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**CREATING LONG-TERM
MORTGAGE-BACKED BOND MARKETS
IN ASIAN DEVELOPING ECONOMIES—
A POSTCRISIS REFORM AGENDA**

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Yun-Hwan Kim is Senior Economist at the Economics and Development Resource Center. This note is based on the reports of the ADB technical assistance for Review of the Mortgage-Backed Securities Markets in Selected Developing Member Countries. A book comprising whole reports, edited by S. Ghon Rhee and Yutaka Shimomoto, will be published soon by the Asian Development Bank.

Foreword

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INTRODUCTION

Among the many important policy lessons learned from the Asian financial crisis is the need to develop long-term domestic bond markets in developing member countries (DMCs). Despite high rates of national savings, long-term savings have not been efficiently mobilized in most DMCs. Private sector investments in Asian emerging economies have largely been financed by short-term and medium-term foreign borrowing involving debt servicing burdens and exchange rate risks. It is therefore crucial for the DMCs to diversify the sources of investment funds, particularly by developing long-term domestic bond markets. To this end, several instruments are available, including pension funds, mutual funds or unit trusts, and mortgage-backed securities (MBSs) (Rhee 1999). MBSs are considered to be an increasingly important tool for mobilizing long-term savings, while at the same time stimulating domestic housing markets. This paper, based on an Asian Development Bank (ADB) study (1999), discusses the feasibility of creating MBS markets in eight DMCs.¹

SALIENT FEATURES OF MORTGAGE-BACKED SECURITIES

MBSs, a type of asset-backed securities (ABSs), are supported by a stream of cash flows from mortgage credits provided by an originator (usually a bank). By channeling funds from bond markets to housing markets, MBS link wholesale and retail credit markets. Thus, efficient MBS markets require reasonably efficient bond and housing markets, and are weakened by distortions and other shortcomings in housing and bond markets.

In theory, any real or financial asset that can generate a stable and predictable cash flow can be securitized. In practice, however, the types of assets eligible for securitization depend on the preferences of the regulatory regime. More developed financial regimes take a more liberal approach, while less developed regimes are

¹The countries covered are the People's Republic of China, India, Indonesia, Republic of Korea, Malaysia, Pakistan, Philippines, and Thailand.

cautious about liberalizing securitization rules without first increasing the technical capacity of regulators to supervise such activities. More advanced securitization structures, such as the securitization of receivables to be realized in the future, are not yet widely accepted in developing regulatory regimes. The securitization of nonperforming loans, a practice spawned by the crisis in countries such as the Republic of Korea (henceforth Korea) and Thailand, is injecting additional liquidity into the banking system (Shin 1999 and Krityanavaj 1999).

Receivables and loans are the most commonly securitized assets. Of these, mortgages are the most widely eligible, because the underwriting process for housing loans is fairly easy to standardize. Countries with significant experience in mortgage securitization (e.g., Malaysia) are now preparing regulations for the securitization of other types of assets, usually project or infrastructure-related receivables (Huang 1999). Besides residential mortgages, securitizable assets include commercial mortgages, trade and lease receivables, automobile loans, credit card receivables, agriculture and education loans, and cash surrender values of life insurance policies.

In practice, conventional MBS issues can be classified into three categories.

(i) **Collateralized Debt**

This is very similar to traditional borrowing where real assets are pledged as collateral for debt. In the case of collateralized debt, the market value of the financial asset (MBSs), or the market value of the future stream of cash flow generated by the asset, is pledged. This type of structure is found in the United States and other Western financial markets, but not in the countries surveyed by this study.

(ii) **Pass-through Obligations**

These structures involve the direct sale of equities in the underlying asset pool. Because the claim is in the form of an equity stake, the timing and size of the amortization on the principal can-

not be configured. The interest payment stream, however, can be determined by the servicer and the investors. Thus, in a pass-through MBS, the underlying assets have the same payment characteristics as the security. Assets are conveyed to a special purpose trust that issues certificates to investors buying direct equity claims on the underlying assets. Of the countries in the survey, only the Philippines allows pass-through ABS structures.

(iii) **Pay-through Obligations**

Unlike pass-through ABSs, these structures allow the payment stream of the underlying assets to be reconfigured to appeal to a broader range of investors. Assets are conveyed to a special purpose corporation that issues debt securities collateralized with the assets. An example of such a corporation in the countries surveyed is Cagamas Berhad of Malaysia. India, Indonesia, and Malaysia have recently allowed pay-through securitization structures for various types of receivables.

Because all the countries in the sample are familiar with the concept of a mortgage generating future flows of amortization payments, mortgage-backed securitization should theoretically be possible. Differences in legal and regulatory frameworks, however, account for differences in the ease of implementing MBS transactions. Some countries have experimented with or have successfully established securitization regimes, while for others, the MBS concept is still foreign. Table 1 presents eligible securitization structures in the United States and the eight countries covered by this paper (ADB 1999, Gutierrez 1997, and Lamoreaux 1997).

