Housing Finance in Brazil
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The Legacy of the SFH and the Road Ahead

Technical and Policy Note[1]

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Infrastructure, Finance and Private Sector Department
Brazil Country Management Unit
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CURRENCY EQUIVALENTS

Currency Unit = Brazilian Real
R$1.005 = US$1 1996
R$1.078 = US$1 1997
R$1.160 = US$1 1998
R$1.811 = US$1 1999
R$1.750 = US$1 2000 (April)

ABBREVIATIONS AND ACRONYMS

ABECIPE	Associação Brasileira de Entidades de Credito Imobiliario e Poupança
BCDB	Banco Central do Brasil
BNH	Banco Nacional de Habitação
Caixa	Caixa Economica Federal
CDHU	Companhia de Desenvolvimento Habitacional e Urbano
CRI	Certificados de Recibiveis Imobiliarios
DIM	Dual Indexed Mortgage
DTI	Debt-service-to-income Ratio
FCVS	Fundo de Compensação de Variação Salarial
FGTS	Fundo de Garantia de Tempo de Serviço
GDP	Gross Domestic Product
GOB	Government of Brazil
IDB	Interamerican Development Bank
IBGE	Instituto Brasileiro de Geografia e Estatística
IPEA	Instituto de Pesquisa Economica Aplicada
LAC	Latin America and the Caribbean
LTV	Loan-to-value Ratio
MW	Minimum Wage
NGO	Non-Governmental Organization
OGU	Orçamento Geral da União
PAR	Programa de Arrendamento Residencial
PES	Plano de Equivalencia Salarial
PCR	Plano de Comprometimendo de Renda
PLAM	Price level adjusted Mortgage
PROER	Programa de Estímulo à Reestruturação e ao Fortalecimento do Sistema Financeiro Nacional
SACRE	Sistema de Amortizacao Crescente
SBPE	Sistema Brasileiro de Poupança e Emprestimo
SEDUR	Secretaria de Desenvolvimento Urbano
SFH	Housing Finance System
SFI	Sistema Financeiro Imobiliario
TBF	Taxa Basica Financeira
TR	Taxa Referencial

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Purpose and Structure of the Note

During the 1990's, the GOB undertook a number of bold measures to reform the country's housing finance policies. In 1997, these reforms culminated with the passage of Law 9514 which created the *Sistema Financeiro Imobiliario* (SFI), a major institutional step towards the creation of a market-based housing finance system. However, under difficult fringe conditions and with numerous distortions still present the mortgage market reforms are far from reaching success. To further analyze the problems and to propose a wide set of measures to support the 1997 reforms, the President of the Republic established a Housing Interministerial Working Group in June 1999[2] that has presented preliminary proposals by October 1999. At the time of finalization of this note a final report apparently does not yet exist.

This note has been funded by Financial Sector Strategic Compact funds and is primarily meant as a technical and policy advice contribution to the current housing finance discussion in Brazil. Although presented as a separate document it also furthers the Concept Paper on "*Housing Markets in Brazil: Policy Issues in Finished and Progressive Housing"* in the area of financing of finished housing. This has been a priority since the bulk of federal housing sector subsidies continue to be allocated in the formal housing finance system. In addition, any strategy to enhance the demand for finished housing as part of an overall housing sector development strategy has to address the issue of mortgage finance.

Parallel to this note, the Bank has undertaken economic sector work that closely relates to the concerns of this note and that complements its analysis and recommendations. These are: (i) the Financial Sector Review (which will contain this section on housing finance); (ii) the Financing Municipal Investment: Issues and Options Paper; (iii) the Urban Sector Strategy, and the forthcoming policy paper (iv) Housing the Urban Poor in Brazil: Enabling Progressive Housing Markets to Work.

The note is divided into two parts. First, we discuss the structure, size and performance of the Brazilian housing finance system. We make a sharp distinction in the analysis between loans originated before the mortgage market reform 1993, mostly under high-inflation conditions (Cartera Velha), and loans originated after 1993 (Cartera Nova). We will then attempt to determine the size of mortgage market subsidies, including unresolved debts owed by the government to the mortgage finance system. In the second part of the paper, we will study the policy options that present themselves with respect to tackling mortgage market subsidies and developing a viable mortgage market. We will put our recommendations into the context of the current mortgage market reform process and the limitations imposed by the current macroeconomic, financial sector and housing sector fringe conditions.

Peer reviewers for this report are Bob Buckley (ECSIN) and Vitor Serra (LCFSU).

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[2] Portaria Interministerial number 26, of June 6, 1999

Executive Summary

By 2000, the Brazilian housing finance system SFH is in large parts dysfunctional. The role of the savings and loan system SBPE in funding new housing production has become marginal due to the legacy of high inflation and political intervention. At the same time the social housing finance system has suffered from great disruptions after the closure of the Brazilian housing bank, BNH, in 1986. The largest share of housing finance is thought to be provided outside the financial sector, by developers and through informal sources of finance. Due to the lack of long-term housing finance the proportion of progressively built housing units in Brazil has risen drastically over the last 15 years.

Structure, Size and Performance of the Housing Finance System

The SFH was created in 1964 with the goal to ensure liquidity for long-term housing finance in an increasingly inflationary environment. As in many other Latin American countries, a structure was chosen in which earmarked deposits and mandatory provident fund deposits were directed into two separate mortgage market segments, serviced by banks and state social housing finance institutions respectively. The housing bank, BNH, was the central bank, regulator, subsidy donor and second-tier bank for this system. It's continuous growth was intercepted by a default crisis starting in the late 1970's in the social housing system and culminating in the general SFH crisis 1984[3]. The crisis led to the closure of the BNH in 1986 and the subsequent transfer of social housing assets and part of its central bank functions in 1988 to Caixa Economica Federal, a move that effectively constituted a public retail housing bank[4]. During the 1990's this bank grew into a dominant position in the Brazilian mortgage market, holding today more than 70% of the SFH's assets[5].

By 2000, with roughly R$ 70 billion (7% of GDP) outstanding the size of the system is small in international comparison. The balances especially of Caixa are inflated by large amounts of irrecoverable loans, most, but not all, originated before the mortgage market reform of 1993 under inflationary conditions. A realistic estimate of the outstanding volume that is scheduled to be fully repaid by borrowers would not exceed R$ 30 – 40 billion. In contrast, in addition to the nominal mortgage balances SFH lenders hold R$ 40 billion in unresolved government debt on their balance sheets that was generated as a result of the government guaranteeing until 1993 the cancellation of residual debt at contractual maturity through the FCVS fund (see page 5). Total mortgage related debt thus amounts to R$ 110 billion (11% of GDP).

In order to measure the performance of the mortgage finance system, a sharp distinction between cartera velha loans (originated in the high inflation period prior to the mortgage market reform 1993) and cartera nova loans (originated after 1993) has to be made.

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[3] It has been argued that the fiscal costs of the SFH crisis were a key contributing factor to the following phase of hyperinflation.

[4] The oversight of BNH over the housing finance system was transferred to the Central Bank.

[5] Housing finance has therefore the second largest share of public lending, after loans to state governments. Caixa is the second largest Brazilian bank after Banco do Brazil.

Performance in a high inflation environment is primarily a function of the distribution of market risks between borrowers, intermediaries, savers and government. Adequate portfolio performance requires a carefully balanced system of underwriting, indexation, capitalization and eventually risk protection. The performance of the cartera velha became strongly biased to the benefit of mortgage borrowers after the SFH crisis when a series of political interventions depressed the real values of debt service payments. The costs of these mortgage policies were borne to some extent by the intermediaries, who while matched were hit by defaults, to a greater extent by savers who suffered from lagged adjustments of their savings balances, and primarily by the government who had to bear the actuarial deficit of the FCVS fund (currently R$ 59 billions, last insured cohorts maturing in 2017). Government through Caixa also took over a large proportion of the cartera velha from banks during the bank restructuring program PROER in the mid 1990's, as acquiring banks routinely declined to assume the mortgage portfolio.

Similarly disappointing was the performance of the cartera nova that was mainly fed by private banks rushing into mortgage finance as a result of the loss of the float after Plan Real in 1995 and 1996. The government through the mortgage market reform of 1993 had ruled out taking new market risks and in addition forced lenders to ensure timely amortization of new loans. Contrary to their counterparts who had borrowed in the 1980's, cartera nova borrowers saw their real debt service burdens rise as the monetary correction index (tasa referencial) underlying their mortgages rose in real terms, for instance after the Russia crisis. The resulting rise in defaults was less pronounced than expected in the case of private banks, but the perceived problems gave rise to lawsuits questioning the form of monetary correction and deterred new mortgage borrowers. As the cartera nova continues to fail to cover costs and demand remains low, many private lenders have recently encouraged their depositors to switch their savings from savings passbooks to mutual funds.

In social housing finance, the primary determinant of portfolio performance in Brazil has traditionally been default. The FGTS portfolio enjoyed 5 more years of market risk protection through FCVS than SBPE, until 1993, protecting the performance of Caixa's cartera velha. On the other hand, FGTS reform in 1989 had closed the worse leaks in market risk protection from the perspective of savers, reducing the options for the intermediary to compensate for new credit losses. There is evidence that, due to less stringent underwriting and a culture of non-payment of its borrowers, Caixa's cartera nova loans may carry significantly higher default rates than their private counterparts. Caixa has reacted to the credit risk challenges in 1999 with a leasing program, PAR, which however in our view is unlikely to improve the situation. Due to negative liquidity flows since 1996 and possible claims due in excess of liquid reserves, FGTS is acutely threatened by illiquidity.

The combined subsidies to the SBPE cartera velha through FCVS and PROER, to social housing through mandatory below market returns and losses incurred by Caixa, and to SBPE cartera nova loans through continued tax subsidies have been very costly to the nation. The legacy debts stemming from the cartera velha alone are estimated at the minimum at R$ 90 billion (9% of GDP) and could very possibly reach the staggering

figure of R$ 120 billion (12% of GDP)[6]. New issues related to the FGTS, the FCVS, Caixa, and the SBPE are continuously unearthed and pose a permanent threat to national fiscal stability. Current subsidies to the mortgage market have been calculated in this note to be in the range of 1% of GDP, 10 times the federal housing subsidy budget.

The Road Ahead

The Brazilian government, during the nineties, has accumulated an impressive record of technical measures to address the mortgage sector, including rent reform in 1991, the first mortgage market reform introducing indexation reform in 1993, the partial restructuring of the FCVS and of the savings and loan system around 1995, and the second mortgage market reform enabling trustee based sale and creating mortgage securitization in 1997. The preliminary recommendations of the Interministerial Working Group of October 1999 in addition suggest a major deregulation of the SBPE, a restructuring of its tax support and introduction of mortgage interest deductibility, a launch of new loan products and measures to boost the capital market demand for mortgage securities.

We believe that these efforts, while having mostly led into the right direction, have been flawed by two key factors: i) the credibility gap of government as expressed by the lack of a comprehensive solution to the legacy debts, continued permanent mortgage market subsidies and the perceived risk of political intervention, and ii) unfavorable fringe conditions for mortgage market development that require a broader approach and some correction in the approach taken to reform the SFH and introduce capital market instruments.

Mortgage Subsidy Reform and the Credibility Gap

Mortgage subsidy reform is a process that evolves in stages. In the current Brazilian context, at least two steps are necessary. The first step involves acknowledgement of the SFH legacy debts and conversion of current producer subsidies and subsidies that are mixed with finance into direct personal subsidies to mortgage borrowers. In a second step, a new housing policy could replace mortgage market subsidies with new instruments (e.g., a progressive housing program). This requires credible political and fiscal commitment in a mid-term process.

The largest current instrument mixing subsidies with finance is concessional FGTS lending to Caixa. FGTS reform has been extensively debated in Brazil, but rarely from the housing angle. We argue that concessional FGTS housing finance is inefficient, as it slows down capital market development and hence the demand for mortgage securities, does not return housing benefits to its contributors in a systematic way, and delivers subsidies to beneficiaries in an inefficient form. In addition, the fund today is de facto as much a savings scheme for housing as a funding instrument. We propose to discontinue the FGTS earmarking to housing loans, to reduce FGTS contributions and to introduce a

[6] This figure includes: (i) claims of FGTS contributors for lagged indexation of dividends during several anti-inflation plans (now in the Supreme Court): (ii) claims of private mortgage banks and Caixa against the FCVS mortgage insurance fund; (iii) and losses of Caixa from own mortgage operations and private mortgage bank portfolio acquisitions.

voluntary housing savings scheme that may be made attractive with targeted subsidies. This proposal can be implemented with or without comprehensive reform of FGTS' insurance and provident fund functions.

Caixa Economica Federal mixes subsidies and finance through the underpricing of credit risk and operational inefficiency. Contrary to its predecessor BNH it is competing directly in an unfair manner with private mortgage lenders. While we review a number of measures that could serve to enhance Caixa's mortgage performance in the going concern, we argue that its permanent loss of franchise value and inextricable conflicts in mandate by construction should lead to a closure of its retail mortgage operations. International experience suggests that a future social housing finance architecture should not dwell on a central government owned retail mortgage bank. It should rather build on local financial institutions, with flexible charter forms as well as loan and guaranty products, that should be regulated only by the central government. Subsidy allocation could be centralized in a housing fund or agency. Brazil should also withstand the temptation to build central government mortgage insurers or securitization companies after the historic example of the US.

The tax subsidies to SBPE deposits should be eliminated. However, we would advocate for two transition measures: i) in order to promote the selling of FCVS bonds and thus improvement of liquidity, a compensating increase in bond coupons, and ii) given the presence of crowding out through government bonds, a temporary downpayment or buy-down assistance scheme to mortgage borrowers. Both measures would help to raise the asset yield of SBPE operations closer to market conditions, until market rates have come down sufficiently.

Mortgage Market Development

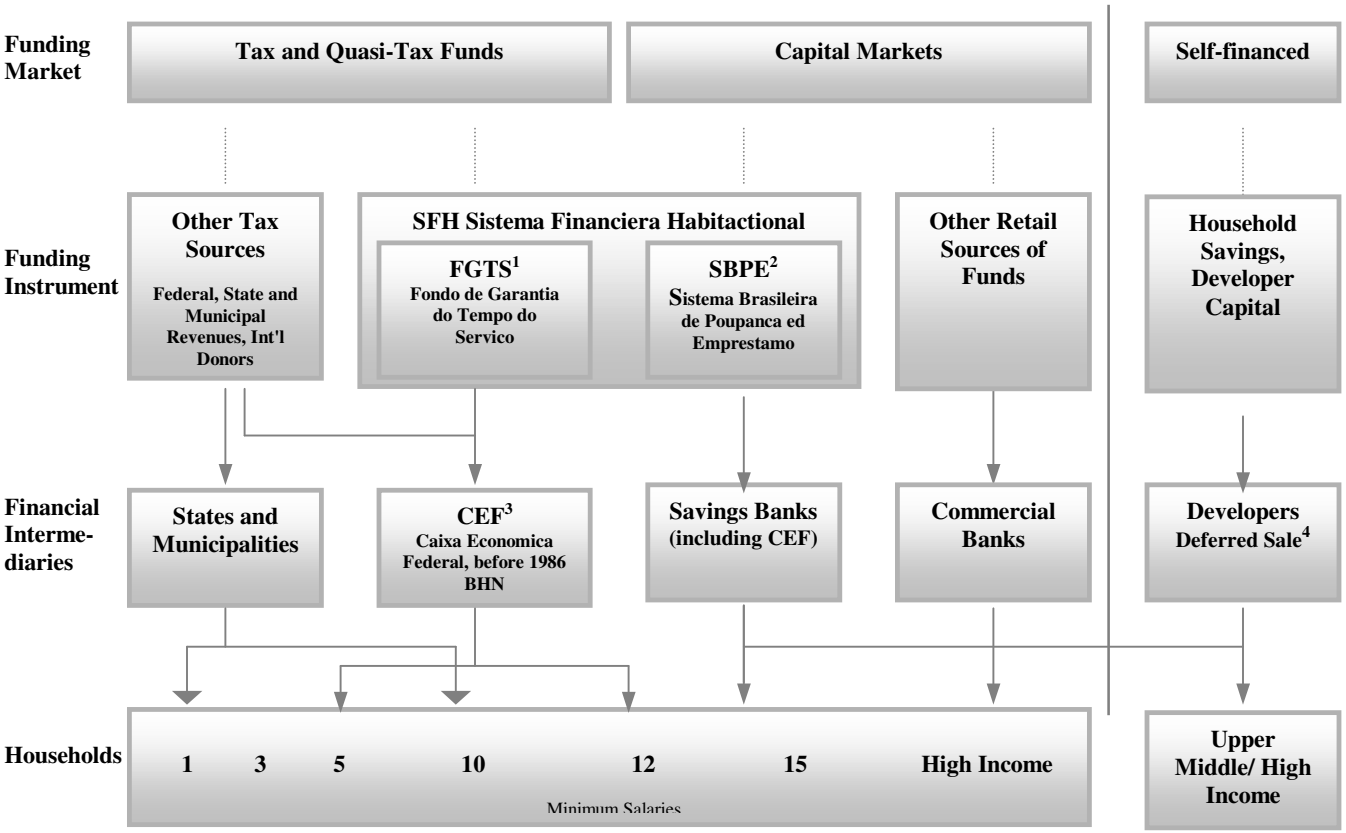
The key benchmark for the mortgage market is the domestic capital market. As long as bond market demand is short-term, volatile and highly credit and market risk averse, the housing finance system cannot be switched to capital market funding. Furthermore, housing finance systems worldwide are based on both security and deposit funding and it is far from clear what the optimal mix is. Public guarantees and a new credit direction of institutional investors should not be used to substitute for real capital market demand. They raise the risk of a new form of undesirable mortgage subsidies.

