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MORTGAGE FINANCE IN EMERGING MARKETS: Constraints on Feasible Development Paths

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ABSTRACT

For the first time in world history, more people now live in cities than in rural areas. The successful development of efficient and stable mortgage finance systems is now of global importance. While considerable skills and resources presently go into improving the efficiency of mortgage finance systems in advanced economies, most of the global latent new demand for housing finance services over the next 30 years is in emerging markets.

At present, housing finance remains underdeveloped in most emerging markets. Residential mortgage lending is typically small in scale, difficult of access and only bank- based with little reliance on capital markets. The lack of financial services in developing countries has a significant negative impact on the efficiency of urban investments, of which housing constitutes probably form about 60 percent if the experience of advanced economies is any guide.

Comparative financial development studies in developing economies have made important advances in the last decade, especially regarding the positive causal impact of financial development on economic growth. In contrast, comparative work on housing finance systems has barely begun. There is no systematic work yet on the great diversity of experiences across the 184 countries that are currently official members of the International Monetary Fund and the World Bank.

What kinds of financial innovations are most needed in emerging markets? What kinds of mortgage finance development strategies are more likely to succeed? This paper explores some important structural differences between the mortgage finance systems of advanced economies and developing ones.

These structural constraints lead to mortgage market development strategies that initially favor the development of strong retail mortgage markets, effective mortgage insurance mechanisms and simpler risk management institutions and instruments for retail lenders. The frequent emphasis international emphasis on securitization has the advantage of exposing more clearly the varied structural weaknesses that an emerging market must address. Yet this major innovation of the past two decades is not likely to have a large quantitative impact until later stages of mortgage market development. Also, the development of housing market institutions cannot be taken for granted as they form another major constraint that must be addressed concurrently is the housing finance system is to deepen.

MORTGAGE FINANCE IN EMERGING MARKETS:
Constraints on Feasible Development Paths [*]

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"Conventional financial sector policy thinking is implicitly calibrated on a reasonably large economy within which the fixed overhead costs of regulatory institutions is not a major consideration, in which enough intermediaries and markets can achieve minimum efficient scale within a competitive system, and in which there is a good diversity of financial assets and prospects to allow risk-pooling. Research in this area has also focused on larger countries."

Bossone, Honohan, and Long [2001]

I. INTRODUCTION

This policy oriented paper examines some of the structural differences between advanced financial markets and emerging markets and the impact of these differences on selection of suitable mortgage market development strategies in these emerging markets. In this paper, the term "emerging economies" refers to the full spectrum of developing economies where market institutions are at various stages of development. It does not refer to the usual and much smaller subset of higher income 'emerging economies' that began attracting the interest of global private capital markets during the 1990s. The population of countries covered is therefore very large and extremely diverse. The monthly International Financial Statistics of the IMF currently cover 178 countries, including a few regional groupings like the European Union.

From the perspective of world history, urbanization is a new story and the second half of the 20th Century was marked by the urbanization take-off. What will now differentiate urbanization in the 21rst century from the past is that it will be totally dominated by urbanization in emerging economies.[1] Most of world population growth over the next three decades will take place in developing economies and 95% of that growth is projected to be in cities.

The latent demand for efficient real estate finance systems to manage the production and trading of urban assets in the cities of emerging economies is very strong. Pressure is rapidly mounting because the lead time for the diffusion of a known financial innovation in another financial system is often of the order of five to seven

[*] An initial version of this paper was presented at the Homer Hoyt Institute in January 2004.

[1] Western developed countries were dominant at 60% of world urbanization in 1950. Their weight had dropped to 30% in 2000 and will shrink further to 20% by year 2030. Annex Tables A-1 and A-2 shows that urbanization in the next 30 years will be predominantly an Asian story. Cities in China and India will expand by another 730 million people over their base of 735 million in 2000. The successful and rapid development of real estate finance systems in these two countries is of world significance through its impact on input and product markets.[1] However, while the top ten countries will generate 60.5% of new urban population growth, the need for financial services in the cities of the other countries need to be addressed also.

years during which city population will grow in large numbers.[2] Housing finance is not neutral to economic development. There are multiple and well-known negative consequences to poor access to housing finance. On the other hand, international experience in high income economies shows that a well functioning mortgage market will provide very large external benefits to the national economy: efficient real estate development, construction sector employment, easier labor mobility, capital market development, more efficient resources allocation, and lower macroeconomic volatility.

So far, there has been no comparative finance work of a relatively systematic nature on the organization, structure and performance of housing finance systems in emerging markets. Even for higher income emerging economies. There are very few comparative studies[3] When it comes to what to do in emerging financial markets, views of mortgage market development policies remain framed by the experience of a few high-income economies; especially by the remarkable rate of innovation in the US financial markets during the last thirty years. However, in shaping a mortgage finance development strategy for an emerging market can a direct transfer of institutional arrangements found in advanced economies be readily suitable? Why is it that so many attempts to introduce mortgage securitization in emerging economies have met with so few successes?

The absence of credible comparative studies of mortgage finance systems in emerging economies might be attributed to their potential cost, the scarcity of relevant skills, the lack of private profit incentives for global investors to fund such work, and from the viewpoint of regulators to the perceived lack of systemic risks that a fragile housing finance system might create for regional or global financial markets.[4] The situation might change for middle-income emerging economies. A new driver for more comparative analysis of housing finance systems is the potential impact of real estate assets volatility on the stability of domestic financial systems. Another one is the approval of the Basel Capital Accord II on 26th June 2004 for implementation by 2006. This new Basel Accord is expected to have strong direct and indirect effects worldwide on mortgage finance systems through its new rules on credit risk, interest risk, and securitization embedded in its 'three pillars" on banking regulation, banking supervision, and financial market development.

Given that almost all the major innovations in mortgage finance have originated in high-income countries[5] how can this technical capital be brought to bear on the design

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[2] The creation and full market diffusion of a financial innovation usually takes longer. Asset securitization in the US took about two decades to diffuse fully through the US markets between the early 1980s and 2000. See Lewis Ranieri's history of securitization in Kendall and Fishman [1996]

[3] International comparative finance work on mortgage systems is still in its infancy. After the pioneering work of Boleat in 1985, comparative work on mortgage finance systems began in earnest only during the last decade with a performance evaluation of 5 countries (Diamond and Lea, 1992). Another decade has elapsed before the second systematic comparative study of 8 housing finance systems (Mercer Oliver Wyman, 2003). A useful comparative study of 12 mortgage systems has also appeared last year, but from the more limited perspective of mortgage securitization (Batchvarov et al. 2003). These three studies cover only high-income, advanced economies.

[4] Until recently, overworked regulatory staff in the central banks of emerging economies responsible for the overall financial stability of their system had ignored mortgage finance issues: why worry about a system that barely exists when there are immediate problems with commercial bank stability, or the insurance sector, or the capital markets? Attitudes have changed with the increasing global concerns with asset bubbles.

[5] Arguably, the main exception to the origin of financial innovation in advanced economies is the development of "microfinance" at the end of the 20th century.

of suitable strategies to develop mortgage markets in a given emerging economy. We can expect such strategies to be shaped by two core factors: the current scale and development depth of the domestic financial markets, and the degree of organization of housing markets in the cities of the country. The aim of this paper is to map out some important structural differences between emerging markets and developed economies.

This paper first discusses five recurring structural issues that need to be considered when proposing a mortgage market strategy: market size, macroeconomic stability, the degree of development of financial market infrastructure, legal and structural path-dependency in the development of this financial infrastructure, the feasibility of domestic risk-based pricing for medium and long-term financial instruments. The second part reports recent new findings on the measurement and determinants of financial structure across some 175 countries that affect the growth of mortgage finance systems.

What are the strategic implications of these findings about the evolution of financial market structure across income levels for mortgage market development? The third part shows the impact of housing market structure on finance. The fourth part reports on the mortgage markets actually observed in emerging economies. The conclusion outlines the implications of these findings for the development path of mortgage finance in emerging economies.

II. THE CONTEXT OF HOUSING FINANCE DEVELOPMENT: FIVE ISSUES

1. The issue of small financial system size

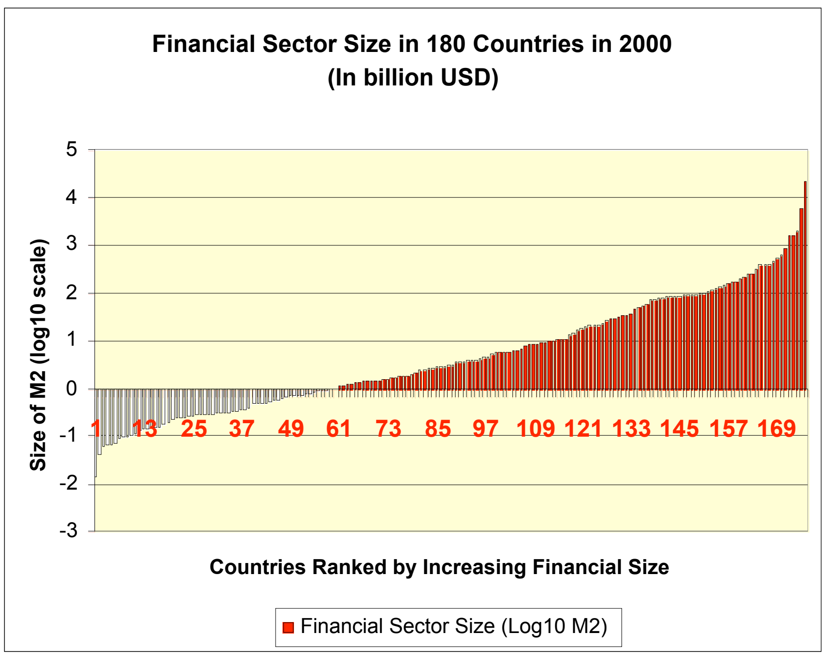
Two initial indicators of financial development are the total size of a financial market and financial assets per capita that better reflect the degree of financial depth. By these two measures, many emerging financial systems are quite small and shallow. They lack economies of scale and scope. Other things being equal, larger financial systems and larger banks are more efficient and more profitable than small ones for three basic reasons: a larger system will have lower fixed relative to its assets; it will have greater overall liquidity and its larger individual banks will also have less internal need for liquidity; third, the system will be able to use its capital more efficiently through better pooling of risks without increasing the probability of insolvency and instability. For an individual bank or other financial intermediaries, a larger scale and a stronger reputation also enhance each other.