There are a number of potential issuers of securitized assets. These include secondary mortgage institutions, corporations, and banks. In the United States, the government established the Federal National Mortgage Association and the Federal Home Loan Mortgage Corporation to securitize residential mortgages (Gutierrez 1997 and Lamoreaux 1997). Cagamas Berhad in Malaysia was established by the Government as a secondary mortgage institution to securitize mortgages. Housing finance corporations in other countries, such as India, Korea, and Philippines are current or potential issuers of MBSs.

Table 1: Allowable Securitization Structures in the United States and DMCs

Country	Eligible Securitization Structures
United States	Collateralized debt, pass-through obligations, and pay-through obligations
PRC	No private debt securities issued, only private equity securities
India	Pay-through obligations
Indonesia	Pay-through obligations
Korea	None
Malaysia	Pay-through obligations
Pakistan	None, but there is a proposal for pass-through-type obligations
Philippines	Pass-through obligations
Thailand	Law establishing secondary mortgage institutions do not define the allowable securitization structures

Sources: Asian Development Bank (1999), Country Reports.

IMPEDIMENTS TO THE DEVELOPMENT OF BOND MARKETS IN THE DMCs

The size of bond and equity markets and domestic bank lending in each country is shown in Table 2. It is noteworthy that Malaysia has the largest market for bank loans and equity market capitalization in relation to gross domestic product (GDP), while Korea has the largest bond market. As of December 1997, Korea had the highest ratio of outstanding government and corporate bonds to GDP (20 percent), followed by Malaysia (17 percent), Philippines (13 percent), India (9 percent), Thailand (3.8 percent), Indonesia (1.5 percent), and Pakistan (1.1 percent). As this shows, bond markets in the region remain at a modest level.

Countries with underdeveloped bond markets have fewer options to raise capital; they must rely heavily on the banking system. Banks, on the other hand, risk mismatches in their maturity structures if they continue to provide long-term capital (for infrastructure-related investments), given the short-term liabilities on their balance sheets. For lack of alternative sources of domestic

Table 2: Bank Loans, Bonds, and Equities in Selected Asian Countries, December 1997
(\$ billion)

	Outstanding Bank Loans	Outstanding Bonds	Equity Market Capitalization
PRC	965.2 (105.0)	n.a.	206.4 (22.5)
India	80.4 (23.50)	31.0 (9.1)	128.5 (37.6)
Indonesia	80.8 (60.2)	2.0 (1.5)	29.1 (21.7)
Korea	118.2 (47.6)	50.7 (20.4)	41.9 (16.9)
Malaysia	117.3 (165.8)	12.0 (16.9)	93.6 (132.3)
Pakistan	15.5 (27.2)	0.6 (1.1)	11.0 (19.3)
Philippines	43.8 (72.3)	7.6 (12.5)	51.7 (31.4)
Thailand	128.3 (125.5)	3.9 (3.8)	23.5 (23.0)

Note: Percentages to gross domestic product in parentheses.

Sources: Asian Development Bank (1999), Country Reports.

long-term capital, firms have turned to international credit markets, and exposed themselves to exchange rate risks in the payment of debt (Rhee 1999). The Asian crisis has worsened these risks, reduced capital flows to Asian countries, and depressed the domestic equity markets. Only limited long-term capital is being mobilized in the region. As a result, domestic bond markets now have a crucial role to play, along with domestic equity markets, in financing investments in areas critical to sustained economic growth. Reforms in these markets are thus at the core of financial market reform in Asia.

The study identifies six key impediments to the development of long-term bond markets in the region.

(i) **Lack of a Benchmark Yield Curve**

Most of the countries, notably Malaysia and the Philippines, recognize that the concentration of liquidity in short-term debt

markets is a major detriment to the development of long-term bond markets and activities, such as housing and infrastructure. Both countries have programs to deepen their long-term financial markets and extract benchmark long-term bond yields. However, the programs have been derailed by the crisis, which has increased demand for short-term rather than long-term securities. Many of the other countries have been content with their liquid short-term domestic bond markets (the short-term bond markets in Korea appear to be the deepest) and have not attempted to build liquid long-term bond markets. The DMCs should boost bond markets (including MBS markets) by developing benchmark yield curves that will allow the risk-adjusted pricing of long-term corporate bonds. Only Korea, Malaysia, and Philippines have attempted to establish benchmark yield curves.²

(ii) **Limited Supply of Quality Bond Issues**

There are few viable debt instruments because of (a) the poor credit standing of issuing corporations, (b) statutory restrictions and financial regulations on the issuance of bond instruments, and (c) repressive regulatory processes. Many of these supply-side impediments cannot be removed without the governments taking major initiatives. Further, deterioration of the credit standings of issuing corporations as a result of the Asian crisis also reduces the supply of quality bonds. Governments must also be aware that undue legal restrictions on the amount of debt that corporations can raise, or on the number of eligible issuers, interfere with the proper operation of market forces in bond markets (and hence unduly limit supply).

