

## Risks in higher loan-to-value ratios of housing

*Considerable changes have taken place in housing finance arrangements in Iceland recently. Mortgage loan amounts have increased, interest rates have been reduced and the loans provided by banks are now similar to those from the Housing Financing Fund. The following article discusses the consequences of these changes for the finances of borrowers and deposit institutions, and their impact on financial stability.*

The state Housing Financing Fund (HFF) has been the largest provider of mortgage loans to homebuyers after taking over from the old State Housing Authority. Other major lenders in this field have been the pension funds and deposit institutions. Until recently, HFF loans have carried a maximum loan-to-value ratio of 60-70% (relative to official valuations by the Land Registry of Iceland) as well as a cap on the loan amount. Since pension funds have imposed similarly strict rules on qualification for mortgage, homebuyers have not been able to borrow from them to top up their state loan to the full price of housing, except by securing the new loan with other collateral.

A major change took place in housing market arrangements in the second half of 2004. The banks began offering long-term mortgage loans and now lend up to 100% of market price. The HFF raised its loan-to-value ratio to 90%. Most Icelandic mortgage loans are in annuity format, indexed against the CPI. Each instalment is divided into interest since the preceding due date and a loan repayment. Thus the interest is loaded towards the front end of the loan and decreases proportionally as the residual balance goes down. There are minor differences in the conditions set by credit institutions.<sup>2</sup> All offer mortgages with a maturity of up to 40 years carrying a 4.15% interest rate with price indexation. Those offering a loan-to-value ratio of up to 100% of market price impose certain stricter conditions for the highest loans, but the following discussion will be restricted to a 90% ratio. With a real rate of interest of 4.15% and a maturity of 40 years, the combined real value of interest and repayments will be just over double the original loan amount.

### **Mortgage loans in other countries**

Iceland's mortgage loan market has several quite different features from those in most other countries with comparable living standards. Real interest rates in Iceland are higher, maturities are longer and loans are price-indexed. Uncertainty about price developments decades ahead makes it virtually impossible to negotiate a satisfactory mortgage term for wage-earners which will give the borrower and lender a reasonable idea of the real repayment value, except either

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2. See Appendix 4, Economic and monetary developments and prospects, *Monetary Bulletin* 2005/1.

with price indexation or with variable interest rates of some kind, which is the norm in OECD countries. A common loan term there is 15-30 years.<sup>3</sup> In the euro area, average fixed interest rates for the first 5-10 years of a mortgage were just under 5% in 2004 (European Central Bank, 2005). Annual euro area inflation has been about 2%, so real interest rates are just under 3%. The loan-to-(market) value ratio in Iceland is somewhat higher than the OECD norm, although parallels are found.<sup>4</sup>

Table 1 shows annual debt service on a 10 m.kr. loan relative to interest rates, inflation and term in Iceland and the euro area.

**Table 1 Annual instalments on a 10 m.kr. loan in Iceland and the euro area**

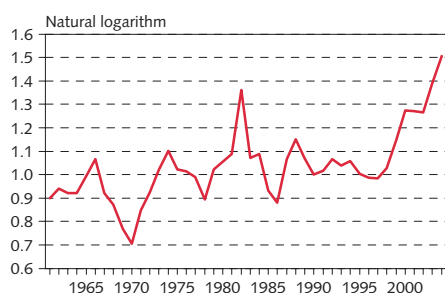
	Interest rate (%)	Loan term (years)	Annual instalments (thousand kr.)
Iceland, indexed	4.15	40	517
Iceland, non-indexed	8.32	40	867
Euro area, indexed	2.8	30	497
Euro area, non-indexed	4.8	30	636

Since indexed mortgage loans in Iceland carry 4.15% interest, the corresponding nominal rate in real terms with 4% inflation would be 8.32%. Nominal mortgage rates in the euro area averaged 4.8% in 2004 and inflation 2%, corresponding to a real interest rate of 2.8%. Annual instalments on indexed loans increase in pace with inflation, but remain unchanged in nominal terms for non-indexed loans. For a given real interest rate and inflation rate, annual instalments are therefore higher for non-indexed loans than for indexed loans at the front end, then reach a point where debt service on them is lower. Based on the above inflation assumptions, the annual instalment on an indexed loan will be broadly the same as on a non-indexed loan after 13 years in Iceland, but after 12 years in the euro area.

