

# Research Sweden

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## Home Precious Home

- The one-off effect of the transition from an accommodative, high inflation and high interest rate monetary policy regime prior to the early 1990s to the current inflation-targeting low interest rate regime had a huge “discount factor” effect on the real estate market that has now come to an end.
- High loan-to-value ratios among first-time buyers and higher interest rates combined with negative real income growth is a poisonous cocktail for the housing market. Swedish home prices could be headed for a fall!
- A discontinuation of home price increases, or even a price decline, will reduce home equity withdrawal among Swedish homeowners. This may have a significant effect on consumption and construction investment in the Swedish economy.
- Lower house prices would, *ceteris paribus*, be a negative factor for mortgage bonds, as the collateral pool would deteriorate. However, we must also point out that Swedish covered bonds have already suffered significantly during this financial crisis and are fundamentally undervalued.

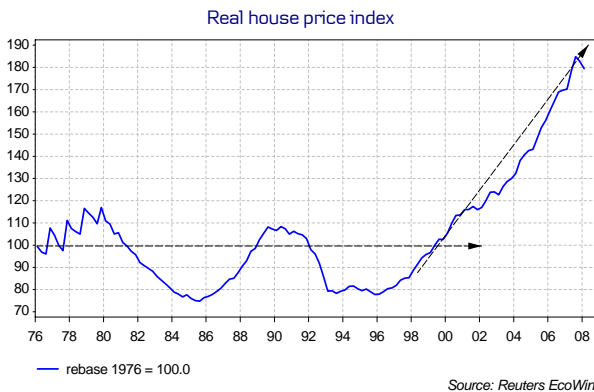
### One-off effect has evaporated

Some six months ago we laid out the case for a severe drag on consumption from stalling house prices and tighter credit. The gist of our argument then was that the surge in home prices in the last 12 years was the result of a one-time change in monetary policy in the early 1990s. This surge now appears to have come to an end.

As the new monetary policy was established, with a credible, low inflation target, rates plummeted to between a half and a third of what they had been. As a consequence, fixed assets, such as real estate, have doubled or tripled in value. A lower discount factor had quite simply led to a higher price. Or, put in another way, prospective homebuyers could afford a twice or three times as expensive a house with the same sum of mortgage payments.

Thus a 170% increase in housing prices was possible mainly because the mortgage costs for homeowners remained fairly stable. (In fact, there was even an occasional drop in mortgage costs when rates hit rock bottom in 2005.)

It is worth pointing out here the difference between an increase in prices and an increase in value. The price increase during the past 12 years has been a real surge in value (i.e. wealth among homeowners), as opposed to previous episodes of price increases, which by and large generally matched inflation and thus created no extra value.

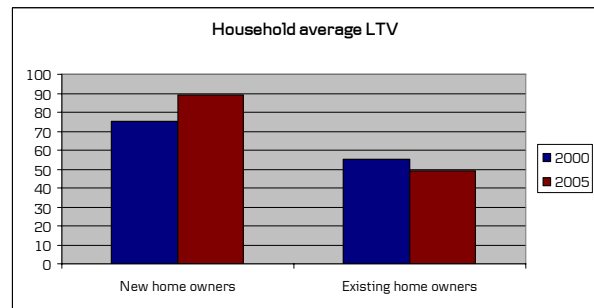


Those citizens lucky enough to have owned a home during the period 1996-2007 thus saw their wealth swell enormously. They received an effortless windfall that can only be described as winning the jackpot in life's lottery. With such new-found fortunes on their hands, it was only rational that homeowners sought to allocate their means in more optimal way.

After all, having almost all of one's wealth tied up in a single asset at the same as often being quite liquidity constrained is hardly a utility-maximising strategy. Better then to balance one's consumption and wealth by withdrawing home equity and putting the money to more rewarding use, such as home improvements and increased consumption.

