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# Foreclosures in the United States and financial institutions' losses



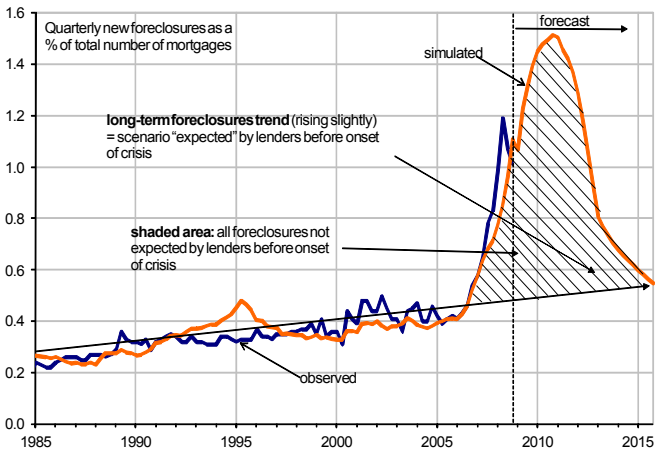
- The rate of mortgage defaults by American households began rising rapidly in summer 2006, precipitating first the property crisis, and then the financial crisis starting in summer 2007. The number of foreclosures has gone on rising since that time, one effect of which has been to depress house prices. Uncertainty over the total number of future foreclosures, meanwhile, is preventing financial institutions from understanding the scale and distribution of their losses, thus feeding the climate of distrust that is hindering the distribution of credit to the economy.

- To understand the past behaviour of foreclosure rates and predict their future development, this is modelled as a function of its macroeconomic determinants, i.e. house prices, interest rates, unemployment, and an indicator of loan "quality". That is because the chief cause of the increase in foreclosures between 2006 and 2008 was the easing of lending criteria by lenders, especially via the distribution of what are known as subprime loans.

- Foreclosures are set to go on rising until 2010 or even 2011, mainly as a result of falling house prices, as many households find themselves in a situation of negative equity (i.e. their house is worth less than the outstanding portion of their mortgage). This increases their propensity to default, particularly in states such as California, where they can walk away from their home without having to repay the rest of their loan.

- Altogether, an estimated 17 million homes will have been foreclosed between the onset of the crisis in 2006 and the return to normal in 2015, incurring losses to American financial institutions in the region of $1,150 billion, this estimate being very close to that of the IMF.

**Foreclosures in the United States**




*Source: MBA, DGTPE calculations*

DGTPE
DIRECTION GÉNÉRALE DU TRÉSOR ET DE LA POLITIQUE ÉCONOMIQUE

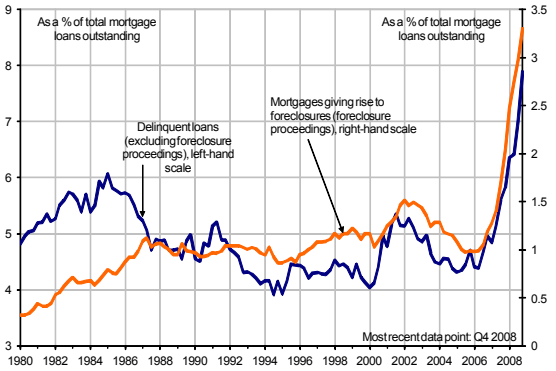
## 1. The rate of new foreclosures has practically tripled since mid-2006, before stabilising in the second half of 2008 - though probably temporarily

### 1.1 The rate of new foreclosures appears to be the most accurate indicator for estimating the losses of financial institutions

The Mortgage Bankers Association (MBA) publishes detailed quarterly statistics of the number of mortgages:

- in default, which means for which the borrower is in arrears (a distinction is made between loans that are more than 90 days, more than 60 days, more than 30 days, and less than 30 days past due);
- for which a foreclosure proceeding is in progress (see chart 1);

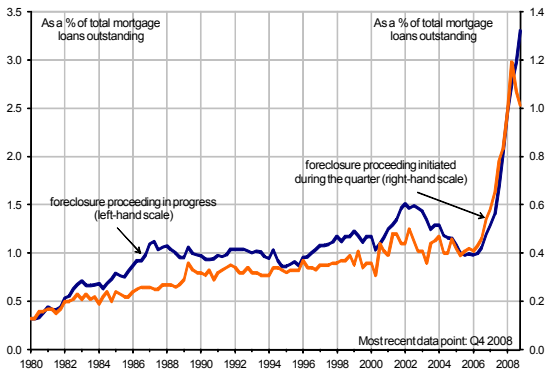
**Chart 1: Mortgage default rates in the United States**




*Sources: MBA*

- for which a foreclosure proceeding was initiated in the course of the quarter (see chart 2).

