How has Japan Housing Finance Agency's Flat 35 affected regional housing loan markets?

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1. Introduction

Under the slogan of "from Public to Private Sector," reforms of special public corporations are being actively implemented. The aim of such reforms is to leave what the private sector is capable of doing to that sector, according to the rules of the market economy, with the government's roles strictly confined to complementing private businesses. Government-affiliated financial institutions are also being reformed with the same aim. The first target of such reforms has been the then Government Housing Loan Corporation (GHLC), now the Japan Housing Finance Agency (JHF)[1)].

As detailed later, the JHF basically withdrew from housing loan services when it was still the GHLC, and has since been an organization that helps private financial institutions to provide housing loans smoothly. Specifically, it engages in the securitization business for a housing loan product with a long-term, fixed interest rate called the Flat 35, so that private financial institutions can provide that loan smoothly. Direct housing loans introduced by the GHLC were provided with across-the-board interest rates at every financial institution that sold them. On the other hand, for the Flat 35, financial institutions that sell housing loans are allowed to set their fee portions of interest rates at their own discretion.

In a private sector-led market, which Japan aims to establish, there should be fair price competition on the basis of market principles. Take the Flat 35 as an example. Price competition should exist for fee portions of interest rates across the country. If markets for the Flat 35 are formed on a region-by-region basis (e.g., prefecture by prefecture), and a small number of private financial institutions in each region decides the fee portions of the Flat 35's interest rates in an oligopolistic way, it will be inconsistent with the purport of the slogan "from Public to Private Sector." It will then be necessary to reconsider the current system, whereby public institutions are restricted to the securitization business, in order to provide good housing loan services.

If it is found that the interest rates of the Flat 35 are decided by free competition in the national market, this will make some suggestion about the way that the services of other government-affiliated financial institutions should be implemented. For example, if the market principles work well for the decision on interest rates of the Flat 35, it will mean that securitization functions work well as an alternative to direct financing. Then a proposal for expanding the securitization business by government-affiliated financial

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1) The GHLC became an incorporated administrative agency, and was renamed the JHF in April 2007.

institutions to other loans provided by private financial institutions would be worth considering. The Administrative Reform Promotion Law, enacted on May 26, 2006, requires that the Japan Finance Corporation for Small and Medium Enterprise, for example, withdraw from general loans but restrict itself to special loans designed for certain policy objectives. If, however, private financial institutions behave in an oligopolistic way in their own regions in the provision of the Flat 35, they may do likewise in the provision of loans for small or medium enterprises. Then the direction of current reforms should be reconsidered.

This paper tests the hypothesis of regional segmentation of the market for the Flat 35 that was developed as the mainstay of the securitization business of the then GHLC, with a view to providing material to be used for evaluating whether the current reforms of special public corporations are a move in the right direction[2)]. More specifically, the techniques used by Kano and Tsutsui (2003), and Yamori and Kondo (2005), are used to determine whether the market for the Flat 35 is consolidated into one nationally, or whether it is regionally segmented[3)].

The rest of this paper is structured as follows. Section 2 describes the characteristics of the Flat 35 as a financial product, and considers changes in the variance in the interest rates of the Flat 35 over time. Section 3 determines whether the market for the Flat 35 is segmented by prefecture by analyzing the correlation coefficient for regional banks' interest rates of the Flat 35 and estimating a supply-demand equilibrium for the Flat 35. Finally, section 4 presents some conclusions and discusses a suitable system for the Flat 35.

2. Characteristics of the Flat 35 as a financial product, and changes in interest rates

(1) JHF's securitization business and the Flat 35

(i) Characteristics of the Flat 35 as a financial product

In the Diet session of June 2003, the then GHLC Law was revised, by which it would launch a securitization business. The Flat 35 was created within the securitization business of the GHLC. This sub-section outlines that securitization business, and describes the characteristics of the Flat 35 as a financial product.

The securitization business of the JHF consists of two programs: purchase and guarantee, as provided by the GHLC. In the purchase program, the JHF purchases housing loans from private financial institutions, etc., and issues mortgage backed securities, MBS, to help private financial institutions, etc., provide housing loans with long-term fixed interest rates. In the guarantee program it guarantees that investors in securities, backed by mortgages with long-term fixed interest rates provided by private financial institutions, will receive payment of the principal and interest by due dates with credit enhancement, through the housing loan insurance system.

