malaysia, a developing country with higher incomes and a more advanced financial sector.

Such small exposure to long-term housing lending presumably is due either to conscious risk management on the part of the banks or a lack of interest on the part of households in using bank credit for housing. Most banks express the view that both factors are at play. After all, the net cost to a mortgage borrower is currently about 13.5% for a loan for seven years, in an economy with inflation under 5% since 1991. The spread, moreover, between the borrowing rate and the deposit rate is usually 5% or more, suggesting that greater equity investment in housing is preferable to accumulating wealth in financial instruments.

For all banks except the Housing Bank (HB), there is the additional consideration that the Housing Bank has a number of special privileges. The most important are a lower required cash reserve at the Central Bank of Jordan and tax exemption on its earnings in proportion to its total housing loan portfolio. These privileges appear to permit the Housing Bank to offer below-market rates on their housing loans and give it a comparative edge in

mortgage origination that discourages active marketing by other banks.

Just as important, the HB appears to be the only bank that extends mortgage loans to the general public for terms of up to 15 years. (It has extended loans up to 30 years when funded by special GOJ programs.) No other bank will exceed seven-to-eight years for any loan. This appears to be because the liquidity fears that other banks express (see below) are muted for the HB by implicit guarantees of liquidity by the government.

The Risks of Housing Finance

What are the risks posed by housing finance in Jordan? The credit risk associated with residential lending appears to be very low. The maximum loan is for 75% of the appraised value of the land and structure; the appraisal is not based on the general prices in the market, however, but rather on an estimate of what the distress-sale price might be. Apparently, the latter figure is usually 20% less than the former, leaving an initial loan-to-value ratio of 60%. This is not necessarily a perfect defense against a major downturn in the market soon after the origination of the loan, but after a few years of appreciation in real estate values, it is highly unlikely that the distress sale value will be less than the outstanding balance.

The legal basis for foreclosure on defaulted loans is relatively strong, but foreclosure has been rarely begun (and only after 18 months of delinquency) and pursued to its conclusion; most defaulted loans have been rescheduled or otherwise compromised. However, stricter rules governing charges against reserves in these cases, combined with growing acceptance of the need for operation on a more commercial basis, seem to have increased the willingness to enforce mortgage contracts.

A second issue dogging past foreclosure efforts has been some provisions of the old Ottoman Law. One provision specifies that interest beyond 9% is not allowed, and another says that the cumulative interest cannot exceed the principal. In practice, these provisions are not effective until a case goes to court, i.e., upon adjudication of a defaulted loan. This served as a deterrent to foreclosing on a default rather than reschedule or otherwise compromise with the borrower.[3]

The second major risk is with respect to liquidity. There is a good reason for the attitude of the banks other than the HB. There seems to be an overarching concern for the potential for major political, economic and demographic shocks to affect Jordan. Most observers seem to see the term mismatch as the most significant risk for lending for housing, creating price and non-price restrictions on access to housing credit. In contrast, the HB need not give liquidity the same concern. In this way, the GOJ has solved some of the liquidity concerns about mortgage lending. It has given these capabilities to a single bank, however, thereby precluding market-expanding competition.

There appears to also be some interest-rate risk associated with housing loans in Jordan. All of the loans have rates that are legally subject to change if the bank's cost of funds goes up, but this flexibility has never been tested and could be limited by both legal and political considerations. As it is, small swings in the cost of funds are apparently simply absorbed by the lenders, who prefer this to provoking controversy by changing rates. The net effect, however, is to create a reason for banks to limit their exposure to housing loans.

Leveling the Playing Field

The government has articulated a medium-term strategy for reform of the financial sector. There are components for adoption in 1996 and in 1997–98 related to enhancing the efficiency and competition in banking and the long-term financial markets. One of the key areas for action concerns removing the special privileges available to the Housing Bank. The specific privileges to be removed include the unconditional guarantee of HB liabilities, certain tax exemptions, certain fee exemptions and certain advantages in foreclosure situations. The HB would retain the tax exemption of income earned from housing loans and its lower statutory reserve rate, but only for a "limited" period.

As these reforms take effect, the HB should find that it too has to be more concerned with liquidity risk, as well as face a higher cost of raising deposits. In principle, the HB will lose its cost advantage in offering long-term housing loans and has stated it may pull back to the same seven- to eight-year norm as other banks, as well as stop offering below-market rates to moderate income households.

Developing the Financial Market

The government of Jordan is also intent on making major improvements in its financial market, especially with respect to medium- and longer term finance. In this regard, the government is steadily implementing a number of changes in the legal and market structure of the debt market (to complement an already well-functioning equity market). In addition, for at least 10 years, there has been discussion in Jordan about the need for a method of gathering long-term funds for use in housing loans, so that the terms of such loans could be extended. In the mid-1980s, visiting experts explained how the secondary mortgage market (SMM) accomplishes this purpose in the U.S. In 1988 a committee was established by the GOJ to explore creating a SMM in Jordan. The committee eventually ceased operating, but there remained a keen interest in the general topic.[4]

Clearly, it makes the most sense to view the development of a solution to the term mismatch problem in housing finance as part of the overall development of mechanisms for intermediating funds on a longer term basis than typical bank finance. Another key part of

that process is developing an active market in some form of intermediate debt instrument, in order both to generate information for borrowers on the current cost of capital in the money market and to provide holders of longer term securities the option to liquidate them at an appropriate price.

It has been found in the development of other financial markets that market activity is very much self-reinforcing. In other words, if there is a fair degree of liquidity for security, more investors and traders are willing to participate in it, further enhancing its liquidity, and encouraging liquidity in similar securities.

In most developing countries, government securities are already the most liquid form of debt instrument and thus the focus of efforts to increase the liquidity of a market. In Jordan, however, the level of government debt to GDP is relatively low (external debt is five times the internal debt) and not growing at all. In addition, the CBJ has only slowly moved towards creating a climate of market pricing of government debt. The result is that there is almost no real trading in debt securities of any kind and no information about the market yield curve beyond one year (banks offer deposits out to one year but do not actively seek them).

THE POTENTIAL BENEFITS FROM SECONDARY MORTGAGE FUNDING

Creation of a mechanism for facilitating intermediation between truly longer term financial investors and housing borrowers would permit the banks to reduce or eliminate the liquidity risks of housing lending and also the interest-rate risk by generating a source of fixed-rate funding. Moreover, if this intermediation takes the form of homogeneous, nearly riskless securities issued on a large scale, the securities can serve as the basis of expanding the range and capacities of the money market.

Such mechanisms are generically known as secondary mortgage funding sources, whether through sale of the mortgages, through their use as collateral, or through other forms of large scale, longer term fund raising (in contrast to "retail deposits") directly or indirectly backed by the mortgages. Under this broad understanding of secondary mortgage funding, there is a wide range of alternative approaches being practiced around the world. The appropriateness of any system depends on the circumstances prevailing in the housing and financial markets of the individual country.

A secondary mortgage mechanism that pools together loans as collateral and issues its own bonds on a large scale is often referred to as a secondary mortgage facility or SMF (see Lea [1994]). Several countries have created such a special institution, usually sponsored by the government, which performs the useful functions of checking on the quality of the mortgages that back the bonds, creating economies of scale in issuance and management of mortgage-related debt, and providing its own blanket guarantee (based on its capital) to the bonds.

One way of viewing an SMF is as a separate institution that pools together as collateral the very best mortgages from several banks or other lenders and uses the collateral to offer bonds that are nearly risk-free to long-term investors. The ownership of the mortgages stays with each lender, and the lender and investors conclude their long-term funding arrangement under the auspices and supervision of the SMF.

The presence of a secondary market source of funding for mortgages can, in principle, reduce the costs and liquidity risks that Jordanian banks face in funding housing loans. It could even permit the operation of non-bank financial institutions specializing in housing finance (e.g., mortgage companies). There will be an increase in the access of households to housing if the rates on mortgages are lower, the terms are longer, or simply the banks market and originate housing credit more aggressively because they feel more comfortable with their liquidity situation.

One of the earliest SMFs, called the Federal Home Loan Bank System, was set up in the United States in 1932 to provide liquidity for housing lenders. It operates by issuing its own debt, without a government guarantee, and then lending the funds to institutions, which pledge as collateral an amount in mortgages greater than the amount of the loan. All of the risks of the loan stay with the lender; the intent is to provide a partial source of refinance for further lending as well as to offer a ready source of liquidity. A similar institution exists in France (the Credit de Refinancement de Hypothecaire) and has been implemented successfully in Malaysia (Cagamas Berhad).