**Chart 2: Mortgage foreclosure rate**




*Sources: MBA*

This last item seems best capable of forecasting lenders' final losses. For not all payment defaults end in foreclosure. Yet ultimately it is foreclosures that entail the bulk of losses for lenders: in a foreclosure proceeding, it is estimated that the lender recovers between 40 and 60% of the amount owed, on average[1]. Conversely, in the case of a delinquency, the losses remain circumscribed if instalments are subsequently resumed. Moreover, by looking at the number of new foreclosures initiated in the course of a quarter and not at the number of foreclosures in progress during the quarter, we can be sure of counting each proceeding only once (each foreclosure proceeding takes between 2 and 3 quarters on average).

### 1.2 New foreclosures stabilised at a high level in the second half of 2008, but this stabilisation does not appear to amount to a trend reversal, being mainly due to specific factors such as regulatory changes in California and seasonal factors

The rate of new foreclosures has risen considerably since mid-2006, from 0.4% of all mortgages per quarter at the beginning of 2006 to 1.2% per quarter in mid-2008, a record high since the inception of the series in 1979.

The rate then subsequently dipped slightly between the 3rd and 4th quarters of 2008 (from 1.2% to 1.0% in Q4 2008), but this decline is not really significant:

- seasonally unadjusted data reflect a stagnation (at 1.1% between Q2 2008 and Q4 2008) and not a dip in the foreclosure rate;
- without a decline in foreclosures in California, the nationwide foreclosure rate would have continued to rise. The fall in California's foreclosure rate, from 1.8% in Q2 to 1.4% in Q4, can be accounted for by authorities' efforts, in particular the New California Foreclosure Prevention Legislation, which took effect at the beginning of September 2008, and which is aimed primarily at delaying foreclosure proceedings in order to allow time for loan renegotiation to take place.

### 1.3 Estimating losses caused by borrower defaults

In order to estimate lenders' final losses, the idea here is to compare the total number of foreclosures occurring between the onset of the housing crisis (which can be dated from mid-2006, when household defaults began rising rapidly) and its end (inasmuch as the date of this can be forecast), with the total number of foreclosures expected by lenders before the start of the crisis. This is because, if the foreclosure rate had followed the profile expected by lenders, these would not have sustained losses and would even have made a profit (which here we may consider to be negligible in relation to the scale of the actual losses).

Given the profile of new foreclosures since 1980, and given also the unforeseen nature of the rise in the number of foreclosures that began in 2006, it seems reasonable to assume that the profile expected by lenders for 2006 and subsequent years reflected a long-term rise in the foreclosure rate[2]. Indeed, according to the literature, the foreclosure rate has trended slightly upwards since the beginning of the 1980s, the most plausible explanation being an increase in the degree of risk households are prepared to countenance in managing their assets, with a greater tendency to take on debt than in the past[3].

(1) See for example "The Subprime Crisis: Size, Deleveraging and some Policy Options", A. Blundell-Wignall, *OECD Financial Market Trends, 2008*.

(2) From mid-2006 and the onset of the rise in foreclosure rate, lenders were in a position to expect larger losses on new mortgage lending. However, the quality of new loans made from that time on having improved significantly (the number of subprimes outstanding remained flat at around 6 million between mid-2006 and end-2007, before dropping to 5.3 million at the end of 2008), lenders had grounds for hoping that the default rate on these new loans would be consistent with historical experience.

(3) See in particular "The rising long-term trend of single-family mortgage foreclosure rates", P. Elmer and S. Seelig, FDIC *Working Paper no. 98-2, 1998*.

Other possible explanations might be the rising probability of events giving rise to defaults, such as divorce, personal bankruptcy resulting from gambling, etc., or again the increasing recourse to securitisation of mortgages, which tends to widen the distance between lender and borrower and reduces the likelihood of a renegotiation of loans in the event of payment difficulties. Assuming an increase at this long-term rate, the foreclosure rate would in fact have risen only very slightly over the period under consideration, from around 0.45% in 2006 to 0.50% in 2014.

Finally, we may estimate the total amount of financial institutions' losses as the number of foreclosures not expected by lenders multiplied by the average amount of the mortgage loans concerned[4] and by the rate of non-recovery of the debt when the house is sold. This rate represents the fraction of the loan ultimately recovered by the financial institution that forecloses a home, which can then resell it, after allowing for all of the expenses incurred in the foreclosure proceeding. This is generally estimated at between 40% and 60%, and the sharp drop in house prices in the United States since mid-2007 suggests that, for the current episode, it is likely to be at the low end of this range.

