Securitization of residential mortgages
– Can Japan create a "good" GSE? －

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Introduction

Securitization, like derivatives, is a financial innovation that has seen explosive growth over the past two decades or so. Securitization got its start with the securitization of residential mortgages in the US, and was a response to the regional partitioning of the housing finance market resulting from banking regulations on the state level. In other words, it was the need to securitize home loans created by structural problems within the US financial market, rather than the advanced state of that financial market, that led to the innovation of securitization in the US.

Nevertheless, although structural problems in the financial market were the catalyst, the financial technology of converting illiquid assets into a liquid product became the core element of government housing policy in the US. Thus financial innovation wound up sparking a policy revolution in a completely separate sector from finance. A different package of government housing policies was chosen in other countries, where mortgage securitization was undeveloped.

The use of this financial innovation in Japan not only revolutionized housing policy, it also promoted a revolution in the economic landscape transferring leadership from the bureaucracy to the private sector, and continues to do so.

In the US where this all began, home loan securitization gave birth to giant, quasi-governmental entities called government sponsored enterprises (GSEs), and new structural problems created by the GSEs is now the subject of hot debate. In this report, we examine whether there is reason to be concerned that financial innovation aimed at resolving one type of structural problem may lead to new structural problems.

The current state of home loan securitization in Japan and the US

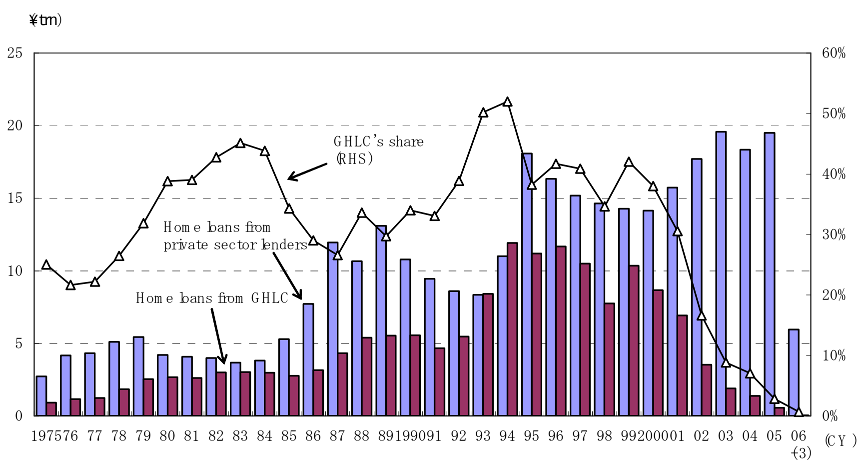
Total issuance of residential mortgage-backed securities (RMBS) in Japan was approximately ¥5 trillion in FY2005. With roughly ¥20 trillion in home loans underwritten annually, a straightforward calculation indicates that 25% of those loans are securitized. Annual issuance of JGBs is over ¥30 trillion, making Japan's RMBS issuance market look rather small in comparison.

In the US, 64.9% of all home loans were securitized in 2004.[1] MBS issuance by only GNMA, FNMA, and FHLMC totaled $966.1 billion in 2005, a higher number than the Treasury issuance of $746.2 billion.

These numbers show Japan's RMBS market to be rather small compared to that of the US. This can be attributed to the way the Japanese government has intervened in the housing finance market. Rather than promote securitization, as was done in the US, the government created the Government Housing Loan Corporation (GHLC), a government-affiliated financial institution with the main policy objective of providing home loans at below-market rates.

In recent years, however, Japan has radically overhauled its housing finance policy, moving away from providing low-interest public loans and toward promoting the securitization of home loans. As shown in Figure 1, there have been times in the past when public loans written by the GHLC accounted for more than 50% of all home loans in Japan, but in the few years since early this decade, when the GHLC decided to reduce its direct lending and place a greater emphasis on providing support for securitization, the number of GHLC loans has declined to nearly zero. This gap has been filled by growth in home loans made by private-sector financial institutions, who have seen rapid growth in their share of the market. A portion of the home loans made by these private-sector lenders have been purchased and then securitized by the GHLC.

Figure 1. Japan's home loans (private-sector lenders vs. GHLC)



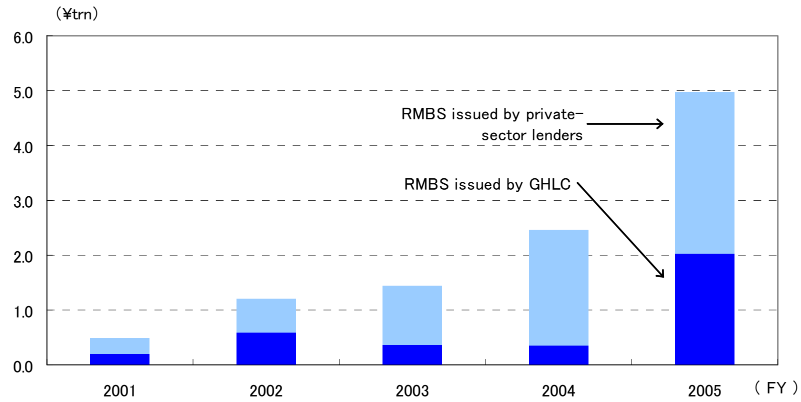
Note: Private-sector is total of domestic banks, shinkin banks, and the Shinkin Central Bank. Totals are for January-March 2006

Source: Nomura Institute of Capital Market Research, from BOJ data

[1] The 2005 Mortgage Market Statistical Annual Volume II, Inside Mortgage Finance Publications, Inc.

As shown in Figure 2, it was the rapid increase in RMBS issued by the GHLC that made it possible for total RMBS issuance to reach ¥5 trillion in 2005. Prior to that, Japan's RMBS market was considerably smaller. One reason is that although the GHLC has been purchasing and securitizing home loans originating in the private sector since October 2003, there was a rapid increase in this type of securitization beginning in 2005.

Figure 2. RMBS issuance amount



The GHLC has therefore already greatly transformed its role, but the government has decided to dissolve the GHLC in April 2007 and replace it with the Japan Housing Finance Services Agency (JHFSA), a new independent administrative agency with the primary task of securitizing home loans originated by private sector financial institutions.

Operation of the new agency will be modeled on FNMA (Fannie Mae) in the US, and the basic idea behind creation of the agency is to eventually make the RMBS market as critical a segment within the securities market in Japan as it is in the US. There is, however, a great deal of debate right now over how to best reform Fannie Mae and other housing-related government sponsored enterprises (GSEs). In this regard, there is concern that Japan may simply repeat the problems already experienced in the US.

In this paper, we look at the developments that led to the change in Japan's housing finance policies toward an emphasis on supporting the securitization market, the characteristics that define Japan's RMBS market, and our outlook for the new agency.

Traditional public support of housing finance in Japan

Much of the industrialized world has implemented policies to provide assistance in the purchase or rental of a home, but the policy package varies widely among countries. For example, in the UK, the emphasis is on supplying government-run rental housing, and these housing units are also sold off cheaply as a way to promote home ownership, but there is no specific assistance with home financing.

In contrast, the US, Germany, France, and Japan, although also maintaining publicly owned rental housing projects, provide assistance to the homeowner through government involvement in home financing. Of the four, the US government plays a key role in the securitization of loans originated by private-sector financial institutions, while Germany, France, and Japan have all implemented government-sponsored housing finance mechanisms. Nevertheless, in Germany and France, the government provides assistance with home loans originated by private-sector financial institutions, while Japan stands apart in that it established in 1950 a government-affiliated financial institution specialized in housing finance.