An obvious question is why the stronger banks have not already attempted to issue longer term securities backed by specific mortgages, much as mortgage banks in Germany and Denmark do. There seems to be no obvious answer, other than perhaps the concern of investors that such offerings may not be as low-risk as they appear, whereas an offering by an independent, government-sponsored entity might be more trustworthy. It is notable that the German and Danish mortgage banks are heavily regulated to provide investors just such reassurance.

In addition, even longer term investors prefer to have an option to liquidate an investment before maturity. This becomes much more feasible when the investment is in the form of a security that is homogeneous with respect to risk and is issued on a large scale. An SMF offers greater scale and homogeneity.

The last step from a SMF to a full secondary mortgage market (SMM) is for ownership of the mortgages to effectively pass from the primary lender to the secondary institution or through the secondary institution to investors. This approach has developed most fully in the United States but has also been pursued with

modest success in Britain and France. Although there are some advantages to a SMM, it appears that most of the substantive gains from a secondary market arrangement for Jordan can be made through creation of the simpler SMF.

THE SMF PLANNED FOR JORDAN

The government of Jordan, in cooperation with the World Bank, the commercial banks and the Social Security Corporation (SSC), is in the process of setting up a SMF. From the Jordanian perspective, such an intermediary will be in the position to offer medium- to long-term debt securities to the SSC, insurance companies and other long-term investors that currently have few long-term debt options. For example, currently nearly half of the SSC's portfolio is held in the form of bank deposits. With a SMF, some of the funds would flow to the SMF in return for bonds issued by the SMF. The SMF would then make long-term loans to the banks in return for pledges of residential mortgages as collateral. The full credit risks of the mortgage lending would stay with the banks, but the bank could now finance most of those loans with longer term funds and have access to a tool for more effective asset-liability management.

The SMF would be a relatively simple arrangement. The basic legal requirements already exist in Jordan, including legal and institutional infrastructure for the issuance and trading of long-term bonds and the pledging of mortgages as collateral. It is possible to establish the SMF under existing laws for financial companies.[5]

The Jordanian SMF will primarily make medium-term loans to banks; the funds, in theory, can be used by the bank for any purpose. The bank, however, will have to have originated enough qualifying loans for owner-occupied housing to serve as collateral for the loans from the SMF. In practice, most banks will probably refinance their mortgage portfolio according to their overall need for funds, the cost of alternative sources of funds and their desire to lengthen the overall term of their liabilities.

The term of the loan from the SMF to the bank (the word "bank" refers here to any qualified lender, not just commercial banks) will depend on the term of the bonds issued by the SMF to investors and vice versa. This cannot be known until banks and investors discuss their needs and willingness to pay (or receive) extra for borrowing (or lending) long term. In the case of the Federal Home Loan Banks and the Cagamas Berhad, the terms are usually for three or five years at a fixed rate. In France, the term is usually seven or 10 years. These loans will probably be "bullet" loans, without repayment of any principal before maturity. Thus, even a five-year loan can be very useful in financing seven- to 10-year mortgages.[6]

The loans to the bank will not be prepayable unless the bonds the SMF issues are also prepayable. The conditions of prepayment, just as the tenor, will need to be negotiated by the SMF among the banks and investors.

The term of the interest rate need not be the same as the term of the principal, i.e., the maturity of the bond or loan. At one extreme, the rate could be fixed for the full term of the principal. At the other extreme, the interest rate could be floating, i.e., subject to change every six months or so, effectively as it is today for interest rates on the deposits currently used to fund mortgages. The major difference from the current situation is that a specific formula would have to be set at the time of issuance of the bonds for how the interest rate would be reset. The simplest approach would be to base the rate on the current rate on government debt or the average deposit rate.

Ownership

The SMF has the potential to be a tool for the government to develop the Jordanian financial market. Its debt will withstand close scrutiny as to credit risk, without recourse to a government guarantee. It will offer investors an ideal intermediate-term investment and banks a safe channel to lend excess funds to other banks. With some assistance, the bonds can become much more liquid than previous issues. Lastly, the banks will have an ideal source of funding for mortgage lending, permitting an expansion in competition in this market.[7]

For these reasons, it is desirable for the government, in the form of the CBJ, to take an active role in the establishment of the SMF and a partial ownership position. In particular, it will be useful to have a strong influence of the CBJ on the management of the SMF in the early years, to reassure investors as to the credit-worthiness of the SMF and to assure close cooperation between those in the CBJ responsible for internal debt markets and the SMF.

The sums of money involved in the SMF, however, could grow quite large, and its policy decisions could benefit one kind of lender or investor relative to others. Moreover, there is always a potential for the government to desire to use the SMF as a conduit for subsidy. For all these reasons, it is desirable for there to be a majority ownership participation by all the private participants in the system, i.e., the banks and the investors; but at the same time, there will be provisions against any one private entity gaining effective control of the SMF.

The balance between private and public ownership has been struck by setting predominant ownership in the private sector, primarily among the banks themselves. Moreover, no single private investor would be permitted to own more than 10% of the equity. The CBJ, however, would have the prerogative of approving the Chairman of the Board and the Director General of the corporation.

Capitalization

The level of capitalization is related to the ownership structure. A higher level of capital will require a greater number of investors or a greater commitment of each investor, and also a diluted return on that investment. This argues for the lowest level of capital consistent with legal requirements and proper risk management.

It is projected that the SMF will build up a refinance portfolio of about JD 100 million (US$140 million) in four or five years. These assets would be backed by the capital of the banks as well as the specific collateral of the mortgages. They will be treated as interbank loans for regulatory purposes and be given a 20% risk weight. Thus the capital required to support this portfolio would be 1.6% or only JD 1.6 million. However, the initial capital will be set at JD 5 million in order to provide for growth and for greater security for investors in the early period of operation.

To further assure investors but remain short of an open-ended government guarantee, it is expected that most of the funding deriving from a World Bank loan to the government be on-lent to the SMF in the form of subordinated debt. As the SMF matures and gains investor confidence, this senior risk exposure of the government will automatically steadily decline.

The government is particularly interested that the SMF not have an explicit government guarantee. There has not been a successful issuance of long-term bonds in Jordan that was not explicitly guaranteed by the GOJ. There are two major benefits of avoiding such a guarantee. First, experience in other countries in other situations has shown that guarantees can gradually erode incentives for cautious behavior on the part of management and create risk where there was not risk before. Second, Jordan's financial markets would benefit from the precedent of investors examining the real credit-worthiness of an enterprise, rather than simply relying on a blanket guarantee.

Taxation and Regulation

As is often the case in financial markets, taxation and regulation are key determinants as to which intermediation structures are attractive and which are not. Secondary market arrangements are such hybrids that they often require special determinations as to their taxation and regulation. Not surprisingly, these institutions tend to play a larger role in the overall market when they receive relatively favorable treatment, one that reflects the public benefits from their successful operation.

The taxation treatment is to be relatively straightforward. The net income of the SMF will be taxed according to the same treatment accorded to regular banks (35% of net profit). In addition, the bonds issued by the SMF will receive the same tax treatment as bank deposits, currently, exemption on interest.

The CBJ has recently determined that interbank loans will be exempt from the statutory reserve requirement of 14% (in cash held at the CBJ) and the current additional liquidity reserves of 16% (invested in CBJ debt). Since the loans from the SMF to the banks will be treated as interbank loans, these exemptions will apply. However, there is the question of the reserves required to be kept by the SMF on funds it raises through bond issuances. The CBJ has already determined that there is no need for the cash statutory reserve in this case and will be considering the size of the overall liquidity reserve.

These determinations would mean that the banks would have an incentive to raise funds through the SMF intermediation process. This is consistent with the point of view of regulators seeking to encourage the management of liquidity and interest rate risks, and thus providing advantages to this form of liability.

Trading in SMF Bonds

Housing is not the only long-term investment in a society. Factories, hotels and other long-lived assets would also benefit from long-term financing. Investors and borrowers would also benefit from market information about the preferences for other borrowers and investors with respect to the term of their financing, e.g., what premium is required to get investors to commit to a longer term interest rate or funding commitment.

Addressing these issues requires the development of an active market in long-term debt. So far, efforts to do so in Jordan have failed. The creation of a SMF will not necessarily reverse the situation entirely, but it could help substantially. If the SMF itself succeeds in attracting business, it will make frequent issuances of bonds, much more substantial and frequent than in recent experience. At the time of each issuance, the pricing and marketing of the bonds will yield useful information about the terms under which long-term capital can be raised.

The next step would be to attempt to encourage trading in the bonds. There are two benefits from frequent trading. One is the same as the benefit from frequent issuances, better information as to market conditions. The second is that, if the bonds are reasonably liquid, investors such as individuals and banks, who may have a shorter horizon than a pension fund, could feel comfortable holding the bonds and selling them when they wished.

