Report
Assessment of risks in the residential real estate sector

This report examines the risks posed by the residential real estate sector to financial stability via: (i) the trajectory of real estate prices; (ii) trends in household indebtedness; and (iii) risk pressures on banks.

Real estate prices have been dynamic for a long time. They are currently rising at a relatively strong pace — although with significant disparities between regions. Despite this, the current level of prices does not appear to pose a major risk to financial stability:

- **There are no clear signs of an overvaluation**, as price levels appear sufficiently justified when financing conditions are taken into account;
- **Property-owning households have a low exposure to the risk of a fall in prices** as (i) it would not affect their ability to repay their loans; and (ii) the macroeconomic impact of a fall would be limited.

At the same time, however, **lending standards are gradually but steadily being eased** with an increase in riskier lending practices (e.g. increase in loan maturities, in borrowers’ debt-service-to-income (DSTI) ratios, in the share of loans with a DSTI ratio of over 35% and in the share of loans where the down payment is less than 5%). These dynamics have implications for both households and banks:

- **Although borrowing households’ sentiment vis-à-vis the size of their debt repayments and their financial situation has not improved** with the decline in interest rates, the share of income they devote to repaying debts has begun to rise again. This trend is likely to intensify if prices continue to grow (less scope for a reduction in rates or an extension of loan maturities). The rise in household indebtedness warrants vigilance, especially as it is also being accompanied by a deterioration in lending standards.
- **With regard to banks, an analysis of the pricing of housing loans indicates that margins on new lending declined** after 2012 and have stabilised at very low levels since 2016. Given the high volume of loan transfers and renegotiations between 2015 and 2017, this has quickly translated into a decline in the profitability of outstanding housing loans (drop of around 60 basis points between 2016 and 2019, or around EUR 6 billion per year). With little prospect of an improvement in this situation in the near term, banks’ overall profitability levels are coming under pressure. The Haut Conseil de stabilité financière (HCSF – High Council for Financial Stability) therefore remains vigilant as to the risks that would arise if another wave of renegotiations were to occur.

These observations are similar to: (i) the results of the International Monetary Fund’s (IMF) review of the French financial system (Financial Stability Assessment Program – FSAP) carried out in 2018-19, the conclusions of which were published in July 2019; (ii) the conclusions of the European Systemic Risk Board (ESRB) which, after conducting a cross-country analysis of European real estate markets, published an alert addressed to the HCSF on 23 September 2019; and (iii) the findings of the HCSF’s 2019 annual report (link).

In light of these findings, the HCSF reiterates that it is paying close attention to the dynamics of housing loans, loan pricing, the profitability of new loans and lending standards. It has decided to publish the present assessment in order to gather observations and comments from market participants. This study is the object of a public consultation; stakeholders are invited to submit their comments to the HCSF’s secretariat (hcsf@dg tresor.gouv.fr) by 4 November 2019. Over the coming months, the HCSF will examine the appropriate and proportionate responses that could be implemented to mitigate the risks.

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1 Along with four alerts (on the ESRB’s website) and six recommendations (link) for ten other countries.
I. Trends in the real estate market and in housing loans

1.1. The real estate market has been expanding since 2015

Real estate prices have been rising since the first quarter of 2015, and at end-2018 had exceeded their 2011 peak. Despite two periods of decline in 2008-09 then 2011-15, this upward trend has persisted since the mid-1990s (see Chart 1). However, since end-2017, the annual rate of growth in real estate prices has stabilised at around 3% (see Chart 2).

![Chart 1: Index of real estate prices (2015 = 100)](chart1)

![Chart 2: Annual rate of growth in real estate prices (%)](chart2)

Although, in average terms, prices of second-hand dwellings rose by 9% between the first quarter of 2015 and the first quarter of 2019, trends in real estate prices vary across the country. The price growth is mainly concentrated in large urban areas such as Paris (+22.5% for second-hand flats in Paris and +11.3% in the inner suburbs), Lyon (+26.5%), Bordeaux, Nantes, Rennes and Toulouse (see Chart 3).