(iii) **Limited Investor Base**

Opportunities to expand the investor base, which is narrow in most, if not all, of the countries surveyed, are limited. These are associated with (a) the restricted contractual savings system and its regulations, (b) underdeveloped mutual funds, (c) overregulation of

²To help establish benchmark yield curves in the DMCs, an ADB regional technical assistance Study of the Development of Government Bond Markets in Selected DMCs is under way.

the asset management industry, and (d) a limited role for insurance companies in capital markets. Subjecting bond markets to nonmarket forces, such as the practice of forcing captive investors to purchase bonds at below-market yields, also restricts demand.

(iv) **Inadequate Bond Market Infrastructure**

The inadequate bond market infrastructure in the DMCs is due to the absence of (a) competitive auctions, (b) a secondary market trading system where real-time price and volume information is readily available, (c) an advanced clearing and settlement system for bonds, (d) a stronger role for credit-rating agencies, and (e) hedging instruments for long-term and short-term interest rate risk. High transaction costs are also a major impediment.

Bond market development requires mechanisms to ensure that the market value of securities reflects correct market perceptions of relative borrower risk and other fundamentals. For this purpose, bond markets should be competitive and have efficient access to information. All participants should have access to information to help them value securities correctly. To this end, an economy must have a stable, consistent, and accessible framework for the timely and accurate analysis and interpretation of information about issuers and securities. Exhaustive, objective, and independent research by credit rating agencies, investment banks, and other financial service institutions is also essential for bond market development. Some countries, such as India, Korea, and Malaysia, have allowed the establishment of credit-rating agencies to foster competitive ratings. However, with low demand for ratings due to shallow bond markets, the efficacy of such a step is questionable.

High transaction costs resulting from such factors as stamp taxes, which curtail liquidity in both primary and secondary bond markets, may also hold back bond market development. Most of the countries levy transaction taxes, such as stamp taxes and capital gains taxes, on the trading of bonds and other securities in the financial markets. To stimulate liquidity in their domestic bond markets, Malaysia and Thailand have eliminated stamp taxes to lower transaction costs and encourage trading of securities. Regulations that require institutional investors (especially banks or insurance

companies) to set aside a proportion of their investments in bonds as regulatory capital or reserves also increase bond market transaction costs. Such requirements, though essentially prudential in nature, impose an opportunity cost on investors that reduces the demand for bonds and other securities.

(v) **Weak Corporate Governance**

Corporate governance in the study DMCs is considered weak. To improve corporate governance and thus improve the overall integrity of broad capital markets, three elements must be in place: (a) competitive capital markets, (b) legal protection for investors, and (c) a better defined and enhanced role for outside shareholders.

Bond market development also requires institutions and tools to protect creditors' claims on borrowers. In most of the countries surveyed, laws governing the bond markets can barely cope with the demands of trading and regulation of sophisticated financial transactions. Where laws do appear to be adequate, regulators are unable to enforce rules and regulations. This renders investments in the bond markets more uncertain, reduces overall demand for such investments, and makes the markets even more shallow.

(vi) **Underdeveloped Regulatory and Supervisory Arrangements**

Supervisory problems and increased monitoring costs can be caused by (a) fragmented regulatory structure and coverage, (b) overemphasis on merit-based regulation, and (c) underutilization of self-regulating organizations.

The Asian crisis has pushed a number of governments to institute quick reforms for the structure and regulation of their financial markets. From the regulatory standpoint, perhaps the most important reforms are those intended to consolidate regulatory oversight of disparate financial institutions in a single entity. The most prominent example is the Financial Supervisory Commission in Korea, which now supervises the overall financial sector including banking institutions, capital markets, and insurance industries. However, the most common model of financial regulation in the

region involves the central bank supervising banking institutions and the securities commission capital market institutions.

A market-based regulatory philosophy consistent with competitive capital markets also includes a gradual transition from merit-based to disclosure-based regulation, in recognition of the fact that market participants are in a better position to decide on the merits of a particular issue than the regulator itself. To reevaluate controls on market volatility, the study recommends introducing (a) margin regulation, (b) circuit breakers, (c) a price stabilization fund, and (d) securities transaction taxes to contain volatility in the region's financial markets.

RECENT TRENDS IN MORTGAGE LOAN MARKETS IN THE DMCs

The domestic mortgage market in the study countries shows the tremendous potential for increasing mortgage finance in Asia. However, this potential will remain untapped if weaknesses common to mortgage markets in the region are not resolved.

First, like bond markets, the potential viability of mortgage markets is hindered by high transaction costs, especially unreasonably high stamp taxes. High transfer and registration fees and property taxes add to transaction costs. Malaysia has dealt with the problem by granting exemptions for the sale or transfer of mortgages arising from securitization (Huang 1999). Second, the absence of a clear legal framework for protecting property rights is a major obstacle to the operation of housing markets in the region, particularly in Indonesia and Pakistan (Harianto 1999 and Chohan 1999). Third, banking and financial systems in several study countries still have inadequate mortgage underwriting systems. If poor credit risks cannot be distinguished from good credit risks through borrower screening, then credit rationing will be a problem on the supply side of mortgage markets. Mortgage quality is a potential area of concern in Pakistan, Philippines, and Thailand.