The likelihood of such trading is greatly increased if short-term investors such as banks are encouraged to buy and trade the SMF bonds. This encouragement will come in the form of treating SMF bonds as eligible for the liquidity reserves of banks.

Competition in Housing Finance

Another potentially profound effect on housing

finance would be to reduce the dependence of financial intermediaries on success in raising deposits. It is frequently stated in Jordan that lending decisions are deposit-driven: once the deposits come in the door, the bank will consider making a loan. If funding for housing were more reliably available at a known cost, banks may feel more comfortable marketing their mortgage lending to qualified borrowers on a steady basis.

Not only would banks not need to worry about the timing of deposit flows, but they could increase their housing lending without the expense of expanding their branch operations. This could mean that, at least in the area of housing finance, bank competition would increase and banks could shift towards a greater customer marketing orientation. This is particularly important at this time as the advantages offered to the HB are being removed.

Managing Interest Rate Risk

As noted earlier, Jordanian banks are taking small amounts of interest rate risk in their housing lending now, simply because they do not connect the rate on their mortgages to their cost of funds. The SMF can be a convenient way to reduce that risk, if it borrows and lends at a fixed rate. However, fixed-rate borrowing from the SMF could increase the risk from borrowers prepaying their mortgages in response to a decline in interest rates on new loans. In principle, the bank remains exposed to some risks as long as the exact interest rate and prepayment terms of the mortgages it makes do not match those on the loans from the SMF. But as long as the variability of interest rates in Jordan remains moderate, these risks will not be an important consideration.

THE MAJOR UNCERTAINTIES

The Jordanian SMF will probably be launched in 1996 and provide its first refinancing in 1997. Will it be successful?

The commercial success of the SMF will largely depend on whether lenders perceive the cost and features of funds obtained through the SMF to be attractive relative to funds raised by deposit-taking. The cost of SMF funds will not be known until it goes to the market to raise funds. It is reasonable, though, to expect that the all-in cost of funds to housing lenders will be no higher than the cost of deposits, including the costs of fund-raising and required reserves. In addition, the SMF funds will be available for terms better matched to housing lending. Even so, the banking sector in Jordan is quite conservative, and it may take a significant amount of time for banks to utilize the funding opportunities being made available.

Of course, the other prerequisite for the growth of the SMF will be the availability of housing loans to refinance. Currently, there are only two truly active market-rate housing lenders in Jordan, the HB and the Jordan Islamic Bank. Thus, it is critical that the SMF develop a scheme for the refinance of Islamic mortgages through issuance of Islamic bonds. Such a scheme has been developed in Malaysia and presumably could be adapted in Jordan.

The degree to which the market in housing finance expands also depends on the degree to which banks actively seek to expand their mortgage lending in light of the SMF. Such expansion may be modest in the short term, until additional banks develop their capacity in this rather specialized field of banking and the competitive advantages of the HB are definitively eliminated. As for the participation of the HB itself, this must be viewed as somewhat uncertain because of the reasonable underlying concern that making extensive use of SMF funding could strengthen the SMF and make it all the more capable of funding additional competition in the housing finance business.

There also are significant uncertainties about the depth of the debt market that the SMF can tap into. Aside from the Social Security Corporation, with its portfolio in excess of US$1 billion, there are not presently other significant institutional medium- and long-term investors. The banks and the public have purchased significant amounts of government debt in the past, but on the premise that this could be liquidated on relatively short notice. Access to these sources of funds will depend on a reasonable degree of liquidity being achieved.

The decision to proceed with developing a SMF, despite these uncertainties, reflects the commitment of the government of Jordan to a gradual but sweeping reorientation of its economy. The relative prosperity of Jordan in the past cannot be assured in the future without a dominant role for the private sector, removal of advantages and protections throughout the economy, the development of a deeper debt market (to complement its vibrant equity market) and strengthening of the banking sector. Housing, moreover, is an especially important part of the social and financial fabric of the country. The planned SMF should both improve the functioning of the financial sector and the housing options of ordinary citizens.

REFERENCES

Lea, Michael J., "The Applicability of Secondary Mortgage Markets to Developing Countries," *Housing Finance International*, Vol. VIII, No. 3, March 1994

NOTES

[1] The great majority of the bank lending for housing is done by the Housing Bank and the Jordan Islamic Bank. A significant additional amount comes directly from government entities, in particular the military, which probably has the largest portfolio of long-term housing loans outstanding. However, there

are few public data on the military housing scheme. Beyond the banks and the military, some lending appears to be undertaken directly by private pension plans at a low rate for the benefit of plan participants and by the Social Security Corporation for the benefit of certain groups, such as university professors.

[2] This includes about JD 65 million held by the Housing and Urban Development Corporation (HUDC), perhaps another JD 100 million outstanding in loans to military personnel and JD 25 million lent by the Social Security Corporation (SSC).

[3] A second issue dogging past foreclosure efforts has been some provisions of the old Ottoman Law. One provision specifies that interest beyond 9% is not allowed, and another says that the cumulative interest can not exceed the principal. The CBJ has supposedly overridden these provisions with changes in its own law in 1992, but at this point there remains concern that the courts will not uphold the CBJ in this matter.

[4] It is unclear exactly why this earlier effort failed. There are indications that part of the problem was the complexity of the American model of an SMM being considered, as well as opposition from the HB.

[5] Unfortunately, there are a variety of provisions in the Companies Act that could hinder the proper functioning of the SMF. These provisions are expected to be modified in the coming year.

[6] Cagamas, the Malaysian SMF, makes a practice of offering the banks loans that amortize at the same rate as the mortgages backing up the loans. It still finances these loans through non-amortizing (bullet) bonds and keeps an eye on the overall duration of its loans and bonds to keep them in balance.

[7] The saying in the banking business in Jordan is that they wait for the deposit to come in the door and then they look to make a (very short-term) loan. The interbank loan market has not worked well, so banks have to both retain excess liquidity and remain cautious lenders (overall liquidity is about 50% of deposits, compared to a 30% required liquidity level).

The Argentinean Mortgage Market

by Dr. Luis Carlos Cerolini

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ROLES OF THE PARTICIPANTS

Origination of Mortgage Loans

In the Argentine Republic, commercial banks are the normal originators of mortgage loans. The banking network in the financial system comprises a total of 117 banks (both private and public), with over 4,000 branches, geographically distributed throughout the country.

Based on the enactment of Law number 24.441 for housing financing and considering the need to supply new loans to feed the future secondary mortgage market, the National Mortgage Bank (known as the B.H.N. for its acronym in Spanish) fostered the creation of other entities or firms that can originate mortgage portfolios.

To date, the B.H.N. has a total of 45 registered originating firms distributed throughout the country, which are subject to a rigorous qualification process and periodic control. Finally, the municipalities and provinces are also mortgage originators subject to the same qualification and control process.

To date, only 400 municipalities in the interior of the country are qualified, but it is expected that a significant increase will take place in the next few months, given the growing interest in the B.H.N. operations.

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Funding

Traditionally, lenders have financed mortgage loans with their own resources. This explains the limited development and growth of the mortgage market. The Argentine financial system, to describe it in a single figure, has total resources of 12 billion dollars.

Without a doubt, the future growth of the Argentinean housing finance system will only be possible through development of the secondary mortgage market, as lending institutions are constrained by the Basel regulations. This makes it necessary to base the growth of the mortgage market on off-balance sheet resources.

Servicing and Collection of the Portfolio

The banking network mentioned above is entrusted with servicing and collection for the mortgage portfolios. This network administers the loan portfolio it has originated, as well as the portfolio originated for the B.H.N. There are no companies providing master servicing for third parties.

The greatest experience in administering mortgage portfolios has been developed by the B.H.N. However, as a result of the origination of portfolios by the retail banks for the B.H.N., a rigorous portfolio administration procedure has been established. This includes a complete manual and administration regulations which covers aspects such as:

- Criteria for eligibility of the administrator.
- Debtor and administrator contractual relationship.
- Registrations and files.
- Amortization system and payments records.
- Insurance.
- Monthly installments liquidation.
- Mortgage transferences.
- Prepayments.
- Controls and audits.
- Administration of overdue mortgages.
- Registration of employees (authorizations, etc.).
- Reports and remittances.

All of these aspects are developed in detail and are being disseminated among the retail banks that enter the system.

PRESENT SIZE OF THE MORTGAGE MARKET

Number of Outstanding Mortgages

As of March 1996, the total portfolio of originated and outstanding mortgage loans throughout the whole Argentinean financial

system amounts to approximately 450,000 mortgages with an outstanding balance of $10.147 billion.