Real house prices in Iceland since 1960 are shown in Chart 1.<sup>5</sup> The data show an upward trend of around 0.7% annually. Various economic explanations for this trend can be proposed but their relevance is more difficult to ascertain and will not be examined here. An upward trend is common in OECD real house prices over this period.<sup>6</sup> However, this is not a universal rule, since some countries show no sign of it and in others it may depend on the choice of model used to assess whether the trend is statistically significant.

One technical reason for the upward trend should be mentioned. The housing price index measures price per square metre of sold housing. Part of the trend shown by the index is caused by gradually

**Chart 1**  
Real house prices in condominiums in the Greater Reykjavík Area 1961-2004<sup>1</sup>



1. The scale on the Y-axis is a natural logarithm (1% change = approximately 0.01).  
Sources: Land Registry of Iceland, Statistics Iceland, Central Bank of Iceland.

3. Catte et al. (2004), Table 3, shows typical loan terms in 20 OECD countries. Iceland is not included.  
4. Catte et al. (2004), Table 3, shows the maximum loan-to-value ratio in 16 OECD countries. It is 80% in 9 countries and higher in the others.  
5. Calculated as the ratio between the housing price index and CPI.  
6. Girouard and Blöndal (2001), Figure 1, shows real house price developments 1970-2000 in 16 OECD countries. Iceland is not included.

increasing quality of the housing that it measures and therefore does not apply to price developments of individual properties.

The standard deviation for trend-adjusted data is around 11%. This is the average price in sales contracts for each year, so it is less volatile than the price of individual dwellings.

Iceland has experienced major changes in both the inflation rate and the credit market structure over the period covered by these data, which diminishes their predictive value. However, a similar degree of volatility to that shown in Chart 1 was common over the same period in countries where price developments and lending arrangements were completely different and closer in line with the current situation in Iceland.<sup>7</sup> This warrants an examination of the consequences that changed mortgage loan arrangements will have, assuming that real house prices continue to fluctuate on the scale experienced hitherto.

### Changes in residual balance of loans and real house prices

Chart 2 shows the residual balance of indexed loans and interest due before payment of instalments for loans with an original value of 90% of market price. Two examples of loans are shown, with respective terms of 25 and 40 years and carrying 4.15% interest. The chart shows that the debt is still equivalent to 80% of the original market price 10 years after a 40-year loan is taken. Relative to the current value of the property bought for the loan, the ratio is even higher. Housing depreciates in value and the Land Registry<sup>8</sup> calculates a factor of 1% p.a. for the first ten years after construction and 0.3% for older housing. It takes 12 years until the residual balance on a 40-year loan has decreased to 80% of house value when an instalment is paid, assuming an 0.3% annual rate of depreciation. This calculation does not incorporate the real house price trend, which if it is positive lowers the ratio of residual balance to house value.

According to the Central Bank housing finance report (2004), simple time series models do not fit the series in Chart 1 perfectly and the characteristics of the series are unlikely to remain unchanged for the next 40 years. Nonetheless, the chart gives a fair idea of how the probability of house mortgage equity turning negative would be affected by raising the loan-to-value ratio from 70% to 90%.

Based on the series in Chart 1, only those who bought housing in 1966 and 1982 experienced a period of negative mortgage equity on a 70% loan. This happened in 1970 for those who bought housing in 1966, and in 1985 and 1986 for buyers in 1982. However, a large proportion of homebuyers with a 90% loan-to-value ratio would have seen their mortgage equity turn negative, sometimes for several years. Clearly, even if house price volatility diminishes in the coming years, a period is likely to occur when those who bought housing over the past decade or even earlier with a 90% loan-to-value ratio will experience negative equity. Such spells could last much longer than one or two years.

Chart 2

Indexed residual balance and interest due as a % of original purchase price

Based on a 90% loan-to-value ratio with a real interest rate of 4.15% and terms of 25 years and 40 years



7. Girouard and Blöndal (2001), Figure 1.

8. See the Land Registry website, [www.fmr.is](http://www.fmr.is).

Judging from the description of the mortgage markets in OECD countries given in Catte et al. (2004) and Girouard and Blöndal (2001), the risk of negative equity appears to be considerably higher in Iceland than in most of the OECD, where the maximum loan-to-value ratio is commonly 80%. Furthermore, the proportion of residual balance to house price also falls more quickly in those countries than in Iceland, due to their shorter loan terms and the erosion of the real value of non-indexed loans by inflation.