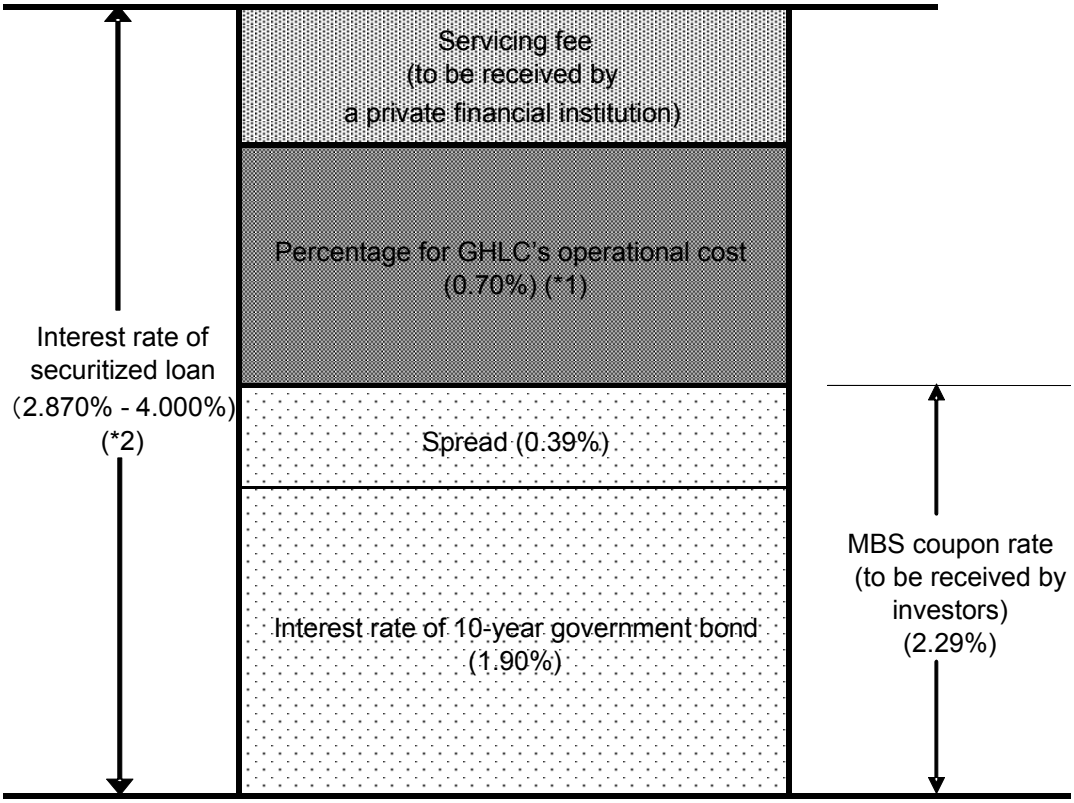
In October 2003, private financial institutions commenced selling new housing loan products with long-term fixed interest rates (which are now called the Flat 35), the terms of which are a maximum of up to 35 years. Before that, private financial institutions had to take credit and interest risks on long-term fixed rate housing loans on their own; however, the Flat 35 has made it possible for them to share such risks with the GHLC, or now the JHF, and investors by means of the purchase program of its securitization business. That has made it easier for them to provide long-term fixed rate housing loans.

The interest rate of the Flat 35 is set as the total of the coupon rate of MBS issued by the JHF, the JHF's prescribed operational cost, and a financial institution's fee, decided at its own discretion (the servicing fee in Figure 1). Accordingly, the interest rate of the Flat 35 provided by financial institutions

[2)] Other analytical studies on the effects of reforms to the housing loan market on housing loan customers include Yamori and Kondo (2004a,b).
[3)] Prior studies that have tested a segmentation hypothesis for financial markets on the basis of interest-rate data, include Keeley and Zimmerman (1985), and Jackson (1992). Refer to Yamori and Kondo (2005).

differs among them. That is the major difference between the JHF's operation and the GHLC's direct loans.

【Structure of interest rate of securitized loans (as of May 2006)】



*1: In June 2005, pipeline risk management cost was lowered by 0.20% by using the reserve fund for interest risk. In April 2006, it was lowered further by a maximum of 0.15% according to the contribution to the entire business and the growth rate of the business in amount.
*2: This was applied in May 2006.

Source: Material from the GHLC

Figure 1　Structure of the interest rate of securitized loans

(ii) Movement to promote the securitization business

To further promote the securitization business, the characteristics of the Flat 35 as a financial product have been reconsidered. For example, in 2005, the purchase program was improved as follows: (1) the upper limit of loan amounts was raised from 50 to 80 million yen; (2) the upper limit of construction cost was revised to include 100 million yen (the former limit was less than 100 million yen); (3) the requirement of the upper limit of floor area (280 m^2) was abolished; (4) the requirement of the time since construction for old houses (i.e., 10 years or less) was abolished; (5) the lower limit of the repayment period was relaxed from 20 to 15 years (if an applicant is 60 years old or more when his or her application is received by a financial institution, the lower limit of the repayment period is set at 10 years, and the upper limit of his or her age at

the time of completion of repayment is set at 80); (6) residents of families/relatives were added in the program's coverage; (7) a system was created whereby private financial institutions' loans provided with the Flat 35 were covered by housing loan insurance; (8) the use of the Flat 35 in combination with a special loan under the Workers' Asset Building Programs (*zaikei yuushi*) was permitted; and (9) interest rates offered for barrier-free houses or those with higher energy efficiency or quake resistance, were lowered[4)].