While economies of scale result from doing more of the same activity, economies of scope result from carrying out different but related activities. Financial innovation is more likely to arise in larger markets where the necessary instruments, tools and know-how are already available or can be more easily developed. The smaller a financial system, the more incomplete in its range of financial instruments and services it is likely to be for risk management and for funding.

The most recent year for which global comparative data on financial systems from the IMF’s International Financial Statistics and the demographic and economic structure of their economy from the World Bank's Development Indicators are available is the year 2000. This database covers 183 countries and shows that many financial systems are in fact extremely small: 61 countries had an aggregate financial sector size (measured by money supply M2) of less than USD 1 billion, i.e. no larger than a small bank in an industrial country. These countries are dispersed around the world. Yet in aggregate these small economies represent a population over 200 million, i.e. a total larger that Indonesia, Brazil's, Bangladesh's, or Russia's population.

A higher size threshold of USD 10 billion would be of the magnitude of the balance sheet of a medium-size bank in an industrial country. We find that 115 countries still fell under this second cut-off point. These countries account for a population of almost 820 million in 2000. These financial systems include all of Sub-Saharan Africa except Nigeria and South Africa, some large transition economies such as Ukraine and Vietnam, a number of Latin American countries and in particular all the countries of Central America, as well as the three Baltic states in Europe.

FIGURE 1: THE ISSUE OF FINANCIAL MARKET SCALE



Complementing Figure 1, Table 1 provides data on the size distribution of financial systems in 2000. Based on the value of M2, 125 countries had a financial system of $100 billion or less. Only 25 countries dominate the global financial markets. The population share of these 25 countries represented 61% percent of the world because it includes China and India. Their share of global financial assets was 95% in terms of M2, and would be greater if better measures of net total financial assets were available. Predictably ,the attention of most market analysts focuses on these 25 largest countries where the returns on information gathering and processing are positive.

As expected, comparisons based on financial depth measured in terms of M2 per capita yield very different country groupings and rankings. One hundred countries have a level of financial depth below $1,000 of M2 assets per capita. Small advanced economies such as Switzerland, Singapore, Hong Kong and Luxembourg have very deep financial systems. Due to its global role as a banking center located in the middle of Europe. Luxembourg has the deepest financial system, followed immediately by the US financial system. In contrast, India and China that ranked among the twenty largest systems drop respectively by 115 and 70 places.

TABLE 1: SIZE DISTRIBUTION OF FINANCIAL SYSTEMS, 2000

	Countries	Aggregate M2	Share of M2	Population	Pop. Share
M2 in billion USD	number			million	
under 1 Billion	63	22.34	0.1%	270	5%
< 10 Billion	52	180.03	0.5%	548	9%
< 50 billion	24	491.59	1.3%	778	13%
< 100 billion	19	1341.38	3.6%	705	12%
< 200 billion	8	2,035.34	5.5%	417	7%
< 500	9	4,070.68	11.0%	1,157	20%
over 500	8	28,977.93	78.1%	1,970	34%
TOTAL	183	37,119.29	100.0%	5,845	100%

Clearly, the globalization of financial markets does not mean that all financial systems can actually operate in a worldwide market. Licensing and regulation of banks remains a national responsibility. Cross-border transactions such as deposit taking, borrowing and lending may be constrained either by regulation or by business prudence. Moreover, when it comes to small enterprises and consumer finance, SMEs and households are typically confined to the services of local financial intermediaries.[6]

For the design of strategies to develop mortgage finance systems and comparative analysis it therefore necessary to distinguish three broad tiers in the global financial system across which diagnosis, prescriptions as well as the sequencing of reforms differ significantly. These three tiers are:

- Tier 1: Mortgage finance in very small financial systems lacking economies of scale and scope.

- Tier 2: Mortgage finance in emerging markets. This group is fairly well reflected in the Morgan Stanley "Emerging Market Index", which presently covers 25 very different financial systems. In 2000, their M2 scale ranged between $10 billion in Jordan and $1,640 billion in China. Their M2 per capita depth ranged from $260 in India and $17,100 in Israel. This second tier could

[6] In his new study of globalization, its benefits and costs, Martin Wolf [2004] raises the question of how this large number of very small economies is a significant structural cause of global inequalities.

include 7 more financial systems in addition to those in the MSCI index.[7] The list of the 25 financial systems included in the MSCI Emerging Market Index is provided in Appendix Table A-3. An additional list of 8 countries that could be included in Tier 2 is provided in Table A-4. It is in the Tier-2 countries that the links with mature financial markets are growing the most rapidly. Estimates from the Bank of International Settlements for 2002 show that 80% of bank loans, over 90% of foreign direct investment and over 95% of debt security issues are concentrated in these 25 countries. (see Wooldrige et al, BIS, 2003, p.52).

- Tier 3: Mortgage finance in the high-income financial systems of North America, Western Europe, Australasia and Japan. These countries are the source of innovation, financial capital and human capital transfer in mortgage finance to developing economies.

For the large number of small systems belonging in Tier 1, strategies to develop housing finance systems face very significant structural constraints in terms of economies of scale for financial intermediaries and markets, the lesser degree of local competition and efficiency in services, the limited capacity for domestic risk diversification, inadequate economies of scale for regulation and supervision, without overlooking the size of the pool of human resources to manage such systems.

Some mortgage market development responses to the constraints in small domestic financial markets of Tier 1 have been:

- In Africa, the development of a regional supervisory authority and of regional securities markets for both fixed-income securities and equities in the WAEMU common currency zone of West Africa with its regional central bank based in the Côte d'Ivoire. However, the impact of these institutional efforts on the development of mortgage finance services across the countries of the WAEMU zone remains minimal.
- Other approaches have been the use of currency boards for a fixed rate to a dominant regional currency such as the US dollar in Panama or the Euro for the Baltic States.
- Proposals for regional mortgage market funding arrangements for countries of Central America have not yet been able to overcome national regulatory differences and multi-currency risks, as well as heterogeneous housing market conditions.[8]
- The creation of a liquidity facility for the small islands of the Eastern Caribbean Currency Area has also met with very slow success so far.[9]

[7] Left out of the heterogeneous group of countries of the MSCI index are seven countries that belong in this second tier. There are the three small Baltic States. In the Middle-East, Bahrain, The United Arab Emirates and Lebanon are financially deep markets of relatively small absolute size, Tunisia is at the lower limit of this emerging market group in terms of financial depth per capital and also size. Then there is Iran, which in addition to a population well over 60 million has a relatively large financial market and also has significant per capita depth.

[8] See Michael J. Lea, [1996] "The Feasibility of a Regional Secondary Mortgage Facility in Central America", *Housing Finance International*, June.

[9] See Sebastian St. Bernard [1999], "Developing a Secondary Mortgage Market in the Eastern Caribbean Currency Area" *Housing Finance International*, December

- Individual cross-border residential mortgage securitization issues can take place at a price, as was the case in Costa Rica in 2001 with the support of international credit enhancements by the Dutch financial development agency FMO.[10] Moving from such pilots to a systemic access to international funding remains to be confirmed as a sustainable strategy rather than a one time transaction.

At the threshold between Tier 1 and Tier 2, small countries such as Jordan have a financial system that is developing well. Following the model of Malaysia, the central bank of Jordan has successfully supported the creation of a liquidity facility the Jordan Mortgage Refinancing Corporation in 1996 in order to expand the competitive supply of mortgage finance by commercial banks and other retail institutions.[11]

Even for the advanced countries of the third tier, comparative analysis of mortgage finance systems has been extremely limited. One notable recent work is the comparative analysis of mortgage finance systems in the European Union commissioned by the European Mortgage Federation in 2003. (See Mercer, Oliver, Wyman, 2003).

2. The issue of macroeconomic and financial instability

In addition to financial market scale, another leading issue that cuts across emerging economies of various sizes is the greater degree of macroeconomic instability faced by emerging economies than by high income economies.

Macroeconomic instability and its corollary of high and volatile domestic interest rates have a disproportionate impact on long-term mortgage finance. A shared regularity between mortgage finance in advanced economies and emerging markets is that interest rate risk is typically larger than credit risk for a mortgage lender.

A variety of factors contribute to greater macroeconomic volatility in emerging markets. Their production structure is typically much less diversified than that of advanced economies and they are often dependent on primary commodities. Domestically, market segmentation tends to be greater for capital, labor, goods, and foreign exchange markets. In an opening economy there are also transition risks including a proper sequencing of financial sector deregulation, supervision and modernization. The political economy of managing the macro-economy is also more prominent as a stability factor in emerging economies

Given this background, triggers for a specific macroeconomic shock can be of various kinds:

- *Structural:* wrong industrial policies and deteriorating competitiveness
- *Cyclical:* falling commodity prices and sharp terms of trade decline
- *Financial:* excessive leverage, weak domestic financial system, moral hazard
- *Developmental:* inadequate management of the opening of the economy

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[10] See for instance Moody's "Costa Rican Housing Finance Bond Program, Series 2001-1" June 28, 2001. The first Costa-Rican issue was for USD 62.5 million.

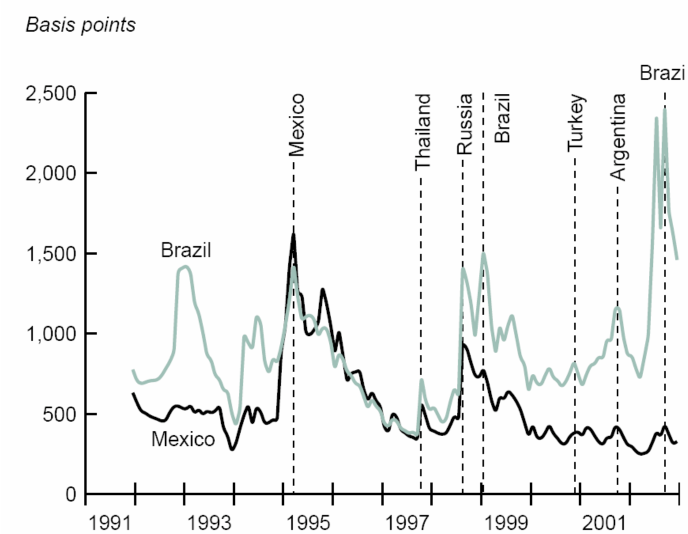
[11] See the 2002 completion report on this 1996 project "Jordan Housing Finance and Urban Sector Project", Report 23518-JO available at http://www-wds.worldbank.org/

- *Macroeconomic:* macroeconomic imbalances, especially large and growing fiscal deficits
- *Global:* contagion effects among global investors

The net effect of macroeconomic volatility is to generate a significant country risk premium in addition to a substantial inflation risk premium for the country debt of "emerging markets", which actually consist of a limited number of higher-income emerging economies out of the 159 economies represented in Figure 1. To the extent that a country can issue debt in its own currency there is also a significant exchange rate risk premium. The aggregate of these *premia* tends to spike sharply during episodes of systemic crises as show in Figure 2 that tracks the evolution of the average merging market premium over US treasuries during the last 12 years.

