

A Booming Housing Mortgage Market in Shanghai

by Jonson Cheng Cong

China's infant mortgage industry saw a gradual prospering in the 1990s. If you go to any subbranches of the China Construction Bank in Shanghai, you will see crowds of people queuing for mortgage applications. Most of the other commercial banks in China are preparing to join the new retailing business—housing mortgage loans.

At present to own a house is every city dweller's dream. Wherever you go, what Chinese city inhabitants are concerned with most is housing. Actually, an urban family can afford most other common consumer durables, except a house, as the result of nearly 20 years of the state policies of reform and opening-up. Today credit consumption is being accepted by more and more Chinese people, so it is not surprising that the mortgage industry is experiencing a quick development.

This paper aims to analyze the present conditions of the housing mortgage market in Shanghai and to provide a glimpse of its foreseeable future. It also proposes a deposit-loan linking mechanism for mortgage finance. The analysis will be valuable for international housing financial experts who

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want to study the Chinese housing mortgage market and those foreign bankers who are assessing the feasibility of entering the housing finance market in Shanghai.

OVERVIEW OF SHANGHAI HOUSING POLICY TRANSITION

Traditional Policy Bottlenecks

The traditional welfare-based urban housing policy retarded housing industry development. Before 1990 the government was the single provider of shelter to urban inhabitants in China. Workers' houses were invested, built, distributed, managed and repaired only by local governments. Houses built were normally distributed to dwellers without any payment. Therefore, a house was not a commodity but welfare in the form of a "physical home" offered gratis by the government.

There was no housing market, and consequently houses were allocated not by the market but by the administrative power, which caused severe unfairness of social wealth distribution between the people of different classes. Under such a welfare-based system, governmental housing investment could not be recouped because of the lack of funds circulation. Governments at all levels had to take the burden of both incessant new house building and old house repairing.

House building never met the expanding dwelling needs. Figure 1 shows how small the scale of Shanghai's housing investment was compared with the city's GDP during the 1970s and the 1980s. Figure 2 illustrates the changes in the per capita living area of Shanghai urban residents.

In the 1980s in the city's downtown, the per capita living area was just around 6 square meters. Even now there are still many third- or fourth-generation families in Shanghai living in just one poor room, normally less than 20 square meters. For the sake of zero profit, no entities had the incentive to engage in the housing industry. Housing supply lagged largely behind the urban inhabitants' demand.

Housing Policy in Transition

The city's housing policy is in a transition from the centralized planning economic system to a new market-oriented one. Shanghai spearheaded housing system reform throughout the country in 1991. The reform program included establishing a housing provident fund system, raising public housing rents, subsidizing public house tenants and selling publicly owned housing units to tenants at preferential prices.

All these measures have generated some positive progress towards a market-based housing system. The housing provident fund financial system provides steady funding for

Figure 1. Ratio of Housing Investment to City GDP

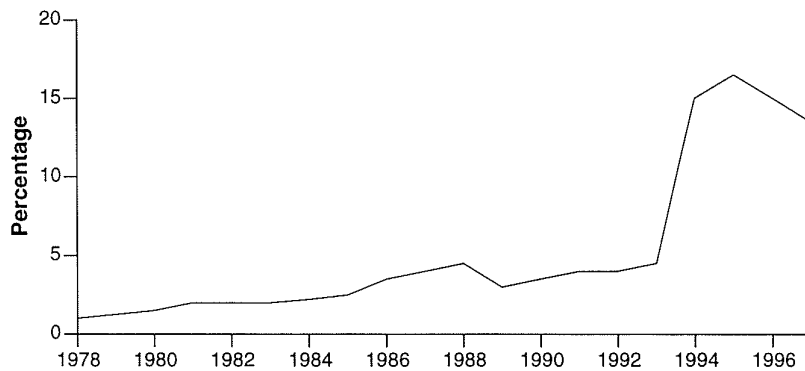
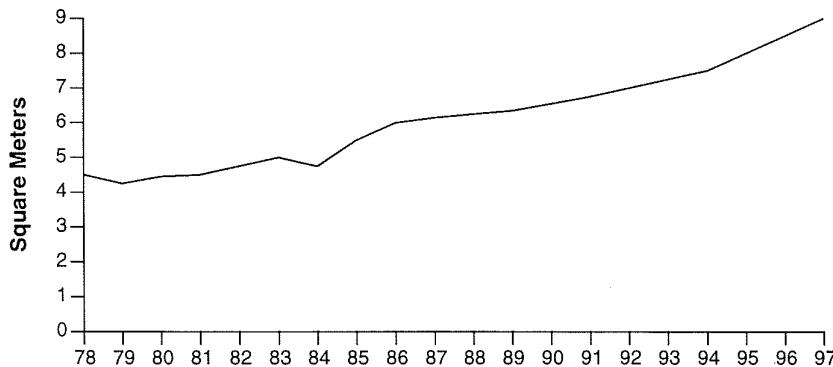