From this argument follows the need for a transition strategy for the SBPE. The proposed yield enhancement for key SBPE assets could buy time for a comprehensive deregulation that is already sketched in the proposals of the Working Group available to this study team. As the capital market develops, the system could be switched from deposit to bond funding, preferably by implementing on-balance bank bonds (mortgage or 'agency' bonds) in a mixed mortgage bank setup using in addition subordinate debt. Off-balance securitization through MBS is desirable in the long run, but requires a complex financial architecture and should follow once the legal, regulatory and taxation environment of both the financial sector and the capital markets have been improved.

Finally, additional legal and regulatory reform and the introduction of new loan products are needed to contain intermediation risks. We advise towards deepening legal reforms in

the area of the mortgage guaranty, preforeclosure and delinquency management arrangements, and enforcement. Consumer protection reform is needed to improve market transparency, ease prepayments, and by implication enhance competition. The character of new loan products will depend on the capital market situation. An important step would be the acceptance of lagged price level indexation by bond market investors. Inflation levels allowing, the system should be switched in the mid-term to adjustable rate finance, following the example of a number of mortgage markets in Southern Europe.

Figure 1 Current Brazilian Housing Finance System



Notes: 1) Mandatory provident fund earmarked for housing and urban development, quasi wage tax (8% of salaried income), 2) Using savings passbook (Caderneta de Poupanca): directed credit system for housing, 3) by issuance of letras hypotecarias receives funding from other savings banks, 4) Using lease-purchase agreements (Promessa de Compra Venda), often with savings prior to construction.

I. STRUCTURE AND SIZE OF THE HOUSING FINANCE SYSTEM

1. Structure

1. *Overview.* Figure 1 maps, for Brazil, per income bracket, the three different funding sources for housing finance: first, capital market sources, primarily bank deposits, the largest part of which are channeled into housing through the directed credit system SBPE; second, tax and quasi-tax resources, of which the largest part is constituted by the FGTS mandatory provident fund. Both FGTS and SBPE funding constitute the *Sistema Financiera Habitacional, SFH*, which will be at the center of this note. However, today important amounts of household savings are also directly collected by developers and other channels outside the financial sector. These funding sources lead into five different channels of the housing finance system.

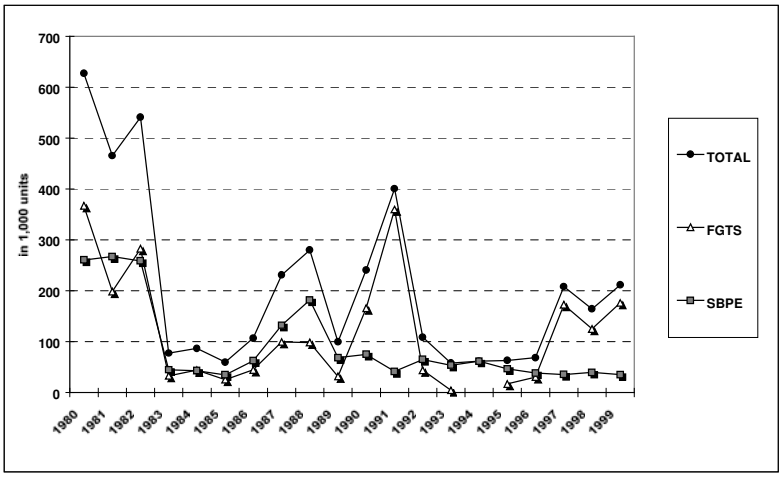
2. *Sistema Brasileira de Poupanca ed Emprestimo (SBPE).* The savings and loan system is currently operated by 41 private multiple charter banks, and 2 federal savings banks, including Caixa Economica Federal (short: Caixa). The SBPE is a tightly regulated directed credit system. It pools the savings of individuals, by issuing savings passbooks and real estate bonds (*letras hipotecarias*). Investment is primarily in residential mortgages for the higher end of the market and project development loans to developers[7]. The SBPE has been operating since 1964 with a mix of tax subsidies and reduced reserve requirements for deposits, constant real interest rates (juros) and investment floors into loans conforming with SFH loan volume limits. See Annex 2 for the description of the SBPE strict rules for the use of the deposits as well as for the conditions of the loans. SBPE lenders operate as full intermediaries, bearing credit and operation cost risks in addition to the opportunity costs of regulated interest rates. In historical perspective, from 1967 until 1999, the SBPE financed 2.850.000 housing units, ~ 90,000 units p.a. Between 1995 and 1999, financing activity dropped to ~40,000 units p.a..

3. *Fundo de Garantia do Tempo de Servico (FGTS).* The guaranty fund for severance payments. was created in 1966 (Law 5,107) with a dual mandate as a mandatory provident fund for employees (initially primarily providing severance payment insurance) and channel of long-term funding for federal social housing programs. FGTS contributions – currently 8% of gross wages - are deposited in individual accounts in the employee's names at Caixa Economica Federal (CEF). FGTS is operated as a trust fund whose investments have to be cleared by a Curator Council consisting of government, contributor employee and employer representatives. CEF manages the fund, consolidates it in its balance sheet and has the right to invest the deposits. It guarantees FGTS a minimum real return that lies below the minimum for SBPE depositors (currently 3% p.a. and 6% p.a.). By design, FGTS loans carry lower interest rates, longer tenors and are earmarked for mortgagors with lower incomes

[7] By design, to households earning above 12MW, i.e. more than R$1,812 = US$ 1,041 per month, the top 20% of the market

than SBPE funds[89]. FGTS currently constitutes the main source for social housing finance, with over 90% share of investment. Over the long term, between 1967 to 1999, FGTS sources financed 3.850.000 housing units ~ 120,000 p.a. Between 1995 and 1999, 90,000 units p.a. were financed[10].

Figure 2 SFH Housing Financings 1980 – 1999, by Funding Source



Source: Abecip.

4. *Other Federal and State Tax-funded Mortgage Lending*. In the 1990s, federal (OGU) and state (São Paulo) budget allocations and multilateral financing funds have been used[11] to finance and provide grants to various progressive housing programs. For the housing finance system, OGU funds play only a role as cofinancing to FGTS. In the first case, federal funds were channeled mostly through CEF for co-financing purposes. The State of Sao Paulo is apparently the only State in Brazil to have a long-term tax-funded program to finance finished housing units. The program is funded through 1% of the merchandise sales tax (Imposto de Circulação de Mercadorias - ICMS), revenues amounting to R$ 600 million, in 1998, being implemented through the Companhia de Desenvolvimento Habitacional e Urbano (CDHU). CDHU indicates its current housing financings at 50,000 units p.a. All other states together are thought to have funded another 50,000 units p.a.

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8 FGTS contributors receive an annual 3% real return over monetary correction, SBPE depositors receive 6%. The monetary correction factor used since 1991 is the TR (tasa referencial). TR is a daily calculated monthly rate derived from the average interest rate paid on 30 to 32-day term deposits of 20 banks, the TBF (taxa basica financeira), minus a tax factor (20% of TBF) and the real return on savings deposits (6% p.a.). This form of monetary correction is intended to capture inflationary expectations held by depositors and at the same time avoid a monetary correction based on lagged price level information that had been seen as contributing to accelerating inflation during the 1970's and 1980's.

9 Currently, FGTS funded mortgage programs benefit households earning between 5 and 12 MW, i.e. between R$755 and R$1,812 per month. 56.6% of Brazilian households earn less than 5 MW.

10 Excluding the financing of infrastructure and other services for progressive housing units.

11 *Politica Nacional da Habitação* and *Politica da Habitação: Ações do Governo Federal de Jan/ 95 a Jun/98*

5. *Developer/Buyer Financed.* Developers sell units deferred by collecting installments (Promessa de Compra Venda). There is often a prior savings phase lengthening the tenor of finance to up to 10 years. The target market consists primarily to high-income clients. The market is concentrated in larger urban areas; in the case of Sao Paulo it has been estimated that approximately 50% of housing units[12] are so built. A conservative estimate for Brazil should be in the range of 20,000 to 40,000 units p.a.

2. Size

6. *Small size:* Central Bank data indicate R$69 billion outstanding mortgage debt, or 7% of GDP, as of December 1999. This figure represents 15.8% of the total credit[13] given by the financial system. However, we find this balance sheet figure misleading as a measure for the full economic importance of the market. On the one hand, in order to arrive at full amounts that are being financed by the mortgage lenders, an amount of R$ 41 billion of matured mortgage debt that had coverage of the public FCVS insurance fund and is in the process of being converted into government debt has to be added. The total of R$ 110 billion, 11% of GDP, presents our upper boundary estimate for the size of mortgage-related debt. On the other hand, it is known that only a certain fraction of the debt owed to mortgage lenders will be fully serviced and repaid by mortgage borrowers. This is due to the fact that a high percentage of loans that have not yet reached their contractual maturity carry loan values well in excess of house prices that make full redemption unlikely. About R$ 22 billion is expected to be converted into government debt under the coverage FCVS, reducing the actuarial exposure of lenders to borrowers significantly. However more debt will have to be written off by mortgage lenders due to the absence of FCVS coverage in parts of the portfolio. Based on the results of this study that do not allow a precise estimate of this figure, we would estimate that the amount of debt that is scheduled to be repaid by the borrowers within contractual maturity is possibly only between R$ 30 and 40 billion, or 3 - 4% of GDP. We will discuss the details of this estimate below.

Table 1 Upper Boundary Estimate of the Brazilian Mortgage Market, Dec 1999

	R$ billion
Outstanding mortgage loans	69
.. of which SFH	63
.. of which other lenders	6
SFH	
.. funded by FGTS	14
.. funded by SBPE	49
FCVS debt held by SFH lenders	41
Outstanding mortgage loans + FCVS debt	110

[12] Secovi stands for Sindicato das Empresas de Compra, Venda, Locacao e Administracao de Imoveis Residenciais e Comerciais de Sao Paulo.

[13] Total outstanding housing credit relative to total credit went down from 13.3% at the end of 1997, to 10.9% at the end of 1998, and up again to 15.8% at the end of 1999. The reason according to the data was the big increase in 1998 in loans to industry and other services loans and its decrease in 1999.

7. *International comparison.* If we compare with other countries we can say that the housing finance system in Brazil is small, and has strongly declined since its peak in the early 1980's. In Latin America some countries like Chile and Colombia have larger mortgage markets. Other mortgage markets in the region are also small and were hit by similar problems, like Argentina, Mexico and Peru. Table 2 shows the percentage of total outstanding debt to GDP for a sample of countries. We consider in this table the large figure of 6.8%.

Table 2 Brazil and Comparator Mortgage Markets

	Mortgages/GDP in %
Argentina (1997)	5.8
Brazil (1999)	6.8
Chile (1997)	15.2
Colombia (1997)	12.0
Costa Rica (1998)	6.0
Mexico (1998)	7.0
Peru (1998)	1.7
Spain (1999)	39.0
USA (1999)	60.0

8. *Low intermediation function.* Another way to understand the size of the mortgage market is to compare the supply of housing units funded through mortgage loans to the latent demand, which is estimated to be between 1.0 and 1.5 million per year[14]. For the period 1995-99, the SFH system as a whole has only provided in average 8.9% of the latent demand. New mortgage lending between 1995 and 1998 was only R$3.4 billion, or 0.4 % of GDP, reflecting primarily lending through Caixa. Figure 2 gathers the housing units produced since 1980. Even in historic comparison, of the 31.5 million units added to the Brazilian urban housing stock between 1964 and 1998, the SFH has funded only 6.7 million units, i.e. 18%.

[14] See chapter 2 in the concept Paper "Housing Markets in Brazil; Policy Issues in finished and Progressive Housing"

II. THE LEGACY OF THE SISTEMA FINANCIERO HABITACIONAL

1. The Initial Concept: Stabilizing Performance under Inflationary Conditions

9. *Stabilizing liquidity provision for mortgage finance and social housing finance*: The SFH was created in 1964 with the primary goal to ensure liquidity for long-term housing finance in an increasingly inflationary environment. As in many other Latin American countries, a structure was chosen in which earmarked deposits and mandatory provident fund deposits were directed into two separate mortgage market segments, serviced by banks and state social housing finance institutions respectively. Tax incentives for depositors helped keeping real rates down. The government-owned Banco Nacional de Habitacao (BNH), acted as the central bank, special regulator, subsidy donor and refinancing bank for this system.

10. *Stabilizing portfolio performance under inflationary conditions:* A directly linked goal was the stabilization of portfolio performance for mortgage market intermediaries. Prior to 1964, inflation had seriously eroded the market value of loans that were not indexed. The SFH introduced the monetary correction of both savings and loan balances on the one hand and debt service payments on the other hand, and in addition fixed real interest rates and intermediation margins. In exchange for loosing their pricing flexibility, intermediaries enjoyed tax and regulatory exemptions. Regulations and tax treatment were frequently adjusted to keep the system attractive. These measures were designed to yield a stable positive return on mortgage assets, assuming low and moderate inflation levels.

11. *Fondo de Compensacao de Variacioes Salariales (FCVS).* As early as 1967 loan contracts were introduced that allowed misalignments between the adjustment frequencies of savings and loan balances (quarterly), and debt service payments (annually). This modification had the potential to lead to effective loan durations in excess of contract duration as a result of inflationary (or index) surprises. In order to protect intermediaries from resulting excessive loan durations and ultimately default, FCVS was created in 1968. FCVS covered both SBPE and FGTS loans until enrollment was cancelled with the closure of BNH at the end of 1986. After the merger of BNH with Caixa Economica Federal in 1988, FCVS coverage was reintroduced for FGTS funded loans only until it was finally discontinued with the mortgage market reform in 1993. Under conditions of accelerating and finally high inflation, FCVS coverage has turned out to be a key element determining the performance of the system[15].

[15] A separate paper, available from the author upon request, details the indexation history of the SFH and performance of the FCVS, Duebel (1999)

2. Portfolio Performance of the SFH

a) Approach and Data Quality Constraints

12. *The need for cohortwise analysis.* In order to measure the performance of the mortgage finance system, a sharp distinction between cartera velha loans (originated in the high inflation period prior to the mortgage market reform 1993) and cartera nova loans (originated after 1993) has to be made. Performance in a high inflation environment is primarily a function of the distribution of market risks between borrowers, intermediaries, savers and government. Adequate portfolio performance requires a carefully balanced system of underwriting, indexation, capitalization and eventually risk protection. As inflation accelerates, performance may break down even in a perfectly market-determined system due to increases financial volatility. The performance of Brazilian SFH loans originated prior to 1993 in the cartera velha in addition to these factors became politically determined, and thus cannot be compared to the market based lending that took place after 1993. However, the system continues to be dominated, in numbers of loans, by the cartera velha. At the same time, the cartera velha is concentrated with Caixa (see Figure 2 for the SBPE, all FGTS loans are entirely held on balance of Caixa).

13. *Data quality constraints*: Performance of SBPE and FGTS: As discussed above, under inflationary conditions the analysis of loan volume data can be both tedious and misleading, so the team found it suitable to focus the analysis on numbers of loans. The relatively best data conditions for performance analysis present themselves in the case of SBPE loans. Default data for cartera velha loans (see below) have to be interpreted with caution, as they reflect payment behaviour relative to low levels of payment due as a proportion of outstanding debt. We will also apply general caution in analyzing aggregations as there are several areas of statistical discrepancies. These are known to the Central Bank. For instance, default rates by volume by one data source (Central Bank Statistical Bulletin) appear to be much lower[16] than what default rates by loan numbers combined with knowledge about average loan size would indicate by another source (DIHAF). In addition, FGTS performance is not directly monitored by the Central Bank and the recent portfolio diligence of Caixa Economica Federal has not been accessible for this study team. Data on the performance of Caixa have been obtained from interviews with management, internal analysis and external audit reports.

b) SBPE

(1) Cartera Velha

14. *Portfolio characteristics*. As of the end of 1999, loans originated prior to 1993 represent 64% of all the mortgage contracts. Of the 524,564 contracts, 224,340 pre-1986 loans have FCVS coverage. More than 70% of the cartera velha portfolio (number of contracts) is now owned by Caixa due mainly to the transfer of private

[16] For instance, the default rate by volume for the entire SFH is being reported to be 7.9% (Dec 99).

cartera velha loans to the government during the PROER[17] restructuring. A small proportion of the transferred portfolio continues to be serviced by private lenders. Of the transferred loans, 90% have FCVS coverage. The number of cartera velha loans has fallen recently drastically through prepayment incentives and other measures (see below).

Table 3 SBPE Portfolio by Loan Cohort

As of December 1999		
	Number of loans	**In %**
Up to 1986	224,340	27.4
From 1986 to 1993	300,224	36.7
From 1993 to 1998	177,816	21.7
Since 1998	63,833	7.8
Faixa especial	9,653	1.2
Free rate mortgages	41,764	5.1
Total	817,630	100.0
Source: DIHAF (Central Bank).		