Table 1 shows changes in the costs of the securitization business. It suggests that both the budget and the number of houses have been increased annually, to encourage the use of the service.

Table 1 Changes in costs of the business

	FY2004	FY2005	FY2006
Purchase program	70,000 houses (1.4 trillion yen)	90,000 houses (1.8 trillion yen)	110,000 houses (2.2 trillion yen)
Guarantee program	10,000 houses (0.2 trillion yen)	10,000 houses (0.2 trillion yen)	10,000 houses (0.2 trillion yen)
Total	80,000 houses (1.6 trillion yen)	100,000 houses (2.0 trillion yen)	120,000 houses (2.4 trillion yen)

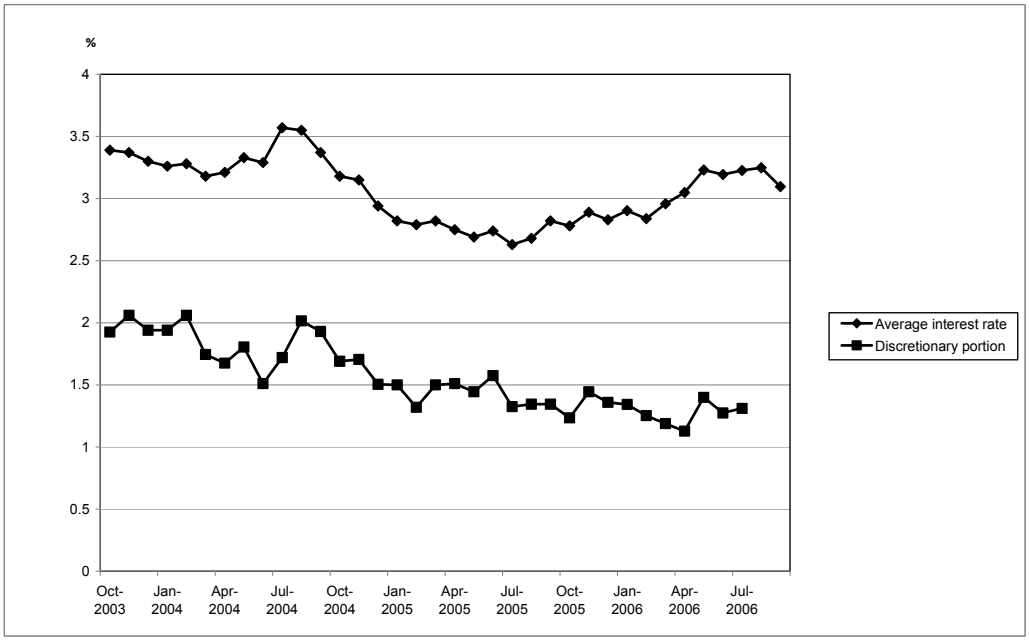
Source: The GHLC's website

(2) Changes in interest rates

This sub-section studies how the levels and variance of interest rates of the Flat 35 have changed over time. Figure 2 shows changes in the simple averages of the interest rates of the Flat 35, and the portions of such rates decided by financial institutions as their fees (hereinafter referred to as the "discretionary portion") from October 2003 through September 2006.

The above-mentioned fee portions, however, could not be obtained in the form of actual data. Therefore, they were calculated as follows: The data used in the calculation were those of the GHLC, so, for the purpose of this sub-section, the JHF is referred to as the GHLC. As shown in Figure 1, the interest rate of MBS issued by the GHLC is the interest rate of a long-term government bond, plus a spread. The spread reflects the credit risk and liquidity risk of the GHLC, so it was assumed that this does not change in the short term. Consequently, the portion that corresponds to the cost of private financial institutions should be linked to the interest rate of the government bond. The remaining portion, therefore, of the simple average of interest rates of the Flat 35, with the portion for the cost of the GHLC's business operation and the market yield rate of a newly issued long-term (10-year) government bond being deducted, will be referred to as the discretionary portion. In case of Figure 1, the discretionary portion is calculated as described above, with 0.39% (the spread of the GHLC) being deducted as the actual fee of a private financial institution. The GHLC's business operation cost, which was gradually lowered as mentioned in the note in Figure 1, is assumed to be 1.05% through May 2005, 0.85% between June 2005 and March 2006, and 0.7% from April 2006.

[4)] Of these points, improvements (1) - (7) were implemented in the guarantee program as well.