FIGURE 2. VOLATILITY AFFECTING EMERGING MARKETS:

Secondary Market Spreads on Brazil and Mexico, 1991 -2002



Note: Country names mark date of financial crisis.
Source: J.P. Morgan Chase.

Source: World Bank, *Global Development Finance 2003*.

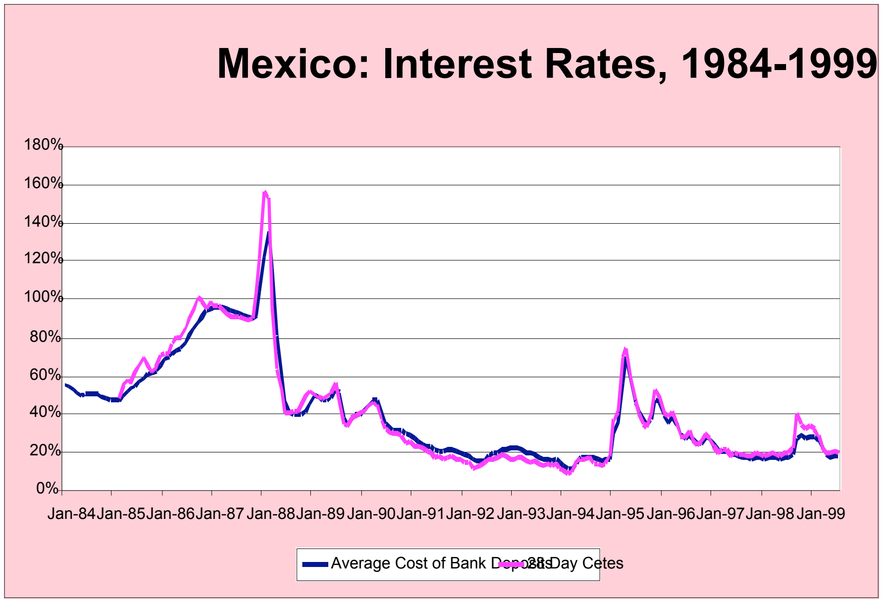
Not surprisingly, many plans to develop mortgage securities markets in emerging economies face serious pricing issues in terms of interest rate levels and volatility, which negative consequences for the price of the retail mortgage loans to be funded by these securities.

However, a given emerging economy can greatly improve its position on the global financial markets over time through its demonstrated ability for sustained macroeconomic management and effective control of inflation, as is the case of Mexico today, in great contrast with the decades of the 1980s and the 1990s. (Figure 3) [12] The

[12] On January 6, 2004 Mexico placed one USD billion of 5-year floating-rate-notes paying 0.7 percentage points above three-month LIBOR. The initial issue was doubled as it was over-subscribed almost 4,5 times. The fixed-rate equivalent yield was 4.34%, compared with 9.57% of a similar maturity issued in 1999, and 7.88%

effect on domestic interest rates has been quite beneficial: the Mexican private mortgage market that had been shut down by the financial crisis of 1995 has now reopened and the market is finally growing well in 2004.

FIGURE 3: IMPACT OF MACROECONOMIC VOLATILITY IN MEXICO



3. Financial infrastructure and incomplete financial systems

The last decade of research has been marked by the wide confirmation of the pioneering work done by Raymond Goldsmith [1969] regarding the positive effects of financial development on economic growth.[13] This new research shows that the organization and structure of the financial system also plays an important causal role in the quality and rate of economic growth.

In particular, the quality of the financial infrastructure -- or rather the lack of it -- provides an explanation of why traditional banking predominates in the early stages of development. This lack of infrastructure is one reason behind the recent emergence of microfinance as a recognized, legitimate component of financial development, in addition to the low income level of the micro-entrepreneurs to be served.[14] We expect the financial infrastructure of a country to shape the structure, organization and

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of a five-year 1997 issue. Wall Street Journal January 6, 2004. Current 12-month inflation is less that 4.4% and the 28-day CETES rate was 6.69% on 16^{th} July 2004.

[13] See in particular, Ross Levine's 1997 review paper, Levine et al [2000], Demirgürç-Kunt and Levine eds. [2001], and World Bank [2001].

[14] See M. Robinson [2001] and [2002] and the review article by J. Morduch [1999].

performance of the finance industry and the process of capital formation – and mortgage market development strategies.

What is meant by financial infrastructure in the context of financial development in emerging markets? Reflecting the numerous financial crises of the last two decades in advanced economies and emerging markets alike, most financial economists now include the following components under the term 'financial infrastructure':[15]

1. The legal and regulatory infrastructure:

- Financial legal and regulatory frameworks, including bankruptcy codes, enforcement, and conflict resolutions mechanisms between creditors and debtors;
- Supervision, accounting, auditing, as well as the rules, practices and professions that go with them;
- Financial corporate governance and institutions;

2. The information infrastructure:

- Public registries;
- Laws and rules about disclosures;
- Valuers;
- Credit bureaus;
- Rating agencies;
- Financial and industry analysts;
- Macroeconomic analysts;
- Timeliness, accuracy, coverage and access to public statistics

3. The risk-pricing infrastructure:

- Government securities markets
- Sub-national bond markets
- Private sector bond markets

4. The payments and settlements infrastructure:

- Clearing and settlements systems;
- Rules and standards;
- IT technology platforms;
- Networks.

5. The financial stability infrastructure:

- Liquidity facilities;
- Other safety net facilities.

Two points can immediately be made:

First, the mere listing of these five categories of financial infrastructure is enough to support a strong hypothesis that traditional banking systems will predominate in the early stages of financial development. An immediate hypothesis is that financial systems

[15] See Bossone et al. [2003]

will evolve from being "bank-based" to becoming increasingly "market based" as the development of the financial infrastructure permits an increasing unbundling and the more efficient pricing of the risks underlying the supply of financial services initially provided by banks.

Second, the provision of all these infrastructure components includes a significant mix of public goods and private goods and is therefore shaped by the political economy of financial reforms. Therefore, in addition to a domestic lack of human capital and technology, the interactions between governments and domestic rent-seeking interest groups will determine what infrastructure component is going to be developed and what is going to be ignored or at least long-delayed. It often takes a crisis to create new alignments in private interests and public incentives and opens opportunities for infrastructure improvements.

Why do we expect 'bank-based' financial system to dominate in emerging markets? In financial systems where the infrastructure is inadequate, traditional banks as financial intermediaries develop relationships and contracts for both deposits and loans with their clients. These contracts aim to minimize or mitigate information asymmetry problems and the associated transaction costs. To a subset of potential borrowers they offer access to funding at prices and conditions that is not feasible through nonbank finance. These banks give incentive-compatible debt contracts that give the creditor the ability to save on the costs of monitoring the borrower's performance throughout the life of the contract, and give borrowers incentives to minimize the risk of default and discourage them from hiding the true performance of their business.

A basic proposition of financial development is that information asymmetry leads bank to engage in credit rationing. In economies with limited financial infrastructure we expect that banks will lend for trade finance and to firms with large tangible assets that can serve as collateral, which usually is real estate. Traditional banks will also exhibit a strong preference for repeat business with firms in more established business sectors in better-known production sectors.

A barrier to improving and developing a solid financial market infrastructure -- and indirectly to the development of housing finance -- can be the presence of an oligopolistic and politically influential traditional banking industry that is rent seeking and may successfully lobby the government to limit the entry of new financial intermediaries in order to protect high margins. In such environments of rationed finance, established preferred borrowers may also lobby to protect their relationships with these banks.[16]

The significance of an opaque, traditional, bank-based financial system is that the seriousness of the information asymmetry problem will tend to limit banking relationships to repeat business with mostly blue-chip customers who need to maintain their access to finance.[17] Such a market structure can become a very important obstacle to the development of housing finance, which is characterized for banks as a business line of small-scale loans to infrequent customers, who collateral may not be easily enforceable. Banks find it less attractive to develop lines of business for retail

[16] See Rajan and Zingales (2003) Chapter 11, "The decline and fall of relationship banking", and Bossone *et al* (2003).

[17] The need to maintain access to financial services has been the driving force behind unsecured lending to micro-entrepreneurs in the newly emerging microfinance industry. See Morduch, 1999.

commodity products like mortgage loans. For these reasons government often resort to the creation of special circuits for housing finance.

Does the long list of infrastructure pre-requisites to a sound financial system condemn developing economies to a weak development of their mortgage finance systems? The analytical answer is no. One important strategic opportunity to better risk management in housing finance is pension reform and the rise of institutional investors during the last decade in Latin America and elsewhere. Where do you start? A suggestive answer to a workable strategy relevant to mortgage finance is offered by for pension reforms:

> "….Consider an imaginary country that lacks all the fundamental elements of a well functioning financial system: no solvent banks and insurance companies; no mutual funds and securities markets for equities; no long-term financial instruments and annuity products; no experienced regulators and supervisors; no bankers and actuaries; no accountants and lawyers; and no rating agencies. Should such a country reform its pension system and introduce a mandatory retirement savings scheme? Normally, my answer would be a firm no. [….]
>
> There are, however, three preconditions whose fulfillment would allow even a country lacking all the essentials of a well developed financial system to consider undertaking systemic pension reform. These include: a strong, long-term and persistent government commitment to implement a successful pension reform; introduction of effective arrangements for the safe custody of pension fund assets (to prevent theft and misuse of assets); and free access to foreign expertise". Dimitri Vittas [1998], p.2.

As the examples of mature financial systems shows, the cornerstone of mortgage finance development does not lie so much in the private sector but in this 'strong, long-term and persistent government commitment' for financial reforms and development as shown by the on-going efforts of two very different countries such as Mexico and Pakistan.[18] With persistent public commitment, much can change.

4. Issues of Path Dependency

The successful transfer of known mortgage finance innovations to a developing financial market requires adaptation to local institutional and financial conditions.