Available statistics corroborate this notion. In 2000, the average loan-to-value ratio (LTV) among existing homeowners was 55%. This figure declined to 49% by 2005. Taken at face value this may appear as a consolidation among Swedish homeowners. However, home prices rose by 60% over the same period, so there was, in fact, a very considerable extraction of home equity. And indeed, it does seem as if investments in home improvements and the consumption of capital goods have increased disproportionately in Sweden.

New entrants into the housing market have, of course, been forced to take on a great deal of debt in order to purchase a home. The average LTV ratio among new homeowners rose from 75% in 2000 to 89% in 2005. This figure has most likely risen further since 2005, as house prices have added another 20% whereas disposable income has only risen by 6.5%.

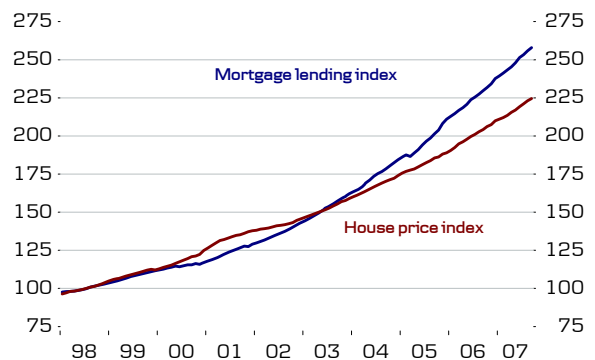


The huge increase in debt among Swedish households is also demonstrated by the fact that lending has risen in lockstep with - or at an even higher pace than - house prices. This may, of course, seem natural at first glance. If you have to buy a more expensive house, you have to borrow more money.

While this is true, it is mostly the case for new entrants (estimated at 3% per year) to the housing market. Existing homeowners, who make up the vast bulk of borrowers, do not have to take on that much more debt on an aggregated level (although it may be rational to do so from an asset allocation perspective).

The number moving from cheaper to more expensive homes should largely be matched by those who do the opposite. The residual would be new homes - but the stock of single family houses has only grown by 0.5% y/y in the past few years - and the difference between additional borrowing among people who move to more expensive homes and the repaid debt by those who leave the housing market or move into a cheaper home.

The increase in lending not only matching, but even exceeding, the increase in house prices strongly indicates widespread home equity extraction by existing homeowners that has contributed to investment and consumption growth.



## The marginal price is the price

So, let us restate a couple things here:

First of all, house prices have risen mainly due to a one-time effect on interest rates. This effect has affected house prices with a rather long lag, since home prices are inert, but has now most likely come to an end. In fact, one could even argue that there is a risk of “extrapolation bias”. By this we mean the risk that a long-term trend (some 12 years) has come to be perceived as a permanent feature by some members of the general public, which in turn has spawned overly optimistic price expectations and thus led to an “overshooting effect” in prices.

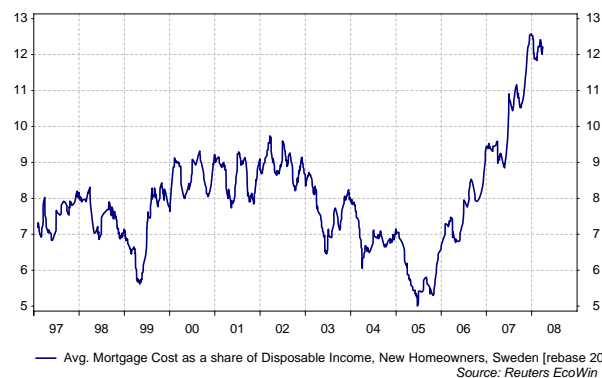
Second of all, the fact that the distribution of LTV ratios between existing and new homeowners has become more extreme could spell trouble. Previously, the distribution was more concentrated (smaller difference between average existing homeowner and new homeowner), but as prices have increased existing homeowners have seen their LTV ratios shrink (prices have risen faster than debt), whereas new homeowners have been forced into more serious debt and dangerously high LTV ratios. The tails in the distribution curve have become fatter.