The dynamics of the real estate market have also translated into record numbers of transactions. In the second-hand dwellings segment, a total of 994,000 transactions were recorded in the 12 months up to May 2019, compared with an average of around 800,000 per year during the expansion in the 2000s. In the new dwellings segment, transactions have reached the record levels seen in 2007, with 130,000 sales recorded in 2017 and in the 12 months up to the start of 2018, although there was a significant drop in the second half of 2018.

1.2. Housing lending is increasing, driven by historically low interest rates

Alongside the rise in prices and in the number of transactions, the supply of housing credit has also expanded sharply since 2015. In January 2015 the annual rate of growth in outstanding loans stood at 2.6%, whereas since 2017 it has been around 6%. It nonetheless remains lower than in the mid-2000s, when outstanding loans grew at annual rates of around 15% (see Chart 5). The recent trend in credit supply is consistent with the steady fall in the average interest rate on housing loans (see Chart 6); in 2016 it fell below the 2% mark, and then in 2018 it fell to below 1.5%, which is a record low.

The decline in rates has allowed many borrowers to renegotiate their loans, in some cases more than once. The volume of loan renegotiations was particularly high between 2015 and 2017: between February and September 2015 and again between September 2016 and March 2017, it exceeded the volume of pure new loans. After reaching a peak of 61.6% of new lending in January 2017, renegotiations have slowed sharply, stabilising at less than 20% since 2017.
1.3. The valuation of real estate assets has implications for the real economy

Numerous studies have examined the mechanisms behind property price fluctuations and their impact on the economy. Although the most recent ones have focused primarily on the US market and the mechanisms leading to the US subprime mortgage crisis in 2008, they still provide valuable insight into the risks inherent to a real estate boom.

- **Econometric models do not point to a widespread overvaluation of prices**

There are a number of econometric models\(^2\) available in the academic literature or developed by international institutions (e.g. the OECD, IMF and ECB), that can be used to estimate the real

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\(^2\) See Appendix 3 for details.
estate price level that is consistent with the economic fundamentals, and thus whether prices are overvalued relative to this equilibrium level. The estimates produced using these different models indicate that overall prices for the whole of France are not overvalued (see Chart 7). However, this does not rule out imbalances at the local level linked to specific configurations, such as in coastal regions or large urban centres.

![Chart 7: Overvaluation of real estate prices in France](chart)

Note: The colours yellow, red and black indicate periods when prices were overvalued respectively by 0-5%, 5-15% and more than 15%. No colour indicates a period of undervaluation. For the IMF model only, the difference is in percentage points of price growth and not in percent. The vertical line shows the last observed period, i.e. Q4 2018. Source: Banque de France and Banque de France calculations. Last point: Q4 2018.

- **An excessive rise in real estate prices can lead to financial instability**

An increase in household indebtedness linked to higher real estate prices can push borrowers to the limit of their repayment capacity: although low, fixed interest rates on loans and the extension of loan maturities have helped to mitigate the impact of price rises on debt servicing costs, the latter are still taking up an increasing share of French household income.

Tensions in the real estate market coupled with high levels of household debt can thus amplify economic shocks: for example, a rise in unemployment (or decline in income) can trigger an increase in loan delinquencies, but can also lead to a tightening of households’ budget constraints, even if they are not actually in default. This can in turn cause them to curb their consumption, exacerbating the deterioration in the economic outlook (see part 2 below for a more in-depth analysis of the risks to household solvency).

Rising prices can also generate a sense of “security” among economic agents, leading to shortsightedness whereby they underestimate the risk of a price correction or default, and the losses they would face if a default occurred.

Even if the risks associated with real estate do not materialise in the near term, it is also important to ensure that market dynamics do not have long-term negative consequences. Several studies have shown that a sharp rise in real estate prices has a lasting impact on the real economy as it leads capital to concentrate in the real estate sector, thereby undermining productivity. This investment glut mechanism can have a negative impact on growth if other sectors of the productive economy are left struggling to find financing. Indeed, studies indicate
that countries with a high stock of housing loans, as a percentage of GDP, experience lower rates of growth than those with high stocks of business loans. Nonetheless, the empirical literature on this effect remains tenuous. And in France’s case, the strong dynamics in lending for business investment suggest that this risk is marginal.