Figure 2. Changes in the Per Capita Living Area



local residential housing investment and accelerates house construction. The local residential living standard in urban districts leaped from 6.60 square meters living area per person in 1990 to 9.00 square meters in 1997. The consciousness of housing consumption opportunities has energized urban dwellers and thus paved the way for further housing reform.

Housing Provident Fund

Today the housing provident fund system is the mainframe of Shanghai's housing finance. The housing provident fund, founded in 1991, is a mutual-help financial system, legally stipulated in the local act named Regulations of Shanghai Municipal Housing Provident Fund System, which was

promulgated in 1996. The regulation requires all employers, either public or private, and their employees to take part in the system with each party contributing a certain percentage of the employee's monthly wage to the fund reserve.

Starting from July 1, the percentage was raised by 1%—from 5% to 6%—from a level which had been unchanged for six years. Thus, an employee's monthly provident fund total contribution is 12% of her or his wage. The proceeds are mainly used for social housing development and mortgage loans; the rest is invested in Treasury bonds. At present, about 4.50 million employees contribute to the fund reserve, which totaled 16.2 billion RMB yuan, i.e., US\$1.96 billion, by the end of 1997.

Figure 3 shows that the fund reserve expanded sharply in the last six years at the annual growth rate of 69%. Figure 4 shows the fund asset portfolio by the end of 1997.

MORTGAGE MARKET ANALYSIS

The housing mortgage market in Shanghai consists of two sectors: the provident mortgage and the commercial mortgage. The policy-oriented provident mortgage loan is becoming the pillar of financial services for local employees' housing consumption, while the commercial mortgage serves not only the employees' participating in the provident system but also other local residents. By the end of 1997, the volume of provident mortgage loans reached 4.6 billion RMB yuan and the commercial reached 3.0 billion.

How Provident Mortgage Service Works

The housing provident mechanism was initially designed to financially support housing development for the local citizens. In May 1992, one-and-a-half years after establishment of the provident system, the

