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# MORTGAGE CAPITAL AND ITS PARTICULARITIES: A NEW FRONTIER FOR GLOBAL FINANCE

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The financial deepening of economies has become one of the major dynamics characterizing advanced economies. The ratio of global financial assets to global gross domestic product (GDP) was nearly 350 percent in 2006, a ratio that jumps to 450 percent in a growing number of highly developed countries, from the United States to Japan.[1] More generally, the number of countries where financial assets exceed the value of their gross national product (GNP) more than doubled, from thirty-three in 1990 to seventy-two in 2006. Securitizing a broad range of types of debt is a key vehicle for this financial deepening. Government and corporate debt have been subjected to securitization for several decades, with varying degrees of success. The extension of securitization into consumer debt, including mortgages, took off in the 1980s in the United States. Thus mortgage securitizing is not new; indeed, the first mortgage-backed security was invented in 1977, although it was not necessarily widely used at the time.

While mortgage securitization is not new, the current phase is an innovation that could play a critical role in the financial deepening of countries worldwide. What marks this innovation is the extension of securitization to subprime mortgages and to mortgages for low- and moderate-income households. This feature takes the option of a mortgage well beyond the most advanced economies and the middle- and high-income classes.

There are three aspects of this financial innovation at the heart of my thesis. First, the target population is vast, especially when globally linked financial markets facilitate the deployment of these instruments in a rapidly growing number of countries. India and China, but also Eastern Europe, have underdeveloped mortgage markets but rapidly growing middle classes, a prime combination for introducing this innovation. In many emerging economies it is foreign banks and financial services that are developing the mortgage markets.[2] Second, the character of the innovation rests in good part on speeding up the numbers of mortgages granted and

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their bundling in order to reach the necessary thresholds for sale in the capital markets. This changes the logic for granting a mortgage. The velocity of mortgage-bundling becomes more important than the credit-worthiness of mortgage grantees. Third, the low levels of financial deepening in many countries signal a large potential for the marketing of these mortgage instruments. From the perspective of finance, one measure of this potential development is the ratio of outstanding residential mortgage debt (that is to say, mortgage capital) to GDP in highly developed economies, e.g. 70 percent in the United States, compared with only 10 percent in each India and China.

For moderate- and low-income households, investment in housing can be conceived of as a mechanism for concentrating whatever small resources such households can command. What they have available beyond basic needs will go into securing housing. Thus a financial instrument that allows low- and moderate-income households to acquire a mortgage becomes a vehicle for extracting those funds, bundling them up into a financial instrument and selling them in the capital markets. It also becomes a potentially powerful vehicle for the financial deepening of economies, especially in so-called emerging market economies.

These particular types of mortgage-backed securities have the potential to deliver profits to wholesale finance, to devastate the savings of modest-income households and to lead to macro-crises. The potential for profits is vast, insofar as there are massive numbers of such modest households, and the aim is to have large numbers of securities bundled and then sold off rather than invested long-term. The potential for devastating household losses is also vast, as we have seen with the sharp jump from 2005 to 2006 in home foreclosures among low- and modest-income households under these new types of mortgages. Foreclosures are expected to reach their highest point from 2010 to 2011. Finally, the potential for macro-level crises is unexpectedly strong—though partial—as indicated by the so-called subprime mortgage crisis that exploded in 2007. Given the global interconnection of financial markets, when something goes wrong with the new mortgage-backed securities in one country, the spillover effects can be massive and go well beyond that country. For instance, the loss of market value of subprime securities just since early 2007 totals around $380 billion.[3]

This combination of conditions leads me to argue that the use of subprime and of low- and moderate-income residential mortgages to develop new types of securities represents a new frontier for wholesale finance. It is not just another source of profits. It becomes one instrument to expand the residential mortgage market in advanced economies and to introduce mortgages into less developed economies with large numbers of low-income households. It is the beginning of a micro-financial history that gets wired into the foundational structures of whole economies.

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Housing is a sector that cuts across social classes, across the different spaces that constitute an economy, from rural to urban, and across almost all major industries through the housing construction and furnishing phases.

The first section of this article examines the question of housing mortgages for low- and moderate-income households as a new target population for global finance—a target that is now viable given new innovations in mortgage finance. The second section examines the larger dynamic of financial deepening and what it tells us about both the potential growth in emerging markets and the potential for using residential mortgages as one vehicle. The third section makes a micro-level incursion to explore the question of who are the main targets of subprime lenders. The focus is on New York City and Washington, DC. The final section examines the question of spread of costs and strategies. While this innovation started in the United States, it has spread to other countries. Global banks have paid a price, but they are also the most aggressive actors in introducing residential financing in emerging markets.

## A New Global Target Population for Wholesale Finance

The fact that the homes of low-income households can become a major tool for financial deepening has its own particular features. It is not the same as consumer debt and auto loans.

Beyond its social and political role, housing has long been a critical economic sector in all developed societies and a source for multiple innovations. We can identify three ways in which it played this economic role: as part of the construction sector, as part of the real estate market and as part of the traditional banking sector through the development of mortgages. In all three sectors it has at times been a vector for innovations. One of the key sources of income and innovations for traditional-style banking has been mortgages. The thirty-year residential mortgage, now a worldwide standard, was a major innovation for credit markets. Japan in the 1980s and China today have both instituted very long-term mortgages (respectively ninety- and seventy-year mortgages) to deal with a rapidly growing demand for housing finance in a situation where it takes three generations to cover the cost of housing in a boom period. More generally, the role of housing in innovations goes beyond banking and mortgages. For instance, solar energy has largely been applied to housing rather than offices or factories. Mass construction has used housing as a key channel to develop new organizational formats. In addition, the industrial production of prefabricated buildings has centered mostly on housing.

Today, housing has become the instrument for yet another innovation: a financial instrument that has lengthened the distance between itself and the underlying asset (the house or apartment) to an extreme that is usually associated with innovative high-risk finance. The securitizing of residential mortgage capital has

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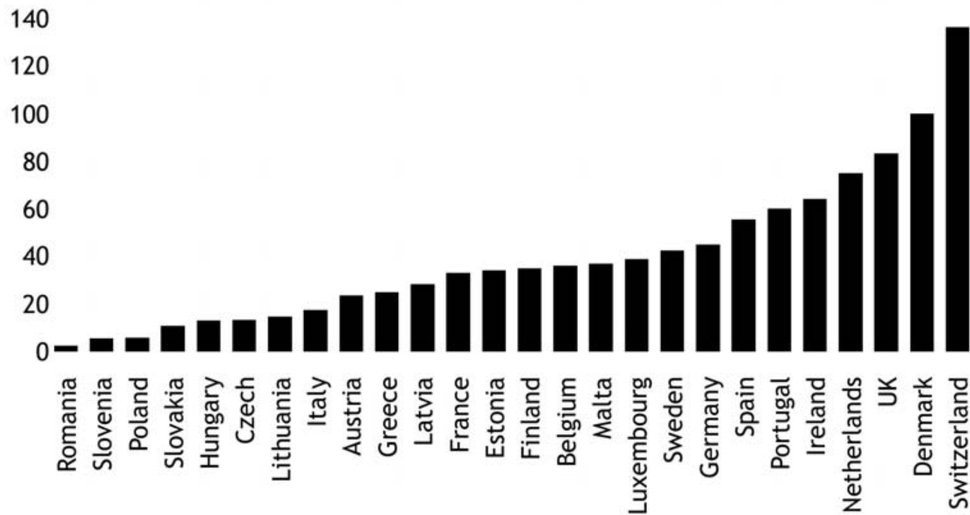
Figure 1: Ratio Residential Mortgage Debt to GDP (Select countries, end 2006)




Source: David Miles, "European Economics: Financial Innovation and European Housing and Mortgage Markets." Morgan Stanley Research Europe, July 18, 2007, http://www.germany-re.com/files/00034800/MS%20Housing%20Report%202007.pdf.

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strengthened the articulation of residential mortgage capital within global capital markets, an innovative deviation from the older development of real estate investment trusts (REITs).[4] In this process, homeowners become more susceptible to the advantages and disadvantages of global markets.[5] This is not the first time the financial sector has used housing to produce an instrument that lengthens the distance from the house itself.[6] What makes this different—and, in that sense, an innovation—is the extent to which these mortgages function purely as a financial instrument in that they can be bought and promptly sold, and the extent to which they allow investors to incorporate the savings of low- and moderate-income households into their portfolios without being dependent on the households' credit-worthiness.