- In the event of a crisis, a downward correction in real estate prices would amplify the negative macroeconomic effects

The current rise in real estate prices could lead to a sudden downward correction in the event of an economic or financial crisis. Were this to occur, the resulting decline in the value of borrowers’ property assets might lower their expectations of future income and cause them to curtail their consumption as a precautionary measure, thereby exacerbating the economic downturn. The literature nonetheless indicates that this phenomenon, known as the wealth effect, is much weaker in France than in Anglo-Saxon countries. Moreover, econometric models indicate that prices are not overvalued (see above), making this scenario unlikely. For lenders, in other words the banks, the value of a real estate asset in part represents the amount they will be able to recover in the event of a default on the associated loan. Therefore any fall in prices will affect the size of the losses they incur if a borrower defaults. This risk is even greater if borrower down payments are reduced (see part 2).

II. Risks associated with trends in household indebtedness

2.1. Household indebtedness has increased markedly in recent years, driven by real estate

Unlike the other major advanced countries, France has seen persistent growth in household indebtedness over the past two decades. Even during the 2008 crisis, the ratio of household debt to gross disposable income (GDI) continued to rise (see Chart 8), and has remained on an upward trend over the past year.

Between the fourth quarters of 2017 and 2018, household debt in France increased from 92.8% to 95.1% of GDI, whereas in Germany, Italy and the United States it remained stable and in Spain it declined. France now has the second-highest level of household debt among major euro area countries (behind Spain), although it still lags behind the United States, Japan and the United Kingdom.

In June 2019, housing loans accounted for 83% of household debt. However, individual data show that this ratio is 90% for those under 30 years old, falling to 50% for those aged over 70 (in 2017).

With regard to new lending, the average loan-to-income (LTI) ratio at origination (ratio between the amount borrowed and the household’s annual income at the time the loan is granted) rose significantly between 2003 and 2018: in 2018 the average borrower took out a loan equivalent to 5.2 years of income, compared with just 3.3 years in 2003 (see Chart 9). The main contributor to

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4 See Stat-Info Banque de France: “The annual rate of growth in investment lending to non-financial corporations increased again in June (+7.3%, after +7.1% in May 2019, +7.0% in April), with equipment loans remaining the main driver (+8.5%, after +8.2%) alongside housing loans, albeit to a lesser extent (unchanged at 5.4%).”
this rise has been the decline in interest rates (increase in the amount households can borrow with the same monthly repayments, with only a limited increase in maturity, see Box 1).

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**Chart 8:** Household indebtedness ratios in France and other major countries 
(debt as a percentage of household income)

**Chart 9:** Average LTI ratio on new loans (loan amount in number of years of income)

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**Box 1: Breakdown of households’ ability to afford property**

A household’s ability to afford property depends on the size of the down payment it can provide and the amount it can borrow, which is in turn determined by three factors: the maturity of the loan, its rate of interest and the household’s level of income.

- At constant risk, a fall in the interest rate makes it possible to borrow more, while keeping the same monthly repayments, and to increase the maturity of the loan without increasing the bank’s exposure to real estate risk (the bank’s exposure to the risk of default by the household does increase, however, as the risk of a decline in income is incurred over a longer period).

- Beyond this constant risk, various terms and conditions offered on loans can increase the associated risk: significant increase in loan maturities and in DSTI ratios to raise borrowers’ ability to buy.

To assess the role played by lending standards, it is possible to break down changes in households’ ability to buy according to its main determinants: down payment size, average income, DSTI ratio, interest rate and maturity. These factors can be grouped into two categories: factors that increase households’ ability to buy at constant risk, such as an increase in income and in the size of the down payment; and factors that increase the associated risk, such as an

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5 The loan maturity is taken to be the initial maturity (maturity at origination), at constant risk. The bank’s exposure to real estate risk is assessed based on the scenario of a 50% fall in real estate prices. Based on the interest rate and lending standards observed in 2015, a critical period is defined at the end of which the remaining principal on the loan is deemed to be sufficiently low for the bank to repay itself from the proceeds of the sale of the property, despite the materialisation of this risk. In 2018, the maturity at origination posing the same degree of risk as in 2015 is that for which this critical period remains unchanged, taking into account the other lending standards and interest rate prevailing in 2018.
increase in the DSTI ratio or an additional extension of the loan maturity (on top of the extension made possible by the fall in interest rates).

