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Mortgage Insurance
plus Housing Bubbles, Mortgage Regulation
in Europe and the Developing
Mortgage Market in Peru



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Editor's Introduction

by Friedemann Roy

Mortgage insurance aims to improve the risk management of mortgage loan portfolios by offering credit protection to lenders. In case of a borrower's default, mortgage insurance will cover part of the loss. For several years, it has been widely utilised in the United States, but US mortgage insurance companies have also become active in Western Europe. In addition, the applicability of this risk management instrument is also discussed in many emerging markets.

The objective of this HFI issue is, therefore, to provide more insight in the different types of insurance. Furthermore, it analyses why mortgage insurance companies may be beneficial for mortgage markets and the risks that mortgage insurers face.

Our first article is by Professor Dr. Stefan Kofner who chairs the Institute for Transformation, Housing and Social Urban Development at the University of Zittau (Görlitz). He gives a general introduction to this topic thereby assessing the risks that are related to this product. In the last part of his article, he compares mortgage insurance to alternative instruments such as piggyback loans or public mortgage insurance. Based on this comparison, he makes suggestions on suitable default risk management approaches.

Public mortgage insurance is in the centre of the discussion of the second article which is presented by Professor Hugo Priemus, Faculty of Technology, Policy and Management, Delft University of Technology, Marja Elsinga, OTB Research Institute for Housing, Urban and Mobility Studies, Delft University of Technology, and Liou Cao, McKinsey Company, New York. They analyse the achievements of the Home

Ownership Guarantee Fund which was established by the Dutch Government in 1993 to support homeownership. In their article, they seek an answer to the following questions: What is the true size of the cumulative risks for the government? How will these risks evolve in the years ahead? Does the Government expect these risks to remain within reasonable limits?

The next two articles reflect the view of mortgage insurance companies' representatives. First, Matthias Dous, Managing Director Central Europe – Mortgage Insurance Europe from Genworth Financial evaluates the German mortgage market and the benefits that are associated with mortgage insurance for lenders and borrowers in this market. In this context, he refers to the importance of mortgage insurance under the Basel II Accord and the German Solvency Regulation.

The second article is presented by Christian Pierotti, Head of Governmental Affairs, and Nadine Kolloczek, Legislative Analyst, both from PMI Europe. In their view, mortgage insurance has a considerable impact, enabling better access to mortgage loans. Homeownership rates for first time buyers could rise since this group typically does not have the necessary down payment to be eligible for a mortgage loan. Mortgage insurance could close this gap.

The next article builds on the last HFI issue that concentrated on house price bubble and its effects on the economy. The last issue primarily dealt with this phenomenon in developed countries. To look closer at this issue in an emerging market, Victor Mints, who works as a housing finance consultant at Financial Corporation Uralsib (Russia), analyses the current developments

in Russia: What has fuelled house price inflation? What could be the size of the expected correction of the market?

The following article will respond to the demand for a more intensive discussion on regulatory issues in housing finance. Christian König, Attorney at Law from the European Federation of Building Societies, provides a diagnosis on the European Commission's efforts to build a harmonised market on mortgage credit across the European Union. He takes up the different measures which have been implemented (eg code of conduct). In his view, a host of impediments exist to the creation of an internal market on mortgages (eg different appraisal standards or national financing practices).

The last article will lead us to a region which has been not tackled during recent HFI issues. Alfonso Garcia, Partner, and Paula Conthe, both from Analistas Financieros Internacionales, discuss the Peruvian housing market. After a brief introduction of the general market conditions, they provide an in-depth analysis on the governmental initiatives to develop the primary market – the Fondo Mivivienda and Créditos Mivivienda Programme. These programmes have also lead to the establishment of a secondary mortgage market. In their view, the new products implemented under this scheme could be considered an important contribution in mobilising private sector capital for middle and low-income housing.

I hope you will enjoy reading the articles. Your feedback is more than welcome. I look forward to your comments or recommendations to f.roy@frankfurt-school.de.

Hedging mortgage default risk with mortgage guaranty insurance: A model for Europe?

By Prof Dr rer pol. Stefan Kofner, TRAWOS: Institute for Transformation,
Housing and Social Spatial Development, University of Zittau

"Don't break the piggy bank - you're living in it." Holden Lewis - Bankrate.com

Introduction

Mortgage Guaranty Insurance (MGI, also labelled "Private Mortgage Insurance" PMI) can help lenders and borrowers to cope with the default risk of mortgage credits. MGI is taken out by the debtor of a mortgage in favour of the lender. The insurance covers the loss risk of the creditor in case of a borrower's default. While MGI doesn't directly prevent defaults it protects the lenders and the economy from their often harmful consequences.

Starting from the US where the first modern mortgage insurance was founded in 1957 this type of insurance is gradually spreading around the world. Although local affiliates of certain US mortgage insurers have started to sign business in Europe the future importance of MGI in the developing markets outside the U.S. is hardly predictable today. In Germany, US insurers like Genworth and PMI have focussed on the secondary insurance market until now. A first step into the primary market was recently made by Genworth Financial. Cooperating with Genworth, Münchener Hypothekenbank now offers insured loans with substantially lower equity requirements.

In certain European countries the market for risky credits - either loans with a high LTV or

loans for borrowers with an uncertain credit rating (the so-called "sub-prime" segment of the market) - is underdeveloped or almost non-existent. From a consumer protection point of view, developing these market segments might look, at first sight, like opening Pandora's Box. High LTV and sub-prime lending will surely bring along additional mortgage defaults. On the other hand serving the riskier target groups with mortgages is the only chance for them to become homeowners in the short run. When developing this risky business the financial industry and the regulators will have to draw the line between creditworthy mortgage clients and the rest very carefully.

In the US MGI is an established risk management instrument enabling lenders to serve potential homebuyers low on equity. Even sub-prime credits with low down payments can be insured. In recent years the US financial markets came up with competing instruments. For US borrowers the so-called "*piggyback loans*" (second trust loans financing capital needs above 80 per cent of the home value at a higher interest rate) have developed into a serious alternative to mortgage insurance. Also risky credits or credit risks can be transferred to the capital market by bundling and securitising them.

"Lacking behind", the European mortgage markets will almost inevitably start to develop the high-risk segments of the market as Anglo-Saxon countries already did. The development of an adequate instrumental mix for the management of the associated risks will be of utmost importance for future lenders and borrowers in these countries. MGI has the potential to become a cornerstone of this instrumental mix.

After having characterised the nature of the mortgage default risk an overview of the US mortgage insurance business will be given. Special emphasis will be placed on the risk/premium-differentiation policy of US mortgage insurers. Finally private mortgage insurance will be compared with alternative instruments of mortgage credit risk management.

The nature of the default risk

Defaulting is the decisive precondition for sanctioning a mortgagor by forcing the sale of the property he pledged as a security for the mortgage in default. Default is distinct from "*delinquency*", ie the failure to make mortgage payments (principal and/or interest) when they are due. Generally, if the payment is delinquent for thirty days after the due date, the mortgage is "*in default*". In the event of default, the mortgage may give

the lender the right to accelerate payments, take possession of the property and receive rents and start the foreclosure process. "Foreclosure" is the legal process by which the mortgagor is finally extinguished of all rights, title and interest on the underlying real property due to failure to comply with terms and conditions of the mortgage.

Mortgage default can have different reasons. It is important to know something about their respective empirical relevance because only limited resources should be allocated to hedges against infrequent risks for efficiency reasons. On the other hand the frequent risks require ample resources. In theory, the last Dollar spent for hedging against a certain default risk should equal the decrease in the probability of default caused by it times the individual cost of defaulting.

There are two alternative views of home mortgage default behaviour (Jackson and Kasserian, 1980). The *equity theory* of default holds that borrowers base their default decisions on a rational comparison of financial costs and returns involved in continuing or terminating mortgage payments. The alternative is the *ability-to-pay theory* of default. According to this approach, mortgagors refrain from loan default as long as income flows are sufficient to meet the periodic payment without undue financial burden.

Under the equity theory, the Current Loan to Value Ratio (CLTV), which measures the equity position of the borrower (ie market value of the mortgaged property divided by the outstanding mortgage loan at each point of time), is considered to be the most important factor in default decisions. By contrast, under the ability-to-pay model, the Current Debt Servicing Ratio (CDSR), defined as the monthly repayment obligations as a percentage of current monthly income, which captures the repayment capability of the borrower, plays a critical role in accounting for defaults.

The 2005 Chicago Mortgage Default Counselling Survey of borrowers in default confirms the conventional wisdom that job loss, health crisis, and a death in family are

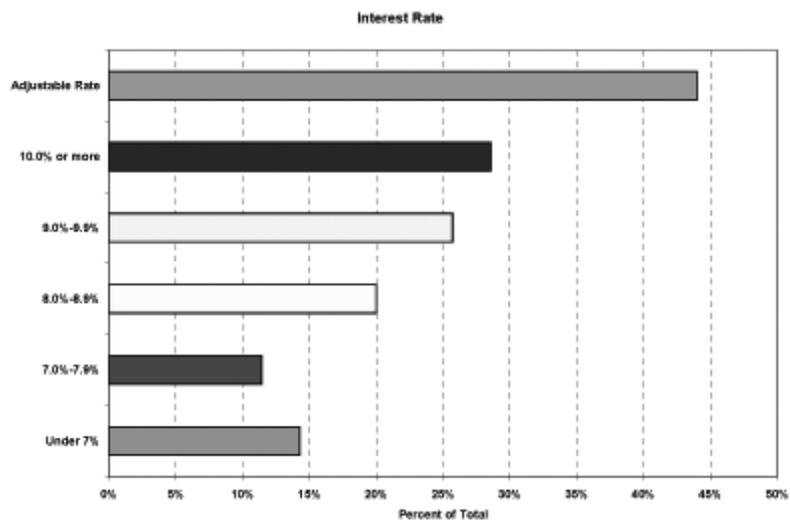
most often the initial cause of a mortgage default. We can add rising interest rates and falling house prices to the list.

The most important default reason is income reduction, in most cases a consequence of job loss. The importance of job loss as a default reason will vary between countries as different countries have different labour market regulation (influencing the duration of unemployment) and different social insurance schemes (influencing the level and the duration of unemployment benefit).

Another serious default risk is additional credit taken for home repairs/improvements or other purposes (cars, credit cards, etc). A lack of long term financial planning often seems to go hand in hand with the unwillingness or inability to adapt spending habits to the necessities of homeownership.

Far from having any savings many households in the Chicago survey seem to have exhausted their bank lines completely. They were already sitting on a clockwork bomb. The majority of the defaulted households were simply not prepared for any extraordinary financial events. Without any reserves or adequate insurance even short term unemployment or tax arrears can cause insurmountable financial difficulties for households lacking creditworthiness. Many default cases thus seem to be caused by inadequate financial / risk management.

Figure 1: Interest rate structure of Borrowers in Default



Source: 2005 Chicago Mortgage Default Counselling Survey

The importance of the level and adaptability of mortgage interest rate as a default risk is obvious from figure 1. Borrowers in default apparently pay much higher interest rates than the average homeowner - reflecting their credit risk status and in some cases maybe their low level of financial literacy. Also abusive lending practices might have contributed to the high interest rate level since more than 70 per cent of U.S. sub-prime home loans contain prepayment penalties (Nassar 2006). It seems that an important part of the sub-prime borrowers are abused by depriving them of their prepayment option and hence of the possibility to refinance in case of falling interest rates.

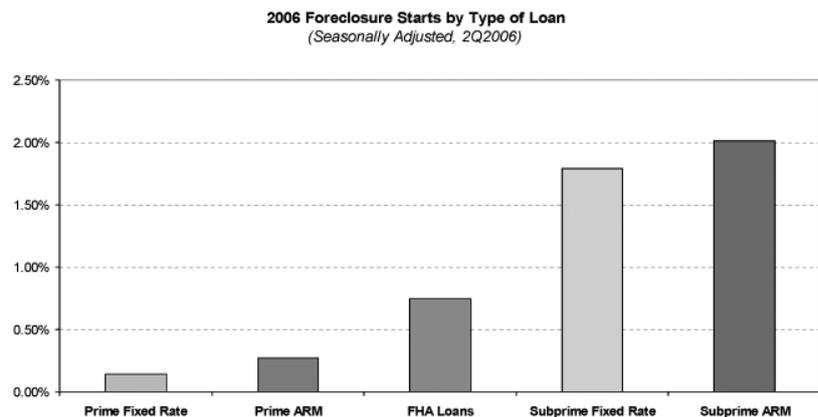
Also the Adjustable Rate Mortgage Loan (ARM) share of the Chicago defaultees' mortgages outstanding is distinctly above the national average. On the national level the distribution of ARMs according to the percentage rate of down payments has changed dramatically. The share of ARMs allocated to borrowers with extra low equity (ie below 10 per cent) has almost quintupled between 2000 and 2005.

This exposes already vulnerable homeowners to the additional risk of rising interest rates. In the sub-prime segment the recent acceleration of default rates was almost exclusively restricted to ARM-borrowers. It is surely not a coincidence that default rates on ARM mortgages began to rise at the very moment when ARM rates began to rise. The sub-prime state however has much more influence on the default risk than the type of loan (figure 2).

In a nutshell: The most important default risks seem to be

- loss of job
- mismanagement of personal finance / tax situation
- credit rating, past credit history
- lack of reserves, especially for home repair / improvement
- occupational disability
- premature death
- rising interest rates depending on the type of loan
- falling home prices

Figure 2: 2006 Foreclosure Starts by Type of Loan (Seasonally Adjusted, 2Q2006)



Source: National Delinquency Survey, Mortgage Bankers Association = 45 million loans serviced (2.6m, 5.9m, 3.2m, 2.0m, 2.9m)

Another factor relates to the lender's influence on default decisions. Workout plans helping borrowers who are faced with financial hardships provide an alternative to default. Taking into account the financial health of the borrower, the lender may respond in different ways to the threat of a possible default, such as loan restructuring, mortgage recourse, adoption of an extended repayment plan, or refinancing (Wong et al 2004, S135 et seq).

While MGI covers all kinds of default risks it pays out solely to the lender of the mortgage. In contrast Mortgage Payment Protection Insurance (MPPI) settles up to the borrower. Apart from these mortgage-specific insurances generic personal insurances covering single risks like premature death and occupational disability can help preventing defaults resulting from the respective risks. Another instrument of mortgage credit risk management - often neglected in these days - is to have savings. Savings can be used to reduce absolute debt, LTV and monthly repayment. When held as reserve assets they can help to finance repairs and modernisation or to bridge temporary income reductions. Last, but not least derivatives (to protect against

rising interest rates and falling house prices) will play an important role as a hedge against the risks of homeownership in the near future.

Mortgage guaranty insurance as an instrument of mortgage credit risk instrument

Mortgage guaranty insurance is taken out by the borrower of a mortgage credit in favour of the lender. The insurance covers the loss risk of the creditor in case of a borrower's default - independent of the reason of the default. MGI impacts loss-given-default but not the probability of default. Mortgage insurance is especially important as an additional safeguard for "risky" credits, ie with loan to value ratios above 80 per cent. As a credit enhancement it is often a prerequisite for the securitisation of mortgage credits.

In some countries this type of insurance is a substantial element of the national system of real estate finance, eg in the US. ¹ Some countries practising private mortgage insurance also have a public mortgage insurance system for the encouragement of private homeownership. Mortgage

insurance is an extremely cyclical business with a considerable catastrophic risk demanding large capital reserves, a broad diversification of risk and a lot of experience.

Given the catastrophic risk of MGI sound regulation is a necessary prerequisite for a sustainable development of this insurance line. The US private insurance companies are subject to dense regulation, eg line separation, capital requirements, provisions against conflicts of interest in the relation between bank and insurer.

In Germany, MGI never gained much ground (not least because of the lack of sound regulation, see Kofner 2007b), although this class of insurance was invented there in the middle of the 19th century already. The lack of insurance for riskier mortgages might have contributed to the "underdevelopment"

of the German market compared with Anglo-Saxon countries. An important part of potential German mortgage clients is rationed by a generally still strict adherence to an LTV of 60 - 80 per cent. German homebuyers might be rationed for other reasons, too, eg self-employment.

Claims process and termination of mortgage insurance

Mortgage insurance is an instrument of risk-sharing (between lender and insurance) for mortgages granted to homeowners with a relatively low share of equity. It protects the creditor against losses in case of a debtor's default. Only a part of the so-called "claim for loss" will be insured anyway (see table 1). To what extent the lender participates in the total loss also depends on the proceeds from the sale of the property.

After a lender has instituted foreclosure² and acquired title to the property, it can submit the claim to the insurance company. The insurer has two options to satisfy the claim:

- Pay the lender the entire claim amount and take title to the property.
- Pay the percentage of coverage of the total claim amount stated in the policy (generally 20 to 30 percent) and let the lender retain title to the property.

Before making a decision, the insurer will try to determine the potential resale price of the property and the expenses resulting from the resale, including the real estate agent's commission and other settlement costs (MICA 2007, S 9).

Mortgage guaranty insurance can be terminated by the borrower if he conforms to certain requirements. The borrower, however, has no right to switch insurance providers or to be temporarily uninsured without terminating the existing mortgage loan. There is federal regulation on this matter, the US Homeowners Protection Act of 1998.³ If the LTV has fallen below 80 per cent the lender can claim the termination of the insurance if the value of the property has not fallen. With an LTV below 78 per cent the insurance will terminate automatically provided that the lender is not in arrears with payments (MICA 2007, p 14).

Mortgage insurers incur a long-term commitment to each insured mortgage credit. They are neither allowed to cancel the policy before maturity, nor to raise premium in case of risk deterioration. To stabilise their business they need to take up a long-term stance on risk management (MICA 2007, p 10).

Table 1: Mortgage insurance "Claim for loss" example

Unpaid principal balance	\$50,000
Delinquent interest from the point of default	\$5,000
Property taxes due or paid by the servicer	\$1,000
Property insurance premiums due or paid by the servicer	\$200
Property maintenance, normal and customary costs	\$500
Legal expenses to foreclosure and obtain clear and merchantable claim to the property \$1.500	
Claim for loss	\$58,200
Mortgage insurance coverage per cent	25
Claim amount payable by the mortgage insurer to the bank	\$14,550
Bank exposure	\$43,650
Proceeds from the sale of the property	\$40,000
Gain / loss of the bank	-\$3,650

Source: Struyk / Whiteley 2002, p16.

¹ The insurance of mortgage loans by private insurance companies is available only in a limited number of countries. All of them have developed financial markets: Canada, the U.S., Sweden, Ireland, Great Britain, the Netherlands, Spain, Italy, Israel, Japan, Taiwan, Hong Kong, Australia and New Zealand (for a comparative treatise see Blood 1998, p.189†et sqq.). The main field of use is without doubt in the Anglo-Saxon countries. Just recently mortgage insurance is also available on a small scale in countries like India, China, Algeria, Mali and Guatemala. Amongst other things reliable and differentiated loan performance data are a prerequisite for the introduction of mortgage insurance.

² Private mortgage insurers have increasingly sought to intervene and help counsel delinquent borrowers in order to avoid foreclosure. The homebuyer and the insurer share a common interest in the mortgage financing transaction because they each stand to lose in the event of default (MICA 2007, p 3).

³ The law applies only to mortgages made on or after July 29, 1999.

Mortgage insurance is offered in different forms. Primary mortgage insurance (Chen, p16 et seq) is the insurance of a single mortgage credit. Mortgage portfolio insurance (also called secondary mortgage insurance, see Chen, p 17 et seq) covers whole pools of loans. It can be used to improve the risk structure of a given loan portfolio. Only a part of the total default risk of the pool will usually be insured (stop loss-limit or excess of loss cover).

The borrower will only pay the premium directly and fully in case of primary mortgage insurance. An incidence analysis of the cost for secondary mortgage insurance would be difficult. It is however probable that at least a part of the cost will be levied from primary credit customers in the end.

The lender's perspective

For mortgage financiers mortgage insurance opens up the possibility of leaving behind the limits of a fixed LTV in favour of a flexible combination of individual LTV and mortgage insurance. By using private mortgage insurance mortgage financiers can expand their lending business to higher LTV ratios without incurring the related risks. If national bank supervisors relax equity requirements for insured loans, banks can hand out more mortgage credit on a given equity base or increase their individual engagements substantially. On top of that mortgage insurance has favourable effects on liquidity and on the predictability of earnings.

Mortgage insurance is of special interest for mortgage lenders with a regionally concentrated pool of loans. It is a perfect instrument for the interregional redistribution and rebalancing of credit risks (Chen, p9). It thus tends to lower risk premiums and interest rates (Struyk/Whiteley 2002, p.8et seq.).

Last, but not least teamwork between bank and insurer can cause efficiency gains in the fields of credit evaluation and credit process management resulting in improved underwriting and quicker/ more accurate credit decisions.⁴

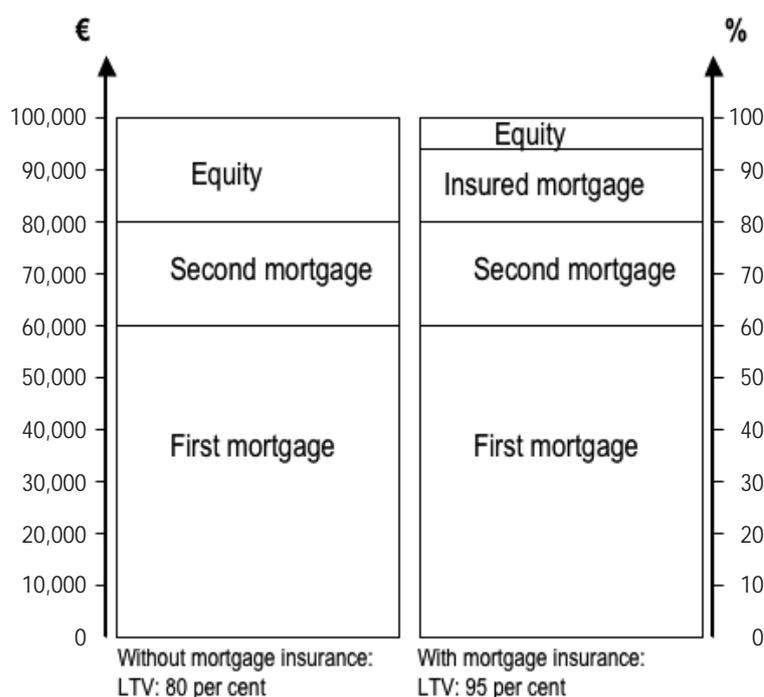
The borrower's perspective

By taking mortgage insurance borrowers are able to buy a home with a relatively small amount of equity (usually between 5 and 20 per cent of the lending value, see figure 3).⁵ Even credit engagements above an LTV of 95 per cent are insurable for qualified borrowers.

On the other hand the borrower must be able to carry the higher credit charges due to the higher lending volume in the long run. Lenders must also pay the insurance premium (now tax-deductible in the U.S.) which takes the individual default risk into account - at least until their equity share has fallen below certain limits.

The standard argument of the MGI industry goes like this: "A home purchase can be made years sooner with MGI, typically with as little as 3 percent down - even less for qualified borrowers." But MGI does not have a monopoly position in the low equity market segment any more. Substitutive products like piggyback loans have gained ground in recent years.

Figure 3: Mortgage insurance and LTV



⁴ The contractual relationship between mortgage lender and insurer is defined by two basic documents: the master policy and the underwriting guidelines.

⁵ Fannie Mae and Freddie Mac usually demand mortgage insurance by an insurer with a first class rating as a prerequisite for buying loans beyond a LTV of 80 per cent. These two companies have told their lenders to allow homeowners to use the current value of their home to determine equity levels for MGI purposes. Hence appreciation or home improvements can help to get below the 80 per cent equity mark.

US market structure

The degree of concentration of the US mortgage insurance industry is very high. It is basically an oligopolistic market. Since MGIC Mortgage Guaranty Insurance Corporation has just bought its biggest competitor, the Radian Guaranty Inc., the largest player in the market now has a combined market share of more than a third. Only seven competitors with a noticeable market share are left at all. After the big merger the largest three insurers have a combined market share close to 75 per cent. Only the biggest five competitors do have market shares large enough to efficiently organise nationwide risk distribution and to benefit from economies of scale. The market power of the oligopolists is however limited. As we said above their insurance product is subject to substitutive competition from non-traditional mortgage products.

Premium calculation: the cost of mortgage insurance

Mortgage insurance differs from other types of insurance in several respects (Dennis et al. 1997):

- The historical performance of a particular policy cannot be used in determining the

premium to be charged in subsequent periods, because mortgage insurance covers multiple periods, and the premium for the life of the mortgage is defined at the beginning.

- In contrast to life insurance, mortgage insurance has a definite term and the claim risk normally decreases over time.
- Geographic diversification is a less effective tool to limit risk exposure due to the importance of the systematic risk (the prepayment and default rates being dependent on macroeconomic variables).
- Finally, as we said before, mandatory mortgage insurance covers the risk to the lender rather than the risk to the borrower.

Given these fundamental differences the design of premium structures for MGI is not an easy business. In fact the premium structure of MGI is extremely differentiated. The premium depends amongst other things on⁶:

- the loan to value ratio LTV (+)
- the coverage ratio: share of the claim for loss covered by the insurance (+)
- the creditworthiness of the potential borrower

- credit rating of the borrower: FICO-score (-)⁷
- eventual temporary buydown ⁸ (+)
- the type of home
 - second homes (+ 14 bps)
 - manufactured home (+ 20 bps)¹⁰
 - investor (non-owner occupied) + 38 bps
- the type of mortgage
 - Fixed Rate Mortgage (FRM)¹¹ (-) or Adjustable Rate Mortgage (ARM) (+)
 - amortization rate (-) respectively potential negative amortization (+ 5 bps at PMI)
 - eventual rate/term refinance¹² (- 5 bps)
 - eventual annual cap on ARM ¹³ (-)
 - eventual Cash-Out Refinance ¹⁴ (+ 10 bps)
 - relocation loan ¹⁵ (- 7 or - 10 bps depending on LTV)
 - limited documentation (+)

Not to forget the frequency of payments¹⁶ and the renewal scheme. In constant renewal programs, premium rates are multiplied by the original loan amount to

⁶ The plus and minus-signs indicate the direction of the dependency.