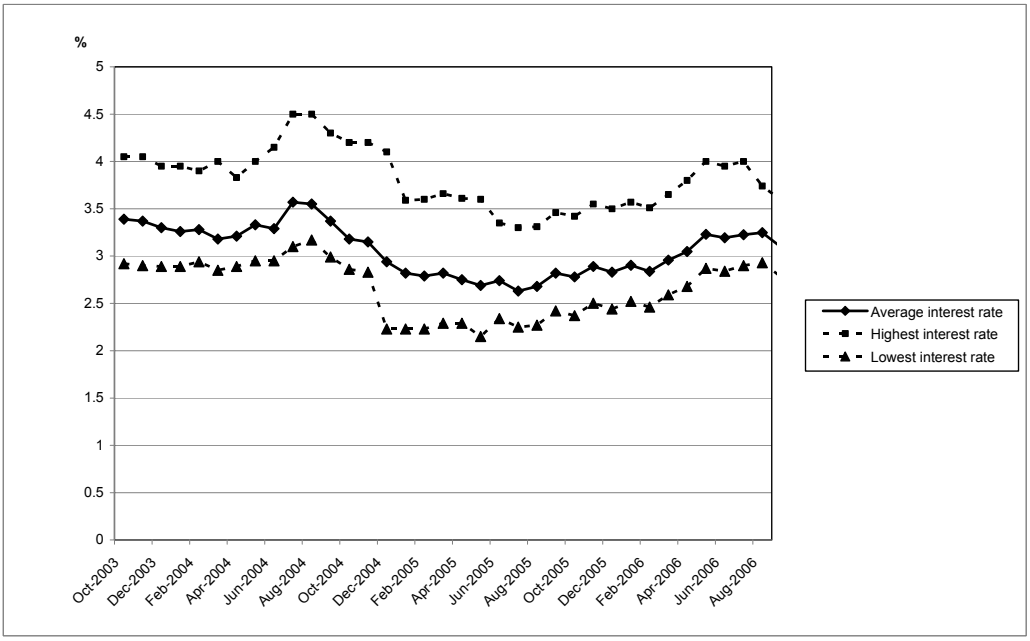


Note: This figure was prepared by the authors on the basis of data on the homepages of The Bank of Japan and the GHLC.

Figure 2　Changes in interest rates

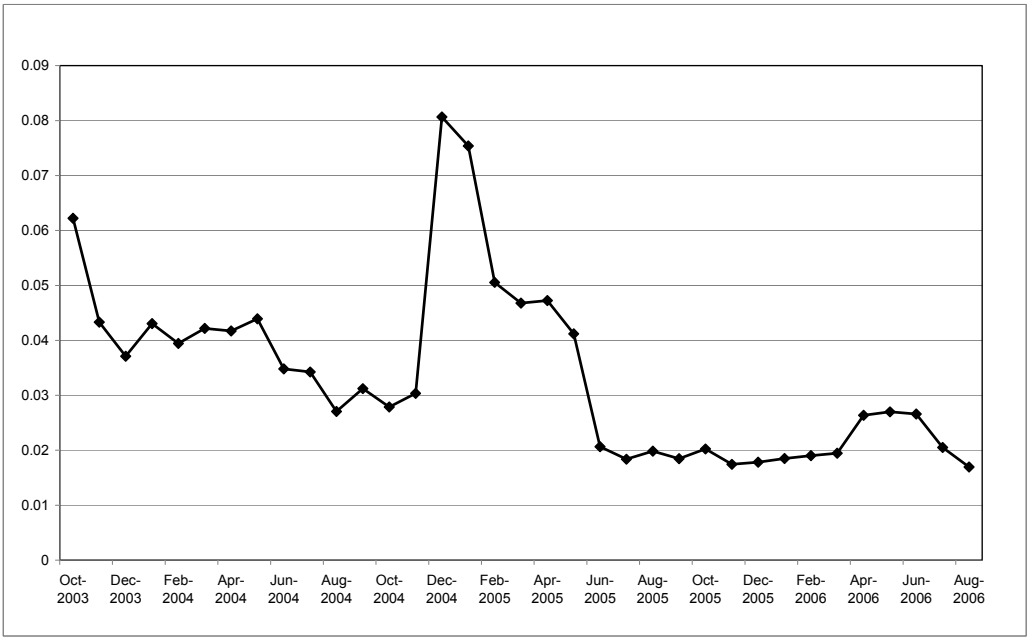
The simple averages of interest rates (i.e., the average interest rate in Figure 2) fell below 3% in December 2004, and then remained low. In April 2006, when The Bank of Japan's quantitative monetary easing policy was removed, it returned to above 3%. On the other hand, the discretionary portion (i.e., fee portion) shows a declining trend with some fluctuation. It changed within a range of 0.5%–1.0% until November 2004 (with some exceptional months), but fell below 0.5% in December 2004 and then remained there. This suggests that the simple average changed almost in linkage to the macroeconomic environment and monetary policies, but that there might be competitions for a price reduction in the fee portion among financial institutions.

Next, changes in the variance of interest rates of the Flat 35 are discussed. Figure 3 shows changes in the simple averages, the highest rates and the lowest rates. Figure 4 shows changes in the variance of such interest rates, calculated on the basis of available monthly data.



Note: This figure was prepared by the authors on the basis of data on the homepage of the GHLC.