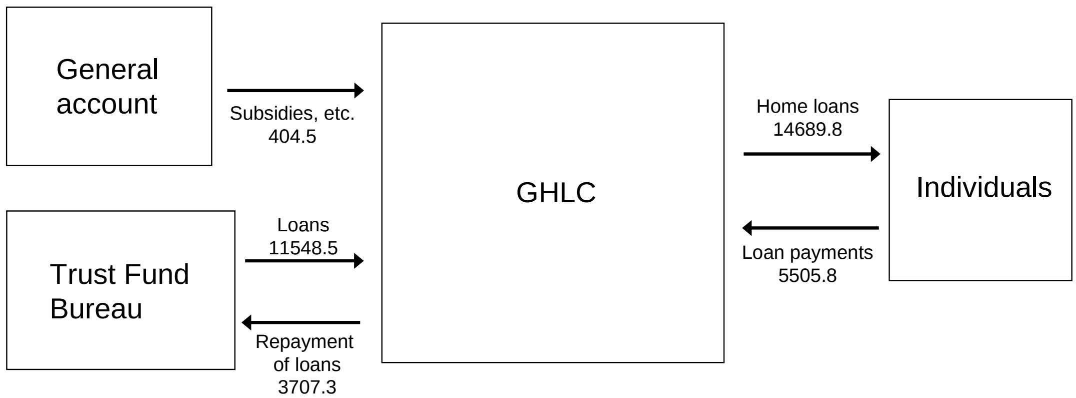
Prospective home buyers who meet certain conditions are able to take out a GHLC mortgage, up to a limited amount, under more favorable terms than are available with private-sector financial institutions. The GHLC signs an agreement with a private-sector financial institution, which does the actual processing and servicing of the loan.

As shown in Figure 1, until the rapid decline that began this decade, the GHLC typically accounted for 20 – 50% of the home loans written in Japan. Particularly up until the early 1980s, private-sector lenders focused on meeting the demand for loans to large corporations, and took a dim view of home loans and other high-maintenance loans to individuals. When loans to large corporations later became less profitable, private-sector lenders also began to focus their efforts on the home loan market, but the GHLC's share of that market still rose to record-high levels in the mid-1990s. This is because the economic stimulus packages aimed at battling the post-bubble economic slump included measures to increase lending through the GHLC.

Like other government-affiliated financial institutions, the GHLC operated under the framework of the Fiscal Investment and Loan Program (FILP), which is also referred to as the "second budget." The FILP was a mechanism to make investments and loans for public purposes, including lending through government-affiliated financial institutions and road construction through public corporations, using as a primary funding source those funds collected from the populace through postal savings, the public pension program, and other means outside of taxes and government bonds.

The GHLC came to be the most important institution within the FILP for making investments and loans for public purposes. The GHLC primarily borrowed funds from the Trust Fund Bureau, which managed FILP funds, to make home loans to individuals. Figure 3 shows the main flow of funds for the GHLC in 1994, the year that GHLC loans hit an all-time high. Basically, the GHLC borrowed ¥11.5 trillion from the Trust Fund Bureau, combined those funds with money collected from previous loans, and then originated home loans of ¥14.7 trillion. As will be explained below, since the GHLC often ran a deficit based only on its loan interest income, it also received funds from the general budget.

Figure 3. GHLC's flow of funds (FY1994 actual)



Note: ¥ billions

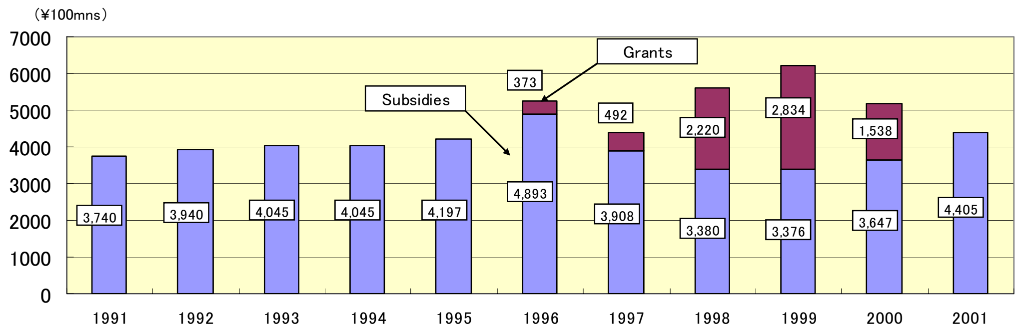
Back during the time when interest rates at private-sector financial institutions, including the rates paid out on deposits, were regulated, the interest rate at which the GHLC borrowed from the FILP was set low, unrelated to the market rate, and its mortgage rate was capped at 5.5% by the Government Housing Loan Corporation Law. As a matter of housing policy, the rate on loans for home purchases that met certain conditions was set at a favorable rate, lower than the rate paid to borrow from FILP. Consequently, GHLC's mortgage rates were often lower than the normal rate for borrowing from FILP, and of course lower than mortgage rates offered by private-sector lenders. As a public institution, the GHLC did not need to earn a profit margin as is required in the private sector, and would even be reimbursed from the general budget for its negative spreads, making its core mission the subsidization of residential mortgage interest payments.

In addition to the GHLC's interest rate advantage, as noted earlier private-sector lenders were able for a long period following the war to earn profits from their corporate lending businesses, and because of this were not fully geared to handle the home loan business. It was therefore only natural that individuals thought first of the GHLC when it was time to finance the purchase of a home.

The government began liberalizing interest rates at private-sector financial institutions in the 1980s, and the interest rate on loans from the Trust Fund Bureau have been tied to yields in the JGB issuance market since March 1987. This has made it more difficult for the GHLC to offer home loans at more favorable interest rates than the home loans offered by private-sector lenders.

Beginning in the 1990s, a long period of low interest rates took hold in response to the economic slump following the bubble's burst, and this led to a greater number of GHLC mortgage prepayments. Faced with a slump in the demand for corporate lending, private-sector lenders became much more aggressive in their home loan businesses, encouraging prospective clients to prepay their existing GHLC mortgages carrying high coupon rates and refinance using loans that they originated. Also, as evident from Figure 1, there was an increase in low-rate mortgages from the GHLC as a result of stimulus packages that promoted GHLC loans to invigorate housing construction. The result was an increase in subsidies from the general budget (Figure 4).

Figure 4. Subsidies and other assistance to the GHLC



Note: Grants: treasury grants to cover required subsidies partially slipped to the following year

Source: Business documents from the Ministry of Land, Infrastructure, and Transportation

The GHLC procures funds for a 23-year term at a fixed rate tied to long-term yields, and since it could not prepay its loans to the Trust Fund Bureau, it was unable to rapidly lower its mortgage rates. In fact, with fixed-rate lending increasing as a result of interest rates being at historic lows, from 1997 it set a floor rate of 4% for all loans with a maturity of 11 years or longer in order to constrain growth in interest rate subsidies from the government. Meanwhile, private-sector lenders were able, by using interest rate swaps, to offer conventional mortgages at lower rates than the GHLC for the first ten years, and after that began offering adjustable-rate mortgages as well as 30-year fixed mortgages using securitization (as with the GHLC, rates on home loans of 11 years and longer did not increase, and thus its rates on those loans were also lower than the GHLC's). Thus depending on the length of the mortgage, the private sector could offer more favorable terms. During these changes in the business environment, the FILP went through a major transformation from 2000, as did the housing loan policy conducted through the GHLC and operated under FILP, as can be seen below.

The debate over reform of housing loan policy

The dramatic system reform described in the preceding section was based on the fundamental guidelines contained in the Basic Law on the Reform of Central Government Ministries and Agencies, a law implemented in June 1998 to promote greater overall government efficiency. The trend toward smaller government began gaining momentum in the 1990s, even in Japan, and with the growing fiscal deficits during the recessions of the 1990s identified as a problem, the government became committed to reform in the late 1990s. Reform of FILP was also seen as a necessary part of this process.

Although GHLC reform was only a part of FILP, which in turn was only part of broader administrative reform, it was in the housing finance sector where the problems in Japanese economic system caused by over-reliance on bureaucrats became most obvious, and this put GHLC reform at the forefront of the overall wave of government reform that took off in Japan in the late 1990s.

One conceivable reason that the overhaul of FILP became a core component of the administrative reform movement was that FILP had been putting pressures on private-sector companies and had created an environment that encouraged the special corporations to finance inefficient projects. Postal savings, one source of FILP funds, accounted for 20% of all financial assets held by individuals, while the GHLC owned a 50% share of the home loan market.

The system in which management of postal savings and other funds was concentrated in the Trust Fund Bureau was dismantled, and the special corporations (agencies) like the GHLC and the four highway authorities, which had been able to borrow funds from the Trust Fund Bureau to engage in investment and financing activity, were forced to procure funds by issuing government-guaranteed bonds, borrowing from a special account, or issuing their own bonds without a government guarantee on the bond market.