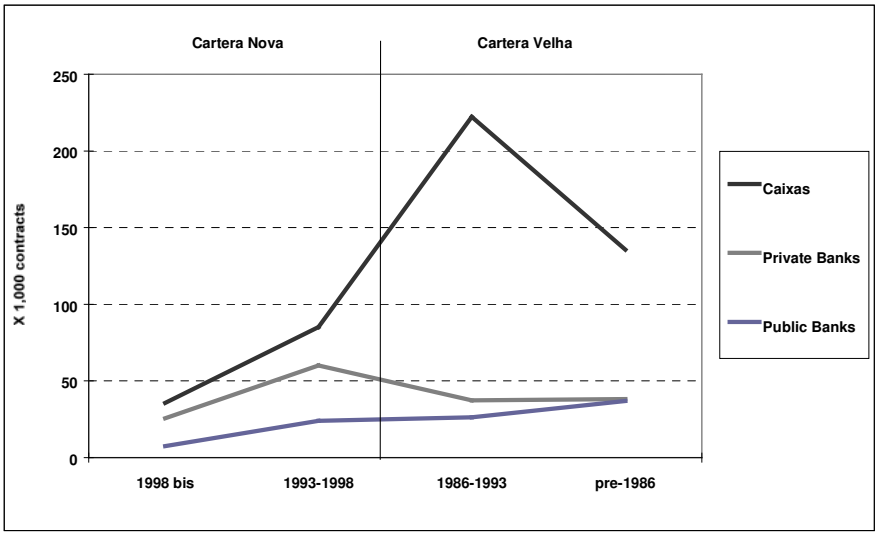
15. *A short indexation history.* The SFH practiced a high number of indexation and amortization schemes that are all reflected in the current portfolio. While the basic contract type of a price-level adjusted mortgage (PLAM) remained in practice throughout its existence, a series of interventions into debt service payment adjustment techniques and rates de facto generated a discretionary dual-indexation.
    - 1964- 1983: throughout the period, the same capital market index was used for the indexation of savings balances, loan balance and debt service payments. However, in 1970 all borrowers became allowed to switch the adjustment frequency of debt service payments from quarterly to annually under the salary equivalence plan (Plano de Equivalencia Salarial, PES), effectively allowing them to delay adjustment of up to 11 months. Also, borrowers were entitled to demand a reduction of payment increases if wages would rise more slowly (Revisao Automatica[18]), introducing a direct element of dual indexation. This affected loan performance when real wages began to drop with the economic crisis of the early 80's.
    - 1983: the introduction of salary policies discriminating against high-income earners triggered a mortgage payment boycott. Mortgage policies were introduced that allowed payment adjustments well below inflation for two consecutive years.
    - 1985: as a measure to restore portfolio performance, mortgagors were offered a payment discount if they returned to semi-annual payment adjustment under a new contract type, using individual professional wage indices (called PES/CP). In the high inflation years that follow, the variation of professional indices increased greatly, leading to wide variations in debt service payment burdens between individual professional groups.

[17] See the discussion of Caixa's performance below. During PROER, buyers of failed banks routinely declined to acquire the mortgage portfolio. In the good-bank-bad-bank approach, the portfolio was allocated to the bad bank under central bank receivership and later acquired by Caixa.

[18] In many professions, payment slips by the employers or tax declarations of the self-employed were accepted as proof of evidence.

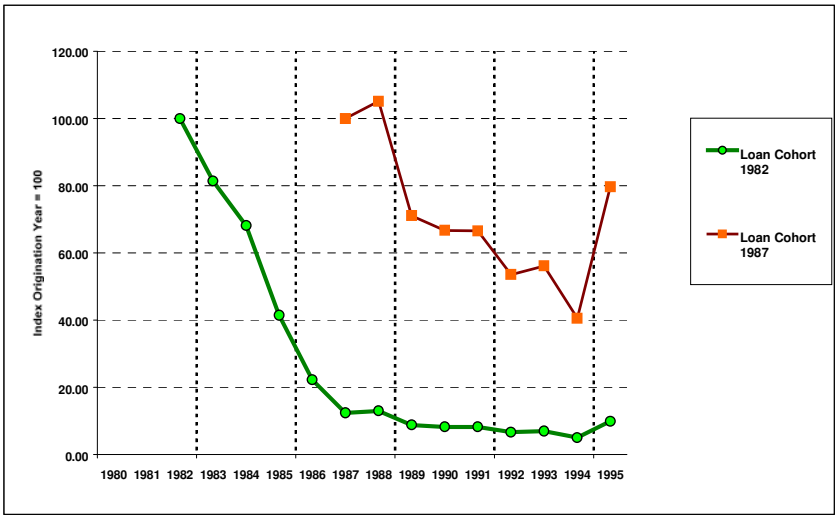
- 1986 - 1993: mortgage policies were used to support various anti-inflation plans, reducing greatly the real value of payments. Also, although adjustment intervals were shortened, the continuation of asynchronity between monetary correction of balances and payments became a pressing problem.

Figure 3 SBPE Portfolio as of December 1999, by Loan Cohort and Investor Class



Source: DIHAF.

Figure 4 SBPE Cartera Velha: Real Debt Service Payment Development of the 1982 and 1987 Loan Cohorts



Source: own calculations based on Kohler (1999).

Figure 4 shows the impact on the real debt service payments of the 1982 and the 1987 loan cohorts, both representing peaks in lending volume.

16. *FCVS performance:* the FCVS insurance scheme was designed to absorb the effect of different monetary correction frequencies of balances and payments on the effective loan duration, which under the Brazilian monetary correction and amortization schemes could differ from the contractual duration of the loan. The underlying assumptions were an undistorted price-level indexed loan product and a stationary inflation process, leading to symmetric variations in loan durations. Under these conditions, minimal insurance premia would suffice to cover its actuarial costs. However, the scheme could not perform under the non-stationary inflation and the exposure to real wage shocks introduced by revisao automatica and mortgage policies that characterized the Brazilian mortgage finance system in the 1970's and 1980's. In addition, from an institutional perspective, FCVS was poorly implemented (non-actuarial, nominal pricing; absence of actuarial technical reserves, regulatory framework and supervision) and its terms and conditions subject to political intervention. To name one example, after the introduction of the PES salary equivalency plan in 1970, lenders were able to receive a great improvement in cover without a compensating increase in premiums[19]. During the 1970's and early 1980's little notice was taken of the actuarial deficit, as real wages grew steadily and effective loan durations remained constant. The real wage shock of 1983 and the mortgage policies of 1984 and 1985, however, quickly led to increasing durations. In addition, the first loan cohorts were about to mature threatening the fund with illiquidity. The fiscal dimensions were huge: by 1983, out of the 4.07 million mainly middle-class units that had been constructed under the SFH, 3.66 million had not been completely repaid. Of this figure, 3.1 million units had been added in the last 4 years only, i.e. had only negligible amortization. Within the five years from 1983 to 1988, the real value of mortgage payments for the borrowers dropped to below 10% of their 1982 values (see Figure 4) while SBPE savers continued to be remunerated at par with inflation (in fact, liquidity grew strongly after the SFH crisis, triggering new lending pressure in 1988). Law 2164 of 1984 pre-empted a liquidity crisis of FCVS by forcibly converting lender's cash claims into debt carrying no spread over the respective deposit rates. As loans began to mature, the housing finance system was beginning to strangulate itself through increasing numbers of loans owed by FCVS (see Figure 5). The unsustainability of FCVS was officially recognized with the discontinuation of enrollment for the SBPE in 1986 and for the FGTS in 1993.

17. *Credit risk*. The mortgage policies of the Sarney government had been preceded by a payment boycott against the BNH and SBPE mortgage lenders which directly led to the SFH crisis of 1984[20]. In the wake of the boycott, and as the level of political intervention steadily increased, an industry of law suits developed that after 1988 focussed against BNH's successor institution Caixa. In particular the violation of horizontal equity created by the application of individual professional wage indices under the PES/CP continues to trigger law suits until today. Allowable payment burdens conceded by the courts to lenders vary to between 5 and 10% of income. Increasing prepayment incentives given in particular by Caixa have raised with many borrowers the expectation of full debt forgiveness. As can be seen in Figure 8, despite

[19] The cutting date of cancellation of residual debt was changed from 150% to 100% of the contractual duration (e.g., from 18 to 12 years).

[20] Banco Central reports aggregate arrears over 3 months of 24% for 1984 (number of loans).

the low payment burdens, defaults in the cartera velha remain high until today. Particularly badly hit are cohorts originated after 1986 during high inflation under volatile underwriting conditions. In 1996, under PROER, Caixa assumed loans worth R$5.45 billion from private banks, which are mostly still serviced by the private lenders. Data disclosure and servicing quality by the private lenders are reported to be unreliable, causing high arrears in the portfolio.

(2) SBPE Cartera Nova

18. *Portfolio characteristics:* The cartera nova comprises 29.5% of contracts (240,000). In 1991 and 1993 the SFH underwent a reform of the loan instruments used. In 1991, the new monetary correction instrument, tasa referencial, became applied to mortgage finance[21]. The goal was to restore SFH depositor's confidence after a combination of deposit freezings during anti-inflation plans and the failure of lagged price level-indexation to match expected inflation had generated a liquidity crisis. Law 8692 of 1993 subsequently altered the credit and interest rate risk structure of mortgage assets fundamentally. The prevailing PES contract was rationalized by requiring monthly monetary correction of balances. A new price-level adjusted mortgage contract was developed, using a debt-service-to-income cap of 30% (Plano de Comprometimendo de Renda, PCR), but demanding simultaneous monetary correction of balances and payments. FCVS enrollment for SBPE loans had been already discontinued in 1986, but became formally outlawed now (also for FGTS loans). Lenders were mandated to take measures to ensure the amortization within contract duration[22]. Plan Real in 1994 supported the reform by exempting the housing finance system from the general de-indexation imposed. A strong remonetization and increase in savings deposits was the result of this series of reform, supported by the outperformance of inflation by the new monetary correction instrument tasa referencial (see Figure 6). New mortgage originations recovered briefly, with two years of increased lending activity directly after Plan Real (1994/95). Private lenders enrolled most new clients in the new PCR contract type, changing amortization from Tabela Price to serial. Caixa continued annual payment adjustments under a variant of the PES, but has developed a proprietary amortization scheme (SACRE) to enforce full amortization[23].

19. *Market risk translates into higher credit risk*. The new configuration redistributed inflation and index risk from government to new borrowers while lenders kept operations and credit risk. Private lenders reacted to the absence of FCVS coverage

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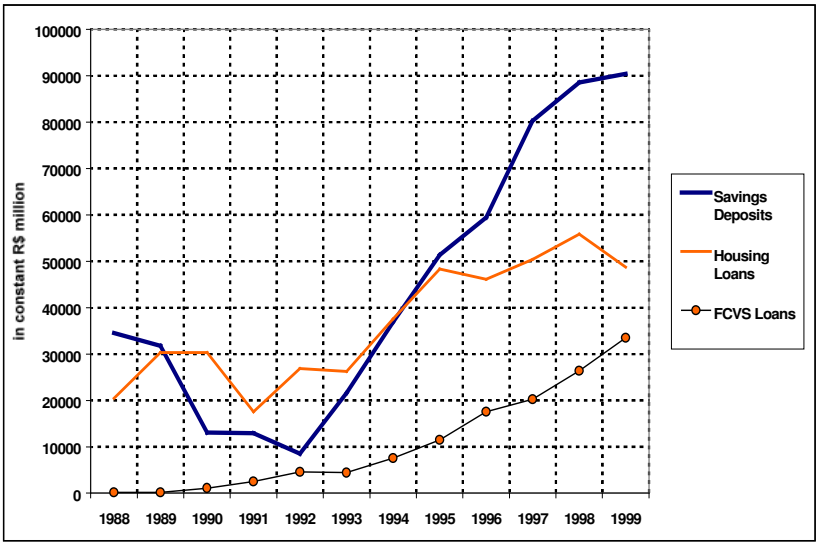
21 See Footnote 8 for a description of TR.

22 Under the PCR, when installments exceed 30% of the borrower's monthly income, he or she may apply for a reduction of debt payments to bring them in line with the 30%-of-income limit. However, law 8692 mandates that any resulting negative amortization must be paid off by the borrower. How he or she will pay the additional balance depends on the terms of the contract. Some intermediaries include a clause whereby it must be paid in January of the following year (to get hold of the borrower's 13th month salary, usually paid in December), others divide the additional balance into three installments to be paid by the borrower upon his annual wage adjustment, others still capitalize and refinance the loan.

23 The SACRE system varies a serial amortization pattern with the remaining lifetime of the loan. The pattern is reset annually (e.g. for a 60 month loan maturity, amortization for the first year would be 1/60 p.m., for the second year 1/48 p.m. and so forth).

Figure 5 SBPE: Development of Main Balance Sheet Positions 1988 - 1999



Source: DIHAF.

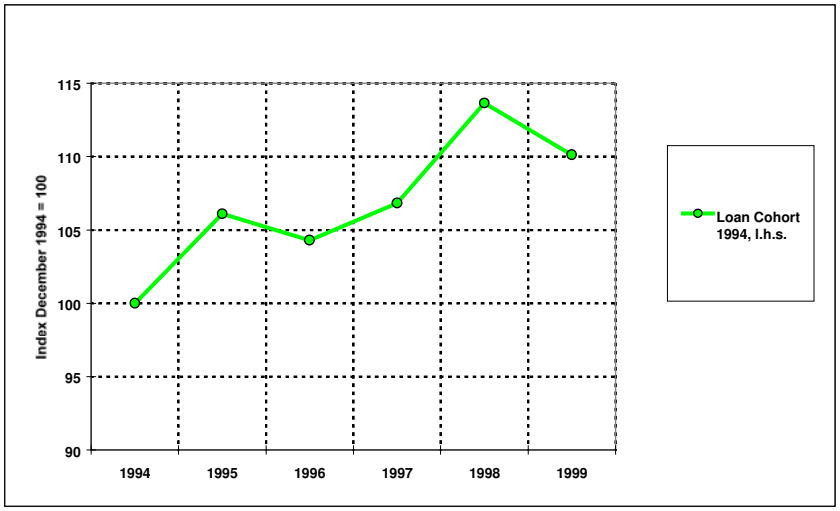
by switching to conservative underwriting, with the typical underwriting debt service-to-income ratio around 20% in order to avoid hitting the 30% payment cap. However, as Figure 7 reveals, the critical loan cohort of 1994 (and also of 1995) was hit by a real appreciation of the monetary correction factor later in the decade. Banks report larger amounts of negative amortization under the PCR in particular in 1998, a trend that recently subsided. After Plano Real, also real house prices declined and since 1997 unemployment has risen considerably. By December 1999, aggregate arrears over 3 months for the SBPE portfolio, including Caixa, in numbers of loans exceed 20%. While arrears over 3 months for private PCR contracts are 'only' in the range of ~11%, the constant spread leaves them little room to charge for higher credit risk[24]. Private SPBE lenders have thus in the past years curbed savings passbook holdings by marketing aggressively mutual funds. They also have channelled large amounts to the growth of Caixa through letras hipotecarias, and more recently a MBS/CRI deal (see below).

20. *Caixa's SBPE performance gap.* Caixa's post Plan Real SBPE operations are almost identical with the Carta de Credito program that was initiated in 1995 and uses Caixa's own SACRE amortization pattern (low-income portion FGTS funded). Due to its target group limitations, Caixa continues to underwrite at high LTV ratios (up to 100%) and higher debt service ratios than the private sector. However, the Carta de Credito program also targeted more affluent borrowers with incomes between 12 and 15 minimum salaries. There are conflicting data on the portfolio quality: according to DIHAF, Caixa's SACRE loans originated after 1993 and before 1998 carry default rates of 37%, against 11% for private sector originated PCR loans. Even more

[24] Low mortgage demand has also brought about adverse selection towards higher credit risks, as Hongkong Shanghai Banking Corporation, under regulatory pressure to build up mortgage portfolio after the takeover of Bamerindus, has experienced in 1998/1999.

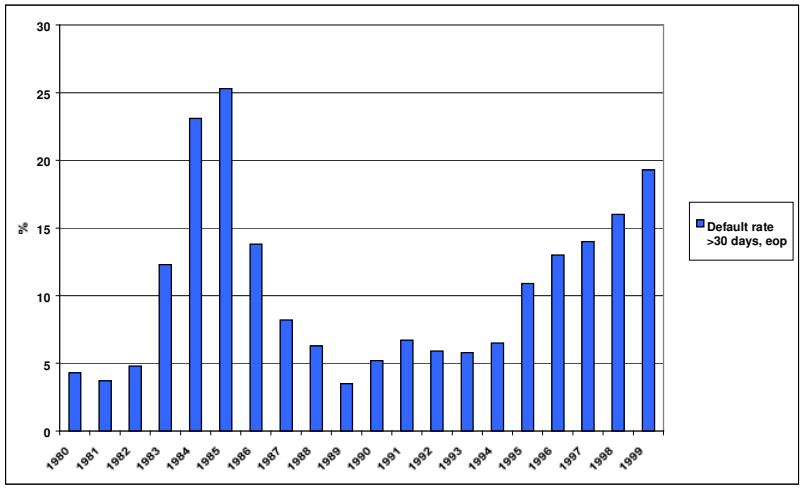
disturbingly, SACRE loans originated after 1998 carry 21% vs. only 2.3% in the case of private PCR contracts. However, Caixa management reports significantly lower default rates of just 7.4% for the Carta de Credito program, vs. 26.8% for cartera velha loans. If confirmed, high default rates of newly originated loans would hint to structural performance problems such as inadequate underwriting or a general lack of payment morale.

Figure 6 SBPE Cartera Nova: Real Debt Service Payment Development of the 1994 Loan Cohort



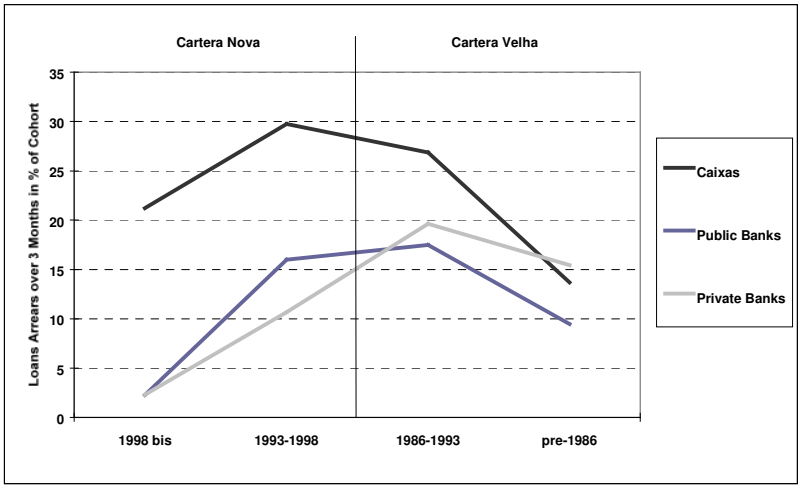
Source: BACEN, author's calculations. Note: real debt service payment development calculated by dividing Tasa Referencial index used for the monetary correction of mortgage loans through IPC Brazil index (base August 1984 = 100). Note that (real) interest rates "juros" of SBPE loans are constant. No amortization assumed.