The comparative work on financial systems by Allen and Gale [2000] focuses only on a very small subset of five advanced economies (US, UK, Germany, France and Japan) to generate a rich set of hypotheses about why different countries have different financial systems, why these different systems came to exist, and, whether these differences eventually matter. Yet, Allen and Gale already highlight the fact that financial systems in different countries have a tendency to maintain their core structural and organization characteristics over considerable periods time, some being more bank-based that capital-markets based for instance.

[18] Two early attempts to develop the US mortgage finance systems entirely through private initiative ended in collapse until the systemic reforms of the 1930s that build a public-private structure which remains the foundation of the present system.

A central factor in shaping the development of a financial system appears to be the nature of the legal system. Within that context, the basic point of path dependency is that "the path of the law shapes the law." [19] Recent work in comparative law and economics has shown for instance that different legal system may favor or hinder the development of capital markets.

In the context of global financial development, it would be myopic to limit ones attention only to simplified comparisons between countries of civil law versus countries of common law, especially when it comes to issue of real estate property. Mortgage finance systems are being developed not only under civil or common law regimes whose path dependency varies even across neighboring countries, as the difficulties in harmonizing collateral laws, regulations and practices within the Euro zone.[20] There are countries that are influenced by Ottoman law, other forms of Islamic laws, and/or traditional tribal ownership rights. Some large countries like Indonesia may have to contend with a reconciliation of most of these legal traditions at once.[21]

There are two areas where path-dependency is specifically important for the development of modern mortgage finance systems:

- First there is the contrast between common law and civil law countries in the treatment of real property rights, which affects the nature of 'secured lending' and the legal possibility of trusts for securitization and the transfer of property.

- Another path dependency issue of significance is the fragmentation of property rights that is the legacy of Marxist ideology and central planning in former centrally planned economies, in which 40% of the world's population lived in 1990. The fragmentation of property rights among a number of different owners in the cities of making the transition to markets is a fundamental obstacle to the efficient use and trading of urban assets; especially in the initial years of the transition to markets. This fragmentation of property rights across different administrations, state enterprises and new private owners must first be resolved in the main body of laws in a few years. However, ncorporation into official behavior and local practices can take substantially longer in large countries such as Russia and China.

Heller [1998] coined the expression "the *anticommons*" in an law paper on the costs of fragmented property rights during Russian property reforms in the early 1990s. Heller's definition is that "when there are too many owners holding rights of exclusion, the resource is prone to underuse -- a "tragedy of the *anticommons*". [22]

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[19] For a recent discussion of path-dependency in the context of US common law, see Hathaway [2000].

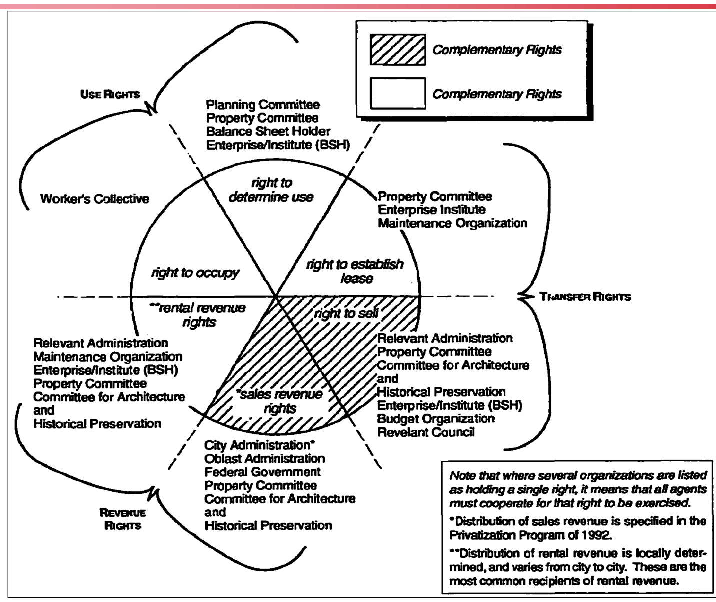
[20] See the new analysis of mortgage market convergence within the European Union by Mercer Oliver Wyman for the European Mortgage Federation [September 2003].

[21] For a discussion of developing countries, See Doebele, "Concept of Urban Land Tenure" in Dunkerley ed. [1983] or for a US-centric discussion of the impact of the legal environment on real estate investment decision-making see Chapter 6 in Jaffe and Sirmans, 1982.

[22] James Buchanan and Yong J. Yoon have shown the symmetry in economic waste between the lack of property rights (commons problem) and the fragmentation of property rights among competing parties (the anticommons problem). Buchanan and Yoon [2000] "Symmetric Tragedies: Commons and Anticommons", *Journal of Law and Economics*, Vol. 43, April."

This *anticommons* problem was first analyzed in the case of Russian commercial real estate by Harding [1995]. She was investigating why the services sector and small enterprises had such great difficulties in securing commercial space in spite of the great demand for retail services in all Russian cities. Figure 4 taken from her analysis below describes the fragmentation of the ownership right bundles across central government, local government, and private market participants that kept stores empty.

FIGURE 4 : THE "ANTI-COMMONS" PROBLEM IN TSEs



Source: April Harding, *Commercial Real Estate Market Development in Russia*, World Bank, CFS Discussion Paper 109, 1995

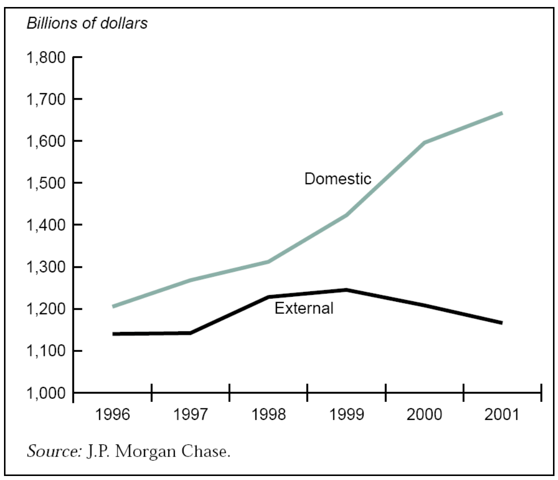
5. The issue of a missing risk-pricing infrastructure

Given the rapid development of capital markets and of mortgage-related securities in advanced economies during the last two-decades and in particular during the 1990s there has been a strong tendency for public and private providers of international advice to promote vigorously the development of mortgage securities in emerging markets with the perception that such markets would grow on a large or at least significant scale. On the ground, however, the success of these efforts has been limited because weaknesses in the infrastructure as well as the lack of domestic bond markets and the absence of a domestic yield curve off which to price domestic risks were overlooked or ignored by this international advice, time after time.

Two factors are finally bringing positive changes in support of the development of domestic government bond markets, which are a fundamental component for the development of markets in mortgage-related securities. Government policies regarding debt financing have been changing significantly with financial liberalization. Reliance by governments on captive sources of funding whereby financial institutions are required to purchase and hold government securities, often at below-market prices is receding in most countries.[23] Instead, countries now pursue explicit strategies aiming to develop a diversified investor base for their government securities ranging from wholesale domestic and foreign institutional investors to small-scale investors. Usually, the most important investor segment is the contractual savings industry. The second factor behind the emergence of government bond markets has been the spread of pension reforms in many emerging countries since the influential experience of Chile two decades ago. [24] The rise of institutional investors who demand high quality fixed-income securities is a major new development particularly favorable to the emergence of market-based housing finance systems.

The most important development of the late 1990s is the shift away from bond issuance in the international markets in favor of issuance in local-currency bond markets. This development has been actively supported by the World Bank and IMF and has been no doubt reinforced in the aftermath of the series of national, regional and global financial crises and the policy advice of the Financial Stability Forum. This trend is most visible in higher-income emerging economies and a lower-income but large economy like India; see Figure 5. It is accompanied by the modernization of these bond markets. (World Bank and IMF, 2001).

FIGURE 5
SHIFT IN PUBLIC DEBT FUNDING SOURCE IN EMERGING ECONOMIES, 1996-2001



Brazil, Chile, Hungary, India, Republic of Korea, Malaysia, Mexico, Poland, South Africa, Turkey
Source: World Bank, Global Development Finance Report 2003.

Fundamental to the emergence of a modern, risk-based mortgage finance system is the development of a benchmark 10-year, fixed-rate, coupon bond, which is being achieved

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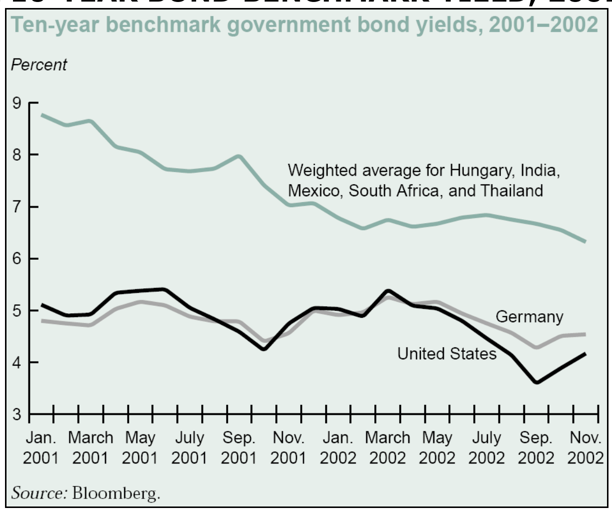
[23] Government policies of "financial repression" generally had six main features: imposition of interest ceiling on bank deposits,; imposition of high reserve requirements on banks; directed credit policies in favor of preferred "strategic sectors"; direct government ownership of banks or their micromanagement through intervention in the selection of management and via banking regulation; restriction of entry into the financial sector, especially for foreign firms; and restriction on most forms capital inflows and outflows. For a review of financial repression problems see Beim and Calomiris, 2001, Ch. 2 "Financial Repression and Financial Development". For how it happened see Rajan and Zingales [2003], Ch. 10 "Why Was the Market Suppressed".

[24] See Hans J. Blommestein [1997], "Institutional Investors, Pension Reforms and Emerging Securities Markets" Working Paper 359. Office of the Chief Economist, Intern-American Development Bank, Washington DC. Available at www.iadb.org

in an increasing number of higher -income emerging financial markets. Equally significant, is the convergence of their yields with those of US and Euro markets; see Figure 6.

FIGURE 6
LOCAL 10-YEAR BOND BENCHMARK YIELD, 2001-2002



Source: World Bank, Global Development Finance Report 2003.