Serious consideration of special corporation reform pursuant to these basic guidelines gained traction once the Cabinet issued its broad outlines for administrative reform in December 2000, although after debate over the specifics of reform began it became clear that there was an ongoing conflict between two sides. On one side stood the governmental agencies with jurisdiction over the GHLC and the four highway authorities, as well as politicians involved with housing and highway administration, all of whom did their best to minimize the scope of reforms, and on the other side stood those arguing for radical reform by placing a priority on more efficient government and market mechanisms, as well as on the reduction of fiscal deficits.

Since Junichiro Koizumi became Prime Minister in April 2001, however, the proponents of reform have gained the upper hand, and in December 2001, a plan to streamline the special corporations was approved by the Cabinet. The plan called for dismantling the GHLC within five years while gradually shrinking its financing activities, and for it to begin supporting the securitization of private-sector mortgages, with that function to be turned over to an independent administrative agency (IAA) created specifically for that task once the GHLC closes shop.

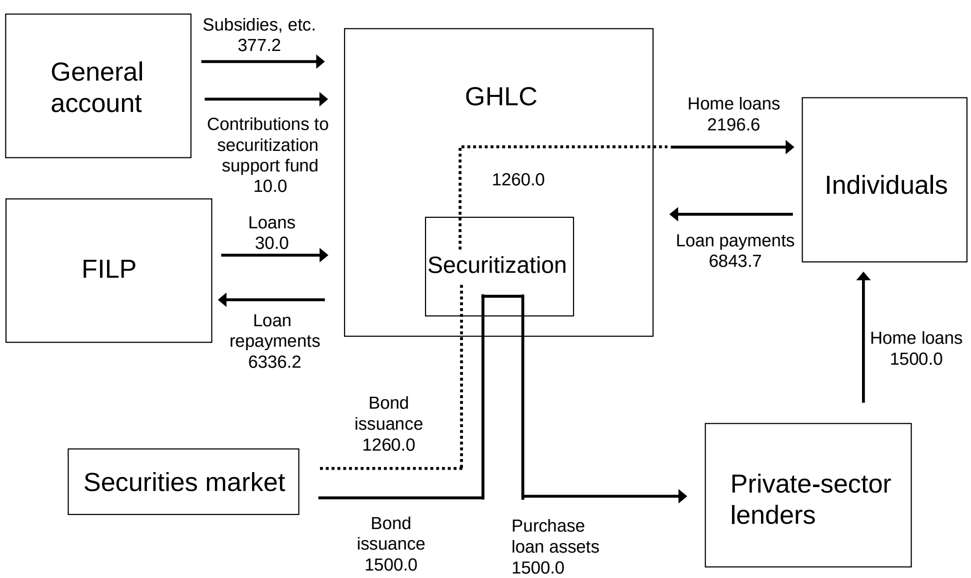
The choice was made to shrink the level of direct loans through the GHLC and start supporting the securitization of private-sector home loans for the reasons outlined below. First, although the GHLC, which was funded by postal savings and other funds concentrated in the hands of the Trust Fund Bureau, had previously originated its own loans, the decision to take away this stable source of funds made direct financing more difficult. Second, by supporting the securitization of private-sector home loans it solved the problem of competition for the home loan business between private-sector lenders and a public institution. Third, Japan was striving to move away from a financial structure excessively dependent on banks and toward a structure in which securities markets play a larger role. Thus it is considered desirable to achieve growth in the RMBS market as a path to a larger and more diverse securities market. Fourth, although there is probably a need to think through the impact that simply eliminating the GHLC's function would have on the citizens who benefit from low-interest loans and on its more than 1000 employees, the example of Fannie Mae in the US suggests there is potential for the organization to continue its role as a promoter of housing finance by becoming an agency for supporting securitization, as well by remaking itself as a pillar of support for a key securities market.

In the round table on housing finance sponsored by the Ministry in charge of housing policy, the Ministry of Land, Infrastructure, and Transport (MLIT), from October 2001 into 2002, there was not any notable opposition to the idea of the GHLC supporting securitization. In the US, however, it took about 25 years for efforts to securitize home loans through the GSEs to attain critical mass, and there were some in Japan who saw no need to reduce the GHLC's direct lending role. Furthermore, some have argued that if the scope of home loans purchased by public institutions is not limited to what is appropriate for public purposes, there is a possibility that this could unfairly hinder securitization activity by the private sector.

In line with the reform guidelines noted above, the GHLC began cutting back its loan business in FY2002. As part of its efforts to diversify funds procurement in response to FILP reforms, the GHLC had already begun securitizing the home loan assets in its own portfolio in March 2001 in order to get used to securitization, and in October 2003 began supporting the securitization of home loans originated by the private sector. We take a close look at how it does this in the next section.

Based on all of this, the GHLC's funds flow for the FY2005 budget, shown in Figure 5, has changed dramatically from what it used to be as depicted in Figure 3. Both funds borrowed from FILP and home loans declined substantially, and some of the home loans that it originated were securitized. In addition, it has been buying home loan assets from private-sector lenders for securitization.

Figure 5. GHLC’s flow of funds（FY2005 plan)



Note: ¥ billions

The dismantling of the GHLC and its replacement with a new IAA was mandated by the Law Concerning Independent Administrative Agency for the Provision of Support for Housing Finance. According to this law, the primary activity of the new agency is to purchase home loans from ordinary financial institutions and to support their securitization by providing loan guarantees for bonds backed by those loans. The agency's other services include insuring private-sector home loans, providing information to consumers related to home loans and housing, direct lending limited to purposes of disaster recovery and the revival of urban living environments, and the servicing of loans originated by the GHLC. In performing these services, the agency is expected to strive for a suitable division of roles with ordinary financial institutions.

The agency, taking the form of an IAA, is a new entity created for the purpose of making government smaller and more efficient, pursuant to the Basic Law on the Reform of Central Government Ministries and Agencies. The specifics of how these agencies are to be operated is spelled out in that law, which was passed in June 1998, as follows. "[IAAs] are established pursuant to this law and other specific laws for the purpose of performing, both efficiently and effectively, those tasks and projects: that are necessary from the public perspective for ensuring lifestyle and socioeconomic stability; that do not need to be directly performed by the state itself; and either entail the risk of not being performed if left up to the private sector or need to be performed by a single monopolistic entity."

IAAs are similar to private-sector corporations in that they must compile financial statements in accordance with corporate accounting principles, and undergo audits by an auditing firm and disclose the results. They differ from private-sector corporations, however, in that the head of the agency is appointed by the governing Minister and must compile business and service documents approved by said Minister; the agency must create a medium-term business plan based on the business goals that must be achieved within a 3 – 5 year period as established by said Minister, and have the plan approved by said Minister; and the agency must be subject to review by an independent administrative agency evaluation committee established by the governing Ministry to assess the degree to which the agency has achieved its medium-term goals (3 – 5 years). Also, if provided for under separate law, the state may take an ownership stake in the agency. Unlike a government institution, however, an IAA is not subject to intervention in the details of its business as long as it is on track to meet its medium-term goals.

The new agency to be created when the GHLC is dismantled will be started on funds invested by the government, and if necessary may also receive additional government funds within the limits set forth in the budget. The new agency's long-term loans and bond issues are also eligible for government guarantees, up to the amounts set forth by Diet resolution.

The new agency's business is thus modeled after Fannie Mae in the US, although it is being launched under a substantially different format than a housing-related GSE listed on the stock market. In actual operation, however, the agency is not in principle expected to seek government guarantees on its loans and bond issues. This is because the objectives of system reform include making the financial system more efficient and reducing the fiscal burden by lowering the government's involvement in financial activity.

Also, although they are still institutions of the state, IAAs are organized in a way that makes their operation more flexible and efficient than that of traditional public institutions. The process of transforming the GHLC into an IAA has already begun with the hiring of a private-sector individual to head the GHLC from August 2005, the objective being to move away from bureaucratic management and toward a more efficient, customer-oriented operation.