Figure 3 Changes in the highest and lowest interest rates of the Flat 35

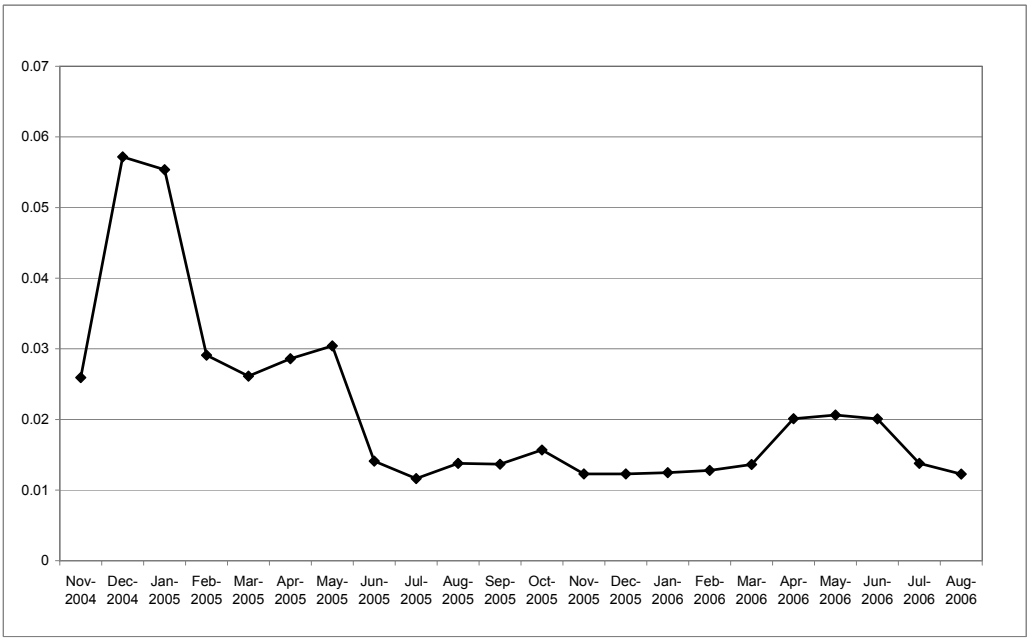


Note: This figure was prepared by the authors on the basis of materials provided by the GHLC and data published in the *Monthly Report on Housing Loans.*

Figure 4 Changes in the variance of interest rates of the Flat 35 (among banks)

As seen in Figure 3, the gap between the highest and lowest rates ranged from 1.3 to 1.9 from July 2004 to May 2005, but remained slightly above 1 following that period, and then narrowed to as small as 0.81 for August and September 2006. Next, in Figure 4, the variance of interest rates of the Flat 35 among banks shows a declining trend until November 2004, a sharp rise in December that year, but then resumed lower levels. From June 2005, it stayed almost static in a range of low levels between 0.017–0.027.

Figure 5 shows changes in the variance of average prefectural interest rates of the Flat 35, calculated on the basis of data for 77 regional banks that were available for the entire period between November 2004 and August 2006, which are under analysis in the subsequent sections[5].



Note: This figure was prepared by the authors on the basis of materials provided by the GHLC and data published in the *Monthly Report on Housing Loans.*

Figure 5 Changes of variance of the Flat 35 interest rates (among prefectures)

Like the trend of the variance from November 2004 in Figure 4, the variance in the Flat 35 interest rates among regions shows a trend towards becoming smaller. Particularly, it shows large reductions in February and June 2005, and has remained almost static at low levels since June of that year.

In view of the above, there was a lowering trend in the variance of interest rates of the Flat 35, both among banks and among prefectures. This suggests that competitions among the banks for a reduction in their fees for the Flat 35, as a margin, had probably become increasingly intense year after year, so the interest rates of the Flat 35 as a whole tended to converge.

[5] The Flat 35 was introduced in October 2003; however, there were not many financial institutions that joined the scheme at that time, but participation has gradually increased since then. Thus, data for the above-mentioned period was used in view of the length of time for such data and the number of banks that can be used as samples.

3. Determining Geographical Segmentation in the Flat 35 Markets

(1) Analysis of the national market

As discussed in the preceding section, the variance of interest rates of the Flat 35 had probably become smaller over time, and the Flat 35 markets may have been integrated across the country. This section will examine whether the market for the Flat 35 is regionally segmented, by evaluating the correlations among the Flat 35 prefectural interest rates.

More specifically, the correlation coefficients were obtained between interest rates of the Flat 35 for each of the different pairs done from the 77 regional banks that were available for the period of 22 months between November 2004 and August 2006. The 77 regional banks make 2,926 different pairs. Table 2 contains descriptive statistics of the correlation coefficients.

Table 2　Descriptive statistics of correlation coefficients

Maximum value	1
Minimum value	0.052
Mean	0.804
Standard deviation	0.161
Number of samples	2926

The simple average of the coefficient correlations for all the pairs is 0.804, so the correlation among the interest rates of the Flat 35 of the regional banks is positive and strong.

Of all the pairs made by the regional banks, there are 43 pairs in the same prefecture. The average of the correlation coefficients for those 43 pairs is 0.886, which is a little higher than the average of all the pairs. In other words, the interest rates of the Flat 35 of regional banks in a prefecture seem to have moved in a significantly similar way, so it appears that the market for the Flat 35 is formed on a prefecture-by-prefecture basis.