This represents a huge difference from traditional mortgages. The house itself functions as collateral only for those who own the instrument which, in a fast moving market of buying and selling, may just last for two hours. Thus, when an investor has sold the instrument, what happens to the house itself is completely irrelevant; it does not even matter as collateral. However, if vast numbers of these mortgages enter the market, there can be a system-wide network effect—a boomerang hitting the whole system back.[7] Moreover, the owner of the house loses if unable to meet the mortgage payments for a few months no matter who owns the instrument, because there is always some investor who owns the instrument and hence can make claims. If the boomerang effect has set in, then these are the

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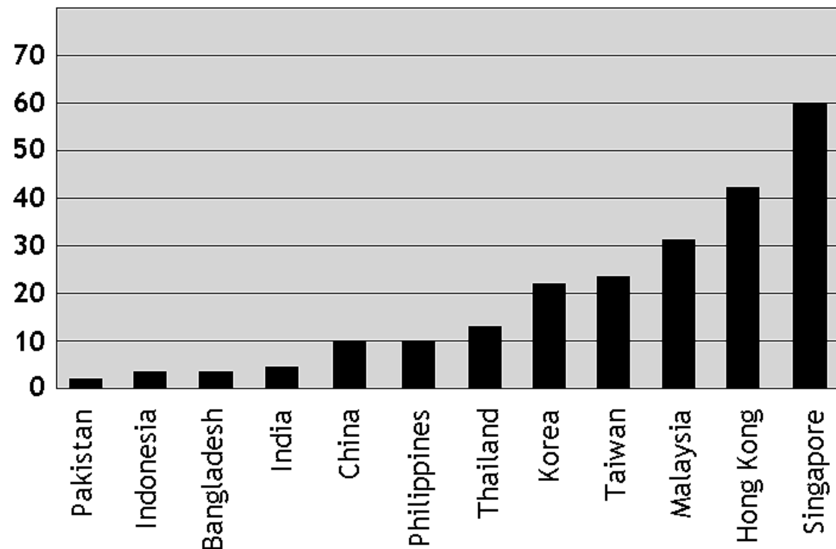
**Figure 2: Ratio Residential Mortgage Debt to GDP: Emerging Asia**




Source: Veronica Cacdac Warnock and Francis E. Warnock, *Markets and Housing Finance* (February 2008), http://ssrn.com/abstract=981641.

investors who are left holding the defective debt.

This asymmetry between the world of investors (only some will be affected) and the world of home owners (once they default, they will lose the house no matter what investor happens to own the instrument at the time), creates a massive distortion in the housing market and the housing finance market. Most investors can escape the negative consequences of home mortgage default because they buy these mortgages in order to sell them; there will be many winners and only a few losers. But no homeowner can escape the consequences of not paying her own mortgage. Thus investors can relate in a positive way to even the so-called subprime mortgages (poor-quality instruments), which is bad for homeowners. We see here yet another sharp inequality in the current condition.

Finally, the current period reveals a third asymmetry. At a time of massive concentration of financial resources in a limited number of super-firms, one who owns a significant share of the subprime mortgages when the mortgage default crisis hits is left with massive losses.[8] In an earlier period, ownership of mortgages was widely distributed among a large number of banks and credit unions, and hence losses were more distributed as well. The fact that large, powerful firms have expanded their use of high-risk instruments has further increased their losses. Their geometries of profit-making and their weight in these markets have made these super-firms vulnerable to their own power—yet another instance of a network effect.

Innovations in housing finance in advanced economies over the past two

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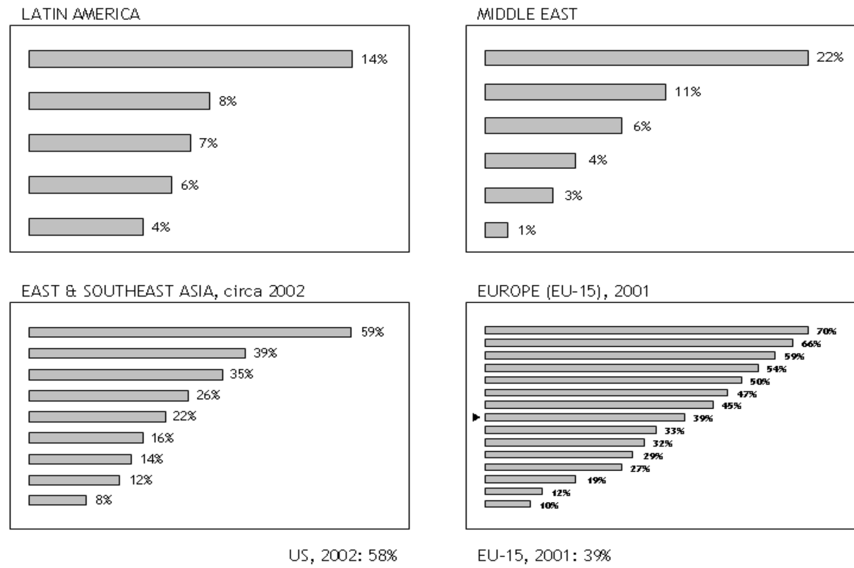
Figure 3: Housing Finance Depth: Ratios of Mortgage Debt to GDP by World Region, 2001-2002




Source: Bertrand Renaud, "Mortgage Finance in Emerging Markets: Constraints on Feasible Development Paths" (paper presented at the Homer Hot Institute and at the 9th International AREUEA Conference, Fredericton, Canada, 12 November 2004).

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decades have changed the role of the housing sector in the economy at the local, national and global levels. This results partly from the sharp rise of mortgage capital expressed as a ratio to GDP and from the growing role of mortgages in financial deepening now also spreading to so-called emerging market economies. Financial innovations are transforming household mortgage debt of even low-income households into a kind of mortgage capital that can circulate in secondary financial circuits, where financial instruments based on mortgages, rather than the houses themselves, are sold. Both of these, in turn, contribute to considerable spillover effects to other economic sectors.

What points to the massive potential for growth of this innovation is the low incidence of mortgage capital in most countries around the world. Overall, the ratio of residential mortgage capital—both high- and low-quality mortgages—to GDP tends to be higher among mature market economies, but even here that ratio varies considerably (see Figure 1). The average for the period 2001 to 2006 stood at around a ratio of 20 percent to GDP for Italy and Austria; closer to 30 percent for France and Belgium; 40 percent for Finland, Sweden and Germany; 60 percent for Spain, Portugal and Ireland; 80 percent for the UK and the Netherlands and so on. (See figures 1, 2 and 3 for different representations of these trends).[9]

To some extent, the variation in this value is a function of the timing of processes. For instance, the Netherlands has long had one of the highest degrees of

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Table 1: Annual Growth of Real Estate Loans and Investments in China, 1999-2004

| | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
|---|---|---|---|---|---|---|
| Growth of real estate loans | 39% | 39% | 35% | 42% | 37% | 23% |
| Growth of real estate investment | 14% | 19% | 27% | 24% | 30% | 28% |

Source: Chang Jiansheng (2005) as published in Saravanan, Palanisamy and Nagarajan (2007) "Housing Finance System in India and China: An Exploratory Investigation."

Table 2: Residential Real Estate Loans to Total Loans, Emerging Markets, end 2005

| Country | Residential Real Estate Loans to Total Loans (%) |
|---|---|
| South Africa | 31.53 |
| Russian Federation | 0.87 |
| Poland | 14.54 |
| Latvia | 19.67 |
| Croatia | 17.47 |
| **Average** | **14.16** |

Source: "Coordinated Compilation Exercise (CCE) for Financial Soundness Indicators (FSIs): Data Individual Economy Tables Selected By Topic (Table A)," International Monetary Fund, http://www.imf.org/external/np/sta/fsi/topic.asp?table=A.
*compiled on a domestic consolidation basis unless otherwise noted
**one of the International Monetary Fund's Financial Soundness Indicators

financial deepening of the economy, with a ratio of 450 percent to GDP. It has also long had a very high share of public housing ownership. When regulations were changed in the 1990s, privatization of housing took off with the corresponding sharp demand for mortgage financing; this process will eventually stabilize. In the United States, the UK and Australia, the housing market has long been private and—importantly—the financial system is highly developed on a broad range of fronts. Thus, the incidence of mortgages is both high and widespread in terms of the variety of financial circuits it encompasses.