The securitization of residential mortgages by the GHLC

The current setup for GHLC's securitization of its own home loans is different than the securitization through Fannie Mae and Freddie Mac in the US. The big difference is that the GHLC's credit is not necessarily rated very high. Although securities (not RMBS) issued by the GHLC have been rated AAA by R&I, a credit rating agency in Japan, they are only rated AA- by S&P. This is the same rating S&P has given to Japanese government bonds (JGBs), and in that sense suggests recognition of the GHLC as a public institution.

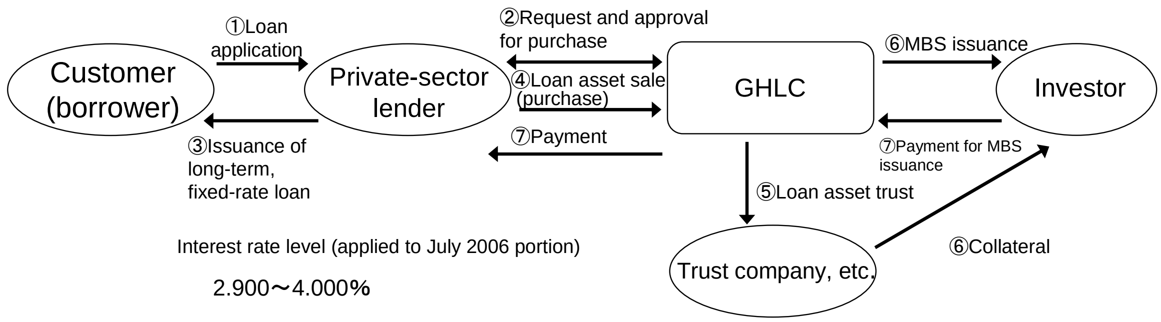
An objective look at the GHLC's balance sheet and the ongoing losses it has generated suggests that the agency would have a hard time getting an AA- rating as a private-sector lender, although since the RMBS have credit enhancements based on overcollateralization as shown below, there is a possibility of the securities receiving a rating that exceeds the creditworthiness of the GHLC itself.

Specifically, the pool of purchased loans to be securitized is assessed by the rating agency to determine the credit enhancement level (expressed as a ratio), home loan assets already held by the GHLC (past loans) of an amount equal to this ratio (which in the past has been around 0.1) are added as overcollateralization, and then the entire package (referred to below as the collateral asset pool) is entrusted to an outside trustee. Also, separate from this, existing loan assets amounting to approximately 30% of the collateral asset pool are maintained, and when loan assets within the pool fall into arrears by four months or more, they can optionally be replaced.

The credit enhancement mechanism for the GHLC's securitization of the home loan assets of private-sector lenders is the same as for the securitization of the GHLC's own home loan assets.

First, there is securitization based on outright purchase, where the GHLC purchases the home loans of private-sector lenders that meet certain standards, and then uses those loans to back GHLC bond issues (Figure 6).

Figure 6. Securitization support business (purchase type)

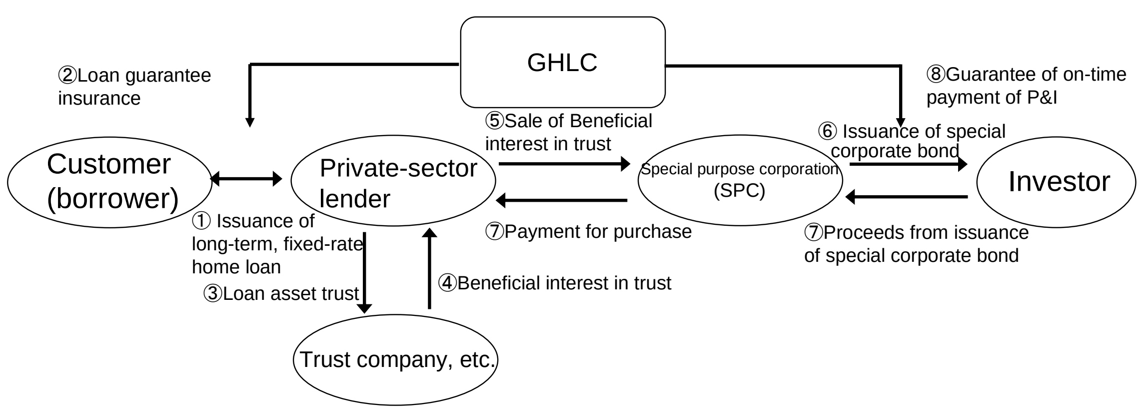


Note: Graph shows example when using trust and SPC.

An AAA rating is not going to be obtained in this case, even when issuing securities backed by loans purchased from a private-sector lender, and thus the GHLC's existing loans are used as both over collateralization and a substitute for delinquent loan assets. The GHLC conducts it securitization support services under the securitization support account, which is kept separate from the existing loan asset servicing account, and thus when using existing loan assets for the support of securitization, there is a need to transfer funds from the securitization support account to the existing loan asset servicing account, while paying into a reserve account to pay collateral usage fees and compensate for losses associated with the repossession of collateral.

With securitization based on guarantee, an RMBS issued by a private-sector lender is guaranteed via a payment by GHLC (Figure 7), but this type of securitization has yet to be used.

Figure 7. Securitization support business (guarantee type)



Note: Graph shows example when using trust and SPC.

Under both types of securitization, both purchase and guarantee, the private-sector lender receives the applications for, originates, and then services the loan. With a traditional GHLC home loan, the interest rate was the same for the same type of loan, regardless of which financial institution took the application, but with these loans predicated on securitization, the loans themselves are products of various lenders, and each lender can make its own determination of the terms to offer the user.

Although loans earmarked for securitization have been introduced prior to dismantling the old system for GHLC home loans, there are some private-sector lenders offering the new loans at interest rates lower than those on the existing GHLC loans.

This business of supporting purchase-type securitization moved quite slowly during the initial year following its launch in October 2003, primarily because during that first year there was little awareness of the program, interest rates were at zero, and there was a lack of demand for securitization on the part of private-sector lenders. The business grew rapidly after that, however, because the GHLC started discounting the business operating charge (0.9%) that it collected from private-sector lenders when purchasing their loan assets, with the discount increasing with the volume of business, and it also introduced measures that expanded the home loans that could be purchased[2], and stepped up its PR activity, all of this while the economic recovery was beginning to fuel concerns over rising interest rates. Guarantee-type securitization has yet to be used

Securitization by the GHLC is thus growing, and the business will be taken over by the new IAA set to begin operating when the GHLC is dismantled in March 2007. This has also necessitated change in the securitization mechanism.

Securitization through the new agency

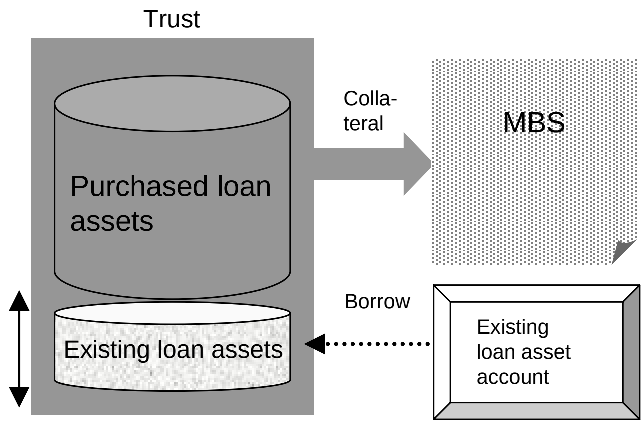
The MLIT's Housing Bureau launched an MBS market working team under its round table on housing finance in the spring of 2006 to look at ways to ensure that the securitization of home loans continues to operate smoothly during the transition to the new agency. A particularly important change is the need for a new credit enhancement facility.

As already noted, although it is possible for the agency to secure government guarantees on the bonds that it issues, this is not expected to happen under normal conditions. Also, because the agency will have the government as an investor it will not be subject to the Corporate Reorganization Act, although its commitment from the government will be no greater than was the case for the GHLC, and it is expected to continue generating operating losses for the time being. Accordingly, its standing in the credit market should be the same as the GHLC's, and like its predecessor, it will need a credit enhancement facility in order to issue AAA-rated RMBS.