The next step is to forecast the trend in the foreclosure rate. For that, the first need is to ascertain its determinants, using an econometric model to analyse its past behaviour.

## 2. New foreclosure rates in the different states in the United States can be modelled according to their main determinants, which include house prices and loan "quality"

### 2.1 There are several obvious determinants of mortgage foreclosures, including:

- the frequency of life events such as death, health problems (especially for households uninsured for this type of risk), divorce or separation, personal bankruptcy resulting from gambling, or natural disasters;

In the model used here, these variables are captured in a rising trend that reflects all of the factors mentioned in 1.3, especially a greater willingness by households to take on risk in managing their assets[5].

- economic accidents, such as job loss, drop in income, or financial loss;

In this model, these variables are captured in the unemployment rate and in variations in households' financial wealth. Variations in wages or gross disposable income are not econometrically significant.

- house price variations, which bring assorted mechanisms into play depending on whether prices vary upwards or downwards:

  – when prices rise, a household experiencing difficulty with mortgage payments can hope to sell its home easily at a price exceeding the loan and thus repay the latter;

  – when prices fall, some households may find themselves in a negative equity situation (or "underwater"), meaning that the value of their asset is now less than the amount of the loan remaining to be repaid. In that case, some households may find it expedient to default on their mortgage, especially if the applicable legislation does not require them to repay the difference between the amount on the loan and the value of the home, as is the case in certain states that have enacted some form of "antideficiency" law (see below). The probability of being in a situation of negative equity is all the greater when lenders demand only a small initial down payment, or when easy payment terms apply in the early years of the loan, as was very much the case with the development of atypical loans in the United States in recent years[6].

In this model, this asymmetry between price rises and falls has been accounted for by estimating two coefficients (instead of just one) before house price variations: one when these variations have a positive sign, and the other when they have a negative sign. Next, two different coefficients have also been estimated before negative house price variations (negative equity situations): one for states that apply some form of antideficiency law (very sharply limiting the possibility for proceeding against defaulting borrowers), and the other for the other states. In the first group,

  – eight states (Alaska, Arizona, California, Minnesota, Montana, North Dakota, Oregon and Washington) applying a strict form of antideficiency law[7] : in these states, a defaulting borrower is not held liable for any difference between the amount remaining to be repaid and the amount recovered by the lender from the forced sale of the mortgaged asset;

  – six other states (Florida, Idaho, Nevada, New York, North Carolina and Utah), which also limit the rights of lenders seeking to recover this difference[8].

(4) It is worth noting that the average size of delinquent loans is probably slightly smaller than the average size of loans outstanding, since delinquent loans comprise a larger proportion of subprimes, which are generally smaller than the average loan. We have treated this difference as negligible here: by way of illustration, according to MBA figures, the average mortgage loan in 2005 was $224,000, versus €231,000 for conventional (i.e. prime) loans, and $200,000 for unconventional mortgages (this latter figure is not directly available, and we have therefore assumed that unconventional mortgages represented 25% of new loans in 2005, which appears to be consistent with trends in the number of loans outstanding).

(5) Total US household debt rose from around 50% of GDP in 1980 to nearly 100% in 2007, before declining slightly in 2008. This trend towards paying down debt, which appears to have begun in 2008, could slow, or even reverse, this long-term trend in the foreclosure rate. However, this study assumes that the trend continues to rise at its historical rate, both because rising indebtedness is probably not the only cause of this trend, and because the positive impact of debt reduction on households' financial situation is likely to take some time to materialise. Indeed, households' defaults on their mortgage loans probably account for a significant proportion of their debt reduction.

(6) Examples include "interest-only" loans, where the borrower pays only the interest on the loan (with no repayment of principal) for the first two or three years of the loan.

(7) See "Deficient judgements and borrower maintenance: theory and evidence", J. Harding, T. Miceli, C. Sirmans, *Journal of Housing Economics, December 2000.*

(8) Main sources: Heloc Basics and LandAmerica Single Source websites. There are numerous differences between the legislation in the different states, making any attempt at categorisation open to discussion. Moreover, the legislation of certain states may have evolved over time.

- variations in the interest charged on mortgage loans as well as house prices bring different mechanisms into play depending on whether one is dealing with rises or falls:

  – a rise in the interest rate pushes up the repayment instalments for households with variable rate mortgages;

  – a fall in the interest rate lets borrowers refinance their mortgage on favourable terms, lowering their risk of default and reducing repayment instalments for variable-rate borrowers;

In the model used here, the asymmetry between the mechanisms at play when rates rise or fall has been accounted for in the same way as for house prices, i.e. by estimating two coefficients before interest rates, namely one for positive variations, the other for negative ones[9].