⁷ The FICO personal credit rating ranges between 300 and 850. Prospective homebuyers with a FICO score lower than 620 can usually acquire a loan from sub-prime market only with a sensible add-on interest. Mortgage insurers have special rates for sub-prime borrowers ("A minus rates"). At PMI Mortgage Insurance the sub-prime borrowers are divided into three tiers according to their FICO score. The rates are very sensible on LTV and coverage ratio.

⁸ A temporary buydown allows borrowers with excess cash but low incomes, to qualify for loans that would otherwise be out of their reach. The extra cash is used to fund a temporary buydown, which reduces the payments made by the borrower.

⁹ PMI Mortgage Insurance will not insure second homes in case of sub-prime borrowers with a FICO score below 620.

¹⁰ Insurers are reluctant to insure credits collateralized with large multi-family residential buildings. As a consequence of bad experiences in the 1970s commercial mortgages will not be insured at all (Johnstone 2005, p 8).

¹¹ At PMI mortgage insurance 5/1, 7/1, 10/1 ARMs (where the rate is fixed for a period of 5/7/10 years after which in the 6th year the loan becomes an ARM) count as fixed rate mortgages.

¹² The purpose of a rate/term refinance is to change to a lower interest rate or to change the term of a loan.

¹³ An Annual Cap is a two-sided limit on the amount of adjustment in the interest rate on an ARM over a twelve-month period. If, for example an adjustable rate mortgage has a current interest rate of 7 per cent and an annual cap of 2 percentage points, then after one year, the highest interest rate can be 9 and the lowest 5 per cent.

¹⁴ Cash-out refinancing is a replacement of the whole first mortgage by a new loan - but for more than the borrower currently owes. The difference is paid out to the borrower. It is not a separate loan on top of the first mortgage. The interest rate on a cash-out refinancing loan is usually lower than the old interest rate on the first mortgage.

¹⁵ A relocation loan is a bridge loan enabling the borrower to buy a new property and to take his time with the sale of the old one. These facilities are offered at standard home loan rates and interest rates can be capitalised.

¹⁶ In the so-called "single plans" and "super single programs", premiums are paid up front. Super single programs insure against default until the loan is paid in full.

calculate the payment, while in amortized renewal, premium rates are applied to the remaining balance. The amortized renewal rates typically remain the same through the life of the mortgage. The constant renewal rates are normally the same as the amortized renewal rates in the first ten years after the origination and adjusted downward for the period from the eleventh year to term.

Location of the collateral object

Surprisingly enough the location of the collateral object does not seem to be used as a criterion for premium differentiation by US mortgage insurers, eg all PMI and AIG United Guarantee rates are applied "nationwide". At MGIC "rates may vary from state to state and must be selected based upon the location of the property" (MGIC National Rate Card, February 2007). Extensive testing with the MGIC rate finder using low risk and high risk credit cases did not show any rate differences between states however.¹⁷ The three insurers do not practice any other kind of spatial differentiation of their rates either.¹⁸

Outside the US mortgage insurance rates differ from region to region however. Also US mortgage lenders practice interest rate differentiation by state.

It seems that US mortgage insurers took the overwhelming importance of systematic risk for their business into account. Presumably geographic risk plays a role for their (discretionary¹⁹) underwriting policy. It is however possible that they will switch to a geographic premium differentiation regime in the future.

Table 2: Default Risk Relative to 80 per cent LTV (80 per cent = 1.0)

Data Source	80% LTV	85% LTV	90% LTV	95% LTV
US Mortgage Info. Corp.	1.0	2.53	2.30	4.38
UK: GE Mortgage Insurance	1.0	1.30	2.02	10.07
Australia: GE Mortgage Insurance	1.0	1.92	2.34	10.63
Canada: GE Mortgage Insurance	1.0	n.a.	4.08	10.63
Canada: Mortgage Insurance Corporation	1.0	1.99	3.45	7.69

Source: Merrill 2004

Loan to value ratio

The loan to value ratio is one of the most important dimensions of premium differentiation. Table 2 exhibits the default risk relative to an LTV of 80 per cent for different countries. In all countries except for the UK an LTV of 85 per cent at least doubles the default risk compared with an 80 per cent LTV. The marginal default risk generally rises for a given percentage point increase of LTV. In the UK the borrowers with a 95 per cent LTV face a default risk five times higher than the ones with a 90 per cent LTV.

The general rule is that the higher the LTV and the coverage ratio (share of the claim for loss covered by the insurance) the higher the risk is for the insurer. Also, premiums for new insurance can vary over time depending on the loss and risk development. For a home worth \$200,000 financed with a 30 years fixed-rate mortgage and a coverage ratio of 25 per cent the following initial premiums per month will result from different down payments:

Table 4: Monthly insurance premium depending on down payment percentage

Data Source	80%	85%	90%	95%
Down payment percentage	3,5	7,5	10,0	12,5
Initial down payment \$	7,000	15,000	20,000	25,000
Monthly premium (Jahr 1-10) \$	114.19	103.29	78.00	75.83

Source: PMI US and own calculations

¹⁷ No general rates are available for New York because of special requirements for the use of credit scoring in this state.

¹⁸ Geographic rate differentiation according to neighbourhoods can be a dangerous business in the US because of fair lending laws.

¹⁹ Risk management by discretionary underwriting is possible. The Radian Master Policy, Condition Two says: "Approval of any Application for Insurance shall be at the discretion of the Company and shall be communicated to the Insured in the form of a Commitment of Insurance."

The premium structure reflects the higher default probabilities mortgages with a lower down payment, ceteris paribus, empirically exhibit. It also reflects the higher costs of each default for the insurer in case of a higher coverage ratio.

There is thus no indication of distortion of incentives on the borrowers' side. Borrowers with lower down payments do not seem to be subsidised by the whole credit collective. Premium differentiation of this kind is necessary to pre-empt any adverse selection appearing whenever interest rates / insurance premiums are not calculated in accordance with individual risk.

Cost and profitability of taking MGI

For the assessment of the cost and profitability of taking MGI for the lender further calculations have been done.

For the home worth \$200,000 to be financed with a 30 years fixed-rate mortgage six cases have been compared:

- 1 finance without MGI and a down payment of \$40,000
- 2 finance with MGI and a down payment of \$7,000, coverage ratio of 25 per cent
- 3 finance with MGI and a down payment of \$15,000, same coverage ratio
- 4 finance with MGI and a down payment of \$20,000, same coverage ratio
- 5 finance with MGI and a down payment of \$25,000, same coverage ratio
- 6 80-10-10 "piggyback" finance without PMI (see section 4.1)

For the first case we assume:

- an initial loan of \$160,000
- a fixed interest rate of 6.0 per cent

- an initial principal of 1.26 per cent
- an annuity of \$11,624

Under these assumptions the principal balance will develop as shown in table 5.

This classical finance structure obviously is characterised by an IRR/ APR (Annual Percentage Rate) of 6 per cent per year. Since a lower down payment always increases the default risk reflected in interest rate or insurance premium it is also the cheapest of all variants discussed here.

We will only treat one of the variants with MGI in detail, ie variant 4.²⁰ For this case we assume:

- an initial loan of \$180,000
- a fixed interest rate of 6.0 per cent
- an initial principal of 1.26 per cent
- an annuity of \$13,077

Under these assumptions an initial insurance premium of \$936 per year will result.²¹ We assume that the insurance will be held / premium will be paid until the LTV falls below 80 per cent (here: for nine years). The total cost of the loan thus consists of interest, principal and insurance premium (see table 6)²².

Table 5: development of principal balance without MGI

t	principal bal. \$	interest \$	principal \$	total cost
0				-160,000
1	160,000	9,600	2,024	11,624
2	157,976	9,479	2,145	11,624
3	155,831	9,350	2,274	11,624
...
29	21,311	1,279	10,345	11,624
30	10,966	658	10,966	11,624

Source: own calculations

Table 6: development of principal balance and total cost with MGI, down payment 10 per cent

t	principal bal. \$	interest \$	principal	insurance premium \$	total cost \$	LTV
0					-180,000	
1	180,000	10,800	2,277	936.00	14,012.80	90.00%
2	177,723	10,663	2,413	924.16	14,000.96	88.86%
3	175,310	10,519	2,558	911.61	13,988.41	87.65%
4	172,752	10,365	2,712	898.31	13,975.11	86.38%
5	170,040	10,202	2,874	884.21	13,961.01	85.02%
6	167,165	10,030	3,047	869.26	13,946.06	83.58%
7	164,119	9,847	3,230	853.42	13,930.22	82.06%
8	160,889	9,653	3,423	836.62	13,913.42	80.44%
9	157,465	9,448	3,629	818.82	13,895.62	78.73%
10	153,837	9,230	3,847	0.00	13,076.80	
...
28	34,955	2,097	10,980	0.00	13,076.80	
29	23,975	1,439	11,638	0.00	13,076.80	
30	12,337	740	12,337	0.00	13,076.80	

Source: own calculations

The IRR / APR of this investment / credit including mortgage insurance premium is 6.34 per cent per year - slightly above the classical loan's with its equity share of 20 per cent.²³ The APR of the different variants with mortgage insurance show the following correlation: The higher the LTV, the higher the APR (ie the more expensive the credit, see table 7).

Given that saving \$33,000 on down payment can mean becoming a homeowner much earlier than by saving for a classical non-insured 80 per cent LTV mortgage an additional interest of little more than 50 bps seems rather modest anyway. The surcharge will however be much higher if the loan is subject to other risk increasing traits (which is more and more frequently the case in the US).

The stability of the US mortgage insurance system

The modern US mortgage insurance system is matured by the experience of the financial crises of the 30s and 80s. Both the industry and its regulators have proven themselves as capable of learning from mistakes.

The collapse of the whole industry in the early 30s was not only due to an unfavourable macro-economic environment. It was also a consequence of undercapitalisation and under-regulation of the mortgage insurance industry (Canner/ Passmore/ Mittal 1994, p 884 and Liu 2000, p 38). Also experience was lacking in the field of qualitative selection of credit risks.

As a reaction, the governor of the state of New York commissioned the so-called "Alger Report" to investigate the causes and effects of the mortgage market breakdown. For the private mortgage insurance sector, the report recommended provisions against conflict of interest, sensible minimum capital and reserve requirements and sound regulation for

appraisal, investment and accounting. The Alger report served as a blueprint for the recovery of MGI in the US in the 50s (Liu 2000, p 38).

Private mortgage insurers were henceforth subject to tight regulation taking into account the catastrophic character of the underlying risk. Modern mortgage insurance is characterised by sound regulation in the following fields:

- monoline restriction
- sensible reserve requirements
- sensible capital requirements
- provisions against conflicts of interest in relation to borrowers

The monoline restriction is of special importance since it prevents the access of other insurance branches to the reserves of mortgage insurance (Jaffee 2003, p.4). The business principles and regulation of modern mortgage insurance are much less on the speculative and risky side than they were in the 30s and 80s. Also the insurers are continuously working to improve their risk management and their key financial figures. The insolvency risk thus seems to be rather limited (Johnstone 2004, S 126). This results in Fitch ratings between AA and AAA without exception for US mortgage insurers.²⁴

In the last 12 years the combined share of losses and expenses in total premiums earned never exceeded 100 per cent. In the year 2005 this share was only 60.44 per cent. In fact MGI is extremely profitable in "normal" years. Due to the highly volatile loss behaviour there is however always a catastrophic risk of several loss years in a row at the horizon - the periodic litmus tests of the sector. With the underwriting and capital reserves built up in the good years as a consequence of regulation and improved risk management most of the insurers should be able to endure even a loss period lasting over several years. The contingency and underwriting reserves of the sector accounted for \$13.8 billion in 2005. In relation to net risk exposure (credit volume covered by insurance, normally between 20 and 30 per cent of insured credit volume) the share of capital reserves was close to 9 per cent in 2005 (MICA 2007, p17-19).

The core competence of mortgage insurance is risk dispersion. The default risk contained in their insurance portfolios is spread across three dimensions: geographic, temporal (ie reserve policy) and loan-to-value (LTV mix) distribution. Mortgage insurers offer a degree of risk dispersion and pooling of risk that even the biggest and most diversified individual mortgage lenders could not accomplish on their own.

Table 7: APR with mortgage insurance depending on down payment

Down payment percentage	3.5	7.5	10.0	12.5
Initial down payment \$	7,000	15,000	20,000	25,000
APR per cent	6.52	6.44	6.32	6.26

Source: own calculations using rates from PMI Mortgage Insurance Co. 2006

²⁰ Variant 4 was chosen to streamline the discussion in this article.

²¹ We assume an amortized renewal rate applied to the outstanding loan balance for the life of the policy.

²² The table exhibits the lender's perspective.

²³ Comparing the IRRs for the two investments we assume that alternative investments will generate the respective IRR.

²⁴ Source: <http://info.insure.com/ratings/fitch/index.cfm>, 18.3.2007.

Resume on Mortgage Guaranty Insurance

While the methods of credit rationing used in Germany seem suitable to avoid sensible losses for the mortgage financiers they exclude them from the profit and revenue potential of potential homeowners with low equity. Also they tend to exclude young families and other low equity households from founding a home of their own.

Private mortgage insurance on the other hand is an important element of a fully developed national system of real estate finance. Without MGI borrowers unable to make sensible down payment are either excluded from the access to mortgage credit or suffer from unfair lending practices. Mortgage insurers help lenders to improve their risk management. Also with MGI smaller, regionally-oriented lenders can survive in the long run.

Given the systematic risk, which is due to macro-economic factors like interest and unemployment rates, worldwide risk dispersion across different economic cycles would make much sense. The more countries are covered by mortgage insurance, the better the international risk dispersion will work - despite the currency risks incurred with worldwide mortgage insurance. National regulations thus need to be redesigned in order to enable worldwide risk dispersion. The development of corresponding reinsurance capacities could further enhance the global dispersion of default risks.

Mortgage insurance however needs sound regulation - not only in its own field. National bank supervisors should relax equity requirements for insured mortgage loans only if the insurers are subject to strict regulation (the US regulatory regime serving as a model).

From a housing policy perspective the idea of private mortgage insurance is convincing because of its potential to shorten the savings phase ahead of homeownership. It

could bring young families into their first own home many years earlier. A wide substitutive competition with the German Bauspar system cannot be denied here. Mortgage insurance allows for higher LTV lending and can be regarded as a substitute for equity capital. It surely has the potential to raise the homeownership rate in countries like Germany dramatically by considerably reducing the average entry age of homeownership.

Alternative instruments of mortgage credit risk management

Private mortgage insurance enables lenders to share the risks of mortgage lending to riskier target groups. It is offered in different forms for the primary and the secondary mortgage credit markets and faces competition on both markets. At the primary market piggyback loans, Public Mortgage Insurance and Mortgage Payment Protection Insurance (MPPI) are available as alternatives. At the secondary market both the securitisation of risky credits and the securitisation of credit risks in the form of Credit Default Swaps (CDS) can be used as substitutes for MGI. None of these instruments is a perfect substitute for MGI. In fact secondary mortgage guaranty insurance is often used as a so-called "credit enhancement" when mortgage credits are securitised.

Piggyback loans

Piggyback financing consists of two loans. The first one covers 80 per cent of the purchase price. The second "piggyback" loan is needed to finance the rest of the purchase price, minus the down payment. An 80-10-10 mortgage has a 10 per cent down payment and a 10 per cent piggyback loan; an 80-15-5 a 5 per cent down payment and a 15 per cent piggyback loan; and an 80-20 does not have a down payment at all. The piggyback loan will always have a substantially higher rate than the primary mortgage.

Compared with MGI the piggyback loan

repayments had the advantage of tax deductibility until lately in the US. With the deductibility of MGI premiums this particular competitive advantage has disappeared.²⁵ If mortgage interest is deductible mortgage insurance premium should be deductible, too.

Variant 6 from above is an 80-10-10 finance without MGI. The 80-10-10 finance structure is made up of the following two mortgages:

Mortgage I

initial property value \$	200,000
initial equity plus sec. mortgage \$	40,000
initial loan \$	160,000
interest rate per cent	6.0
initial principal per cent	1.26
annuity \$	11,624

Mortgage II

initial loan \$	20,000
interest rate per cent	8.9
initial principal per cent	0.75
annuity \$	1,929

We assume an interest rate for the primary mortgage at the same level as for the insured mortgages in the other cases and disregard transaction costs. The interest rate for the second mortgage rate is the critical interest rate resulting in an APR for the whole package equal to a 90 per cent LTV insured mortgage (ie 6.34 per cent).²⁶

Now the critical interest for the second mortgage is 8.9 per cent. If the interest rate offered is higher taking mortgage insurance is the better deal. Market rates for piggybacks are difficult to research, but for borrowers with good credit they seem to range between 8.0 and 8.5 per cent at the moment. If competition works smoothly the APRs for comparable credit packages with and without MGI should converge.

²⁵ Taking out MGI will most probably have lower transaction costs than taking a second loan.

²⁶ For the development of the principal balances and the total cost of the two loans see my paper for the EMF / ENHR joint seminar: <http://www.hypo.org/Content/Default.asp?PageID=346>.

If piggyback financing supports the stability of the financial system is an open question. Whereas there is no reason why piggyback financing should have a negative effect on the default risk (in comparison to a matchable insured loan), the piggyback lenders might be more vulnerable to the catastrophic risk associated with high LTV lending than the mortgage insurers. If this argument were true, piggyback lending would be a danger for the continuous provision of mortgage credit. In comparison to a mortgage insurer the loss risk of a piggyback lender depends on:

- capital and reserve requirements in mortgage banking as opposed to mortgage insuring
- line separation / specialist bank principle versus universal bank / insurance principle
- risk management abilities of the lender / insurer

As we said before the US mortgage insurers are heavily regulated and should be able to withstand even a period of several years with heavy losses. Because of monoline regulation they resemble more a specialist mortgage bank than a universal bank. The basic question is thus whether specialising in high LTV mortgage lending or insurance is less or more risky than mixing such kinds of mortgage credit and mortgage credit insurance with all kinds of other bank businesses including businesses outside mortgage lending. Another matter of interest is the credit / insured risk portfolio structure. A bank specialised in high LTV lending with an extreme geographical risk dispersion of its mortgage credits (requiring extensive partnerships with primary lenders) would basically be in the same business the mortgage insurers are in. The question is whether such banks exist at all?

All in all as long as banks keep the credits in their books we don't have a clear-cut case of regulatory arbitrage here (piggyback lenders circumventing insurance regulation by offering substitutive, less regulated, banking products).

Public Mortgage Insurance

Public mortgage insurance might be suitable to ensure equal access to mortgage credit independent of regional or societal rationing criteria. On the other hand a public insurance system is always in danger of being a pawn in the hands of powerful political interests. Considerations of political opportunity might lead to demands for lower underwriting standards or less risk-adequate premium differentiation. Because of its cyclical profile public mortgage insurance is also a budget risk that should not be underestimated, especially when politicians have influence on underwriting standards and premium design. There is a danger that public mortgage insurance grows into the role of a lender of last resort distorting the risk calculation of lenders. Furthermore public mortgage insurance might distort competition with private insurers. It needs to have a clear mission and target group. It is however doubtful if mortgage insurance is a public good at all. On the other hand historical experience tells us that sometimes public insurers have served as avant-garde for the development of private mortgage insurance.

Mortgage Payment Protection Insurance

Mortgage Payment Protection Insurance ("MPPI") is a mortgage insurance product that can protect both the borrower and the lender after a mortgage transaction is made, by guaranteeing the regular payments that ensure repayment.²⁷

The insurance covers a mortgagor's monthly mortgage repayments (interest payments and amortisation) if he or she is unable to work because of unemployment, accident, or sickness. Usually all three risks are insured, but it is possible to insure against a subset, particularly where other insurance is already in place (Whitehead / Holmans 1999, p. 3). MPPI pays out to the borrower and its payouts are independent of a household's financial resources (Song 2005, p. 6).

PPI commences, usually directed to the lender during the first month. However there are waiting periods for covers such as unemployment (usually 30 or 60 days). The maximum benefit period is restricted to 12 months by most providers (in some cases the term is 18 or 24 months).

In an environment where the propensity to save is low MPPI is an important safety net for mortgage borrowers, especially in times of need when the consumer suffers from illness or involuntary unemployment. In the United Kingdom, where the government had encouraged taking up MPPI around 25 per cent of existing mortgages and over 35 per cent of new mortgages have MPPI to protect the mortgage repayments.

There are important differences between MPPI and MGI:

- MGI pays out to the lender whereas MPPI protects the borrower.
- MGI provides all-risk coverage. Default-related losses of the lender are insured absolutely independent of the reasons for defaulting. MPPI on the other hand covers the risk of a temporary loss of earned income with respect to mortgage repayments.
- MPPI provides preventive coverage. It helps to avoid defaults by replacing missing income. At MGI the insured event is the mortgagor's default. We should not however overlook the fact that mortgage guaranty insurers also have an interest to avoid insured credits from defaulting (eg by counselling the mortgagor).
- MPPI is subject to moral hazard whereas the moral hazard problem is non-existent at MGI at least in the lender-borrower relationship (because it pays out to the lender). Regarding the coverage range (omitting important causes of default) and the types of risks insured by MPPI the moral hazard risk should be limited

²⁷ MPPI should not be mixed up with Income Protection Insurance (IP), a kind of occupational disability insurance with indefinite term.

however (Whitehead / Holmans 1999, p 9). Taking MPPI of this type will probably not have the effect of a general relaxation of budget discipline. Also households will usually not incur bigger financial risks when equipped with MPPI.

All in all MPPI and MGI do not directly compete. In a way they are complementary products. If MPPI decreases the probability of default, then MGI rates could be lowered for applicants having MPPI.

Securitisation

It might be regarded as a case of regulatory arbitrage if banks engaged in the high LTV loan business securitise these loans. The special purpose vehicles holding these credit bundles are less densely regulated than universal banks, mortgage banks or mortgage insurers. On the other hand the loan bundles transferred to SPVs usually have credit enhancements (including secondary mortgage insurance) in order to get a reasonable rating. Acting as an agent of the investors the rating agencies exert a kind of substitutive supervision on MBS transactions.

The fundamental question is if capital markets or mortgage insurers are the better risk managers. If for example the default rates in the segment of high LTV loans would rise steeply investors might overreact and as a consequence interest rates could overshoot in this market segment. Even the continuous provision of this type of credit might be endangered in such a scenario. Another question is whether primary and secondary market interest rates for high LTV loans are more volatile than mortgage insurance premiums.

The capital markets do not offer instruments for investing only in whole loan packages. Investors can also bet on default probabilities of certain mortgage credit bundles by using Credit Default Swaps (CDS). It is not easy to decide if CDS are a close substitute or a complementary product in relation to MGI. In a CDS structure banks or Special Purpose Vehicles (SPV) take the part of a mortgage insurer.

Mortgage insurers often “re-insure” the default risks taken over by the SPVs. In some countries this is a prerequisite for the reduction of equity capital requirements on the originator’s side.

Conclusion and policy implications

For the design of an optimal default risk management approach the best suited risk management instrument needs to be assigned to each potential default reason. A proposal for the assignment of risks and risk management instruments is presented in table 8.

The assignment proposal beholds the following insights:

- There is an important role for the state in risk management: social insurance design, counselling, foreclosure and lending regulation

- The individual default risk is still important.
- 100 per cent security is not attainable.
- Some risks require an instrumental mix.

The role of private mortgage insurance is to be a (second) safety net for the lenders taking into account as many aspects of personal risk management as possible, eg insurance coverage, assets like the Bausparvertrag, use of derivatives, and last but not least responsible and informed financial behaviour.