Figure 3. Expansion of Provident Fund Reserves

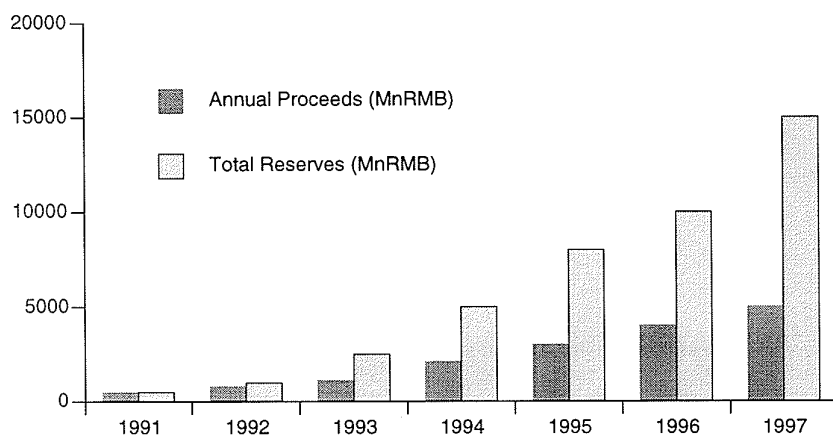
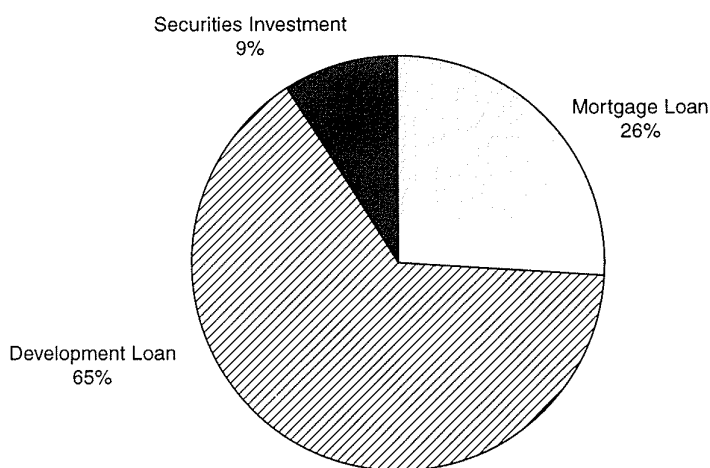


Figure 4. Distribution of Provident Fund Assets



so-called provident mortgage service (PMS) was introduced to fund contributors.

All the aspects of the PMS are stipulated in the regulations of the Shanghai Housing

Provident Mortgage Service, promulgated by the fund management center. The following brief review of the provident mortgage loan will be useful for understanding the way in which it works.

1. **Criteria for the PMS application.** Only those employees who participate in fund contributions can apply for a provident mortgage loan. At least 30% of the price of the house they want to purchase is required for the lump sum downpayment.

2. **The loan amount is decided by the minimum of three parameters.**

a. **Loanable Amount (LA)**, defined in the formula $LA = \Sigma W \times 35\% \times 12 \times Y$, in which W stands for the sum of monthly wages of borrower and other family members who are willing to repay the loan together, and Y for the years of loan term. The LA formula implies that the repayment is based on 35% of the repayer's income, in case the income grows at a faster rate than the loan's interest rate.

b. **LTV:** 70% of the price of the house to be purchased (80% will be considered possibly in 1998).

c. **Ceiling Amount (CA):** 100,000 RMB yuan at present, considering that a core family buys a house unit valued 150,000 yuan [=60 (sqm) 2,500 (yuan/sqm)], in which the lump downpayment is 50,000 yuan (approximately 30% of the house value) and the rest can be supported by a provident loan. CA will be increased to 120,000 RMB in 1998.

3. **Term.** Borrowers can choose a loan term ranging from 1 to 15 years and the range is expected to be increased to 20 years before long.

4. **Guarantee.** PMS demands that the house which a borrower buys be mortgaged to the lender, i.e., the estate credit department of China Construction Bank Shanghai Branch, which is the

exclusively authorized commercial bank for the city's housing provident financial business.

5. **Insurance.** Borrowers should also purchase insurance policies for the house to prevent a loss in case of accidental damages. The premium is annually 0.5% of the house value.
6. **Interest rate.** The provident fund system runs in a closed circulation, isolated from the open capital and monetary market. The loan interest rate is the depository interest rate plus a spread of about two percentage points. The deposit interest rate of the provident fund is positioned at a low level near the three-month term deposit interest rate, so as to lower the cost of funds collected and reduce the borrower's interest burden. The loan interest rate rises as the term lengthens. At present, the average interest rate of the provident mortgage is 5.004%, 4 percentage points or so less than that of commercial loans.
7. **Repayment.** The repayment is based on the periodical installment and normally on the cycle of a month. The monthly installment is calculated through the formula below.

$$M = P \cdot i + P \cdot i / [(1 + i)^T - 1]$$

M = monthly installment; P = principal of loan; i = interest rate per month; T = number of repayment months.