Figure 7 Aggregate Arrears over 3 Months SBPE



Source: DIHAF.

Figure 8 Percentage of SBPE Loans (Numbers) in Arrears over 3 Months as of April 2000, by Loan Cohort and Current Investor



Source: DIHAF. Note: Caixa loans include Cartera Velha loans acquired from private and public banks under PROER/PROES.

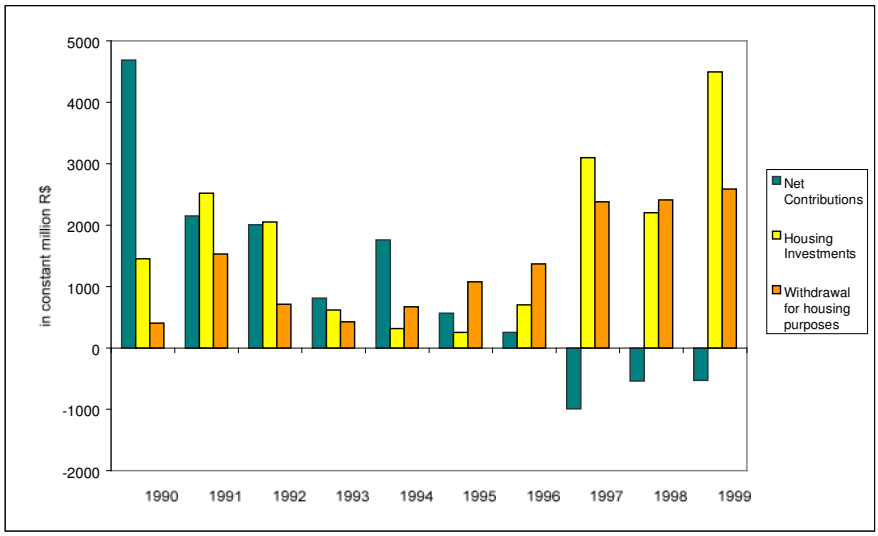
c) Performance of FGTS

21. *FGTS deposit performance*. Prior to 1989, FGTS dividends to contributors have frequently under-performed vis-a-vis inflation and savings passbooks yields[25]. Already in 1971, the initial system of differentiation of real returns on contributions according by tenure that would have allowed savers to eventually reach SBPE deposit yields (between 3 and 6% p.a.) was cancelled in favor of a flat 3% minimum real rate. During the subsequent inflation spells, monetary correction was often insufficiently applied, or applied with a long adjustment lag. Two of the anti-inflation plans, Plano Verao (1989) and Plano Collor I (1990), left FGTS depositors with underadjustments of 17 and 45% of their balances respectively. In light of the issues that arose during high inflation, the FGTS reforms of 1989 was aimed at strengthening contributor rights: in addition to investment controls, monetary correction had to be accounted for monthly, the 3% real rate was formulated as a minimum that could be expanded by profits generated with FGTS funds, and contributors were given extended withdrawal options on their accumulated membership value (inter alia, up to the full value of contribution for housing downpayment purposes). However, real returns remained fixed at low levels and – despite an increase in remuneration due to the real appreciation of tasa referencial monetary correction instrument - the public perception of FGTS contributions as a tax was not altered during the 1990's.

22. *FGTS contribution flows and it's role as a housing savings institution.* Although partly protected through the balance sheet of Caixa and benefiting from the recent real appreciation of deposits through the tasa referencial correction instrument, FGTS contributions have continued to yield below market returns during the 1990's. Private households have realized FGTS' inefficiency and have in the past voted with their feet through high levels of contribution evasion and frequent exercise of the many

[25] For a cohortwise calculation of real deposit yields, see Oliveira et.al. (1999).

Figure 9 FGTS Net Contributions, Housing Loan Investments and Withdrawals for Housing Purposes, 1990 - 1999



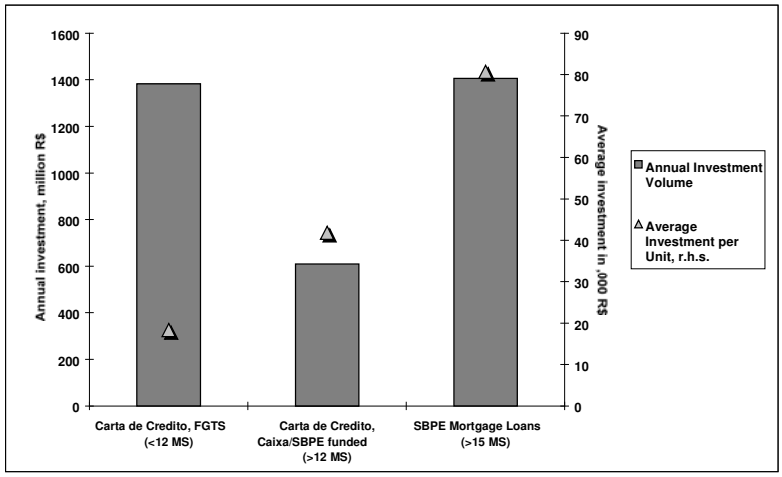
Source: DIHAF, author's calculations.

and increasing withdrawal options. The result have been negative net contributions since 1996 (see Figure 9). It is interesting to note that FGTS withdrawals for housing purposes have substantially increased since 1997 - over the period of 1993-1999 they are close to total housing investments in volume. A large proportion of these outflows is subject to Caixa's policy of encouraging the prepayment of loans with FGTS deposits. However, originary withdrawal for downpayments has also been liberalized in the late 1990's - contributors may now withdraw up to the full amount of their FGTS account, or the house price (construction cost estimate), whichever is lower. As a result, for many contributors FGTS today fulfills the function of a housing savings scheme rather than a general investment vehicle.

23. *The role of FGTS in housing finance.* FGTS has historically been the major source of social housing finance programs in Brazil. Between 1967 to 1999, the fund financed 3.850.000 housing units (around 120,000 per year). Figure 10 relates FGTS and SBPE new originations and reveals that FGTS loans have funded more than 40% of the total between 1995 and 1998. Combining low real interest rates and high levels of credit losses, FGTS programs carry substantial subsidies to their beneficiaries (for a calibration, see below). Caixa mixes FGTS funds with own funds for Carta de Credito operations between 5 and 12 minimum wages (at 9.5% real interest rate). Low-income mortgage loans under 3 minimum wages, residential development finance, and urban infrastructure programs are funded by FGTS only (at 6% real interest rate)[26]. With the introduction of the Carta de Credito program, however, Caixa's retail mortgage program made also an inroad into the traditional SBPE market.

[26] Habitar-Brasil and Pró-Moradia Programs: Pró-Moradia and Habitar-Brasil are similar programs for urban and rural housing development and, organizationally, are administered by CEF as Public Sector programs (and not housing programs). The primary distinction between the two programs is the source of funds; Pró-Moradia is an FGTS program implemented by the CEF (with investment decisions made based

Figure 10 New Originations of FGTS and other Caixa loans vs. Private SBPE loans and Average Loan Size, 1995-1998



Source: SEDUR.

24. *FGTS housing investment flows after 1990.* Caixa's operations have been substantially more subjected to constraints than BNH's by the 1989 reform law (Law 7,839) that enhanced the requirements for transparency and performance investments (inter alia, investment decisions henceforth had to be based on financial analysis and creditworthiness conditions). In order to improve the targeting of resources, since Lei 8036/90 a proportion of 40% of the total resources invested in social housing has to be directed towards basic sanitation and infrastructure projects. Annex II has the detail. Mortgage finance investments of the 1990's are characterized by two main phases (see also Figure 2):

- Collor de Melo's *Plano de Ação Imediata para Habitação,* starting in 1990, while operated by Caixa, was designed and managed by the new Ministry of Social Action. This and other programs had to be abolished in 1992, when FGTS liquidity dried up as a result of anti-inflation measures. The impact of the high defaults of the program was a main trigger of the first restructuring of Caixa under the Itamar Franco administration.
- Under the Cardoso administration, FGTS resources were redirected to some extent into progressive housing programs (Pro-Moradia), which are not part of the mortgage portfolio. However, finished housing received the bulk of resources through the FGTS funded portion of the Carta de Credito program aimed at the hitherto unserviced low-income mortgage market. In April 1999, finally, the Housing Leasing Program (Programa de Arrendamento Residencial) was launched although it has not been very active yet[27].

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on financial analysis and creditworthiness conditions) while Habitar-Brasil is a program of directed investment utilizing OGU funds, with financing directed to states and municipalities by Congress.

27 The program entails the creation of a housing property fund (FAR), to be administered by Caixa. The fund will invest R$3 bn in order to acquire 200,000 low-cost housing units from developers, using 2.4 bn of finance from FGTS fund. The remainder of the financing comes as a grant component from social funds (FDS, FAS, FINSOCIAL).

The fund will operate a low-cost housing program (PAR) based on a real estate leasing contract. The beneficiary has a purchase option after a minimum of 180 month of payment of leasing rates. As common practice in the rental sector,

Figure 9 above highlights the resulting cyclicity of FGTS housing investments. The data reflect the practice to draw down the entire program amount from FGTS cash accounts and park it with other Caixa accounts until loans or housing units are delivered.

25. *FGTS portfolio performance*. Caixa's management reports current aggregate portfolio arrears over 3 months of FGTS mortgage loans as of 36% as of mid-1999, but only of 8% for the FGTS funded part of the Carta de Credito program. The first figure reflects the high portfolio performance problems associated with BNH loans and the almost 500,000 loans given under the Collor administration that had led to the first restructuring of Caixa in the early 1990s. Compared to the historical FGTS portfolio default rates that have been significantly higher than SBPE defaults, the performance of the Carta de Credito program is seen as strong improvement by management[28]. However, official SBPE data cast doubt over the accuracy of this assessment.

26. *Distribution of credit risk between Caixa and FGTS.* While FGTS contributors are protected against the full impact of credit losses by Caixa's balance sheet, in an average cost of funds view high levels of credit losses and administration costs merely lead to a depression of the real deposit return to the minimum guaranteed level of 3% (while loan coupon's average 9.5%). Caixa's current strategy seems to be to cover a substantial amount of the credit losses by investing large amounts of FGTS funds at market rates and using the excess investment returns for cross-subsidization. Under the Collor administration, the underadjustment of FGTS depositor balances and hence Caixa's cost of funds have played a significant role in reducing the impact of default.

3. Institutional Performance of Caixa Economica Federal

27. *Overall performance, data sources.* Interviews with management suggest that Caixa average monthly return on assets has been below average cost of funds by a margin of over R$200 million, or - 0.2% over total assets p.m., in 1999. This has to be seen against asset growth of 9% p.a. between 1996 and 1999, and a low 1% p.m. average return on assets. These performance data would be consistent with findings of recent

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leasing rate are fixed as a percentage of house price (currently .63% p.a.), and calculatory house price appreciation will be fixed at 1% p.a. While leasing may decrease the credit risk for the fund, there are asset-liability management risks involved since cost of funds are a mark-up over tasa referencial. It is likely, therefore that the fund will operate with relatively large liquidity reserves. This would also reduce the extremely long asset maturity (max contract duration if purchase option is not exercised is 23 years). The program had difficulties to get started, mainly since negotiations with private developers to provide housing units for below US$ 11,700 (R$ 20,000) were stalled. FGTS liquidity invested in the fund will earn market returns through investment in securities while the housing portfolio will be acquired over time.

[28] Valenca (1992) reports first default problems arising in the mid-1970's, due to problems of state housing funds that were applying FGTS funds as rental investors or mortgage lenders. Subsequently, the SFH crisis saw 80% of the FGTS loan *balance*, mostly to the state funds, in default, compared to 35% of SBPE's (the team was unable to identify whether Valenca is referring to caseload or volume of loans with these default figures – the relations seem plausible, however).

Table 4 Caixa Economica Federal: Balance Sheet Structure eo 1999, and Change over 1996

in million R$, 12/31/99

ASSETS	R$	R$	%	99/96 %*		%	R$	R$	LIABILITIES
Cash and other liquidity	1470		1.2%	-42%	5%	50.3%		61544	**Deposits**
Securities	17920		14.6%	29%	20%	23.6%	28909		/savings passbook
/related to FCVS		3529	2.9%	13%	4%	22.7%	27760		/term deposits
Interbank claims	22260		18.2%	22%	16%	6.7%		8251	**Securities issued**
/on SFH FIs		16315	13.3%	26%	16%	6.7%	8251		/cedulas and letras hypotec.
Loans	69266		56.6%	15%	15%	24.7%		30259	**Public funds**
/infrastructure		5719	4.7%	18%	15%	24.6%	30136		/FGTS
/housing		38755	31.7%	4%	30%	15.1%		18487	**Other liabilities**
Other loans	5835		4.8%	-26%	-2%	3.2%		3900	**Own funds**
Fixed assets	4593		3.8%	7%					
Other assets	1097		0.9%	-17%					
	122441			9%				122441	

*annualized growth rate

Source: Caixa 1999 and 1996 auditing reports.

report commissioned by Fazenda on all six federal banks combined[29]. The report in addition estimates Caixa's administration costs to be 50% higher than those of private competitors, as measured by the ratio over operating revenues, but lower than Banco do Brazil's. As Caixa's portfolio is invested to more than a third at free market rates, a 1% average return on asset suggests a negative return on assets on the housing and urban loan portfolio.

28. *Financing structure and subsidy dependency*: with the exception of smaller positions, Caixa's liabilities carry below-market costs-of-fund. Management indicates the average costs of funds for 1999 at ~ 1.2% p.m. The SFH resources FGTS and SBPE deposits constitute roughly a quarter of total liabilities each – and have grown since Plan Real at high annual rates (15% and 20% respectively, against 9% total asset growth). Time deposits captured inter alia from state pension funds and other government funds are remunerated as SBPE savings deposits and account for another quarter of liabilities. However, after Plan Real this funding source has grown below asset growth. Letras hypotecarias, some 7% of liabilities with variable coupons, are placed primarily with SBPE banks in need of complying with investment floor requirements but are remunerated typically closer to market rates. Their importance as ALM instrument has strongly grown after Plan Real, the instrument is also used between SBPE lenders[30]. In summary, the subsidy content of all these sources benefiting Caixa, and not borrowers[31], is substantial and should be assessed using the Bank's subsidy dependency methodology[32].

29. *Mortgage asset structure.* According to the audited 1999 balance sheet, Caixa holds a mortgage loan portfolio of R$ 50 billion. The portfolio can be divided into 3 parts.

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29 See Booz'Allen & Hamilton (2000).

30 Letras fetch real rates between 6% and 16-17% p.a. Letras issued have more than doubled between 1995 and 1999, from R$ 3.7 bn to R$ 8.2 bn. Meanwhile, the typical tenor of letras has shortened from 360 to 180 days.

31 Liquidity and undisbursed investment balances of funds administered by Caixa are generally invested profitably, with only slightly higher returns to the funds.

32 See Yaron (1992).

Since 1988 and until 1993, Caixa took over the role as main agent of the government for low income housing finance, continuing to service the FCVS covered cartera velha loans on behalf of the treasury[33], and originating new FCVS covered low-income loans on its own account. The size of this part of the portfolio is indicated with ~ R$ 21 billion. After the mortgage market reform in 1993 banned FCVS enrollment, Caixa built up a new non-FCVS covered loan portfolio, the total of which by eo 1999 is ~ R$ 18bn. A large element of this portfolio is the middle-income (up to 12 MW) "Carta de Credito" program, using the new amortization system SACRE (~ R$ 5 bn) that ensured loan repayment. Thirdly, in 1996 Caixa acquired portfolio from private SBPE lenders, COHAB's and other financial institutions as part of PROER of approx. ~ R$ 10.5 bn. Caixa deems the latter portfolio to be to 90% covered by FCVS. This yields a total FCVS coverage of R$ 31.5 billion, or 63% of mortgage assets. By December 1999, only approx. 45% of the FCVS covered volume represent active contracts serviced by the borrowers. Due to the backlog in consolidating the acquired portfolio, there is still uncertainty over the total FCVS covered amounts[34]. In addition heterogeneous credit risk characteristics, the portfolio is also characterized by high market risk heterogeneity. Caixa's asset-liability management has to cope with 7 main amortization schemes, 4 main monetary correction mechanisms for outstanding balances, and 9 main payment adjustment mechanisms. In order to improve accounting of its complex portfolio, Caixa has introduced in 1996 a proprietary mortgage loan administration system, SIACI. As of 1999, Caixa holds 2/3 of the outstanding mortgage portfolio in Brazil, and undertakes 50% of new financings, including 95% of low-income mortgage loans.

Table 5 Caixa Mortgage Portfolio Structure and Liquidation Activity

Caixa Mortgage Portfolio Structure for mid-1999	Number of Contracts ,000	Outstanding Balance R$ bn	
With FCVS Coverage	504	21	
Without FCVS Coverage	734	17.9	
Acquired loans*	466	11.2	
Total	1704	50.1	
			Recovered Balance
Caixa Loan Liquidation Activity			R$ bn, %
until end of 1998	250	6.8	2.4, 35%
Jan - Oct 1999	136	5.6	1.2, 21%
*90% with FCVS Coverage	386	12.4	

Source: data provided by Caixa Management during mission November 1999.