A summary of the key characteristics of mortgage credit markets in the study countries is attached as an Appendix. It contains important information and observations about the types of financing patterns and mortgage lenders. Major points are given below.

(i) In most markets, mortgage credit as a proportion of GDP is still small and shows much potential for future growth.

In particular, People's Republic of China (PRC), India, Indonesia, and Pakistan, all very populous countries, have mortgage-to-GDP ratios of less than 5 percent, implying significant room for growth.

(ii) State-owned and state-run firms still dominate primary mortgage lending in many of the countries surveyed,³ underscoring the importance attached by governments to housing as a central human and economic need. However, recognizing the importance of sustainable and competitive housing markets, many of the countries surveyed are deregulating their housing finance markets.

The move from nonmarket to market-based lending includes a gradual shift away from providing budgeted and off-budget subsidies for housing and interest rate ceilings to more market-determined pricing and supply of mortgage financing.

(iii) Deregulation of housing finance markets has also increased the number of primary mortgage lenders.

Except in the PRC and the Philippines, mortgage lending began with the establishment of a state-owned mortgage finance institution with broad market powers and financial support from the state. Although state-owned mortgage lenders are still dominant in several countries, the transition to deregulated housing finance markets has made it profitable for other types of lending institutions—including commercial banks, provident funds, and insurance companies—to participate as well. The entry of provident funds and insurance companies has been allowed for a more proper matching of assets and liabilities for housing finance institutions.

³Except Malaysia, in which commercial banks are the dominant primary mortgage lenders.

(iv) Dominant primary mortgage lenders in the countries surveyed differ markedly in the way they operate.

While all of them offer the best credit terms, not all of the dominant public sector mortgage lenders lend at subsidized interest rates. In countries like the PRC, Indonesia, Malaysia, and Philippines, where mortgages from primary lenders are available at subsidized rates, governments have initiated low-cost housing loan programs with fixed or below-market mortgage rates. Other countries, such as India, Korea, and Thailand, price mortgage loans at market rates. The dominant primary mortgage lenders in the countries surveyed include contractual savings institutions (PRC and Philippines), housing banks (India, Indonesia, Korea, and Thailand), and housing finance companies (Pakistan). India uses an apex-structured banking system to ensure liquidity in the housing finance industry.

(v) Only two of the countries surveyed—Pakistan and the Philippines—have had considerable numbers of nonperforming mortgage loans. Default ratios in the other countries are reasonably manageable.

The vast majority of the problem loans in the two countries were made by public institutions with inadequate borrower screening mechanisms. These shortcomings may be corrected through prudential regulation and better underwriting and servicing. The largest originator of public mortgages in the Philippines, the Home Development Mutual Fund, recently tried to forge partnerships with the private sector to strengthen underwriting and servicing procedures.

(vi) Informal sources, where these are customary, also play a considerable role in housing finance.

This is the case in Korea, where *chonsei*⁴ deposits finance a large portion of housing, and in India and Pakistan, where the

⁴Under a *chonsei* contract, the lessee does not pay rent to the lessor, but makes a large lump sum deposit that will be returned to the lessee upon contract termination. This system is popular in Korea.

informal sector and personal savings still provide much of the resources for housing finance.

POLICY RECOMMENDATIONS TO FOSTER MBS MARKETS

In general, the countries surveyed in this study share the following characteristics: (i) shallow domestic bond markets with the greatest liquidity concentrated in short-term debt markets, (ii) weak legal frameworks for securitization, and (iii) large and growing primary mortgage markets despite the Asian financial crisis. Despite many weaknesses, however, there is potential to develop robust MBS markets if certain conditions are met. Given the current state of MBS markets in the region, the following policies are recommended:

(i) Macroeconomic stability encourages long-term investment and thus provides the basis for building long-term capital markets, including MBS markets. Therefore, economies should make every effort to stabilize their macroeconomic situation in the light of the Asian financial crisis.

MBS markets rely on the synergy of four interdependent markets: the primary and secondary markets for mortgages, and the primary and secondary markets for MBSs. Thus, for MBS markets to function well, a delicate balance must be struck. This entails strengthening real assets in the mortgage market and financial assets in financial markets. It should be noted that real assets back financial assets in MBS transactions. The basis for strengthening all such assets includes a stable macroeconomic framework with reasonably low inflation, low but positive real interest rates, a reasonable fiscal and external position, and the absence of speculative asset bubbles (in both real and financial asset markets). Such a framework ensures reasonable demand for and supply of both real and financial assets, and strengthens the bond between wholesale and retail credit markets in an MBS transaction. A stable macroeconomy ensures that the real values of both real and financial assets are not subject to rapid erosion, and that the prices of such assets are not subject to unreasonable and speculative volatility.

(ii) To support domestic mortgage markets, economies must have a legal and regulatory framework conducive to building liquidity in the primary and secondary markets for mortgages and for MBSs. Foreclosure laws must be restructured to facilitate the recovery of properties, clear tax and accounting rules must govern the conveyance/assignment and true sale of mortgages, and transaction costs must be minimized. Also, regulators must strengthen their technical capacity to supervise and regulate MBS transactions.