Table 8: assignment of risks and risk managements instrument

Risk	Moral hazard	Instrument
unemployment	yes	transitional private insurance (single risk coverage or MPPI) on top of social insurance and housing allowances and unemployment benefits for homeowners
mismanagement of personal finance / tax situation	yes	counselling
lack of reserves, esp. for home repair / improvement	yes	counselling, moral suasion, Bausparen
accident / sickness not resulting in occupational disability on top of social insurance	minimal	transitional private insurance (MPPI)
occupational disability	minimal	permanent private insurance (IP) on top of social insurance
death	minimal	adequate risk life insurance
rising interest rates	yes	adequate interest rate risk management: FRM with different term structure, ARM with caps, Bausparen
falling house prices	minimal	foreclosure regulation, lending regulation, real estate derivatives

References

- Blood, R: Prospective role of mortgage insurance in support of housing finance in Poland, Report to USAID, Urban Institute 1998.
Internet access:
HYPERLINK
"http://www.polandhousingfinance.org/"
http://www.polandhousingfinance.org/
- Brueggeman/ Fisher: Real estate finance & investments, pp.166-172.
- Canner, G/ Passmore, W/ Mittal, M.: Private Mortgage Insurance, in: Federal Reserve Bulletin, October 1994, pp.1883-899.
- Chen, K: The Role of Mortgage Insurance in Risk Management, in: International Journal of Real Estate Finance, Volume 1, No 2.
- Cockburn, B (2006): Safe as houses, Survey: MPPI, in: Cover October 2006, pp 33-36.
- David, P: Mortgage insurance: What is the right model?, Presentation at the 25th IUHF World Congress, Bruxelles, June 2004.
- Dennis, B / Kuo, C / Yang, T (1997): Rationales of mortgage insurance premium structures, in Journal of Real Estate Research, vol. 14, no 3, 1997.
- Evans, B. (2005): PMI Risk Index Names MSAs Most Likely To Depreciate In Housing Prices, in: RealityTimes, February 25, 2005.
- Jackson, J and D Kasserman (1980): "Default Risk on Home Mortgage Loans: A Test of Competing Hypotheses", in: Journal of Risk and Insurance vol. 3, p 678-690.
- Johnstone, Q (2004): Private Mortgage Insurance, in: Wake Forest Law Review 2004, vol. 39, No. 4, S 783-838.
- Kamper, O: Wohnungswirtschaft und Grundkredit, de Gruyter 1938, p1253f et seq and pp316-318.
- Kofner, S. (2006): Hypothekenversicherung: auf der Überholspur ins Wohneigentum?, in: Immobilien & Finanzierung, 57. Jg., p. 356-359.
- Kofner, S. (2007a): Hypothekenversicherung: Ins eigene Heim mit einem Minimum an Eigenkapital?, in: Taschenbuch für den Wohnungswirt 2007.
- Kofner, S (2007b): Die Hypothekenversicherung: Eine Finanzinnovation kehrt zurück in ihr Ursprungsland, forthcoming in: Immobilien & Finanzierung, 57 Jg.
- Liu, D: Exporting Mortgage Insurance Beyond the United States, in: Housing Finance International 2000.
- McNulty, J (1984): Secondary mortgage markets: recent trends and research results, in: Federal Home Loan Bank Board Journal, April 1984.
- Merrill, S (2004): Expanding lending downmarket: the role of mortgage guarantee insurance, THE URBAN INSTITUTE, Eradicating Poverty Through Profit, San Francisco, December 2004.
- Mortgage Insurance Companies of America (MICA 2007): 2006-2007 Fact Book & Membership Directory.
- Nassar, J (2006): Abusive Lending and Pricing Disparities in the Subprime Market, Presentation for the National Fair Housing Alliance July 10, 2006.
- PMI (2007): Economic Real Estate Trends Winter 2007, PMI Mortgage Insurance Co.
- Pryce, G/ Keoghan, M: Unemployment insurance for mortgage borrowers: Is it viable and does it cover those most in need?, European Journal of Housing Policy, Vol. 2, Nr 1, 2002, pp187 n 114.
- Radian Master Policy (2007), Radian Group Inc, Philadelphia.
- Song, H (2005): Risk management on the housing market - with a focus on low income households, Paper 2: Mortgage and home equity insurances for home owners and rental insurance for tenants, Report 5:67 Building and Real Estate Economics (Licentiate Thesis), Department of Infrastructure, Royal Institute of Technology Stockholm.
- Struyk, R/ Whiteley, D: Mortgage default insurance in the US: Implications for Russia, Prepared for the Institute of Urban Economics, March 2002.
Internet access:
HYPERLINK
"http://www.urban.org/UploadedPDF/410832_mortgage_default.pdf"
http://www.urban.org/UploadedPDF/410832_mortgage_default.pdf
- Van Vliet (ed): Encyclopedia of housing, keyword "Mortgage Insurance".
- Whitehead, C/ Holmans, A (1999): Why Mortgage Payment Protection Insurance?, report for the Council of Mortgage Lenders and the Association of British Insurers.
- Wong, J/ Fung, L/ Fong, T/ Sze, A (2004): Residential mortgage default risk and the loan-to-value ratio, in: Hong Kong Monetary Authority Quarterly Bulletin, December 2004, S 35-45.
- MGIC rates:
"http://www.mgic.com/rates/rates.html"
- AIG rates:
https://www.ugcorp.com/mirates.html
- PMI rates: http://www.pmi-us.com/lenders/pmirates.html"
http://www.pmi-us.com/lenders/pmirates.html

Public Mortgage Guarantee: Risks for the Tax Payer?

By: Hugo Priemus, Marja Elsinga and Liou Cao

1 Introduction

There has been a Home-Ownership Guarantee Fund (Waarborgfonds Eigen Woningen / WEW) in the Netherlands since 1993. When households within a certain income range take out a mortgage to buy a home, they can obtain a guarantee up to a specific maximum amount. Obviously, this is very reassuring for the households in question as it shifts some of the risk to the government and it keeps the mortgage interest rate relatively low.

The Home-Ownership Guarantee Fund has grown considerably since its establishment in 1993, with a steady increase in the number of loans and the total guaranteed amount. Though some of the covered households have had to draw on the guarantees, particularly in times of economic stagnation, the sums involved have so far been fairly modest – and certainly give no cause for alarm.

At first sight, this looks like a foolproof formula, a win-win situation for the households and the mortgage banks alike, but that, of course, is an illusion: for, eventually, all risks end up with the government.

This raises a number of questions. First, what is the true size of the cumulative risks for central and local government? Second,

how will these risks evolve in the years ahead? And third, do the government and parliament expect these risks to remain within reasonable limits? The barest assumption we can make at present is that no-one in the Netherlands has any idea of the true magnitude of the risks either now or in the future.

In 2005 Liou Cao was awarded a doctorate at Massachusetts Institute of Technology, Cambridge (Mass) for a thesis in which she presented a method for calculating these risks. She applied this method to three public mortgage guarantee systems: the US Federal Housing Administration (the world's oldest and largest public mortgage guarantee system), the – as yet in its infancy – Sociedad Hipotecaria Federal (SHF) in Mexico and the Dutch Home-Ownership Guarantee Fund, also known as the WEW¹. The central question in this article, which is based on Liou Cao's thesis, concerns the risks to the government (and hence the taxpayer) of supporting a public guarantee fund for home-ownership.

This research question is made extra complicated by two factors. To begin with, we are talking about long-term mortgages, taken out for, say, twenty or thirty years. In a timescale like this the national economy could easily be hit by recessions or even a depression. Second, a guarantee fund does not aspire to maximise profits. On the

contrary, it is intended for households with a modest (mid-range) income and a risk profile which makes them particularly vulnerable to economic shocks.

The greatest risk run by a mortgage guarantee fund is that the mortgage-holder (the owner-occupier) becomes unable to meet the payment obligations. These credit risks can be measured with econometric models, stochastic simulations, and hybrid models that combine both. Liou Cao used stochastic simulations and the Value-at-Risk (VaR) method to determine the inability-to-pay probability for a government-guaranteed mortgage.

The Dutch home-ownership and mortgage market have grown considerably in recent decades. At present, privately owned homes account for over 54% of the housing stock. In 2005 the outstanding mortgage debt stood at 487 billion euros, equal to 97% of the GNP (Special Report, 2004).

¹ The research was supervised by Professor Joseph Ferreira (Urban Planning and Operations Research, MIT), Professor David Geltner (Real Estate and Finance, MIT), Dr Lynn Fisher (assistant professor at the Center for Real Estate (MIT), Dr Robert M. Buckley (senior housing advisor, the World Bank) and Professor Hugo Priemus. In the Netherlands she was supervised by Hans Mersmann (Home-Ownership Guarantee Fund), Dr Marietta Haffner and Dr Marja Elsinga (senior researchers, OTB, TU Delft). The thesis has since been published (in English) in the Netherlands thanks to funding from the Home-Ownership Guarantee Fund and the Vereniging Eigen Huis (consumer organisation for (future) home-owners). Part of the research for the thesis took place within the Habiforum programme on Innovative Land Use, financed by the Ministry of Housing, Spatial Planning and the Environment (VROM) and Delft University of Technology

Table 1 Key statistics for the Netherlands – EU 25 (2005)

	EU average	Netherlands
Growth in GNP (EU 25)	1.6%	1.1%
Unemployment (EU 25)	8.7%	4.7%
Inflation (EU 25)	2.1%	1.5%
Home-ownership	65.0%	54.2%
Mortgage debt in % GNP	47.5%	97.1%
Mortgage per capita x €1,000 (EU 25)	11.2	29.9
Total value of residential loans, € million, (EU 25)	5,138,835	487,322
Annual appreciation in house prices % (Euro zone)	7.7%	4.8%
Mortgage interest rate (Euro zone)	3.91%	4.1%

Source: EMF, EUROSTAT, ECB, Dutch Central Bank, National Land Register, Nationale Centrale Bank (EMF 2006: 76).

The mortgage interest rate in the Euro zone relates to APRC (Source: ECB).

References: De Nederlandsche Bank, Annual Report, 2005. De Nederlandsche Bank, Financial Stability Review, 2005.

NIBC BANK N.V. Mortgage Brief, March 2006 and July 2006.

Table 1 clearly shows that the mortgage provision system in the Netherlands stands out from the rest of the European Union. In 2005, inflation, unemployment and economic growth in the Netherlands were clearly below the EU average. The percentage of privately owned homes in the Netherlands (54.2%) was below the EU average (65.0%), but rising steadily. The mortgage debt per capita, or as a percentage of the GNP, was much higher in the Netherlands than in the EU 25. In fact, the Dutch even top the list on both counts (97.1% of the GNP and 299,000 euros per capita).

House prices in the Netherlands (4.8% increase in 2005) are rising less rapidly than in the Euro zone as a whole (7.7%), but there is little to be gleaned from an annual average like this, given that the price cycles in the EU do not run in parallel.

The mortgage interest rate in the Netherlands was slightly above the Euro zone average in 2005 (4.1% as opposed to 3.9%).

2. A brief recap on the Home-Ownership Guarantee Fund

In 1956, the Netherlands introduced a government-backed municipal guarantee system to improve the accessibility and affordability of home-ownership. Initially, this guarantee applied only to newly built housing, but it was extended in 1973 to owner-occupier properties in the housing stock. National and local government each assumed 50% of the risk. This public guarantee meant that the minimum personal

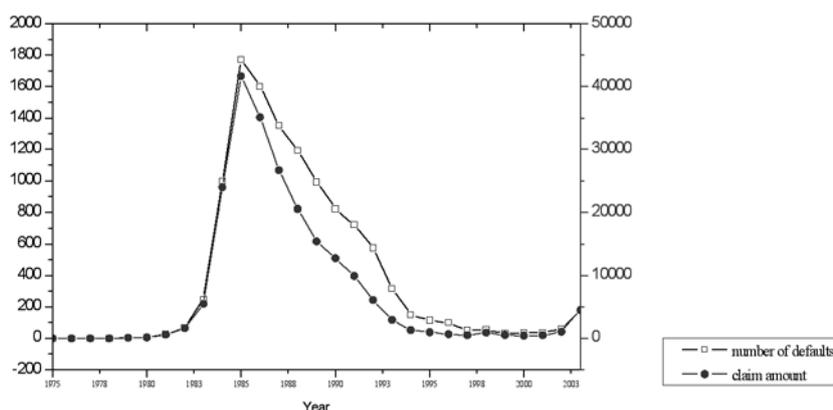
contribution of aspiring home-owners dropped from 30% to 10%. As was to be expected, there was a dramatic rise in the demand for mortgages. There were two significant hurdles in the municipal guarantee system: applications could take as long as six months to process and each municipality had its own conditions and products. The system was far from transparent, but it worked fairly well all the same – until, that is, the period from 1978 till 1982, which was marked by economic stagnation, soaring inflation and high unemployment.

Figure 1 shows the spectacular rise in the number of compulsory sales due to mortgage default (foreclosures) after 1983, peaking at 1,800 in 1985.

The annual loss amounted to 56.8 million euros (Boelhouwer & Neuteboom, 2003) and prodded central and local government into raising the efficiency of the system.

The system was certainly ready for an overhaul. Basically, three points needed to be addressed: the regulations had to be standardised, the efficiency of the fund had to be improved and a strong capital reserve position had to be built up. This led to the establishment of the Home-Ownership Guarantee Fund in November 1993 (WEW in the Netherlands). The WEW would be a private, non-profit-making organisation which would fall under the Ministry of Housing (VROM) and the Association of Netherlands Municipalities and would be supported via counter-guarantees by central and local government. The WEW

Figure 1 Sales due to mortgage default in the Netherlands, 1975-2003



Source: Boelhouwer & Neuteboom, 2003; Liou Cao, 2005: 43-44; Liou Cao, 2006: 53.

became operational in 1995. It took over all the existing municipal guarantees and, in the meantime, almost all municipalities discontinued their own systems. When mortgage-holders find themselves in payment difficulties, the WEW provides financial help. As the system is backed by central and local government, the Dutch National Bank sees the National Mortgage Guarantee as a state commitment. The WEW lending regulations are the same throughout the country and the rates and conditions are subject to annual approval by the Dutch Housing Ministry and the Association of Netherlands Municipalities.

The main purpose of the WEW is to lower the home-ownership threshold, particularly for households in low- and middle-income groups. The policy goal is to enable more people to choose between renting and buying.

The Housing Ministry and the municipalities provide interest-free loans to the WEW if the capital reserves fall below a critical level of 1.5 times the average loss in the five previous years.

The WEW has been taking care of the National Mortgage Guarantee (NHG) since 1995, thereby providing insurance for buyers of newly built dwellings and homes in the housing stock. Since 1999, the WEW has also granted guarantees for mortgages taken out for home improvements. The WEW guarantee covers 100% of the amount borrowed. Buyers can take out loans with a high loan-to-value ratio (LTV), sometimes even above 100%. Banks also profit from the NHG, because the mortgages are not subject to solvency checks.

The WEW targets households with low and middle incomes. In 2004 the maximum guaranteeable amount was 230,000 euros, including all the (buyer) transaction costs. This applied to both the purchase of a home and home improvements. On average, the WEW issues some 60,000 guarantees a year. In 2003, a peak of 73,889 was reached with a total loan value of 11 billion euros. The WEW is growing steadily, and could,

theoretically, acquire 50% of the total mortgage market in the Netherlands. Indeed, it has already reached the halfway mark: NHG mortgages account for approximately 25% of the total mortgage market.

Since 1995, the WEW has cumulatively issued 521,181 guarantees, worth a total of 60 billion euros. At the end of 2003, it had a capital of 286 million euros which was used to cover the risk of all mortgages put together, representing a grand total of 52 billion euros.

3. Government risks from mortgage guarantees

In her thesis Liou Cao (2005) calculated the risks that central and local government run as a result of the mortgage guarantee scheme.

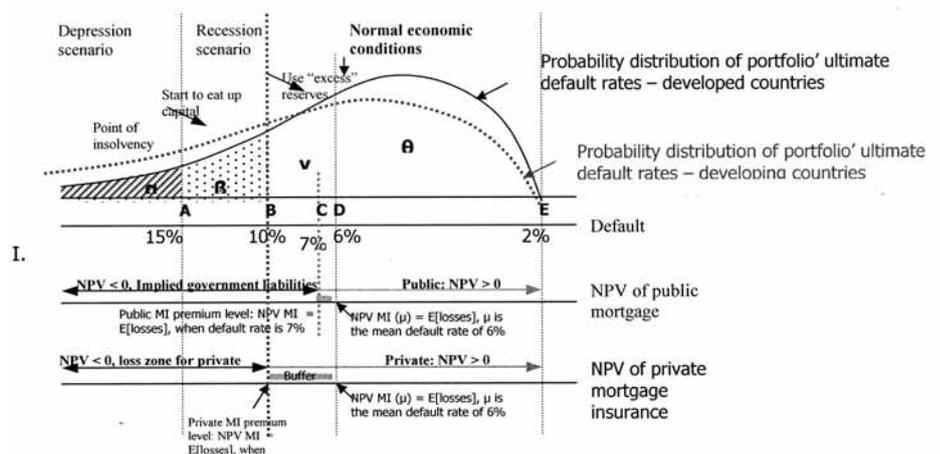
She built a conceptual model to outline the relationship between different macro-economic circumstances, indicated by the cumulative default rates of the mortgages and the number of (public and private) buffers for the insurer.

Figure 2 shows a probability distribution of payment by the government as a result of accumulated payment problems among mortgage-holders. It distinguishes between three scenarios: normal economic conditions, recessions and depressions. The distribution is uneven with an average portfolio default rate μ at D. The probability of default rates lower than μ is 0, which points to a favourable performance by the mortgage guarantee scheme. In the US there is an average default rate of 6%. In normal economic circumstances the default rates are between 2 and 10%, in a recession they are between 10 and 15%, and in a depression they are over 15%.

If the guarantee fund is non-profit-making, the net cash value of the mortgage insurance premiums across the entire life of an insured mortgage portfolio must exactly equal the loss that may be expected if the mortgage-holder gets into payment difficulties.

Private mortgage insurers are risk-averse and tend to play safe when setting their rates: at Point B, far to the left of D.

Figure 2 Government obligations arising from a public mortgage guarantee



Source: Liou Cao, 2006: 68.

As public mortgage insurers are more able and willing to accept risks, they charge less than their private-sector counterparts (B). They opt for Point C, which is only slightly to the left of D. The narrow gap between C and D (7% and 6% respectively in Figure 2) exposes a public mortgage insurer to economic downturns. The risks are further compounded by the relative vulnerability of the target group: households with low and middle incomes. The risks are ultimately borne by the government (in other words, the taxpayers).

The modelling process consists of three phases:

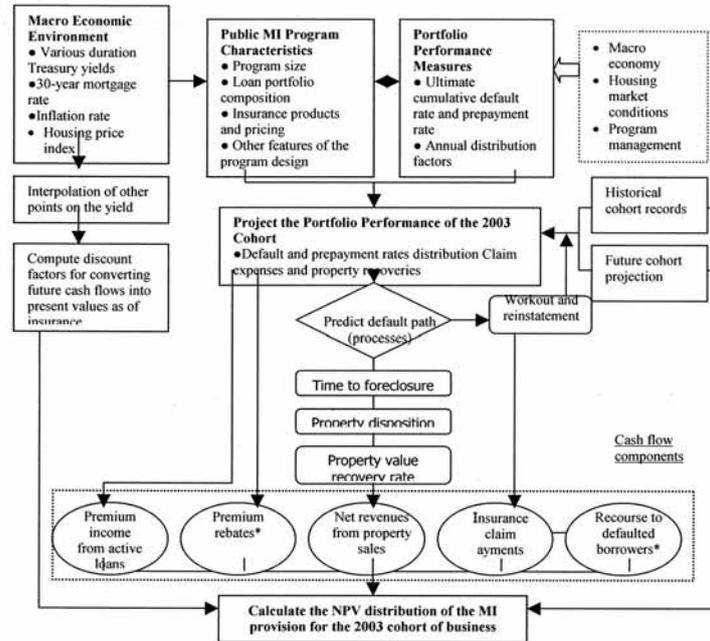
- (1) It simulates the default and prepayment extremes for the cohort by quantifying the frequency distribution of default and prepayment during the life of the mortgage.
- (2) It calculates the cash flows for the public mortgage guarantee for the purpose of issuing guarantees for the cohort of 2003 (in the example), on the basis of assumptions pertaining to macro-economic conditions, the performance of the housing market and the programme characteristics.
- (3) It determines the net cash value for the cohort of 2003 for all simulated pairs of 'cohort default' and 'prepayment'.

Figure 3 presents the main parameters for the model.

Reliable national figures on the mortgage guarantee scheme have been available for the Netherlands since 1981. Liou Cao (2005: 87-104; 2006: 94-110) could therefore perform an analysis on the period 1981-2003. Three periods of economic stagnation occurred during this time: 1981-1982, 1992-1993 and 2001-2003, and two periods of economic prosperity: 1989-1990 and 1997-2000. Favourable, normal and unfavourable economic scenarios occurred in 1981-2003.

The Netherlands appears to have had the lowest number of sales due to mortgage arrears in Europe in 1981-2003. Arrears of over 90 days fluctuated each year between 0.25% and 0.75%, with a recent upward tendency (Fitch Ratings, 2004). To date, 1981 has been the worst year, with a default rate of 2.87%.

Figure 3 Parameters for the model (Liou Cao 2005; 2006)



Source: Cao et al., 2006: 20.

Table 2 Cumulative Default Rates for mortgage guarantees WEW, 1981-2003

Year start	Cumulative default (%) rate in 2003	Estimated default rate after 30 years (%)
1981	2.87	2.87
1982	2.47	2.47
1983	2.55	2.55
1984	0.85	0.85
1985	0.85	0.88
1986	0.42	0.43
1987	0.29	0.30
1988	0.30	0.31
1989	0.22	0.23
1990	0.19	0.21
1991	0.18	0.20
1992	0.11	0.12
1993	0.12	0.13
1994	0.08	0.09
1995	0.04	-
1996	0.08	-
1997	0.07	-
1998	0.05	-
1999	0.07	-
2000	0.11	-
2001	0.11	-
2002	0.01	-
2003	0.00	-
Average		0.83
Median		0.30
Standard Deviation	1.01	

Source: Liou Cao, 2005: 89; Liou Cao, 2006: 96.

Prepayments (with and without a redemption penalty) remained fairly stable, at 5 - 15%, in the course of the studied period (Fitch Ratings, 2004). Characteristic of the Dutch situation is the relatively high share of mortgages with a fixed interest term of 5 - 20 years. Charlier and Van Bussel (2003) examined the prepayment practices of Dutch mortgage-holders and concluded that, in 2001, 18% of new mortgages were used to refinance existing

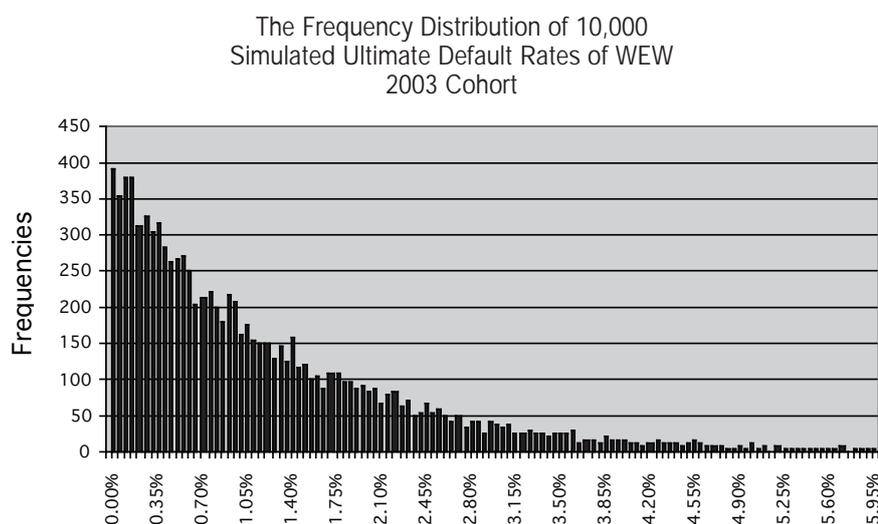
mortgages. Prepayment appears to play an important role in the management of Dutch mortgages. Liou Cao (2005: 90) predicts that the prepayment level will rise to 30%. On the basis of certain assumptions (Cao, 2005: 91-92), Liou Cao's model delivered a number of results.

Using a Monte Carlo simulation², Cao (2005: 93) ascertained a frequency distribution of 10,000 simulated 'default

rates' for the WEW cohort of 2003 (see Figure 4).

Figure 4 shows that the frequency is highest for very low ultimate default rates. The frequency decreases gradually until very low values for default rates of about 5% and higher. The higher the ultimate default rate, the lower the probability that such a default rate occurs.

Figure 4 Frequency distribution of 10,000 simulated ultimate default rates (WEW Cohort of 2003)



Simulated ultimate default rates

<u>Statistics</u>	
Mean	1.2336%
Median	0.8682%
Maximum	12.3863%
Minimum	0.0001%
<u>Percentile</u>	
5th	0.0647%
10th	0.1347%
25th	0.3585%
50th	0.8682%
75th	1.7352%
90th	2.8086%
95th	3.6430%
99th	5.5865%

Source: Liou Cao, 2005: 93; Liou Cao, 2006: 100.

² Definition of Monte Carlo simulation: A technique for estimating the solution, x , of a numerical mathematical problem by means of an artificial sampling experiment. The estimate is usually given as the average value, in a sample, of some statistic whose mathematical expectation is equal to x . In many of the useful applications, the mathematical problem itself arises in a problem of probability in physics or other sciences, operational research, image analysis, general statistics, mathematical economics, or econometrics. The importance of the method arises primarily from the need to solve problems for which other methods are more expensive or impracticable, and from the increased importance of all numerical methods because of the development of the electronic digital computer.

Figure 5 presents the probability distribution of the annual default rates of the WEW (30-year loans; 1981-1984).

Figure 5 Probability distribution of the annual WEW default rates: 30-year loans, 1981-1994

Figure 5 shows the probability distribution (based on data from Figure 4) for three economic scenarios: good performance, normal performance, and bad performance. Liou Cao analyses the three most popular mortgage choices: 10-year fixed interest, 15 year fixed interest and 20-year fixed interest, each with a term of 30 years. After the fixed-interest period expires, the applicable market interest rate applies. The results are presented in Figure 6.