30. *Mortgage asset performance: mortgage credit losses, loan loss provisions and portfolio liquidation policy*: Caixa's mortgage credit losses (as opposed to the direct government exposure of FCVS) come from two main sources. i) *carry-over costs of default:* while Central Bank and Caixa management data on SBPE and FGTS portfolio performance are contradictory (see the discussion of both portfolios above), we estimate that carry-over costs through foregone interest income amounts at least to

[33] Caixa continues to decline accountability for credit losses, but holds capital, loan loss provisions, and funds FGTS loans originated prior to the 1989 reform.

[34] In this regard, the audit report indicates inexplicable yearly variations between 1999 and 1998 that have affected the actuarial position of FCVS (see below).

R$ 1billion p.a. ii) *irrecoverable balances on non-FCVS covered loans*: Caixa expects approx. ¼ of its cartera nova loans (~ 180,000 contracts) to mature with a residual debt totalling R$ 5.2 bn. The losses arising from this portfolio are anticipated to total between 2.8 and 4 R$ bn (Nov 99). The amount of losses will depend on the promulgation of a controversial law through Congress that intends to force borrowers to repay mortgage balances beyond the contractual maturity if there is no FCVS coverage. There are probably other sources of mortgage credit losses, for instance concerning BNH assets. Caixa's *loan loss provisions* have recently substantially risen to R$ 4.2 bn eo 1999, or 6% of the loan book – we are unable to determine provisioning ratios because of the uncertainties. For loss mitigation purposes both FCVS covered and non FCVS covered portfolios, Caixa has since 1997 run a comprehensive prepayment program, with discounts of up to 90% available to borrowers for cartera velha borrowers. It is allowed to use of FGTS deposits for prepayments. On the other hand, R$ 100 million of performing portfolio has been sold in 1999 for the first securitization deal with CIBRASEC as issuer and Bank Itau as buyer. In 1999 Caixa's outstanding mortgage loan portfolio has dropped for the first time in the decade.

4. Summary of Mortgage Market Subsidies

a) Legacy Debts of the SFH ("Skeletons[35]")

31. *FCVS actuarial deficit.* By December 1999, according to Banco Central the actuarial deficit of FCVS was R$59 billion**,** 5.9% of GDP. The deficit continues to grow, as the last cartera velha loan cohort covered by FCVS is expected to reach maturity in 2017. However, the proportion of FCVS covered mortgage loans that have not yet matured is quickly declining (R$ 21 billion as of eo 1999 vs. R$ 34 billion eo 1998), primarily through prepayments, and so is the uncertainty about the size of the deficit. Since the technical bankruptcy of FCVS in 1986, the government has undertaken a broad set of initiatives to reduce the total actuarial deficit:
    - in 1984 a technical reserve was created. Premiums were significantly increased and the premium base broadened. The reserve fund has grown to R$ 3.8 billion at the end of 1999, but still covers only 6% of the actuarial liability estimate.
    - in a series of actions, the government sought to reduce the value of the already matured FCVS debt. In the most significant step so far, in 1996 mortgage lenders were induced to convert FCVS loans (carrying mortgage coupons) into long-term treasury bonds (carrying zero spread over savings deposits). The measure was supported by a combination of penalties for non-compliance and tax incentives facilitating the repricing of assets[36].

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[35] In Brazil, non-recognized public liability have become dubbed "skeleton".

[36] This process has been dubbed by the Brazilians as 'securitization'. FCVS bonds are direct treasury liabilities and carry a maximum term of 30 years, from January 1, 1997 on, with 8 years grace period on rates (Poupanca and FGTS deposit rates) and 12 years grace period on principal. According to Abecip, under pressure from regulators to loose the acceptance of FCVS loans against their investment floor and other measures banks have almost completely converted. Intermediaries of FGTS funds, such as COHAB's or pension funds, in turn, still hold FCVS loans.

- efforts were made to reduce the actuarial value of the portfolio that has yet to mature through borrower policies. Attempts to increase the nominal debt service payment rates (see Figure 4) have been usually intercepted by courts. In parallel, and partly undermining the former measures, discounts at gradually increasing levels were offered to borrowers in exchange for prepayments. Discounts for pre-1986 loans increased from 45% in the mid-1980's to 90% offered by Caixa since the beginning of the 1990s. By 2000, Caixa has announced to forgive FCVS covered non-matured loans originated before January 1987, as the loan collection costs exceed the debt service payments. Private banks are expected to follow this measure.
- while various supporting measures for housing finance have been proposed (see our discussion below), by 2000 fiscal considerations continue to pre-empt a solution for the FCVS debt that would restore liquidity of the mortgage finance system. A positive aspect is that SBPE held non-matured FCVS loans account only for ~ R$6 billion, so the increase of FCVS debt as a proportion of total assets should come to a halt in the near future.

Table 6 Summary: FCVS Debt Position Between 1996 and 1999, R$ billion

	1996	1998	1999
Loans already matured, FCVS debt	25	31	41
Loans to mature, actuarial FCVS debt estimate	45	34	22
Total FCVS actuarial debt estimate	70	65	63
Total FCVS global actuarial deficit estimate (% of GDP)	69 (8.8)	61 (6.8)	59 (5.8)
Memorandum item: FCVS Assets	2.7	2.8	3.8

Source: Banco Central.

32. *FGTS deposit correction*. The perception of FGTS as a tax has been fuelled by a 2000 supreme tribunal order against FGTS that is estimated to give rise to deposit account adjustments in the magnitude of R$ 38 billion, to compensate for the under-adjustments that took place during Plano Verao and Plano Collor I. It is thought that the total amount will be reduced by 30% for inactive contracts and other corrections. However, if only already matured claims against FGTS are considered (withdrawals, retirements, severance payments etc..) the cash obligations amount to R$ 13.3 billion, against current liquid reserves of the fund of R$10.4 billion[37]. As of September 2000, no agreement has been reached about the source of financing (i.e., FGTS reserves or government budget). In combination with the negative liquidity flows since 1996 these new claims would threaten FGTS acutely with illiquidity.

33. *Estimated CAIXA total fiscal cost.* The results of the audit of Caixa through the Central Bank supervisors in the first half of 2000 have not been made available to the team. Apart from the credit assessment of the mortgage portfolio discussed above, the PWC audit report highlights problematic accounting practices and the lack of

[37] Folha de Sao Paulo (09/29/00).

portfolio benchmarking[38]. It would appear that potential recapitalization costs of Caixa, if such an option would be chosen, arising from write-offs on the non-FCVS covered portfolio could amount to more than R$ 5 billion. However, the need for action is currently reduced by Caixa's strong liquidity position, induced by its preferential access to stable long-term sources of funds priced below market.

b) Permanent Mortgage Market Subsidies

34. *Elements of current mortgage subsidies*. Independently from the "skeletons", it is of independent value to assess the level of current subsidies transferred from the federal government to current mortgage borrowers. SFH borrowers are permanently subsidized by the federal government primarily through property sales tax reductions, income tax exemptions for savings passbook holders funding the SBPE, below-market returns that have to be accepted by the mandatory contributors of the FGTS fund, the credit losses of the public banks in excess of the risk component charged. We add to this the actuarial deficit of FCVS loans as far as it affects non-matured loans.

Table 7 Estimated Floor of Main Current Federal Subsidies to Mortgage Borrowers

Instrument	R$ million	% GDP
Property transfer tax reduction SFH loans	400	0.0%
Tax support SBPE System	2,000	0.2%
Low cost of funds mortgage loans FGTS	3,500	0.4%
Mortgage credit losses Caixa	2,000	0.2%
Inflation risk exposure active FCVS contracts	2,300	0.2%
TOTAL CURRENT SUBSIDIES	10,200	1.1%
Memorandum Item: on-budget federal housing subsidies	1,000	0.1%

Note: figures for on-budget federal housing subsidies include program expenditures only (annual OGU average 1995-1998), Source: SEDUR.

35. *Approximate floor subsidy estimate*. The government estimates the tax support for the SBPE system at ~ R$2 bn p.a., a result that is consistent with a 2-3% yield premium fetched by comparable bank deposits over poupanca deposits.[39] An assessment of permanent FGTS subsidies induced by below-market real rates is rendered difficult by the absence of a long-term yield curve. We use the current overnight interbank rate SELIC as benchmark and arrive at FGTS borrower benefits in the range of R$ 3.5 bn p.a. through cost of fund advantages alone[40]. An estimate of credit losses for public lenders is arrived by assuming substitution of the non-performing loans by a consol type loan carrying SELIC rate, ~ R$ 2 bn (see Caixa discussion above, carryover

[38] See the recent auditor report for the second half of 1999, on Caixa's webpage: http://www.cef.gov.br/. The Central Bank has required Caixa to mark its portfolio to market, a measure which management has refused to accept due to a lack of long-term pricing benchmark.

[39] Housing Inter Ministerial Working Group (1999).

[40] However, total subsidies implicitly paid by FGTS contributors are higher, as they include subsidies paid to Caixa (see above).

costs only assuming full amortization). Finally, the funding costs of the current actuarial FCVS deficit covering outstanding loan cohorts convert into a R$ 2.3 bn current cost equivalent. Based on this account, it becomes clear that despite its small size, the mortgage finance system continues to generate high *fiscal costs* for the federal government, which should not be inferior to R$ 10 bn p.a., or 1% of GDP, compared to a total system of R$69 billion or 6.8% of GDP . For illustrative purposes Table 7 compares this amount of hidden subsidies with the total federal housing budget expenditures, which are in the range of R$ 0.5 to 1 bn p.a. To arrive at the total current costs of the mortgage finance system for the federal government however, the funding costs for the anticipated skeletons addressed above should be added, once the ultimate financing incidence for all debts is known.

III. THE ROAD AHEAD

36. *Structure of the policy section*. We divide the policy section of the note into 3 subsections. The first summarizes briefly the policy agenda of the 1990's which both dealt with the legacy of the SFH and launched a so far unsuccessful attempt to introduce a new housing finance system, SFI. The second reviews briefly the conditions we see for successful housing finance reforms. In particular we argue that after the failure of the SFH there is need to deal with *all* traditional formal housing policy instruments, and thus mortgage market subsidies and the role of government, to restore a credible reform process. In the third section, we detail observations on individual aspects of the current reform agenda and offer our recommendations.

1. The Government's Reform Agenda

37. *Reforms of the 1990's.* The 1990's saw a series of reform steps undertaken by *the* Brazilian government to strengthen the role of the private sector in mortgage finance. These focussed on two areas: legal reform, and introduction of a new primary and secondary market product.
    - *1991 Rent reform*. The Rent Act of 1991, among other things, made tenant eviction possible within 3 months notice and liberalized the indexation regime for rental contracts that had previously been the main instrument of rent control. It led to a reduction of the traditional high levels of vacancies of formal urban housing to market levels[41].
    - *1993 Mortgage finance reform.* Law 8692 abolished mandatory dual indexation policies for mortgages, and Plan Real allowed the housing finance system to run a price level adjusted mortgages with capped debt service as a proportion of income (PCR), and introduced Tasa Referencial (TR).
    - *1995/96 Mortgage bank restructuring*. In 1995 and 1996, the government purchased under the PROER and PROES restructuring most loans with high capitalization balances held private and public banks and covered by FCVS. A second restructuring deal for non-FCVS covered assets will be needed to clean up portfolio carrying negative equity of the 1990's. The terms of the deals, in particular the subsidies granted to mortgagors, will critically decide about willingness-to-pay of future borrower generations.
    - *1997 Mortgage legal and capital market reform.* In 1997, Law 9514 in a major institutional step, created a receivables-based security concept (CRI[42]), enabled mortgage securitization companies, and introduced trustee sale (alienacao fiduciaria[43]) as a new guaranty instrument. Law 9514 is seen as the enabling law

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41 Sao Paolo vacancies had reached 7% of the apartment stock during the 1980's. After the reform, vacancies dropped to market levels (currently under 2%). With more supply in the market, rents have fallen from a monthly average of 2% of the house price to 0.5-0.6%.

42 CRI, Certificados de Recibiveis Imobiliarios, are securities that entitle the holder to mortgage receivables stemming from mortgage assets purchased and held by the issuer. CRI are constructed as a pass-through.

43 Alienação fiduciaria (in contrast to mortgages) is an attempt to resolve the bias against lenders which appears in the rulings of Brazilian civil courts. Under alienação fiduciaria, the purchaser of a home

of a new housing finance system to replace the SFH, the Sistema Financiero Imobiliario (SFI).

38. *1999/2000 mortgage finance reform proposals* to support the introduction of the SFI, an Interministerial Working Group was founded in June 1999. The proposals leave key features of the SFH intact, such as the SBPE and the FGTS funding systems. The intention seems to be to convert the SBPE from the only source of funds for upscale mortgage lending into a dominant funding source for the CRI securities. An overview over the subjects addressed by Group is provided in Table 8 below, as well as the issues we see. As of September 2000, it is unclear to the team whether a final report has been developed.

Table 8 Proposals of the Interministerial Working Group as of October 1999

Subject	Proposals (preliminary)	Status Quo	Issues
Monetary correction	Replace TR by price level index. Lengthen adjustment interval to quarterly or longer.	TR mandatory monetary correction index for SFH. Monthly balance Adjustment.	Banks prefer TR. TR not acceptable to institutional investors. Keep high adjustment frequency for products using monetary correction.
Mortgage instrument	3 lending contracts: - SFH contract (fixed long-term real rate + monetary correction) - Free segment contract I (variable real rate + monetary correction) - Free segment contract II (adjustable rate)	Use of fixed long-term real rate predominant.. Prepay-ment with SFH loans difficult. No variable real rate or adjustable rate finance.	Continuation of long-term fixed rate loans block market integration and liquidity for social housing loans (SFH). Adjustable rate financing premature (rates over 20%). Free market rates currently low because of low demand Temporary support for prepayment/drop of prepayment blockers to promote competition.
Credit direction	Expand total housing minimum from 60 to 80%, but enhance free portion. - keep SFH contract for a reduced minimum (from 48% to 20%). - expand free housing loan segment from 12% to 60%. 20% free market investments. 0% minimum reserves. 50% of free housing loans to be invested in production and sale of housing units.	60% of SBPE assets to be invested in real estate loans, of which: - 80% (=48% of total) in SFH loans at fixed long-term real rates. - 10% (6%) in free housing loans. - 10% (6%) in other real estate loans. 25% free market investments. 15% minimum reserves. SFH loans for production or sale of dwellings only.	Directed credit system continues without sunsetting. Asset structure in free housing loan segment not well defined (will funds be invested in securities or loans?). 50% minimum opens options to enhance prepayments.
Amortization and duration risk	Use new amortization method to exclude nominal outstanding in excess of original loan amount. Rule out government intervention into insuring against residual debt.	Since 1993, amortization scheme must ensure full loan repayment at contract duration. Self-insurance by mortgage lenders. Tighter underwriting.	Further restriction could create stop-and-go lending and reduce affordability. Lenders continue to perceive high inflation risk.

does not get title to the property until the loan is fully paid. The flow of mortgage payments is the collateral for the security, hopefully allowing for a more expeditious foreclosure in the event of default.

Support for SBPE Deposits	Maintain certain tax incentives for savings passbook holders. - No withholding tax applied. - Differentiate deposits into 3 types: demand deposits (w/o tax incentives), term deposits over 90days (tax incentive and minimum return), housing savings scheme (tax incentive). New tax-exempt government-backed Passbook Savings Account. Periodic revision of savings passbook interest rates by the government. Reduce short-term deposit rates.	Savings passbook returns are income tax exempt. Savings passbooks daily callable. Passbooks are backed by the bank's signature and FGC (government backing abolished in 1996). Real interest rates on passbooks are fixed. Little past intervention by government.	Continued tax incentives to depositors ad-hoc. Introduction of short-term bond instruments preferable. Government protection raises risk of moral hazard by SBPE lenders. Purpose unclear. ALM risks through disentangling lending and deposit rates not addressed. Risk of policy and implementation lags.
Support for capital market Intermediation	Strengthen CIBRASEC - improve tax efficiency - official public sponsorship of CIBRASEC - CIBRASEC chartered as financial institution, overseen by BACEN. - exempt SFI transactions from financial transactions tax (CPMF). Strengthen CRI's - risk-weighting less than or equal to mortgage loans on balance.	CIBRASEC - tax treatment not clarified. - public shareholding, but not public sponsorship. - unclear regulation and supervision. No regulation on MBS risk-weighting in force.	Conflict of interest between public and private shareholders. Open regulatory and tax issues. Regulatory competition between securitization companies and bank or insurance charter.
Strengthen mortgage asset demand	No limit to mortgage securities investment within free SBPE housing portfolio. Strengthen institutional demand through relaxation of investment regulations. Examples: - allow investment of technical reserves of institutional investors in CRI. -allow FGTS and FAT to purchase CRI.	10% limit for acceptance of letras hypotecarias against real estate investment floor 10% limit for CRIs. Standard investment regulations for institutional investors. Public social funds invested in social assets or government bonds.	Given continued tax subsidies and credit direction, will create closed circuit for CRIs. May create investment bias for CRI. Does not solve problem of unwillingness to invest in long-term securities. FGTS only long-term fund. Investment would improve performance, but will deteriorate investment incidence.
Foreign exchange and index hedging	Government to initiate SFI as "catalyst" in the hedging process (following the example of BNDES). Government to provide foreign exchange hedges.	Government provides domestic long-term funds, but not hedges.	High potential capital at risk for government. High market prices for hedges.
Seller finance	Allow developers and corporations use of same monetary correction and rates as banks.	Seller finance discriminated by consumer protection and bank regulations.	Limited profitability for developer, reduces market to highest income.
Real estate market	Reduction of property transfer tax (ITBI) burden. Introduce mortgage interest deductibility.	High level of tax-induced transaction costs (~10%) No mortgage interest deductibility.	Mortgage interest deductibility regressive, high potential dynamics.