In stable financial markets, investors rely on a comprehensive, stable, fair, and reasonable legal and regulatory system for investment decisions. The lack of such a system discourages the operations of MBS and other markets. Many of the countries surveyed have laws and regulations governing important aspects of securitization (such as foreclosure and conveyance of assets). But many of these laws were not made specifically with the development of securitization in mind. Existing securitization-related laws do not support current securitization initiatives. Therefore, the legal framework in many countries must be modified to facilitate the development of MBSs.

In the primary mortgage markets, care must be taken to ensure that foreclosure laws are reasonably structured. Making the recovery of foreclosed assets difficult or cumbersome tends to lower the supply of housing investments, and also the demand for MBS instruments. In the secondary mortgage markets, there must be clear laws for the sale/assignment/conveyance of mortgages to special purpose vehicles. Such laws must clearly specify whether mortgages are sold on a recourse or nonrecourse basis, as this distinction allows market participants and regulators alike to evaluate how risks are structured in transactions (and better supervise those risks). Laws should also distinguish the type of securitization structure allowable (pass-through or pay-through). The distinction is important because laws usually differ in the treatment of pay-through instruments, which are usually associated with debt claims and special purpose corporations, and pass-through instruments, which are associated with equity claims and special purpose trusts. Boosting domestic demand for housing by developing MBS markets requires capacity building in market regulation by the government. If the

government intently pursues efforts to expand and develop MBS markets, it must see that regulators are adequately trained to supervise the MBS process, to assess and minimize systemic risk in MBS markets, and to identify the necessary reforms and their proper sequencing.

(iii) Experience indicates that a secondary mortgage corporation (SMC), though not a necessary condition for the introduction of MBSs, facilitates their development if there are many competitors in the primary mortgage markets. Therefore, while current MBS markets may not justify the development of an SMC, further MBS market growth may require one.

One reason for the growth and success of the Federal Home Loan Mortgage Corporation and the Federal National Mortgage Association in the United States is that they exploit scale economies in standardizing securitization processes for a large and disparate group of primary mortgage lenders (Gutierrez 1997 and Lamoreaux 1997). Experience shows that establishing an SMC helps cultivate deep and liquid MBS markets. An SMC can exploit economies of scale in securitizing large volumes of mortgages, and can facilitate the standardization of mortgage underwriting. If this is the case, then centralizing securitization activities in one or two firms generates efficiency gains that drive down the costs of securitization.

However, the development of an SMC may generally be feasible only if the legal and regulatory framework, the general macroeconomy, financial sector support institutions and infrastructure, and the present stock and future growth of mortgage demand support its establishment. Therefore, countries where these conditions exist may consider encouraging the establishment of an SMC as a first step to developing their own domestic bond markets.

(iv) In economies where the dominant primary mortgage lender is expected to be a single institution, securitization should (in theory) be easier to develop. A single institution will have all of the relevant information for securitization (loans, borrower histories, portfolio quality, etc.). In this case, it may be advisable to explore securitization through a special purpose trust arrangement with a bank rather than through SMCs.

This might apply to the PRC, India, and Pakistan, where there is still considerable concentration in the mortgage lending industry. If there are not many participants in the primary mortgage market, an SMC might be too costly to establish (Chan 1999).

(v) Economies should also strive to improve overall mortgage underwriting procedures, including the quality of borrower and credit history information, to improve borrower screening and ultimately the overall quality of mortgages. Then they should introduce practices such as credit scoring to help standardize the underwriting process and facilitate the development of the MBS market.

The quality of MBSs ultimately depends on the quality of the underlying mortgages. Hence, all aspects of borrower screening must be improved as a prerequisite for developing MBS markets. Due attention should be paid to creating a framework that reduces moral hazard and encourages transparency among prospective borrowers. The underwriting process should be equipped with enough procedures, controls, safeguards, and accurate sources of information to allow originators to prequalify only reasonable borrower risks and build standard profiles of safe borrowers, making them better able to assess the risks of potential borrowers.

Building better sources of borrower information may include establishing a database with credit histories of retail borrowers, which originators can access to cross-check potential borrowers. Meanwhile, building better internal controls could include adopting internationally accepted accounting standards for the recognition of arrears or past-due accounts. Eventually, as experience is gained in following borrower screening standards and procedures that work, all or parts of the underwriting process can be standardized, and this may include the introduction of credit-scoring methods. This greatly facilitates MBS development.

(vi) To support domestic bond markets, economies must ensure that transaction costs and taxes do not constrain liquidity in the primary and secondary financial markets. Regulators must also ensure that domestic bond markets are competitive, to minimize spreads and distribute market power to the participants.