As seen in the previous section, purchase-type RMBS from the GHLC used loan assets originated by that organization as overcollateralization to raise credit quality. It was also possible to replace non-performing loan assets with performing GHLC loans to maintain the quality of collateral (Figure 8).

[2] See Inoue (2005)

Figure 8. Conventional credit enhancement



Under the new agency, however, direct lending will be quite limited, while securitization support activity will continue to grow, and based on this the amount of existing loan assets is expected to gradually decline, first falling below that required to cover newly issued RMBS and finally becoming fully exhausted in either FY2007 or FY2008.

Because of this, a change now under consideration is to no longer replace non-performing loans with performing loans as currently being done, but instead have the new agency repurchase the non-performing loan from the trust and then pass the proceeds on to investors in the form of an early redemption (to be termed the repurchase approach), although this would have only a limited effect.

The following three options have been proposed as new credit enhancement facilities that the new agency could use.

First, instead of using existing loan assets as overcollateralization, use funds procured by the agency through bond issuance and loans to purchase additional home loans from private-sector lenders, and then use those loan assets as overcollateralization.

Second, use funds procured by the agency through bond issuance and loans to purchase JGBs and other highly rated assets, and then use these assets as overcollateralization.

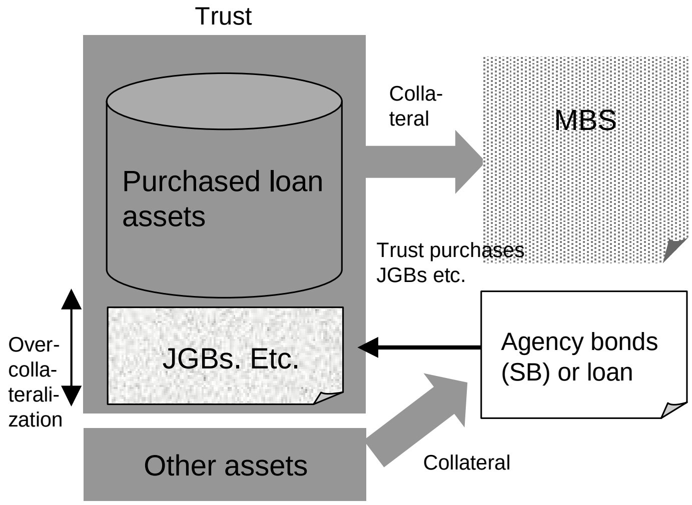
Third, rather than using overcollateralization as in the first two options, issue both subordinated RMBS and preferred RMBS with priority redemption.

Under the first option, there is ALM risk because the funds are procured normally with debt that matures in a lump sum (a bullet bond), but the loan assets purchased with those funds are home loans, which return both interest and a portion of the principal each period, and which can also be prepaid. Under the third option, the sale of subordinated RMBS on the market is difficult, giving rise to the possibility that the agency would have to procure new funds and hold its own RMBS or, if it does sell them, have to pay a high rate of interest.

Because of this, the second option (known as the structured capital method–-see Figure 9) is considered the best. By matching up the maturities of the bonds issued with the

JGBs purchased, ALM is simplified. Of course, the agency's bonds will carry a higher yield than the JGBs, resulting in a negative spread, but this is the cost of the credit enhancement. Even the current method of credit enhancement through overcollateralization using existing bonds requires payment of a collateral usage fee into the existing bond servicing account, and thus costs are also incurred under the traditional arrangement.

Figure 9. Proposed new credit enhancement



Because the second option (structured capital method) will require the use of a master trust and recognition of a self trust, it appears that the first option will be used until the system can be modified to accommodate those changes.

In the opinion of some, when the agency becomes sufficiently capitalized in the future, it should aim for being able to secure an AAA rating on its RMBS issues based on its own credit, instead of relying on overcollateralization. Under its current format as the GHLC, about ¥200 billion in capital is allocated to the securitization support account, but when considering that outstanding RMBS issuance should easily surpass ¥20 trillion in the future, this probably is not enough capital to offset future credit risk.

This explains why the MBS working team recommended increasing that capital by several hundred billion yen upon launching the new agency. It will take time, however, before capital can be built up to a level sufficient to handle the growing credit risk, and there is also a need for careful debate over the question of whether there is even a need to bear such risk to begin with. For the time being, efforts must be made to minimize these risks by, in principal, procuring the funds needed for the securitization business with pass-through bonds.

Measures to improve the RMBS market

The above change in credit enhancement facilities is the most important change for the process in which the GHLC is dismantled and the new agency takes over its securitization support duties, but the round table mentioned above has proposed a variety of measures aimed at facilitating securitization support and expanding the RMBS market. The main proposals directly concerned with the structure of the RMBS market are as follows.

(1) Change from separate trusts to a master trust

Under the current RMBS structure, the loan assets purchased each month are pooled and overcollateralized, and then a separate trust is established for the MBS issued that month. It has been proposed that the agency instead use a master trust to cover the loan assets purchased from private-sector lenders, thus providing credit enhancement that takes full advantage of diversification across the entire pool. Analysis has shown that putting diversification to work by consolidating collateral assets with a variety of characteristics into a single pool can bring the credit enhancement level down dramatically, eventually into the low single digits, particularly when the number of collateral assets reaches 20,000 and up. Accordingly, it is preferable that the agency maximizes the benefits from diversification for the wide-ranging and huge number of loan assets that its purchases from various lenders nationwide. In the case of separate trusts, ratings agencies must calculate the credit enhancement level every month, thus driving up ratings costs and taking more time.

(2) Introduce a swap program

Securitization support at the GHLC is a cash program in which the loan assets are purchased with cash, while Fannie Mae also has a swap program in which RMBS issued by Fannie Mae are used instead of cash to purchase the assets, and swaps are actually used more often than cash. The lender is able to watch market trends and choose between converting its loan assets into cash or into RMBS. Because in an increasing number of cases these RMBS wind up being sold on the market (at a more favorable timing for the lender), it appears to also be contributing to growth in the secondary RMBS market. This also makes it possible for the issuing agency to reduce the pipeline risk and underwriting fees associated with the cash program.

(3) Introduce collateralized mortgage obligations (CMOs)

The CMO is an issuance method in which MBS are pooled, their cash flows (principle and interest payments) separated into different tranches, and then converted into bonds of differing maturities. In Japan, the weighted average term to maturity is about 10 – 12 years for normal RMBS backed by newly purchased loan assets and about 7 – 8 years for RMBS backed by existing loans, and thus the primary investors in RMBS are the life insurance companies and other long-term investors.

If bonds with shorter-term cash flows than MBS can be produced using CMO, it should widen the investor base and result in a deeper and more efficient market. If the agency itself were to issue the CMO it would need to acquire considerable structuring expertise and manage the risk of being stuck with residual securities, and thus the main approach envisioned here is the resecuritization business, in which the agency supports the process whereby a securities company purchases MBS and issues CMO in an arbitrage trade.

Structuring a CMO requires separating the cash flow from the RMBS into two products, principal only (PO) and interest only (IO), which are used in the US as hedging tools for RMBS investments. There is a need to address the accounting treatment and tax implications for these products in Japan, particularly for IOs.

(4) Standardize RMBS

To invigorate the secondary market and hedge transactions, it would be preferable to push for more standardization in the market, by for example limiting RMBS to only certain maturities, say 35 years and 20 years, and by changing the coupon increment, currently at 0.01%, to a wider increment such as 0.5%.

(5) Introduce TBA transactions

TBAs (to be announced) are a type of RMBS futures trading in the US in which the price is determined ahead of time based on certain basic terms of the RMBS such as maturity and coupon, even when the underlying pool of assets is not specified. This makes it easier to set the terms of a home loan, and also makes it easier for short-term investors to participate. TBAs can also be used to hedge pipeline risk.

(6) Introduce repurchase agreements and dollar rolls

A repurchase agreement is a transaction lasting for a set period between a party that needs bonds and a party that needs funds. From the perspective of the lender of the bond (the receiver of funds), the repo enables funds procurement at a lower interest rate by offering its bonds as collateral, while from the perspective of the borrower of the bond it is either a way to invest funds or a means of temporarily procuring a bond backed by cash. After a certain time period has elapsed, the same bond that was borrowed is returned to its owner. If instead of the same bond, a bond of the same type is returned, it is termed a dollar roll.