6. The "home bias" in international policy advice

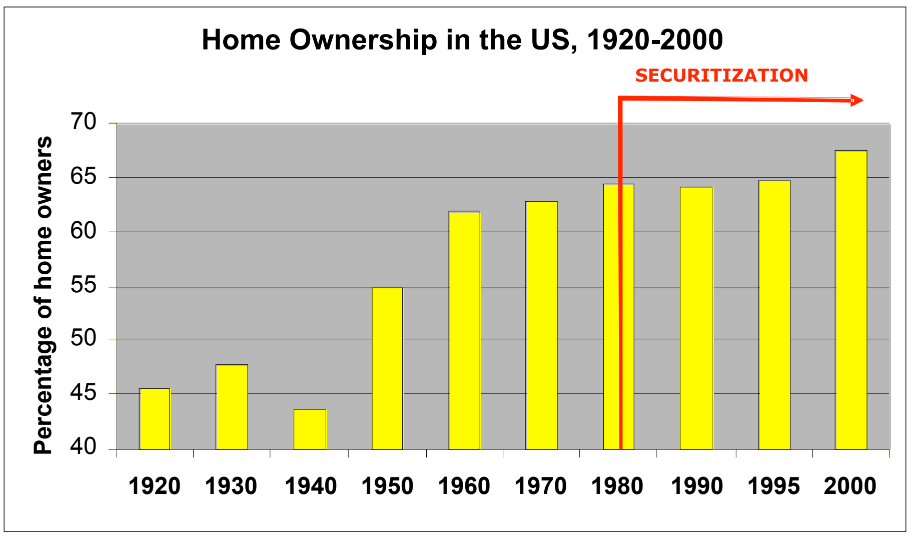
An additional issue does not reflect the structure of emerging mortgage markets, yet affects the mortgage market development strategy that a country might adopt. It is the nature of the international advice provided that has been given pragmatically in the absence of systematic comparative work on emerging markets.

Until very recently, analytical work on general comparative financial development has been based on a small set of countries with deep financial markets and high per capita income. In particular, under the influential work of Allen and Gale [2000], students of financial development have tended to focus on four countries as representative of two types of systems: "bank-based" financial systems such as Germany and Japan where banks have played a leading role in savings mobilization, investment financing and risk management; "market-based" financial systems such as the UK and the US where securities markets share these functions with banks.

By necessity, In the case of housing finance systems where work has started very much later, the same pattern on reliance on a few high-income countries has been repeated. The pioneering comparative study on the efficiency of housing finance systems by Diamond and Lea [1992] compares five Western countries that have very high incomes and are fully urbanized: the UK, the US, Germany, France and Denmark. The second effort came a decade later from Mercer Oliver Wyman [2003]. This time the scope of the study is limited to eight European countries: Denmark, France, Germany, Italy, Portugal, Spain and the UK.[25] The new insights provided by this 2003 study on the are again very welcome. However, the issue of their policy suitability for emerging economies with incomplete financial systems remains to be tested.

Not surprisingly, in the absence of a readily available body of comparative work on emerging mortgage markets, there has been a strong "home bias" in policy advice. International policy discussions have long had the tendency to reflect the domestic country experience of participants. Yet when governments of emerging economies seek advice, they often do not carefully examine the relevance of the most recent innovations in a very high-income deep financial market like the US to their current needs when US innovations of much earlier decades might be much more appropriate. As Figure 6 suggests the largest gain in financing home ownership preceded the development of mortgage securitization.

FIG. 7: "HOME BIAS " IN ADVICE: SECURITIZATION ? WHEN?



Source: U.S. Census Bureau

Given these issues in mortgage market development, what do we know now about evolving structure of financial market across the full income spectrum?

[25] The Mercer Oliver Wyman study of September 2003 was commissioned by the European Mortgage Federation. The focus of this study is the issue of legal and regulatory convergence in the context of the rapidly integrating European bond markets with the creation of the Eurozone.

III. THE FIRST SYSTEMATIC VIEW OF FINANCIAL DEVELOPMENT

A significant step forward has been taken in 1999 with the completion of a new global database. This database uses bank-specific data and has aimed to construct indicators of the market structure and efficiency of commercial banks. This work represents several firsts: "…the first systematic compilation of data on the split of public versus private ownership in the banking sector… the first attempt to define and construct indicators of the size and activity of non-bank financial intermediaries, such as insurance companies, pension funds, and non-deposit money banks…the first to include indicators of the size of the primary equity markets and primary and secondary bond markets." This new source provides data for periods ranging from 1960 to 1997 for 175 countries on 37 indicators, but the country coverage varies significantly for each indicators. (see Demirgürç-Kunt and Levine, 2001).[26]

From the viewpoint of mortgage market development, what is of particular interest is the information that might be gained from this new 1999 financial sector database on banking sector performance, non-bank intermediaries and bond market development across the full spectrum of country incomes, which takes us beyond the dominant emphasis on the dichotomy between banks and equity markets. This new database yields generates significant patterns regarding the size and activity of financial intermediaries across countries. Indirectly, it provide insights into policy sequencing and likely priority actions regarding the development of housing finance systems at various stages of financial development (see Demirgürç-Kunt and Levine, 2001).[27]

Five figures from D-K and L (2001) based on this new database provide an overview of dominant financial development patterns. These graphs outline key features of the financial environment in which housing finance systems have to develop at various levels of income, and likely policy priorities.

- Figure 8 shows that the <u>role of central banks</u> declines in importance from low- to high-income countries. The aim here is to show the *relative* importance of the three main financial sub-sectors as countries develop: central banks, deposit money banks, and other financial institutions. But data on the three sectors is not always available. For that reason, a less informative measure covering all 175 countries is the ratio of deposit money bank assets to the sum of deposit money bank assets plus central bank assets is presented on the right side of Figure 7.

- Figure 9 shows the increasing depth and evolving structure of financial systems across income groups. It shows the <u>dominant role of commercial banks</u> that are dominant until relatively late in financial development. It also shows that both banks and other financial intermediaries both tend to be larger and more active at higher income levels.

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[26] This World Bank database goes considerably beyond the IMF International Finance Statistics that have been used until now. The coverage in terms of years and types of indicators varies by country (see Table 2.1 in Demirgürç-Kunt and Levine, 2001). This major compilation gathered data from a wide range of third-party sources such as Bankscope, rating agencies, and regulatory agencies. Because the quality of the financial infrastructure improves as per capita GDP rises and the financial sector expands, it still has an inherent bias in favor of the somewhat larger or somewhat better emerging financial markets. It is available to third parties.

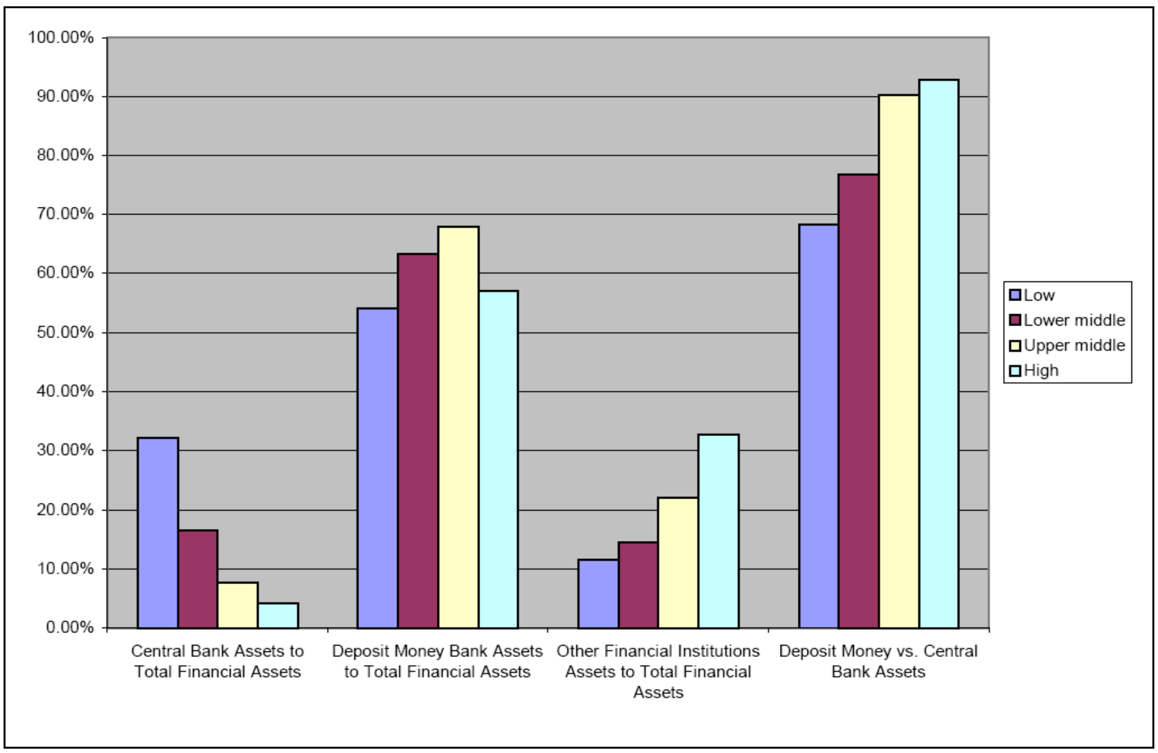
[27] The four categories of countries are based on the World Bank's Development Indicators of 1998 as follows: (1) "low-income countries" with GNP per capita of less that US $786; (2) "lower middle-income countries" with GNP p.c. between $776 and $3,125; (3) "upper middle-income countries" with GNP p.c. between $3,126 and $9,655; and "high income countries" with GNP p.c. above $9,656.

- Figure 9 focuses on the efficiency and structure of the commercial banking sector. It shows that net interest margins are wider (after adjusting for inflation) and efficiency is lower in less developed financial systems. Three other features of Fig. 9 deserve attention. First, the degree of bank concentration is usual high at low-income levels and remains very significant everywhere else. In that context, the US banking structure is exceptional due to unit banking legislation and is not a relevant structure for emerging markets.[28] Second, *public* banks dominate at low levels of development. Third, foreign-owned banks, defined as banks with more than 50% equity foreign owned occupy a larger place than might have been expected. At low-income levels the banking sector is often dominated by a combination of state-owned banks and foreign banks, which creates an important challenge for the development of private mortgage markets.

- Figure 10 shows that the rise of non-banks financial institutions and of institutional investors in the form of contractual savings institutions happens rather late in development. As noted earlier, contractual saving institutions usually play a very positive role in the development of a modern housing finance system with their demand for fixed-income securities of quality.