Experience has shown that stamp taxes are the primary component of transaction costs in bond markets and nascent MBS markets in the survey countries. If stamp duties are repressively high, they may hinder primary and secondary market trading of MBSs altogether. Stamp duties may also hinder the development of the primary and secondary mortgage market if they make mortgage debt too expensive for borrowers, and the sale, conveyance, or assignment of mortgages to a special purpose trust or special purpose corporation too expensive for originating institutions. Countries that are not fiscally constrained with a large deficit at the outset will be in a better position to grant such fiscal incentives. For countries running budget deficits, a more reasonable stamp duty policy would be to simplify the tax system by levying standardized duties across instruments and then gradually lowering them as the fiscal position improves.

(vii) The establishment of long-term benchmark yield curves also encourages bond/MBS market development, because they allow longer term debt to be properly priced.

The risk-adjusted real rate of return on long-term instruments such as MBSs will not be compatible with the corresponding risk-adjusted real rate of return for short-term instruments. Therefore, using short-term rates to approximate long-term interest rates in pricing long-term securities will not generate the proper valuation for long-term instruments. For this reason, all of the countries surveyed should strive harder to establish a proper long-term benchmark yield curve using yields of short-term and long-term government securities. However, to ensure that short-term and long-term yields reflect current perceptions of risk, government securities should be standardized, issued regularly, and traded in liquid and deep primary and secondary markets. Thus, governments must reduce impediments to the depth and liquidity of markets for benchmark government securities.

(viii) Efforts should be made to eliminate constraints on eligible investments by potential investors, such as contractual savings

institutions, as they inhibit the development of domestic bond markets.

Among the most likely investors in MBSs are institutions with long-term liabilities on their balance sheets (which will naturally require long-term investment assets such as MBSs to avoid maturity mismatches). These institutions include provident funds, pension funds, and insurance companies, which, however, are normally subject to prudential regulations on their eligible investments. Overly strict regulations may unnecessarily restrict investment decisions by contractual savings institutions. MBS markets will not be liquid and deep without adequate investment support from such institutions. Provided there are adequate safeguards on the quality and structure of MBS transactions, and there is sufficient regulatory capacity to monitor and supervise such transactions, then regulatory authorities may consider easing MBSs into the list of eligible investments by contractual savings institutions.

(ix) To reduce transaction risk with MBSs, the private sector and the government must modernize technology to improve overall clearing and settlement. Establishing formal and organized over-the-counter markets for bonds and MBSs, or allowing MBSs to be issued and traded in the local stock exchange, will encourage the adoption of modern technology in MBS markets, and will also improve market liquidity.

As is true of any other market for traded securities, the use of technology enhances liquidity in MBS markets and ensures secure transactions. Therefore, as the MBS market grows, both the government and the private sector should make investments to upgrade technology to speed up transactions, and to allow real-time gross settlement. This will shorten the time between trades and settlement, reduce the risk of fraud, and increase the demand for MBSs. As a step toward consolidating MBS transactions and enhancing the liquidity of MBS markets, governments may consider establishing organized bond exchanges where bonds and MBSs may be issued and traded in standard volumes, using standard criteria and rules

for listing and trading, and undergo standard clearing and settlement.

(x) Improved access to information about bond market participants fosters competition and efficiency in financial markets, including MBS markets. The cultivation of a ratings culture will therefore stimulate bond/MBS market growth.

Mortgage-backed securitization is direct financial intermediation. It mobilizes savings in such a manner that the saver-investor decides which type of debtor will be granted credit. Unlike traditional banking where information about creditors is privately produced, MBS investors, like typical bond investors, rely on publicly produced information from many types of institutions, including investment banks and investment advisers. An independent and objective assessment by a credible credit-rating firm may be the most important source of information for investors about the creditworthiness of a potential MBS issuer.

Credit rating institutions are also important because they are able to utilize their institutional capacity and memory to construct profiles of good quality MBS issuers, just as credit bureaus may be able to construct profiles of good quality retail borrowers. Credit rating agencies will be able to evaluate and adequately track overall macro conditions in all markets affecting the MBS market, and spot important trends affecting MBS and mortgage markets. With the broadening of information and analysis provided by credit rating agencies, the cultivation of a financial culture that relies on independent and objective credit ratings will increase liquidity in MBS markets.

(xi) Aside from providing improved legal protection for creditors, countries should build a sufficient framework for the provision of external credit enhancements for MBSs, such as facilitating the development of competitive private mortgage guarantee markets.

Among the countries surveyed, Korea and the Philippines have mortgage guarantee firms that help insure creditors against

loss in case of borrower default. The existence of such firms may also encourage the growth of MBS markets by encouraging greater mortgage lending. However, these firms should operate in a framework that promotes actuarially sound, risk-adjusted pricing of guarantees.

(xii) Price distortions in mortgage and bond markets, such as interest rate controls and subsidies, inhibit bond/MBS market development. They should be used only minimally or, better yet, eliminated.