Why is this important? We believe it is very relevant for the simple reason that the price of a good (e.g. a home) is set by the marginal price. The marginal price, in turn, is likely to be highly influenced by the marginal buyer. The large exposure to debt among the top LTV decile (mostly new homeowners) means that these homeowners are abnormally susceptible to changes in mortgage costs (and perhaps other inelastic expenses such as food and energy).

If it is the case that new homeowners have been important marginal buyers, then new homeowners are probably an important factor in price developments on the housing market. A shortfall of demand for houses among prospective new entrants (they'll just stay away from the owners' market) because of excessively high mortgage costs relative to disposable income, or, more drastically, the risk of foreclosure among highly debt-exposed homeowners who fail to meet their mortgage payments, could both lead to downward pressure on prices in the housing market.

## Households under pressure

To assess the risk of either of these two grim scenarios materialising we need to take a closer look at the ability of households to carry the cost of home ownership, particularly prospective new homeowners.



As it turns out, mortgage costs as a share of disposable income for new homeowners has soared to a level not seen since the early 1990s. The average level in the 1997-2006 period was 7.7%. In 2001, mortgage costs consumed 8.6% of disposable income among new homeowners. This share declined to 7.3% by 2006, but in the past two years it has surged to an estimated 13%, and is likely to rise to some 15% if the Riksbank continues to hike rates as laid out in the latest Monetary Policy Report. This means new homeowners have faced a doubling of mortgage costs over two years!

It seems to us that this very high cost level is likely to deter prospective new homebuyers and thus be a severe drag on demand for homeownership. Indeed, a fair share of those homeowners with an LTV in excess of 90% are likely to experience a significant reduction in purchasing power, as their mortgage costs have risen strongly.

Swedish mortgage borrowers have a very low duration in their loan portfolio by international standards. In other words, they have a rather high frequency of mortgage refinancing. Some 40% of all mortgage loans have a variable rate with a maturity of 3 months or less, and the remaining 60% of all mortgages have a fixed rate with an average duration of approximately 3 years.

In other words, some 20% of all fixed-rate mortgages are reset every year on top of the 40% variable-rate loans, giving a total yearly reset frequency around 60%. The implication of this high frequency of rate resetting is, of course, a high degree of sen-

sitivity to movements in short-term rates, in particular.

The obvious question we must ask ourselves is whether or not some households will be unable to meet their mortgage payments and be forced into foreclosure? Such a scenario is very drastic from a Swedish perspective. In the last major real estate crisis, house prices fell by 20%, but there were hardly any foreclosures or credit losses among mortgage credit institutions. Thus, one should be careful not to read a US-style crisis into the Swedish data.

However, we must also admit that debt volumes (outright as well as share of disposable income) are far greater than at any time previously. Moreover, high LTV borrowers now make up a comparatively large share of all borrowers, which is a real risk, as the number of “marginal borrowers” increases the risk of negative house price pressure.

The current composition of inflation being heavily tilted towards inelastic goods, such as food and energy (besides mortgage costs), is an added source of distress.

Even though we have no statistical evidence – there is really none to be found – we believe it is a reasonable hypothesis to assume that the very same households that are first-time buyers in the home market also are households with a large weight of not only mortgage costs, but also food and possibly energy costs in their consumption baskets. Such households currently face what amounts to the worst of all worlds, and they are likely to experience depressed real disposable income developments that lower their purchasing power further and increase the risk of default.

So, how big is the risk of a housing bear market? As the ability to pay a mortgage is basically dependent on three factors: disposable income, mortgage rates and house prices, we can perform a back-of-the-envelope calculation to estimate how things must change to get the mortgage cost share of disposable income for first-time buyers back to “normal” at around 8%.

