The French housing market: what would be the impact of macroprudential measures?

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This issue of Rue de la Banque *assesses the impact on real estate prices, construction and housing loans of macroprudential measures leading to a rise in housing loan rates, a decline in the debt service-to-income ratio (instalments over income) or a limitation of the original maturity of loans. These three types of measures have a significant impact on housing loan developments and, to a lesser extent, house prices due to the effect of loan variations on the housing stock.*

The recurrent episodes of boom and bust in the housing market and their impact on the banking system have shown the importance of supervising this market to ensure financial stability (Glaeser, 2013). Macroprudential policy plays a central role in this supervision. Thus the European Directive CRD IV and the French Banking Act of 2013 set up macroprudential instruments that target the real estate sector: sectoral capital instruments and constraints on credit standards.

French banks are exposed to real estate risk, in particular through the housing loans that they grant. However, their sensitivity to changes in the real estate market depends on the hedging strategies implemented by credit institutions. More than half of housing loans distributed in France are secured and not mortgaged (ACPR, 2013). This type of hedging encourages banks to be more attentive to the quality of the borrower than to the value of the mortgage. In the event of default, surety companies draw on the solidarity funds to compensate the bank and turn to the borrower to recover the loss. However, unlike mortgaged loans, they are not given priority among creditors. The borrower's probability of default therefore clearly appears as a key factor when selecting higher quality loans. Thus, French banks are usually careful to limit households' debt service-to-income ratio to 33%.

Finally, rechargeable mortgages are barely developed in France and the amount that can be provided as collateral corresponds to the purchasing price of the property and not its market value.[1]

This French specificity raises questions as to what are the most effective macroprudential policy instruments in the field of real estate. What are the transmission channels of real estate risk? How can one act on these channels or control them?

Strong growth in real estate and credit markets in the 2000s, without any marked adjustment during the crisis

Like many other developed countries, the real estate and credit markets[2] in France posted strong growth in the first half of the 2000s. However, after the 2008 financial crisis, the real estate market hardly adjusted in the sense that

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1 *These mechanisms prevent the existence of a real estate financial accelerator in France, which can only exist if the rise in house prices results in credit growth, the latter being backed by property via a mortgage (Bernanke* et al.*, 1996).*

2 *Here we present an aggregate index of house prices. It does not reflect the fact that the properties are localised and therefore highly heterogeneous.*

there was no trend reversal. Indeed, Antipa and Lecat (2013) show that, despite the adjustment that started in 2008, prices in 2012 were still 20% higher than the equilibrium price, the latter being assessed solely on the basis of traditional fundamentals (household income, demographic factors, user cost, housing stock, etc.).

The inertia of the housing stock relative to prices partly explains this trend in prices. This is confirmed by our estimations (see also Caldera Sánchez and Johansson, 2011) which show that the housing stock is relatively insensitive to house prices in France, due to constraints on land supply and regulations in the construction market.

In addition, demand recorded a strong increase over this period. Indeed, the growth of the French population rose significantly in the early 2000s, while the number of households increased even more rapidly.[3] This demand shock together with the inertia of the housing stock mechanically contributed to raising prices.

Lastly, the real estate market benefited from the loosening of constraints weighing on credit demand. This can be likened to a positive housing demand shock that could lead, all other things being equal, to a rise in prices. It is worth pointing out that this loosening can be primarily explained by the marked improvement in banks' refinancing conditions over the period. Indeed, the decline in banks' refinancing rates was passed on to the housing loan rates. This enabled more households to have access to housing loans, or to increase the loan amounts.

In addition, certain credit standards were eased. Chart 1

C1 Real estate market and credit market

(100=1999 Q1)
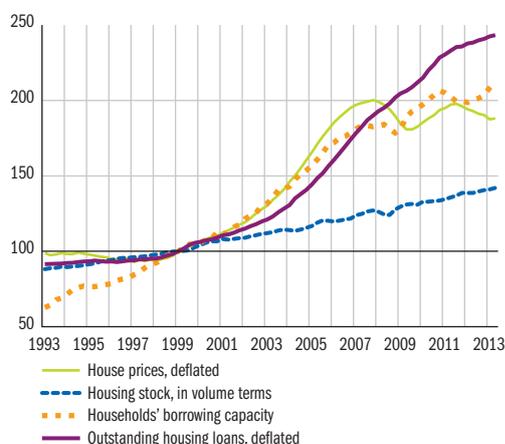
Sources: Banque de France, Insee; authors' calculations.