What Is Behind the Boom?

If we take a close look at the provident mortgage development in the last six years, some valuable aspects of the system are evident:

The inhabitants concept of housing commercialization is strengthened.

Figure 5 shows the growing annual aggregate amount of provident mortgages granted. During the last six years, the number of borrowers and the annual loan volume of provident mortgage have increased at the rate of 90.8% and 184.5% respectively.

Traditionally the Chinese people have had no concept of credit consumption. They normally plan living expenditures within the scope of the sum they earn. However, as housing reform proceeds, people are

gradually accepting the consumption idea of 'borrow and enjoy first.' The strong incentive of moving out of the crowded house shared by parents, kids and even grandparents is one of the underlying reasons why people accept borrowing so quickly despite hundreds of years of Chinese tradition of saving.

The increasing length of the loan term is another proof of the increasing appetite for borrowing for consuming. Figure 6 says the average loan term increased from 5.78 years in 1992 to 8.90 in 1997.

Figure 5. Increase in Provident Mortgages

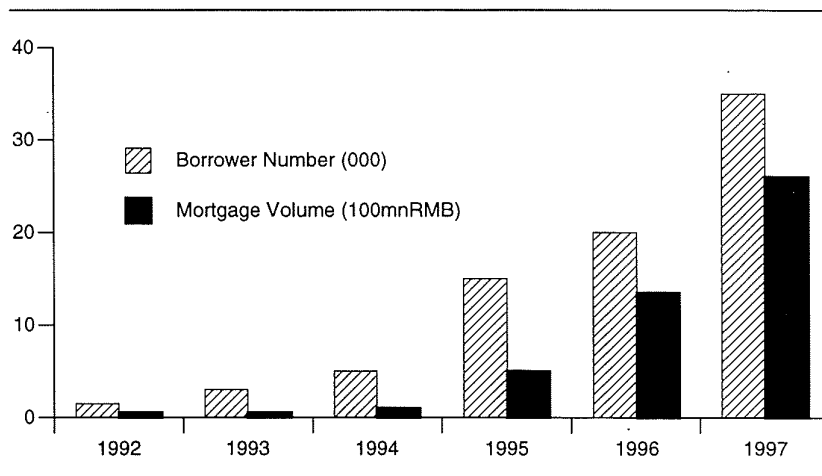
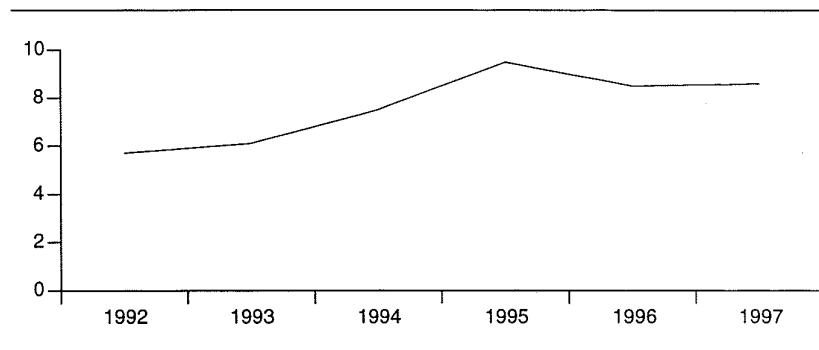


Figure 6. Average Term of Mortgage Loans



Figures 7 and 8 show the correlation of loans and borrowers' age. It can be concluded that the younger people were those who first accept the idea of borrowing to purchase, to be followed by older people later.

A second major explanation of the boom is the good credit status of borrowers. So far, no bad loans have appeared. By the end of 1997, bad debts were nil and the less-than-six-month late repayment was only 0.04% of the total outstanding. By contrast, the bad

debt of state-owned banks is climbing to an historical pinnacle.