Finally, we need to distinguish between the ratio of residential mortgage debt to GDP and the growth rate of such loans. The former is very low in countries with little developed mortgage finance and mostly young housing markets—such as India and China, where it stands at 10 percent.[10] But the growth rate of residential mortgage finance in both these countries is high. For example, the average annual growth of real estate loans reached well over 30 percent between 1999 and 2004 in China (see Table 1), well above the growth of other types of loans. In contrast, more mature

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Table 3: Residential Real Estate Loans to Total Loans, Developed Markets, end 2005

| Country | Residential Real Estate Loans to Total Loans (%) |
|---|---|
| Australia | 56.46 |
| Austria | 13.11 |
| Belgium | — |
| Canada | 58.94 |
| Denmark | — |
| Finland | 33.79 |
| France | 42.00 |
| Germany | 17.82 |
| Greece | 22.94 |
| Hong Kong SAR | — |
| Ireland | 13.87 |
| Italy | 17.37 |
| Japan | — |
| Netherlands | 28.62 |
| New Zealand | — |
| Norway | 61.53 |
| Portugal | 28.25 |
| Singapore | 6.34 |
| Spain | 25.85 |
| Sweden | 34.48 |
| Switzerland | 26.68 |
| United Kingdom | 20.05 |
| United States | 39.46[1] |
| **Average** | **32.10** |

Source: "Coordinated Compilation Exercise (CCE) for Financial Soundness Indicators (FSIs): Data Individual Economy Tables Selected By Topic (Table A)," International Monetary Fund, http://www.imf.org/external/np/sta/fsi/topic.asp?table=A.
* compiled on a domestic consolidation basis unless otherwise noted.
** one of the International Monetary Fund's Financial Soundness Indicators.
[1] Compiled on a domestically controlled, cross-border & cross-sector consolidation process.

markets in Asia show a higher ratio of residential mortgage debt to GDP—59 percent in Singapore, 39 percent in Hong Kong and 26 percent in Taiwan—along with significant growth rates in mortgage loans from 1999 to 2006, but lower than that of India and China.[11]

Tables 2 and 3 provide comparative data on the incidence of residential loans to total loans in several highly developed and emerging market countries. These two

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Table 4: Ratio of Household Credit to Personal Disposable Income, 2000-2005 (in percent)

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|
| **Emerging Markets** | | | | | | |
| Czech Republic | 8.5 | 10.1 | 12.9 | 16.4 | 21.3 | 27.1 |
| Hungary | 11.2 | 14.4 | 20.9 | 29.5 | 33.9 | 39.3 |
| Poland | 10.1 | 10.3 | 10.9 | 12.6 | 14.5 | 18.2 |
| India | 4.7 | 5.4 | 6.4 | 7.4 | 9.7 | -- |
| Korea | 33.0 | 43.9 | 57.3 | 62.6 | 64.5 | 68.9 |
| Philippines | 1.7 | 4.6 | 5.5 | 5.5 | 5.6 | -- |
| Taiwan | 75.1 | 72.7 | 76.0 | 83.0 | 95.5 | -- |
| Thailand | 26.0 | 25.6 | 28.6 | 34.3 | 36.4 | -- |
| **Mature Markets** | | | | | | |
| Australia | 83.3 | 86.7 | 95.6 | 109.0 | 119.0 | 124.6 |
| France | 57.8 | 57.5 | 58.2 | 59.8 | 64.2 | 69.2 |
| Germany | 70.4 | 70.1 | 69.1 | 70.3 | 70.5 | 70.0 |
| Italy | 25.0 | 25.8 | 27.0 | 28.7 | 31.8 | 34.8 |
| Japan | 73.6 | 75.7 | 77.6 | 77.3 | 77.9 | 77.8 |
| Spain | 65.2 | 70.4 | 76.9 | 86.4 | 98.8 | 112.7 |
| United States | 104.0 | 105.1 | 110.8 | 118.2 | 126.0 | 132.7 |

Source: "Global Financial Stability Report, Market Developments and Issues," International Monetary Fund: World Economic and Financial Surveys, September 2006, 56.

tables also help us situate the residential mortgage market in the rapidly growing and diversifying financial world of loans. Developed countries with multiple financial circuits—such as the United States and the UK—clearly show that, compared to other types of loans, mortgages are a relatively small share of all loans even if most households have mortgages. It is important to distinguish that the same low level of mortgage loans to total loans in economies marked by a small elite of the super-rich has a very different meaning than in those of the United States and UK. Hence, Russia's extremely low incidence of residential to total loans in the economy is an indication of a narrow mortgage market (mostly for the rich and very rich) and the fact that there are vast financial circuits centered on other resources. In contrast, Latvia's relatively higher incidence of residential loans is a function of a far less diversified financial system.[12]

Critical measures for gauging the potential growth of residential mortgage capital are: a) the ratio of overall household credit to household disposable income; b) the share of household credit in total private sector credit in the national

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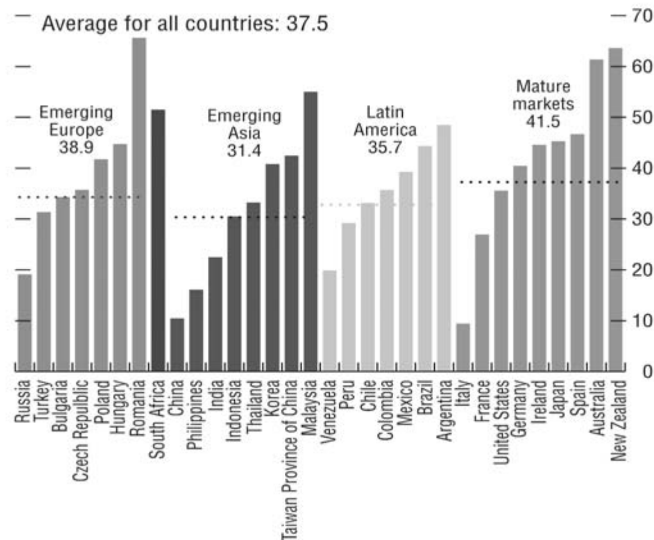
Figure 4: Share of Household Credit in Total Private Sector Credit, end 2005 (in percent)




Source: "Global Financial Stability Report, Market Developments and Issues," International Monetary Fund: World Economic and Financial Surveys, September 2006, 56.

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economy; and c) the ratio of household credit to GDP (see Table 4 and figures 4 and 5). All three measures have grown over the last decade, indicating increased complexity in the household sector and in the use of the household sector for financial deepening. While still low, these measures also show growth in emerging market economies. The International Monetary Fund (IMF) data show rapid growth in the ratio of household credit to personal disposable income in some of the Eastern European countries. For example, in the Czech Republic, it grew from 8.5 percent in 2000 to 27.1 percent in 2005; in Hungary from 11.2 to 39.3 percent; and in South Korea from 33 percent to 68.9 percent.[13] This growth is also evident, for instance, in India, where the initial level was low, at 4.7 percent in 2000, but doubled to 9.7 percent in 2004. In mature market economies, this ratio is much higher but grew at a far lower rate than in emerging markets. For example, it grew in Japan, from 73.6 to 77.8 percent from 2000 to 2005; and in the United States, from 104 to 132.7 percent. Spain had one of the highest increases—from 65 percent in 2000 to 112.7 percent in 2005, as did Australia, growing from 83.3 percent to 124 percent.

## The Potential for Further Financial Deepening

Although mortgage capital measured as a ratio to GDP is high in countries such as the United States and the UK, it is just one component of the financial market and worldwide financial assets. Finance as a whole in the United States dwarfs the value of U.S. GDP: it is 450 percent to GDP. We must also consider, then, the extent

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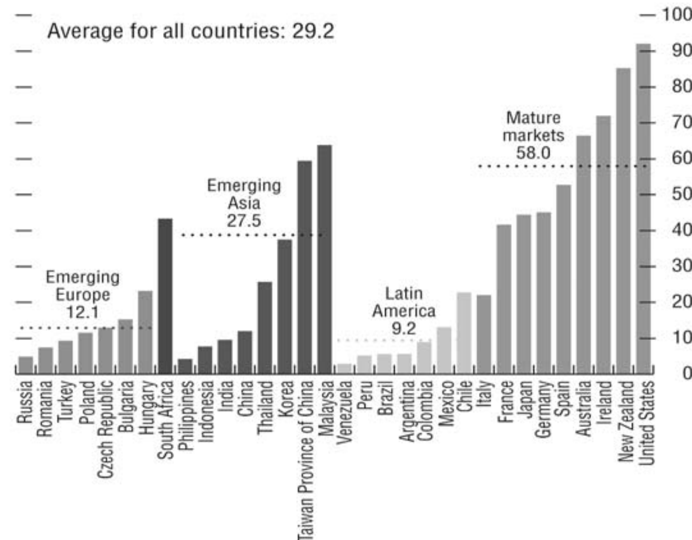
Figure 5: Ratio of Household Credit to GDP by Global Region, end 2005 (in percent)




Source: "Global Financial Stability Report, Market Developments and Issues," International Monetary Fund: World Economic and Financial Surveys, September 2006, 56.

to which finance has found revenue-making mechanisms that thrive on an increasingly long distance between the financial instrument and the underlying assets.[14]

Thus, one basic background variable in the financializing of mortgages is the financial deepening of economies. The McKinsey Company's January 2008 report on global capital markets finds that by 2006 the total value of world financial assets grew by 17 percent in nominal terms (13 percent at constant exchange rates), reaching US$167 trillion. This is not only an all-time high value; it also reflects a higher growth rate in 2006 than the annual average of 9.1 percent since 1980 and points to growing financial deepening. The total value of world financial assets had stood at US$12 trillion in 1980, US$94 trillion in 2000 and US$142 trillion in 2005.