Of this total, around 60% ($6 billion) is housing mortgages, while the balance is made up of mortgage loans granted for other purposes. Of the $6 billion housing mortgages, approximately 45% ($2.7 billion), has been originated in foreign currency. The loans in local currency (pesos) amount to nearly $3.3 billion.

As of March 1996 the B.H.N. held a portfolio of housing mortgage loans in the amount of $3.302 billion. This includes retail portfolio, wholesale portfolio and global disbursements (intermediate financing).

As of July 30, 1996, the B.H.N. retail portfolio of individual loans was equivalent to $2.746 billion, distributed into 172,000 mortgages, issued in pesos. The wholesale portfolio on that same date (individual loans disbursed by the B.H.N. through the retail banking network) amounted to $260 million, distributed among approximately 10,000 loans, all of them originated in foreign currency. The rest of the wholesale portfolio in foreign currency is represented by the global disbursements.

GENERAL CHARACTERISTICS OF THE MORTGAGE LOAN PORTFOLIO IN ARGENTINA

Overview

The mortgage segment has significantly increased its participation in the total loan portfolio of the financial system. As of December 1994, the mortgage segment represented 14.2% of the total portfolio of the system with a volume of $9.3 billion; in March of 1996, this percentage increased to 17.8%, with a volume of $ 10.147 billion. This increase is produced mainly by the housing mortgages.

Average Value of Mortgage Loans

There is insufficient information to know the average value of the mortgages for the whole financial system. However, based on information that exists at the B.H.N., which is an important reference point in the Argentinean mortgage loan market, the average value of mortgage loans held there is between $30,000 and $50,000 for each loan granted.

Average Term for the Loans

In this item, again, there are insufficient data to establish the average term of the mortgages for the financial system as a whole. The experience at the B.H.N. places the term at an average 11.6 years.

Types of Mortgages

Before the Housing Finance Law number 24.441 was enacted (in January 1995) in most of the housing mortgage loans, securitization was not foreseen. Consequently, mechanisms to encourage standardization, transferability and quick repossession in the event of default, were not included.

The enactment of the cited law completely revises the mortgage regime, providing this instrument with two attributes that it lacked in the past:

1. The possibility of choosing a quasi-administrative foreclosure procedure, limiting the intervention of justice to the establishment of default and granting the lender all capabilities to lead the foreclosure process by himself, limiting total expenses to 3% of the amount of the outstanding loan plus charges.

2. The possibility of assigning the mortgage, without the requirement of prior agreement on the part of the mortgage debtor. This is fundamental for the transferability to the Special Purpose Vehicle and its future securitization.

In addition, it should be noted that the Central Bank of the Argentine Republic designed a standard model for mortgage loans which allows for the origination of homogeneous mortgage loans in respect to terms, currency, interest rate, amortization system, maximum loan ceilings, maximum loan-to-value ratios, installment/ income ratio, amount of expenses and fees. Then the Central Bank took care of spreading out its mandatory implementation among all lenders, in order to make feasible the future securitization process.

Currency or Unit in Which the Loans Are Awarded

Historically, loans in United States dollars represented around 60% of the total portfolio of mortgage loans throughout the financial system. As of 1991, almost all of the mortgage loans had been awarded in United States dollars. In 1996, loans in pesos have started to appear in a greater proportion, although these bear higher interest rates and shorter terms.

Average Loan to Value

The loan to value at which banks operate at present is between 50% and 75% of the valuation of the property (private banks at 50% to 60%, and the B.H.N. at 75%), depending on whether the property to be financed is new or used.

Delinquency Ratios

The experience of default that has been verified by the B.H.N. on its wholesale portfolio (9,700 loans, with a volume of $260 million) is 0.9%. The portfolio in foreclosure is but a mere 13 cases, with a percentage of just 0.24% of the total portfolio.

The few experiences collected with respect to loans that have completed the whole foreclosure procedure show a period between three and five months from the beginning of the foreclosure. The historical experience gathered from the portfolio generated by the

B.H.N. before 1991 indicates that the delinquency indexes are somewhere between 12% and 13%.

POTENTIAL GROWTH OF THE MORTGAGE MARKET IN ARGENTINA

Population Growth Index

In accordance with the projections calculated by the INDEC (National Statistics and Census Institute), the average annual population growth rate for the next 15 years will be around 1.2% per year, and at present the population is approximately 35 million inhabitants.

Demand for Housing

At present, the country has 8.5 million housing units. The current deficit of housing is approximately 3 million units, which comprises 800,000 additional homes that are required and 2.2 million substandard quality houses (lack of security, lack of essential services, advanced obsolescence, overcrowding, etc.).

If one were to make up for the cumulative deficit to date, within the next 20 years, it would be necessary to build 150,000 houses per year. The growth of the population, however, would require 100,000 additional units per year, assuming an annual population growth of just 1.2%. On the other hand, obsolescence (using a 60-year depreciation) would require the construction of an additional 100,000 houses per year. This means that, in order to overcome the deficit and maintain the stock of housing in acceptable condition, around 350,000 houses would have to be built per year. Taking a value of US$25,000 per house, this represents a total investment of US$9 billion per year.

Currently, Argentina only invests US$4 billion per year, which means 160,000 new housing solutions per year. Present investment only represents 1.3% of the GNP; the solution to the problem requires the investment of 3% of the GNP. These figures provide a general idea of the Housing Market dimension, and as such, the potential performance of the mortgage market in the country.

SECONDARY MARKET

Securitizaton Development

There are three important aspects that are to be kept in mind in objectively evaluating the potential development of this tool in Argentina:

1. **The legal context in which securitization is to be developed.** The enactment of Law 24.441 for the financing of housing introduces legal certainty regarding some aspects that were important to establish in the Argentine market, so that instruments such as securitization could be developed. These are:
   - The foreclosure regime was restated, thus allowing an effective and quick repossession of the property.
   - The possibility of assigning mortgages without requiring acceptance by the debtor was established as a way to generate liquidity for the mortgages.
   - The costs generated by the mortgage assignments and the execution of the mortgage contracts with a notary public were reduced.
   - The trust mechanism was regulated so as to be the most adequate instrument for securitizing mortgages.
   - A homogeneous model for mortgage loans to serve the whole financial market was drafted by the Central Bank of the Argentine Republic. This has transformed the mortgage loan into a type of commodity which, in addition to fulfilling the legal requirements in order to be assigned, would have the minimum conditions for standardization at a low cost.
   - Tax contribution aspects were regulated to provide fiscal certainty for the new instruments.
2. **Feasibility of a secondary mortgage in Argentina and its potential.** The most important argument for believing that a strong secondary market will develop in the future is the low stock of mortgages that our financial system has at present in comparison with other countries. The $10.147 billion in mortgage loans that the financial system has at present represents just 3% of the GNP, as compared to 17% in Chile, 50% in Spain and over 100% in United States.

   On the other hand, there is an increasing supply of funds stemming from retirement and pension funds, and more are expected from mutual funds, which still have not entered the capital market and are eager for new and better instruments to channel their savings.

   To date, the retirement and pension funds administrators possess $4 billion, of which $800 million is invested in term instruments in the financial system; a good portion of that money could be channeled to the capital market through instruments that offer high security levels and great stability in the flow of funds.
3. **The B.H.N. role as the main actor in this market.** As established in its corporate by-laws, the B.H.N. participates in this market as a wholesale entity performing a role similar to the one the United States secondary market agencies carry out.

   The B.H.N. operates in the secondary mortgage market, purchasing mortgages from the originators (basically the banks and other private entrepreneurs) in order to put them in Special Purpose Vehicles, administered by a trust, which converts them into bonds issued by the trusts and places them in the capital market.

At present the B.H.N. is working on two mortgage-backed securities issues:

- The first issue is based on the peso portfolio originated by the Bank with its own resources before 1991, in the total amount of $330 million and represented by somewhat more than 19,500 loans, with a weighted average maturity of 16 years and a 48% average loan-to-value ratio.

This $330 million represents a preselected portion of the total portfolio ($650 million composed of 42,000 loans) and is part of the retail loan portfolio originated by the Bank, prior to 1991 ($2.7 billion in 17,000 loans). The servicing and collection are performed through the 1,700 authorized branches of the private retail banks.

The legal structure is that of a pay-through, that is to say, the Bank issues guaranteed negotiable obligations for the future stream of funds, separated from the mortgage loans.

The portfolio is administered by a third party, the Fiduciary Trust, but the ownership of the loans is not transferred. Deutsche Morgan Grenfell was the Institution that designed the structure for the securities.

A senior bond in the amount of approximately 80% of the portfolio will be issued, with an annual put option in favor of its bearers; a subordinate bond will be issued for the remaining 20% balance. The potential purchasers are the institutional investors (pension funds, insurance companies, Work Risk administrators) and also some individual investors, with a significant geographical dispersion throughout the country.