	Allow application of FGTS contribution to mortgage debt service.	Discontinuation of FGTS contributions not possible. FGTS outstanding can be withdrawn for downpayment purposes.	Additional FGTS loophole. Preferably reform of FGTS housing functions.

2. Conditions for Success and Interaction with Housing Policy Reform

39. *The need for a broader policy approach.* Despite the continuous reform efforts in the sector and detailed current proposals, international experience in mortgage finance reform yields that a number of policy issues should be simultaneously addressed:
    - there is a reluctance to fully acknowledge the legacy of high inflation and political intervention on current system without which a fresh start of a new system is almost impossible. *Fiscal policy* should take account of and develop a credible timetable towards absorbing the SFH's legacy subsidies and create some room for maneuvre for the necessary transition measures that we will detail below.
    - M.H.Simonsen, the intellectual father of SFH, points to the vital condition of a *social security reform* for the creation of a new investor base for mortgage assets to replace the current deposit-based system[44]. While fiscal considerations will determine the timing of general social security reform, we believe that a reform of the FGTS could strengthen the demand for mortgage assets without affecting fiscal stability or housing policy goals. Asset demand by current investors could be stimulated through concerted *monetary* and *capital market policies*, including federal debt management policies, that support the extension of asset duration and improved inflation risk protection.
    - for primary and - at a later stage - secondary mortgage market *intermediation* to develop, a new incentive structure governing the relations between borrowers, lenders and government is needed. Incentives have been deeply affected by past and current interventionist policies. Re-establishing them will require continued *legal and regulatory reform* and a *elimination of current market distortions*. Clearly, a full review of current public mortgage banking/insurance operations should be made. We would see a transition from public intervention towards an enabling role of government in mortgage finance as an important element of this process.

40. *Mortgage market and housing policy reform sequencing.* The sector deficiencies analyzed convert into a specific proposed sequencing of reform tasks:
    1. *Reforming mortgage market subsidies.* Mortgage market and housing subsidy reform is a process that evolves in stages. In the current Brazilian context, the first step involves acknowledgement of the SFH legacy debts and conversion of current producer subsidies and subsidies that are mixed with finance into direct personal subsidies to mortgage borrowers.
    2. *Developing the mortgage market.* Mortgage market reforms should be continued, but embedded in a general capital markets and financial sector reform concept

[44] See Simonsen (1995)

that should be developed with priority. A deepening of mortgage market reforms should focus on addressing the future of the SBPE and improving the conditions for primary mortgage market intermediation, before developing a secondary mortgage market.

3. *Developing a new housing policy.* After subsidies issues have been tackled in a first step and the fiscal room for maneuvre has been defined, housing sector reforms should be redefined, with focus to increase finished housing market penetration, enable progressive housing markets, and develop a national housing policy framework. A policy framework integrating both mortgage finance and housing policy reform components is developed in the paper "Housing Markets in Brazil. Policy Issues in Finished and Progressive Housing". In addition, the Bank is currently preparing a policy paper on Progressive Housing Markets in Brazil. We will not go into the details of housing policy issues in this paper, with the exception of measures that support tasks 1 and 2.

3. Mortgage Market Reform Tasks in Detail

a) Reforming Mortgage Subsidies

(1) FGTS Reform

41. *Reform principles*: FGTS is the most important single source of current federal mortgage market subsidies, and also plays an important role in SFH legacy subsidies. A reform approach to FGTS should start from looking at its three main functions - as a severance payment fund (insurance function), contractual savings scheme (pension function), and housing savings and loan scheme (housing function) – in isolation. The Brazilian discussion has traditionally approached FGTS primarily from the its insurance and provident fund function while giving little attention to the issues arising from its housing function[45]. On the other hand, the housing finance discussion has often centered around the performance of Caixa as the sole intermediary of FGTS funds. We argue here that the unsatisfactory design and performance of the FGTS as a housing finance instrument should command priority attention of policy makers. We will make three main points to support this notion:

- the function of FGTS as the *single source of long-term finance for the mortgage market* is becoming obsolete as pension, insurance and mutual fund industries are developing as alternative funding sources to retail deposits. In fact, we argue that the existence of high salary contributions to FGTS is partly causal to the current slow development of capital market institutions and the persistence of high domestic real interest rates[46]. A reduction of these contributions would likely have only a temporary negative impact on aggregate mortgage funding as aggregate savings are likely to rise while government bond yields should become reduced. Also, although FGTS provides funds at longer maturities than the capital market and therefore liquidity risk protection for current investments, both new investment volumes and net contributions have become increasingly volatile,

[45] See Carvalho and Sarboya Pinheiro (1999).

[46] Although an increasing proportion of the Fund's assets is being invested in government bonds.

rendering it an ineffective hedge against liquidity shocks that may hit the Brazilian capital markets.

- there is also no justification to keep up a mandatory savings scheme for housing for the *benefit of its contributors*. Brazil's scheme differs substantially from traditional housing savings schemes in Europe and Asia that link contributions to direct contributor benefits, such as a usually implicit mortgage loan guarantee to savers. The redistribution function embedded in FGTS' targeted loan operations thus establishes is directly conflicting with the provident fund function of the fund (of ultimately supporting retirement wealth). On the other hand, schemes linking 'contractual savings for housing' to member lending have been plagued with governance problems and would economically only be viable if there was a deep market for first mortgage loans. Alternatively, strengthening the current trend, lending could be discontinued altogether and contributors be allowed to withdraw their FGTS savings for downpayment purposes. However, for transactions cost reasons it would be hard to justify mandatory contributions for such a limited purpose. As a result of these considerations, we believe that a mandatory savings scheme for housing for Brazil is conceptually self-defeating[47].
- FGTS is finally an inappropriate instrument to *deliver subsidies to the social housing sector*. The mix of subsidies and finance that FGTS funding constitutes has led to a split the mortgage market into two segments and pre-empted the expansion of market-base mortgage intermediation to potentially bankable borrowers in the lower income market segment. The particular subsidy construction of a long-term below market rate loan creates poverty trap effects, due to its high subsidy per household ratio makes loans hard to distinguish from grants giving rise to moral hazard, and implies rationing since a relatively small amount of subsidies matches a high potential loan demand. The only way to limit these effects would be to limit the amount of subsidies (i.e. by clawing back the interest rate discount after the first, say, 5 years). International experience suggests that direct personal subsidies are the better approach to mortgage subsidies.

42. *Promoting housing savings:* There are various development routes departing from this analysis. Short from developing a full proposal for either a future social housing finance system or a full-fledged reform of FGTS we believe that reasonable progress could be made by i) splitting the housing functions of FGTS both conceptually and institutionally from the insurance and provident fund functions[48], and ii) developing a separate voluntary housing savings program based on a part of the salary contributions currently made to the fund. Such a program would help to achieve the goal to promote financial sector stability through higher housing downpayments and by performing a pre-screening function of mortgagors which a mandatory scheme by definition does not. It could be combined with a targeted housing subsidy program. Noting the important role that homeownership plays for retirement purposes, a

[47] See Duebel (2000) for a review of subsidized savings schemes for housing.

[48] Looking at the contractual savings reform perspective in isolation, FGTS contributions could be replaced by contributions of similar (8 percent of salary) or even greater size to a second retirement pillar managed by private occupational pension plans. Alternatively, the current contribution rate could be reduced or eliminated and an incentive system for voluntary retirement investment be set up.

housing savings program would also support the daunting task of social security reform. We see a number of alternatives for the implementation. They all have in common a discontinuation of the current earmarking of the fund to mortgage lending:

- reduction of FGTS contributions and development of voluntary housing savings program operated decentrally and on a tax-deferred basis by financial and social security institutions. Such a program could be integrated with a future decentral private pension pillar. Support for savers could be provided through targeted savings-based subsidies [Chile].
- reduction of FGTS contributions and development of a specialized voluntary contractual savings scheme for housing operated by a private savings and loan institution [France, Germany], including the option to save and withdraw and not take out a loan. This is an institutionally complex solution, and a link with housing savings subsidies bears the risk of distorting the mortgage market.
- rationalization of the current set of housing withdrawal options within the current contribution volume FGTS. Some countries combine withdrawal options or pledges of contributions as liens for mortgage lending with larger mandatory second pension pillars – for instance South Africa and Switzerland. We would argue, however, that splitting voluntary housing and mandatory pension contributions would carry the benefit of raising the efficiency of both savings processes.

(2) Caixa Reform

43. *Reform Principles: The built-in conflict of interest of social housing finance.* Funding social housing loans with earmarked funds is a traditional approach in Latin America[49]. In Brazil, as elsewhere, this approach has failed to produce the expected results: neither has market penetration of finished housing increased, as Caixa's middle and high income mortgage operations were unable to halt the decline in private sector activity after the high-inflation period, nor has Caixa so far successfully reached the poor through low-income mortgage lending. The chances that it will through its new leasing program are slim. *Caixa's performance problems follow from mandate and institutional design*. Caixa's weak mortgage portfolio performance seems to be less a result of internal efficiency problems, which do exist[50], rather than of its inadequate institutional design as a central government-owned retail mortgage bank. Experiences with housing banks worldwide indicate that exposure to conflicting mandates and political and private sector rent seeking often render these institutions financially unviable, even in macro economically and politically stable financial sector environments. Although Caixa's predecessor, Banco Nacional de Habitacão (BNH) was exposed to conflicts of interest and inefficiencies as well, its mandate was more consistent with the overall design of the SFH as a decentralized system with risk being shared between central government, the states and the private sector. In essence,

    - BNH primarily acted as provider of refinancing lines, subsidy donor, regulator and lender of last resort, for the entire SFH including the SBPE. FGTS social housing funds were primarily onlent to social housing funds, for mortgage and

[49] See Persaud (1992) for an overview.
[50] See Booz'Allen & Hamilton (2000).

public housing operations, and constituted claims of BNH against the primary market institutions.

- when Caixa took over the funding and subsidy functions of BNH - the regulatory and lender of last resort function was transferred to BACEN - it was pre-empted from continuing refinancing operations for the social housing system with the argument that effective surveillance of the system had failed. While Caixa thus gained direct control over social housing credit risk, it lost the relative protection that a wholesale banking relation under improved surveillance mechanisms could have rendered. Also, it became increasingly the instrument of ad-hoc social housing initiatives. Finally, the housing finance system with the closure of BHN lost its think tank, resulting in an increasing number of programs being developed directly by the government.

44. *Transition issues:* some immediate steps on both asset and liability side should be initiated after the process of due portfolio diligence that is currently undertaken by Banco Central has become completed. The goal should be to strengthen market discipline until a full reform proposal is developed, and simplify FGTS reform:
    - Caixa's exposure to underperforming Cartera Velha mortgage loans should continue to be reduced through prepayments or loan sales. Loan sales should primarily include non-performing loans, as opposed to current policies focussing on cherry-picking. This may require transfer of servicing to third parties.
    - Mortgage portfolio performance should be improved by allowing Caixa to raise rates to cover servicing costs (i.e. operations and credit risk) and where appropriate outsourcing servicing.
    - Caixa's new mortgage origination activity in the high end mortgage market over 12 MS should be reduced in line with efforts to restructure the SBPE. An elimination of the high end line will depend on the strategy towards privatization.
    - The terms and conditions of the PAR leasing program should be reviewed in order to avoid Caixa taking property price and other market risks. It is a question whether the program should be fully launched under current default conditions characteristic for lending.
    - Caixa liabilities to FGTS and other social funds should be converted into marketable Caixa bonds (letras hipotecarias or corporate 'agency' bonds). FGTS should raise its minimum return requirement by at least demanding the implementation of a claw-back of the rate discounts (vis-à-vis either SBPE or free market benchmark) after an initial period into the loan[51]. This would yield a significant reduction in subsidies.
    - Caixa liabilities should be formally stripped from any direct government guaranty, in order to strengthen capital market discipline over the institution.

45. Reform options: due to the conflicts in mandate and design, and considering status quo performance conditions and the loss of its franchise value, it should be considered to discontinue Caixa's public mortgage bank operations in their current form through a sequence of privatization, non-performing asset resolution and closure

[51] The rationale here is that, due to the effect of nominal income increase, rate discounts are only needed for a limited amount of time (usually 5 – 10 years).

of new lending/leasing programs. The principal institutional options following from this step for the current institution depend on the future architecture of the social housing finance system. It is not the purpose of this paper to develop a detailed concept for the development of such a system, nor for Caixa's institutional development itself. However, we would like to indicate the following fundamental options:

- the federal urban development ministry could bundle old and new housing policy programs that would focus on the delivery of managed housing subsidy programs (e.g., for housing savings and municipal progressive housing programs) and the controlling of entitlement programs (e.g., tax credit programs).
- any new social housing finance approach involving banking or guaranty operations should be undertaken under regulated banking or insurance charter, and not under a special agency charter, whether on the federal or state level. Social housing lenders and guarantors should develop on the local levels, where credit risk can be controlled at arm's length and institutional solutions are more flexible, implying a variety of non-profit and for-profit ownership forms (e.g., microfinance lenders, savings and loan co-operatives, non-profit rental investors). Developing an enabling policy for local social housing solutions and taking over regulatory and supervisory functions for the housing sector in addition to subsidy provision would be challenging task.

(3) Other Mortgage Market Subsidies

46. Funding of FCVS bonds and loans. The management of FCVS debt in the range of 7% of GDP by the housing finance system has been a challenging issue. However, even at its reduzed size, FCVS debt continues to impose an obstacle to both the reforms of Caixa and the SBPE. The sale of FCVS bonds to the open market is not an attractive option as they shield lenders from loss-making mortgage operations. In addition, the lender's asking prices for the bonds are inflated by the tax support for SBPE deposits. On the other hand, the government has no incentive to retire the bonds for a higher price than the fair value which is below lender's asking price. A retirement at fair value would be hard to sell with lenders. One option to gradually close the price gap would be to reduce the bonds' value for mortgage lenders by eliminating the current tax support (see below) and increasing the fair value through a compensating increase in bond coupons or amortization speed. A second option would be to gradually reduce FCVS bond acceptance against the housing investment floor.

47. *Subsidies to SBPE depositors.* While we advise for a deeper restructuring of the SBPE than currently proposed (see below), we believe that in a transition phase SBPE retail deposit subsidies should already be substantially overhauled. The current Working Group proposals (see Table 8)seems to support a continuation of tax support and introduction of direct government protection for deposits. We would advise against direct or indirect government protection for SBPE deposits and hint to the efforts to strengthen the overall bank safety net currently taking place with technical

assistance from the Bank[52]. We also believe that no special fiscal support for long-term savings should be given, as is proposed for savings passbooks over 90 days. Rather, the fiscal treatment of SBPE deposits should be part of a general financial sector taxation concept and set long-term bond holders on equal footing with long-term depositors. In exchange, the government should abstain from setting poupanca deposit rates. This question is closely related to the viability of future loan products. The reserve treatment of savings deposits should be overhauled in conjunction with general monetary policy reforms. We believe, however, that the government should use the temporary fiscal gains from reducing SBPE tax exemptions to support the restructuring of the SBPE.

48. *Subsidies to SBPE borrowers:* The Working Group has proposed to support mortgage market development by introducing unconditional mortgage interest deductibility. We believe that such a measure would lead to a strong demand effect, but would worsen the already regressive income incidence of SBPE subsidies and increase their level substantially, despite the proposed partial reduction in tax support for deposits. However, temporary subsidies for mortgage borrowers may indeed be appropriate in order to support a restructuring of the system by bringing mortgage coupons more in line with market conditions (see our proposal for a housing savings program above, and the specific proposal developed for the SBPE below). Borrower policies would be even more effective if FGTS reform along the lines suggested would enhance the affordability of mortgage borrowing by reducing a quasi wage tax and increasing the available savings for downpayment.

(4) A Single Subsidy Reform Package?

49. *Can the government solve these subsidy issues in one reform package?* We have argued elsewhere[53] that the reduction or elimination of the extensive implicit middle class housing subsidies currently practiced in Brazil (see Table 7) is a process that may require several stages. In fact, in a first stage the introduction of new middle class subsidies may become necessary in order to avoid negative structural effects. One such negative effect would be the elimination of mortgage lending by crowding out through government debt that would likely occur if all subsidies were removed immediately. We would therefore advise to adopt the principle of eliminating in the first stage distortive producer subsidies and subsidies that are mixed with finance while introducing temporary targeted personal subsidies for mortgage borrowers to support the transition of the system. Targeting can realistically only be done within the current income distribution range of mortgagors. At the same time we see the need for time in order to develop a new set of housing policy instruments in a second step. This new housing policy will have higher resource needs than what is reflected in current federal government budgets, a target range should be between 1 and 2% of GDP. It would be advisable to include the mid term commitment for these budget positions already in the first step of reforms.

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52 See Demirguc-Kunt (2000).