This type of transaction is also common in government bonds markets, and provides an important sub-market within short-term money markets for meeting both the short-term funding needs of investors in long-term bonds and the short-term investing needs of asset managers. The existence of such a market facilitates the procurement of long-term funds and makes the financial market more efficient.

(7) Revise guarantee-type securitization

As noted earlier, there has not yet been any securitization support based on guarantee. One reason for this is that as the scale increases, securitization based on purchase becomes more advantageous to the originator, and the cost of the guarantee becomes more expensive. Another reason is that most of the residential mortgage securitization currently handled by private-sector lenders is based on selling the home loans directly to investors in the form of a trust, without using a special purpose corporation (SPC) to convert the beneficial interest in trust acquired by the private-sector lender into a bond. The Government Housing Loan Corporation Law allows for guaranteeing a bond, but not for guaranteeing a beneficial interest in trust.

A lowering of loan insurance premiums and guarantee fees has been proposed, but there is currently a debate over whether this type of securitization should be supported, since it involves providing guarantees for beneficial interests in trust that themselves are not very liquid, and because the real purpose of establishing the agency is to improve the housing finance market by expanding and increasing the efficiency of the RMBS market, including the secondary market.

Japan's RMBS market expected to grow for the time being

The securitization of GHLC home loans has grown rapidly in only a few years, but even with a new agency taking over the task of supporting this securitization, it seems likely that this rate of growth can be sustained over the medium term. To begin with, demand for home loans is expected to remain firm for the time being. It is possible that the lifting of zero interest rates in July 2006 may dampen demand from borrowers somewhat, but interest rates remain at historically low levels. Additionally, although Japan's population continues to both decline and age, once the baby boomers begin to retire en mass from April 2007, the demand for funds to improve the quality of housing is expected to remain firm for a while. This demand includes moving to a new home, remodeling an existing home, and otherwise accommodating lifestyle changes.

Second, only 25% of home loans are currently securitized, counting both existing GHLC loans and home loans originated by private-sector lenders, versus over 60% in the US. With the end of the zero interest rate policy in July 2006, financial institutions will now have to better at handling interest rate risk, and securitization is likely to be viewed as a more important option than before. Also, the agency will continue with the securitization of existing loans begun by the GHLC, and early redemption of funds to the FILP is planned.

Third, as noted above, the introduction of various types of improvement plans aimed at expanding securitization through the agency is planned. Although it is true that private-sector lenders can securitize home loans on their own, it is also true that if the agency takes the initiative, it is better positioned for pushing reforms aimed at facilitating securitization and providing the infrastructure for educating borrowers and investors alike, since it can more easily gain the understanding and cooperation of market participants based on its status as a public institution, and it can also benefit from economies of scale. Although criticism over this as an expansion of the bureaucracy is unlikely to go away, the GHLC's nearly complete exit from the home loan market has already achieved a fairly substantial contraction in the bureaucracy from the perspective of private-sector lenders. From the taxpayers' perspective, the establishment of the agency should herald a substantial improvement in organizational efficiency, while the move from a direct lending business that consistently generated losses to a securitization business that can actually generate income should lead to a welcome reduction in subsidies from the general budget. Accordingly, there has so far been little opposition to expansion of the agency's securitization business.

The agency will complete its first intermediate target period as an independent administrative agency at the end of FY2011, by which time many of the improvement measures noted above are expected to have been implemented. The annual securitization of approximately ¥2 trillion that is required to erase the agency's deficit is also expected to be well on track by then. Consequently, by the end of FY2016, when the second intermediate target period comes to an end, the amount of agency-issued RMBS outstanding in the market it expected to exceed ¥20 trillion, making it an alternative within the securities market that investors cannot afford to ignore.

It is possible that the recent growth in the RMBS market will accelerate further. This is because of increased economies of scale and improved market efficiency, as well as the growing importance of RMBS to investors as the securities account for a greater share of market indices and become increasingly important components of portfolios. Investors include private-sector financial institutions. In a growing number of instances, lenders will determine that investing in RMBS is more efficient, and provides more liquidity, than writing residential mortgages and holding them as loans on their books. In step with growth in the market has been an expansion of the market for RMBS-specific investment analysis and risk management software, as well as various other types of information and infrastructure of analysis, and this has further accelerated the market's growth.

Assuming there are concerns over the above, if lenders prefer their own home loans, there is a possibility that mortgage lending predicated on purchase by the agency will not increase. The home loans purchased by the agency are long-term, fixed-rate mortgages, but private-sector lenders are aggressively going after mortgages with shorter terms. Competition among private-sector lenders is fierce, and it appears that in some instances they are making loans at interest rates that are so low as to be difficult to justify economically. Accordingly, it is conceivable that consumers who take out home loans will prefer the private sector's proprietary mortgage deals over the type meant for purchase by the agency.

Although these concerns cannot be dismissed, there is still a strong possibility that home loans predicated on securitization will become more attractive than they are now as a result of agency-led efforts to reform the system and make the RMBS market even more efficient.

The leadership of public institutions in forming and developing the market has been a catalyst for Japan's RMBS market, which is likely to become a very large market. Once the market becomes sufficiently large and the agency has fully exploited its role, maybe by around 2020, it may be time to seriously question the need for such a public institution.

What growth in the securitization market brings: the US experience

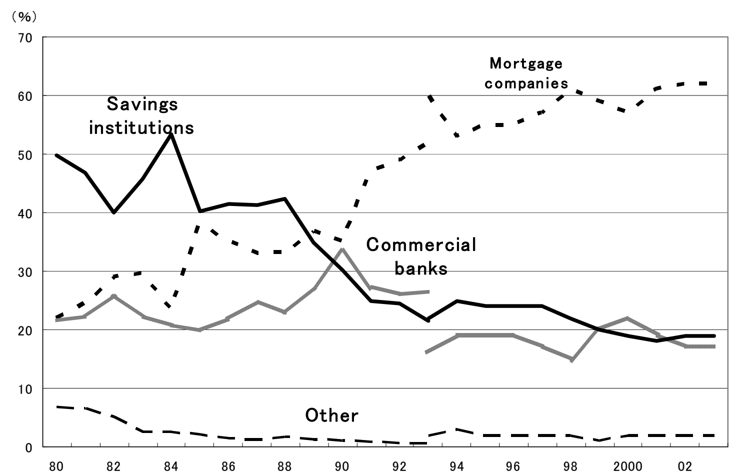
Before considering the long-term prospects of the agency and Japan's RMBS market, it is a good idea to look at what happened in the US as its market for securitization of residential mortgages developed.

The first aspect worth noting is the structural change in the financial industry caused by expansion of the securitization market.[3] Stated briefly, securitization encouraged both the trend toward fewer and larger financial institutions as well as the specialization of functions. In the US, the S&Ls used to have a dominant share of the home loan origination business, but that share is now considerably lower, as shown in Figure 10. Meanwhile, although companies specializing in residential mortgages have

[3] See Inoue (2005)

emerged, they are largely subsidiaries of large financial institutions. This is because the increased use of securitization and commoditization of loans that has occurred since the 1980s has made the origination of home loans a high-volume, low-margin business. The pooling and securitization of small home loans has necessitated greater standardization of the subject loans. This standardization of home loans makes it more difficult for lenders to differentiate their product and promotes price competition, thereby giving an advantage to the leading lenders based on the larger scale of their businesses.