Over the long term, households’ average ability to buy went through an initial expansionary phase from 2003 to 2008 (+47%), buoyed notably by an extension of loan maturities. Half of this increase was attributable to risk-free factors, and the other half to an additional extension in maturities and a rise in DSTIs. After a period of relative stabilisation between 2008 and 2013, households’ ability to buy has been trending upwards again since 2013, this time driven primarily by the fall in interest rates. Risk-free factors now account for some 65% of the rise in purchasing capacity (between 2015 and 2018, households’ ability to buy rose by 20%, of which 13 percentage points was an increase at constant risk).

However, whereas from 2008 to 2013, price growth outstripped households’ ability to buy, in the more recent period (2015-18) the opposite has been true: second-hand property prices have increased by around 6% since 2015, whereas households’ ability to buy has risen by 20%. This trend probably reflects composition effects stemming from the strong geographical disparities in house price dynamics.

Breakdown of the change in households’ ability to buy

![Graph showing breakdown of change in households’ ability to buy.]

Source: INSEE, Banque de France, ACPR. Calculations from the French Treasury. Last point: 2018

2.2. Household solvency risk is being closely monitored

• **Borrowers are protected against a rise in interest rates**

The vast majority of housing loans in France carry a fixed interest rate: 98.5% of the new loans granted in 2018 and 94.6% of outstanding loans at end-2018. All else being equal, therefore, debt servicing costs would remain unchanged in the event of a rate rise, offering a degree of protection for borrowers.

• **Solvency risk is being kept in check through the careful selection of borrowers...**

6 Source: ACPR annual survey of housing finance.
A macroeconomic shock can lead to a fall in wages or loss of employment for a portion of borrowers, thereby increasing the probability that they will default on their loan. Nonetheless, the dual selection process used for the majority of loan applications, both by lenders and loan guarantee companies, means that borrowers are much less vulnerable than the average worker to the risk of unemployment. Individual data (INSEE Wealth Survey) show that the unemployment rate among those with a housing loan was just 4.5% in 2017 (compared with 15.8% for those without a housing loan), and that professional and higher staff categories as well as those with a qualification equal to or higher than BAC +2 are overrepresented among workers with a housing loan (see Charts 10 and 11).

- ...while the social protection system helps to limit borrowers’ vulnerability to economic shocks

In France, the social protection system helps to cushion the short-term financial effects of a job loss. Unemployment benefit is between 57% and 75% of a worker’s wages before he/she was laid off, and is paid for between two and three years, depending on the individual’s age (see Box 2).

<table>
<thead>
<tr>
<th>Chart 10: Breakdown of workers with and without a housing loan by socio-professional category</th>
<th>Chart 11: Breakdown of workers with and without a housing loan by level of qualification</th>
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<td>0%</td>
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<td>35%</td>
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<tr>
<td>Tradespersons, retailers, farmers</td>
<td>≥BAC+5</td>
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<tr>
<td>Professional and higher categories</td>
<td>BAC+3</td>
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<tr>
<td>Intermediate categories</td>
<td>BAC+2</td>
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<tr>
<td>Clerical and lower categories</td>
<td>BAC</td>
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<tr>
<td>Labourers</td>
<td>&lt;BAC</td>
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<tr>
<td>Worker with housing debt</td>
<td>Workers with housing debt</td>
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<tr>
<td>Worker without housing debt</td>
<td>Workers without housing debt</td>
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</tbody>
</table>

Source: INSEE, 2017 Wealth survey (provisional data).
Source: INSEE, 2017 Wealth survey (provisional data).

**Box 2: Impact of a rise in unemployment on borrower defaults**

The rate of default on housing loans is modelled based on the financial margin (remaining income after deduction of loan repayments and regular outgoings) of households surveyed as part of the 2017 INSEE Wealth Survey.

Two stress-test scenarios are applied to these data, corresponding to an immediate rise of 3 percentage points or 5 percentage points in the overall French unemployment rate in 2017. To put this into context, the unemployment rate rose by 3 percentage points in France in the five years following the 2008 economic crisis. The scenarios are therefore major shocks. In both cases, we assume that the unemployment rates initially observed among the two subsets of households – those with a housing loan (4.5%) and those without a housing loan (15.8%) –

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7 See methodology in Appendix 1.
increase by the same proportion. The unemployment rate among borrowers therefore rises by much less than 3 percentage points or 5 percentage points, reflecting their lower vulnerability to the risk of a job loss.