The four components in the world's financial assets are equities, private debt securities, government debt securities and bank deposits. In the ten years from 1996 to 2006, the first two grew the fastest, at average annual compound rates of over 10 percent, compared to around 7 percent for the latter two. In 2006, equities grew by 20 percent, or US$9 trillion (in constant exchange rates). This accounts for "nearly half the total increase in financial assets" in 2006.[15]

To contextualize the meanings of these numbers, it helps to compare them to global GDP. The ratio of global financial assets to global GDP was nearly 350 percent in 2006. Beyond this, the McKinsey report points out that the number of countries where financial assets exceed the value of their GNP more than doubled from thirty-three in 1990 to seventy-two in 2006. In the most highly developed

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Table 5: Structured Finance in the United States, end 2007

| | Amount Outstanding (in billions of US$) | Percentage of Total |
|---|---|---|
| ABS (U.S.) | 379.40 | 46 |
| ABS (non-U.S.) | 156.56 | 19 |
| MBS (U.S.) | 156.56 | 19 |
| MBS (non-U.S.) | 49.44 | 6 |
| Investor-owned Utility Bonds | 49.44 | 6 |
| Other (U.S.) | 24.72 | 3 |
| Other (non-U.S.) | 8.24 | 1 |
| **Total** | 824.00 | 100 |

Source: "Coordinated Compilation Exercise (CCE) for Financial Soundness Indicators (FSIs): Data Individual Economy Tables Selected By Topic (Table A)," International Monetary Fund, http://www.imf.org/external/np/sta/fsi/topic.asp?table=A.
* compiled on a domestic consolidation basis unless otherwise noted.
** one of the International Monetary Fund's Financial Soundness Indicators.

countries, the value of financial assets is up to three times the size of their GDP, with a growing number at over four times (the United States, the Netherlands, Japan, Singapore and others). But we find this trend also in countries at other levels of development—thus China's financial assets are worth three times its GDP.

The trends in financial globalization point to geopolitical shifts. The United States is still the largest financial power with $56.1 trillion in assets, almost a third of the world's financial assets. Europe's Eurozone financial markets are valued at almost US$40 trillion. Including the UK's US$10 trillion and Eastern Europe's US$14 trillion puts Europe close to the United States. The euro is becoming a strong alternative global currency to the dollar, with the value of euro currency in circulation surpassing the latter in mid-2007; it is also the top currency for the issuing of international bonds.[16] Japan, China, India and several other Asian countries are a fast growing third financial block.

A final trend identified in the McKinsey report is relevant to the central issue in this paper: the composition of financial assets in these major national and regional financial markets. The largest components in the United States are equity securities and private debt securities, which together account for 70 percent of the financial market. In the UK these two components account for well over 60 percent. India has an extremely high incidence of equity securities at 45 percent of the financial market, and China of bank deposits at 55 percent. If one was to identify the most extreme values in the data as organized in the McKinsey report, among the highest values are Russia's 66 percent of equity securities, China's already mentioned 55

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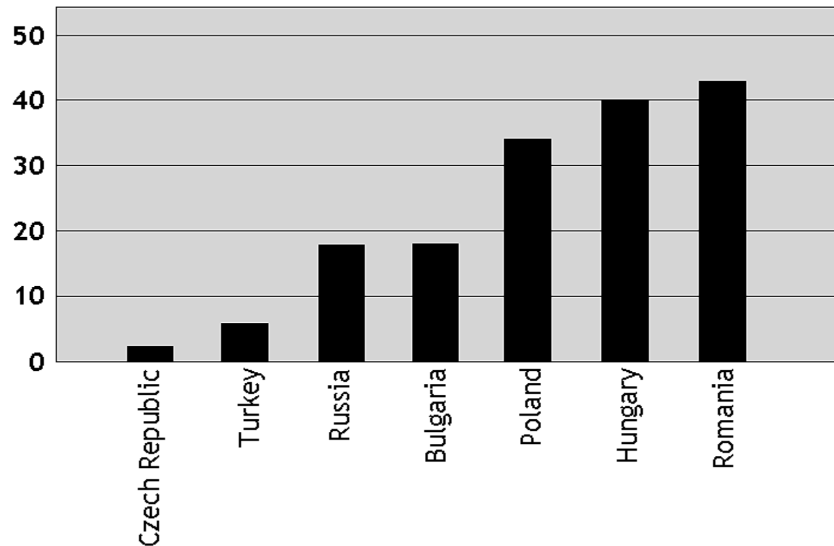
Figure 6: Foreign Currency-Denominated Household Credit, end 2005 (in percent of total household credit)




Source: "Global Financial Stability Report, Market Developments and Issues," International Monetary Fund: World Economic and Financial Surveys, September 2006, 56.

percent in bank deposits, Eastern Europe's 43 percent in bank deposits and India's already mentioned 45 percent of equity securities. In contrast, among the lowest values are private debt securities, which comprise 2 percent of the financial market in India, 3 percent in Eastern Europe, 4 percent in Russia and 5 percent in China. Japan's 10 percent is also low compared to the other major financial countries—notably the United States at 36 percent and the UK at 32 percent.[17]

The extremely high value of mortgages measured as a ratio to national GDP in the United States, Denmark, Australia, Sweden and the Netherlands is generally seen as an indication that these countries have "the most flexible and 'complete' mortgage markets."[18] Two key explanations for this are the level and duration of housing market deregulation. In the United States this begins with the (in)famous and much debated phasing out of interest rate controls under Regulation Q in the 1980s, which also led to the destruction of the savings and loans institutions and a massive bailout by taxpayers.[19]

The sharp growth of mortgages that enabled the housing construction boom in developed countries in the decades following the Second World War produced a vast money pool. When securitization took off in the 1980s, this money pool became a prime object for securitization, especially in the United States. The 1980s saw the financial industry produce multiple innovations that allowed the securitizing of all sorts of debt.[20] These innovations could also handle small debts—notably individual consumer debt—through the bundling of millions of such small debts, from auto

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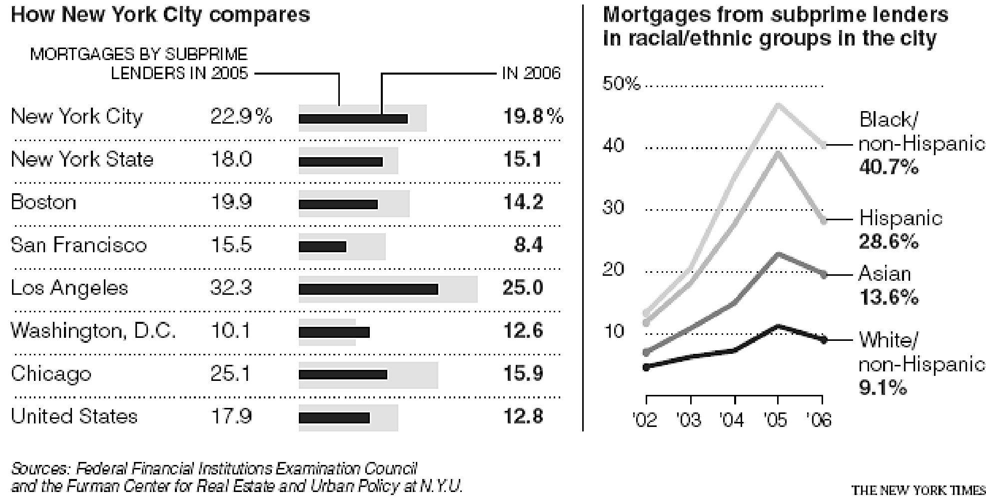
Figure 7: Subprime Mortgage Lending, New York City and Other U.S. Cities, 2002-2006




Source: Ford Fessenden, "Subprime Mortgages Concentrated in a City's Minority Neighborhoods," *New York Times*, 15 October 2007.