53 See Alberdi, Duebel and Serra (2000).

b) Developing the Mortgage Market

50. *Reform principles.* The reform goal should be to develop a pricing, technology and institutional benchmark mortgage market for the subsequent development of a deeper housing finance system that may service the majority of the Brazilian population. Such a market may initially be small, but should be subsidy free, in particular serviced by institutions that are not subsidy-dependent. If subjected to the principles of optimal regulatory and supervisory structure[54], a new low-cost–low–risk asset class in the financial sector could significantly contribute to a reduction of systemic risks, rather than adding to them, as in the past. The challenge is to i) improve incentives for financial intermediation, i.e. the risk management and mitigation capacity of the industry, and ii) at the same time reduce the system's vulnerability to certain risks by developing access to the capital markets. We argue here that it is necessary to pursue both goals at the same time and not just focus on one aspect alone. In addition, under current Brazilian capital market conditions there are important sequencing issues involved as it comes to the introduction of capital market instruments. Since we have described the current intermediation barriers already in the SFH discussion above, we will introduce our discussion of the Brazilian reform debate and recommendations by looking at the market conditions for mortgage securities and the current development status of the SFI.

(1) Market Conditions for Mortgage Securities and Status of the SFI

51. *The domestic bond market and the market potential for mortgage securities.* Both in relation to GDP and outstanding volume, the Brazilian domestic debt market is the largest in the region before Mexico, Argentina and Chile. Contrary to Chile and Argentina the public sector dominates as an issuer. Bank and corporate bonds only account for 18% and 1% of the market capitalization; moreover, between 1995 and 1998 private bond market capitalization has remained stagnant relative to GDP, while the public bond market more than doubled. The traditional investor base for mortgage securities is still weak and growing slowly relative to other investor groups: pension funds held assets of 10.2% of GDP by the end of 1998 (comparing to Chile's 40.3%) and the insurance sector is small with 1.2% of GDP (Chile: 13.5%)[55]. Most of the bond market demand comes from mutual funds and bank treasuries. Foreign investors face regulatory barriers to bond investment. Pricing is an impediment for developing capital market access for mortgage finance as well as floating rate and US-Dollar index linked paper are preferred - only 9% of the outstanding carry fixed rate coupons and only 0.3% are inflation linked. Finally, liquidity preference is high and maturities are very short[56]. The market's pricing benchmark remains the overnight rate SELIC. Del Valle (2000) points out that the development of a longer term fixed rate market

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[54] For a discussion of these principles in the case of Brazil, see Claessens (2000).

[55] Source: Brazilian Capital Markets: Reform Issues. Draft internal working paper Financial Sector Review.

[56] According to del Valle (2000), the average maturity for Treasury paper is ~ 8.4 months and for Central Bank paper ~ 13 months.

has been preempted by high refinancing risk perception and the high concentration of bond demand in mutual funds that pursue conservative asset management strategies[57].

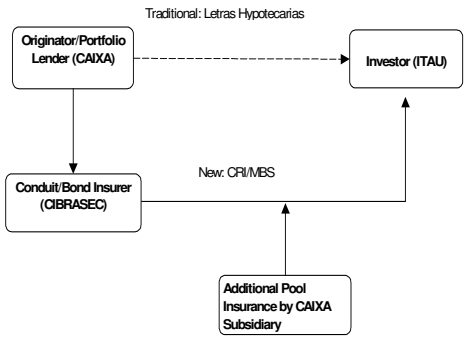
Table 9 Brazil Domestic Bond Market Structure, 1999

	Public Sector	Financial Institutions	Corporations
Issuers	81.0%	18.0%	1.0%
	Mutual funds	Financial Institutions	Other
Investors	39.3%	43.9%	16.9%
Total outstanding volume:		R$ billion	415

Source: Del Valle (2000)

52. *The current market for mortgage securities – status of the SFI.* With the SFI, Brazilian lawmakers in 1997 underscored the importance of capital market access for housing finance. However, the capital market environment since then made the successful introduction of mortgage securities impossible, let alone a full switch of the system from deposit to capital market funding (see below). Because of the intermediation disincentives and subsidies involved and of the crowding out through the government market, SBPE originations currently constitute the only source of receivables and SBPE lenders short of regulatory housing investment requirements the only source of demand for the market. In addition, the actual deals have been primarily driven by SBPE regulatory and credit risk arbitrage considerations. An individual deal involving Caixa has raised the concern of a potential excessive government involvement in implicit credit enhancement and subsidies for the secondary market, beyond the ownership of central government and several state

Figure 11 Typical SFI Transaction Structure



[57] So did the investment horizons of mutual funds decline after the 1997 financial crisis due to substantial asset losses in fixed rate assets. Bond holdings by mutual funds have soared since Plan Real, due to their exemption from the financial transaction tax CPMF, their relative attractive returns during extended spells, and active efforts by the banks to induce clients to reduce their savings passbook holdings in the past two years. As a result of the tax anomaly, pension funds and insurance companies channel a large proportion of their assets through mutual funds, inducing a high degree of demand concentration.

governments in the securitization company CIBRASEC[58]. Figure 11 displays the transaction structure for a recent deal. While there seems to be readyness to support the infancy stage of the market through a direct government intervention (see also Table 8), there is lack of a regulatory and fiscal support strategy for the SFI.

(2) Developing Capital Market Access

53. *Measures to develop the market for mortgage securities should be part of an overall bond market development strategy*. In a situation characterized by extreme short-term focus and risk aversion of investors, priority should be placed on efforts to develop the government bond market in a way that it consistent with future mortgage securities market development. Steps that improve the environment for both market segments would include i) the promotion of a longer term reference rate (i.e. 3 – 6 months) for the bond market, ii) the development of a fixed rate and possibly inflation-linked government bond market, iii) measures to improve overall market liquidity and trading and iv) a review of obstacles that pre-empt the diversification of demand away from mutual funds to the traditional investor base for mortgage securities. Current asset ceilings for pension funds for real estate investment are not of immediate concern. The government should also not take market risks, as proposed by the Working Group (see Table 8), to promote market demand. FGTS reform and thus indirect support for the development of the pension and insurance industry should have priority over inducing any class of investors, including the FGTS itself, to buy mortgage securities in the short term (although this step may improve directly the fund's performance). Because of the high contingent liabilities created, it seems also imprudent for the government to provide index hedges that are currently not offered, or only at prohibitive prices, by private financial institutions. A forteriori, due to the even higher market risks involved the government should abstain from providing foreign exchange hedges for mortgage contracts or securities.

54. *Sequencing of the introduction of mortgage securities.* In the short term, capital market funding instruments for mortgages will remain subject to high demand volatility and short tenors. In this situation, it seems to be prudent to continue to fund mortgage loans with retail savings which provide a hedge against capital market volatility. Mortgage securities should be introduced in parallel and gradually as the bank and corporate bond markets develop and inflationary expectations subside. This step should be made before the development of the secondary market in order to limit adverse selection risks that are inherent to CRI/MBS and strengthen credit risk management. The quick expansion of mortgage finance in Chile during the 1990's serves as a reference point: it was largely based on the strenghtening of traditional mortgage bonds that enabled lenders to expand the primary market as the investor demand for long-term assets widened. Keeping credit risk on the books while passing

[58] By July 2000 there were 4 CRI issues outstanding, held in portfolio by the originators. In a fifth deal, Caixa had engaged in a R$ 100 mn sale with ITAU which was short of the housing investment floor. According to Abecip, Caixa sold high quality seasoned housing portfolio at a real yield of 12.5%. In addition, ITAU was granted a discount of 18.5 % on the price of the portfolio and Caixa provided mortgage insurance through its insurance subsidiary for a fee of 1.5% p.a. CIBRASEC has not borne any risk under the deal.

on liquidity and market risks to investors has led to structural improvements of asset quality and a better information environment, preconditions for the introduction of secondary mortgage market instruments. This sequential approach has allowed Chile to minimize the role of government in developing the market.[59] In the long term, both retail deposits and capital market instruments should co-exist as funding sources[60].

55. *Improving mortgage market intermediation in the short-term.* Following from these arguments, a sequenced reform approach is recommended, and the view of the Working Group to revise of the original strategy adopted in 1997 to replace the SBPE immediately through the SFI is supported. Therefore we see the Working Group proposal to increase the free mortgage asset component in the SBPE balance sheet from 20% to 80%, with the intention to remove the current fixed real rate regime for most of the balance sheet, as ambitious. While we support the rate liberalization as an important first step, we believe that under current demand conditions and intermediation costs mortgage lending will not be cost covering[61]. Hence, without a strategy that with priority addresses intermediation incentives, SBPE lenders will likely either increase intermediation risks (e.g. by adding exposure to developers), engage in more undesirable CRI deals underwritten by the public sector, or continue to reduce the amount of savings deposits captured. In order to address the cost issues, we would support to counter the crowding out effect of mortgage finance through high government bond rates for through direct personal subsidies to mortgage borrowers. In order to encourage new mortgage market intermediaries, these should not be restricted to SBPE borrowers alone. The preferable form of a subsidy would be in the form of a interest buy down limited to 5-8 years. The support should be sunsetted over 5 years and it's amount periodically reviewed as the capital market situation changes. The benefit of adopting an explicit demand support strategy would be a preservation of mortgage market origination and servicing capacity that may be costly to rebuild outside the SBPE, a reestablishment of market conditions of for mortgage supply by cutting SBPE tax subsidies, and a containment of SBPE lender's

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[59] Similarly, Argentina's reforms in the 1990's focussed on improving portfolio performance and, through restructuring and privatizing of BNH, created a simple wholesale bank channel. A securitization channel is currently under development, with the support of IFC. Both Argentina and Chile prioritized intensive legal and regulatory as well as mortgage subsidy reform programs.

[60] Mature housing finance systems, with a few exeptions, use a mix of funding channels. In the US, for instance, there is a high diversity of capital market access programs (FHA/GNMA, FNMA/FHMLC, FHLB, private label MBS) with two main classes of capital market products to refinance mortgage loans, MBS/CMO and 'agency' debt. In addition, contrary to some commonly held beliefs, funding of mortgage debt through deposits still plays an important role. By 199X commercial and savings banks together continued to hold one third of mortgage loans directly on their books; if their MBS/CMO holdings are taken into account, the amount of mortgage debt held increases amounts to roughly one half. [As a result, from a risk management perspective, disintermediation through MBS/CMO is at best partly. It primarily concerns the protection against the liquidity risk associated with holding whole loans, and partly of credit risk. A feature that distinguishes the US housing finance system from all other mature housing finance systems is that large proportions of mortgage credit risk is transferred to the government, either directly through public mortgage and bond insurers or indirectly through the 'government-sponsored' corporations Fannie Mae and Freddie Mac. However, because of the high premia charged by the latter corporations, deposit taking institutions lately have embarked upon a credit risk transfer scheme that would increase the reliance on lender self-insurance (MPF program, launched by the Federal Home Loan Banks).]

[61] Private SBPE lenders indicate that free mortgage market rates are currently little over the fixed 12% rate, in the range of 13-14%.

risk arbitrage behavior. Clearly, the cost of such a strategy lie in the income regressivity of subsiziding formal mortgage market borrowers (see our discussion above). Other measures to support demand would include to simplify the switch between old and new loan products (that should be more attractive to borrowers), and to lower the transaction costs for mortgage prepayments within each product class. This will require excluding prepayment penalties for adjustable-rate mortgages or variable-real-rate mortgages, and rationalizing prepayment penalties for fixed-real rate mortgages.

56. *Developing bank/mortgage bonds in the mid-term.* In our view, the challenge for Brazil to adopt a smart form of mortgage banking in the mid-term that would continue to separate mortgage from other assets and better protect retail deposits while avoiding narrow special banking or capital market circuits[62]. Clearly, the mortgage market cannot rely on the current funding through earmarked deposits alone because of the vulnerability to liquidity and interest rate risks. Also, there continue to be political risks associated with continuing funding through deposits alone, such as the proposed setting of deposit rates by the government and the unclarity about the final deposit insurance arrangement. However, with the parallel use of CRI/MBS and retail deposits that is now possible, the risk of adverse selection of assets funded by deposits has been considerably increased through the practice of securitizing good assets. Caixa's deal is a first indication for this "cherry-picking". Unless strict firewalls are erected, this practice may keep the costs of deposit insurance high and thus the implicit subsidies extended by the government for the bank safety net. As an alternative to the current parallel use of securitization and deposits, we would recommend to switching deposit funding for at least a part of the system to mortgage (bank) bonds. From a risk management perspective, mortgage bonds combine the advantages of a simple (low-cost) credit enhancement structure based on the lenders equity and a defined pool or portfolio cover, and a significant reduction of the liquidity and interest rate risk exposure by shifting them to the capital markets[63]. From a regulatory perspective, mortgage bonds would allow for a clean separation of mortgage banking from other banking activities while limiting the necessary regulatory and supervisory infrastructure, based on an enabling law.[64] There are numerous institutional options for implementing mortgage bonds that vary the degree of protection of retail deposits: these range from i) special mortgage banks or mortgage bank subsidiaries of universal banks with separate collateral cover, capital and reserves, management and supervision, over ii) 'mixed' mortgage banks, in

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62 For a comparison of principle options, see Annex I.

63 For this reason, some authors include mortgage bonds into the definition of securitization. See Thompson (1997).

64 In fact the SFH had assumed operations in the 1960's with two concepts of such bonds, "letras imobiliarias" and "cedulas hipotecarias." "Letras imobiliarias" were approved by Law 4,380/64 and "cedulas hipotecarias" by Decreto-Lei 70/66. "Letras imobiliarias" are backed by a set of loan contracts, where individual loans can be substituted before the maturity, while "cedulas hipotecárias" are backed one-to-one by individual loans. As bank bonds both instruments are not bankruptcy remote, but their credit quality is linked directly to the quality of the underlying assets. The funding function of letras immobiliarias for the SBPE used to be significant - 28% of assets by 1972 - before the long-term bond market was wiped out by inflation. Today, the largest, and near sole, issuer is Caixa Economica Federal.

which mortgage and non-mortgage collateral are separated by fire walls of varying strength[65] built between the two portfolios under the umbrella a universal bank, to iii) a universal bank issuing collateralized bonds with a wide array of possible credit enhancement standards focussing only on the bond quality. For instance, Spanish banks which are developing a strong market position in Brazil issue at home cedulas hypotecarias under the latter conditions. It is important to note in this regard that specialized US GSE's Fannie Mae and Freddie Mac are de-facto issuers of mortgage bonds in the form of 'agency' debt to fund their large holdings of own MBS and retail mortgage loans (see Footnote 60). With the development of a mortgage bond system, the current SBPE system would become obsolete and could be closed.

57. *Introduction of the secondary market in the long term.* In the long term, CRI/MBS off-balance securitization and mortgage bonds could be used simultaneously as funding instruments. Such a duality of mortgage securities is desirable, as on-balance bonds are usually rated and require a level of institutional transparency that can provide an effective instrument to control the risk of cherry-picking through off-balance sheet securitization. A second reason for delay should be that disintermediation of mortgage markets bears high costs for regulators and supervisors and should be undertaken only after the regulation and supervision for the primary mortgage market has been improved[66]. In this regard, it seems advisable to supervise securitization companies initially as financial institution (either banking institution or insurer) until a secondary market charter is being developed. A third reason for restraint is that while MBS provide additional degrees of freedom of risk and capital management, there is considerable risk that they are being used as regulatory arbitrage instrument. This is because there is currently no international agreement on a regulatory treatment of the different players in disintermediated mortgage finance system. For instance, capital standards for securitization companies should in principle be in line with bank capital standards in order to ensure that there is no regulatory mechanism that could result in unintended capital and credit risk arbitrage. Whether and how such a harmonization will occur is currently unclear[67]. These aspects are important for the Brazilian market development, since it is paramount to ensure avoiding excessive risk concentration with securitization companies at an initial stage of development[68]. The Central Bank should monitor in particular the US

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[65] There are several elements of such a fire wall: often it is required that excess collateral (portions of assets that cannot be funded efficiently through the bonds) should be funded through interbank debt or subordinate bonds rather than universal deposits, to avoid cherry picking. Other aspects include special supervision and trustee arrangements for the mortgage collateral.

[66] For details on the challenges ahead, see Claessens (2000).

[67] In US the secondary market, such a capital arbitrage incentive is given. In the future, the GSE's capital requirements will be determined by a special housing finance regulator who runs an institution-specific actuarial model for the determination of minimum capital requirements. Currently GSE's hold capital between 1 and 2% of the risk assets. In contrast, banks have to hold capital for residential mortgage loans according to the Basel accord, currently 4%.

[68] Any securitization mechanism should initially operate either with recourse provisions or first loss credit enhancements written by originators to ensure prudent underwriting and servicing. As a result, originators should not enjoy full capital relief for secondary market operations; on the other hand, they should not be penalized for providing partial credit enhancements. Capital held by the securitization company should consequently be reduced from the benchmark by the amount of credit enhancement received, corrected by a counterparty risk measure.

and European discussion in that regard closely. Fourthly, we advise to against a substantive public shareholding in wholesale mortgage banking and financial guarantee operations, the core businesses of securitization companies. Public involvement should be avoided even if the operation is profitable due to the high contingent liabilities involved and the fact that it defies the idea of a truly decentral secondary market that was behind the Brazilian Securitization Law of 1997. As the business development of CIBRASEC so far has shown, a mix of public and private shareholders also has the potential to slow down business development of the institution due to conflict of interest.