- Finally, Figure 11 also shows the late development of bond markets, with a typical sequencing from public bonds to private bonds.

FIGURE 8: SHARES OF THE THREE MAIN GROUPS OF INTERMEDIARIES



[28] On this specific point, see the discussion of competition in banking by Allen and Gale [2000, chapter 8]. Russia is the only other country that has a *number* of banks anywhere comparable to that of the US. This was due to serious weaknesses in licensing procedures during the earlier years of the transition after 1990. Otherwise the Russian banking structure is concentrated, especially deposit markets that are dominated by the state-owned Sberbank, which collects over 80% of retail deposits in 2003.

FIGURE 9: DEPTH OF FINANCIAL INTERMEDIATION

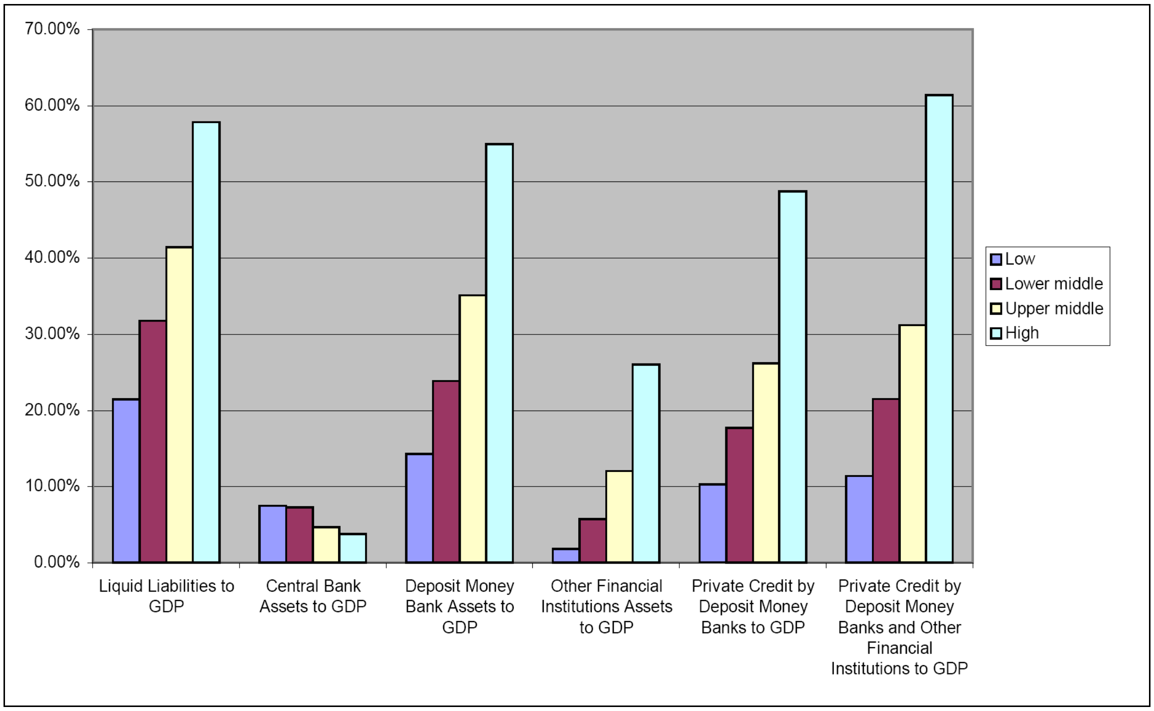


FIGURE 10: COMMERCIAL BANKING CONCENTRATION AND EFFICIENCY

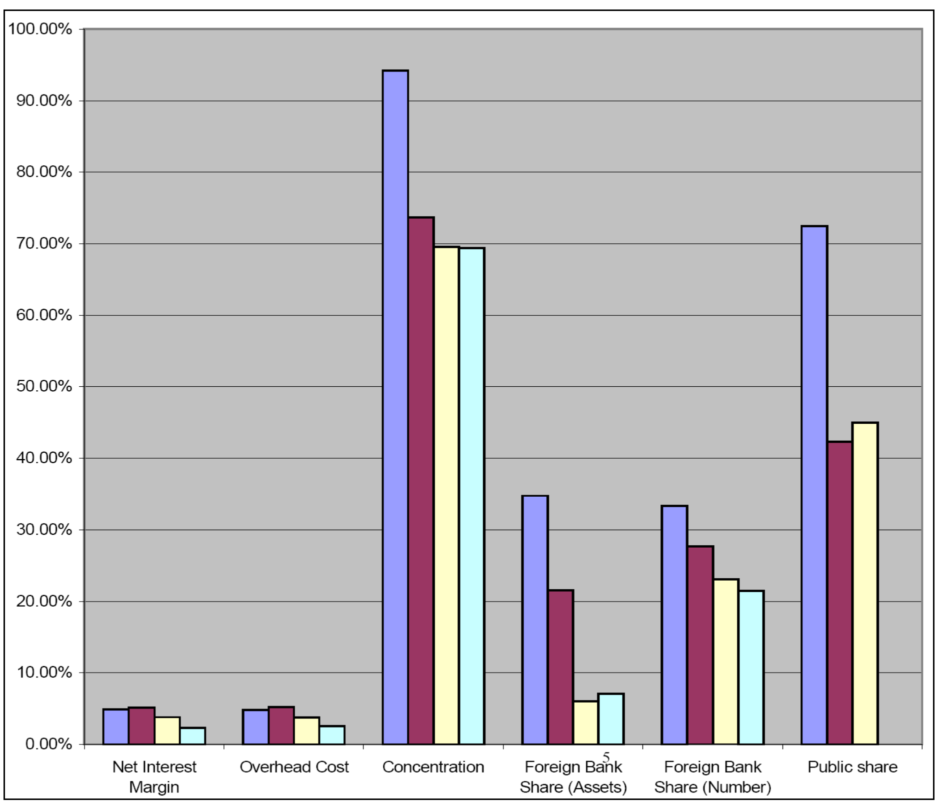


FIGURE 11: THE RISE OF OTHER FINANCIAL INSTITUTIONS

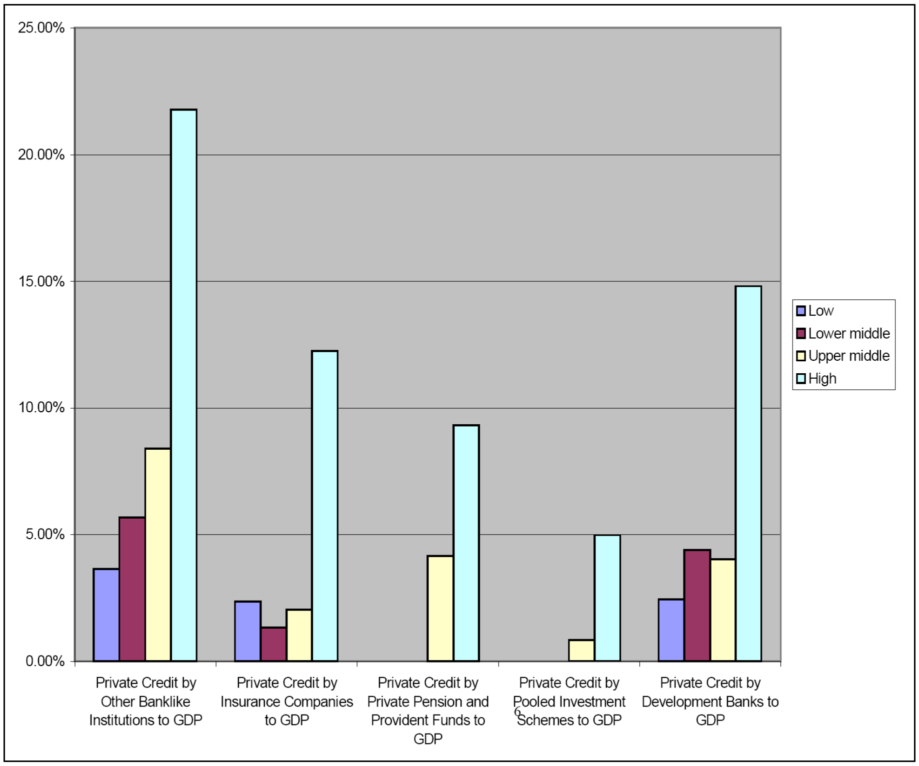
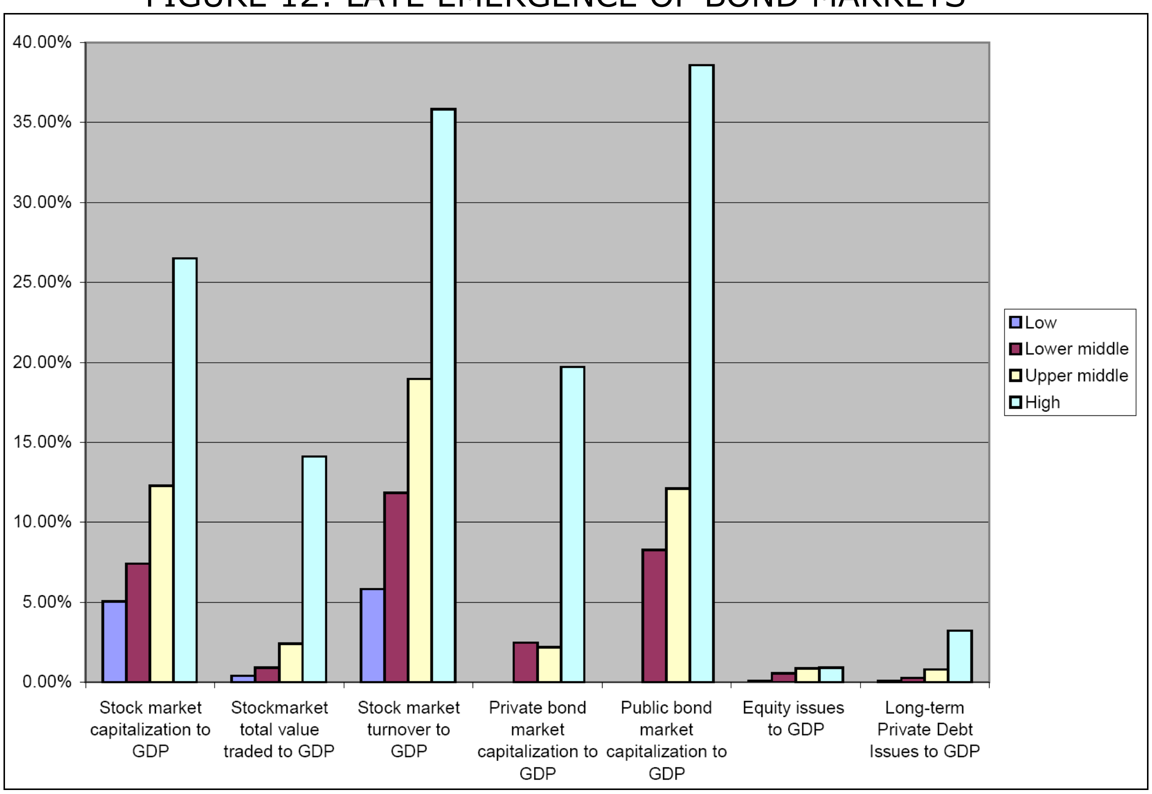


FIGURE 12: LATE EMERGENCE OF BOND MARKETS



IV. IMPACT OF HOUSING MARKET PERFORMANCE ON FINANCE

"Finance is the derivative of the real sector" (Sheng, 1999)

The new evidence from the 1999 World Bank database shows that primary or retail mortgage markets will depend initially on the performance of banking institutions that are dominant across a wide range of income levels except for the largest and highest-income emerging markets.