PROSPECTS FOR THE HOUSING MORTGAGE INDUSTRY

Impacting continuation of the housing system reform are house building socialization and the income-linked housing supply policy.

The seven-year practice of housing reform shows that the expected results have been achieved, such as solution of the housing investment fund shortage, creation of a fledgling housing market and strengthening of the residential consciousness of housing commercialization. However, the housing connection between employees and employers hasn't yet been cut off. Employees' housing is generally taken for granted as a matter of free welfare to be provided by employers.

Employers (or working units) themselves still have to take the responsibilities of investment, construction, allocation and management of housing for their employees by themselves. Therefore, housing cannot develop as an industry with scale economy. The separation of housing resolution among all the working units causes macro disorder, as reflected in the lack of a general housing plan, no identification of different level income families in the housing supply, prices delinked with production costs and administrative corruption in housing allocation.

Both the central and local governments have perceived such kinds of problems and tried to establish an integrative housing policy, named the "socialized housing construction program." The proposed Shanghai program includes two major construction systems—one is government-supported social housing-development institutions, which target the construction of houses for

Figure 7. Number of Contracts by Borrower Age

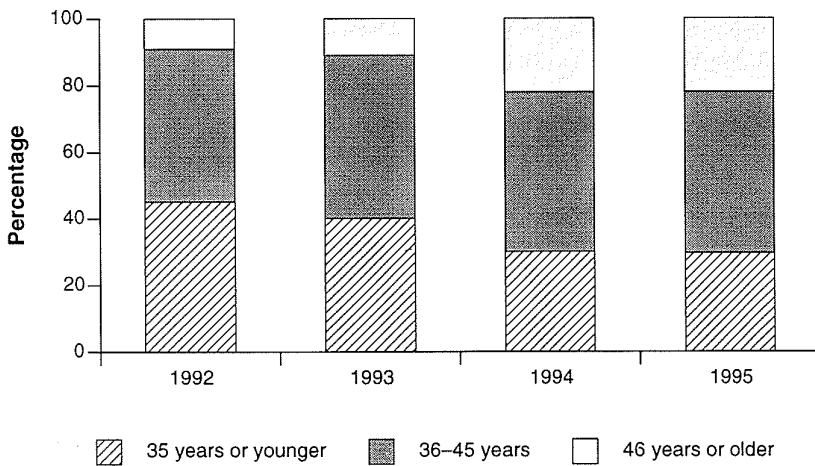
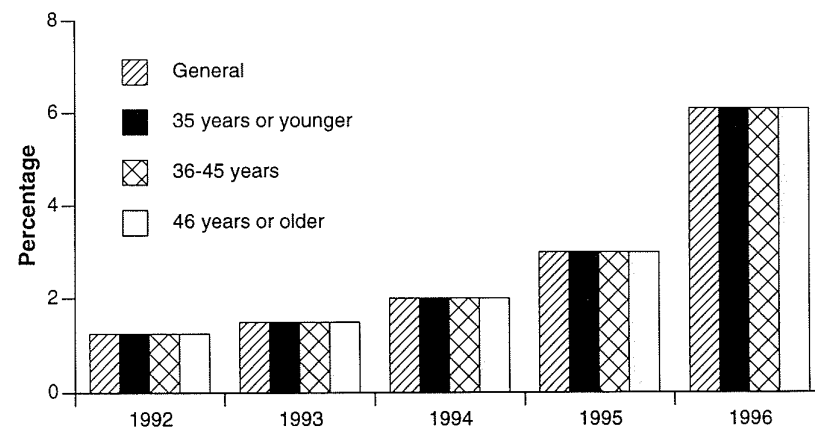


Figure 8. Average Loan Amount by Borrower Age



middle- and low-income families; the other is the commercial housing development bodies, including all the private real estate companies which build houses sold or let for high income families.