(3) Reducing Intermediation Costs, Introducing a New Loan Product

58. *Legal reform*: we have not analyzed in the technical section the remaining gaps in the legal framework which – together with the high costs of contract enforcement – are key to the overall reduction of intermediation costs in the financial sector[69]. While suggesting to study these issues in more detail, we are offering a few observations:
    - Guaranty instrument: the 1997 reforms have suffered from both low levels of market activity and credibility constraints. For instance, the introduction of the trustee sale (Alenacou Fiduciaria) was followed by the launch of a Caixa program in April 1999 introducing a new contract type of housing leasing with purchase option. It has been argued that legal reform should now focus on leasing, to contain the recent rise in credit risk. We believe, however, that while legal refinements to the trustee sale guaranty instruments should be sought, the direction should be towards reforming the traditional mortgage instrument, in particular concerning restrictions to enforcement in the civil code and civil process order. The reason is that we see the recent rise in credit risk in private the private sector as cyclical and instrument-dependent rather than structural.
    - Lien instrument: efforts should be made to create a negotiable and endorsable fiduciary mortgage instrument that simplifies and reduces the costs of loan transfer (ex. endorsable mortgage certificate, Chile).
    - Consumer protection standards: i) performing loans: loan disclosure, documentation, loan and insurance cost transparency, real and variable rate adjustment transparency, loan transfer, property and loan valuation and other consumer protection standards should be revisited and further developed. Ii) delinquent loans: a better legal definition of delinquency management techniques before foreclosure (as well as corresponding financial flexibility) seems to be more promising than an improvement of foreclosure itself.

59. *Contract enforcement*: To strengthen delinquency management, private arrears counseling and small claims settlement system techniques for housing should be developed. Develop pre-foreclosure and delinquency management alternatives. With a more long-term view, reform of collateral enforcement (primarily with the focus to enable eviction) should be pursued. This may require a clearer understanding of the obligations of the government to house evicted borrowers.

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[69] see Beck (1999).

60. *Mortgage intermediation regulations:* general mortgage banking regulations and supervision practice should be systematically reviewed, in particular concerning the following areas*:* general restrictions on developer loans, retail standing investment loan, leasing (e.g., loan-to-value or debt service rules, portfolio limits, large exposure rules, etc..) ; format of real estate valuation methods underlying bank regulations; special issues in mortgage loan loss provisioning and loan repricing/marking-to-market. Capital treatment and accounting rules in mortgage lending should be reviewed especially with a view on the potential competition between ABS regulations and the Basel credit and market risk standards (see discussion of the secondary market below).

61. *Indexed product or ajustable nominal rates?* The mid-term goal of mortgage finance reform, consistent with the Plan Real, should be the introduction of adjustable rate mortgages (variable, index-based nominal rates), based on a range of indices offered by BACEN for contract regulation (cost of fund, or market indices). The introduction of ARM at this point in time is not possible, as rates would be at least as high as 20% p.a., implying a high inflation risk premium and the so-called tilt effect of high initial loan real repayments.

62. *Which form of monetary correction?* For a defined period of transition (~5 years), the system should continue to offer indexed contracts backed by indexed deposits and bonds, even though inflation may be permanently stabilized. The priority should be to reach a consensus between judiciary, banks, institutional investors and central bank over an acceptable monetary correction measure. The example of UF in Chile shows that under condition of minimal political intervention, market acceptance can be sufficient to support a strong growth in the instrument. It is advisable to use a more long-term instrument with less susceptibility to short-term volatility than in the past - several price index alternatives with monthly adjustment are used for rental contract adjustment in Brazil since 1992.

63. *Fixed or flexible real rates?* Real interest rates (juros) are the price charged by SBPE intermediation, and should be deregulated as a first priority, as proposed, accompanied by measures designed to increase lender competition (prepayment, transparency). Rate ceilings should be also be lifted for the remaining 20% SFH transactions, while investment floors could be retained for a transition period. Fixed rates in the future will likely be short-term (3 mths to 1 yr), and interest binding periods should be required to match the maturity of deposits. With support of a bond instrument, a market for longer fixed real rate mortgages (e.g., 1 – 3 yr fixed rate) might be supported. However, international experience shows that if inflation risk declines strongly and mortgage markets grow quickly, in the presence of prepayment transaction costs adjustable rate contracts may dominate the transition.

64. *Amortization:* Current proposals calling for intervention against negative amortizations in excess of repayments appear too restrictive, although they reflect a deep concern caused by the recent TR misalignment and a fear of renewed calls on the government to cancel residual debts. We believe that it should be sufficient to enforce current regulations which require amortization within contractual maturity (but allow for individually designed amortization schemes).

Annex I. CURRENT SBPE REGULATIONS

65. Savings deposits are the main funding source within the SBPE system. These deposits earn 6% interest rate plus TR, the interest calculated on the adjusted balance. As of 31 June 1999 the total amount of savings deposits in the SBPE system amounted to R$91 billion. The national Monetary Council establishes strict rules for the use of these deposits.

66. The current conditions are as indicated in the following table. These conditions have been change frequently. Until February 1999 80% of the total savings deposits had to be used for real estate financing loans. Since them, they were reduced to 60% as is shown in the table. However, it has already been published that they will increase back again to 65% in September this year.

Table 10 Overview over SPBE Directed Credit Regulations

100%	100%	Savings deposits	
15%	15%	Reserve requirement	Deposited at the Banco Central
60% of which:		Real estate financing loans, of which	Loans to finance the purchase, remodeling or building of residential and non-residential units as follows.
80%	48%	- minimum 80% to SFH loans (construction and purchase)	- loans subject to fixed interest rates and some conditions established by the National Monetary Council
20%	12%	- 20% to free interest rates loans, of which 50% may be housing finance (construction and purchase) and 50% non-residential real estate units	- loans freely negotiated between the contracting parties. There are no limits as to real property value or amount of financing.
Approx 25%	12,5%	Remaining funds - free reserves	- cash or government securities
	12,5%	- loans to real-estate-related activities and home equity loans	- short term loans at market rates

67. The conditions of the loans made under the Housing Finance System (80% of 60% or 48% of the deposit base) are also established by the National Monetary Council:
    - Interest rates: 12% per annum for individuals purchasing a home (new or second hand) or 13% per annum for builders constructing flats for residential purposes. Again here, we should say if this is also available to buy cedulas/letras hipotecarias.
    - Monetary adjustment of principal and installment: monthly by the same index that is applied to savings deposits
    - Maximum value of the real estate unit being financed: R$ 300,000 (approximately R$ 171,400)
    - Maximum financing value: R$ 150,000 (approximately US$ 85,714)
    - Maximum Loan to Value (LTV) : 90% (market practice is 50% to 60%)

- Maximum term: 48 months (production) 20 years (purchase) (market practice is 10 to 12 years for purchase)
- Loans must be made to finance the construction or purchase of residential units both new and second hand.
- The collateral of the loan is the mortgage of the unit being financed.
- Insurance policies: life and permanent disability of the borrower(s) and damages to or losses of the real property unit being financed.

68. The terms of the free market rate loans (20% of 60% or 12% of the deposit base) are freely negotiated between the creditor and the debtor(s). Interest rates are normally higher than those applicable to SFH loans (presently they are around 13%-14% per annum). The loans are also subject to monthly monetary adjustment. The insurance policies required are the same as those required for SFH loans. Until recently, these loans could only be destined to finance residential units. Since June 1998, however, half of them can be used to finance non-residential units as well.

69. There are no limits on the real property value or on the financed amount as in the case of the SFH loans. However, borrowers may not use some of the advantages granted to the borrowers of the SFH loans, such as the use of their FGTS deposits to pay off the loan or part of the installments.

70. The terms and conditions of the loans made with the remaining funds of savings deposits are freely negotiated between the contracting parties. Such loans tend to be short term, since funds are scarce and financial institutions worry about maintaining a liquidity safety net in case of large withdrawals by savings depositors. As a result medium to long term financing for the building or purchase of non-residential units must be normally sought outside the SFH System.

Annex II. CURRENT FGTS REGULATIONS

71. *Introduction.* FGTS was created in 1966 by Law 5,107 and modified in May 1990 by law 8.036 with a dual mandate as a mandatory provident fund for employees (initially primarily providing severance payment insurance) and channel of long-term funding for federal social housing programs. FGTS contributions – currently 8% of gross wages - are deposited in individual accounts in the employee's names at Caixa Economica Federal (CEF). The force investors earn a guaranty minimum return of 3% p.a. plus TR, the interest calculated on the monthly adjusted balance.

72. *FGTS Governance.* FGTS is operated as a trust fund whose investments have to be cleared by a Curator Council consisting of the following members:

    1. The ministry of Labor (who is the chair of the Curator Council)
    2. The State Secretariat of Urban Development SEDU (vice chair)
    3. A representative of the Budget Ministry
    4. A representative of the Finance Ministry
    5. A representative of the Industry and Trade Ministry
    6. A representative of Caixa
    7. A representative of Banco Central do Brazil
    8. The Secretary of the Curator Council in the person of the General coordinator of FGTS in the Secretary of the Labor Ministry
    9. Four representatives of the employees from the following four different Unions (Forca Sindical, CUT, CGT, SDS)
    10. Four representatives of the employers from four professional associations (CNI, CNIF, CNC, CNT)

    The Curator Council establishes the rules for the use of FGTS funds according to the law, approves the programs and the budgets, supervises the actions and fixes the norms and the fees to be paid to both the manager of the assets, SEDU, and of its operator, Caixa. SEDU prepares the norms, the budgets, the programs to be later approve by the curator council and also provides the latter with information and studies about housing and infrastructure issues. Caixa, the operator, centralizes FGTS resources, and provides individual information about the accounts. It also issues, defines, and control the administrative procedures for the participants in the FGTS system, financial institutions, employees, and employers.

73. *FGTS Directed Credit Regulations.* FGTS sources of income are constituted by (i) the 8% of gross wages deposited in individual accounts, (ii) the returns of credit operations, (iii) fines, monetary corrections and moraorium interests, (iv) liquid financial income, and (v) other income. The expenses are constituted by (i) disbursements for loan operations, (ii) withdrawals from individual accounts, and (iii) operations authorized by the Curator Council.

    The FGTS budget has to provide for a liquidity reserve fund. The purpose of the liquidity reserve fund is to insure the payment of any unexpected expenses. The amount of the liquidity reserve fund is 1.5 times the average of total withdrawals

during the previous term and it should amount to at least 2% of the total outstanding of workers deposits.

The total resources for each year new loan operations, within FGTS programs, will be the difference between total cash flow of the period plus the existing outstanding at the beginning of the period and the total withdrawals plus the liquidity reserves or others reserves authorized by the Curator Council.

60% of these total resources are directed to housing (of which 20% to households with incomes below R$906) and 40% to basic sanitation and infrastructure projects.

74. *Loan conditions.* The conditions of the loans made with FGTS funds established by the Curator Council already mentioned (last updated by Resolution number 327 9/21/99) are:

    - Interest rates: 6% real interest rate on average. In the case of loans to individuals Caixa can add an origination fee of 3% of the principal. For the operations between Caixa, as operator of the FGTS, and financial intermediaries the maximum nominal interest rate will be 10% per annum.
    - Caixa as operator of the fund is authorized to charge, as a credit risk fee, a maximum of 0.8% per year to every credit operation, that will be paid by the borrowers.
    - Administration fee: see below
    - Monetary correction (TR) of principal and installment: monthly by the same index that is applied to the returns of the 8% tax on wages
    - Maximum appraisal value of the real estate unit being financed: R$ 62,000 (approximately R$ 35,428)
    - Maximum financing value: R$ 40,414 (approximately US$ 23,093) with the exception of the "Carta de Credito Associativo and Apoio a Producao" loans that can go up to R$ 45,400.
    - Maximum loan-to-value ratio (LTV) : 95% for individuals and 90% for developers. (market practice is 50% to 60%)
    - Maximum term: 30 years for individuals and 15 years for developers (market practice is 10 to 12 years for purchase)
    - Maximum income of the household: R$1,812 (approximately US$ 1,035 per month)(up to 12 MW) with the exception of the "Carta de Credito Associativo and Apoio a Producao" buyers which income can go up to R$ 2,720 (up to 18MW). A minimum of 20% of the fund should be directed to households earning up to R$ 906 (up to 6MW)
    - To get a FGTS loans households can't have another SFH loan or own a house in the municipality where the house is located.

75. *Administration fee* The financial intermediary (can be Caixa or another financial institution) is allowed to charge an administration fee that can be one of the two following options:
    - 0.12% of the amount of the loan per month during the fase de carencia (when you only pay interest rates) and 2% per annum during the amortization period.

- 2% per year during the fase de carencia and 1% during the amortization period for the operations with legal entities and 2% during the whole life of the loan for individuals.

76. *Withdrawals* There are numerous contingencies and options triggering a withdrawal of FGTS deposits. Inter alia, funds can be withdrawn by the depositor for the following purposes:

    - if the worker has been dismissed without just cause,
    - if the company has been closed,
    - in case of retirement,
    - in case of death, inability,
    - to prepay FGTS loans,
    - for the purchase the first dwelling,
    - for the purchase of stock in privatized enterprises.

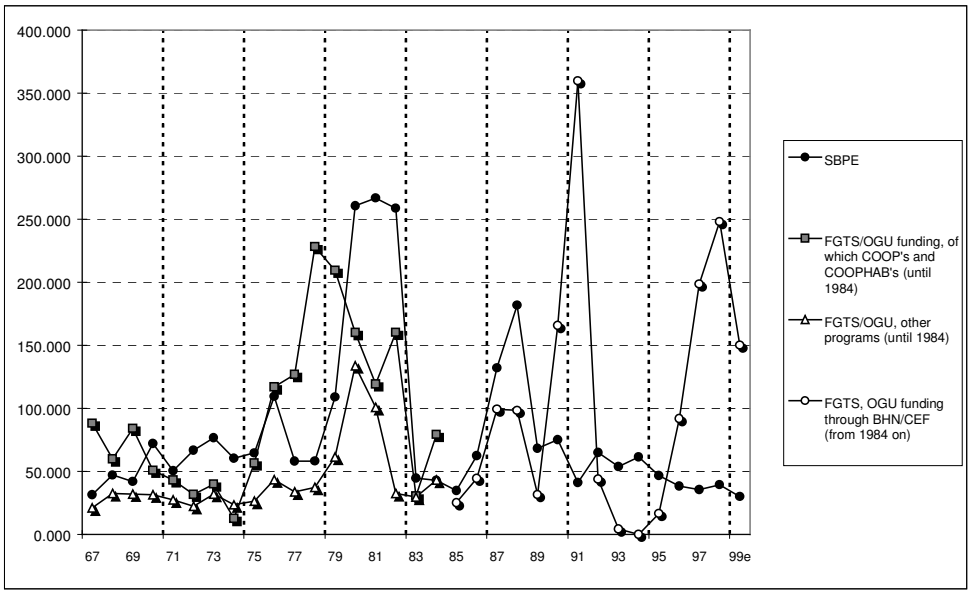
Annex III. DATA

Table 11 SFH Units Financed in 1,000

Year	FGTS	SBPE	TOTAL
1980	366.8	260.5	627.3
1981	198.5	266.9	465.4
1982	282.4	258.7	541.1
1983	32.7	44.6	77.2
1984	43.6	42.8	86.4
1985	25	34.7	59.7
1986	44.4	62.3	106.7
1987	99.2	132	231.2
1988	98.2	181.8	280.1
1989	31.6	68.1	99.7
1990	165.6	75	240.6
1991	359.7	41.1	400.8
1992	43.8	64.9	108.7
1993	4.3	53.7	58
1994		61.4	61.4
1995	16.6	46.6	63.1
1996	30	38.3	68.3
1997	172.5	35.5	208
1998	125.1	39.4	164.5
1999	176.2	35.2	211.4

Source: Abecip

Figure 12 SFH Units Financed by Source, 1967 - 1999



Source for data before 1984: Silvana and Malpezzi (1991); Source for data after 1984: Central Bank. Note: BNH/CEF operations recorded after 1984 do not cover all FGTS/OGU funded operations. Excludes programs based on state/municipal budget allocations.

Table 12 Inflation Rates 1980 - 1999

Table 1. INFLATION RATES IN BRAZIL	
Year	**CPI**
1980	110.66
1981	91.19
1982	97.87
1983	172.9
1984	203.27
1985	228.65
1986	57.85
1987	394.9
1988	993.29
1989	1,863.56
1990	1,585.18
1991	475.11
1992	1,149.06
1993	2,489.11
1994	929.32
1995	21.98
1996	9.12
1997	4.34
1998	2.5
1999	8.4
Source : IGBE	

Table 13 Default Structure SBPE Portfolio, Source DIHAF

Contracts in arrears over 3 months by origination cohort		Sistema Financeiro da Habitacao								Carteira Hipotecaria	TOTAL
by April 2000	Pre-1986 Dual indexed	1986 - 1993 Dual indexed PES-CP	1986 - 1993 Other	1993 - 1998 Dual indexed PES	1993 - 1998 Payment-to-income cap PCR	1993 - 1998 Other	1998 bis Dual indexed PES	1998 bis Payment-to-income cap PCR	1998 bis Other		
Private Banks %	**15.5**	**19.6**	26.0	21.6	**10.7**	6.3	2.5	**2.3**	**2.6**	**19.1**	**14.0**
* 1,000 total contracts	**38**	**29**	9	8	**47**	6	1	**12**	**13**	**32**	**198**
Public Banks %	**9.5**	**17.5**	32.2	18.7	**16.0**	23.0	12.7	2.3	8.0	20.0	**14.4**
* 1,000 total contracts	**37**	**25**	1	3	**18**	4	0	3	5	3	**95**
Caixas %	**13.7**	**26.9**	**23.7**	**29.8**	28.4	**36.5**	24.1	27.0	**21.2**	60.9	**25.7**
* 1,000 total contracts	**136**	**212**	**11**	**12**	5	**69**	2	1	**32**	5	**463**
TOTAL %	**13.3**	**25.2**	**25.2**	**25.6**	**13.2**	**33.6**	18.8	**4.5**	**15.2**	**24.6**	**20.4**
* 1,000 total contracts	**211**	**265**	**21**	**22**	**69**	**79**	3	**16**	**49**	**41**	**787**

Lime: more than 10,000 contracts. Orange: more than 10,000 contracts, more than 10% default. Red: more than 10,000 contracts, more than 20% default.

Source: DIHAF

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