As the initially fragmented property rights of transition economies show, conditions in the housing markets themselves and the nature of the assets to be financed cannot be ignored. The evidence available also suggests that there is a virtuous circle of better finance encouraging the development of housing markets, which in turn deepens the development of mortgage finance system.

Comparative housing research has shown early that during development market distortions tend to be much more severe on the supply side than on the demand side (Malpezzi and Mayo, 1985). The exceptions are centrally planned economies where the distortions are severe on both sides of housing systems. In market economies, three leading causes of significant housing market distortions are rent controls, institutional weaknesses regarding real estate property rights and land markets, and market-averse urban planning regulations. The only global survey of housing markets in existence provides important clues about the impact of housing market structure on the development prospects of housing finance systems.[29]

TABLE 2: INDICATORS OF HOUSING MARKET PERFORMANCE

	House Price-to-Income Ratio		**Unauthorized Housing**	
	1990	**1995**	**1990**	**1995**
Low-income	3.3	7.4	64.0	52.5
Lower middle-income	4.5	8.8	27.1	27.1
Upper middle-income	4.4	8.3	9.4	14.5
High-income	4.6	4.7	0.0	3.8
Southern Africa	2.2	6.9	56.4	51.4
Asia & Pacific	5.0	9.4	48.3	41.2
Middle-East, North Africa	6.4	9.7	22.7	25.9
Latin America	2.4	3.8	26.8	26.4
Eastern Europe	7.0	12.2	0.0	5.7
Developing countries	3.7	7.9	31.5	36.0
Industrialized countries	4.6	4.4	0.1	2.2
GLOBAL AVERAGE	5.0	7.5	24.9	31.3

Source: Global Survey of Housing Indicators in Angel (2000), Appendix

[29] The World Bank conducted this first global survey of housing indicators under a joint program with the U.N. Centre for Human Settlements (Habitat). These 1990 indicators are city rather than country-based given the nature of housing markets. Most of these cities are capital cities of the countries that are covered. The indicators are divided into four income groups: (1) low-income with income per capita of US $110 to $590; (20 lower middle-income countries ($600-$1,700); upper middle-income ($1710-$6,000); and (4) high –income ($10,000 and above). See Angel, 2000, Appendix. While individual data for any given city is subject to caution, the overall pattern of this global is most informative and permits to differentiate housing market performance.

Table 2 presents two indicators of housing market performance that strongly suggest that the structure of housing markets is often a very important obstacle to the growth of mortgage markets in developing economies. The high proportion of "unauthorized" housing units in particular will drastically limit the possibility of develop every form of secured lending in some markets.[30] Urban reforms to reduce the ratio of high housing prices compared to household purchasing power is often a prior condition to developing mortgage markets.

V. MORTGAGE MARKETS OBSERVED IN DEVELOPING COUNTRIES

Since financial systems are predominantly bank-based at early stages of development priority must be given to the development of bank- based retail mortgage markets. Then the question becomes whether or not private banks are willing or able to lend for housing on a significant scale.

In any economy, long-term housing loans create significant credit, interest rate, and liquidity risks for bank management. In emerging economies, volatile inflation and the political pressures to control interest rates have expanded these risks even further as the level of macroeconomic volatility is higher than in advanced economies as previously seen. Currency risk for these smaller economies matters also. The financial instruments and markets needed to manage these risks in the developed economies often do not yet exist or are just beginning to function properly among upper middle-income countries.

In previous work, I have suggested that a very informal typology could consider six broad types of mortgage finance systems with very different development needs and strategic priorities:

- Undeveloped mortgage finance systems where the per capita income is low, the economy is small and the overall financial system small and undeveloped as encountered in Sub-Saharan African, and small economies of Asia and Latin America, as well as many island economies.

- The systems under construction or reconstruction in former centrally planned economies, the most important of which is China. Russia and Central and Eastern European countries also belong to this group. So does Vietnam, which has a large reservoir of future urban population.

- The housing finance systems that are remaining underdeveloped because of the lingering legacy of government interventions in the financial system and reliance on public institutions for housing finance. Most countries of the Middle-East still belong in this category.

- The housing finance systems that have suffered from repeated episodes of macroeconomic instability, as has been too frequently the case in Latin America, in Turkey and in the Philippines.

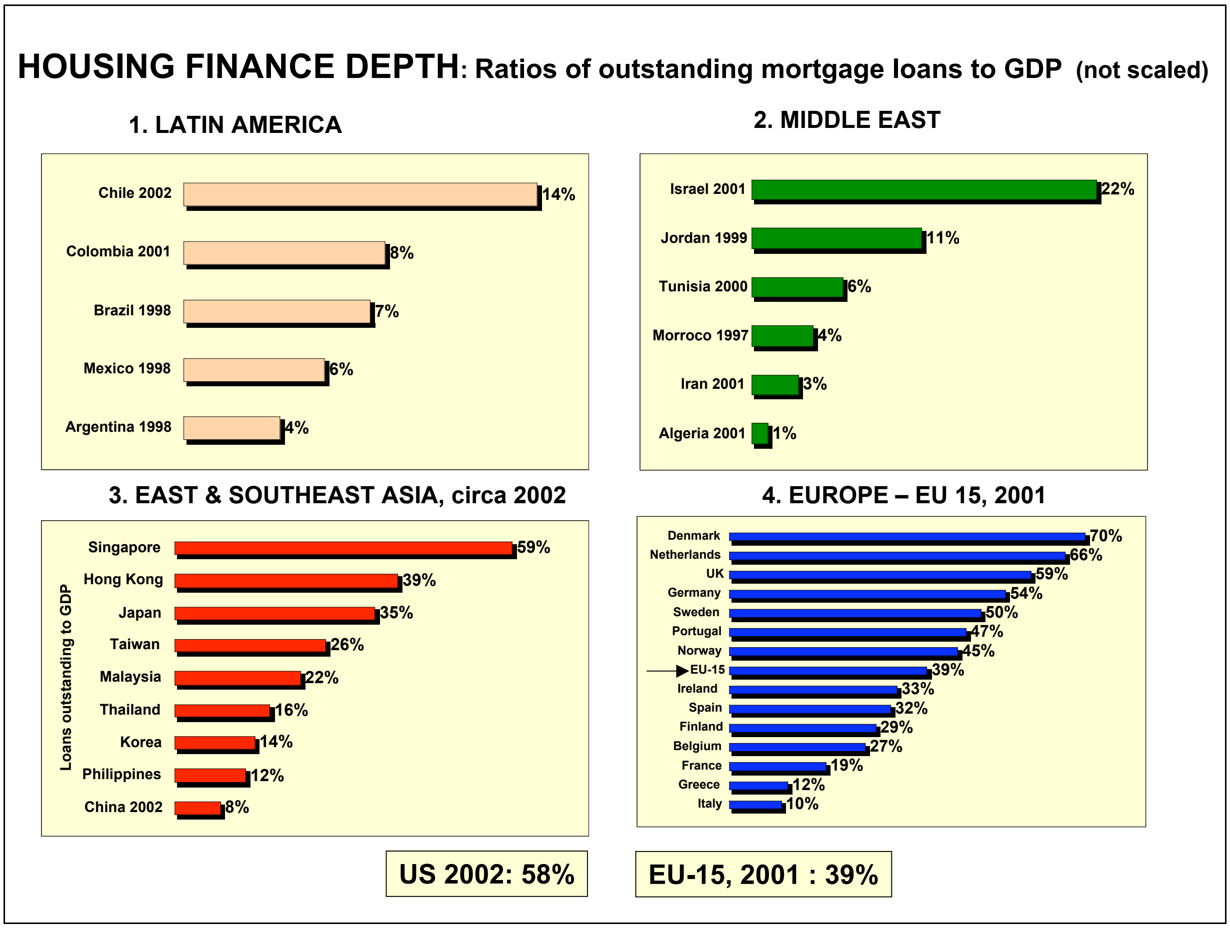
[30] See Hernando de Soto, *The Mystery of Capital* [2000] and the review article by Christopher Woodruff [2001]

- Then there are the housing finance systems that are generally sound and growing where macroeconomic management and financial sector policy have been supportive. There are number of these cases in Asia such as Malaysia and Thailand.

- Then there are the developed mortgage markets of high-income economies found in Europe, North America and the Pacific region.