At the aggregate level, variations in the foreclosure rate ought to be explainable by variations in these determinants, as well as by:

- fluctuations, if any, in the way lending institutions select borrowers. This is because looser lending standards lead more households at risk of default to obtain loans, thus subsequently pushing up the foreclosure rate;
- possible changes in legislation governing the mortgage market, or again possible efforts by the authorities to curb foreclosures (see part 4).

Importantly, unless we allow for this deteriorating loan quality it would be very difficult, a priori, to account for the rise in mortgage foreclosures between mid-2006 and mid-2007: during this period unemployment remained stable at a fairly low level; the incomes and wealth of American households rose vigorously; the rate of house price rises had abated, but they had not fallen; and interest rates on mortgage loans had varied little.

It therefore looks as if the poor quality of loans made in earlier years is sufficient in itself to account for the rise in the rate of new foreclosures from 0.4% in Q2 2006 to 0.8% in Q3 2007.

Loan quality is a variable that is extremely hard to measure at the aggregate level, especially since data regarding borrowers-such as their income, for example-is not made public. In our model, we have approximated fluctuations in lending criteria by the percentage of subprime loans in all loans outstanding[10], which notably has the advantage of being available for each state. As opposed to conventional, so-called prime loans, subprime loans are intended for households with a high default risk since they are unable to show evidence of a sufficient regular income or have a poor credit history[11]. In return for the greater risk taken on by the lender, a higher rate of interest is charged than for a conventional loan.

### 2.2 The availability of data for all 50 of the US states makes it possible to carry out a panel estimate for these 50 states

The panel approach offers the following advantages by comparison with a simple estimate on aggregated data:

– because house prices had never fallen nationwide between the 1930s and 2007, it seems impossible at first sight to quantify the impact on foreclosures of a price fall like the one that began in 2007. While prices did not fall at the aggregate level, they have experienced periods of decline in certain states (e.g. California in 1994, Massachusetts in the early 1990s, etc.). The panel estimate allows us to use the information supplied by these local price falls and thus gain better insight into the expected impact of price declines on foreclosures;

– in addition, the panel estimate allows us to distinguish between states applying some form of antideficiency law. In other states, as indeed in most countries in Europe, a borrower can be sued for the difference between the value of the home foreclosed and the amount due in respect of the loan if that difference is negative;

– it also serves to allow more effectively for the impact of exceptional shocks confined to certain regions, e.g. the rise in foreclosures in the Gulf of Mexico states after Hurricane Katrina. Proxies have been used to ensure that shocks such as this do not distort the estimate's results;

– finally, using information available for each state refines the regression and makes it more statistically robust.

(9) It is worth noting that if the two coefficients estimated (for positive and negative variations) are different (as in the estimate presented below), the simulated foreclosure rate will depend not only on the level of the interest rate (or of house prices), but also on their volatility. Thus a "volatile" interest rate or house price path will entail more foreclosures than a comparable but "smoother" path. This is fairly intuitive insofar as in the case of a volatile path, more people will take out a mortgage when house prices peak or when interest rates bottom out, and will thus be more likely to default subsequently. Even if house prices or interest rates revert to their previous level, the mortgages already taken out will not necessarily be renegotiated (in the event of negative equity, for example); there is a form of irreversibility in this.

(10) Data regarding the share of subprime loans in all loans are available since 1998 only. Between 1998 and 2002 this share remained at around 2%, then began to rise significantly, reaching more than 13% in 2006. For the period prior to 1998, in the absence of additional information, we have assumed that this share remained constant at its 1998 level in each state (i.e. at 2% on average nationwide), which is a considerable approximation. In particular, there may have been a trend towards a loosening of lending criteria since 1980, in parallel to the rise in average household indebtedness), which has not been taken into account here but is included among the causes of the upward trend in the foreclosure rate.

(11) There is no single standardised definition allowing us to distinguish between prime and subprime loans (or again Alt-A loans, midway between the two). However, it is generally considered that subprime loans are those for which the borrowers' solvency scores below 640 on the FICO (Fair Isaac Corporation) scale, which is the scale most widely used among lending institutions. The data used in this study concerning the share of subprimes in all loans were compiled by the Mortgage Bankers Association (MBA) based on the returns sent in by the different lending institutions (which may use slightly different definitions of the notion of subprime loan).