The guarantee to the investors will be provided by the cash flow of the portfolio, the loan-to-value ratio, the 20% subordination and the over-collateralization (the difference between the total amount of the loans and the total amount of the senior and subordinate bonds), as well as by the net worth of the B.H.N.

- The second issue is based on the dollar portfolio, originated as of 1994, the great majority of which is financed with collections of yields and amortizations, and to a lesser degree, with Eurobond investment programs.

This is a US$300 million deal, backed by almost 12,000 loans, with an average term of 11 years and a 58% loan-to-value ratio. The portfolio was originated by a network of 40 retail banks. The administration of the portfolio is performed by the banks themselves, based on the Mortgage Loan Administration Manual and the Mortgage Loan Administration Rules. The B.H.N. acts as General Administrator, playing the Master Servicer role.

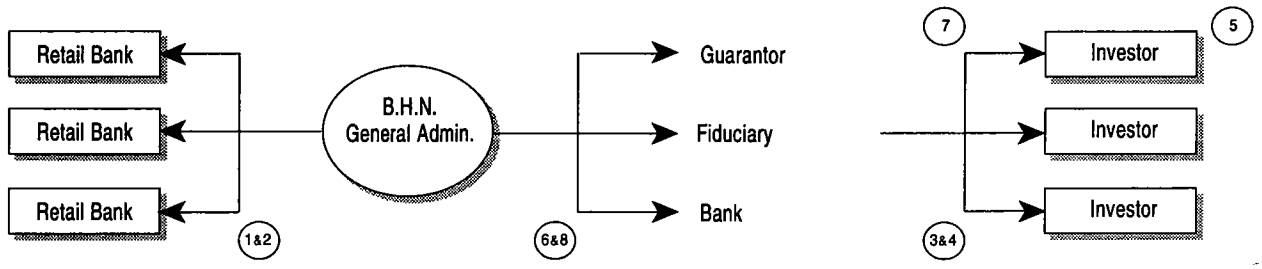
A pass-through legal structure is used in this case. That is to say, the issuer is a Special Vehicle (trust), which has the mortgage loans and some guarantee accounts on the assets side of its balance sheet and the debt issued through the securities on the liabilities side. The portfolio is administered by a third party, the Fiduciary (trust) and there is a transference of the mortgage loans ownership.

With respect to the securities, the concept of issuing different types of senior bonds was developed in order to attract international investors with different investment profiles (e.g., fixed- or variable-rate). The bonds will have both a national and international rating.

The investor will have, first, the guarantee of the portfolio flow of funds; and, second, the excess on the loan-to-value ratio, the subordination and the over-collateralization.

In summary, the players who contribute in this first attempt at real securitization carried out by the B.H.N. are the following:

Figure 1. Securitization Process



1. Administration Manual for Mortgage Lending
2. Regulatory Administration of Mortgage Credits
3. General Administration Contract
4. Trust Agreement
5. Prospectus
6. Sales Contract
7. Security Account
8. Due Diligence

Originators of the loans: The Retail Banking Network, duly qualified by the B.H.N.

Administration and collection: The Retail Banking Network, duly qualified by the B.H.N. (Mortgage Loan Administration Manual and Mortgage Loan Administration Rules).

Master service: Banco Hipotecario Nacional (National Mortgage Bank) under a General Administration Contract.

Guarantee Account: Collateral deposit in a AAA bank, to be defined. This will cover the risk of the country balance of payments, in an amount equivalent to one year of the cash flow that the portfolio generates (for the senior securities) until it reaches a maximum of two years.

Custodian: Banco Roberts S.A. holds the titles on deposit, in a special account for this purpose.

Fiduciary Trust: First Trust New York.

Investment Bank: C.S. First Boston. This bank advised the B.H.N. in the structuring and will participate in placing the securities.

Rating Agencies: Standard & Poors and Duff & Phelps.

Investors: Institutional Investors.

OPPORTUNITIES FOR FOREIGN INVESTORS

There are a number of opportunities for foreign investors in the Argentinean mortgage market:

Investment Opportunities

- Origination of loans for housing projects. The loans can be sold to the B.H.N.
- Direct participation in the secondary mortgage market
- Financing for other real estate investments (offices, hotels, etc.)

Business Opportunities

- Marketing of software for the management, administration and collection of universal mortgages.
- Know-how transference for the management of large volumes of mortgages.
- Construction of housing through non-traditional building techniques that may enable both a reduction in the sales prices and in construction risks.
- Marketing of insurance that allows financing over 75% of the valuation.
- Infrastructure provision (water, sewerage).
- Organization and operation of the Registry of Real Estate Property.

The Feasibility of a Regional Secondary Mortgage Facility in Central America

by Michael J. Lea

Originally Published June 1996

INTRODUCTION

This article is based on a larger report prepared by Cardiff Consulting Services on the feasibility of establishing a secondary mortgage market facility in the Central American region.[1] Although many countries are examining the feasibility of such institutions, this approach is unique in that the facility (referred to as a Secondary Mortgage Facility, or SMF) would operate cross-border. The SMF would be a privately owned, for-profit wholesale (second tier) institution that would purchase and/or rediscount mortgage loans originated by primary market lenders in the region. It would raise funds through debt issuance on both a domestic and international basis. The purpose of the institution is to increase the flow of funds to housing in the region by providing an affordable supply of long-term finance. A related benefit of the company is the enhanced development of long-term debt markets throughout the entire region.

This article focuses on the rationale for such an institution in Central America, the role and structure of the SMF, its possible sources and uses of funds, and the risks it would be subject to in the region. The discussion is meant to be illustrative of the issues the creators of secondary market institutions operating in a cross-border context would have to take into account.

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Housing Shortage

Numerous studies have documented the existence of a severe housing shortage throughout Central America.[2] Housing shortages can arise for a number of reasons, including shortages in land or controls on building which create high house prices, high rates of local in-migration that overwhelm the capacity of local developers to produce housing, natural disasters and a lack of financing for construction or purchase of housing. To varying degrees all of these factors operate in Central America. This report focuses on the lack of housing finance as a major contributor to the housing shortages. It is important to recognize, however, that reforms in the housing finance system must be accompanied by policies encouraging flexibility in housing construction and land development in order to avoid the potential inflationary impact of increases in housing finance.

Funding Shortage

There is a demonstrable lack of mortgage finance in Central America. Historically, lenders in Central American countries lack the resources, incentives and/or the risk management capabilities to provide long-term loans for housing. All countries in Central America have mortgage debt-to-GDP ratios of less than 3%. This contrasts with ratios of 4% to 10% in a number of Latin American countries (e.g., Brazil, Columbia, Chile, Mexico), 40% or more in many European countries, and over 50% in the U.S.[3]

There are a number of reasons why domestic financial institutions may not supply sufficient credit for housing. A major obstacle to the provision of mortgage loans is their long-term nature.[4] Housing is a large scale, durable good producing benefits over a long period of time. To be affordable to the borrower, mortgage loans should have relatively long maturities (e.g., 15 years or more). Almost all mortgage loans currently available in Central America have maturities of 10 years or less.

Why don't Central American lenders provide long-term loans? One reason is the lack of long-term resources in the local economies. Political instability throughout the 1980s not only reduced savings rates (for example, through capital outflows from the region) but also created a short-term mentality on the part of savers who did not want to risk tying up their funds in long-term investments. Savings rates in the region are variable but generally lag behind other Latin American countries and certainly those of East Asia (Table 1).

As the political environment has stabilized in the 1990s, however, domestic savings rates

Table 1. Gross Domestic Savings as a % of Gross Domestic Product

Country	*1989*	*1993*
Argentina	18.7	17.2
Chile	22.7	21.4
Columbia	18.0	19.0
Costa Rica	17.3	15.9
El Salvador	5.2	0.5
Guatemala	8.4	7.4
Honduras	15.6	20.1
Mexico	18.6	14.8
Panama	14.4	23.3

Source: United Nations

are increasing, particularly in Honduras and El Salvador. There is also evidence of a large volume of capital being repatriated, particularly in El Salvador. Several countries are reforming their pension and contractual savings systems which could increase the supply of long-term funds.

Even if long-term savings exist, they may not be accessible to mortgage lenders. Most funding for housing finance in Central America comes from depository institutions. The provision of long-term credit can present liquidity and cash flow problems for such lenders. They are subject to liquidity risk if they fund long-term loans with short-term deposits. Cash flow risk arises due to uncertainty with respect to inflation, real interest rates and exchange rates, and encompasses interest rate and prepayment risk. Because of these risks, depository institutions are often unwilling to provide long-term loans, even if they have a stable and growing deposit base.