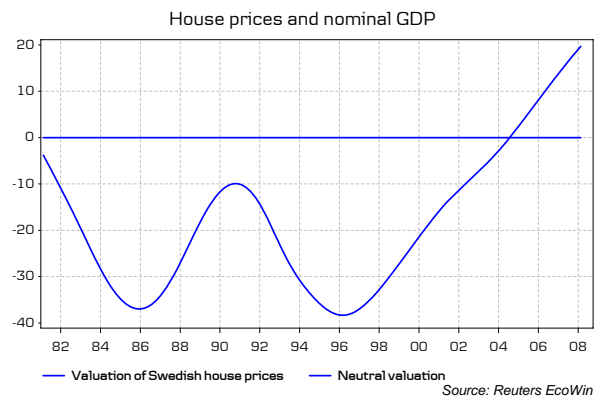
Either disposable incomes have to rise, or mortgage rates come down, or home prices come down. Assuming unchanged disposable incomes and unchanged mortgage rates, it would take a home price depreciation of more than 40% to bring the mortgage cost share of disposable income for new

homebuyers into line with the 1997-2006 average! Add to that the risk that marginal high-LTV-borrowers probably constitute a fairly substantial risk to prices, and the picture is not very rosy.

Admittedly, this is a very simplified way of looking at the market and it probably indicates an excessive decline. Further, there are a number of caveats to take into consideration. For instance, the fact that property taxation has been modified, and that the 1997-2006 period probably represented an unusually low cost share (hence the continuous price appreciation).

An alternative, albeit simple, way of looking at current house prices, would be to calculate the deviation of house prices from developments in nominal GDP. Housing as a share of GDP should remain fairly constant over time, and should it digress markedly in one way or another it is likely to be a sign of under- or overvaluation.

In the graph below we have set the neutral value to zero (i.e. no under- or overvaluation). A number above zero indicates overvaluation in percent. The current number indicates an overvaluation of around 20%.



We readily acknowledge that any estimate of overvaluation is a tricky business, and are wary of attaching a number to a possible drop in prices. However, we do feel that the ongoing negative pressure on real disposable incomes and increasing interest rates and credit tightness pose serious risks to home prices going forward.

## Swedish mortgage bonds

One risk that deserves closer attention is the, from an international perspective, very low rate of amortisation among Swedish homeowners. According to the Financial Supervisory Authority (FSA) in Sweden, the average amortisation period for a one-family house is 80 years, and for a co-op apartments 133 years. Moreover, looking at new loans, the actual amortisation period for one-family houses is 102 years and for co-op apartments 186 years!

This compares with the planned amortisation period of 37 years, on average. The difference between the planned and the actual amortisation periods is due to the prevalence of interest-only loans. The share of interest-only loans is estimated to be 65% for one-family houses and 85% for co-op apartments. For new loans, the interest-only share is 80% and 90%, respectively.

The very high prevalence of interest-only loans could prove an important risk to house prices. According to the FSA's calculations, a change in household amortisation habits from the current very low actual amortisation to an amortisation rate according to plan would entail an increase in monthly outlays for the average homeowner equaling a mortgage rate increase of 230bp. Surely such a change in amortisation habits would put significant downward pressure on home prices.

But why might mortgage lenders demand a higher rate of amortisation from their borrowers? An obvious reason would be to prop up their collateral pool in case home prices start to fall. To demand a higher degree of amortisation is an apparent first measure for mortgage lenders to counteract a rising LTV in the mortgage lenders' pool of collateral due to falling home prices.

However, such a measure could also have a detrimental effect on home prices, which would entail even higher demands for amortisation and even lower home price. In other words, there is a risk of snowballing.

In this context it is worth stressing that Swedish mortgage credit institutions have a very low average LTV in their loan portfolios: it is probably below 50%. Furthermore, covered bond collateral is pooled in Sweden, so even a, say, 20% decline in house prices would still mean that mortgage credit

institutions would easily qualify for the 75% LTV limit.