The income-linked housing supply policy purports that inhabitant houses are to be supplied according to family income level, i.e., high-income families purchase or rent through the market; middle-income families buy or rent houses supplied by the governmental housing development institutions; low-income families rent the low-rent houses provided by government.

Under such a socialized housing supply system, people's housing will become a new means besides the accumulative individual income taxation to balance the income of society's members indirectly. Thus, a housing supply system will be formed to function as an important part of the social security system.

Provident System Will Dominate Housing Finance Sector

As the Shanghai legislature enacted the law of Regulation on Shanghai Municipal Housing Provident Fund System in April 1996, the State Commission of Economic Restructuring immediately set up a survey team to conduct a legal draft of a management system of nationwide housing provident funding.

Undoubtedly, in some future period, the provident fund system will dominate the national housing finance sector. The production and consumption of urban residential housing will mainly be financed through the provident fund. In order to further develop and perfect the functions of the provident financial mechanism, Shanghai recently implemented some new measures.

Raised the collection percentage. From July 1, 1997, the employee's provident fund percentage was increased from 5% to 6% and so was the percentage of employer's subsidy for the employee's provident deposit. Therefore, an employee's provident fund is now 12% of his or her monthly wage.

Established a supplementary housing provident fund. Also starting in July 1997, a new system called 'supplementary housing provident fund' was promulgated, under which both those employees and enterprises in a profit-making status could voluntarily contribute up to 18% of a employee wage into his (her) account of supplementary provident fund deposit.

It was designed to transfer the traditional welfare-based free housing allocation to a "monetary housing remuneration" system. The supplementary system de facto regulates profit-making enterprises to subsidize their employees' settlement in the form of the supplementary housing provident fund so as to enhance employees capability to purchase houses from the market, together with the basic provident saving. By the end of 1997, nearly 1,000 working units had participated in the supplementary provident fund system. Most of these were foreign-funded enterprises.

Other Housing Financial Facilities to Be Encouraged

In order to maintain the rising economic trend that has existed during the 1980s and first half of the 1990s, the Chinese central government has determined to let the housing industry become a national economic growth pillar. One means to achieve that goal is to encourage all kinds of financial facilities to promote housing consumption in order to stimulate housing industrial development and hence to serve as an engine of growth for other industries.

In the beginning of 1997, the State Council selected Shanghai, Taiyuan of Shanxi Province and Chengdu of Sichuan Province as pilot cities to carry out the test program of housing saving, aiming to emulate the German 'Bausparkasse' system. The German government encourages citizens to participate in housing savings through the policy of depository subsidies. A depositor signing a Bauspar deposit contract with Bausparkassen can acquire a housing loan several years later, with the amount equal to the saving. The interest rates are normally as low as only 3%-5%. The pilot program is still in the phase of survey and design.

It is foreseeable that the competition between the provident and commercial mortgages will be encouraged and tested so as to perfect housing financial services delivery. The final beneficiaries will be common people.

Emphasis to Move From Production to Consumption

The statistics show that at present housing finance is overstressed on the production side. Funds for housing mortgages constitute less than 5% of all housing credits, and the provident mortgage provides only about 28.9% of the total funds credit. Finance was too inclined to construction and caused serious overproduction. It is estimated that nearly 100 million square meters of houses constructed are vacant throughout the country, and about one-tenth are in Shanghai. Yet common people's purchasing power can't keep up with rising house prices because of lack of financial support.

The financial emphasis will have to move towards personal house purchasing. It will be a more rational policy to support housing development through financing the housing consumption so as to maintain the supply-demand balance in housing market.

Setting Up Deposit-Loan Link

To optimize the provident fund flow, a deposit-loan linking mechanism will have to be created. There are both interior and exterior reasons for doing this.

Interior driving forces. At present the provident mortgage regulation disconnects a borrower's provident deposit and mortgage loan and causes considerable unfairness. You can be granted a large mortgage loan even if you contribute little money to the fund reserve because the loan amount is calculated on the basis of your wage instead of the deposit you contribute to the reserve.