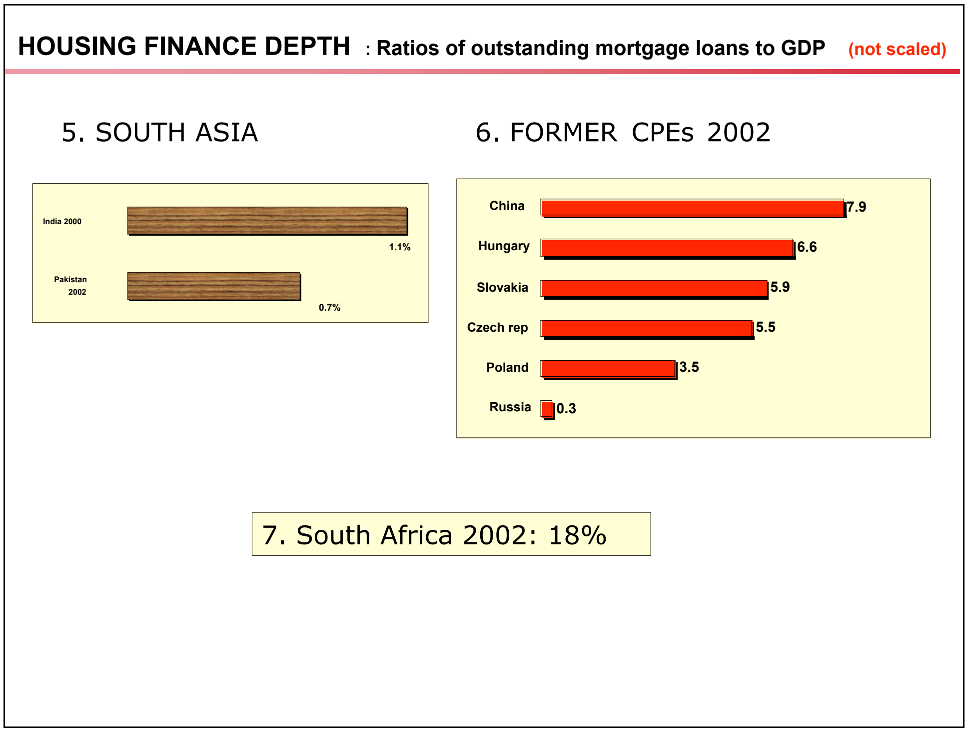
The financial depth of mortgage markets varies greatly across income and regions of the world as indicated by Figures 13A and 13B.[31]

FIGURE 13A



[31] Except for the European data from the European Mortgage Federation, other indicators of financial depth have been collected individually by the author.

FIGURE 13B



VI. DEVELOPMENT PATHS FOR MORTGAGE MARKETS

Systematic comparative work on mortgage market development in emerging economies is still at an embryonic stage.

When developing the transfer of mortgage finance innovations to a developing economy, initial conditions differ widely. In addition to the three tiers of countries related to the issue of market size, the operational experience of the last two decades as well as on-going research shows five broad types of financial systems, within which further distinctions could be made. (See World Bank [2001], p. 25-28):

1. Small low-income countries dominated by state-owned financial institutions
2. Transition economies with weak rule of law
3. A lower middle-income, bank-dominated country emerging from a crisis
4. An upper middle-income country with a still shallow financial system
5. Mature, deep financial systems

When it comes to the specific development of mortgage finance systems, the evidence available and accumulating field experience lead to the following strategic observations:

- Macroeconomic stability is a prerequisite for the development and growth of mortgage markets. The recent revival of private mortgage markets in Mexico is a good example of successful reforms outside the housing sector that meet this necessary condition.

- Because financial systems typically grow from being bank-based to being more market-based, the initial strategic focus should be on the development of retail mortgage markets. The conceptual starting point in any given market is whether or not private banks are lending for housing. And if not, why?

- Eliminating the worst distortions in the housing markets proper, in particular regarding and property registries are a prerequisite for the growth of mortgage markets, as suggested by the affordability indicators in Table 2. However, successful interagency coordination on such issues may require agreements between ministries of justice, of interior, urban affairs, finance, plus some specialized national and/or local land agencies.

- Decision mechanisms to coordinate between financial authorities and line authorities are necessary. In the political economy of mortgage market reforms, housing line ministries usually have a very limited financial grasp of the broader financial context of mortgage market requirements. Mortgage market reforms have rarely been lead successfully by such line ministries, if ever.

- The development of a sound and modern mortgage finance law is very often a critical first step that usually requires important adjustments in existing laws, which may prove to be a time-consuming and unpredictable process over several years.

- The restructuring of public programs or public financial institutions that undercut the private supply of mortgage finance is frequently a prior requirement to the expansion of private markets. For this reason, many successful mortgage market reforms have been triggered by the need to restructure costly and unsustainable social housing programs.

- The next two decades are likely to see a much faster development of mortgage markets among latecomer countries because governments will be increasingly unable to finance the massive urban investment required for infrastructure, utilities and housing. In addition the transfer of innovation is very likely to accelerate with the development of professionals skills, lower cost technologies, and the spread of risk-based bank supervision under the Basel Capital Accord II.

- Mortgage market development strategies that place a high priority on the initial development of markets for mortgage securities are likely to be relatively fruitless until a significant demand for such securities develops domestically, typically as the result of successful reforms of pension systems and other contractual savings institutions.

- The full range of mortgage securities options needs to be explored before reaching for securitization in upper-middle income countries. Securitization is the most complex and infrastructure intensive of options. It cannot be ‘supply driven” by investment bankers as was often the case in the 1990s. The development of this complex innovation must be based on a domestic investor base demanding such securities. Pricing will have to be suitable to local housing market conditions and domestic issuers.

- The time dimension of mortgage market reforms is often measured in periods of 7 to 10 years. In countries with large segments of informal or unauthorized housing units alternative and direct housing policies to serve the lower income groups will be needed as a complement to mortgage market development for higher income households. It is self-defeating to that there is a zero-sum game between these two housing market segments.

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ANNEX 1

PROJECTED WORLD URBAN POPULATION GROWTH, 1950-2030

TABLE A-1: Ten Largest Urban Populations in 1950, 2000, 2030 (In millions)

	1950			2000			2030 (projected)		
	Country	Urban	Share	Country	Urban	Share	Country	Urban	Share
1	USA	101	13.5%	China	456	15.9%	China	883	17.7%
2	China	70	9.3%	India	279	9.7%	India	576	11.6%
3	India	62	8.2%	USA	219	7.6%	USA	303	6.1%
4	Germany	49	6.5%	Brazil	138	4.8%	Brazil	205	4.1%
5	Russia	46	6.1%	Russia	106	3.7%	Indonesia	180	3.6%
6	UK	43	5.7%	Japan	100	3.5%	Nigeria	140	2.8%
7	Japan	42	5.6%	Indonesia	87	3.0%	Pakistan	133	2.7%
8	Italy	26	3.4%	Mexico	74	2.6%	Mexico	110	2.2%
9	France	24	3.2%	Germany	72	2.5%	Japan	103	2.1%
10	Brazil	20	2.6%	UK	53	1.9%	Bangladesh	99	2.0%
	WORLD	751	100.0%	WORLD	2862	100.0%	WORLD	4981	100.0%

Source: World Urbanization Prospects 2001, UN Population Division, Table A-3

TABLE A-2: Ten Largest Urban Population Increases Between 2000-2030

	Urban Pop. In 2000	Urban Pop. In 2030	Urban Pop. Increase	Share of World Increase
China	456	883	427	**20.2%**
India	279	576	297	**14.0%**
Indonesia	87	180	93	**4.4%**
Nigeria	50	140	90	**4.2%**
Pakistan	47	133	86	**4.1%**
USA	219	303	84	**4.0%**
Brazil	138	205	67	**3.1%**
Bangladesh	34	98	64	**3.0%**
Iran	45	82	37	**1.8%**
Mexico	73	110	37	**1.7%**
WORLD	**2,861**	**4,980**	**2,119**	**100.0%**
Russia	*106*	*95*	*-11*	…
Japan	*100*	*103*	*3*	…

Source: World Urbanization Prospects 2001, UN Population Division, Table A-3

TABLE A-3: 25 Countries in Morgan Stanley MSCI 'Emerging Market Index' as of September 2004					
	M2 in Billion US dollars (2000)	M2 PER capita USD (2000)	GDP in billion US dollars (2000)	Ratio M2/GDP	Population (million)
Argentina	**90.56**	**2,526**	**284.35**	**31.8%**	35.85
Brazil	**171.68**	**1,009**	**601.73**	**28.5%**	170.10
Chile	**32.15**	**2,114**	**75.20**	**42.8%**	15.21
China	**1,642.33**	**1,301**	**1,079.38**	**152.2%**	1262.64
Colombia	**21.46**	**507**	**83.77**	**25.6%**	42.30
Czech Republic	**37.45**	**3,646**	**55.60**	**67.4%**	10.27
Egypt	**75.17**	**1,175**	**97.95**	**76.7%**	63.98
Hungary	**21.22**	**2,116**	**46.68**	**45.4%**	10.02
India	**260.19**	**256**	**464.94**	**56.0%**	1015.92
Indonesia	**88.92**	**431**	**150.20**	**59.2%**	206.26
Israel	**107.63**	**17,115**	**115.45**	**93.2%**	6.29
Jordan	**9.52**	**1,949**	**8.45**	**112.7%**	4.89
Korea, Rep.	**365.22**	**7,769**	**511.66**	**71.4%**	47.01
Malaysia	**91.67**	**3,939**	**90.16**	**101.7%**	23.27
Mexico	**158.48**	**1,618**	**580.76**	**27.3%**	97.97
Morocco	**27.55**	**960**	**33.34**	**82.7%**	28.71
Pakistan	**27.53**	**199**	**59.22**	**46.5%**	138.08
Peru	**17.16**	**662**	**53.09**	**32.3%**	25.94
Philippines	**46.73**	**610**	**75.91**	**61.6%**	76.63
Poland	**67.76**	**1,753**	**164.15**	**41.3%**	38.65
Russian Fed.	**55.78**	**383**	**259.73**	**21.5%**	145.56
South Africa	**71.88**	**1,634**	**127.97**	**56.2%**	44.00
Taiwan, China	**na**	**na**	na		22.17
Thailand	**129.39**	**2,131**	**122.57**	**105.6%**	60.73
Turkey	**92.18**	**1,367**	**199.26**	**46.3%**	67.42
Venezuela, RB	**21.14**	**875**	**121.26**	**17.4%**	24.17

TABLE A-4: Other 'Emerging Markets' in Tier 2					
	M2 in Billion US dollars (2000)	M2 PER capita USD (2000)	GDP in billion US dollars (2000)	Ratio M2/GDP	Population (million)
Bahrain	**5.74**	**8,561**	**7.97**	**72.0%**	0.67
United Arab Emirates	**34.57**	**10,648**	**51.24**	**67.5%**	3.25
Lebanon	**32.66**	**7,546**	**17.30**	**188.8%**	4.33
Tunisia	**10.76**	**1,125**	**19.47**	**55.2%**	9.56
Iran, Islamic Rep.	**119.62**	**1,879**	**328.99**	**36.4%**	63.66
Estonia	**1.96**	**1,427**	4.9	**35.8%**	1.37
Latvia	**2.17**	**917**	6.9	**28.1%**	2.37
Lithuania	**2.61**	**746**	10.7	**23.0%**	3.51