ROLE OF A SECONDARY MORTAGE FACILITY

The purpose of the SMF would be to provide competitively priced long-term funds to primary mortgage lenders throughout Central America. Through its activities, it could expand the supply of mortgage credit available to borrowers in the region and stimulate the development of local capital markets. It can do so by acting as a conduit between the suppliers of long-term funds (both domestic and international) and providers of long-term loans for housing.

Figure 1 illustrates how the SMF would operate. As a wholesale, second-tier institution, it would serve as an intermediary between primary market lenders (banks and savings institutions) and the capital markets (domestic and global institutional investors). It would raise funds through the sale of bonds to such investors and make funds available to primary market lenders (PMLs) through collateralized loans or the purchase of mortgages.

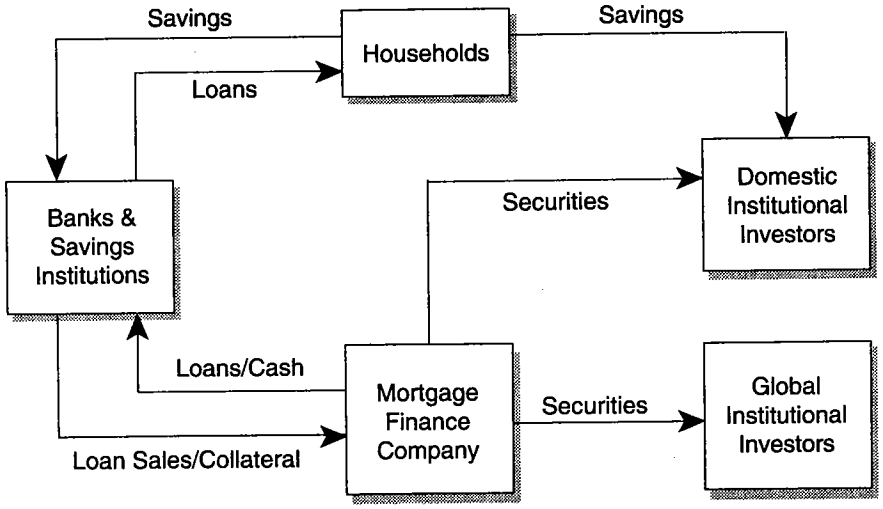
Through its activities the SMF could expand the supply of long-term funds available to Central American mortgage lenders, increasing the resources available for housing, improving the affordability of such funds and reducing the funding risk faced by lenders.

Structure

The SMF would be created as a wholesale, second-tier financial institution. This structure would allow it to operate on an efficient (low-cost) basis by avoiding the high overhead associated with retail borrowing and lending. It would be a simple institution for creditors to assess, and it would not compete directly with its potential clients. As a limited purpose institution, it could develop the expertise necessary to manage foreign exchange and funding risk effectively.

The SMF could be organized as an off-shore company so that it could minimize its domestic and international tax liability. Its international debt issuance and asset-liability management activities could be conducted in its off-shore location. Operations within a country could be

Figure 1. Housing Finance with a Mortgage Finance Company



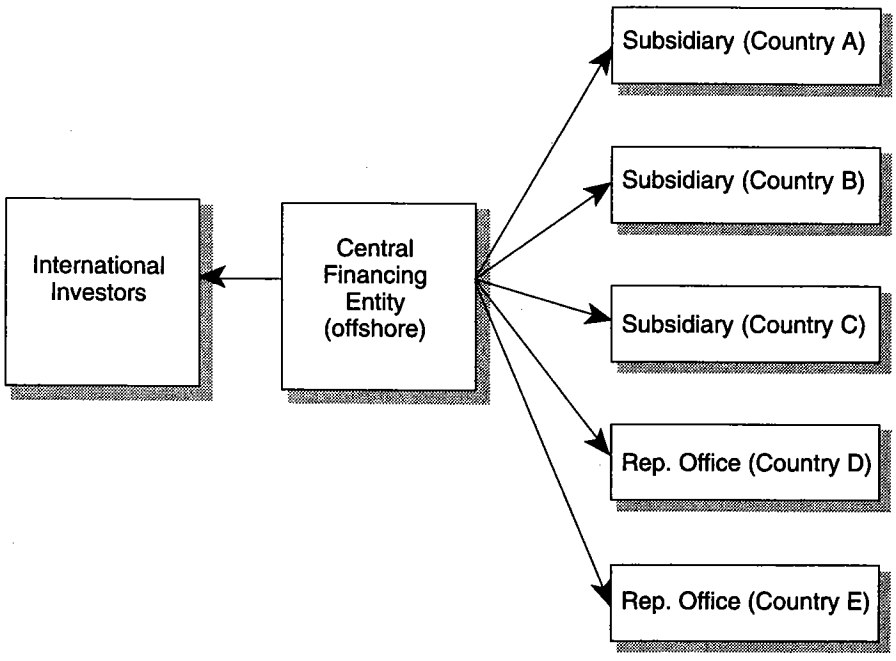
directed through locally organized special purpose corporations controlled by a central financing entity. The use of subsidiaries for the operations within each country would provide greater flexibility in obtaining domestic equity and bond financing and allow for the independent development of markets, while still providing the advantage of access to a central financing facility. One possible model of the organization of the SMF is shown in Figure 2.

The operations of the SMF within each country could be conducted through a domestic subsidiary organized in each country; except that in the early stages of the SMF, limited activities might be conducted within a country directly from the SMF's off-shore location or through a representative office or correspondent bank. Operating through domestic subsidiaries would afford the SMF a number of advantages:

- Ability to raise capital at both the central and local level;
- Flexibility in issuing domestic obligations;
- Currency hedging at either the subsidiary or central level; and
- Flexibility in structuring funding and lending activities in the most tax-advantaged way.

In general, underwriting and lending operations would be conducted at the local subsidiary level through local personnel familiar with the marketplace, but subject to the oversight and monitoring by personnel of the central financing entity. In countries in which the SMF would initially have limited activities and insufficient volume to justify on-site underwriting and operational staff, the SMF could operate entirely off-shore or through a correspondent in such country.

Figure 2. How Would the MFC Operate?



It is likely that the operational structure in each country would evolve over time as the level of activities increases. Whether or not a particular transaction would be structured through a subsidiary or directly with the central financing entity would depend upon regulatory and tax tradeoffs. For example, a foreign lender may be subject to withholding tax on payments of interest while on the other hand a subsidiary would be subject to paying corporate income tax. Income generated from direct activity may also be subject to corporate income tax.

The tax treatment of SMF activities would be a major factor in structuring individual transactions. Analysis of the components of taxable income and the availability of exemptions, credits and deductions within each jurisdiction was beyond the scope of the study, but would naturally affect the internal structuring of operations within each country.

The staffing of the SMF in each office would depend on the nature of activities conducted there. Senior executives and financial management specialists would be located in the operational headquarters. Representative offices or subsidiaries could be staffed by marketing and credit management personnel. The marketing staff would generate new business for the SMF with PMLs. The credit staff would underwrite the mortgage loans to be purchased or pledged as collateral. In addition, they would monitor the performance of servicers and the financial health of PMLs. The SMF could retain outside counsel in each country to handle its legal affairs. One of its offices could be designated as a company headquarters, even though the majority of the financial operations are conducted elsewhere (subject to the tax implications of being headquartered in a particular location). Activities of the SMF would be directed by a shareholder-elected Board of Directors.

Central financing entity. Ideally, the central financing entity of the SMF would be located in a jurisdiction where it would face minimal

tax liability and be allowed to conduct its operations with a minimum of regulation. The tax and legal structure of a country is an important consideration on where to organize a multinational facility. In the Central American context, the SMF could be organized in one of several "tax haven" jurisdictions such as Grand Cayman, British Virgin Islands, Bahamas or Panama. The operational headquarters of the central financing entity could be located in a jurisdiction other than the situs of its central financing entity (i.e., within one of the participating countries).

Ultimately, the optimal jurisdiction in which to be organized would depend upon the nature of activities which would be carried on in the jurisdiction compared with the nature of the activities to be carried on at other locations. Definitions of taxable income and expense frequently depend on both the nature and proportion of activities carried out on-shore versus off-shore.

Operating subsidiaries. An operating subsidiary would be organized within each country as a domestic corporation organized under the laws of such country. Since the subsidiary corporations would not be accepting deposits or providing financing to the public, the subsidiaries would not be engaging in the banking or financing company business and therefore should not require special licensing. However, as a business engaged in lending, a particular subsidiary may be required to register with the Central Bank. Additionally, subsidiaries accessing local capital markets may be required to register with local securities regulatory authorities and exchanges.