The point of unfairness is that the borrower is financed by utilizing funds offered by those who do not apply for a mortgage. The principle of mutual-help will be radically damaged should everybody apply for the provident mortgage. How can the management center organize a borrowers' queue?

The conundrum of mortgage funding is that most fund contributors cannot be granted low-interest loans because of the limitations of the provident fund volume. The management center has no means to effectively manage mortgage demand.

Exterior pressures. The provident mortgage is experiencing a transformation from the demand-dominated to supply-dominated market. In May 1992 when the PMS was first introduced, the fund center was afraid of too few people demanding loans; however, today it is worried that the fund is not adequate to meet the expanding demand.

It is important to optimize the fund flow to needy families, mainly the middle- and low-income families, and those who contribute more money to the reserve. Figure 9 shows a projection of fund reserve volume in the next 10 years through 2006. Figure 10

forecasts the available provident mortgage supply in the same time.

How to Link? A Multiplier Model

- Definition of Multiplier λ : Under the deposit-loan linked mortgage mechanism, the loanable amount (LA) is calculated by the formula $LA = D * \lambda$, hereby D stands for borrower's provident depository sum, λ for the multiplier.
- Multiplier Model: The multiplier is obviously a key parameter for the determin-

Figure 9. Projected Fund Reserves (bn RMB¥)

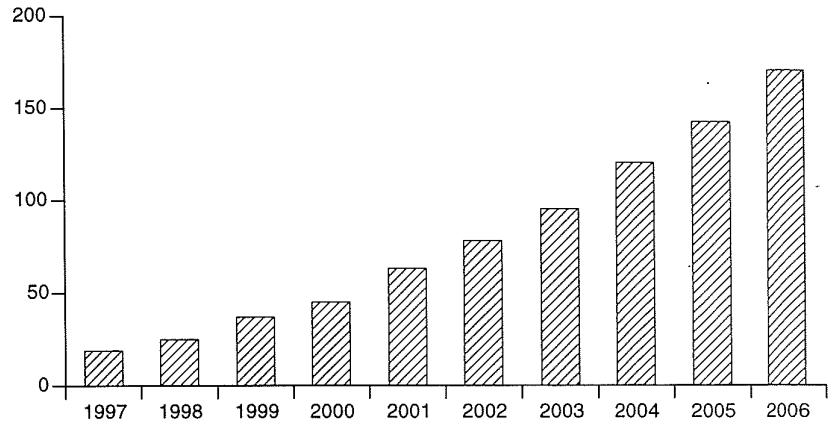
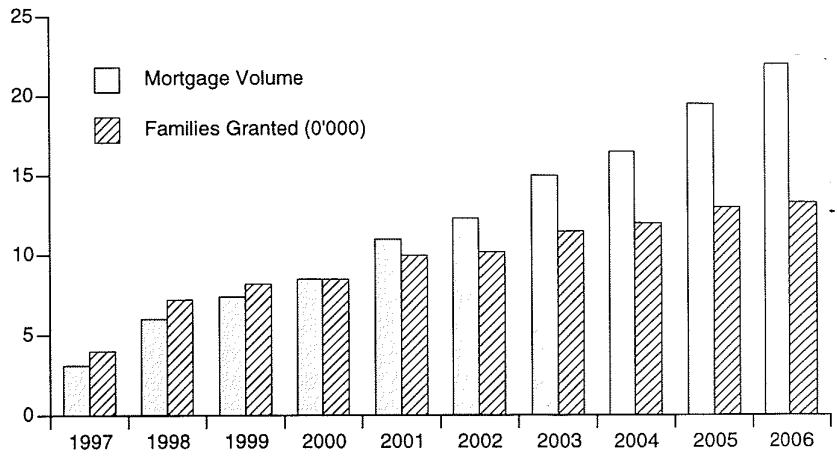