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loans to credit card debt. Between those financial innovations and that vast pool of mortgages stood the regulations that protected home-owners, banks and credit and savings institutions. Most mortgages were owned by highly regulated institutions. In the United States, deregulation became the critical step to enabling securitization. Mortgages had to be pulled out of their protective encasements—that is, pulled out of millions of small credit unions and hundreds of highly regulated banks.[21]

Comparing the percentage of mortgage-backed security issues across developed countries indicates the size of the secondary mortgage market. According to the Association of Financial Guarantee Insurers, the total of outstanding structured finance in the United States is well over US$800 billion. The incidence of Mortgage-Backed Securities (MBS) is 25 percent of all outstanding structured finance, which is significantly higher than that of countries with the next greatest incidence—Australia at 7.9 percent, Ireland at 6.6 percent and Greece at 6.2 percent. Sweden, Germany and Denmark are all under 1 percent. This points, once again, to the significant growth of high-risk innovative finance in the United States, extending to residential mortgage debt. It also helps explain the high incidence of foreign investors in these U.S. mortgages—the United States has a far more "developed" market of high-risk innovative mortgage-based instruments than do other developed economies.

Table 5 provides information about foreign ownership in outstanding structured finance in the United States in 2007. In Asset-Backed Securities (ABS) outstanding

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Table 6: Rate of Subprime Lending by New York City Borough, 2002-2006 (in percent)

| | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|
| Bronx | 14.2 | 19.7 | 28.2 | 34.4 | 27.4 |
| Brooklyn | 9.2 | 13.9 | 18.4 | 26.1 | 23.6 |
| Manhattan | 1.3 | 1.8 | 0.6 | 1.1 | 0.8 |
| Queens | 7.7 | 12.6 | 17.8 | 28.2 | 24.4 |
| Staten Island | 7.2 | 11.1 | 13.9 | 19.9 | 17.1 |
| NYC Total | 7.0 | 10.8 | 14.9 | 22.9 | 19.8 |

Table 7: New York City Community Districts with the Highest Rates of Subprime Lending, 2006

| Sub-Borough Area | Percent of Home Purchase Loans Issued by Subprime Lender |
|---|---|
| University Heights/Fordham | 47.2 |
| Jamaica | 46.0 |
| East Flatbush | 44.0 |
| Brownsville | 43.8 |
| Williamsburg/Baychester | 41.6 |
| East New York/Starrett City | 39.5 |
| Bushwick | 38.6 |
| Morrisania/Belmont | 37.2 |
| Queens Village | 34.6 |
| Bedford Stuyvesant | 34.2 |

Source: Furman Center for Real Estate & Urban Policy, 2007.

in the United States, almost one-fifth are foreign-owned. Among MBS, 6 percent are foreign-owned. Figure 6 shows the levels of foreign financing of local mortgages in emerging economies worldwide.

## The Maldistribution of Subprime Mortgages

The highly regulated expansion of residential mortgages in highly developed countries over the decades after the Second World War must be distinguished from the current expansion that took off in the United States in 2001. In traditional banking, the source of profits is loan repayment with interest. This post-1980s expansion is a function of the vast securitizing of mortgages, a development that first took hold in commercial real estate in the 1980s with the already-mentioned REITs. In its current phase, securitization has undergone yet another innovation in that

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Table 8: Subprime Lending by Race in New York City, 2002-2006 (in percent)

| | 2002 | 2003 | 2004 | 2005 | 2006 |
|---|---|---|---|---|---|
| White | 4.6 | 6.2 | 7.2 | 11.2 | 9.1 |
| African-American | 13.4 | 20.5 | 35.2 | 47.1 | 40.7 |
| Hispanic | 11.9 | 18.1 | 27.6 | 39.3 | 28.6 |
| Asian | 4.2 | 6.2 | 9.4 | 18.3 | 13.6 |

Source: Furman Center for Real Estate & Urban Policy, 2007.

Table 9: Subprime Lending by Income and Race in Washington, DC, end 2007 (in percent)

| | Purchase Loans | | Refinance Loans | |
|---|---|---|---|---|
| | Prime | Subprime | Prime | Subprime |
| African-American | 29.4 | 69.6 | 60.4 | 83.7 |
| Very Low Income | 3.7 | 3.1 | 15.5 | 21.0 |
| Low Income | 16.7 | 19.9 | 26.6 | 33.8 |

Source: "Subprime Mortgage Lending in the District of Columbia: A Study for the Department of Insurance, Securities and Banking," Urban Institute, May 2008, http://www.urban.org/UploadedPDF/411709_dc_subprime_mortgage.pdf.

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extending the market for residential mortgages to modest-income households has been based on an insidious option: lending to as many home buyers as possible as fast as possible in order to sell the package to investors in the secondary market. That is, the more mortgage contracts granted to homebuyers, the faster the "lender" of those mortgages can sell them to another investor and pass on the risks. These mechanisms feed the growth of mortgages.

The creation of the subprime mortgage market is an extreme step in a long development of mortgage securitization. It is extreme because the capacity to securitize large numbers of mortgages overrides the need for credit-worthiness of mortgage borrowers. We can capture this trend at very detailed local levels. In the case of the United States, race and locality can make quite a difference. The Furman Center for Real Estate and Urban Policy in New York has contributed some of the sharpest analyses on this subject, displayed in tables 6, 7 and 8. African-American households and low-income neighborhoods show a disproportionately high incidence of subprime mortgages as of 2006. Table 6 shows the extreme difference between Manhattan—or New York County—one of the richest counties in the whole country, and other New York City counties. In 2006, less than 1 percent of mortgages sold to Manhattan home-buyers were subprime mortgages, compared to 27.4 percent of mortgages sold in the Bronx. This table also shows the sharp rate of growth in

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Table 10: Home Purchase Loans from Subprime Lenders, Washington, DC, 1997-2005 (in percent, except where noted)

| | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 |
|---|---|---|---|---|---|---|---|---|---|
| Number of Loans by Borrower Race/Ethnicity | 183 | 385 | 332 | 404 | 267 | 267 | 381 | 711 | 1615 |
| **Loans by Borrower Race/Ethnicity** | | | | | | | | | |
| African-American | 71.8 | 81.4 | 68.3 | 53.9 | 50.9 | 51.6 | 54.0 | 68.6 | 69.6 |
| White | 20.1 | 14.0 | 20.6 | 39.4 | 41.5 | 32.8 | 19.0 | 17.6 | 15.7 |
| Asian/Pacific Islander | 1.3 | 1.0 | 1.6 | 1.5 | 2.2 | 2.0 | 3.6 | 2.7 | 3.9 |
| Latino | 6.0 | 2.0 | 2.8 | 2.7 | 2.7 | 4.0 | 9.8 | 10.4 | 9.1 |
| Other | 0.7 | 1.7 | 6.7 | 2.4 | 2.7 | 9.6 | 13.6 | 0.8 | 1.7 |
| **Loans by Borrower Income** | | | | | | | | | |
| Very Low | 6.2 | 14.7 | 28.6 | 17.1 | 12.1 | 13.9 | 5.4 | 4.6 | 3.1 |
| Low | 36.7 | 42.7 | 35.1 | 26.1 | 24.2 | 22.3 | 29.5 | 20.1 | 19.9 |
| Moderate | 29.4 | 24.2 | 19.9 | 27.1 | 25.4 | 31.1 | 29.2 | 35.1 | 36.8 |
| High | 27.7 | 18.5 | 16.5 | 29.6 | 38.3 | 32.7 | 35.9 | 40.2 | 40.3 |
| **Loans by Number/Sex of Borrower** | | | | | | | | | |
| Lone Male | 55.6 | 54.1 | 42.6 | 39.7 | 33.8 | 48.0 | 46.0 | 47.0 | 52.7 |
| Lone Female | 28.1 | 32.5 | 37.6 | 30.9 | 33.3 | 29.3 | 38.0 | 38.4 | 34.9 |
| Male and Female | 14.0 | 12.3 | 11.1 | 21.5 | 30.8 | 18.4 | 13.0 | 12.0 | 9.4 |
| Same Sex | 2.2 | 1.1 | 8.7 | 8.0 | 2.1 | 4.3 | 3.0 | 2.6 | 3.0 |

Source: "Subprime Mortgage Lending in the District of Columbia: A Study for the Department of Insurance, Securities and Banking," Urban Institute, May 2008, http://www.urban.org/UploadedPDF/411709_dc_subprime_mortgage.pdf.

subprime mortgages in all boroughs except Manhattan.