shows that households' borrowing capacity was on an almost unbroken upward trend before posting a barely perceptible deceleration at the end of the period. Until 2007, the borrowing capacity and the outstanding amount of housing loans were on almost parallel paths.[4] In order to meet the traditional debt service-to-income ratio of 33%, besides the fact that households' nominal income posted a significant rise over the period, banks gradually extended the length of housing loans. Indeed, the original maturity of loans increased from almost 14 years in 1999 to 20 years (19.8 years) in 2012.[5] Thus, according to Antipa and Lecat (2013), taking into account the extension of the original maturity of loans, the increase in house prices can largely be explained by the borrowing capacity of households and traditional fundamentals.

A joint model of the housing and home loan markets

In order to study the impact of the shocks of macroprudential measures, we put forward a model that jointly analyses the housing loan market and the housing market in France over the period 1993-2013 (see Avouyi-Dovi *et al.*, 2014, for a detailed presentation). This framework reflects the interconnection between the two markets. The macroprudential measures are aimed at the supply of credit but when analysing their impact we must also consider the feedback effects between the housing market and the credit market.

The model consists of four relations estimated simultaneously and whose main results are as follows.

■ The price of housing is positively related to household income, housing loans and population. It is negatively related to the housing stock and the user cost of housing. The latter reflects changes in the cost of holding the property (net of expected capital gains) and in the tax policy relative to housing.[6] A 1% increase in the volume of credit results in a 0.7% increase in prices. The elasticity

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3 *Between 1975 and 2005 population grew on average by 0.48% per year while the number of households increased by 1.24% (Insee Première, 2006).*

4 *If the constraint is greater than the observed amount of credit, then credit rationing is only applied to households with the capacity to borrow. Part of the population is thus excluded from the housing loan market. In contrast, there is also a segment of the population whose income is sufficiently high for the bank to decide to apply a debt ratio above 33%. However, the market dynamics are mainly determined by the share of households subject to the 33% limit.*

5 *Sources: Banque de France and authors' calculations.*

of prices relative to household income is spontaneously greater than 1, but in keeping with the studies on the subject, it has been set at 1 (+1% in income = +1% in house prices) in our simulation exercises, without a significant loss in accuracy or explanatory power. The elasticity of prices to population is relatively high, which reflects the faster growth in the number of households than population over the period.

■ The housing stock is positively related to housing loans and house prices, negatively to long-term interest rates, representing the financing cost of housing producers. According to our estimates, a 1 percentage point increase in long-term rates ultimately leads to a decline in the housing stock of close to 2 percentage points. The elasticity of the housing stock to house prices is low, which reflects the aforementioned constraints that weigh on supply in France.

■ The demand for housing loans is negatively related to the interest rate or to a lending conditions indicator, which reflects households' borrowing capacity excluding income. This indicator is defined as a combination of the interest rate, the length of the loan and the maximum share of income devoted to the loan instalments. It is positively related to household income and real estate prices.

■ Lastly, the housing loan rate is positively correlated with the long-term rate, which is its main determinant, but negatively correlated with the prices of housing (a collateral for credit institutions) and with the level of capitalisation of credit institutions (which reflects the solvency of banks and their capacity to take risks).

### An effective macroprudential policy on housing loans

The *Haut Conseil de stabilité financière* (High Council for Financial Stability) and the *Autorité de contrôle prudentiel et de résolution* have several macroprudential policy instruments at their disposal. The reinforced capital requirements on real estate exposures strengthen the resilience of banks in the event of an adverse shock on house prices and can raise *ex ante* the cost of housing loans for the bank. Other instruments reduce the amount of the installments in proportion to the household's income or limit the original maturity of the loan.