On the other hand, in Table 3, which shows the pairs for which correlation coefficients are at least 0.998, ten of the total 14 such pairs are banks in different prefectures, while the pairs of The Iyo Bank-Ehime Bank, The Daishi Bank-Hokuetsu Bank, The Shizuoka Bank-Shimizu Bank, and The Awa Bank-Tokushima Bank, are banks in the same prefecture. Accordingly, it is not completely certain that only pairs of banks in the same prefecture have significantly similar interest rates.

Table 3 Pairs of banks with a correlation coefficient of 0.998 or more

Pairs with a correlation coefficient of 1
The Hokkoku (Ishikawa) – The Tokushima (Tokushima)
The Iyo (Ehime) – The Ehime (Ehime)
The Fukuoka (Fukuoka) – The Saga (Saga)

Pairs with a correlation coefficient of at least 0.998 (correlation coefficient in parentheses)
The Sapporo (Hokkaido) – The Shonai (Yamagata) (0.999)
The Daishi (Niigata) – The Hokuetsu (Niigata) (0.999)
The Hokuriku (Toyama) – The Hokkoku (Ishikawa) (0.999)
The Hokuriku (Toyama) – The Tokushima (Tokushima) (0.999)
The Hokkoku (Ishikawa) – The Awa (Tokushima) (0.999)
The Shizuoka (Shizuoka) – The Shimizu (Shizuoka) (0.999)
The Awa (Tokushima) - The Tokushima (Tokushima) (0.999)
The Hokuriku (Toyama) – The Aichi (Aichi) (0.998)
The Hokuriku (Toyama) – The Awa (Tokushima) (0.998)
The Aichi (Aichi) – The Awa (Tokushima) (0.998)
The Awa (Tokushima) – The Kagawa (Kagawa) (0.998)

(2) Analysis of the markets in the four prefectures of the Tokai region

This sub-section looks at the four prefectures of the Tokai region, i.e., Gifu, Shizuoka, Aichi and Mie prefectures, and discusses what characteristics are found in the correlations among the regional interest rates of the Flat 35. Correlation coefficients for all the pairs of the twelve regional banks, including first-tier regional banks and second-tier regional banks that have a main office in the above-mentioned four prefectures, were calculated. The results are shown in Table 4. For those banks, because interest rates of the Flat 35 were all available for a total of 27 months from June 2004 through August 2006, the correlation coefficients for that period were calculated.

Table 4 Correlation coefficients among the banks in the four prefectures of the Tokai region

	Ogaki Kyoritsu	Juroku	Gifu	Shizuoka	Suruga	Shimizu	Aichi	Nagogya	Chukyo	Mie	Hyakugo	Daisan
Ogaki Kyoritsu	1.000	0.918	0.985	0.936	0.911	0.925	0.901	0.915	0.953	0.912	0.864	0.870
Juroku	0.918	1.000	0.934	0.961	0.866	0.955	0.992	0.998	0.954	0.900	0.941	0.963
Gifu	0.985	0.934	1.000	0.961	0.863	0.96	0.933	0.931	0.941	0.882	0.842	0.872
Shizuoka	0.936	0.961	0.961	1.000	0.885	0.997	0.968	0.962	0.963	0.910	0.874	0.909
Suruga	0.911	0.866	0.863	0.885	1.000	0.855	0.837	0.865	0.952	0.977	0.907	0.875
Shimizu	0.925	0.955	0.960	0.997	0.855	1.000	0.964	0.954	0.946	0.883	0.844	0.890
Aichi	0.901	0.992	0.933	0.968	0.837	0.964	1.000	0.991	0.943	0.885	0.923	0.956
Nagoya	0.915	0.998	0.931	0.962	0.865	0.954	0.991	1.000	0.953	0.903	0.945	0.968
Chukyo	0.953	0.954	0.941	0.963	0.952	0.946	0.943	0.953	1.000	0.970	0.930	0.933
Mie	0.912	0.900	0.882	0.910	0.977	0.883	0.885	0.903	0.970	1.000	0.938	0.935
Hyakugo	0.864	0.941	0.842	0.874	0.907	0.844	0.923	0.945	0.930	0.938	1.000	0.974
Daisan	0.870	0.963	0.872	0.909	0.875	0.890	0.956	0.968	0.933	0.935	0.974	1.000

As seen in Table 4, banks in the same prefecture generally show a strong positive correlation; however, there are also many cases where banks in different prefectures show an extremely strong positive correlation, such as The Juroku Bank and The Nagoya Bank pair, with a coefficient of 0.998, as well as The Suruga Bank and The Mie Bank, with a coefficient of 0.977. Therefore, it cannot be said that banks in the same prefecture show a remarkably higher correlation than those in different prefectures. In fact, the difference between the correlation among the interest rates of banks in a prefecture and that of banks in different prefectures, as shown in this paper, is not significantly high, in comparison with the difference between correlations among interest rates of a typical housing loan product, as shown by Yamori and Kondo (2005)[6]. Accordingly, with the results in the preceding sub-section, combined with those in this sub-section, it cannot necessarily be concluded that the market for the Flat 35 is segmented by prefecture.