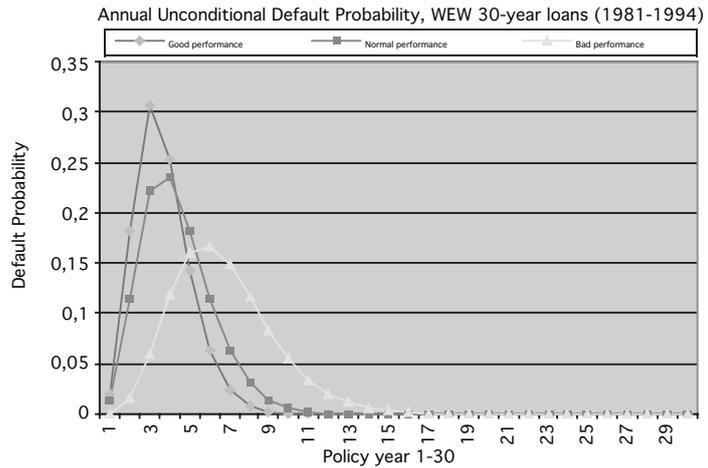
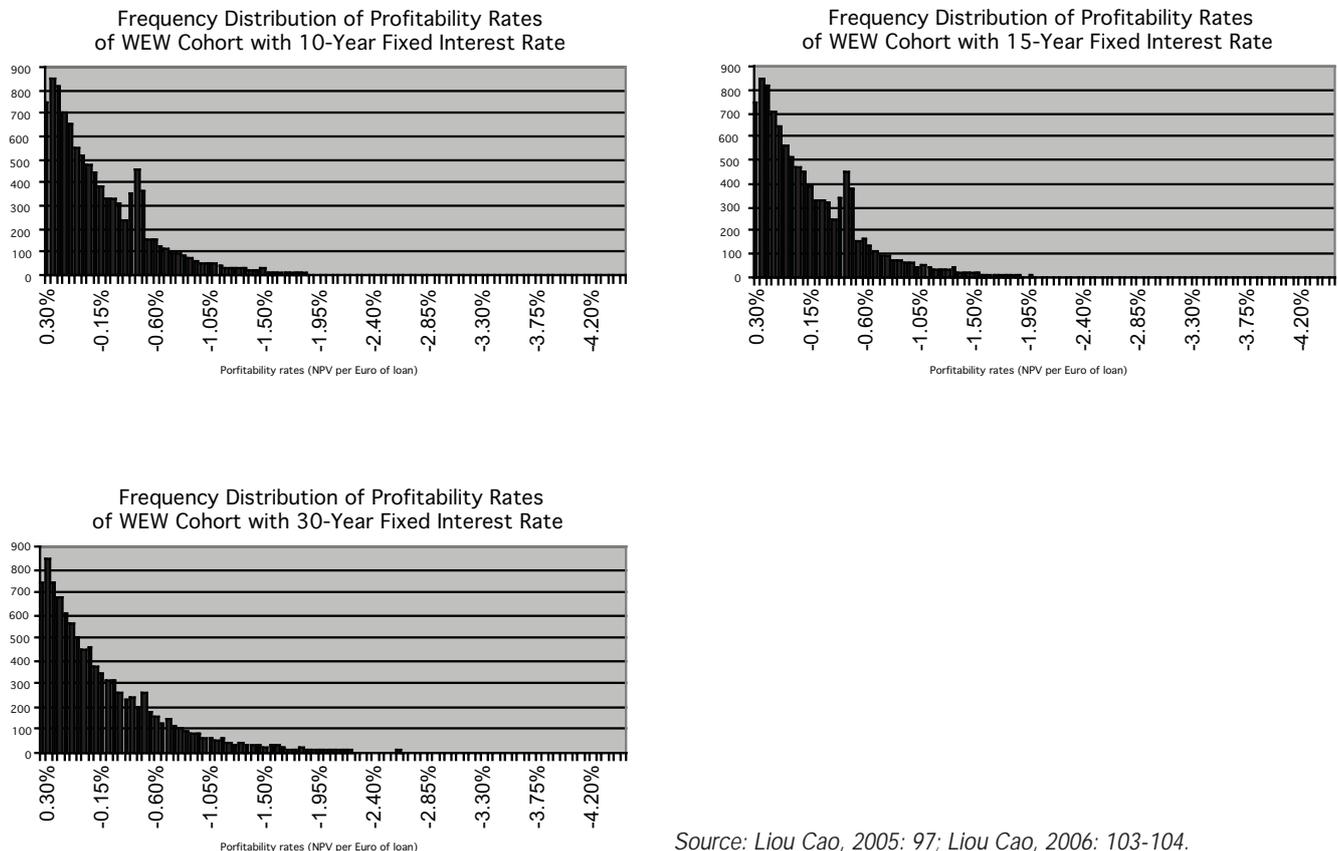


Figure 6 Frequency distribution of the profitability of a 30-year mortgage (WEW) with fixed-interest rates for 10, 15, and 30 years

Figure 6 Frequency distribution of the profitability of a 30-year mortgage (WEW) with fixed-interest rates for 10, 15, and 30 years



Source: Liou Cao, 2005: 97; Liou Cao, 2006: 103-104.

The differences in the frequency distribution are not very great in these three examples. The highest frequencies appear in the range of 0 - 3% profitability. The average profit margin is - 0.2%, which can be partly explained by the fact that 1981-1994 began with an economic recession (1980-1983). Between 1995 and 2003, 511,244 guarantees were issued, 566 of which (= 0.11%) ended with a compulsory sale.

The worst year, 2001, saw compulsory sales of 0.22%. No wonder the WEW managed to build up a capital reserve of 247 million euros in 1995-2004.

The multi-year analysis shows that, on the basis of the current stable economic situation, the 2003 cohort and the cohorts that follow may be expected to generate a surplus of 55 million euros in the next six years. The average profit margin is 0.55%

for the first six years, and 1.67% for the first ten years. The chance of net losses is 25% for the first six years and 11% for the first ten years. A recession similar to the one in 1981-1983 would generate cumulative losses of around 210 million euros for the WEW.

Liou Cao (2005; 2006) acknowledges that the actual situation is more risky than was assumed on the basis of traditional repayment mortgages. Investment-backed mortgages and interest-only mortgages have gained in popularity in recent years and are far more precarious.

To assess the actual risks one also needs to ascertain the cyclical phase in which the house prices find themselves. One extra risk factor would be a fast rise in the total mortgage debt, which would tighten the link between fluctuating property prices and the national economy.

Table 3 Distribution of mortgage types (2003)

Linear repayment mortgage	12%
Savings mortgage	27%
Life insurance mortgage	12%
Investment-backed mortgage + others	16%
Interest-only mortgage	33%
Total	100%

Source: Liou Cao, 2005; 2006.

4.The WEW compared with the FHA (Federal Housing Administration)

The results of Liou Cao's calculations (2005) for the WEW are thrown into relief by the results of a comparable exercise for the Federal Housing Administration: the American counterpart of the WEW.

The simulated default rate for Cohort 2003 is +1.23% for the WEW, and 9.2% for the FHA. The profitability for the average default rate is -0.22% for the WEW, but +0.85% for the FHA. The outcome for the WEW is somewhat curious: if the historical default rate were to continue into the future, the WEW would not be able to cover the losses. Presumably, the results in the past were adversely affected by the period before 1995, when mortgage guarantees were issued by the municipalities, each in its own way. It is not inconceivable that, at that time, the guarantee conditions were applied less stringently than they are now applied by the WEW. If the default rate continues to fluctuate between 0.1 and 0.2%, as it did after 1995, a profit margin of +0.2% can be expected.

Table 4 Comparison of the model results for the WEW and FHA, Cohort 2003

Cohort 2003	WEW	FHA
Average default rate (simulation)	1.23%	9.2%
Profitability at average default rate	-0.22%	+0.85%
Break-even default rate	0.7%	13.1%
Break-even default rate percentile	43 percentile	82 percentile
Multi-year analysis		
Average profitability over six years (cumulative)	0.55%	7.08%
Break-even percentile over six years (cumulative)	75 percentile	97 percentile
Average profitability over ten years (cumulative)	1.67%	10.06%
Break-even percentile over ten years (cumulative)	89 percentile	99 percentile
Worst Case scenario		
Resampling only from 'loss zone'; profitability over one year		-6.2%
Repeat of recession 1981-1983; profitability over one year	-2.1%	

Source: Liou Cao, 2005: 118; Liou Cao, 2006: 122.

³ Definition of savings mortgage: Mortgage type, consisting of a combination of a loan and a mixed life insurance. The wealth in the mortgage policy has a yield, guaranteed by the insurance company, equal to the mortgage interest, which the bank calculates for the loan.

Table 4 shows that the economic prospects are favourable for both the WEW and the FHA over a period of six or ten years. The FHA figures are much higher than the WEW figures. The probability that the WEW will suffer a loss over a six-year period is 14% higher than over a ten-year period. Both the FHA and the WEW are more robust in the long term than in the short term. They are also resilient and able to take a few knocks.

Even if the worst case scenario were to occur (nine years of high default rates in the USA, as in 1980-1988, and a repeat of the 1981-1983 recession in the Netherlands), neither the WEW nor the FHA would have to resort to public support. The FHA could hold out for 22 years and the WEW for only 3.5 years. Though Liou Cao's analysis (2005; 2006) is based on quite a few assumptions and though the reference data for the Netherlands are very limited, the Dutch taxpayer need not worry for the time being about the WEW mortgage guarantee scheme. Whether that will continue if a future government decides to clamp down on mortgage interest relief is a question that can only be answered on the basis of fresh assumptions and calculations.

Bibliography

European Mortgage Federation, 2006, **Hypostat 2005. A Review of Europe's Mortgage and Housing Markets**, Brussels (EMF).

Boelhouver, Peter and Peter Neuteboom, 2003, **Housing Markets, the Labor Market and Social Provision**, Working Paper OTB, Delft (TU Delft).

Charlier, Erwin and Arjan van Bussel, 2003, Prepayment Behavior of Dutch Mortgagors: An Empirical Analysis, **Real Estate Economics**, 31, no. 2.

Fitch Ratings, 2004, **Dutch RMBS Default Model 2004**, Criteria Report of Fitch Ratings.

Liou Cao, 2005, **The Feasibility and Functioning of Public Mortgage Insurance Models: An International Comparison**, Cambridge (Mass), PhD dissertation MIT, May.

Liou Cao, 2006, **The Feasibility and Functioning of Public Mortgage Insurance Models: An International Comparison**, Stichting Waarborgfonds Eigen Woningen, Zoetermeer.

WSW Special Report, 2004, **Government Guarantees in the Rental and Owner-Occupied Sector: an International Comparison 2004**, Stichting Waarborgfonds Eigen Woningen, Zoetermeer.

Mortgage Insurance: Past and Present - A Perspective from Germany

By Matthias Dous, Genworth Financial Mortgage Insurance Limited, Germany

The home ownership rate in Germany is one of the lowest in Europe; countries such as Great Britain and the US have achieved significantly higher rates. Housing construction too has been impacted by government aid cuts; when the government allowance for owner/occupiers was abolished, a feverish search began for sustainable concepts that would make home ownership possible for wider sections of the population. As attempts are made to integrate housing promotion into the state-subsidized system of private old age provisioning, German financial services providers are beginning to secure residential mortgage loans by way of Mortgage Insurance. This insurance product enables lenders to offer residential mortgage loans to borrowers with a substantially lower down payment than was usual in the past. Moreover, Mortgage Insurance can reduce the level of regulatory capital a lender will need to hold under the new Basel II Capital Accord, reflected through the Solvabilitätsverordnung (SolV) in Germany. Mortgage Insurance, which has proven itself abroad for years, is now establishing itself in the German market.

How Mortgage Insurance Works

With Mortgage Insurance, lenders can protect themselves against losses that may occur if a borrower were to default on the repayment of a residential mortgage loan. This coverage allows lenders to make this type of loan more readily accessible to their customers by lowering the down payment that most borrowers must have, and by dispensing with additional security or rights of subrogation towards their customers. This, in turn, allows lenders access to new

target groups such as those who have not yet been able to save the often-required 20 % down payment because of long periods of study and training or those who wish to use their savings for other purposes.

Borrowers cannot take out Mortgage Insurance directly; the insured party is the lender. Mortgage Insurance reduces or imbibes the loss for the lender in the event of non-performing loans. It serves as "first loss cover" if the proceeds generated through foreclosure or sale of the property are not sufficient to meet the borrower's outstanding obligations including accrued costs. The coverage options are flexible and may be geared individually to the needs of the respective lenders; thus, they range from coverage of the entire loan to coverage of fractional amounts. Moreover, arrangements may be made for the coverage to be constant, proportional or amortizing.

The following graph shows an example of an MI covered loan. The borrower equity of €10K makes up 5% of the loan, Mortgage Insurance covers the next 41% of the loan and the remaining 54% is residual risk that remains with the lender.

Loan 95% LTV

Borrower equity EUR 10k 100%

Maximum coverage
EUR 82k 54%

Lender residual risk
EUR 108k 0%

*LTV = loan-to-value ratio,
FMV = fair market value*

Working Example

FMV at C	200,000
Residual debt	190,000
Interest accrued	10,000
Other fees and charges	10,000
Auction proceeds	160,000
Loss lender	50,000
Insurance claim amount	50,000
Loss after insurance claim paid	0

Benefits for Lender and Borrower

Both the lender and the borrower gain from Mortgage Insurance. Above all, the lender has the benefit of an improved protection against losses should the borrower default on the mortgage. In addition, Mortgage Insurance allows the lender access to further market segments with a corresponding potential for growth in mortgage lending. A research study by Mercer Oliver Wyman, which was commissioned by the Mortgage Insurance Trade Association in 2005, states that Germany represents the biggest opportunity for mortgage market growth (see "Real Estate Banking 2005", p 18 et seq). Moreover, where capital market transactions such as synthetic securitizations or True Sale transactions are concerned, Mortgage Insurance is an acknowledged credit enhancement.

The borrower benefits from Mortgage Insurance because the product enables lenders to more readily offer low down-payment mortgages – meaning consumers

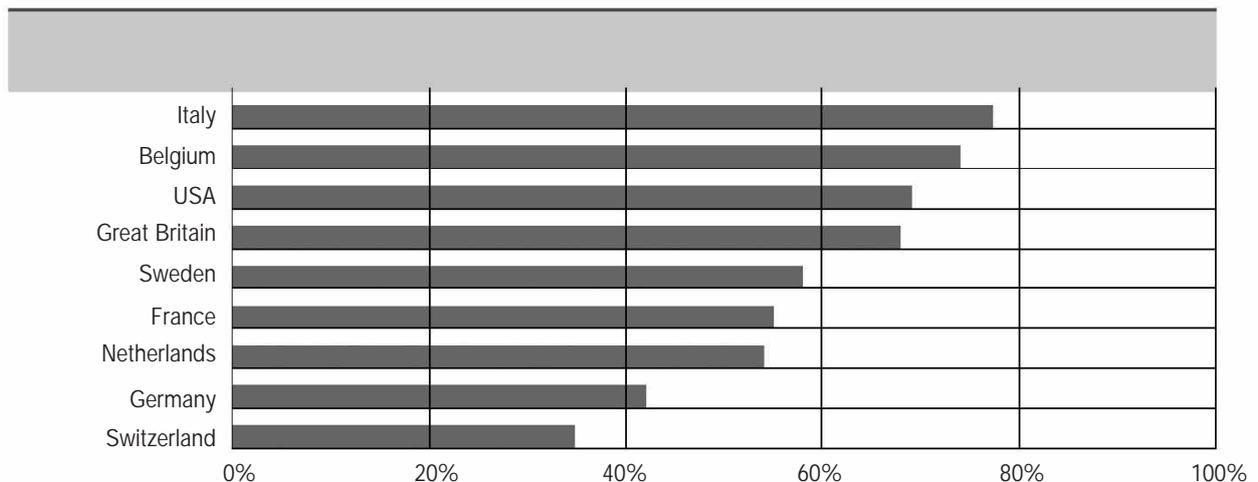
who may not be able to save the traditional 20% down payment, but who could otherwise afford loan repayments, can purchase a home earlier.

Besides the lender and its customer, there is also a third beneficiary: the government. Mortgage Insurance can make a decisive contribution towards increasing the home ownership rate and, consequently, also towards private old age provisioning – an objective that all German governments, across all political camps, have so far subscribed to. The growing public debate on alternative ways to promote home ownership clearly illustrates the importance attached to living in one's own four walls, which is still regarded as one of the main pillars of private provisioning for old age – and which will gain further in importance as state aid is scaled back. What is more, the risk and funding involved is passed on to the private business sector. Thus, Mortgage Insurance can help to generate a positive stimulus for the housing sector without burdening national finances.

The Origins of Mortgage Insurance

The first reference to Mortgage Insurance in Germany appeared in the "Kaufmännisches Miniatur-Lexikon" of 1907. "The purpose of this business is to protect mortgage creditors against losses that may occur as a result of the insufficient value of their mortgages [collateral]." While first referenced close to a century ago, the benefits of Mortgage Insurance are only just beginning to gain acceptance in the German property finance landscape, despite having proven itself in countries such as the United States of America for decades. There, Mortgage Insurance is looked upon as a natural component of residential mortgage lending; divided into a private and a public sector – it boasts a long tradition. Of course, the USA and Germany are characterized by widely differing economic and political frameworks and the differences between the two countries are clearly reflected in their respective home ownership rates.

Home ownership rate: A comparison of industrial countries



Source: BIS, Europea Mortgage Federation, ifo Institute

As may be seen in the graph, homeownership in the United States is above the average with 69 percent. While Germany, with just 42 percent, is second lowest – ahead only of Switzerland. Certainly, a great many US families have become homeowners thanks to the widespread and firmly established instrument that is Mortgage Insurance. In 2005 alone, the leading US Mortgage Insurance providers helped more than 1.5 million families¹ to achieve home ownership.

The beginnings of US Mortgage Insurance reach back to the late 19th century when the first insurance firms of this kind were founded in New York. Just how important Mortgage Insurance has become to the US lending business and to the economy as a whole, down through the decades, may be gauged by considering the recession and, connected to it, the US real estate crisis at the beginning of the 1980s. In 1984, more than half of all insured mortgage loans had an equity share of less than ten percent. In

that decade, US mortgage insurers paid out more than USD 6 billion¹) in claims to lenders, protecting them from substantial loss.

Even in the comparatively prosperous years of the 1990s, insurance claims of more than USD 8 billion¹ were paid out. Once again, the Mortgage Insurance industry proved its strength and efficiency, regardless of the different economic cycles. In the US today, the total of residential mortgage loans covered by private Mortgage Insurance is in excess of USD 700 billion².

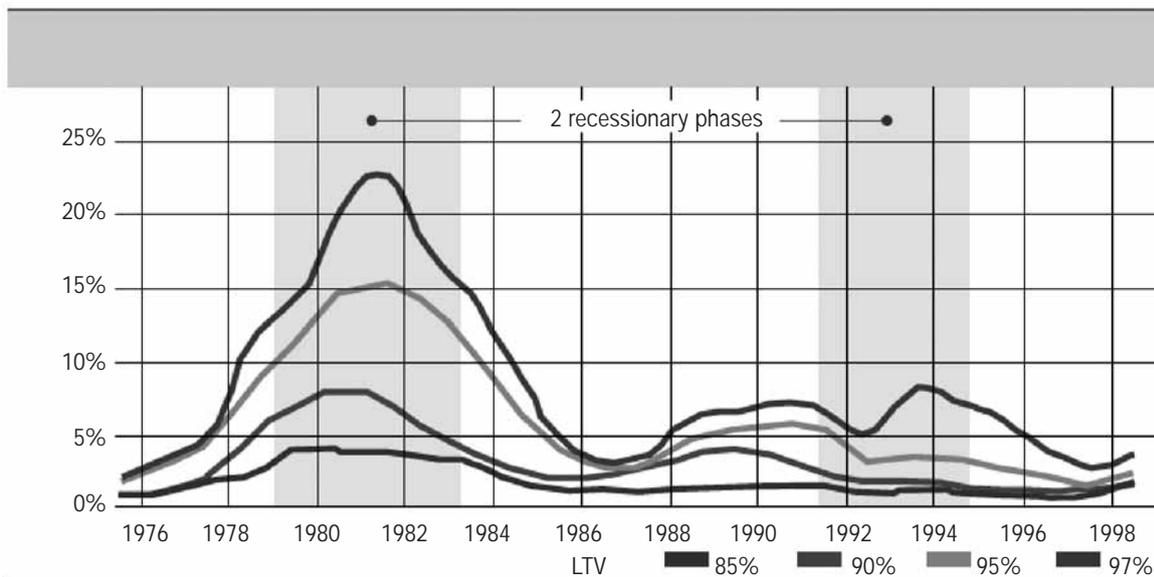
Mortgage Insurance in Germany

The German property finance market is extremely fragmented. Over 2,000 banks and other financial services providers compete to win customers. However, changes such as the previously mentioned abolition of the government aid for owner/occupiers, or the introduction of Basel II and the Capital Requirements

Directive, mean the property market is in a state of transition and undergoing change. New tools are called for which will enable lenders to differentiate themselves from the many competitors in the market – enabling them to increase their own market share, manage credit risks and to make home ownership more readily accessible to the German people.

Mortgage Insurance under the Basel II Accord and the German Solvency Regulation (SolvV)

High loan-to-value mortgage loans compose a highly specialized and particularly risky segment of the property finance market. In terms of risk behaviour, it differs greatly from the remainder of a lender's loan portfolio. The following chart shows how sensitive such loans are in their reaction to a change in the economic cycle:



Based on US market data - MICA (US)

¹ Based on US market data - MICA (US)

² Based on Genworth Financial US data

Other factors such as high property prices, economic variables or market conditions also affect the lender's mortgage business-related risk considerably.

For decades now, international markets have deployed Mortgage Insurance as an effective means of mitigating credit risk. As an addition to the value-added elements it brings to lenders, the New Basel Accord (Basel II) has included Mortgage Insurance as an instrument providing capital relief.

Under the provisions of Basel I, insurances are deemed to be a corporate risk and are consequently subject to a risk weight of 100 %. Under Basel II, however, lenders operating under the Standardised Approach are given the opportunity to substitute the risk weight of the guaranteed asset item for the risk weight of the guarantor. If the mortgage insurer is rated AA, the risk weight of the guaranteed asset item would be reduced to 20 % (see table on the calculation of risk weights with/without

Mortgage Insurance). Banks using the IRB-Approach (Internal Rating Based Approach) will be allowed to model the benefits of the Mortgage Insurance and consequently reduce their loss given default assumptions. This, in turn, should allow them to achieve lower risk weights. It should, however, be noted that the credit risk-reducing mechanisms under the IRB Approach will not fully be taken into consideration until after 3 years due the application of floors on the recognition of capital reduction benefits.

The table below shows the capital backing needed with the Standardised Approach

	Risk weight in % under		
	Basel II	Basel II without Mortgage Insurance	Basel II with Mortgage Insurance
Part of the loan up to 60% LTAV	50	35	35
Part of the loan exceeding 60% LTAV	100	75	20*
Risk weight for the entire loan	70	51	29
Capital backing for the loan	5.6	4.1	2.3

*assuming the mortgage insurer is rated 'AA'

LTAV = loan-to-loan-appraised-value ratio

In the new Solvency Regulation (SolvV), which came into force on January 1, 2007, the Federal Ministry of Finance and the Federal Financial Supervisory Authority (BaFin) for the first time allow the use of Mortgage Insurance as a credit risk mitigation mechanism. Section 164 of the SolvV regulates that guarantees for mortgage loans will be recognized as reducing risk if the guaranteed payment is made not later than 24 months after the occurrence of the event for which the

guarantee is given. It is to be assumed that in exceptional cases it may take longer than two years to work out non-performing property loans. In such cases, for lenders wishing to use Mortgage Insurance as a credit risk mitigant, it is necessary for the Mortgage Insurance contract to enable a payment to be made under the policy before the actual loss has been ascertained.

Mortgage Insurance and affordable housing solutions

By Christian Pierotti and Nadine Kolloczek, PMI Europe

Saving a down payment is the biggest barrier an individual faces when purchasing his or her first home. Mortgage insurance plays a vital role in overcoming this barrier and helping lower and moderate income earners to become homeowners. It allows families to buy homes with much lower down payments than banks would otherwise require and begin building equity and wealth immediately. The following article explains how mortgage insurance can help to increase mortgage product variety in local markets and how the availability of high loan to value (high-LTV) loans can contribute to increasing homeownership.

The affordability barrier

A home is the single biggest purchase that most individual consumers will ever make, and the related mortgage the largest debt they will ever assume. Throughout Europe, would-be homeowners are seeing prices increase faster than incomes, moving homeownership farther out of range for many. Home prices have more than doubled in the UK over the past six years, while over the same time period incomes (including bonuses) rose by approximately 25 percent. The housing boom in Spain has moved a bit more slowly - it took nine years for home prices to double - but the comparison is similar in that incomes did not increase at a similar rate, rising by approximately 28 percent over that nine-year period. Although home price increases in Spain have decelerated, incomes still have not caught up and the gap between home prices and incomes is significant.

Against a background of house prices rising faster than incomes, first-time buyers, the traditional life-blood of the mortgage market, are increasingly being priced out. This environment provides new opportunities and challenges for the mortgage market, particularly taking into account that the rate of homeownership differs significantly across Europe, ranging from a high of 81 percent in Spain to a low of 35 percent in Switzerland.

A crucial question for young homebuyers: How to get access to a mortgage loan?

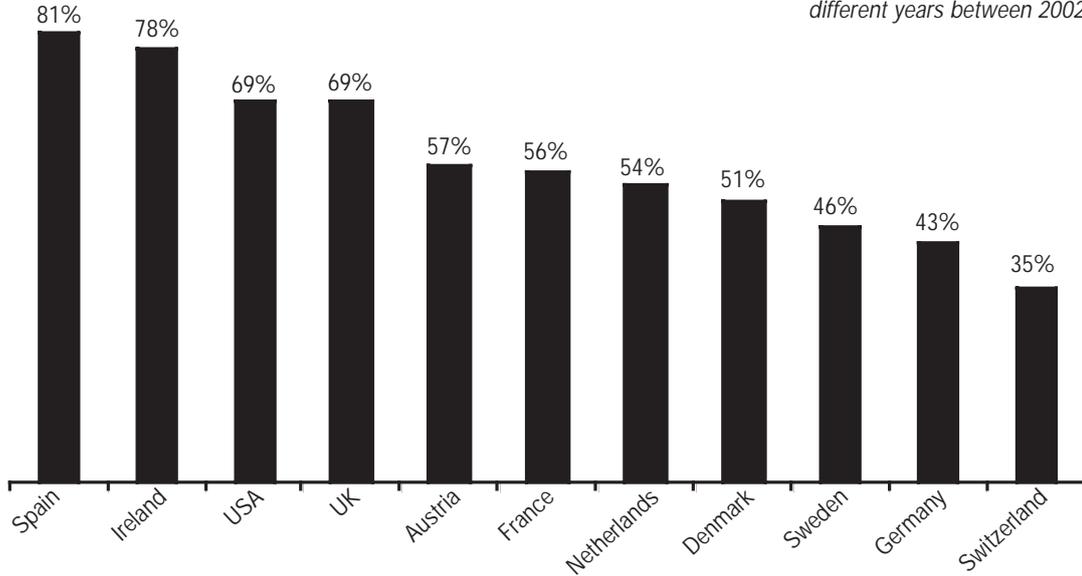
When home prices are rising, first-time buyers and other borrowers without a lot of savings are particularly affected. Higher home prices mean a greater amount of cash is required for a traditional down payment. Because prices are so high, and down payments so hard to accumulate, first-time buyers are increasingly asking for high-LTV mortgages, also known as non-standard or non-conforming mortgages. Statistically, non-standard loans are characterized by higher loss rates and are more likely to fall into arrears. As a result, they form part of a specific market segment where borrowers are considered as posing a higher than standard credit risk with respect to standard mortgage underwriting guidelines. They often carry a higher interest rate than is standard in the market in order to cover this higher risk.