## Box 1: **Modelling trends in the rate of mortgage foreclosures**

The model presented in the table below is estimated with the following characteristics:

- proxies are used with a time lag of at least two quarters: this time lag represents the time elapsed between the shock (e.g. loss of job) that led to the foreclosure and the start of the foreclosure proceeding. The share of subprimes in all loans has been introduced with a time lag of 11 to 14 quarters to allow for this time lapse and the attractive 2-3 year period during which borrowers make only small repayments in the case of atypical loans, because the probability of default rises very significantly at the end of this period;
- variations over 8 quarters (2 years) have been used for both house prices and interest rates: this time frame may be seen as the average period of time elapsed between taking out the mortgage loan and the moment in question. This is because it is these variations in price or interest rate between these two moments that are important in determining whether a household is in a negative equity situation or whether the rate on the variable rate loan is revised upwards;
- all of the variables used were available at the level of each state, with the exceptions of financial wealth and interest rates; it has been assumed that in each state these followed the same trend as for the national average.

Proxy used: rate of new foreclosures during the quarter (as a % of all mortgage loans)
Estimation period: Q1 1980 – Q2 2008
Number of observations: 4,794

Panel estimation for the 50 states in the United States

| Coefficient | | Value | t-stat |
|---|---|---|---|
| Constant | | 0,123 | 9,4 |
| Trend | | 0,0021 | 26,8 |
| Unemployment rate (t-2) | | 0,0050 | 3,8 |
| Year-on-year change in financial wealth (t-2) | | -0,189 | -7,2 |
| Share of subprimes in all mortgage loans (av. between t-11 and t-14) | | 0,83 | 36,3 |
| House prices (t-2)/house prices (t-10)-1 | Coefficient for positive values | -0,90 | -29,7 |
| | Coefficient for negative values (states with antideficiency law) | -6,40 | -30,9 |
| | Coefficient for negative values (states with no antideficiency law) | -1,92 | -14,7 |
| Interest rate on mortgage loans (t-2) - Interest rate on mortgage loans (t-10) | Coefficient for negative values | Not significant | Not significant |
| | Coefficient for positive values | 0,0053 | 3,8 |
| Adjusted $R^2$ | | 0,67 | |

This produces several interesting findings:

- the regression appears to be of pretty good quality (R2=0.67), which therefore yields a good explanation of changes in foreclosure rates for each state. It is also pretty robust (there is relatively little change in coefficients when estimated for sub-periods);
- house price variations do indeed have an asymmetrical impact on foreclosures: the coefficient corresponding to price rises (–0.90) is distinctly lower (in absolute value) than the coefficients corresponding to price falls: –6.40 for states with an antideficiency law, and –1.92 for the others;
- this difference between states with and with no antideficiency law (coefficient before price falls multiplied by more than three) illustrates the importance of this type of legislation;
- variations in interest rates also have an asymmetrical effect: while rate declines do not appear to have a significant effect, a rise in interest rates does lead to an increase in foreclosures.

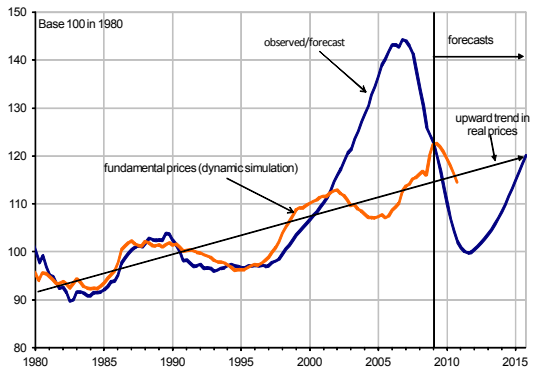
## 3. The foreclosure rate is expected to peak in 2010 (at 1.5%, representing nearly 700,000 new foreclosures per quarter), and total losses to American financial institutions caused by residential property are forecast to come to around $1,150 billion, which is close to the IMF estimate

### 3.1 Assumptions

To forecast future foreclosure rates and, ultimately, estimate the scale of the banking sector's losses between 2006 and 2015, we have used the model presented above, extending the profile of the proxies for forecasting purposes.

For that, until the end of 2010, we have used the DGTPE's Winter 2009 Economic Budget assumptions[12], which are close to economists' consensus assumptions (notably comprising a 20% fall in nominal house prices between end-2008 and end-2010, and unemployment rising to 10%); we then assume that economic growth resumes to a rate close to its potential from 2011 onwards[13]. The two most important assumptions in terms of their contribution to the change in foreclosures are presented in charts 3 (house prices[14]) and 4 (share of subprimes in all mortgage loans[15]).