(3) Equilibrium Analysis of Supply and Demand

The result of the analyses in (1) and (2) above suggests that the market for the Flat 35 may not be segmented on a prefecture-by-prefecture basis. This sub-section verifies that suggestion by means of an estimate equation proposed by Kano and Tsutsui (2003). Kano and Tsutsui (2003) estimated the following equation for loan supply-demand equilibrium when they studied whether the lending markets for regional banks and credit associations are formed in a segmented way on a prefecture-by-prefecture basis in Japan.

$$R_i = c_o + c_1 Y_i + c_2 D_i + c_3 COR_i \quad (1)$$

where R_i (i: indicates the prefecture) is an interest rate, Y_i is the gross product of a prefecture, D_i is the balance of deposits, and COR_i is a Herfindahl index (a parameter to indicate the competitive environment).

[6] Yamori and Kondo (2005) used the initial interest rate of a housing loan with selective fixed terms provided by private financial institutions for their analysis.

If the market is segmented by prefecture, each of Y_i, D_i and COR_i has a significant effect on the interest rate, but, if the market is consolidated into one across the country, none of those parameters takes a significant value.

In this paper, the correlation coefficients among interest rates of the Flat 35, obtained in (1) above, instead of a Herfindahl index, were used as a parameter to indicate the competitive environment for the Flat 35 within a prefecture, in the estimation of equation (1).[7)] More specifically, a mean value of the correlation coefficients among banks in each prefecture was taken for COR_i.

As discussed by Yamori and Kondo (2005), if the market is segmented by prefecture, high correlations among such interest rates may be interpreted as either: (1) oligopolistic behavior of financial institutions in a region; or (2) intense competition among them. The reason is that, if financial institutions act concertedly in a region, they set interest rates collusively, whether tacitly or not, so the correlation among their interest rates would be high. In that case, the coefficient of correlation, COR_i, would take a positive significant value.

On the other hand, if the financial institutions were under intense competition in a region, when one of them lowers its interest rate others would follow, so their interest rates would move in a linked way. In that case the correlation coefficient, COR_i, would take a negative significant value. If the market is consolidated into one, regional markets across the country would be homogeneous, and there would be only a meaningless level of difference among the competitive environments of the prefectures. Then, the correlation coefficient would not take any significant value.

For the explained variable, the average interest rates of the Flat 35 from November 2004 through August 2006 are used. For the estimation, data on a prefecture-by-prefecture basis were used; however, there are regions where no banks provide the Flat 35, or where there are no banks that make interest rate data available for the Flat 35 for the period between November 2004 and August 2006 and these had to be excluded as samples. As a result, there are 43 samples.

Y_i indicates the gross product of a prefecture in March 2003, and D_i the balance of deposits in March 2005. Both variables were transformed to natural logarithms. The standard errors in the estimation were calculated in a White Heteroskedasticity-Consistent method. The interest rates of the Flat 35 for the period through November 2005 were available from the GHLC, and those for the period after that month were taken from Monthly Reports on Housing Loans. The gross products and the balance of deposits of the prefectures were taken from the 2006 Directory of Regional Economies, published by Toyo Keizai, Inc.

The estimation results are shown in Table 5.

Table 5 Results of estimation

	Averages of interest rates of the Flat 35		
	Coefficient	t value	p value
Constant term	3.610	6.064	0.000
Gross product of prefecture	-0.076	-1.222	0.229
Balance of deposits	0.535	0.666	0.510
Correlation coefficient	-0.438	-1.211	0.233
Adjusted R^2	0.045		

[7)] This is because it is impossible to obtain Herfindahl indexes because the outstanding Flat 35 transactions of individual banks are not disclosed.

The results show that none of Y_i, D_i and COR_i has a significant value.[8)] As elucidated in (1) and (2) in this section, therefore, it is reasonable to consider that the Flat 35 market is not necessarily formed in a segmented way by prefecture, but may be consolidated into one market across the country.

4. Conclusion

Focusing on the Flat 35 created in the securitization business launched by the GHLC, this paper examined whether the market for that product is segmented by prefecture, similarly to those for typical housing loan products, by estimating the correlation coefficients among the interest rates of that product with regional banks, and a supply-demand equilibrium for that product, with a view to evaluating whether the special public corporation reforms under implementation are moving in the right direction.