Figure 10 Lender share of home loan originations in the

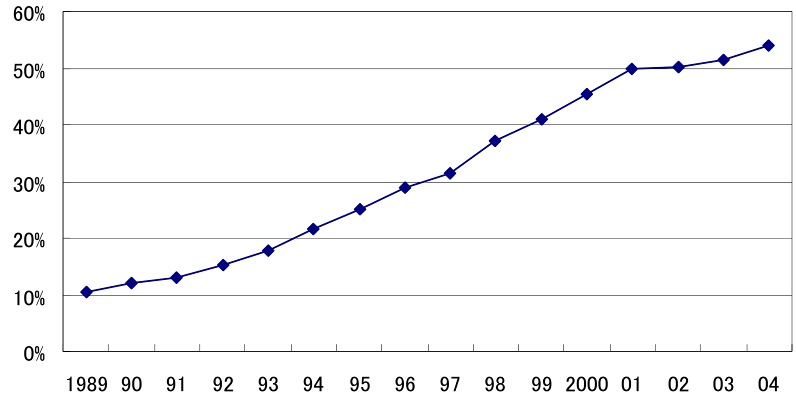


Note: Some figures not continuous owning to changes in survey population

Source: Nomura Institute of Capital Markets Research, based on data from the U.S. Department of Housing & Urban Development and the Federal Reserve Bulletin of September 2004

The increased use of securitization also creates the need for new risk management expertise. When a lender securitizes home loans it is able to transfer risk to investors, but when it continues to service the loans, it bears the risk of the future cash flow from servicing fees disappearing as a result of prepayment. In the US, these mortgage servicing rights (MSR) must be fairly valued when recorded as an asset, but it has become increasingly difficult to ignore the impact on the earnings of US lenders from changes in that asset's value caused by interest rate fluctuations. This is related not only to the strength of the home loan business for US financial institutions in recent years, but also to the ease with which borrowers can now obtain information on refinancing and interest rates as a result of information technology. Because of the high degree of skill needed to manage MSR risk, the home loan-related business has tended to concentrate at the home loan specialists affiliated with the major banks that have those skills (Figure 11).

Figure 11 Transaction share of ten leading servicers in US



Source: The 2005 Mortgage Market Statistical Annual

Securitization has also promoted specialization within the financial industry. The sale of a home loan to a potential borrower used to be handled by the lender's employee, but in recent years mortgage brokers have emerged to increasingly handle this task. It is also common for the smaller lenders to sell their home loans to the leading lenders as is, in the form of a loan. The major lenders focus their resources on segments where they can leverage economies of scale, and that has allowed specialized financial institutions and smaller lenders to play a more important role in the sale of mortgages that require contact with individual borrowers.

While the trend has been for smaller lenders to own less of the loan assets that they originate themselves, their ownership of RMBS is increasing. In other words, financial institutions are transforming themselves into institutional investors.

In any case, the role of owning and securitizing home loan assets is becoming increasingly concentrated among the leading financial institutions.

Another interesting development in the US is the growing criticism of the GSEs. This can be attributed both to changes in the environment surrounding the GSEs and to changes in the nature of the GSEs themselves. There has long been criticism leveled at the existence of a tacit government guarantee on the bonds issued by GSEs as well as incentives including exemptions from state and local corporate income taxes, which subvert fair competition with purely private-sector lenders, and there has also been criticism of the risks associated with the market treating bonds issued by the GSEs has having a government guarantee, even though the bonds are not in fact guaranteed by the government.

Since the end of the 1990s, however, the criticism has been particularly strong over the fact that Fannie Mae and Freddie Mac have not only been handling the securitization of conventional mortgages, they have also begun securitization in other mortgage segments, purchased existing RMBS and issued CMO, and expanded their assets, both on- and off-balance sheet, as a result of their increased use of derivatives to manage risk. This has heightened the GSEs' influence and increased their issuance of securities, while the US Treasury Department has reduced its issuance of securities, resulting in GSE bonds accounting for a rising share of the bond market, a large portion of which are held by private-sector lenders. This in turn has created concerns over systemic risk.

These issues were summarized by Wallison and Ely (2000), and there was also debate in the House of Representatives at the time, with a bill proposed by Representative Richard Baker and others[4]. Broad-ranging accounting irregularities subsequently came to light at Freddie Mac in 2003 and at Fannie Mae in 2004, further fueling criticism of the GSEs.

One of these irregularities was the accounting treatment given derivatives used in hedging transactions, even though there is really no need to use such derivatives in a straight securitization. Nevertheless, this aggressive use of derivatives and other advanced transactions is a natural outcome of the two GSEs pursuit of profits as private-sector corporations, as well as part of the process of making the RMBS market more user-friendly and efficient. The question is whether the organizations had the expertise and internal controls required, whether the framework for outside supervision was sufficient, and whether the current status of the GSEs is suitable, for those types of transactions.

The two GSEs grew further in size from 2000 until 2005, coinciding with the time when concerns over systemic risk became a bigger issue and when critics were calling for limits on the GSE's assets.[5]

Nevertheless, despite these critical problems having been pointed out, it is clear from the large number of reform proposals since 2000 that have failed passage by Congress that the housing-related GSEs enjoy very strong political support.

The future of Japan's GSE

Although it is instructive to look at the situation in the US as described above when contemplating the future of the agency after the RMBS market has developed, it is also important to keep in mind the three relevant factors in which Japan differs from the US. These factors are 1) the decline and aging of Japan's population, 2) the serious nature of Japan's fiscal deficits even when viewed from a long-term perspective, and 3) the fact that private-sector lenders have already been quite active in securitizing their own home loan portfolios.

It would be difficult to argue that there has been no direct impact from Japan's declining and aging population. The decline in population should reduce demand for housing in absolute terms, and therefore reduce the importance of home loans. Japan's

[4] Housing Finance Regulatory Improvement Act

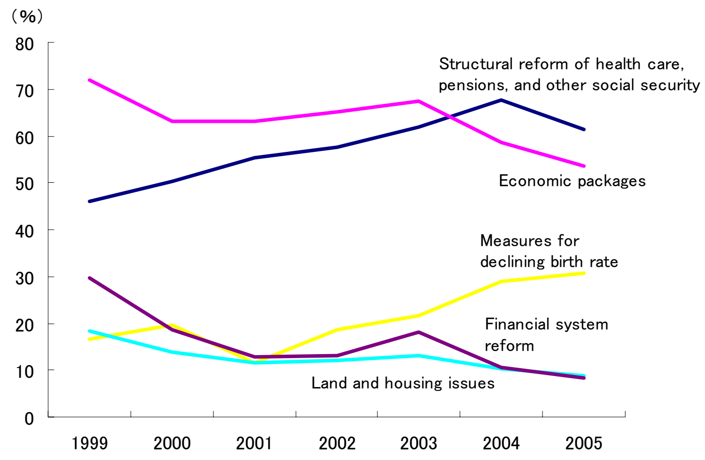
[5] Wallison, Stanton and Ely (2004) provides a summary of the recently cited problems with the GSE and proposes reforms.

population already started to decline in 2005, and the more pessimistic forecasts call for the population to decline from the current level by more than 5 million by 2020, and by another 8 million between 2020 and 2030.[6] Furthermore, the aging of the population should result in a relative decline in the number of homeowners who elect to finance their homes with a long-term mortgage. The percentage of the population aged 65 and over was 19.9% in 2005, the second highest in the world behind Italy (20.0%), but Japan is expected to overtake Italy as the world's oldest population very soon, with seniors on track to comprise 27.8% of Japan's population by 2020.[7] The baby boomers[8] who drove the robust demand for housing finance in the 1980s will begin retiring in large numbers from April 2007, and will be in their 70s in 2020.

The indirect impact on public policy from a declining and aging population will be a reduction in the importance of housing finance policies as well as housing policies in general. Improvement in the health care system and in nursing care facilities will become increasingly important elements of public policy. Accordingly, there seem to be natural constraints on demand for what the agency does. Because of this relative decline in the status of housing policy, we expect it to become increasingly difficult to obtain political support for attempts to expand the agency's role.

Figure 12 shows the five categories in which there was a major change between 1999 and today in the percentage of positive responses to a Cabinet Office survey asking citizens what they wanted from their government. As the figure shows, demand for measures to deal with the declining birth rate and to pursue structural reform in health care, pensions, and other components of social insurance has grown rapidly, while the citizenry has become less interested in dealing with land and housing issues, to go along with its lower level of interest in economic packages and reform of the financial system.

Figure 12. What citizens want from government (survey results)



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[6] Forecast by the National Institute of Population and Social Security Research. That said, until now the decline in both the birth rate and the population has been proceeding at a faster pace than the Institute's pessimistic forecast.
[7] White Paper on Aging Society
[8] In Japan, the baby boomers are the generation born between April 1947 and March 1949.