**Chart 3: Real house prices in the United States (OFHEO index)**




*Sources: OFHEO, DGTPE calculations*

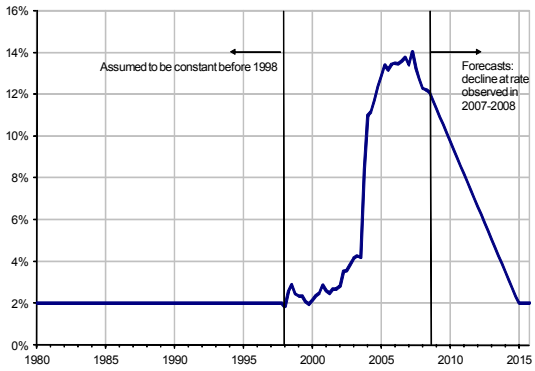
(12) See: "Global economic outlook, Spring 2009", *Trésor-Economics no. 55, April 2009*.

(13) For forecasting purposes, the trend profiles for the proxies used are assumed to be identical for all states. In particular, this implies that house prices are assumed to fall across all states until the end of 2011.

(14) Concerning real house price levels see: "The bursting of the US house price bubble", *Trésor-Economics no. 40, July 2008*.

(15) It is worth noting that even if very few subprime loans have been made since 2008, it will take many years to clear off the entire existing stock outstanding. The assumption of a "return to normal" by the end of 2012 is considered in the sensitivity tests of the results in table 1.

**Chart 4: Share of subprimes in all mortgage loans outstanding**

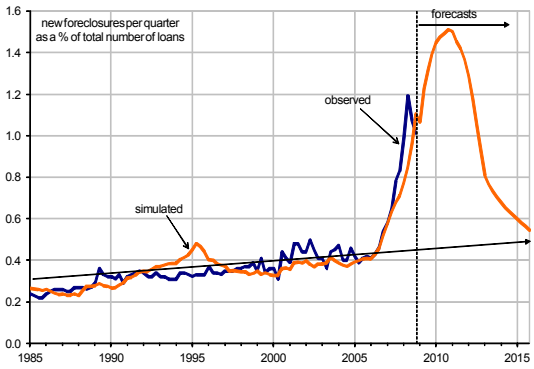



*Sources: MBA, DGTPE calculations*

## 3.2 Results

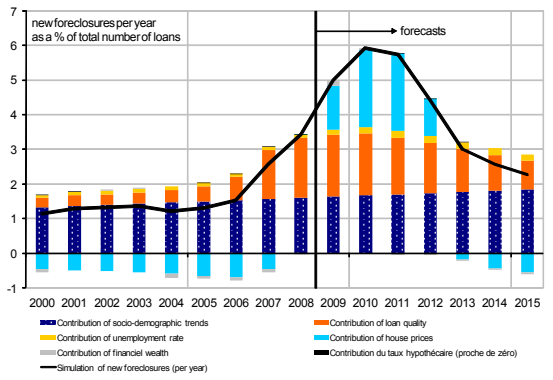
According to the model estimated above, the quarterly rate of new foreclosures is expected to go on rising to 1.5% in 2010, not reverting to its "normal" level until 2015 (see chart 5).

**Chart 5: Rate of new foreclosures**




*Sources: MBA, DGTPE calculations*

**Chart 6: Simulated rate of new foreclosures and contributing factors**




*Sources: MBA, DGTPE calculations*

As observed in chart 6, poor loan quality is the essential factor explaining the rise in foreclosures between

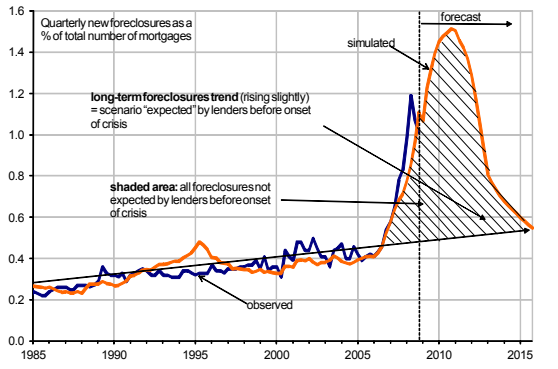
2006 and 2008, while it is the fall in house prices since mid-2007 that accounts for the bulk of the continuing increase in foreclosures in 2009 and 2010. It is also interesting to note that variations in financial wealth, interest rates and, to a lesser extent, unemployment, make only a minor contribution to the foreclosure rate.

This scenario of trends in the rate of new foreclosures allows us to evaluate the losses of financial institutions resulting from mortgage loan defaults in the United States.