A further breakdown by neighborhoods (community districts) in New York City shows that the ten worst-hit neighborhoods were poor, with between 34 and 47 percent of all mortgages falling into the subprime category (Table 7).

Finally, we see a similar pattern if we control for race (Table 8). Whites, who have a far higher average income than all the other groups in New York City, were far less likely to have subprime mortgages than all other groups. The table also shows the much lower growth rate in subprime lending from 2002 to 2006 of whites compared with the other groups. It doubled from 4.6 percent to 9.1 percent for whites, but basically tripled for Asians and Hispanics and quadrupled for African-Americans.

The case of New York City, with vast numbers of financial firms and resources,

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Table 11: U.S. Metro Areas with Largest Losses of GMP, 2006 estimates

| Rank | | Revised Real GMP Growth (%) | Loss in Real GMP Growth (%) | Loss of GMP, in millions of $ |
|---|---|---|---|---|
| 1 | New York-Northern New Jersey-Long Island,NY/PA | 2.13 | -0.65 | -10,372 |
| 2 | Los Angeles-Long Beach-Santa Ana, CA | 1.67 | -0.95 | -8,302 |
| 3 | Dallas-Fort Worth-Arlington, TX | 3.26 | -0.83 | -4,022 |
| 4 | Washington-Arlington-Alexandria, VA/MD/WV/DC | 2.79 | -0.60 | -3,957 |
| 5 | Chicago-Naperville-Joliet, IL/IN/WI | 2.23 | -0.56 | -3,906 |
| 6 | San Francisco-Oakland-Fremont, CA | 1.88 | -1.07 | -3,607 |
| 7 | Detroit-Warren-Livonia, MI | 1.30 | -0.97 | -3,203 |
| 8 | Boston-Cambridge-Quincy, MA/NH | 2.16 | -0.99 | -3,022 |
| 9 | Philadelphia-Camden-Wilmington, DE/NJ/PA/MD | 1.85 | -0.63 | -2,597 |
| 10 | Riverside-San Bernadino-Ontario, CA | 3.51 | -1.05 | -2,372 |

Source: Furman Center for Real Estate & Urban Policy, 2007.

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where finance is a subject of general debate in television news, demonstrates that even there the aggressive tactics of financial actors succeeded. These data also illustrate the fact that unlike the red-lining that characterized housing markets, now lenders have extended mortgages to some of the poorest households and neighborhoods—not because they are more generous than the red-lining banks of a past era, but because the logic for extending mortgages has changed. The priority is volume of mortgages, not credit-worthiness. The price of this logic tends to be highest precisely for those with the most limited resources—they lose what little they had.

Another body of data comes from Washington, DC (see Tables 9 and 10). African-Americans in the District of Columbia have a disproportionate incidence of subprime mortgages, both for purchases (69.7 percent) and for refinancing (83 percent). It is worth noting that, as the subprime loan crisis began to emerge, the incidence of these types of loans among African-Americans grew, but declined among whites—paralleling New York City's trends (see Table 10). Finally, the data for Washington, DC show a high incidence of these types of loans among single men

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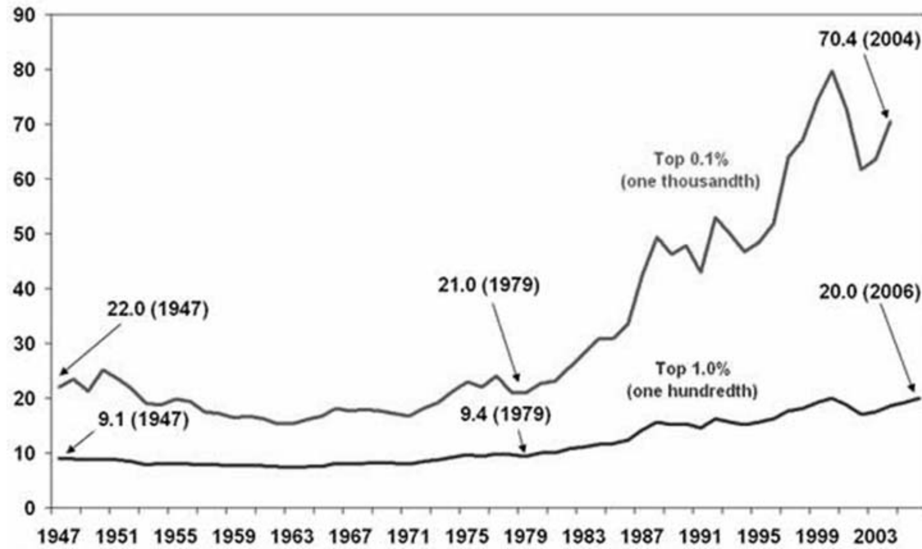
Figure 8: Income Ratio of U.S. Top Decile Earners to Bottom 90 Percent, 1947-2006




Source: L. Mishel, "Surging Wage Growth for Topmost Sliver," *Economic Snapshots*, 18 June 2008, http://www.epi.org/content.cfm/webfeatures_snapshots_20080618; Saez Kopczuk and J. Song, "Uncovering the American Dream: Inequality and Mobility in Social Security Earnings Data Since 1937," NBER Working Paper No. 13345.

and women, two groups that tend to have lower incomes (Table 10).

The costs of these practices extend to whole metropolitan areas. The impact of loss of property tax income for municipal governments varies across different types of cities and metro areas. Table 11 shows the ten metro areas with the largest estimated losses of real gross municipal product (GMP) for 2008 due to the mortgage crisis, as measured by Global Insight 2007.[22] The total economic loss of these ten metro areas is estimated at over $45 billion for 2008. New York loses over $10 billion in 2008 GMP; Los Angeles loses $8.3 billion; and Dallas, Washington, DC and Chicago each lose about $4 billion.

The aggressive expansion into subprime lending to low-income households in the United States resonates with two major trends pointing to sharp increases in U.S. inequality. Figure 8 shows the sharp increase in the income ratio of the highest earning decile to the rest of the income-earners. Beginning in the 1980s, the top decile obtained an increasingly high share of total income. The long trends shown in Figure 9 confirm this pattern. Against this context of sharp growth at the top, the expansion of mortgage financing to low- and moderate-income households should be a welcome innovation for these households—and for the financial sector, since the residential mortgage market of an economy with sharp concentration at the top and little growth in the middle is not enough to sustain continued growth. The problem for the households and, given abuse of the innovation, possibly for the financial

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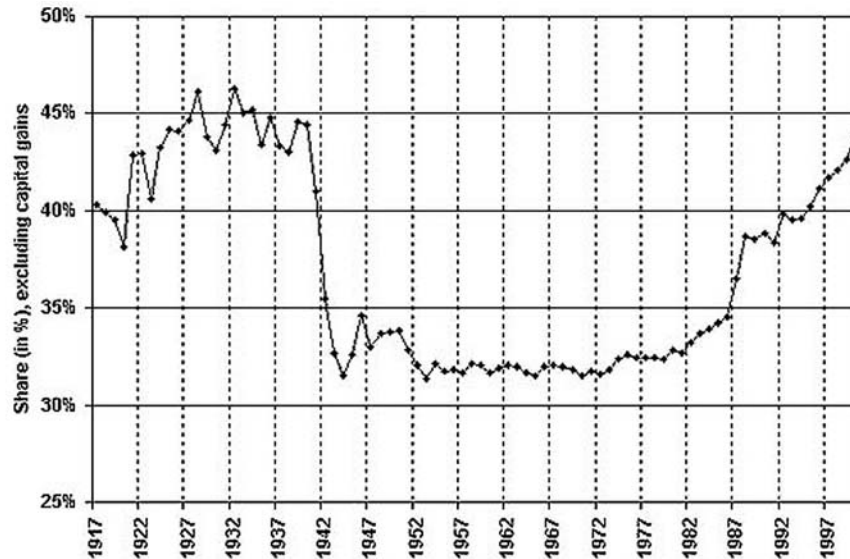
Figure 9: Top Decile Income Share in the United States, 1917-2000




Source: L. Mishel, "Unfettered Markets, Income Inequality, and Religious Values," *Viewpoints*, 19 May 2004, http://www.epi.org/content.cfm/webfeatures_viewpoints_moral_markets_presentation.