Source: Cabinet Office, Public opinion poll on lifestyle

Although the lack of continuous data makes accurate comparisons impossible, in response to the question of "what single issue would you like to see the government focus its efforts on?" in a 1967 survey, the leading answer was inflation, followed by cutting taxes and then, and in third place, dealing with housing and land issues. In contrast, the top three issues for 2005 were structural reform in health care, pensions, and other components of social insurance, economic packages, and measures to cope with the aging population. Housing and land issues dropped way down in importance, all the way to 22nd on the list.

Next is the problem of fiscal deficits, but with Japan now debating whether it can achieve primary balance by FY2011, even if it does meet that goal, heading toward the middle of the 2010s, it will have to start reducing its outstanding public debt as a percentage of GDP (which stood at 158.9% at the end of 2005).[9] Although the aging of society tends to promote bigger government, the problem of fiscal deficits should continue to provide a counterweight to this tendency. In such an environment, it will probably be difficult to increase public support for expanding the agency's role.

The third difference with the US is that the securitization of home loans by the private sector is already quite active in Japan. A further bolstering of the securitization infrastructure by the agency will reduce the need for the private sector's own securitization efforts, but the agency's efforts improve the infrastructure, to include improving investors' understanding of the securitization market, should also have a positive impact on private-sector securitization. Private-sector lenders have a head start on the agency in acquiring securitization expertise, and thus it seems likely that securitization by the private sector will continue to be active.

We next try to form a long-term outlook for the agency, while keeping in mind the differences noted above. One thing the US experience has taught us is that if the agency is allowed to self regulate like the private sector, its efforts to improve the RMBS market and increase earnings will inevitably lead to an expanded balance sheet, greater use of derivatives, and increased leverage. The lesson from the US is that if the agency continues to receive GSE-like tacit government guarantees and special treatment, the size and scope of the agency's business may increase to the point where systemic risk becomes a concern.

The agency's goal at this point is to expand its securitization business and eliminate its deficits, but an interim goal prior to that should be for it to obtain high ratings on the RMBS that it issues on the strength of its own credit, without resort to overcollateralization. Nevertheless, we do not think that facilitating this activity by increasing the government's equity in the agency and expanding the scope of the business while leaving the government's commitment unchanged, would lead to the same results as with the US GSEs, given the expected decline in the importance of housing policy and the inherent fiscal constraints in Japan, unlike in the US. It seems

[9] Council on Economic and Fiscal Policy, Basic Policies for Economic and Fiscal Management and Structural Reform 2006 (July 7, 2006)

more likely, in fact, that there will be increasing calls to reduce the government's involvement in the agency to the maximum extent possible.

In that case, it is conceivable that the agency, rather than rely on government funding and commitment, will opt to achieve substantial growth as an institution specializing in securitization through the process of privatization and increasing its private-sector funding sources. Some observers apparently think that this describes the agency's future. There are also some who think that becoming a listed company like Fannie Mae will be the natural course of evolution.

Only time will tell whether the agency will develop in this direction. First, as time goes by Japan's population will have less children and a greater number of elderly, a process that will probably cast doubt over the future of a private-sector corporation specializing in supporting residential mortgage securitization, and may also present a barrier to that corporation's privatization and stock market listing.

Second, as time goes by it is conceivable that home loan assets will gravitate to the major financial institutions, as has occurred in the US. The result would be that these now larger private-sector financial institutions would be expected to handle securitization more efficiently on their own than previously.

As noted above, in Japan it was the GHLC that took the lead in securitizing the home loans of private-sector lenders. The leading financial institutions have also accumulated substantial expertise in the management of risk related to securitization, while they face few constraints in the use of derivatives and other advanced financial transactions. For these reasons, securitization by the private sector should be able to grow even more easily in Japan than in the US.

As long as the agency benefits from strong credit as a government agency receiving government funding, gets favorable treatment for its RMBS under BIS standards (credit instruments issued by government-affiliated financial institutions carry a risk weight of 10%), and is subject to favorable information disclosure terms, we think there will still be some advantages for private-sector lenders to do their securitization through the agency. If the agency becomes a private-sector corporation, however, these special incentives will disappear, making it likely that the agency will become nothing more than a competitor to the leading financial institutions. Accordingly, we think demand for the agency's support of home loan securitization will decline.

Based on the above, if the agency opts for complete privatization, it needs to do so as soon as possible in order to maintain its position as an institution specializing in providing securitization support that is more efficient and more advanced than the securitization done through the major financial institutions, and the key to the agency's success is whether it can develop a business strategy that can adequately cope with the expected decline in demand over the long term

If this does not go well; that is, if the agency privatizes completely and finds it difficult to operate as a completely private concern as in the case of Fannie Mae, there are probably two possible outcomes regarding the agency's future.

The first is one in which the nature of the agency is not much different than it is now, and it continues performing its function of supplementing the private sector as a government agency. Although additional capital injections from the government are unlikely, the company should be able to enhance its capital base endogenously through growth of its securitization business, which should allow for a certain degree of growth in the size and scope of its operations. By remaining a government agency, it can continue taking advantage of the credit strength and special treatment unavailable to the private sector, and without the need to pursue earnings growth as a private-sector company, it should be able to maintain a low-cost operation. Accordingly, even if the major private-sector financial institutions invigorate their own securitization businesses, securitization through the agency should always remain a viable option. With limits placed on its growth and a commitment to supplementing the private sector, the agency should not become a giant enterprise in which systemic risk and fair competition become issues, but instead become a "good" GSE.

A second possible outcome is that instead of the agency being privatized as a whole, it can be merged with, and become a division of, a private-sector bank. If home loans gravitate to the major financial institutions and those institutions are able to effectively handle the securitization business, the whole idea of the government continuing to fund the agency and grant it special status will be increasingly called into question. The agency's future viability would be suspect if it remained an entity specializing in securitization, but it should have room to survive and grow if it operates as the securitization arm of a major financial institution. In this case, acquisition of the agency may not be a very attractive proposition for a financial institution that already has its own securitization business. It probably would be attractive, however, to a second-tier lender without an adequate securitization business of its own.

One potential candidate for such a merger is the Yucho Bank. As a part of the postal business reforms, the Yucho bank will be established in October 2007 to take over the postal savings business that has historically been operated by the government. Initially, the Yucho Bank was to be a wholly owned subsidiary of the holding company Japan Post (which itself has started out wholly owned by the government), but Japan Post will sell its shares until the Yucho is completely privatized by September 30, 2017.

As explained earlier, the country's postal savings business used to play a critical role procuring funds for the FILP by absorbing personal savings and then distributing those funds to the GHLC and other government-affiliated financial institutions, and thus did not have its own lending function. The concept behind converting the Yucho Bank into a private-sector bank, however, is to leverage the vast presence with the general public that was its legacy by developing it into a family bank. It is only natural for residential mortgages to become a critical business segment at a family bank. Although it is unacceptable for a wholly public owned institution to pursue business growth that competes with the private sector, the start of such a business is conceivable if the government's share in that institution is sold.[10]

[10] Japan Post, a company created to orchestrate postal privatization and set to serve as the holding company for Yucho Bank for a certain period following privatization, submitted the outline of its plan to implement the succession of Japan Post's services to the Prime Minister and the Minister of Internal Affairs and Communications on 31 July 2006. According to this plan, Yucho Bank will list its shares no later than during the fourth year following its privatization, which is during FY2011, and Japan Post shall sell all of its holdings during the five years following that. The residential mortgage business was listed as a new business scheduled to be introduced following privatization.

If Yucho Bank increases its home loan portfolio, the next step would probably be an attempt to increase its ability to handle securitization on its own. At this point, a merger with what will be the former FILP agency is probably a strong possibility.

If the second outcome is realized, Japan's housing finance GSE will, after ably demonstrating its capabilities in a transitional role, pass its assets on to a private-sector bank.

Under either of these potential outcomes, the agency, by taking full advantage of the fundamental discipline imposed by Japan's problems of fiscal deficits and a shrinking and aging population, should be able to avoid the major problems surrounding the US GSEs while contributing to growth in the securitization market for residential mortgages. The financial innovation that is home loan securitization could wind up playing a historic role in normalizing a Japanese economic system in which public institutions in the finance arena have occupied important ground.

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