As a case in point, the mortgage institute Spintab recently published stress test results that showed that a 20% decline in house prices would only raise its LTV ratio from 42% to 52%. Moreover, no less than 93% of the houses in the Spintab covered bond collateral pool had an LTV below 60%.

As long as mortgage borrowers are able to meet their payments, insolvency for a small share of borrowers may not pose such a huge threat to mortgage credit institutions.

Looking at other markets in Europe with troubled housing markets, we can ascertain that Swedish covered bonds in many ways have more benevolent conditions.

	Sweden	Ireland	Spain	France
Average LTV (%)	45-50	35-40	55	50
Domestic ownership (%)	80	25	5-10	50-75
Market size (bn EUR)	90	12	215	177

All four markets listed above have solid LTV ratios in their collateral pools, but the Swedish SEK-denominated market is also characterised by a very strong base of domestic ownership, which should lend support to Swedish mortgage bonds compared to Irish and Spanish mortgage bonds.

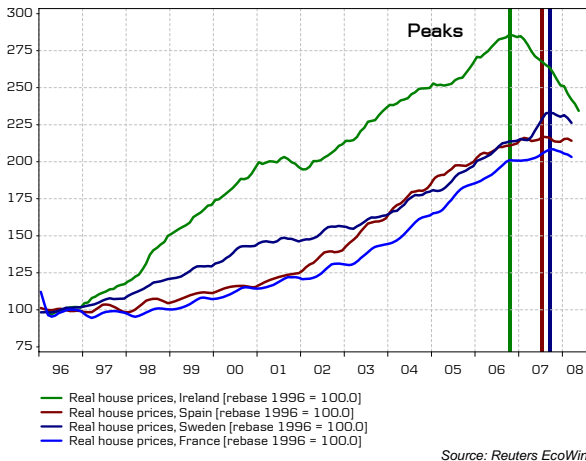
Furthermore, Swedish legislation is very favourable for financial institutions, and the execution process in seizing or foreclosing property is very efficient by international standards. In addition, Swedish mortgage institutions have access to very extensive registers of property valuations and credit scores among prospective borrowers. In other words, Swedish mortgage institutions have a comparatively firm control and grasp of both asset quality and the financial strength of borrowers, which is positive for Swedish mortgage bonds.

Admittedly, Sweden lags Ireland and Spain as far as house price developments are concerned, and this may be perceived as an indication that Swedish covered bond swap spreads will follow suit once house prices go down. But, on the other hand we also note that the Swedish and the French house markets peaked at the same time and are both declining at a similar pace, and French covered bonds have so far fared comparatively very well.

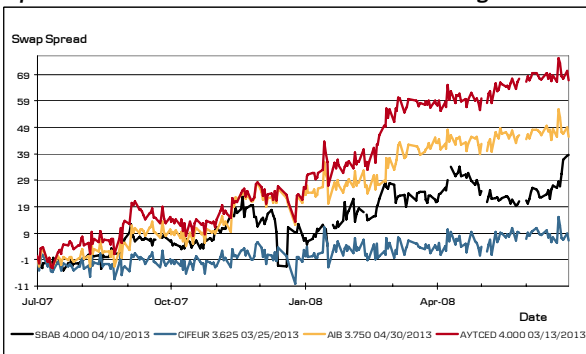
Moreover, we should also remind ourselves that any outright movement in mortgage spreads to

swaps or government bonds is very susceptible to general market conditions not directly related to Swedish circumstances. This is very clearly demonstrated by the underperformance of covered bonds due to the financial crisis that is raging.

**Real house prices have turned downwards**



**Spain and Ireland suffer from weak housing markets**



Thus, while we must recognise that, *ceteris paribus*, a weaker collateral pool (lower house prices) is a negative risk factor for covered bonds, we do not see a huge risk for Swedish covered bonds going forward. We should remind ourselves that current pricing is already very cheap, and that covered bonds by any reasonable standard must be deemed fundamentally undervalued from a long-term perspective.

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