### **Borrowers' debt burden**

Even though the 90% loan-to-value ratio is a recent innovation in Icelandic housing finance, there is nothing new about some homebuyers being so highly mortgaged. It has naturally been quite common for first-time buyers not to have the balance between an HFF mortgage loan and the full house price. (From the trends in Chart 2 this can also be expected to have applied to some buyers who changed housing after 5-10 years). This gap has been bridged by loans secured with collateral in other properties or by third-party guarantees. Bridge loans have generally carried higher interest rates and been for shorter terms than state mortgage loans. Converting them to the same format as public lending system loans will ease debt service. Presumably, however, the availability of a loan-to-value ratio of 90-100% will lead to an increase in the amount of housing with zero or negative equity. Easier access to credit will encourage people to move on to the housing ladder earlier and buy more expensive housing. The changes have thus induced factors that ought to ease homebuyers' debt service capacity and others that squeeze it. Little is known about the scale of the impacts mentioned here and data are not available to assess them.

Even if mortgage equity turns negative for some while, it will not seriously affect an owner-occupier who plans to continue to own the housing and can afford to meet the repayments on it, although he will not be able to use it as collateral to secure more credit. However, borrowers in liquidity difficulties who owe more than their housing is worth are differently placed, depending upon whether the debt is secured entirely against the housing itself or whether part is secured with other collateral. If the loans secured against the housing are less than its market price, the owner can sell it and move to rented accommodation or buy somewhere cheaper and withdraw mortgage equity to restore his liquidity. Chart 1 indicates empirically that doing so would often have sufficed to bridge the gap until the next economic upswing. Such a recourse is not available to a homebuyer who is in liquidity difficulties and has negative mortgage equity. Labour mobility is also impaired if housing cannot be sold because it is overmortgaged.

### **Lender risk**

Research by the University of Iceland Institute of Economic Studies (2003) and Central Bank of Iceland (2004) shows a strong correlation between general wage developments and housing prices. A relatively high proportion of homebuyers are therefore likely to encounter re-

payment problems when real house prices turn downwards. It is worth examining what effect a 90% loan-to-value ratio would have on the position of banks in such a scenario.

Iceland's credit market is in the process of major changes besides higher loan-to-value ratios. Household debt remained very low when lending was not price-indexed and amounted to 26% of disposable income in 1980. It had risen to 83% in 1990 and 89% in 2000, and the outlook is that household debt was equivalent to 188% of disposable income in 2004. Interest payments alone therefore consume a fairly large share of disposable income. There is every reason to assume that a substantial contraction in real income would drive debt delinquency by wage-earners to a level that is unparalleled in previous contractions. While it is uncertain how large a share of mortgage loans will ultimately shift from the state housing credit system to deposit institutions, their share in total household credit has already clearly soared.

In a reasonable or good economic climate, some households will still end up in liquidity difficulties and the most suitable action for a deposit institution may be to repossess. The situation is different in the case of economy-wide illiquidity. At such times, housing prices can be expected to drop and housing market activity to shrink. If deposit institutions then repossess and spur housing sales to any degree, this could bring down housing prices even further. The main recourse available to deposit institutions under such circumstances would be to extend the loan term. An obstacle to this option, however, is that the business sector, their other main customer group, would presumably be in difficulties at the same time.

As mentioned earlier, it is not certain that raising the loan-to-value ratio to 90% will increase mortgage delinquency. But a borrower facing tight liquidity is better placed with a lower loan-to-value ratio, and so is the lender. It is easier to defer payment or top up a loan for a borrower whose assets are not fully mortgaged. And when part of the debt is secured with a third-party guarantee or collateral, the owners of that asset are likely to help to ensure that debt service is met.

From a financial stability perspective, it is undesirable to provide mortgages with a loan-to-value ratio above 70-80%, due to the problems that may arise in the event of mass delinquency by owners of overmortgaged assets during an economic contraction. Third-party guarantees of loans are not an ideal solution, although they may have benefits for homebuyers and lenders. Preferably the principle ought to be for homebuyers to pay a rather higher proportion of housing transactions with own savings. For this to happen, interest terms and rental housing market conditions would be required that make it more economical to rent and save part of the cost of a dwelling than to take a higher loan to buy it. From the viewpoint of credit institutions it would be natural to add a risk premium to interest rates for the highest loan-to-value ratios. This would encourage prospective first-time buyers to save in advance, but would admittedly also increase the share of loans with third-party guarantees. The deposit institutions' scope for pricing their loans to match the risk is none-

theless restricted by the HFF's credit terms; the recent upheavals in the mortgage loan market are the result of competition to win borrowers. One productive measure might be to channel saving systematically into this area, e.g. with something akin to the old compulsory savings system or to the supplementary pension savings schemes that are now part of general wage terms. However, neither option would be suitable in unchanged form.

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