Using our model we simulate the effects of these three types of shocks (see Chart 2) on housing loan rates, the original maturity of the housing loans and the share of instalments in the income.
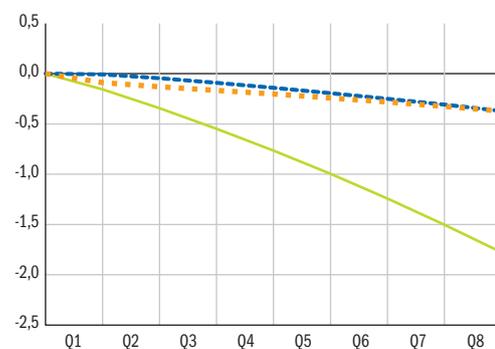
C2 Macroprudential policy shocks
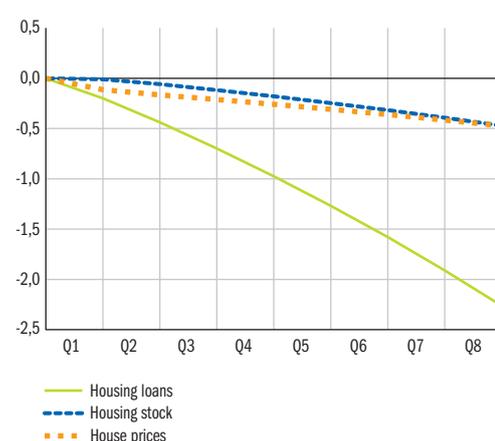*(% relative to central account ; number of quarters)*

a) 1 percentage point shock on housing loan rates
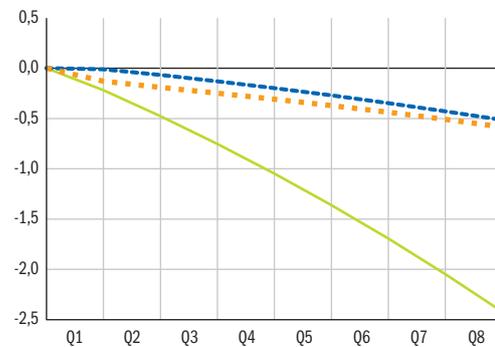
b) Two-year decrease in the length at origination of housing loans

c) Maximum amount of income devoted to loan repayment at 30%

— Housing loans
- - - Housing stock
····· House prices

Source: Authors' calculations.

6 *The user cost of housing increases with the interest paid to finance the acquisition, the taxes on the property, the housing depreciation costs and decreases with the tax benefits related to the acquisition or possession of the property, and any real estate gains.*

A one percentage point increase in the loan rate would result in a 0.13% fall in house prices under the effect of the credit crunch. The credit crunch then continues and weighs on prices and the housing stock. The decline in the housing stock via credit and prices has a stabilising effect on house prices which decline at a slower pace but the elasticities related to the housing stock are insufficient to raise prices again.

A two-year reduction in the original maturity of housing loans reduces the maximum amount that a household can borrow at a given rate and level of income. Given that the impact of this measure depends on the rate level, the shock is applied at the rate level of end-2013. Credit first falls by 0.16% and then declines more sharply under the persistent effect of lower loan durations and falling house prices. This decline results in a fall in house prices and the housing stock, the decrease in the housing supply being insufficient to rebalance prices given the elasticities.

Lastly, a decrease in the maximum share of income devoted to loan repayments from 33% (as is the common practice in France) to 30% would have similar effects to the previous shock. It occurs through the lending conditions indicator and results in a 0.20% decrease in lending which subsequently becomes more pronounced with the persistent effects of this shock and the fall in prices.

In the longer term, the housing stock adjustment due to the credit crunch limits the impact of these measures on house prices, while their effect is persistent on housing loans.

The current situation on the French housing market does not seem to require the implementation of specific measures of macroprudential policy, especially as the housing loan market appears structurally resilient. The French specificity of suretyship and the ensuing attention paid to the quality of the counterparty (in particular the limitation of the debt service to income ratio to 33%) speaks in favour of the resilience of the French financial system to real estate risk (IMF, 2012). Individual default risk remains under control as evidenced by the low level of default rates over the past five years, even if this rate rose sharply after 2007 while remaining significantly below 2%. However, should the housing loan market be destabilised, having recourse to macroprudential constraints would have a non-negligible effect on housing loans and to a lesser extent on house prices. This analysis was conducted under the assumption that the relations between the different variables were stable over the period. This assumption can nevertheless be tested and lead us to qualify some of our results (see Avouyi-Dovi, Labonne, Lecat, Ray, 2015), without calling them into question fundamentally.

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