Since the MBS market comprises four interrelated markets, namely, primary and secondary mortgage markets and primary and secondary MBS markets, distortions in any one inhibit the operation of market forces on the other three. For example, subsidized mortgage rates constrain MBSs backed by subsidized mortgages from yielding market rates of return, instantly reducing demand or eliminating it altogether. Also, mandatory credit allocations for housing distort the allocative efficiency of housing and credit markets. An implicit subsidy that comes with government equity participation in the issuing SMC creates a distortion by giving the mortgage and property sector access to cheaper sources of funding (at both the wholesale and retail lending level) compared with other industries. Reducing distortions in MBS markets ensures greater competition and incentives for market entry by a wider variety of primary mortgage lenders, insurers, underwriters, and appraisers.

Appendix: Characteristics of Mortgage Credits Markets in Selected Developing Member Countries

DMC	Outstanding Mortgage Loans	Types of Lenders	General Financing Patterns
People's Republic of China	0.5 percent of GDP (1996)	Primary lenders include state-owned housing funds and banks. Housing funds comprise about 38 percent of mortgage lending. Other major primary lenders: Bank of Construction, Bank of Industry and Commerce, and Bank of China. The Bank of Construction has the largest market share among primary bank lenders.	Mortgage lending as proportion of GDP has risen steadily since 1993. Housing funds for employees of state-owned enterprises were established at the city government level in 1992 to provide housing financed by employers and member contributions (thus, housing funds are essentially provident funds for housing). These funds augment mortgages originated by banks, which are constrained in their loan exposures outside of state-owned enterprises. Mortgage lending from housing funds is provided at subsidized rates. Local governments may set limits on amount borrowed, thus market-based bank lending can augment housing finance.
India	0.05 percent of GDP (1996)	Major sources of primary mortgage finance: state-owned and private companies, notably central and state governments, Housing Development Finance Corporation (HDFC), housing finance institutions (HFIs), state pension and provident funds, and India's two insurance companies.	Mortgage interest rates have been deregulated since 1994. However, HFIs generally charge higher rates on larger loans. Maximum tenure is about 15 years. Mortgage financing has been growing rapidly, driven by an increase in population and urbanization, and a fall in property prices. But home buyers tend to be debt averse, and to borrow only when absolutely

Indonesia	3.1 percent of GDP (1996)	<p>HDFC, the largest mortgage lender, pioneered mortgage finance based on market principles. National Housing Bank (NHB) is operating as an apex bank to promote and support housing finance institutions. NHB refinances housing loans originated by commercial banks and HFIs. HFIs may be established by (i) industrial groups or individual promoters; (ii) subsidiaries of commercial banks; or (iii) insurance companies.</p> <p>Primary lenders: the state-owned mortgage bank (BTN) for low-cost housing; private mortgage bank, Bank Papan Sejahtera; and commercial banks for other mortgages. BTN is the dominant mortgage lender, although the share of residential mortgage financing has declined from 46.7 percent in 1993 to 31.4 percent in 1996. Statistics on 11 major primary mortgage lenders indicate weak capitalization ratios and severe maturity mismatches on balance sheets.</p>	<p>necessary. Thus, there is low dependence on housing loans. Commercial banks are required by the State Bank of India to allocate 1.5 percent of incremental deposits for direct or indirect housing finance. Indirect financing includes refinancing by banks for HFIs at lower than prime rates. HFIs may also finance themselves by issuing public deposits, with returns capped at 15 percent per annum. The Government also provides fiscal incentives for home ownership, as well as fiscal concessions to HFIs.</p> <p>Mortgage financing has grown rapidly since 1993. Bad debts have risen since the start of the economic crisis. The government is always active in lending for low-cost housing. But the private sector has assumed a larger role in mortgage provision in the last 10 years. Standard lending packages are available. Interest spreads are about 3-4 percent. Most banks use specialized credit scoring to rate borrower creditworthiness. Low-cost housing accounts for about 90 percent of housing units sold in the market, but only about 50 percent of value of mortgages. Default ratios for housing are low. But some banks require some recourse to developers in the form of a guarantee.</p>
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Appendix: (cont'd.)

DMC	Outstanding Mortgage Loans	Types of Lenders	General Financing Patterns
Republic of Korea	(1997) 3.2 percent of GDP and 13.8 percent of total loans	<p>Primary lenders include commercial banks, life insurance companies, Housing and Credit Bank (HCB), and the National Housing Fund (NHF). The last two are the largest primary lenders to the housing sector. Recent deregulation of housing finance industry has allowed entry of new players, such as mortgage companies and installment credit companies, into the mortgage lending market.</p> <p>Largest public lenders: NHF and Agricultural Cooperatives Federation (ACF).</p> <p>Largest private lenders: HCB, Kookmin Bank, and life insurance companies.</p>	<p>NHF, a provident fund for housing, offers several housing finance schemes to match the preferences of subscribers wishing to build houses. The government has made HCB responsible for managing NHF, which has no staff or branch network. Statistics indicate that Koreans are increasingly able to afford houses. The value of mortgages as a proportion of GDP increased steadily during 1985–1997. But HCB nearly doubled new mortgages originated in 1997. The public sector provides about one third of new mortgages.</p> <p>The government regulates interest rates, but is gradually deregulating industry and removing constraints on the supply of housing loans. New players such as mortgage credit companies and installment credit companies, which provide quicker access to credit than traditional sources, have rapidly gained market share despite lending at market rates.</p> <p>Sources of informal housing finance are lease-purchase-type <i>chonsei</i> deposits.</p>