Let us take a look at two examples in Europe:

In Germany and Italy, most lenders until recently demanded a significant proportion of mortgage value as a cash down payment. The invested equity is on average 27% plus additional purchase costs of up to ten percent in Germany¹ and 50 percent in Italy (in contrast to Canada or the United States, where 20 percent is required). The mortgage products offered in these markets along with other factors determining homeownership - such as relatively cheap rents, demographic developments, house price-to-income relation and housing politics - have created significant barriers to homeownership, particularly for first-time buyers. As a result, the average age for a first-time home buyer is currently 35 to 43 years in Germany and in Italy around 40 years. That is much older than in other European countries (in the UK, in contrast, the average age of first-time buyers in 2005 was 25 years) or than in the US (31 years in 2005).

¹See Frankfurter Allgemeine Zeitung, "Knapp kalkuliert ins Eigenheim", 17 June 2006.

Homeownership rates%



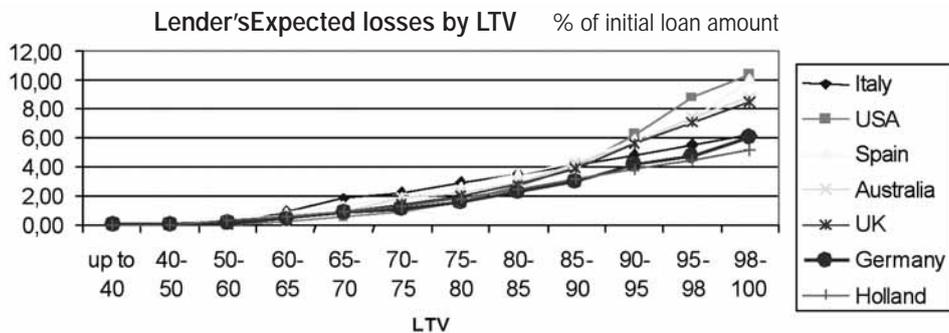
Source: EMF and Empirica, Percentages relate to different years between 2002 and 2005

Generally, from a political and socio-economic standpoint, high homeownership rates and early entry into homeownership is desirable. There is vast empirical evidence that homeownership is an important contributor to individual wealth accumulation. The increase in homeownership is thereby in alignment with the "Lisbon strategy"² of the European Commission, aiming to revitalise the European economies. Mortgages are a crucial part of the economies of most European countries. Homeownership in many European countries is a sign of position in society and is therefore important to an individual's feeling about the well being of the economy.

The lender's perspective

The introduction of new, more flexible mortgage products combined with increased house prices contributes to increasing average loan amounts and therefore higher borrowing - so it is not surprising that many lenders are searching for ways to serve this growing market. A Mercer Oliver Wyman study in 2005, sponsored by Europe's Mortgage Insurance Trade Association (MITA), identified an untapped residential mortgage demand of €500 billion across Europe - primarily focused on high-LTV products and other non-standard loans.

Apart from high-LTV loans, the most common categories of applicants who fall into the non-standard mortgage segment have either a poor credit history (previous credit problems), a comparably low income, a high debt to income ratio, or cannot provide all necessary documentation of their income and personal situation (often immigrants with no credit history or other minorities). Statistically, non-standard loans are characterized by higher loss rates and are more likely to fall into arrears. They are therefore considered as posing a higher risk than standard mortgages.



Source: PMI analysis on Fitch Ratings default models for a BBB scenario in Italy, Australia, Germany, the Netherlands, Spain, UK and USA.

² Heads of State and Government of the European Union met in Lisbon in 2000 and launched a series of ambitious reforms at national and European level. By establishing an effective internal market including a mortgage market, boosting research and innovation and by improving education, to name only a few reform efforts, they aim to make the European Union "the most dynamic and competitive knowledge-based economy in the world" by 2010.

From a lender's perspective, risk layering — ie increasing their exposure to borrowers who feature a combination of the aforementioned risk factors (eg low savings and non-standard documentation) is a risk management challenge because of the exponential increase of default risk.

Looking into other parts of the world like the USA and Australia, high-LTV lending and non-standard lending are well-established and common tools to get consumers into their own homes more quickly. The US and Australia have a long experience with the use of mortgage insurance. In both jurisdictions, the use of credit mitigation tools on these higher-LTV loans is viewed as a valid form of default protection against the additional risk, which reduces the resulting risk weight.

Both governments have recognized the economic and social value of homeownership, and the role of mortgage insurance in increasing homeownership, and have encouraged the use of mortgage insurance through a variety of policy measures. In both jurisdictions the rate of homeownership has been significantly increased in the past decades.

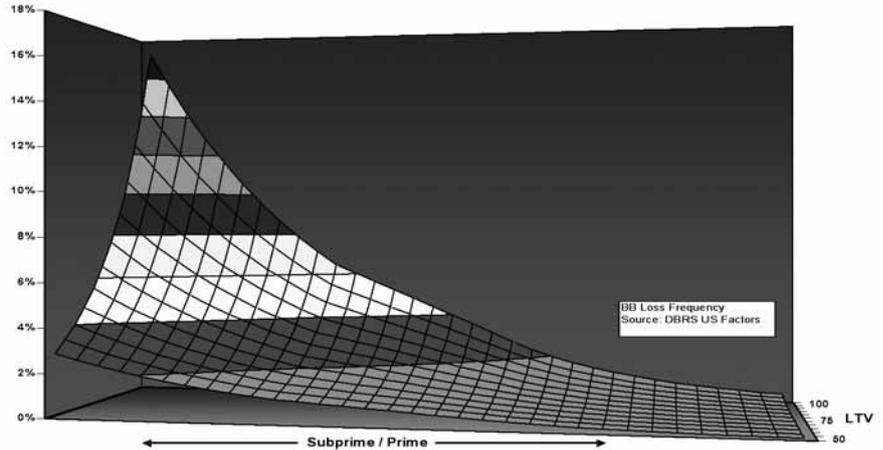
The role of Mortgage Insurance

Globally, mortgage insurance plays a crucial role in many developed housing markets in supporting government homeownership policies, typically by facilitating consumer access to high-LTV mortgages. In markets with no mortgage insurance providers, lenders traditionally resist high-LTV lending because of the increased credit risk, as is the case in many EU countries up to date.

What is Mortgage Insurance?

Mortgage insurance is a form of credit protection provided by private and public entities to creditors on residential mortgage loans around the world. Mortgage insurance protects the creditor against a shortfall between the amount borrowed and the amount collected in the event the borrower defaults on a residential mortgage loan, subject in most cases to certain limits.

Interaction of LTV & Credit



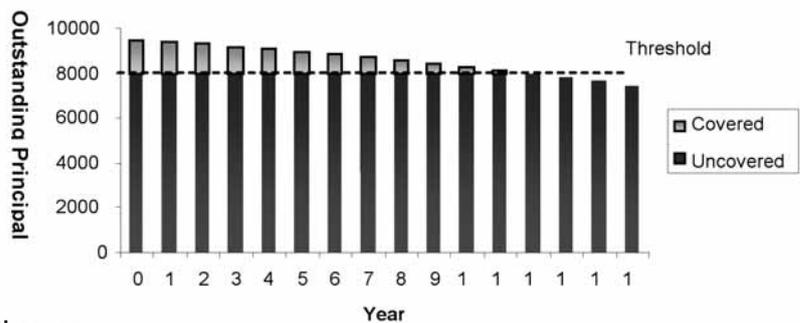
Mortgage insurance comes in a variety of different forms; however, all mortgage insurance products indemnify the policyholder or the beneficiary for the difference between the amount owed on a mortgage loan (in most cases, including accrued interest and expenses) and the amount collected once the mortgage property is recovered and sold (following borrower default), up to a contractually specified limit.

Primary mortgage insurance

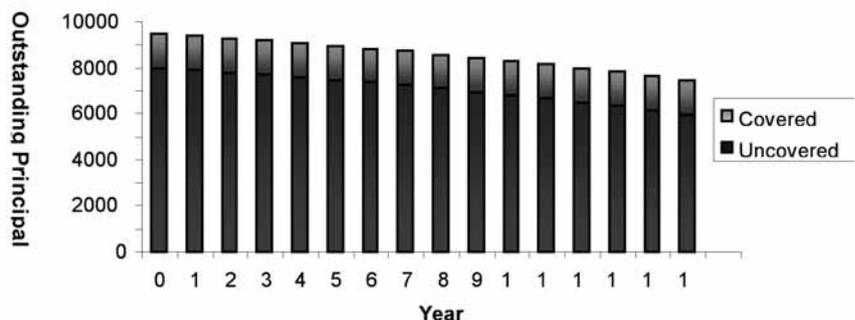
This type of mortgage insurance covers individual loans for either a fixed percentage or a fixed amount of the loan, almost always taking the "first loss" position after borrower's equity. Standard cover maintains a proportion of the cover over time, whereas amortising cover declines and eventually reduces to zero over time. Fixed amount cover might range from only a proportion of the loan amount to the full loan amount.

The following graphs show different types of primary mortgage insurance:

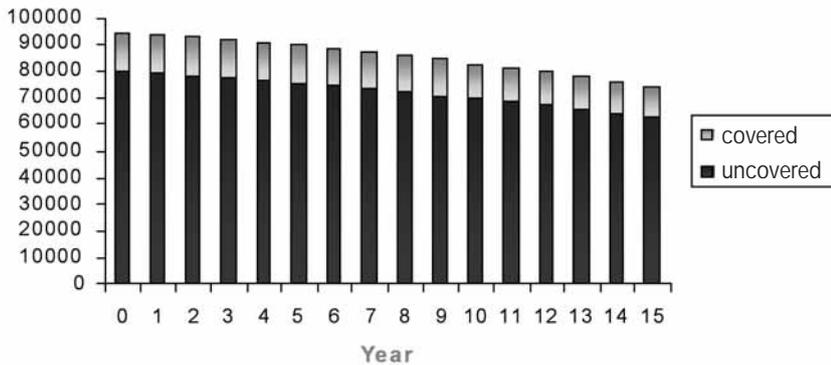
Amortising Cover



Fixed cover



Proportional Cover



Lenders choose the model depending on their sophistication in risk management and risk based pricing as well as their strategic objectives for risk management. In many European countries the so-called amortising cover is the preferred cover type. This form of cover essentially puts the lender into a situation as if he had originated a standard low-LTV loan, with the mortgage insurer taking the risk of the above standard LTV portion. With this product, the lender can rely on their own historical loss experience and tap into a new market segment without taking significantly more risk than before. Once the cover has amortised to the pre-defined threshold amount, the protection ends and there is no further need to pay for it.

There are many other mortgage insurance products and some insurers, like PMI, offer also related credit risk protection instruments. For instance, several types of pool insurance products are available. This type of mortgage insurance covers a defined portfolio of loans (either already existing or to be accumulated with new originations) and may be on an excess of loss ("XOL") contract basis. Pool insurance cover first losses up to an agreed percentage of the total original portfolio, where the coverage can either take account of the full amount of losses on each defaulting loan or only an agreed percentage or amount of each defaulting loan. Pool insurance is more frequently associated with structured finance as a form of credit enhancement rather than on balance sheet risk management. It is very often used by large lenders with

sophisticated risk management tools. In a nutshell, mortgage insurance products are generally very flexible and can be tailored to the specific lender's needs and objectives.

Mortgage insurance as risk mitigant for the banking sector

How does mortgage insurance help the lender? Mortgage insurance is a form of credit enhancement, a tool that lenders can use to transfer their mortgage default risk and expand their product offerings for high-LTV loans. Its purpose is to transfer credit risk on mortgages from the lending institutions to a regulated third party insurance company like PMI¹ that specialises in credit risk evaluation, especially in regard to higher risk loans. Internationally active mortgage insurers are typically highly rated companies (most are rated AA). By purchasing insurance protection from such companies the lender effectively replaces the missing equity of the borrower with the guaranty provided by a mortgage insurance policy.

For lenders, mortgage insurance as a tool to provide credit risk transfer improves the quality of assets, helps provide liquidity to the lender and the market at the same time, and encourages and facilitates market participation. With mortgage insurance, lenders can expand their business and at the same time limit their losses. This makes their earnings more predictable.

Typically mortgage insurance also helps lenders to further develop in their risk

management techniques. It encourages a more focused view of risk evaluation and analysis by introducing new risk selection techniques. Underwriting discipline is typically improved because the lender needs to comply with underwriting guidelines in order to maintain the insurance cover in place.

Professional mortgage insurers also help banks to access capital markets. Small and medium sized lenders who typically have fewer opportunities to make use of modern capital market instruments for funding and risk management purposes (such as the use of securitisation techniques, covered bonds or credit derivatives) find this especially useful and can more easily use these instruments when making use of mortgage insurance. Very often the co-operation with a highly rated provider serves as a door-opener when tapping capital markets since international investors gain confidence from the fact that an external third party has already assessed the underwriting of the lender and is monitoring risk performance closely. By improving the lender's ability to fund itself mortgage insurance also helps the mortgage industry to offer attractive rates to their borrowers. The use of securitisation mechanisms together with MI products in the US and Australia has clearly contributed to keeping mortgage rates for borrowers affordable. For example, in most US markets, there is a very modest differential in interest rates between standard (20 percent) down payment mortgages and low down payment (less than 20 percent) mortgages.

Mortgage Insurance under Basel II

The much discussed Basel II framework, which obliges banks to take a closer look at their assets and risk base, is another important factor underscoring the value of mortgage insurance. This new financial regulation that came into force this year in the European Union as the Capital Requirements Directive (CRD) and will come into force in many other countries worldwide (in various forms and levels) during the following years requires banks to

¹ PMI Private Mortgage Insurance Company Limited, www.pmigroup.com

assess their internal and external risk management and re-allocate the capital they hold against it.

While mortgage lenders will likely have to hold additional capital against high-LTV loans, the net effect of Basel II is expected to be positive, in that it is generally believed that banks will have more available capital under Basel II, which they can use to expand their lending activities to the benefit of both lenders and borrowers. Mortgage insurance also provides benefits for banking supervisors by supporting risk transfer and greater risk diversification in financial markets. Banks are aware of the advantages and as a result, are now relying to a greater extent on capital market funding, using securitisation to mitigate the risks associated with non-standard mortgage loans⁴.

The Basel Committee has indicated that if a bank uses a credit risk mitigant such as

mortgage insurance, the bank can treat the risk mitigant as a guarantee. Mortgage insurance, provided by companies like PMI (which under Basel II regulation is a 20 percent risk weighted entity due to its high rating), and other credit mitigants are useful tools to protect the lender against high risk by pooling credit default risk and spreading the risk more widely, both geographically and across other sectors. This results in a lower risk profile for banks - a risk profile that also frees up capital.

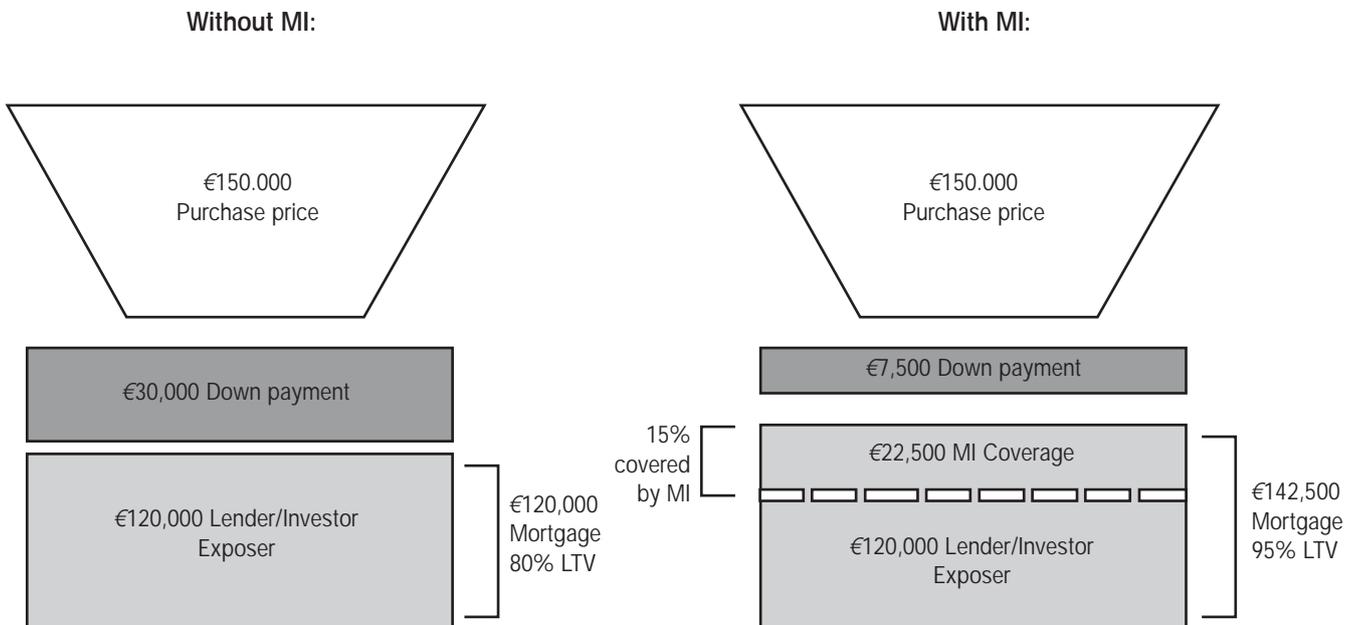
On a macroeconomic level, for economies at large, this increases competition, diversifies risk and expands the choice and availability of mortgage products. Mortgage insurance can help smooth macroeconomic cycles, particularly by facilitating more housing lending at the bottom of the cycle and providing a curb on imprudent lending at the top of the cycle. This is also a reason why many financial regulators and government bodies appreciate and

encourage the existence of the mortgage insurance industry and insist that the business be written through highly rated, well capitalized companies.

Benefit of mortgage insurance for the individual consumer

Mortgage insurance plays a vital role in helping lower and moderate income households overcoming the affordability barrier and to become homeowners. It allows families to buy homes with much lower down payments than banks require without mortgage insurance and begin building equity and wealth immediately.

The following example shows how a borrower with low equity can acquire a home with the help of mortgage insurance:



⁴ CGFS Papers No 26, Housing finance in the global financial market, January 2006.

Like any financial transaction, there is a cost for utilising mortgage insurance, but the cost is modest when compared with the benefit of getting into a home, saving on the cost of rent and starting to build equity. The cost of mortgage insurance increases with the risk: A higher LTV, a lower credit score or a loan with incomplete documentation will all result in a somewhat higher cost, but the price is still reasonable when compared with the benefits of homeownership.

Families, immigrants, single parents, and others clearly benefit from the workout expertise that comes with mortgage insurance. No one takes on a mortgage lightly and intending to default but bad things do sometimes happen to good people: Today, as ever, the leading causes of mortgage default are loss of employment, death, divorce and illness. At PMI, a leading mortgage insurance provider, we were able to save the homes of nearly 3,000 families in 2006 whose PMI-insured mortgages were in default. This commitment to sustainable homeownership is one of the things that make mortgage insurance an ideal choice for first-time borrowers.

Conclusion

Being familiar with appropriate ways of managing and mitigating the risks associated with high-LTV and non-standard lending is, increasingly, becoming a necessary competency for European banks and mortgage lenders.

First-time home buyers have the potential to greatly expand market growth, but with rents continuing to rise faster than wages and affordability constraints emerging, that growth may be hindered. There are many opportunities for lenders to launch innovative products that are flexible both in pricing and choice. Since affordability is a growing concern, lenders can address this by offering easy-entry products which assist borrowers to decrease their overall costs of achieving their dream of homeownership — and PMI can assist in the process.

The Mortgage Rate and Housing Bubbles

By Victor Mints, Housing Finance Consultant, Financial Corporation Uralsib

Introduction.

Governments of most countries of the world are heavily involved in housing markets. Though the governments differ in their activities many adopted various programs supporting home ownership. The programs use numerous instruments such as mortgage interest deductions, interest rate subsidies, premiums paid for savings dedicated to housing, etc.

Probably the most popular among these instruments are the state supported secondary mortgage market system¹ and the system of tax deductions for mortgage interest payments. Both instruments support home ownership by means of reducing the effective mortgage interest rate– the mortgage interest rate, as it is viewed by the homebuyer. Lowered interest rates entail a reduction of constant monthly repayments of mortgage loans² so home ownership becomes affordable to a larger group of homebuyers including those who were previously unable to repay comparatively high-rate loans.³

In recent years substantial literature has emerged on the subject of the interaction between mortgage interest rates and home ownership rates. A major portion of the literature agrees that (at least in the short run) lowering interest rates increases housing prices rather than home ownership rates .

The housing price increase occurs because lowered interest rates reduce the overall cost of housing purchase not only for the marginal group of homebuyers but for all homebuyers of the country and hence increase aggregate demand for housing. Since short run supply of housing is considered to be perfectly inelastic the reduction of the overall purchase cost should inevitably be capitalized in housing prices.

To compensate for the reduction of the monthly cash costs of a housing unit, caused by the mortgage interest rate reduction, the price of the unit should rise by an amount equal to the accumulated present values of the difference in the monthly mortgage loan cash flows of repayments with and without the interest rates reduction.

This paper presents a hypothesis that a sharp decrease of effective mortgage interest rates has the potential not only to cause a growth of the prices of houses to the level compensating the influence of lowering of mortgage interest rates but to initiate an inflationary spiral of housing prices growth (creation of housing price bubble). This occurs if effective mortgage interest rates fall below the rate of return on financial investments bearing the risk equal to the risk of investments in housing assets.

The paper proceeds in three parts. The first part of the paper describes the way low mortgage interest rates influence the attractiveness of investments in housing assets. The second one demonstrates mechanisms translating high attractiveness of investments in housing assets into the spiral of home prices growth. The third part describes one of the state programs influencing mortgage interest rates in Russia and the way this program provided for housing price increases.

Mortgage interest rates and attractiveness of housing as an investment asset.

For any household a decision to buy a house is simultaneously a consumption decision and an investment decision. As a consumer a household decides what size, type, quality, location, etc his desired home should have. As an investor the household makes a selection between two options: to invest its savings in a house the household desires to live in (purchase the house and occupy it) or to invest the savings in financial assets and rent a similar house.

If for any investor two decisions present the same risk level, the expected after tax return from making either of these decisions should be equal. From this it follows that if an investor can find on the market a financial asset that has the same risk level as housing investment (we will call such

¹State supported secondary mortgage system in this paper is defined as the system of purchasing and/or guaranteeing by state owned or state guaranteed organizations mortgage loans that are originated by commercial lending institutions.

²Only fixed rate mortgage loans are discussed in the paper.

³See a survey of the literature in Painter G and C Readfearn (2002).

⁴It is clear that financial assets and housing assets bear different set of risks so a perfect match can be found only theoretically. Thus, we can make a proposition that the match (equivalent investment) is found.

financial investment an “equivalent” investment)⁴ the following should be true. The expected after tax return on an “equivalent” financial investment minus the rent the household would be supposed to pay (in case it chooses against home ownership) should be equal to the expected after tax return on the housing investment.

The expected after tax return on the housing investment is actually the expected capital gain from owning a house⁵. The later is defined here as an expected annual change in the market value of the house minus annual cost of maintenance, repair and property tax.

This condition is presented in equation (1) below where V denotes the initial market price of the house, the household considers purchasing, and also denotes the volume of alternative investments in equivalent financial assets (the investments the household makes if it does not purchase a house); i is the after tax market rate of return on financial assets bearing the risk equal to the risk of investment in housing (equivalent assets); A is the market value of the annual rent of the house, r is the ratio between market value of the annual rent of the house and the initial value of the house ($r = A/V$); p is the appreciation factor, reflecting the expected annual capital gain from owning the house.

$$V * i - A = V * p \text{ or } V * i - V * r = V * p \quad (1)$$

If housing demand is constant and housing supply is consistent with the speed of housing stock deterioration (we will call such market situation a stable housing condition) the balance between demand and supply remains unchanged which makes p close to the inflation rate (inflation adjusted V is constant).

An alternative representation of equation (1) states that the expected rate of return on the equivalent financial investment has to

equal the sum of the expected rates of return from the annual capital gain and from the rent.

$$i = p + r \quad (2)$$

Not having enough savings to buy a desired housing unit the household invests only a portion of the total value of the house and borrows another portion. Let us denote the portion it invests (equity) as V_e and the amount it borrows (debt) as V_d . The effective mortgage interest rate (with tax deductions taken into account) will be denounced as m .

If mortgage loans are taken into account the equation (1) looks the following way:

$$V_e * i - A = V * p - V_d * m \text{ or } V_e * i - V * r = V * p - V_d * m \quad (3)$$

From this it follows that the household will be indifferent between purchasing a house and investing the savings in equivalent financial assets if the following expression equals 0.

$$V_e * i - (V * p + V * r - V_d * m) = 0 \quad (4)$$

If the expression at the left side of equation 4 gives positive result the investment in equivalent financial assets turns out to be more profitable for the household, while if the result is negative purchasing a house is more profitable⁶.

Knowing that in stable housing condition $i = p + r$ and that V by definition is equal to $V_e + V_d$ we can convert the left side of expression (4) in the following form:

$$V_e * i + V_d * m - V * i \text{ or } V_d * m - V_d * i \quad (5)$$

Expression (4) presented in the form (5) makes it clear that in stable housing conditions the household will be indifferent between investing in a house purchase and in equivalent financial assets (the equation

will equal 0) only if m is equal to i . In case m is higher than i , the equation (5) will give positive result, which shows that investments in equivalent financial assets are more profitable, while in case m is lower than i the result will be negative which shows that investment in a housing purchase financed by a mortgage loan gives higher profit.

From here it follows that if the effective mortgage interest rate is higher than the market rate of return on equivalent financial assets, the household will obtain higher risk adjusted profit from making an investment in any of financial assets available at market rates and renting a house than from making an investment in a housing purchase financed by a mortgage loan. On the contrary if the effective mortgage interest rate is lower than the market rate of return on equivalent financial assets, the household will obtain higher risk adjusted profit from purchasing a house and repaying the loan than from investing in any financial assets available at market rate and renting a home.