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sector, is that the character of the financial instrument does not make credit-worthiness the top priority, but puts the focus on bundling large numbers of such mortgages in order to sell them as soon as possible. For a while, this system worked to enrich some firms and benefit some households. But the trade-offs eventually went negative, and the spillover effects in a context of a globalized financial market began to grow.

These patterns in the United States, the frontier space for this type of financial innovation, should send an alarm bell ringing through developing economies that are now seeing very sharp growth rates in mortgage lending. An important question raised by these developments is to what extent other developed and developing countries will follow this troublesome development path, which ultimately has become yet another way of extracting value from individuals, in this case through home mortgages that even low-income households are invited or persuaded to buy.

## Rolling Spillover and Network Effects: No Sector or Country Escapes

In my analysis of the subprime crisis, two dynamics of financial markets have come together. Both arise out of the interlinking of markets. One is usually described as a "spillover effect"—in this case, it is a spillover from U.S. markets to the rest of the world. The second, less noted, is the "network effect" that arises from the fact that more and more firms use financial instruments that are meant to export risk. In electronically linked markets this becomes a "network effect" that hits all firms back.

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Table 12: Global Bank Losses on Structured Finance, as of March 2008 (in billions of US$)

| | Total reported losses | Estimated Losses on U.S. Subprime/ Alt-A Loans | Estimated Losses on ABS | Estimated Losses on CDOs | Estimated Losses on Conduits/ SIVs | Total Estimated Subprime-Related Losses | Remaining Subprime-Related Losses Expected |
|---|---|---|---|---|---|---|---|
| Europe | 80 | 16 | 27 | 53 | 27 | 123 | 43 |
| *UK* | 19 | 16 | 1 | 12 | 11 | 40 | 22 |
| *Switzerland* | 23 | 0 | 7 | 15 | 1 | 23 | 0 |
| *Scandinavia* | 0 | 0 | 0 | 0 | 1 | 1 | 1 |
| *Euro Area* | 33 | 0 | 10 | 20 | 15 | 45 | 12 |
| *Unallocated* | 5 | 0 | 9 | 6 | 0 | 14 | 9 |
| United States | 95 | 29 | 12 | 90 | 13 | 144 | 49 |
| Asia, excluding Japan | 1 | 0 | 3 | 0 | 0 | 4 | 3 |
| *China* | 1 | 0 | 3 | 0 | 0 | 3 | 2 |
| Japan | 10 | 0 | 5 | 5 | 0 | 10 | 0 |
| Asia | 11 | 0 | 9 | 5 | 0 | 13 | 3 |
| Canada | 7 | 0 | 2 | 5 | 0 | 7 | 0 |
| Gulf Cooperation Council | 1 | 0 | 1 | 1 | 0 | 1 | 0 |
| Total | 193 | 44 | 50 | 153 | 40 | 288 | 95 |

Source: Goldman Sachs; UBS and IMF Staff Estimates, "Global Financial Stability Report 2008," http://www.imf.org/External/Pubs/FT/GFSR/2008/ 01/c1/table1_6.pdf.
* Bank allocation to asset-bascked securities (ABS) includes estimated losses on ABS and conduits/SIVs.
CDO = collateralized-debt obligation SIV = structured investment vehicles

It should be noted that the U.S. market has been far more aggressive in developing high-risk instruments than other countries with highly developed residential mortgage markets. The subprime mortgage crisis originated in the United States, then spread to other countries given the globalization of financial markets. This global spread was helped by the fact that non-national investors are, as a group, among the single largest buyers of some of the weakest types of mortgage instruments: the so-called subprime mortgages. Foreign ownership strengthens the potential for spillover effects well beyond the United States. Further, the "financializing" of mortgages has broadened the spillovers from the housing sector to the rest of the economy by raising the role of housing in secondary financial circuits.[23]

The IMF estimates the U.S. loss linked to subprime mortgages at $144 billion. Because it is also the largest market, investors from all over the world are likely to

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buy U.S. instruments and therefore to see losses. Indeed, the U.S. spillover effects on other markets are significant (see Table 12). According to the IMF, all economies have experienced such effects. It finds that the European Union (EU) as a whole lost US$123 billion, Canada US$7 billion, Japan around US$10 billion and other Asian countries combined about US$13 billion. This is evidence of the global circulation of mortgage-backed securities. Within the EU, the United Kingdom—the country whose financial system is most intertwined with the United States—will see a subprime mortgage-linked loss of US$40 billion, followed by Switzerland's loss of US$23 billion.

It is worthwhile to return to a discussion of some of the rapidly growing Asian economies. As noted earlier, although the incidence of mortgages in national GDP is low in rapidly growing countries such as China and India, the mortgage market is growing sharply. While this is partly explained by the much-documented rising incomes in one-fifth of the population, we cannot underestimate the role of financial innovations in housing lending in several Asian countries as well as its potential. The secondary mortgage market is not very developed in Asian countries, but innovations here are important. As already mentioned, China has seen the development of novel types of mortgage products. Long-term mortgages are being offered in Thailand and South Korea, reminiscent of the ninety-year mortgages widely introduced in Japan during the boom of the 1980s.[24]

The second dynamic—network effects—concerns the impact of complex financial instruments meant to reduce risk on electronically linked financial markets. The electronic linking of markets (both nationally and globally), the accelerated rise in innovations enabled by both financial economics and digitization and the sharp growth in the use of a particular type of financial instrument—the derivative—have come together in ways that have launched a new phase in financial markets. The diversification and dominance of derivatives has increased the complexity of operations and has further facilitated the linking of different financial markets. In an environment of electronically linked and globalized markets and rapid innovations, risk and uncertainty assume specific meanings and weight. This, in turn, partly explains why derivatives have become the most widely used financial instrument.

There are two features of derivatives relevant to my argument. The first—frequently overlooked both in general commentaries as well as in more academic treatments—is that the distinctive feature of derivatives is not that they reduce risk, as is commonly believed, but that they transfer it to less risk-sensitive sectors in the economy. This aspect is easily lost in academic analyses centered on firms. Insofar as firms remain central to a model, it makes sense to confine observation to the fact that firms use derivatives to hedge and thereby reduce their risks. This is correct, but only partially. I argue that what has been left out of this picture, in the context of

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electronically linked markets and an absolute predominance of derivatives as the instrument of choice in today's financial markets, is that the transfer of risk by individual firms becomes a collective transfer of risk to the market. In so doing, derivatives trading produces a network effect that is a new type of risk: market risk.[25] The crucial contextual variable contributing to this network effect is that derivatives are used by firms in all financial markets and account for the vast majority of financial transactions.

These two characteristics of today's financial markets—electronic spillovers and network effects—raise the speed and multiply the number of transactions. The result can be positive (accelerated profits) or negative (accelerated losses). The language of spillovers is more general and tends to suggest the de-bordering of a market—or a country's economy, which is also happening. The network effect is viral: Once defective instruments such as subprime mortgages enter the financial circuits, they become viral and produce unexpected boomerang effects on finance itself.

## Conclusion

There is clearly no conclusion to the reality depicted in this short piece. What we can do, however, is recover the larger tale that is being signaled by these empirical trends. The story of the globalization of finance will come to an ugly end if it continues down this abusive path. Further, it also has sharp boomerang effects on even the most powerful economic actors. Much has been said about our "risk society." What has happened with the financializing of mortgages is perhaps one of the sharpest instances of this syndrome, so well described by Ulrich Beck.[26] The evidence here points to the following developments.

First, home mortgages today are a new frontier for using high-risk financial innovations to extract profit. This is most acute in the United States, but other countries are following rapidly. The power of finance lies in its capacity to invent instruments and to invent ways of subjecting more and more sectors of an economy to those instruments. The subprime home mortgage is an acute example of this.

Second, once mortgages enter the secondary market—one in which financial instruments, not houses, are being sold—the credit-worthiness of the mortgage borrower is not the source of profits. This means that selling mortgages to individuals who are likely to default does not quite matter to sellers, since the aim is to sell as many mortgages as possible to achieve a certain paper value; then, they aim to sell this package to another investor.

Third, in a world of interconnected markets and packages that bundle millions of debts, these trends become viral and spread at growing velocity through electronic networks. Thus a whole range of foreign firms began to get hit by 2005 and 2006 in countries that had not developed subprime lending. The crisis point came in 2007.