The results show that it is highly probable that the market for the Flat 35 is not segmented by prefecture, but is consolidated into almost one market across the country. The introduction of the Flat 35 gave consumers choices between regional financial institutions' own products and nationally uniform products. In setting the interest rate of the Flat 35, financial institutions have the same purchase cost for their products, using the Flat 35 across the country, and have the freedom to decide what margins they put on it. This is very different, from the customer's point of view, from direct loans provided by the GHLC at the same interest rates and on the same conditions across financial institutions. The Flat 35 scheme was introduced to stimulate the creativity of, and competitions among, financial institutions for the benefit of consumers; however, there is concern about financial institutions using high margins in regions with less competition among them where this is possible, which leads to an adverse effect on consumers.

Our analysis results, however, do not reveal any statistical difference among such regional margins. It is thus considered that there are competitions to reduce the fee portion of the interest rates of the Flat 35 across the country, which tends to force them to converge to the same level.

The reasons for the existence of such a uniform market across the country are probably as follows. Generally, households do not examine housing loan products provided by institutions in other prefectures that they are not familiar with, because the characteristics of such products are slightly different according to region. The Flat 35 product, however, has the same characteristics across the country, so price differences are very easily seen and it is very easy for consumers to point out to banks with which they deal regularly that other banks provide the product at lower prices, if this is the case. From the banks' point of view, it is much easier for them to provide Flat 35 loans for new customers who live in other regions, because the credit risk is shared with the GHLC and investors. Accordingly, even banks that have a monopolistic branch network in their home regions are inhibited from behaving in a regionally monopolistic way. It is particularly important from the perspective of public policies that the Flat 35 gives additional bargaining power to customers who buy other loan products from other financial institutions (because of the existence of the Flat 35 scheme), as well as benefiting those who choose Flat 35 products. In other words, the Flat 35 probably has influential power beyond the outstanding transactions of its products.

As discussed above, this paper concludes that concern about the deterioration in regional housing finance service that may have occurred because of the GHLC's withdrawal from the direct loan business has so far been sufficiently alleviated by its securitization business.

There are, however, some points to be noted in the interpretation of the analysis results presented in this paper. Firstly, the Flat 35 products were launched recently and there are some banks whose interest rate data for the Flat 35 for the entire period covered by the analysis in this paper (November 2004 through

[8)] As was done by Yamori and Kondo (2005), the estimation was made with equation (1) with Y_i and D_i removed, but the correlation coefficient, COR_i, did not take a significant value.

August 2006) are not available, and some prefectures where no banks provided Flat 35 products during that period. As a result, the number of samples was small. It is also necessary to pay attention to a technical point that the period covered by the analysis had to be limited to November 2004 through August 2006 in order to ensure a certain number of samples, so data before that period could not be used.

Secondly, in a situation where interest rates continued to fall, but the business demand for loans remained low, during the period covered by the analysis presented in this paper, private financial institutions were active in providing housing loans; however, it can hardly be asserted that such institutions will behave during a tight-money situation the same way as during a period of ultra-easy monetary policy.

In addition, it should be noted that Flat 35 products have recently been made more complex. For example, some financial institutions use a stepped interest-rate system where the interest rate changes during the loan term, or set various loan fees for such products. Then, financial institutions may exist that set the initial interest rate of the Flat 35 equal to those of other banks, but raise it in stages after a certain period, to secure monopolistic benefits. It is certain that complicated Flat 35 products are the result of the creativity of financial institutions in a sense; on the other hand, they make it difficult for consumers to compare products, losing the benefit of the Flat 35's simplicity, and consumers may be disadvantaged as a result.

Then, in order to preserve the nature of the Flat 35 as the national minimum to cope with the above-mentioned issues, it might be necessary, for example, to require every financial institution dealing in the Flat 35 to provide a basic product with the same loan fee and the same interest-rate system across the country, at the same time permitting them to sell all its variations. Nevertheless, the securitization scheme of the Flat 35 is not yet mature, and needs to be improved in many ways.

Finally, implications of the securitization business in government auditing will be discussed here. The GHLC was abolished according to the JHF Law on April 1, 2007, and an incorporated administrative agency named the JHF was established on the same day to take over the GHLC's rights and obligations. The JHF is not supposed to provide direct loans to customers, which were the GHLC's main business, but to engage in securitization (Flat 35) as a main business. The JHF must achieve its policy goals on a financially independent basis in doing business, so it needs to operate more efficiently. It is, therefore, very important to check, via government auditing, that the JHF conducts its business economically and efficiently.

The aim of the government in establishing an incorporated administrative agency to maintain public involvement in the housing loan area is to support private financial institutions, including mortgage banks, by means of the securitization business, so that the condition that housing loans are provided on a stable and efficient basis across the country can be maintained. Accordingly, it is also necessary to check the consistency of the JHF's business with its policy goals, so that it will not pay attention only to short-term profits and deviate from the initial purpose of the business. In addition, if private financial institutions develop securitization approaches by which housing loans can be supplied on a stable basis across the country, or if innovative housing loan products by means of information communication technologies emerge that can integrate regional housing loan markets into a national market, it will perhaps be necessary to reconsider the JHF's businesses, or even its existence, in such new situations. It is also essential to study the financial environment broadly, and to evaluate the effectiveness of policies in order to improve the quality of government auditing.

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