From this it follows that if the effective mortgage interest rate changes from m to m_1 such that m_1 becomes lower than i (market rate of return on equivalent financial assets) equation 3 turns into following inequality:

$$V_e * i - A < V * p - V_d * m_1 \quad (6)$$

If this happens, many households that would otherwise prefer renting choose homeownership. This increases demand for home purchasing and decreases demand for renting.

It does not mean, however, that demand for renting disappears completely. Not all households start to look for new homes as soon as effective mortgage interest rates become lower than the rate of return on financial investments having the risk equal

⁵In Russia the capital gain is tax-exempt.

⁶The household may have plenty of reasons to choose the less profitable option. Home ownership may be more suitable because it provides higher security of tenure, ability to reduce maintenance costs by increasing non-monetized owner's labor component of the costs, ability to modify home the way it suits household tastes, etc. Rental may be more suitable for households likely to move soon, or unwilling to accept responsibilities associated with homeownership.

to the risk of investments in housing assets. There are several reasons why many do not use the opportunity to improve their quality of life, simultaneously also increasing their wealth.

The major reason is that many people avoid investing in risk bearing assets even if the risk adjusted profit of the assets is higher than the average for the market. Another one is that some of potential homebuyers cannot obtain a mortgage loan. Among these are "unbankable" people (who do not have stable income, defaulted previously, are deeply indebted, etc) and people with low income not enabling them to repay the loan they need to buy the home they desire⁷.

Besides the reasons mentioned above there are specific reasons to decline the opportunity for first time homebuyers and for homebuyers who improve their living conditions by selling old houses and buying newer, better and bigger ones. First time homebuyers do not buy if:

- their savings are not enough for the down payment;
- they have reason to believe that they will move to another city (region) soon;
- they are not inclined to have responsibility associated with homeownership.

For the second group some of the reasons for refusing to change houses are the following:

- transaction costs⁸ in some cases may prove to be higher than the wealth increase;
- strong psychological attachment to the current home may prevent people from moving.

In spite of the fact that many people do not use the opportunity, an increasing number start looking for new houses as soon as low

interest mortgage loans are introduced to the market. Demand for houses, and hence house prices, grow (the demand curve changes its position). In the terms of equation (3) it can be stated that new annual appreciation of the house (p_1) becomes higher than the inflation rate.

We expect that the market will respond to the demand growth by an adequate increase of supply and/or some decrease of the quantity demanded. After this adjustment, prices will stabilize at a new equilibrium level (let us denote it as V_1). V_1 is the level at which left side of expression 6 will again become equal its right side. So we expect that as a result of a reduction of mortgage interest rates from m to m_1 the price will increase at the rate p_1 from the old equilibrium level V to the new (higher) equilibrium level V_1 and stabilize there.

In reality, this does not happen. Growth of house prices caused by a reduction of mortgage interest rates to the level lower than the rate of return on equivalent investment almost inevitably does not stop at the new equilibrium level. The growth continues pushing prices to the level higher than the new equilibrium level V_1 . It happens because rapid home price increases trigger several specific mechanisms that reduce the quantity supplied and increase the quantity demanded. Reduction of the quantity supplied and increase of the quantity demanded cause price growth above the new equivalent level V_1 actually forming a housing bubble.

An increase in the quantity demanded is explained by improved mortgage loan affordability and by a rising share of households that prefer ownership to renting. Downward pressure on housing supply is explained by exclusion of a proportion of housing units from the housing stock and by

the low elasticity of housing construction. All the mechanisms will be discussed below.

Growth of house price initiated by low interest rates.

A. Elasticity of housing construction volume.

The housing construction industry is not able to increase supply quickly responding to the increasing demand. Developers cannot instantly produce new housing units to meet newly emerged demand⁹. Reacting to the demand growth the developers can start working on new projects (acquiring pieces of land, preparing design, receiving permissions, etc.) knowing that the housing units they work on will be produced only much later¹⁰. Due to this specific of housing construction the number of housing starts at the beginning of a period of a home prices growth (beginning of a housing boom) is always inadequate.

The same aspect makes the number of housing starts (the volume of new construction) inadequate at the later periods of housing booms. It happens because the fast growth of home prices increases the risk that a correction of home prices will take place soon. The risk forces prudent developers to reduce the number of housing starts. If the developer is confident that home prices will go down before the housing project he conceives is completed, he does not initiate the project. When considerable number of developers (and bankers financing development projects) come to the opinion that the period during which the prices will continue to grow is shorter than the housing production cycle (the lag between an initiation of the development project and sale of housing units) the number of housing starts stops increasing.

⁷The size of the latter group is growing in parallel with the home prices growth

⁸Including moving costs, search costs, legal costs, etc.

⁹Most of housing models consider short-run housing supply perfectly inelastic. See L Smith, K Rosen, G Fallis "Recent Developments in Economic Models of Housing Markets".

¹⁰In Russia it usually takes about two years for the developer who has acquired a land plot to get all the permissions and approvals necessary to start construction.

It can be concluded that the longer is a housing production cycle in the country the lower is the long run elasticity of housing production. It can be concluded that in countries with long housing production cycle neither in the period when home prices start growing nor in the period when they reach the level the market considers as being close to the maximum level, does demand for housing stock meet an adequate increase of housing stock supply. An inadequate number of housing starts serves as an additional catalyst to home price increases actually making the period of housing prices increase longer than has been expected by prudent developers and bankers¹¹.

B. Growth of the portion of non occupied houses.

With the fast increase of housing prices more and more people start to consider the house as an investment asset rather than a consumer good. They buy housing units with the intent to resell them later in order to earn profit rather than to live in them¹². For this group of homebuyers the decision to buy a house becomes exceptionally an investment decision. We will further denote this group of homebuyers as housing investors.

Housing investors (that purchase houses exceptionally for speculative purposes) know that the house is an investment asset of low liquidity. At the same time they are aware of the fact that the faster the home prices growth is, the higher is the risk that the prices will go down so they will want to sell quickly. In an environment of fast price growth, housing investors do their best to make liquidity of the houses they purchase as high as possible. In most cases trying to increase the liquidity of a house the housing investor keeps it in the "ready for sale" condition ie neither uses it as a house where his family lives nor uses it for rental purposes. Keeping the house empty helps

the housing investor to improve quality of the house as an investment asset at the expense of losing the profit from renting it out. They can afford the loss since the fast growing home prices decrease the profit from renting out the houses (denoted as r in equation 1).

Exclusion of part of houses from the housing stock reduces the supply of housing stock and causes additional upward pressure on house prices.

C. Mortgage loans availability increase.

It is extremely important that growth of housing prices cause an increase in demand for housing purchases rather than a decrease. The increase of demand takes place because housing prices growth encourages banks to make mortgage loans more available, which in its turn increases demand further (moves further the demand curve).

The reason why bankers make mortgage loans more available is the following. Home prices growth increases the market value of the houses that are used as collateral for mortgage loans. If mortgage lenders' expectations of home prices growth are high they can provide loans with comparatively high Loan to Value Ratio (LTV) expecting that in the nearest future these loans will turn into the loans with comparatively low LTV. For example, with the housing prices dynamic that took place in Moscow in 2005-2006, mortgage loans issued with LTV of 90% just in 2 months became loans with LTV of 80%¹³.

Counting on an expected price increase, mortgage lenders willingly relax their LTV requirements. This change increases the availability of mortgage loans. If the LTV requirement is reduced from 80% to 90% households get an opportunity, using all their savings as down payments, to buy

twice as expensive houses (provided that their income was enough to afford monthly repayments of a twice as large loan) than they were able before the relaxing of the LTV requirements.

It is important that (see equation 3) the higher is the portion of a loan in the home value, the more profitable is the investment in home purchase (provided that m is lower than i). So relaxing LTV requirements makes it possible for the household to increase further the profit from investing in housing in comparison with the risk adjusted profit from investments in financial assets and hence creates additional demand for housing. This additional demand entails further acceleration of housing price growth.

D. Growth of the share of households that prefer ownership to renting.

Growth of house prices at the rate p_1 (higher than the inflation rate) causes an additional increase of the right side of equation 6. This signals even higher profitability of a house purchase comparing with the renting of one. Higher profitability of house purchase increases further the demand for houses as for investment assets which in its turn causes further price growth. Actually it can be stated that a vicious circle takes place. Prices are increasing as a result of growing demand while the demand growth is caused in its turn by increasing prices.

The mechanisms discussed above make it highly probable that housing price growth initiated by the reduction of mortgage interest rates goes further than the new equilibrium level of prices. The question of up to which level the prices will grow is not the subject of this paper but it is clear that the growth will end up with price stabilization (p - equal to the inflation rate) followed by price corrections (p - lower than

¹¹The fact that mistakes in expectations can cause housing booms was stressed by R. Arnot (1987).

¹²Due to various reasons not discussed in the paper profit earned on the resale of houses in Russia can be considered completely tax-exempt. In the countries where profit from homes resale is taxable and where legal costs associated with purchase and sale of houses are high the attractiveness of investment in housing is lower than in Russia.

¹³The calculations are made based on the following presumptions: loan term – 20 years. Interest rate – 11%.

the inflation rate) that will move the price to the new equilibrium.

There is one practical question that is very important to answer at the moment when prices stabilized. The question is: whether the prices have reached a new equilibrium level (and hence prices will remain constant) or whether they are at a level higher than the equilibrium one (and hence a price correction is likely).

Since it is not always possible to check whether the new effective mortgage interest rate is higher or lower than the rate of equivalent investment we can use another technique. Let us again convert expression 3 substituting i by $p+r$ and keeping in mind that V is equal to $V_e + V_d$.

The expression (3) will be presented in the form:

$$V_e * p + V_e * r - V * r = V * p - V_d * m \quad (7)$$

And can be simplified into the following:

$$V_d * p + V_d * r = V_d * m \quad (8)$$

From here it follows that housing market will be in stable condition if

$$m = p + r \quad (9)$$

If we consider inflation adjusted values of parameters p , m and r instead of the nominal ones and keep in mind that we are discussing the situation when the rate of housing prices appreciation (p) has just become equal to the inflation rate (inflation adjusted V is stable) we can conclude that it is easy to predict whether further price correction will take place or not.

Housing prices will remain stable only if the new inflation-adjusted mortgage interest rate is equal to the ratio between inflation-adjusted annual rent of the house and its inflation-adjusted market price.

If this is not the case and the mortgage rate is higher, housing prices will not remain stable and will reduce to the level at which r (growing in parallel with price reduction) will

become equal to m – mortgage interest rates.

Let us see how the processes described above can be demonstrated on the sample of recent housing development in Russia.

Influence of mortgage interest rates on Housing prices in Russia

Both the state supported secondary mortgage market system and the system of tax deductions for mortgage interest payments are used to reduce effective mortgage interest rates in Russia.

The secondary mortgage market in Russia is dominated by the Agency for Housing Mortgage Lending (AHLM). The agency is a government owned institution that fulfils the functions of a secondary mortgage market conduit. AHLM buys mortgage loans issued by commercial banks and finances the loans by issuing its own debt. The debt originated by AHLM is guaranteed by the government of the country. Thus, it is government debt.

The term of the debt issued by the Agency is about 6 years while the maximum term of the loans purchasing by the Agency is 30 years. Due to the assets/liabilities mismatch the Agency (actually the Government, represented by the Agency) bears the interest rate risk. Only a small portion of the risk is transferred to investors.

Besides the interest rate risk AHLM bears also credit risk of the mortgage loans it keeps in its portfolio. The risk is transferred to AHLM because AHLM buys mortgage loans from primary lenders without the right to recourse in case of the borrower's default.

Accepting both the interest rate and credit risks AHLM becomes able to provide mortgage borrowers (via primary lenders) with extremely low-interest-rate loans. The interest on long-term (30 years) mortgage loans becomes equal to the interest on mid-term (6 years) government debt plus the operating expenses of primary lenders, servicers and the Agency itself. Neither

credit risk nor interest rate risk premiums are added to the rate.

The Agency started a process of sharp reduction of interest rates in 2003 when it reduced the interest rate for its loans from 18% to 15%. This coincided with the beginning of the period of housing price growth. Since then AHLM have reduced their rates many times. As of today AHLM mortgage loans are provided in Rubles with the interest rate equal to 11.0%.

It should be stated that several state and privately owned banks trying to keep their position on the market and compete with AHLM also issue mortgage loans at extremely low rates. In most cases they issue loans in foreign currency using comparatively low cost credit lines from abroad. In most cases loans are provided in US\$ at a rate of about 9% a year. The lowest rate long-term fixed rate mortgage loans available now in Russia are the loans provided by the bank owned by the Moscow City Government. These loans are available in Swiss Francs (CHF) at an interest rate of 7% per year.

The loans in foreign currency seem to be extremely lucrative for borrowers. The Ruble has been appreciating lately against most hard currencies. For example at the end of 2002 one US dollar was equal to 31.8 Rubles and one Swiss Franc was equal to 22.8 Rubles. In March 2007 one US dollar was equal to 25.7 Rubles, while one Swiss Franc was equal to 21.4 Rubles. Nevertheless the loans are not very popular. Borrowers do not want to bear currency risk. They remember periods when the Ruble depreciated rapidly. Most of the hard currency loans are issued in Moscow where salaries of many are pegged to US Dollars. Hence, in our further analyses we will take into account only Ruble loans at the rates nominated by AHLM.

Tax deduction is also an instrument actively used by the Russian government. Interest on mortgage loans is tax deductible and part of the home purchase price (up to 1 million Rubles – approximately \$26,000) is also tax deductible. Even if we take into

account only the interest rate tax deduction we can see that the effective mortgage interest rate for the Russian borrower is equal to 9.57% a year¹⁴.

It is worth mentioning that unlike Government and quasi-Government secondary mortgage market institutions in the US (GNMA, FNMA and FHLMA) AHLM is not restricted to purchasing only the loans of "conforming"¹⁵ size. AHLM can buy mortgage loans of any type, size and value of houses. So AHLM loans with effective interest rate equal to 9.57% dominate the whole mortgage market of the country.

We will start comparing this rate to the rate of return on equivalent financial assets from measuring the rate of return on assets less risky than housing investments. It is enough to say that keeping money on 1-2 years Ruble deposit account in the Government owned (and hence Government guaranteed) Bank – VTB-24 (the second biggest bank in the country) – you can earn 10.55% interest.¹⁶ Since in Russia income earned as interest on bank deposits is tax free, we can see that deposits in a state bank, which are definitely less risky than investments in purchasing a house, have a higher rate of return after taxes than the effective interest rate on mortgage loans (9.57%). It is clear that investments in riskier financial assets – the equivalent ones having the risk level equal to the one of investments in housing – will provide a higher return than the effective mortgage interest rate.

The interest on long-term (5 years) Ruble deposits in private banks is currently up to

12%¹⁷ which is much higher than effective mortgage interest rate (9.57%). It is evident that even not selecting a particular financial asset with the risk equal to the risk of investing in housing assets we can predict that its rate of return will be higher than the effective mortgage interest rate.

Since the effective mortgage interest rate in Russia is lower than the market rate of return on equivalent financial assets, the risk-adjusted profit from purchasing a home (if purchasing is partly financed by a mortgage loan) is higher than the risk-adjusted profit from any financial investment. It means that for the household that has savings¹⁸ it makes more sense to use them as a down-payment and buy a house, borrowing as big a sum as possible instead of investing in any financial asset.

In an environment of low mortgage interest rates, numerous Russians have come to a conclusion that they have got a unique opportunity to kill two birds with one stone: to invest in an asset providing higher risk adjusted profit than other assets and at the same time to improve their standard of living. A considerable number of people (who had been satisfied with their living conditions while mortgage interest rates were high) have decided to buy new homes. A growing demand for housing purchases caused the housing price increase.

Russia has experienced an enormous housing price increase since the middle of 2003 when the state program of mortgage interest rates reduction was put into reality. For example in Moscow – the capital of the country – housing prices (denominated in US Dollars) grew nearly 4 times from mid 2003. The growth accelerated in 2005 when prices nearly doubled in one year. (From October 3, 2005 to October 3, 2006 prices grew from \$2,050 per square meter to \$4,025 per square meter.)¹⁹

A survey published by a Russian subsidiary of the Financial Times demonstrated that other cities of the country experienced home prices growth of a similar scale. During the first 8 months of 2006 house prices in major cities of Russia (besides Moscow) have increased on average by 50% (and by 100% in St Petersburg – the second biggest city of the country)²⁰.

Price growth took place till the end of 2006. Since then the growth slowed down. Since the beginning of 2007 the housing prices in Moscow has been stable at the level equal to \$4,200 per square meter.

Rents have been increasing as well. Though in big cities the growth of housing rents was a bit higher than the inflation rate (the inflation rate in Russia was equal to 11% in 2005, 9% in 2006, and the expectations for 2007 is 8%) it has been modest compared to the growth of home prices. For example in Moscow through the last few years rent increases have been about 15% a year²¹. This growth, as well as

¹⁴Income tax in Russia has a flat rate equal to 13%.

¹⁵Conforming loans are mortgage loan that are eligible for refinancing through Fannie Mae or Freddie Mac. The current limit for single-family home loans is equal to \$417,000.

¹⁶Data of current Russian deposit rates in various banks are available at <http://www.sredstva.ru>

¹⁷Assessment of what Russians consider more risky: to keep money in private Russian commercial banks or to invest them in housing is not the topic of the paper. It is worth mentioning though that up to 200 thousand Rubles (approximately \$8 thousand) of each bank deposit is 90% government insured (deposits of up to 100 thousand Rubles are 100% government insured) so a household that distributes their savings between several banks can reduce the risk of investing in this financial asset practically to the level of investment in government guaranteed assets enjoying the rate of return equal to 12%.

¹⁸By the term savings all cash reserves of the household are denoted: savings, inheritance, gifts, etc.

¹⁹See studies of the research center IRN (www.irn.ru).

²⁰See the Financial news – Finansovye Izvestia (2006).

²¹See N.Samarina (2006).

to some extent the growth of the demand for housing ownership, can be explained by the overall income increase in the country²² and by immigration from former socialist republics. It is clear though that unlike the modest rental rates growth, the enormous home prices growth cannot be explained by the income increase and immigration only.

During the period of fast housing price growth discussed above mechanisms constraining market adjustment (inadequate number of housing starts, high volume of purchases for speculative purposes and softening of underwriting requirements for mortgage loans) have proven their correctness. It should be stated though that the inadequate number of housing starts was caused not only by the reasons described above but by a very controversial piece of legislation adopted in 2005.²³ The other two features were definitely attributed to housing growth.

The number of buyers purchasing houses for speculative purposes increased considerably. Russian realtors even invented a special term for the houses bought for speculative purposes -- "investment houses". Questioned in May 2006, the realtors assessed that the share of purchases of "investment houses" accounted for 10 - 40% of all housing transactions²⁴.

The relaxation of mortgage underwriting requirements recently has been enormous. In 2002 LTV ratios equal to 70% was the universal standard. In 2007 practically all mortgage participants issue loans with LTVs of 90% and many offer loans with no down payment.

Since the price growth came to its end during the first months of 2007 we can consider whether the price increase caused by the reduction of mortgage interest rates

will end with a price correction or not. And if the answer is yes how deep the correction will be.

Housing prices have stabilized in nominal terms (not in inflation-adjusted). It means that we can use for the expression 9 the nominal values of the effective mortgage interest rate and the rate between value of the annual rent of the house and its market price.

Anecdotal evidence is that the cheapest flat in Moscow can be purchased at approximately \$140,000. The annual rent for the same flat is approximately \$8,500. It makes the rate between annual rent and the house price equal to 6%. The effective mortgage interest rate (if we do not consider mortgages with currency risk) is 9.57%. Since the mortgage rate (m) is higher than the ratio between rent and house price (r) the level at which prices have stabilized is not the equilibrium. Hence, the prices will go down (the bubble will deflate) and rents will go up till r and m meet each other at the new equivalent level.

Conclusions.

The hypothesis presented above states that one of the reasons behind housing bubble growth in Russia was a sharp decrease of effective mortgage interest rates. The decrease created a disparity between the mortgage interest rates and the rate of return on financial investments having the risk equal to the risk of investments in housing.

The disparity makes housing purchase financed by a mortgage loan a more attractive investment in view of other assets, which creates additional demand for housing. Growing demand for housing entails price increases. Low elasticity of housing supply, purchasing of housing units

for speculative purposes, and an increase in mortgage loan availability accelerates the growth.

It seems that Russia is not unique and that the sharp reduction in mortgage interest rates is responsible for the appearance of housing bubbles. For example, the house price growth in the US has had the same features as the growth in Russia. It was started in 2002 after the sharp reduction of mortgage interest rates. It was accompanied by considerable softening of underwriting requirements (fast growth of sub-prime and alt-A loans) and a growing number of speculative purchases (the share of investment homes and vacation homes purchases grew from 36% in 2004 to 39.9% in 2005²⁵). The resulting disparity between mortgage interest rates and rents is even wider in the US than in Russia. Information provided at <http://patric.net/housing/crash.html> suggests that "currently yearly rents in the San Francisco Bay Area are about 2% of the cost of buying an equivalent house". Comparing this figure with 6% mortgage interest rates we can see that a downward move of housing prices should be expected in the American housing market as well as in Russia.

²²Income elasticity of housing demand has been documented in numerous studies though the value of the parameter, in accordance to various studies, varies from 0.1 to 0.94. For the review see: Dubel, H.J. Brzeski, W. J. Hamilton, E. (2006).

²³The federal law No. 214-FZ "on shared construction". Since it became effective on 1 March 2005, developers have been facing severe problems raising cash for their projects.

²⁴News agency Interfax (2006).

²⁵Joseph R.Mason, Joshua Rosner (2007).

Literature.

Arnot, Richard (1987) Economic and Housing, in: Mills, E S: Handbook of Regional and Urban Economics, Elsevier Science Publishers BV, vol. II pp 959-988.

Dubel, Hans Jachim; Brzeski, W Jan; Hamilton, Ellen (2006) "Rental Choice and Housing Policy Realignment in Transition: Post-privatization Challenges in the Europe and Central Asia Region. Infrastructure department. Europe and Central Asia Region. The World Bank. Washington. DC

The Financial News Finansovye Izvestia – (2006) "Real Estate in Regions is chipper and more profitable – Regionalnaja Nedvizhimost deshevle i vigodnee" August, 31 2006.

Interfax News Agency. (2006) "Investment houses can't cause collapse of the market – Investitsionnie kvartiri ne mogut obvalit rinok" May 22, 2006. www.vira.ru/exp/news/detail.php?ID=4108

Joseph R Mason, Joshua Rosner. (2007) "How resilient are Mortgage Backed Securities to Collateralized Debt Obligation Market Disruptions?" <http://www.criterioneconomics.com/docs/MasonPaper.pdf>

Painter G and C Readfearn (2002). "The role of Interest Rates in Influencing Long-Run Homeownership Rates" Journal of Real Estate Finance and Economics. 25(2/3): 243-267.

Samarina, Natalia (2006). "The demand is free – Slow Growth of Rental Prices – Za spros deneg ne berut – Zhile v arendu dorozhaet medlenno." Vedomosti – real estate (Joint publication with The Wall Street Journal and Financial Times) #63 (1590) April 11, 2006.

Smith, Laurence B; Rosen, Kenneth, T; Fallis, George (1988) "Recent Developments in Economic Models of Housing Markets", Journal of Economic Literature, vol XXVI (march), pp 29-64.

The Regulation of Mortgage and Home Loans within the European Union

By Christian König¹

The European Commission is the one of the most important law makers of the world. As an independent European Institution, the European Commission is entitled to propose legislation for 27 Member States. The so called European Directives and Regulations are also often taken as an example outside the European Union.

Currently the European Commission is considering initiatives for the mortgage credit sector within the European Union which could have a substantial impact on the EU Member States comprising 494 million citizens, but also on countries outside the European Union.

Ideas to propose legislation for the mortgage sector are not entirely new in Europe. After debates and consultations in the 80s, the European Commission proposed in 1984 its first Mortgage Credit Directive² and drafted a Mortgage Bond Directive. The idea behind was not to regulate the mortgage credit contract, legal requirements for the land charge or introduce a common level of consumer protection. Rather, the reasoning, in the past, was to allow credit institutes to grant mortgage credit across the border without any obstacles. Due to this Directive Member States of the European Union should mutually recognise their mortgage lending

techniques and finance mechanisms from other Member States. In 1995, the Directive was withdrawn by the European Commission³, since national governments did not support this liberal approach.

In 2003 the European Commission tried again to analyse how to integrate the different European mortgage markets by establishing an expert group, the so called Forum Group on Mortgage Credit, which published in 2005 a report concerning the obstacles for cross border mortgage business.⁴

Green Paper on Mortgage Credit in the European Union

The European Commission summarised parts of the recommendations of these experts in their first consultative document, the Green Paper on Mortgage Credit in the European Union⁵ published on 19 June 2005.

Herewith a broad-based consultation was launched on legislative measures in the area of housing finance. This consultation was no surprise for the industry. The European legislator has for many years occupied itself with the question as to whether a European legislative initiative is necessary for the area of mortgage credit. Stimulated by the

discussion spanning almost twelve years on regulating consumer credit at a European level, the area of mortgage credit similarly slipped on to the list of legislation in the sights of the European Commission.

As already emerging during the discussion of the Forum Group on Mortgage Credit, the Green Paper does not focus on the integration of the markets by liberalisation and dismantling of concrete barriers, but on the harmonisation of the national consumer protection level. Emphasis is therefore placed on harmonising the right to early repayment, restricting compensation for early repayment and on harmonising the annual percentage rate.