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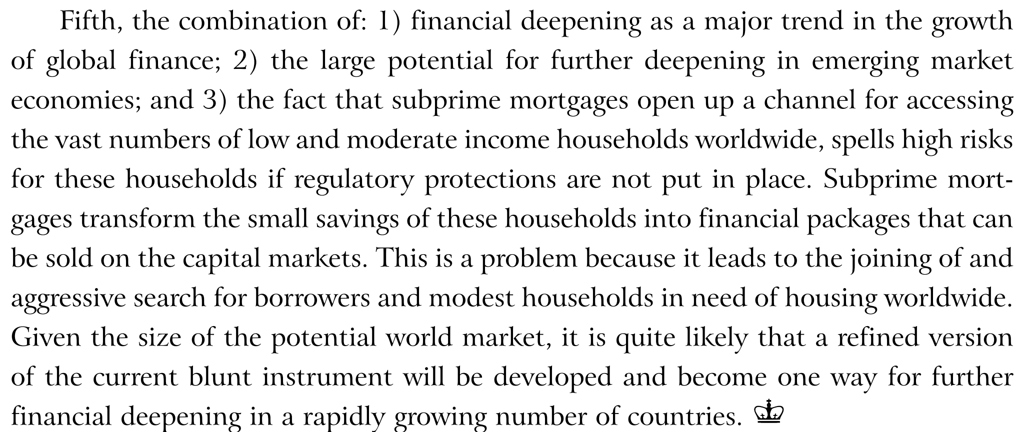
It should, however, be noted that large-scale profits were made both by the subprime lenders and by those who invested speculatively against subprime lending. This may well have been a factor leading to abuses of the innovation.

Fourth, finance has a long history of trying out innovative instruments, followed by a crisis, and then followed by a better-developed version of that innovation. If the innovation meets a potentially large demand, the probability is that it will be further developed. This became evident with the so-called "junk bonds" of the 1980s, which allowed lending to firms with no or low credit ratings. This helped many modest firms, but it also became a source of massive abuse. The current phase of the subprime mortgage market can be seen as a tryout—a way of working out the problems. The ones to pay the price for this tryout were the low-income borrowers who lost their homes and thereby all their savings in this process. Through this tryout, a more refined instrument can be developed.



Fifth, the combination of: 1) financial deepening as a major trend in the growth of global finance; 2) the large potential for further deepening in emerging market economies; and 3) the fact that subprime mortgages open up a channel for accessing the vast numbers of low and moderate income households worldwide, spells high risks for these households if regulatory protections are not put in place. Subprime mortgages transform the small savings of these households into financial packages that can be sold on the capital markets. This is a problem because it leads to the joining of and aggressive search for borrowers and modest households in need of housing worldwide. Given the size of the potential world market, it is quite likely that a refined version of the current blunt instrument will be developed and become one way for further financial deepening in a rapidly growing number of countries. ♔

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## NOTES

[1] McKinsey & Company, "Mapping Global Capital Markets Fourth Annual Report." McKinsey Global Institute, January 2008, http://www.mckinsey.com/mgi/reports/pdfs/Mapping_Global/MGI_Mapping_Global_full_Report.pdf.

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[3] "Containing Systemic Risks and Restoring Financial Soundness" (*IMF World Economic and Financial Surveys: Global Financial Stability Report, Market Developments,* International Monetary Fund, April 2008); Adrian Blundell-Wignall, "The Subprime Crisis: Size, Deleveraging and Some Policy Options,"*OECD Financial Market Trends* 1 (2008), 21-24.

[4] K.F. Gotham, "The secondary circuit of capital reconsidered: Globalization and the US real estate sector," *American Journal of Sociology* 112 (2006), 231-275; Fabrizio Coricelli, Fabio Mucci and Debora Revoltella, "Household Credit in the New Europe: Lending Boom or Sustainable Growth?" (CEPR

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discussion paper No. 5520, Centre for Economic Policy Research, London, 2006).

[5] Manuel B. Aalbers, "The Financialization of Home and the Mortgage Market Crisis," *Competition & Change* 12 (2008), 148-166.

[6] Saskia Sassen, *The Global City: New York, London, Tokyo* (Princeton: Princeton University Press, 1991 (Revised 2001)); John Muellbauer and Anthony Murphy, "Booms and Busts in the UK Housing Market" (CEPR Discussion Paper no. 1615, Centre for Economic Policy Research, London, 1997); Jonathan R. Laing, "The Bubble's New Home," *Barron's,* June 2005, http://online.barrons.com/article/SB111905372884363176.html.

[7] Saskia Sassen, *Territory, Authority, Rights: From Medieval to Global Assemblages* (Princeton: Princeton University Press, 2006), 358-365.

[8] Among the winners are also those who "shorted" subprime mortgage securities. George Soros is the emblematic actor in this parallel circuit, making well over $3 billion on the subprime mortgage crisis. For further examples, see Robert King and Ross Levine, "Finance and Growth: Schumpeter Might Be Right," *Quarterly Journal of Economics* 108 (August 1993), 717-37.

[9] *Coordinated Compilation Exercise for Financial Soundness Indicators* (International Monetary Fund legal division, Washington, DC, 2007), chapter 3. Note that these measures are based on several sources: IMF national accounts data; European Mortgage Federation; Hypostat Statistical Tables; the U.S. Federal Reserve; OECD Analytical Database; Statistics Canada and IMF staff calculations.

[10] The total risk to the financial sector from exposure to real estate is higher than suggested by mortgage-lending data alone because loans to developers are not well-recorded in China and could be rather large. See Palanisamy Saravanan and R. Nagarajan, "Housing Finance System in India and China: An Exploratory Investigation" (lecture, 24 December 2007).

[11] Chiang Jiansheng (2005) as published in Saravanan and Nagarajan (2007); see Haibin Zhu, "The Structure of Housing Finance Markets and House Prices in Asia," *BIS Quarterly Review* (December 2006), 55-69.

[12] For more information about the role of foreign banks and bank privatization, see Stijn Claessens, Asli Demirgüç-Kunt and Harry Huizinga, "How Does Foreign Entry Affect Domestic Banking Markets?" *Journal of Banking and Finance* 25 (May 2001), 891-911; see also George R.G. Clarke, Robert Cull and Mary M. Shirley, "Bank Privatization in Developing Countries: A Summary of Lessons and Findings," *Journal of Banking and Finance* 29 (August-September 2005), 1905-30.

[13] For figures for Eastern and Central Europe, see Ralph De Haas and Iman van Lelyveld, "Foreign Bank Penetration and Bank Credit Stability in Central and Eastern Europe" (Research Series Supervision no. 43, De Nederlandsche Bank, 2002); Christoph Duenwald, Nikolay Gueorguiev and Andrea Schaechter, "Too Much of a Good Thing? Credit Booms in Transition Economies: The Cases of Bulgaria, Romania, and Ukraine" (working paper no. 05/128, International Monetary Fund, 2005); Christian Menegatti and Nouriel Roubini, "Vulnerabilities in Central and Southern Europe," *Roubini Global Economics Monitor* (June 2006).

[14] For an elaboration of these larger structural issues see Sassen (2006), chapter 5.

[15] McKinsey (2008), 11; see also Blundell-Wignall (2008).

[16] Ibid. (2008), 12.

[17] Ibid. (2008), Exhibit 2.

[18] Further, the introduction of "new mortgage instruments and easier lending policies" contributed to "the rapid growth of mortgage credit in these countries."

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[19] I examined the implications of this for urban economies in the first edition of *The Global City* (1991: chapter 4), a section that was dropped in the second edition (2001) because of space issues.

[20] Sassen (1991), chapter 4.

[21] In *The Global City* (1991; 2001), chapter 4, I examined how this generated a series of innovations, including new types of mortgage instruments, of which the current generation of so-called structured-investment instruments is but the latest. The overall effect was a vast expansion of credit in the mortgage sector.

[22] The report contains a full list of GMP losses for all 361 metro areas (Appendix, Table A2, pages 8-16). The report states that 128 metro areas will see slow real GMP growth of less than 2 percent in 2008, and that growth is cut by more than one-third in 65 metro areas and by more than a quarter in 143 metro areas.

[23] For instance, subprime mortgages more than tripled from 2000 to 2006 and accounted for 20 percent of all mortgages in the United States in 2006.

[24] Sassen (1991; 2001), chapter 7.

[25] Sassen (2006), 358-365.

[26] Ulrich Beck, *Risk Society: Towards a New Modernity* (Thousand Oaks, CA: Sage Publications, 1992).

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