We have made the following assumptions for that purpose, summarised in chart 7:

- the foreclosure rate expected by lenders before the onset of the crisis (i.e. before defaults began rising in 2006) corresponded to the long-term trend for this rate, namely a slightly rising trend;
- the difference between this expected trend and the actually observed trend (extended by the forecasts described in detail above), representing the volume of foreclosures not expected by lenders, multiplied by the recovery rate (here considered to be 40%) is a fair approximation of the scale of their losses.

**Chart 7: Rate of new foreclosures**




*Sources: MBA, DGTPE calculations*

With these assumptions, and given the above scenario for foreclosures, total financial institutions' losses directly linked to residential mortgages in America are expected to come to around $1,150 billion over the period 2006-2015. Altogether, roughly 17 million mortgages are forecast to enter foreclosure proceedings between mid-2006 and end-2015: of these 17 million, 8 million are estimated to have been "expected" by lenders (this is the number of foreclosures that would have occurred if the rate had followed its long-term path-since these foreclosures were expected by lenders, they are not included in their losses), and 9 million were unexpected. These 9 million represent a total value of around $1,900 billion (the total value of mortgage loans comes to around $10,000 billion), the recovery rate for which is assumed to be equal to 40%: in which case total losses would amount to $1,900 x (1-40%) = $1,150 billion.

Table 1 presents the sensitivity of results to the main assumptions used (concerning house price trends, recovery rates, and trends in the quality of loans outstanding).

**Table 1: Estimated losses of financial institutions depending on assumptions (in $Bn)**

| House prices (% of peak-to-trough fall in nominal prices, OFHEO index) | Recovery rate | Reversion of loans outstanding to their normal quality | | |
|---|---|---|---|---|
| | | End-2012 | End-2014 | End-2016 |
| 20% | 30% | 720 | 750 | 770 |
| | 40% | 960 | 1 000 | 1 020 |
| | 50% | 1 200 | 1 250 | 1 280 |
| 28% | 30% | 830 | 860 | 870 |
| | 40% | 1 100 | 1 150 | 1 160 |
| | 50% | 1 380 | 1 440 | 1 450 |
| 35% | 30% | 960 | 1 000 | 1 010 |
| | 40% | 1 280 | 1 330 | 1 350 |
| | 50% | 1 600 | 1 660 | 1 690 |

Interpretation: for a 28% peak-to-trough fall in house prices, a 40% recovery rate and a reversion to normal of the quality of loans outstanding by the end of 2014, total losses are estimated at $1,150 billion.

## Box 2: **Comparison of results obtained with those of other organisations**

As the table below shows, this estimate is relatively consistent with those of other institutions, all conducted using very different methods: the result is close to the estimates of the IMF and Goldman Sachs for an identical scope (all mortgage loans, securitised and otherwise), and is higher than that of the OECD, which covers only subprime loans.

| | DGTPE | IMF | OECD | Goldman Sachs |
|---|---|---|---|---|
| Method used | Foreclosure rate forecast based on an econometric equation in the form of a panel estimation for all 50 states in the USA. | - Securitised loans (60% of total): estimation based on fair value of US mortgage-backed assets<br>- Unsecuritised loans (40% of total): econometric equation | Forecast household default rate on subprime loans based on an econometric equation | Forecast of percentage of defaults by loan group after sorting by geographical region, year of issuance and type of loan (prime, subprime, etc.) |
| Variables used | Unemployment rate, house prices, financial wealth, share of subprimes in total loans, interest rate on mortgage loans | - Fair value of US mortgage-backed assets (ABS, CDO, CMBS, etc.)<br>- Lending conditions and house prices | Nominal GDP, house prices, unemployment rate | Detailed characteristics of loans (issue date, type, geographical region, borrower data, etc.), house prices, interest rates |
| Estimation period | 1980-2008 | - No estimation<br>- 1991-2008 | 1998-2007 | 1998-2008 |
| Scope | All mortgage loans | All mortgage loans | Subprimes loans only | All mortgage loans |
| Total estimated losses | $1,150 Bn | $1,300 Bn | $500 Bn | $1,100 Bn |
| Last known update of results | April 2009 | April 2009 | December 2008 | January 2009 |
| Weaknesses of method used | The estimate is based on a forecast foreclosure rate dependent on a coherent medium-term scenario | - The fair value of the assets concerned is highly volatile and does not necessarily reflect their fundamental value (due to liquidity problems in the markets in question, risk aversion on the part of financial institutions).<br>- The econometric equation does not appear to be very robust. | Subprimes only are covered, and the estimate does not appear to be very robust (the estimate period is short, and nominal rather than real GDP is used). | Hard to determine, due to the highly disaggregated nature of the data used and the complexity of the method. |
| Source | - | Global Financial Stability Report (GFSR) October 2008 and April 2009 | The Subprime Crisis: Size, deleveraging and some Policy Options , A. Blundell-Wignall, OECD Financial Market Trends, 2008 | "Home prices and credit losses: projections and policy options", Global Economics Paper no. 177, 13 January 2009, J. Hatzius and M. Marschoun |