In detail, the following aspects are essentially addressed: the information duties of the lender before concluding a mortgage credit agreement are of prime importance to the European Commission. In this context the European Commission assessed the existing European pre-contractual information requirements, which are regulated already by the European Code of Conduct for Pre-contractual Information for Home Loans. This self regulation⁶ was the result of efforts by the European credit industry, the consumer organisations and the European Commission⁷ to elaborate European wide standards, how to inform

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²OJ C 402 of 14.02.1985 (COM/84/0730FINAL/2)

³withdrawal by the European Commission on 22 December 1995; OJ C 344 of 22.12.1995 ; 95/ C 344/02

⁴Mortgage Credit Forum Group 13.12.2004 Integration of the EU Mortgage Credit Markets http://ec.europa.eu/internal_market/finservices-retail/docs/home-loans/exsum_en.pdf

⁵COM/2005/0327 final

⁶http://ec.europa.eu/internal_market/finservices-retail/docs/home-loans/agreement_en.pdf

⁷European Commission Recommendation of 1 March 2001 on pre-contractual information to be given to consumers by lenders offering home loans C(2001) 477) Official Journal L 069 , 10/03/2001 P. 0025 - 0029

consumers in the pre-contractual phase about the details of the mortgage or home loan offer. Accordingly, consumers are entitled to receive general information on housing loans and specific standardised information concerning the concrete home loan offer. With standardising the information requirements consumers should ideally shop around in other Member State of the European Union as well and compare offers on a cross border basis. These information requirements exist since 2001, and are currently applied in 19 Member States within the European Union.

The European Commission has questioned within the Green Paper whether the standard set in this Code of Conduct is adequate, when the pre-contractual information has to be handed over and whether the conversion of the Code into a binding legal instrument would eliminate the concerns on sufficient implementation raised in a study that was conducted by a German consumer institute⁸. A further question raised by the Commission in the Green Paper is whether any duty to advise should be introduced as mandatory despite any additional costs which may arise for the consumer. In view of the different provisions in the individual Member States the European Commission believes a certain degree of uniformity to be advisable. In this connection it is considered whether early repayment is to be a legal right or a matter of choice. Another question in this context is how to limit the early repayment compensation. Up to now the Internal Market Directorate General had recognised that a restriction to the early repayment compensation would endanger credit with fixed long-term interest rates in view of its congruent refinancing. This recognition is no longer clearly to be found in this Green

Paper. In view of the different provisions in the Member States, the European Commission believes a certain degree of harmonisation of the definition of the annual percentage rate to be necessary. In this connection the European Commission wishes to know which parameters are to be incorporated into the calculation. The calculation of the annual percentage rate for mortgage credit is to be harmonised with the approach in the Consumer Credit Directive. The European Commission also assumes that the minimum and maximum restriction to variable interest rates in the individual Member States could be an impediment to the internal market. However, whether the European Commission advocates restricting variable interest rates in the European Union or wishes to eliminate them in the individual Member States remains open. The European Commission views two possibilities to harmonise a mortgage credit contract, namely by standardising national laws and by a new European optional regime⁹. The European Commission mentions the work on European contract law in this connection. Contrary to previous announcements by the European Commission to present concrete solution approaches to avoid problems in applying the Rome I Convention¹⁰, it makes reference only to current internal considerations as to whether to amend provisions of the Rome I Convention. In this respect the European Commission merely believes it necessary for the cross-border access to databases on credit-worthiness for domestic and foreign providers to be non-discriminatory. The European Commission did not explicitly pick up on considerations on mandatory consultation of these databases prior to extending loans. In the area of property valuation the European Commission would

appear to be unsure about introducing a uniform European property valuation standard because it also explicitly mentions mutual recognition of different standards. It furthermore fears that the different provisions on forced sales in the European Union, particularly with respect to refinancing, are an impediment to cross-border lending. Thought is therefore given to establishing and publishing a database with information on the costs and duration of national forced sale procedures. If this measure proves to be insufficient, additional measures are to be taken. Discriminatory tax practices of the Member States are to be pursued more keenly before the European courts. The European Commission is also not planning any measures concerning national land register law, but requests opinions on the question of the further financial commitment of the European Commission on projects such as the example of the EULIS database. This online database¹¹ provides access to Scandinavian, English and Welsh land registers, amongst others, in return for a fee.

Whilst the European Commission recognises the variety of refinancing instruments in the European Union, it would not appear to be averse to the idea of establishing a pan-European refinancing market because, in the view of the European Commission, this can be seen as a further motor for the integration of the internal market for financial services.

It was disappointing to discover that the European Commission did not consider the former approaches to integrating the EU mortgage credit markets in preparing the Green Paper. The many years of preparation and discussions with the economic groups concerned on the proposal for a directive on

⁸Monitoring the uptake and the effectiveness of the Voluntary Code of Conduct on Pre-contractual Information for Home Loans, http://ec.europa.eu/internal_market/finservices-retail/docs/home-loans/home-loans-final-report_en.pdf

⁹The optional regime is often referred to a 28th legal regime, which could be chosen by contractual parties as the applicable law. The EU currently has 27 Member States and legislation; any additional optional regime would be the 28th legislation. The UN Sales of Good Convention is such an optional regime, which can be chosen by contractual parties instead of the own legislation.

¹⁰Convention of Rome on the Law applicable to Contractual Obligations of 1980, EU C 027, 26/01/1998 p 0034 – 0046 The Rome I Convention transposed in most EU Member States regulate the International Private law and allows the choice of law between contractual parties, but restrict the choice of law in consumer contracts. Mandatory consumer protection laws of the consumer's residence cannot be excluded. (Art 5 Rome I Convention)

¹¹<http://www.eulis.org/>

¹²402 of 14.02.1985 (COM/84/0730FINAL/2)

mortgage credit of 1984¹² and the draft of the mortgage bond directive similarly in the eighties were not mentioned at all. Both proposals for directives were aimed at facilitating cross-border activity of credit institutions long before the introduction of the European internal market. Both directives were based on the concept of mutual recognition of the products and also of the respective financing techniques. Whether this regulatory alternative of mutual recognition was seriously considered by the European Commission when it drew up its Green Paper is not evident from it. Supporters of the less interventionist principle of mutual recognition are to be found only in the European Parliament.

Results of the cost-benefit analysis

In order to satisfy its own principles of better regulation¹³, the European Commission commissioned a cost-benefit analysis on the integration of the EU mortgage credit markets. This cost-benefit analysis was finally presented by the British business consultancy London Economics¹⁴ in August 2005. The study comes to the conclusion that the dismantling of barriers in cross-border business transactions would lead to added economic value for the European Union. Growth effects on the European Union's gross domestic product of 0.7% were calculated. It was furthermore established that increased product variety in the individual countries of the European Union would lead to a growth in private consumption.

In determining these parameters for the European Commission the authors of the study worked on the background of liberalisation in the British market. The situation of the British housing finance market was then transferred to the remaining continental-European Member States. According to this analysis, the German housing finance market would also appear not to function perfectly. In order to achieve the growth forecasts for the European Union, which ultimately represent

the economic justification for further measures for the European Commission, changes to the German housing finance market would be necessary. A few suggestions made by London Economics are explained only briefly in the following.

London Economics also compared the different loan-to-value (LTV) situation within several countries in the EU. They asserted that it is quite usual for British lenders to extend loans, far in excess of the value of the property. Other countries of the EU are usually granting credits with much lower LTV; such as 60 – 80 % of the value of a property. One demand made in the study was that this British lending practice be taken as a model for the other Member States of the European Union in order to stimulate growth potential in this way. If such practices, however, were established all over Europe, this would mean that consumers could choose far riskier financing which ultimately exceeds their own financial capacity to a dangerous extent. The principle of responsible lending is ultimately practised in restricting the lending ceiling and the financing of homes under consideration of appropriate equity; this also makes a considerable contribution to consumers not becoming excessively indebted.

The authors of this study would also appear to view the different structure of ownership of credit institutions to be an impediment to the European internal market. Institutions under public law cannot be taken over; consequently, in the view of the study's authors the banking market cannot consolidate to a sufficient extent.

With respect to the winning of growth potential for the European Union in the area of mortgage credit the authors of the study make suggestions for an extended use of the value of the property. It is, for example, possible for consumers to take out loans for consumption purposes that are backed by their homes as collateral (home equity loans).

In this way consumption would be stimulated because consumers could make use of the capital invested in the property as collateral for future loan commitments. However, this suggestion fails to recognise the fact that in the majority of countries in Continental Europe, living rent-free in retirement makes a substantial contribution to securing social affluence of pensioners. Furthermore, lending of this nature would only stimulate consumption in the short term because the loan must ultimately be repaid.

Outlook

Currently the European Commission is considering further legislative action in the field of mortgage credit. It is not clear and decided yet, if the European Commission will propose a European wide calculation of the annual percentage rate of charge for mortgage credit, if consumers should be legally entitled by European law to repay their mortgage credit earlier, and whether the early repayment fee should be limited. It is almost obvious that the European Commission will open up national creditworthiness databases for foreign banks, put pressure on Member States to make their enforcement mechanisms cheaper, efficient and faster. The European Commission also indicated that correct information by financial institutions to their consumer is of essential importance for the Internal Market within the European Union. It is still not clear what kind of information the European Commission sees as important and when the information should be given to the consumer. The duty to advice customers could also be a topic for possible regulation on the European level. The European Commission will publish their intention on how to regulate the internal market for mortgage credit at the end of September 2007 within the so called White Paper on mortgage credit.

¹³Communication of the European Commission to the Council and European Parliament; Better Regulation for Growth and Jobs in the European Union COM(2005) 97

¹⁴The Costs and Benefits of Integration of EU Mortgage Markets

What does Europe really need?

Does Europe need a specific regulation on mortgage credit? Would a European Directive or a Regulation stimulate business, bring direct added value for the consumers in all Member States, extend the product range for home financing or even reduce interest rates?

The European Union would certainly wish to take action to achieve these objectives. But how is this objective to be achieved? Up to now it has been argued at a European level that the entire volume of all mortgage credits extended in the European Union in 2003 accounts for a total of € 4.26 trillion, corresponding to 44.6%¹⁵ of the EU gross national product. The elementary importance of this market segment is justified by the argument that for the majority of EU citizens the acquisition of their own home represents the greatest investment in their lives.¹⁶

These assumptions are certainly correct. But it could be argued just as well that for this very reason the law governing the purchase of property in the individual Member States must be harmonised at a European level. However, any such demand would evidently be rejected as absurd because in this area of the law the necessity for harmonisation by the European Union would still appear to be difficult to understand.

However, the situation is different for mortgage credit. In this area the sole harmonisation of consumer protection law according to the former efforts of the European Commission is to create the foundation for the internal market. The real impediments to the failure of the market developing for mortgage credit so far are ignored. The requisite specialised and local knowledge of the credit institutions in the valuation and financing of a property, the so far 23 official languages in the European Union as well as the broadly established practice of the Member States of not

recognising home finance products and the financing techniques of other EU states in order to protect the national market from unwelcome competition are certainly the main barrier to the development of the European internal market for mortgage credit.

Hopefully, in its future deliberations the European legislator will also consider the different national housing finance concepts and the special national features in the now 27 Member States of the European Union and will not take measures which ultimately rationalise away tried and tested housing finance systems on the path towards product standardisation.

¹⁵cf study of London Economics p 13

¹⁶Green Paper of the European Commission on Mortgage Credit in the EU, p 4

New Mechanisms for Developing Primary and Secondary Housing Finance Markets: The Case of Peru

By Paula Conthe and Alfonso García

1. Background and Historical Overview

The Peruvian housing finance situation has much in common with that of many other emerging markets around the world. Despite a large and persistent housing deficit (1.3 million households, 20 percent of total, in need of a home, upgrade or improvement), a number of factors such as low income levels, legal property issues and a large informal economy result in scarce demand for mortgage loans. Financial institutions' growth in mortgage lending - and the subsequent improvement in terms and conditions which might increase demand in turn - has been hampered by a lack of long-term funding and, more often than not, insufficient credit information or inadequate incentives to lend to lower income households, with most banks preferring to concentrate their activity on high income groups and the corporate sector.

Historically, the Peruvian State's role in supporting the development of the housing finance market and resolving housing accessibility issue, for its part, had been either too invasive, as was the case in the 1980s, or non-existent, as during the early to mid-1990s, with curtailed success in both cases. During the 1980s, the specialization of the *Banco Central Hipotecario del Perú*, BCHP (Central Mortgage Bank) in housing lending activity and the formalization of *mutuales* (non-profit mutual credit

Peru Key Figures

GDP (billion USD)	77.2
Population (millions)	27.2
GDP per capita (USD)	2,763
% Credit to Private Sector/GDP	26.2
% Remittances/GDP	2.2
% Population living in Poverty	51.1
% Population living in Extreme Poverty	18.6
GINI Index	0.47

Source: SBS, World Bank, IADB and ECLAC Annual Statistics.

associations for housing) marked the beginning of a period characterized by a notable expansion of the mortgage market in which the State played a central role, with almost all mortgage loans destined to finance home purchase or new construction during that decade being granted through State-owned or supported institutions. During this period, approximately 80,000 households were granted loans to purchase or build a home, with BCHP financing an average of 3,000 household purchases a year, mutuals as many as 5,000. By 1989, however, the endogenous weaknesses of a State-dominated housing finance market - and of public banking systems in general - ie moral hazard, weak financial and

administrative management, lack of competition, restrictions in funding and dependency on Government policies, etc, aggravated by exogenous factors such as the economic recession and macroeconomic instability, led to the system's bankruptcy and the virtual disappearance of a mortgage market in Peru.

In the early to mid-1990s, in the aftermath of the economic crisis and the liberalization of the Peruvian financial market, private commercial banks - many with some degree of participation of foreign capital, which proved a valuable source of mortgage lending experience, know-how and methodology, as well as of alternative sources of funding - stepped into the mortgage business, cautiously at first and later more actively, as they discovered the low delinquency rates and the many advantages in terms of profitability and efficiencies that housing finance brought. Free from the crowding out effect of public institutions, private sector housing finance in the 1990s flourished and went from being practically non-existent in the early nineties to amounting to over 1 billion USD in 1998. The drawback during this period, however, was that private banks catered exclusively to the highest income groups and conditions offered on loans left more than 90% of the population out of the housing finance market. As the demand from the

¹Analistas Financieros Internacionales. All views expressed in this article are those of the authors and do not necessarily represent the views of Analistas Financieros Internacionales. The authors would like to thank Mr. W. Britt Gwinner, Lead Housing Finance Specialist from the World Bank, and Marilú Gonzales, former Gerente de Inversiones at Fondo Mivivienda, and all her team for their invaluable help in the preparation of this article.

²Source: National Institute of Statistics.

scarce few who could afford a loan was fulfilled, the mortgage market experienced a slowdown, exacerbated, yet again, by another economic crisis.

By the late 1990s it was apparent that neither the State-dominated housing finance system of the 1980s nor the solely private system of the 1990s were able to adequately address the housing problem in Peru or the challenge of boosting the development of the financial market while at the same time alleviating the population's housing needs. With the disappearance of the BCHP and the *Banco de Vivienda del Perú* (BVP), the housing institutional framework in Peru had been virtually reduced to the programs of the Ministry of Housing, Construction and Sanitation (*Ministerio de Vivienda, Construcción y Saneamiento, MVCS*). Learning from past experiences, the State decided to develop new institutions and mechanisms with the twofold objective of supporting the development of the primary mortgage market - while avoiding the pitfalls of a public housing finance system - and at the same time achieving a notable improvement in the housing situation of medium and low-income households.

The *Fondo Hipotecario de Promoción de la Vivienda* or, as it is most commonly referred to, Fondo Mivivienda (FMV) began operations on 16 January, 1999, first as a state entity affiliated to the Ministry of Economy and Finance and later assigned to the Ministry of Housing, Construction and Sanitation in July 2002. In terms of resources, FMV received an initial - and single - transfer of S/. 1,500 million (USD 514 million) from *Fondo Nacional de Vivienda*, FONAVI (National Housing Fund), to be directed towards improving the population's access to housing through the promotion of private sector housing credit, a task in which the institution has made important progress through the implementation of the Créditos MIVIVIENDA Program.

The housing finance market in Peru at end-December 2006 amounted to 7.8 billion Nuevos Soles (over 2.3 billion USD), doubling its size from 2001 and averaging

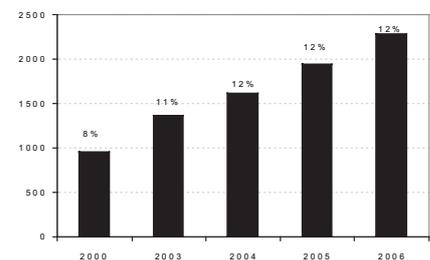
an annual growth rate of 15% over that period. This growth has most probably been favoured by greater effective demand resulting from the accompanying rise in GDP per capita in Peru over the past few years (from 2,036 USD in 2001 to 2,806 USD in 2005). Lower consumer inflation and falling interest rates as a result of a favourable macroeconomic scenario and growing competition among banks have also contributed to this trend.

Ultimately, however, most of the recent expansion of mortgage credit can be traced to FMV efforts and the successful implementation of mechanisms designed to bolster the supply of private mortgage credit at conditions appropriate to meet the increased payment and savings capacity of a growing number of households. Indeed, while the increase in GDP per capita has scarcely benefitted lower income households (Peru's GINI index remains virtually unchanged over the past decade), the supply of MIVIVIENDA loans—offered to middle and low income households—accounts for 75% of mortgage market growth over the past few years and already amounts to over 200 million USD. The Créditos MIVIVIENDA Program has made key progress in encouraging banks to move down market and demonstrated the essential - and constructive - role the public sector can play in promoting private mortgage lending by breaking barriers to entry and offering well-designed incentives such as mortgage credit risk insurance.

Despite these advances, however, the Program has its limits and much more still remains to be done. Growth, albeit significant, is still small in relative and even absolute terms: mortgage credit in Peru barely amounted to 2% of GDP in 2005, far from the 14% registered in Chile or 5% in Colombia. More importantly, though, the Créditos MIVIVIENDA Program has taken important steps in the right direction, bringing lending down from the 90th to the 70th and even 65th percentile, but a large part of the population continues to be unable to obtain a mortgage loan. Having successfully encouraged banks to service the middle class, public sector efforts must now focus on building on the MIVIVIENDA

experience and developing new mechanisms to address the needs of lower income groups and foster further expansion of the housing finance market.

Size of Mortgage Market (Total Volume in USD million and % of Total Bank Loans)



Source: SBS

2. New Mechanisms to Develop the Primary Mortgage Market: Fondo Mivivienda and Créditos MIVIVIENDA Program

FMV was created to deal primarily with two of the main obstacles hindering the development of a private housing finance system in Peru: first, the lack of long-term funding available to financial institutions and, second, the high credit risk perceived for middle and low-income groups, which discouraged banks from servicing this sector of the population. In order to meet these aims, FMV introduced a number of key mechanisms through the Créditos Mivivienda Program which have successfully transformed the Peruvian mortgage market in recent years.

• Funding lenders in the private sector

Crédito MIVIVIENDA program's resources were used for second-tier financing of private financial institutions' housing finance activity. Peru's *Corporación Financiera de Desarrollo* (Development Finance Corporation) - often referred to as COFIDE - acted as the financial agent, placing the program's funds with qualified financial intermediaries (referred to as IFIs, *Instituciones Financieras Intermediarias*), who used the State's resources to finance loans to individuals for construction and

housing purchases, under key conditions regulated by FMV but with absolute freedom in terms of setting the final interest rate on loans granted to beneficiaries.

Under this scheme, all supervised financial institutions, and not just private commercial banks, had access to long-term financing at advantageous rates, as long as they met certain conditions:

- Being under supervision of the *Superintendencia de Banca y Seguros* (SBS), either directly or indirectly. The entities under this category in Peru at present are:

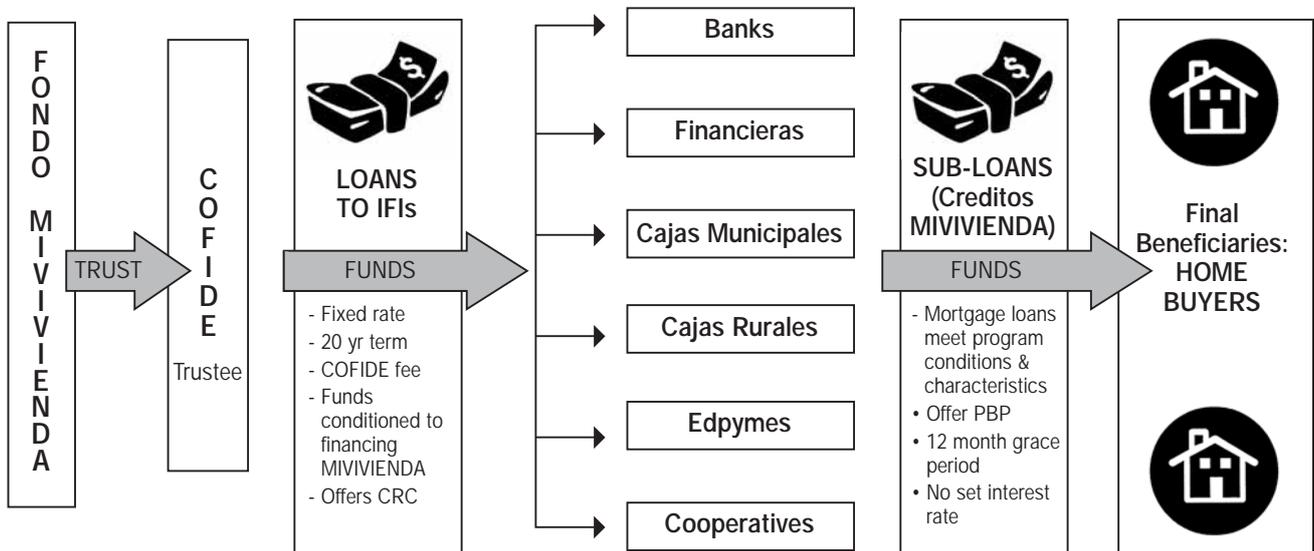
- Commercial Banks, referred to as *Banca Múltiple*
- *Empresas Financieras*, commonly referred to as *Financieras* (Financial Enterprises)

- *Cajas Municipales*, commonly denominated CMAC (Municipal Credit and Savings Institutions)
- *Cajas Rurales*, commonly denominated CRAC (Rural Credit and Savings Institutions)
- *Edpymes* (Small Business and Microenterprises Development Institutions)
- Co-operatives
- Not being under surveillance of the SBS nor be subject to any sanctions or process of financial restructuring required by SBS or any other legally recognized supervisory authority

- Not having any litigious disputes or legal actions pending with FMV

In addition to opening the market to non-traditional mortgage lenders such as CMAC or Edpyme, FMV credit lines offered participating financial institutions key advantages, among them: (i) the possibility of matching their assets and liabilities in terms of currency and maturity; (ii) the option of obtaining financing at a fixed interest rate; (iii) the freedom to determine their financial margin. The benefits associated with mortgage lending and expanding clientele, as well as the low delinquency rates being registered for Crédito MIVIVIENDA loans in the first few years, did the rest in terms of stimulating further participation of financial institutions in the program.

Créditos MIVIVIENDA Program in Brief



• **Encouraging banks to downscale through Credit Risk Insurance**

Having access to long-term funding might foster the growth of banks' long-term lending activity and their willingness to expand their mortgage activity, but it is generally insufficient to encourage banks to service lower income groups. To create incentives for banks to move down market, the FMV provided Cobertura de Riesgo Crediticio (Credit Risk Insurance), commonly referred to as CRC, which would reimburse financial institutions granting Créditos MIVIVIENDA with 1/3 of subordinated loss or a proportional 2/3 in case of default³. From these two possibilities, the most commonly used by the Financial Institutions was the subordinated 1/3 of unpaid balance.

• **Promoting targeted savings by households for home purchases**

Another problem to be resolved was the high number of Peruvian households traditionally left outside the mortgage market due to their inability to prove their access to a regular source of income. The program thus included the design and promotion of savings mechanisms to facilitate this group's access to credit.

Ahorro Hipotecario Previo (Pre-Mortgage Savings Account)

In the numerous instances in which potential beneficiaries of Crédito MIVIVIENDA may be able to afford the loan but do not have any proof of regular income in the form of a pay slips, contracts or even monthly invoices (as with most of Latin American, only about 20 percent of Peruvian households have any contact with a formal banking institution, instead making all expenditures and savings in the form of

cash⁴), they are given the option of *Ahorro Hipotecario Previo*. This mechanism allows individuals without proof of formal income to qualify for loans by making regular deposits in a savings account for a fixed period of time. Before making the initial down payment of 30% of the property value, in order to qualify for a Crédito MIVIVIENDA, the potential beneficiary must previously deposit in a savings account every month, for a minimum of three months, an amount equivalent to the mortgage's monthly instalment, as well as the amount of the down payment. If making a down payment of anywhere between 20 to 29% of the property value, the potential beneficiary must make the monthly deposit of an amount equivalent to the mortgage payment for a period of six months. Potential beneficiaries of Créditos MIVIVIENDA are welcome to open these pre-mortgage savings accounts in any of the numerous financial intermediaries participating in the Program.

Programa Quinto Suyo (The Fifth Region Program)⁵ and Savings from Remittances

A growing trend in recent years has been the promotion of savings from remittances and their use in home purchases through the *Quinto Suyo* Program. Many Peruvians living abroad currently send money back home to their relatives so that their families can afford to buy/build a home to which they hope to return to in the future. These money transfers are not only costly but also risky, since some recipients may choose to disregard the sender's request and direct the funds to paying for other expenses. Thanks to agreements signed with foreign financial intermediaries, several Peruvian commercial banks⁶ currently offer Peruvian migrants in a growing number of countries (currently, US, Spain, Italy and Japan, but

soon also Chile) advantageous conditions on remittances that are directed towards financing Créditos MIVIVIENDA for relatives back home. The Fondo Mivivienda and the Ministry of Housing are participating in these efforts, appearing in numerous conferences and fairs abroad, along with representatives from participating commercial banks, to promote this savings mechanism which, based on the same principle as *Ahorro Hipotecario Previo*, offers migrants the possibility of purchasing a home for relatives in Peru that do not have access to mortgage lending. The next step, given the market potential and most migrants' desire to return to their home country in the future, is to modify MIVIVIENDA regulation and allow Peruvians abroad to become the direct beneficiaries of the program, but a number of legal issues are still to be resolved.