Malaysia

(1996)
15 percent of GDP
(total mortgage
lending by
government, banks,
and other nonbank
financial institutions);
8 percent of total
bank assets
(lending by
commercial banks
only); and 12.07
percent of
commercial bank
loans

Financing sources: several state-owned corporations, and commercial banks. Malaysia Building Society Berhad (MBSB) is a housing credit institution that grants term loans for housing, mostly at market rates of interest. Most of its funding is in the form of loans from major shareholders, Employees Provident Fund (EPF), and Bank Negara Malaysia (BNM), as well as other shareholders' funds and fixed deposits placed with it by private institutions. Borneo Housing Mortgage Finance Berhad (BHMF) extends mortgage finance only for purchase of houses in Sabah and Sarawak. The market share of MBSB and BHMF in mortgage lending has declined dramatically because of competition from commercial banks. Supplementary housing finance is provided through EPF.

Most mortgages are lent at market rates. Loan interest rates are either fixed or floating. There is no mortgage insurance company; so guarantors are required at times. Cagamas Berhad securitizes mortgages, providing mortgage lenders with additional liquidity. MBSB is not subject to BNM lending restrictions. It has the advantage of not being subject to statutory reserve and liquid asset requirements. Also it receives appropriations from the Government and BNM for financing at concessionary rates (for the Government's low-cost housing program).

DMC	Outstanding Mortgage Loans	Types of Lenders	General Financing Patterns
Pakistan	(1997) 1.07 percent of GDP; 1.26 percent of bank assets; and 4.58 percent of bank loans	Lenders include several state-owned and private-sector finance corporations. Commercial banks reluctant to lend for housing. House Building Finance Corporation (HBFC) is the major primary lender in the formal (regulated) housing market. Three private housing finance companies were established between 1988 and 1993. However, only one of them has survived. At present, the formal sector accounts for only 20 percent of all housing credit. The informal sector is responsible for financing 80 percent of credit for housing. This comprises personal savings and remittances from abroad, and borrowings from relatives. HBFC funding from the revolving fund is replenished by loan repayments from borrowers.	Mortgage credit as a percentage of GDP, bank assets, and bank loans has been declining since 1994, partly because of reduced subsidies to HBFC, largest mortgage lender, with 95 percent of total mortgage credit originated by the formal sector. Financing sources for housing include mostly debt to be raised from housing finance institutions. HBFC lends on more lenient terms than the private sector provider. Average markup for HBFC loans is about 3.55 percent lower than for IHFL. Average tenor of HBFC loans is 20-21 years; for IHFL, 9 years. HBFC also offers variable markup, while the IHFL markup is fixed. The HBFC default ratio is 25-30 percent, compared with 1 percent of the private sector provider.
Philippines	(1997) Around 6.5 percent of GDP and 11.23 percent of total loans	Financing sources: private banks, in-house financing from developers, mortgage loans from member contributions to state-run provident funds for housing, Home	Low-cost housing loans are available at below-market rates from HDMF and in the form of in-house packages from SSS and GSIS. Terms for public mortgage lending are generally easy, with fixed interest rates, longer maturity periods,

		<p>Development Mutual Fund (HDMF), and members of state-run pension systems, namely, Social Security System (SSS) and Government Service Insurance System (GSIS).</p>	<p>and higher loan-to-value ratios (sometimes up to 90 percent). Loan packages not for low-cost housing are charged market rates and are the domain of private banks. They have variable interest rates and lower loan-to-value ratios (typically 60 percent). Default ratio for state-originated mortgages is much higher than for privately originated mortgages, primarily because of poor borrower screening, leading to moral hazard. Mortgage insurance is provided by the state-run Home Insurance Guarantee Corporation (HIGC).</p>
Thailand	<p>(1997) 16.5 percent of GDP and 9.5 percent of total outstanding loans</p>	<p>Primary mortgage lenders: private commercial banks, the state-run Government Housing Bank (GHB), as well as finance companies, credit financier companies, life insurance companies, and the Government Savings Bank. GHB has the largest share of mortgage loans (38.5 percent of total mortgages as of 1997). GHB, which is supervised by the Ministry of Finance, operates on a commercial basis without government subsidies, and thus lends at market rates.</p>	<p>Despite the crisis, growth of residential mortgage lending has dropped only marginally. This was preceded by rapid growth in last two decades. GHB's share of total home mortgage lending has been increasing since 1995. GHB, which has had the largest share of mortgage credit market, lends at the easiest terms, with lowest interest rates and highest loan-to-value ratios. Most institutions offer both fixed and floating rate mortgage loans, but most prefer to lend at variable rates. Traditionally low default ratios took place for mortgages. But a slight rise in ratio is seen due to the financial crisis.</p>

Sources: Asian Development Bank 1999 Country Reports and staff calculations.

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