## 4. The foregoing estimates do not take account of the impact of measures taken by the US authorities to stem in the rise in foreclosures, in particular the "Making Home Affordable" plan announced in February 2009

None of the above forecasts takes into account the authorities' efforts to stem the rise in foreclosures. These efforts include:

(i) the July 2008 Housing Bill, which among others offered creditors the possibility of obtaining guarantees for up to 400,000 loans via the Federal Housing Association (FHA), in return for a writedown of the amounts to be repaid;

This plan was a failure, with only 517 loans being renegotiated on these terms, as lenders were reluctant to agree to a renegotiation that would have hurt their balance sheet immediately[16].

(ii) the Making Home Affordable plan announced in February 2009, which sought to be more ambitious. This comprises three headings, worth an estimated total of $75 billion:

- enabling 4 to 5 million homeowners deemed responsible (with a good credit record, no payments in arrears) to refinance their loans and reduce their monthly instalments on loans held or guaranteed by the government agencies, Fannie Mae and Freddie Mac;
- enabling 3 to 4 million risky homeowners (e.g. in a negative equity situation) to remain in their homes, while subsidising the renegotiation of their loan;
- supporting Freddie Mac and Fannie Mae, in order to keep mortgage rates low, among others. It is very hard to assess the effectiveness of this plan, which could be weakened by a variety of factors, notably:
- most of the 4 - 5 million "responsible" homeowners offered the possibility of refinancing their mortgage on favou-

(16) Source: "Can't pay or won't pay? - The Foreclosure Plan", *The Economist, 19 February 2009*.

rable terms probably would not have defaulted but will be happy to profit from the windfall;

- renegotiating mortgages is likely to be difficult in the current conditions, as lenders are disinclined to accept a reduction in the amounts owed them, since this reduction would hurt their balance sheets; at the same time, governments want to avoid offering them over-generous terms, both for reasons of cost and to avoid discontenting public opinion;
- the various measures aimed at driving down mortgage interest rates are likely to have only a limited impact on foreclosures, as suggested by the model estimated above, in particular because households in a negative equity situation are in no position to refinance their loan.

It should also be noted that losses avoided thanks to this plan are not directly comparable to the amount committed by the government ($70 billion), because part of this money will be "wasted" through the windfall effect. Conversely, another part of the money will probably be used with a multiplier greater than one dollar of losses. For example, in the case of a household that is solvent but experiencing temporary payment difficulties, a relatively small amount of assistance could suffice to keep it out of foreclosure, thereby avoiding the heavy costs associated with this procedure (administrative and legal costs, possible impairment of the value of the house due to vacancy, etc.).

(iii) public or private initiatives aimed at prolonging foreclosure proceedings with a view to increasing the chances of settling out-of-court. The efforts of several states (California in particular) belong in this category, as do those of government agencies such as Freddie Mac and Fannie Mae (via a moratorium on foreclosures at the end of 2008, ending in March 2009), and those of several private banks[17].

Measures aimed at drawing out foreclosure proceedings now pending are unlikely to affect the total number of proceedings observed over the entire duration of the crisis. On the other hand, by raising the chances of out-of-court settlement of existing proceedings, these measures could boost recovery rates for lenders (e.g. through lower legal costs, etc.).

(iv) initiatives by the Fed via its unconventional monetary policy[18], through purchases of securities issued by Freddie Mac and Fannie Mae enabling them to obtain funds more cheaply, purchases of assets directly linked to US property (e.g. Residential Mortgage Backed Securities, etc.).

These various initiatives are expected to reduce the financial institutions' losses via two channels:

- by purchasing securities linked to US property, or by injecting capital into Freddie Mac and Fannie Mae, the Fed could find itself absorbing part of the losses sustained by lenders on US homes;
- via its efforts to ease mortgage lending rates, the Fed could help beleaguered borrowers to refinance their loans at a lower rate.

**Stéphane SORBE**

(17) See: "US Daily: Home Prices - Is the Stabilization For Real?", *Goldman Sachs US Daily, 27 April 2009*.
(18) See: "Unconventional monetary policies, an appraisal", *Trésor-Economics no. 56, April 2009*.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