• **Creating incentives to prompt payment and undercutting adverse selection**

In spite of advantageous long-term financing provided, credit risk insurance and targeted savings mechanisms, households outside the formal sector and without a long credit history in a developing country like Peru continue to be a relatively high risk. This is reflected in high interest rates being offered by banks, which, in the absence of adequate credit information infrastructure, cannot discriminate a priori between good and bad payers. One way to get around this problem has been the introduction of the *Premio al Buen Pagador* (Premium for Good Payment), commonly referred to as PBP.

In this scheme the loan is divided into two segments: *Tramo no concesional* (Segment "without prize") and *Tramo concesional* (Segment "with a prize"). The first segment, which accounts for 80% of the loan, has a

³The FMV has set aside capital for its insurance liability, thus eliminating any contingent liability for the government.

⁴Source: SBS.

⁵Suyo is quechua for region or province. The name of the Program, the Fifth Region, refers to the four regions into which the Inca Empire was divided and which made up the Tahuantinsuyo (Four United Regions). The large part of the Peruvian population abroad is considered to conform to this fifth region and the program has evolved over the years into an important channel of communication and a link between Peruvian communities in foreign countries.

⁶To date, Interbank and Banco del Crédito de Perú participate in this Program, although interest from other commercial banks is growing. Regarding remittances, the Postal Services of Peru (SERPOST) also offer advantageous conditions on remittances sent back home by Peruvians living abroad, although without specifying any use to the funds.

monthly quota calculated in the same manner as any other mortgage loan. Payments for the second segment (20% of the loan) however, are calculated bi-yearly. If the borrower pays all six monthly payments corresponding to the first segment on time, s/he will not have to make the payment on the second segment corresponding to that half a year. If, however, the borrower is late for any one of those six payments, s/he will have to add the payment of the second segment the following month to his/her usual quota. A borrower who makes all payments on time will avoid making any additional bi-yearly payments on the second segment of the loan and thus will see his/her interest rate on the loan effectively reduced by 20%.

In this manner, PBP can be used as an *a posteriori* method to allow risk segmentation among medium and low-income households on which scarce credit information is available. PBP is also good news to financial institutions, since it provides beneficiaries with significant incentives to timely payment. Further, this premium for good payment has also played a very positive role in helping overcome the initial weariness with which many Peruvians perceive the banking sector after last decade's financial crisis and has proven to be an extremely effective marketing tool.

- **Facilitating financing of unfinished dwellings (pre-mortgage financing)**

The Créditos MIVIVIENDA program offers financing to *Bien Futuro (Future Asset)*, which allows for a 12 month grace period in the financing of homes that are planned or under construction. This enables constructors to sell housing units before completion and facilitates their financing of construction project without the need to resort to their own funds (equity) or ask for loans at high interest rates currently charged by banks.

- **Dedicating resources to publicizing the Program throughout the country**

In spite of the many advantages offered by Créditos MIVIVIENDA to all agents involved, the importance of the well coordinated marketing campaign, customer service efficiency and the extensive network of MIVIVIENDA offices set out across the country⁷ must not be underestimated in gauging the program's success, particularly in light of the section of the population MIVIVIENDA caters to, which has often had no prior contact with financial institutions and often tends to self-exclude itself from the mortgage market due to common misconceptions. In order to reach this sector of the population, a specialized Marketing and Strategy Department within FMV has orchestrated a campaign promoting MIVIVIENDA in publishing and broadcasting media, through the web, directly in financial institutions or construction projects, through presence in fairs and related events (both locally and abroad), etc.

- **Ensuring loans reach target demand through well-defined conditions and requirements**

The conditions and requirements set for beneficiaries and dwellings are key in ensuring the success of a housing finance program and that final beneficiaries are part of the target population for whom the program was originally designed. The best example of the importance of well-defined conditions is that, initially, and despite the huge need for mortgage credit in Peru at the time of FMV's creation, the Créditos MIVIVIENDA program failed. In the first two years, only 548 loans were granted for a total value of little more than 10 million soles (approximately 3 million USD). It was not until 2002 - when conditions to apply for loans were relaxed and new characteristics such as PBP were introduced - that the Créditos MIVIVIENDA program actually took off.

⁷In mid-2006, Fondo Mivivienda has three offices in Lima and another seven in the cities of Arequipa, Chiclayo (Lambayeque), Cuzco, Iquitos (Loreto), Huancayo, Piura and Trujillo (La Libertad).

Box: Conditions and Requirements on MIVIVIENDA loans

Requirements for beneficiaries

The beneficiaries of a Crédito MIVIVIENDA must be Peruvian, an adult, and with residence in the country. Neither they nor their spouses or younger children may be the owners of a home and they cannot have been past beneficiaries of any other State housing program (such as those managed by FONAVI, Enace or Banco de Materiales). Before 2002, beneficiaries had to be contributors to FONAVI but this restriction, along with a series of other conditions, was removed. In terms of income, the beneficiaries must be able to make a down payment of 10% of the final value of the dwelling and they must also qualify for credit at the institution giving them the loan.

Types of purchases financed

Créditos MIVIVIENDA finance (i) first-time purchases of dwellings that are finished or at any stage of construction and (ii) construction of a dwelling on property owned by the beneficiary. These credits do not finance the purchase of land or independent parking spaces exclusively. Further, in order to receive FMV financing, the dwelling must meet two conditions. The value of the dwelling may not exceed 35 UITs⁸ (approximately 32,000 USD), while the total value of the purchased residence (including garage and other amenities) may not exceed 50 UITs (approximately 45,700 USD).

Conditions (MIVIVIENDA compared to Conventional Mortgages, CM)

Terms	Conditions on Loans
Rate	<input type="checkbox"/> CM: Adjustable rate (banks discretion) <input type="checkbox"/> MIV: Fixed rate
Currency	Mostly in USD Some in soles VAC (adjusted to inflation)
Maturity	<input type="checkbox"/> CM: Up to 25 years <input type="checkbox"/> MIV: Up to 20 years
Minimum requirements	Maximum LTV: <input type="checkbox"/> CM: 80% <input type="checkbox"/> MIV: 90% Minimum income: <input type="checkbox"/> MIV: USD 400 <input type="checkbox"/> M: USD 800 Maximum PTI: 30%

3. Assessment and Impact of the Program

By offering advantages to all agents involved in the housing finance market (credit institutions, beneficiaries, construction companies, etc.), the MIVIVIENDA Program has managed what prior housing finance models failed to do in the 1980s and 1990s: align the interests of

all players and ensure the sustainable development of the primary mortgage market while still improving the low and medium income population's access to housing. Although the 30,000 households that have benefited from Créditos MIVIVIENDA represent only a very small percentage of the close to 2 million households in need of a home or housing upgrade, it is a very important step in the right direction.

• Entry of key new players into the mortgage market

By providing long-term financing and credit risk insurance, FMV has not only encouraged larger banks to downscale but has also brought key new players into the profitable business of mortgage lending. In 2002, CMAC, CRAC, Empresas Financieras and Edpymes were barely present in the

⁸UIT (Unidad Impositiva Tributaria) Peruvian Tax Unit used as a reference in fiscal regulation to maintain taxable amounts, deductions, subsidies, etc. constant in the long-term. Currently the unit is equivalent to S/.3,200, ie, the maximum value of a dwelling the program can finance at present is 35 UIT or S/.112,000. This amount may vary in the future when the Government revises the equivalence of the UIT, as it does periodically to adjust for inflation

mortgage market. In 2005, they jointly amount to 4% of the market, and their share is growing. The entrance of new players has resulted in increasing competition, which is not only providing institutions incentives to cut back costs and improve efficiency, but is also driving down interest rates (down from 15.4% in 2001 to 12.6% in 2005 for soles-denominated mortgage loans⁹) and, more importantly, expanding the market geographically, since non-banking financial institutions have greater presence in areas not traditionally serviced by the private commercial banks.

• **Financial sector development and bancarization of the economy**

Créditos MIVIVIENDA has provided the necessary mechanisms to encourage informal income earners in Peru to approach financial institutions, thereby bring a large sector of the population into the banking system. This new situation provides many benefits, such as deepening of the financial sector, building of credit history for people traditionally outside the banking system, formalization of the economy, etc.

The impact of the Program is even greater when taking into account the numerous households that have been indirect beneficiaries of MIVIVIENDA, gaining access to a home thanks to the role played by FMV in financial sector development. Indeed, private commercial banks, which have traditionally been the most active institutions in the conventional mortgage market, have also assumed a leading role under the MIVIVIENDA scheme, which has successfully avoided a segmentation of the market by lenders or clients. Large commercial banks acting as IFIs have thus been able to make valuable use of know-how, capacity and experience gradually acquired through MIVIVIENDA to improve financial terms and underwriting criteria on conventional mortgage loans. Thanks to this knowledge transfer, conventional mortgage loans have tended to converge towards

MIVIVIENDA loans, becoming accessible to a large number of households, many of which less than five years ago could only aspire to mortgage credit under MIVIVIENDA conditions, ie with limits on dwelling price, etc.

• **Spurring construction activity and gradual increase in housing supply**

After registering negative growth for three consecutive years (1999-2001) the construction sector resumed activity in 2002 and has maintained high growth rates for the past three years. Although private infrastructure projects such as Camisea and the Central Hidroeléctrica de Yucán have contributed to this growth, the greater supply of housing in general, and in particular of units priced at less than 50,000 USD, can be traced to the upsurge in the mortgage market in recent years.

• **Economic growth, improved life styles and reduced poverty**

Construction accounts for much of Peru's economic growth and is a powerful engine for development¹⁰. The acceleration in this sector's activity, spurred by programs such as Techo Propio and Crédito Mivivienda, has led to better prospects for the economy. Additional benefits of the Program in terms of contributing to the country's economic soundness, development and well-being are numerous and varied, from the desirable effects such as reduced poverty and improved civic behaviour that housing ownership brings in tow (Erbas and Nothhaft 2002), to FMV's vital contribution to the development of the financial system and the capital market, with the presence in the market of a large investor that manages resources of close to 500 million USD.

4. Remaining Obstacles and New Risks

The development of the mortgage market in Peru continues to face many important

obstacles. Some, such as low income levels, a large informal economy, and lack of property titling, will have to be resolved before housing and credit is accessible to the entire Peruvian population. Public and international efforts are being directed towards resolving many of these problems, but their solution will not be reached in the medium or even long-term.

In this scenario, the MIVIVIENDA program has done well in promoting the development of the primary mortgage housing finance system over the past few years. However, as is only to be expected, the many benefits this Program has brought to Peru have not been without additional consequences or risks.

For one, the expansion of the mortgage market in the absence of sufficiently developed capital markets - which, albeit growing, have been unable to keep pace with banks' increasing mortgage activity - could result in a significant maturity mismatch for part of the banking sector, as well as to a growing segmentation of credit supply in terms of players. MIVIVIENDA loans offered by banks to date have been perfectly matched with FMV financing in terms of duration, thus avoiding any maturity mismatch and also allowing all participating intermediary banks to offer fixed rate mortgages. In the rapidly expanding conventional mortgage market, however, the situation is very different. Large banks have sustained further housing finance activity thanks to their readily available and growing market share of deposits (mostly checking accounts and short-term deposits, generally highly concentrated), and their greater capacity to obtain funds through the capital markets, with direct issuances of covered bonds. Medium and small institutions, for their part, have a limited share of deposits and practically no access to long-term funding. This has led them to either restrict their mortgage market activity to only MIVIVIENDA loans or, for those with a large enough base of traditional customer as well

⁹Source: SBS.

¹⁰The construction sector accounts for 5% of GDP (Economist Intelligence Unit).

as CTS deposits¹¹, to incur in a significant assets and liabilities maturity mismatch, which introduces a high liquidity and refinancing risk¹².

Second, the Peruvian currency's recent appreciating trend with respect to the US dollar has resulted in practically all mortgage loans granted being USD-denominated. This phenomenon does not translate into foreign exchange rate risk for the banking system because most bank liabilities are also USD-denominated, due to the Nuevo sol's turbulent history and households preference for saving in USD. However, it has other important consequences such as foreign exchange risk being effectively transferred to the borrower, who earns an income in local currency but must make payments in USD. The banking system faces, therefore, a much higher credit risk than would initially appear, since any variation in the exchange rate can dangerously increase the number of non-performing loans and defaults. In essence, the banking sector has increased its vulnerability to foreign exchange rate fluctuations and to macroeconomic shocks to the system.

Finally, in the past few years, market needs have also evolved and with them, the realization by authorities that public housing finance promotion schemes must be revised in order to take into account the new Peruvian reality, particularly given the imminent depletion of FMV funds. Growing competition has led to a significant segmentation of financial institutions by size, market share of deposits and availability of funding. With the mortgage market already jump-started, the State's role in the process must change. The funding problem must be resolved through mechanisms that are sustainable in the long-term and do not require a state

institution to periodically replenish funds and increase the number of wholesale loans.

5. New Mechanisms to Develop the Secondary Mortgage Market

In this scenario of new risks and rapid reduction in FMV's liquid capital (the capital which has still not been directed towards credit lines for financial institutions) and taking into account the market's evolving needs and the Program's key elements to success, the institution undertook a profound revision of itself and the products it offered in early 2005.

The basic elements of FMV's transformation were:

- o No longer acting as a second-tier bank for MIVIVIENDA loans, ie no longer providing loans to financial institutions
- o Decreasing the premium for good payment
- o Modifying the offer and conditions of credit risk insurance
- o Charging a fee for these two products, PBP and CRC (which, until then, were included in the financial terms of the loans)
- o Securitizing Créditos MIVIVIENDA in order to facilitate funding to those institutions that need it, an action that would previously involve the standardization of underwriting criteria and financial conditions on all MIVIVIENDA loans which would allow their securitization.

With these objectives in mind, the FMV has redesigned its structure and functions, transforming from a state entity into a *Sociedad Anónima*, as well as modifying the existing financing scheme of Créditos MIVIVIENDA, which consisted in a bundled credit and guarantee, and creating two new separate products.

Product #1

*Product N°1: Credit Risk Insurance (Cobertura de Riesgo de Cambio, CRC) coupled with the Premium for Good Payment (Premio al Buen Pagador, PBP)*¹³

In this new phase, Crédito MIVIVIENDA will maintain the same incentives that have contributed to the program's huge success, but 1) in a less subsidized scheme and 2) joining the Government efforts in reducing the dollarization of the economy by offering advantages to soles-denominated loans. To manage this product, FMV has created two distinct funds, one for PBP and another for CRC, each separately administered and with individual investment policies that will ensure their respective payment capacities.

More specifically, with regard to CRC, the new product reduces the existing guarantee in order to ensure financial institutions participate in all potential losses and thereby align their interest with those of FMV and ensure they maintain the utmost standards in the origination and administration process. In this new scheme, CRC is reduced from covering one third of the subordinated tranche of the loan balance to simply covering one third of the losses (after execution of the property), to a maximum of one third of the outstanding volume.

In addition to this effort to undercut moral hazard, another important change is that the fee charged for CRC will vary in accordance to the maturity of the loan, ie a loan with a longer maturity will be charged a higher fee. Fees, in all instances are determined in each specific case by a specially designed financial model that takes into account Probability of Default (PD), Loss Given Default (LGD) and Exposure at Default (EAD)¹⁴. Although it may appear that

¹¹CTS are accounts maintained by employers for the benefit of employees that are stable and long term in practice, but in legal terms may be withdrawn at short notice.

¹²Although the analysis of the duration of assets and liabilities does not reflect a significant interest rate risk, since only MIVIVIENDA loans are fixed-rate denominated and these are perfectly matched in terms of duration, there is a large amount of long-term maturity assets that are exclusively funded by short-term deposits

¹³This section is based on the reports made by Analistas Financieros Internacionales, Macroconsult and AIS, in a FIRST funded project, with the aim of the defining the financial structure of the new products for FMV SA

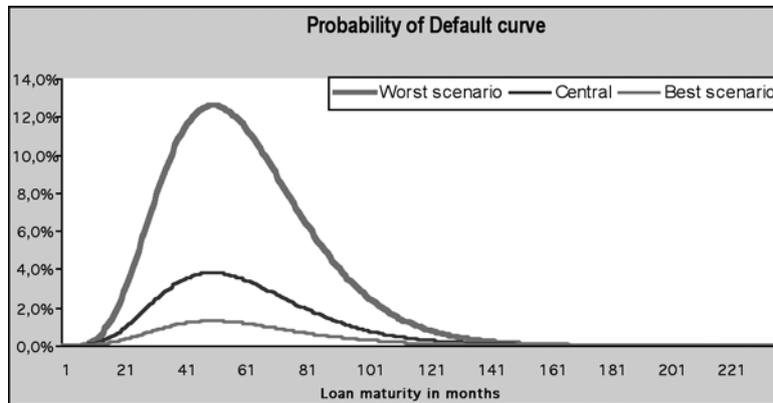
¹⁴Probability of Default (PD): the probability in percentage terms that an exposure will fall into default. Loss Given Default (LGD): the magnitude of likely loss on the exposure expressed as a percentage of the exposure. Exposure at Default (EAD): the amount expressed in relevant currency to which the bank is exposed at the time of default.

charging a fee means that CRC is no longer subsidized by the State, one of the key inputs in the model in determining this fee is actually the capital held by the CRC fund.

Since this initial capital is provided by the State (through FMV), a subsidy therefore still exists.

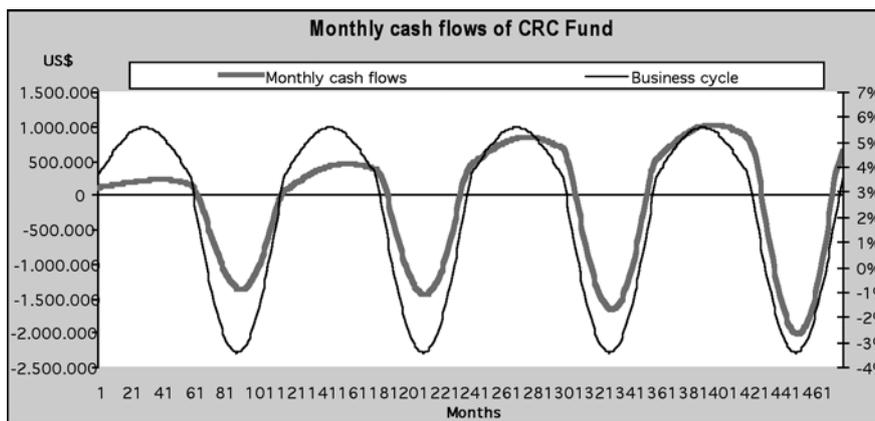
Box: Setting up the New FMV: Initial Capital Allocation to CRC Fund

The initial capital to be allocated to the CRC fund was determined using a default model which considered estimated exogenous and endogenous factors related to the business cycle and mortgage market, based on local historical data and experiences in other emerging market for an economic cycle of 10 years¹⁵. The delinquency probability distributions, associated to different moments in the cycle (since CRC payments are cyclical) were estimated using this information. The model estimated a stress scenario based on data taken from other crises in the region (eg Colombia in late nineties).



Additionally, two other important factors were considered to estimate the sustainability of the fund:

- The number of loans and volume per loan outstanding at each time (the higher the figure, the higher the cyclical behavior of the Fund and the higher the losses in stress situations)
- Initial placement volume and number of credits granted monthly



Based on these inputs, the solvency of the fund was estimated assuming an initial capital and the inflow from fees paid by the IFIs for the CRC. The CRC Fund's initial capital needs were determined in order to ensure that the fund could face CRC payments at the low points of the economic cycle (cyclical behavior of CRC payments), as well as deal with stress situations that would lead to an "AAA" rating.

¹⁵The main cycle and placement variables considered are based on an economic growth trend of 2%; a mean default probability of 22%; a 90% Loan to Value, and a 55% rate of recovery; with recovery expenses up to 15% of the house price.

The Premium for Good Payment (PBP) has also been reduced under this new scheme, from 20% to 15%. As is the case with CRC, the maturity of the loan has also been taken into account when calculating the fee to be paid by the financial institution (and transferred to the consumer). Even though the PBP does not require a subsidy, FMV will maintain a partial and temporal subsidy, in order to avoid a possible slowdown of the mortgage market. FMV will therefore only subsidize the PBP of loans denominated in local currency and with a 20 year maturity that will not be securitized, effectively decreasing the interest rate on these loans and therefore contributing to the process of dedollarization of the economy and decreasing the credit risk of borrowers who earn their income in soles and in most cases belong to the lowest income groups.

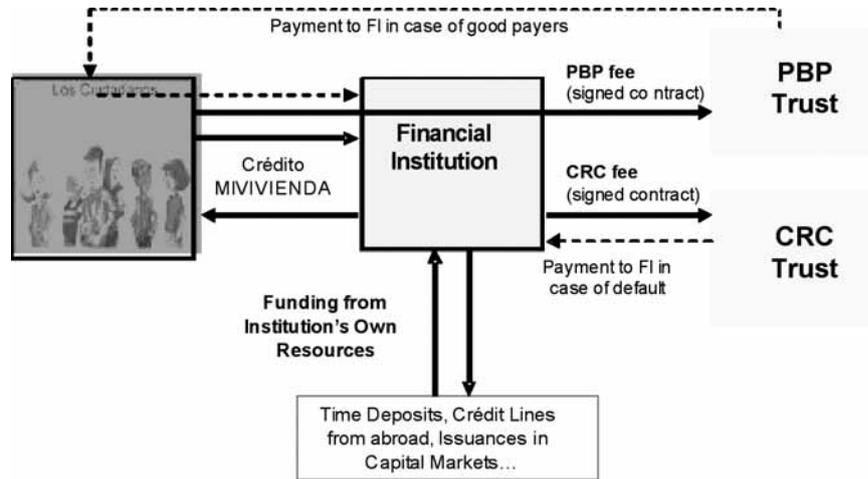
Product #2

Product N°2: Standardization and Financing of Mortgage Portfolios

Since FMV will not act as a second tier bank in this new phase, new problems may arise which this second product hopes to address. Larger banks will continue to have ready access to liquidity thanks to their expanding deposit base. Given a lower market share of deposits and insufficient ratings to tap the capital market, small and medium banks may face liquidity problems if they continue their current rate of expansion of mortgage activity. Further, they will be crowded out by larger institutions with the possibility of obtaining financing at much more advantageous rates.

In order to avoid this segmentation of the market, FMV has developed an alternative mechanism for those institutions that are not well-capitalized and lack the capacity to attract low-cost long-term funding on their own to support mortgage lending growth. In Product 2, FMV will provide credit enhancements to securitization of MIVIVIENDA loans, based on a specifically designed financial model that determines initial capital required to face different stress scenarios and thus reduces the financial

Product 1: CRC and PBP

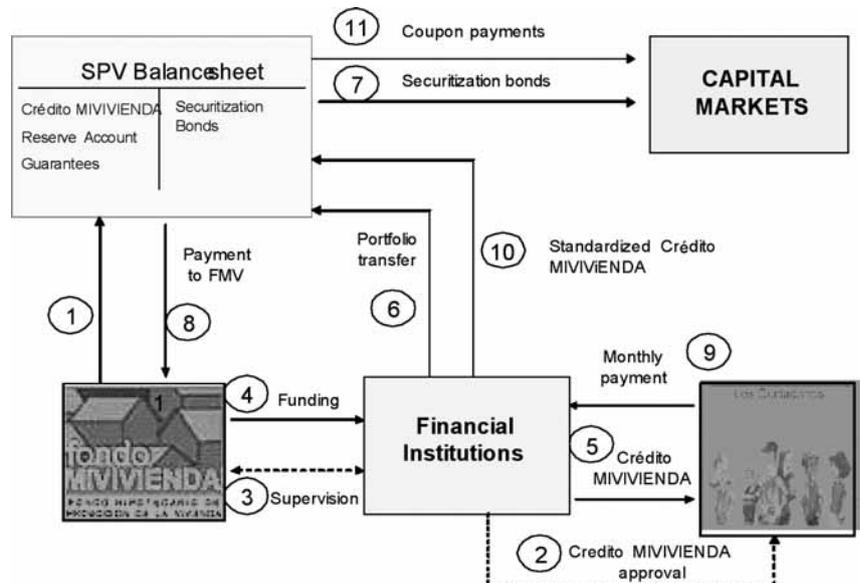


cost of process, making it a viable and attractive option for medium and small banks.

In order to ensure the viability of the operation, a high degree of standardization of the portfolio is required. The MIVIVIENDA loans to be transferred to the securitization fund must conform to origination and servicing standards and criteria set by the

Manual de Origenación y Administración de Créditos MIVIVIENDA Estandarizados (Origination and Servicing Manual for Standardized Créditos MIVIVIENDA), which has been contrasted with international experts and credit rating agencies and distributed by the FMV to all financial institutions interested in Product 2. FMV will be responsible for supervising the institutions' abidance to the manual.

Product 2: Securitization of Standardized MIVIVIENDA Loans



6. Main Conclusions

Given their recent implementation, the impact of the new products on the mortgage market is yet to be seen. Under this revised new scheme, FMV should effectively mobilize private sector capital for middle and low-income housing, ensuring the sustainability of the Program for as long as it is needed and with only a relatively limited subsidy from the State that ensures market-driven incentives and efficiencies. It is expected that large banks will make use of only Product 1, resorting to their own funding (expanding deposit base and direct issues to the capital market) to finance loans but contracting PBP and CRC in order to reap the benefits of the subsidies and maintain the popular MIVIVIENDA product in their portfolio. Medium and small financial institutions, for their part, are expected to contract both Product 1 and Product 2, although progress in this area has been slow and further revision of the Program may be required to facilitate the implementation of Product 2.

The current low levels of banking utilization and the expected rise in income levels as a result of economic growth, combined with increasing construction activity and huge housing needs, point to the enormous potential of the Peruvian mortgage market in coming years. Through its new products, FMV would not only continue to sustain further improvement in medium and low income households' access to housing while continuing to promote the involvement of the private sector as it has until now. It would also contribute to the funding needs of separate market segments, to an increased usage of the Nuevo Sol in place of the U.S. dollar, to fostering further development of the capital market, and to a greater variety in the sources of funding for financial institutions, as well as in investment options for institutional investors. The task now at hand is not only to consolidate the creation of this secondary mortgage market through FMV's new products, but to continue moving down market and develop additional mechanisms directed to improving access to housing for the lowest income groups in Peru.



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