OPERATION OF THE SMF

How Would the SMF Raise Funds?

The facility could issue bonds or obtain loans to finance its lending activities. Given the lack of long-term funds in the region, it is likely that most of its funds in its early years would come from abroad through the SMF's central financing entity. An additional source of funds could be loans from the facilities' sponsors (equity investors).

Credit enhancement. As a new institution seeking to issue bonds backed (either explicitly or implicitly) by Central American mortgages, it is very likely that the SMF would require third-party credit enhancement in order to issue debt. A third-party guarantee of the bonds issued by the SMF for the first five years of its existence would substantially reduce its cost of funds and increase the attractiveness of its products.

There are two forms of credit enhancement potentially available for SMF debt issues. Multilateral agencies, such as the World Bank, offer partial credit guarantees to investors covering country-specific or political risks. The guarantees typically cover non-commercial risks, such as war and civil disturbance, funds transfer or convertibility restrictions, expropriation and breach of contract. The World Bank has two programs that would insure investors against political events that adversely affect the value of their investments. The Bank guarantees require a counter guarantee from member countries and range in cost from 40 to 100 basis points per annum on the outstanding guaranteed amount. The Multilateral Investment Guarantee Agency (MIGA) is a member of the World Bank group which offers long-term political risk insurance for qualified investments in developing member countries. MIGA guarantees do not require counter guarantees. Base rates are a function of the risks covered; the base rates for currency transfer, and war and civil disturbance coverage, for example, are 95 to 135 basis points. Actual rates and coverage amount depend on the project's risk profile.

In addition to political risk insurance, the SMF may also seek third-party credit enhancement for its debt issues. Commercial credit enhancement can come from one of three sources: commercial banks, insurance companies or the SMF's founding investors. The largest credit enhancer in the asset-backed securities market is the Capital Markets Assurance Corporation (CapMAC), which had over $26 billion in credit guarantees in force as of June 30, 1995.[5] CapMAC is a AAA-rated monoline financial guaranty company which "rents" its ratings to private security issuers. This company, however, only operates in countries with BB or better country ratings (by Standard & Poors or Moodys). As none of the Central American countries are rated at this level, the sponsors of the SMF may need to provide guarantees, at least for the first three to five years of its existence.

Structure of bonds. The structure of the bonds would depend on market demand. Initially, the SMF's bonds are likely to be dollar-denominated variable-rate issues, with the rate indexed to the London Interbank Offer (LIBOR) rate. If guaranteed by a reputable guarantor, dollar- (or sterling-) denominated bonds would be attractive to institutional investors in G-7 countries. The lack of experience of institutional investors with Central American mortgages (e.g., cash flow characteristics, repayment performance) suggests that initially the bonds should be as simple as possible (e.g., bullet or interest-only structure). As the SMF is established and investors grow more comfortable with the region, the characteristics of the bonds can change (e.g., amortizing, indexed, pass-through). The bonds may be fixed- or variable-rate, depending on the characteristics of the assets.

Pricing. The yield on such issues would principally be determined by the perceived credit quality of the issue. The presence of high quality investors, both within and outside of the region, combined with political risk insurance should allow the SMF to access the market at reasonable spreads.

Most emerging market debt issues are rated non-investment grade (BB) without credit

enhancement. A number of Latin American Banks (Argentina, Brazil and Mexico) have issued debt in the two- to seven-year maturity range. These issues have been trading at levels between 300 and 500 basis points over comparable maturity U.S. Treasury obligations.[6] By way of comparison, U.S. BB- (non-investment grade) to-Treasury spreads are now approximately 170 basis points.[7] Yield spreads drop to under 70 basis points for investment grade corporate bonds (BBB+) and to less than 40 basis points for A-rated asset-backed securities.

Yield spreads on foreign (non-U.S.) debt issues are quite variable but tend to rise with the time to maturity. One possibility for structuring the initial debt issues of the SMF would be for one or more of the sponsors to provide a credit guarantee for the first three years, with a political-risk insurer such as MIGA covering the remaining term to maturity.

Local funding. Over time, the SMF may also issue debt in Central American markets. Such debt may be issued by the SMF's domestic subsidiaries with or without the guaranty of the central financing entity. The high credit quality (initially through credit enhancement and ultimately through the strength of its balance sheet and operations) of this debt should make it attractive to domestic investors. Local currency issues would allow the SMF to reduce its foreign exchange risk. As a new company, the SMF would need a third-party guarantee of domestic issues during the first three years of its existence in Costa Rica and El Salvador. The major constraint on local debt issuance is a lack of available long-term funds in Central American countries, primarily reflecting political instability in many of the countries and a high rate of liquidity preference among savers. Long-term funds that are available are "directed" into the purchase of government bonds and short-term deposits of state banks. The economies of several countries (notably El Salvador, Guatemala and Panama) have been stable recently, which may increase the supply of long-term savings. Perhaps more importantly, several countries (including Costa Rica and El Salvador) are contemplating reform of their pension systems, including deregulation (allowing fund managers more discretion in investments) and privatization (along the lines of the Chilean model). These changes would greatly improve the probability that the SMF could issue medium- to long-term debt in local markets. Its issues could stimulate domestic debt markets by providing a high quality instrument with social benefits. The central financing entity and each domestic subsidiary of the SMF would also need to establish normal banking arrangements (having deposits in and receiving a line of credit from one or more local banks) in the country in which it is domiciled. Depending on the nature of its activities, the central financing entity may maintain correspondent banking relationships in each country.

Equity. The SMF's equity requirements should be in line with the risk of its operations. Although it can be structured with minimal credit and interest rate risk, it would have a significant amount of exchange risk and country (political) risk. The market and the credit enhancement providers would determine the SMF's leverage.

It is assumed that the initial equity of the central financing entity of the SMF would be provided by a few investors, including both domestic Central American and international entities. For purposes of this analysis, the authors assumed an initial equity contribution of $20 million and a 5:1 leverage. Similar institutions in other countries (e.g., the Home Mortgage Bank in Trinidad and Tobago, the Federal Home Loan Banks in the U.S. and Cagamas in Malaysia) operate with significantly higher leverage limits, as high as 20:1. These institutions operate only within the confines of their domestic market and benefit from varying degrees of government support.

The SMF may seek to raise new capital after several years of operation. One possibility would be to require its customers to purchase shares in the SMF (either the central financing entity or directly in the domestic subsidiaries operating with individual countries). As new institutions seek eligibility to borrow from or sell to the SMF and existing institutions expand their mortgage portfolios, the shares held by lenders would increase, allowing the SMF to expand with market demand. For example, to maintain the ability to borrow, a primary mortgage lender could be required to own stock equal to at least 1% of its residential mortgage portfolio. (This is the basis of the capitalization of the Federal Home Loan Banks in the U.S.). The SMF would function as a liquidity facility for mortgage lenders. Thus, the 1% stock-ownership requirement can be thought of as the stand-by line of credit "fee." If, as planned, the SMF operates at a profit and pays dividends to its shareholders, this line of credit would in fact be free. This arrangement also provides the proper incentive for PMLs to deliver good quality mortgages to the SMF.

How Would the SMF Use Funds?

The SMF may either purchase mortgage loans from or make collateralized loans to PMLs. The choice would depend on market conditions and the risk and return of the alternatives.

Lending. As a lender the SMF can provide loans to PMLs collateralized by their mortgage loan portfolios. In the event of a default on a loan to a PML, the SMF must have the right to service (collect the loan payments) or liquidate (sell) the collateral in order to satisfy the loan. In order to safeguard against a decline in the collateral value (e.g., if interest rates rise and the loan rates are fixed or if house prices fall and the incidence of borrower default increases) and account for the potential costs associated with servicing or liquidating the collateral, the facility should make over-collateralized loans. For example, the SMF may make a ¢ 700 million loan to a PML backed by a mortgage portfolio of ¢ 1 billion. Such a loan is said to be overcollateralized as

there is ¢ 1.42 of collateral for every ¢ 1 of loan.

Loan purchases. The SMF may also be a mortgage loan purchaser. This alternative can be more complicated than collateralized lending. If the SMF directly invests in mortgage loans, it must be able to underwrite (i.e., check the documentation and characteristics) and service the loans it purchases. It would have greater default risk and operational expense. Its default risk can be greatly reduced if it purchases loans on recourse (i.e., the seller must replace or buy back the loan if it goes into default). The SMF can operate with relatively low overhead if it arranges for third-party servicing of its loans, paying a fee to the seller (or other servicer). It would still be exposed to the risk of servicer default or fraud. The loan purchase option may take more time to develop and would depend on PML balance sheet needs and SMF capabilities.