Figure 10. Projected Mortgage Volume



ation of loanable amount. The multiplier bridges deposits the borrower has contributed into the reserve with his loanable amount he may enjoy in the reserve. The multiplier can be decided by the model below.

$$\lambda(t+1) = \lambda(t) * \xi(t) \quad \textcircled{1}$$

$$\lambda(0) = AL(0)/[AD(0)*AN(0)] \quad \textcircled{2}$$

$$\xi(t) = [S(t+1)/S(t)] * [1/(1+c)] * [AD(t)/AD(t+1)] * [AN(t)/AN(t+1)] \quad \textcircled{3}$$

$\lambda(0)$, $\lambda(t)$, $\lambda(t+1)$ stand for the multipliers in year 0, t, t+1 respectively;

$S(t)$, $S(t+1)$ for the aggregate supply of provident mortgages in year t, t+1;

c for the growth rate of borrowers number in year t+1 over t;

$AD(0)$, $AD(t)$, $AD(t+1)$ for the average deposit of borrowers (or mortgage contracts) in year 0, t, t+1;

$AN(0)$, $AN(t)$, $AN(t+1)$ for the average number of repayers per mortgage contract in year 0, t, t+1;

$AL(0)$ for the average loan amount per borrower in year 0.

The model gives a way to calculate the multiplier year by year. $\xi(t)$ is the factor connecting multiplier of the next period with present, which can be named as connection coefficient. λ fluctuates as ξ varies. ξ is determined by changing the rate of three parameters, i.e., the macro planned supply of mortgage (S), the market demand changes (c) and the

micro structure of the provident mortgage (AD , AN). S is managed by the fund center. c can be forecasted according to market trends. AD is based on the growth rate of employee's average monthly wage. It is likely that AN will gradually decline to 2 because the core families are to dominate family lives. Formula ③ gives an analogue method to define the multiplier in the year of base.

The model offers flexibility for the policy-maker to decide the mortgage multiplier. In fact, the multiplier and annual planned mortgage scale can be interactively determined, and also mortgage scale should be planned with consideration of the market trend. For example, if the mortgage demand is sharply rising as the economy upsurges (c is increasing), the mortgage policy maker should increase the scale (S) and multiplier (λ) according to the model, so as to meet the borrower demand.

- Is the mortgage term still choosable under the multiplier model?

The answer is "No," there should be a minimum term (T_{min}) for the mortgage. Although the loan amount is mainly based on the product of deposit and multiplier ($D*\lambda$), a borrower's monthly average repayment must be within a certain percent of his income, otherwise the loan will be in a risk because the borrower has to decrease other everyday expenditure to make the loan payment. However, a person's everyday expenditure cannot be extended indefinitely. Therefore, the minimum term lies at the point that the ratio of monthly average repayment-to-income is at the maximum. Empirical data of consumer expenditure structure in developed countries indicate the debt-to-income ratio should be reasonably upper limited at 35%–40%.

Establishing a Risk Protection System

Although borrowers are in a good status of repayment now, the mortgage loan system will be at a rising risk as the mortgage stock expands. A risk protection system can be established through credit insurance and founding a specific mortgage guarantee institution by the government. Also, a credit database of citizens should be established simultaneously on the basis of the due diligence survey.

Providing for Securitization

As mortgage lending rises, securitization of receivables will be one general solution for the fund center and banks to keep the liquidity of financial assets and balance the mismatch between assets and liabilities. At present, the author, appointed by Shanghai municipality, is pioneering a research team for the feasibility study of mortgage securitization in Shanghai.

CONCLUSION

As the Chinese economy advances towards the market system and the housing reform goes further, the housing mortgage industry in China will enjoy a thriving future and also contribute to the continuous growth of the national economy. The epitome of the whole country, Shanghai, is well poised to enfold both domestic and foreign housing finance entities who are far-sighted enough to make commitments for Chinese housing financial development.

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