Market demand. The market demand for the SMF's products would vary among the countries and institutions in the region. Interviews with banks and savings institutions in each of the countries evidenced a high degree of interest in long-term finance. For most customers, the key component would be the pricing of the products. The yields required by the facility for its loans or loan purchases would depend on its cost of funds (both debt and equity) and the spread necessary to compensate for risk and cost of operations. As a wholesale institution, the facility would have a relatively low operating cost. The credit and funding risk premiums for its activities also can be relatively low, as much of these risks can be eliminated through proper structuring and underwriting. The spread the SMF charges would principally be determined by the amount of foreign exchange and political risk it bears.

In addition to pricing, the SMF may be able to generate high value-added business through innovative product design. One of the strengths of the SMF may be its ability to invest in or fund alternative mortgage instruments. For example, indexed loans such as the dual-indexed mortgage may improve borrower affordability in an inflationary environment without sacrificing lender profitability. PMLs may be reluctant to make such loans (which can have substantial negative amortization) without a liquidity or purchase source.

Investments. The other major asset category would be an investment portfolio. This portfolio would be maintained for liquidity purposes and as a hedge against exchange risk. (This role is explained below.) To minimize credit risk, the investment securities should be limited to issues by governments or government-backed institutions. To minimize foreign exchange risk, such securities should be denominated in the currency in which its debt is issued. The SMF also would maintain a local bank account for cash management.

How Would the SMF Manage Risk?

The facility would be exposed to and have to manage a variety of risks. The five major forms of risk are (1) credit risk (the risk of borrower default); (2) funding risk (the risk of cash shortfall and/or a mismatch between the rates on its assets and liabilities); (3) operations risk (the risk of a mismatch between its costs and revenues); (4) foreign exchange risk (the cash flow risk associated with issuing debt in one currency and lending in another along with the risk that domestic currencies could not be converted into foreign currencies to meet the obligations of the facility); and (5) political risk (the risk of a major change in the legal, regulatory or tax framework in a particular country).

Credit risk. The proposed structure of the SMF would allow it to operate with low levels of the first three risks. The ability to secure its loans with PML mortgage portfolios on an overcollateralized or recourse basis would significantly reduce its credit risk. It can further minimize this risk through diversification (e.g., limiting PML loan size and the size of individual loans that serve as collateral) and through its underwriting of the loan collateral and PML.[8] If the SMF purchases loans from PMLs, it should do so (particularly at the outset) on a recourse or third-party guaranteed basis.[9]

As with any lending situation, the facility would underwrite the borrower and the collateral before making the loan. The facility must develop standards to assess the financial strength of the PML (e.g., capital adequacy, liquidity, magnitude of and trends in non-performing loans).[10] It also would set standards for the collateral it would accept, e.g., loan type, borrower underwriting standards (maximum loan-to-value and payment-to-income ratios), loan size. It would use these guidelines to determine whether to lend or purchase and the degree of overcollateralization of a loan or discount at purchase. The SMF would also have to assess and monitor the servicing performance of the PML.

Funding risk. The facility would manage its funding risk through matching the characteristics of its loans and funding instruments. The major forms of funding risk are interest rate risk (potential mismatch of rates on assets and liabilities) and liquidity risk (risk of loss due to cash shortfalls).[11] Interest rate risk can be minimized through matching the rate adjustment periods of its assets and liabilities. Liquidity risk is potentially more significant, particularly if the SMF borrows on the local capital markets in order to reduce its exchange rate risk. The SMF should develop diversified local funding sources (both short and long term) to manage this risk. In addition, it should maintain a significant high quality investment portfolio that it could liquidate to meet short-term cash needs. This portfolio would also help the SMF manage its foreign exchange risk.

Because of the differing needs of its borrowers and investors, the SMF would be exposed to some mismatch between its assets and

liabilities. For example, its borrowers may prefer amortizing or even negatively amortizing loans while its investors prefer non-amortizing securities. This type of risk is quite manageable. In fact, the facility should develop an expertise in this type of risk management. As a specialized institution with capital markets access, it should be able to develop the loan and securities products necessary to manage funding risk.

Operating risk. As a wholesale institution, the facility should have a low ratio of operating-expense-to-assets and thus minimal operating risk. It would be critical for the facility to develop automated systems for cash flow management as well as systems and procedures for underwriting and monitoring the borrower and the collateral.

Foreign exchange risk. The two major risks the SMF must manage are foreign exchange risk and political risk. The extent of foreign exchange risk would depend on the degree to which the SMF obtains funds in foreign currencies and lends or invests in local currencies. There are a number of approaches to managing this risk. For example, the SMF may be able to diversify this risk across countries. Also, the SMF may be able to obtain some of its funds in local currencies and/or maintain an investment portfolio in foreign currency assets. It may be able to lend in dollars rather than local currencies. These techniques can reduce the overall currency mismatch between its assets and liabilities. The SMF may be able to hedge some of its short-term cash flows through forward contracts. It may also be able to pass some of the risk forward to borrowers or backward to investors. It is inevitable, however, that it would be exposed to and have to price for some degree of foreign exchange risk.

Political risk arises when governments change the rules of the game. For example, a change in tax treatment of interest income (e.g., imposition of a withholding tax) can affect the net margin of the SMF. A change in the legal rules governing bankruptcy or foreclosure or regulatory guidelines for capital could have adverse consequences for the SMF. This is a risk the SMF would have to bear, although it can diversify it across countries. Although there are no major government actions needed to establish the SMF in Central America, the differences in the legal, regulatory and tax systems of the countries suggests that setting up the SMF in each of the countries will be somewhat time consuming and costly. An innovative approach to this issue is the international treaty recently negotiated in order to set up the Eastern Caribbean Mortgage Bank (see the article from Trinidad for a discussion). In order to standardize the legal, regulatory and tax treatment of this new institution in the eight member countries in which it will operate, the governments signed a treaty providing for uniform treatment. As a treaty, this agreement was layered on top of existing laws and regulations.

CONCLUSION

Preliminary analysis by Cardiff Consulting Services suggests that an SMF is more than feasible, it is desirable. There is a strong demand for long-term funds which the SMF could provide on a competitive basis in Central America today. Access to such funds can significantly expand the supply of affordable mortgage credit throughout Central America. As a regional facility, the SMF could reduce risk through diversification and achieve economies of scale in debt issuance that a facility operating in only one of the countries in the region could not accomplish.

CCS uncovered no insurmountable obstacles to establishing the SMF in the Central American region. The critical variables will be the funding costs of the SMF (both debt and equity) and the management of foreign exchange risk. As a start-up company in an historically volatile region, the SMF would, to be viable, need guarantees on its initial debt issues. Provision of such guarantees by multilateral development agencies could be a promising way to develop the housing finance systems and housing markets of Central American countries.

NOTES

[1] Steven Bernstein, Robert Blanchard and Robert Grosse also contributed to the report.

[2] USAID has conducted several studies documenting the existence and magnitude of housing shortages in the region. These are referenced in a report by the InterAmerican Housing Union (UNIAPRAVI), 1994.

[3] International Union for Housing Finance, *Housing Finance Sourcebook*, 1995.

[4] Other factors include the lack of well-defined or enforceable property rights and the lack of reliable information on borrowers (e.g., past payment and income histories) and properties (e.g., comparable sales prices) as well as affordability problems caused by high and variable rates of inflation.

[5] Other major credit enhancers include the Financial Guarantee Insurance Corporation, Financial Security Assurance and MBIA Insurance Corporation.

[6] ING Barings, "Emerging Markets Weekly Report," December 28, 1995.

[7] Salomon Brothers, "Bond Market Roundup: Strategy," January 12, 1996.

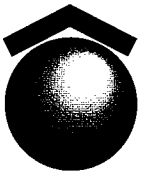
[8] The credit risk inherent in mortgage lending should stay with the PML which has a comparative advantage in underwriting and management due to its retail orientation.

[9] In a recourse transaction, the seller would be obligated to repurchase or replace a mort-

gage that defaulted. A third-party guarantee could come from an insurer or non-affiliated bank. An alternative form of credit enhancement involves deferral of a portion of the purchase price. The seller would earn the full price after some period of time during which the loan performs as expected. This is equivalent to overcollateralization in the lending context. For example, in Argentina, the state housing bank purchases mortgages at 95% of their face value. The seller would receive the remaining 5% if the mortgage does not default over its term.

[10] The loan would be the obligation of the PML. Thus, the facility is underwriting the ability of the PML to repay the loan. In addition, the PML would service the collateral securing the loan. Financially sound servicers are less likely to allow servicing (and thus collateral value) to deteriorate than their weaker brethren.

[11] The other components of funding risk are options risk (reinvestment risk due to prepayment of loans) and spread risk (potential change in asset and liability spreads over time).



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