At the individual level, the households’ financial margin is recalculated by replacing the wages of the newly unemployed with their estimated unemployment benefit. This corresponds to their position immediately after the unemployment shock. A second financial margin is calculated assuming that these newly unemployed workers no longer receive unemployment benefits, which occurs between two and three years after they lose their jobs, depending on the amount of time they were in work. This reflects the long-term situation, assuming that the jobless market remains persistently weak. In both cases, borrowing households retain a minimum income corresponding to the higher of either the revenu de solidarité active (RSA – income support) or the allocation de solidarité spécifique (ASS – specific solidarity allowance).

In the long term, a lasting shock to employment would push the share of outstanding loans in default up to 1.59% in the event of a 3 percentage point rise in the unemployment rate, and to 1.68% in the event of a 5 percentage point rise. In both cases, the default rate would exceed the high of 1.55% observed in 2014.

2.3. The rise in household debt and easing of lending standards call for vigilance

- The average DSTI ratio is increasing

The DSTI ratio shows the share of the borrowing household’s income that is used to repay loan installments (interest and loan principal). The DSTI ratio takes into account all loans, including those not used to finance real estate. The standard market practice is to limit the DSTI ratio at origination to 33%, but this figure is not legally binding and exceptions can be made, as shown by the share of loans (25%) with a DSTI ratio in excess of 35% (see below).

The monitoring of lending standards on new loans shows a contained upward trend in DSTI ratios in the recent period. The average ratio on new loans has risen from a low of 29.4% in 2014 to 30.1% in 2018 (see Chart 12). This contained rise in DSTI ratios relative to the increase in amounts borrowed can be explained by the fall in interest rates and the extension of loan maturities. In terms of distribution, the share of loans with a DSTI ratio of over 35% has also increased, from 21.9% of new lending in 2015 to 24.8% in 2018 (Chart 13). The monthly monitoring of lending standards indicates that the average DSTI ratio has remained stable at 30.1% over the last 12 months. 

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8 ACPR, monthly monitoring of lending standards: last available data: March 2019.
These levels are nonetheless lower than those seen in the period 2008-10, when the average DSTI ratio hit a peak of 31.6% and the share of new loans with a DSTI ratio of over 35% rose to 29%.

From the start of 2016 to mid-2017, the rise in DSTI ratios was mainly driven by the financing of buy-to-let purchases. Since then, it has also been fuelled by loans to buy primary residences, including those to first-time buyers (households purchasing property for the first time, who are younger and tend to have lower income, and are therefore a particularly vulnerable category of borrower). These first-time buyers are a major contributor to the rise in the share of loans with a DSTI ratio of over 35%. In addition, for all categories of borrower combined, 50% of those questioned still think their debt repayments are high, despite the decline in interest rates (see Chart 14).

<table>
<thead>
<tr>
<th>Chart 12: Average DSTI ratio on new loans</th>
<th>Chart 13: Distribution of DSTI ratios by tranche</th>
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<tbody>
<tr>
<td><img src="chart12.png" alt="Graph of Average DSTI ratio on new loans" /></td>
<td><img src="chart13.png" alt="Graph of Distribution of DSTI ratios by tranche" /></td>
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</tbody>
</table>

Source: ACPR, annual survey of housing finance. Last point: 2018
Note: The DSTI ratio is defined as the share of household income devoted to debt repayments at the time the borrower takes out a housing loan.

<table>
<thead>
<tr>
<th>Chart 14: Perception of debt repayments – % of responses</th>
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<td><img src="chart14.png" alt="Graph of Perception of debt repayments" /></td>
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Source: French Banking Federation - Household Lending Observatory. Last point: 2018
• **Loan maturities are increasing and have exceeded 2008 levels**

The average maturity of new loans began to rise again in 2015: it went from 18 years in 2015 to 19.9 years in 2018, which is in line with the peak seen in 2008 (see Chart 15). The increase can be observed in all segments of the market. According to ACPR data, loan maturities continued to rise in the first months of 2019, reaching an average of 20.1 years for the 12 months to end-May.

![Chart 15: Average initial maturity of new loans](chart.png)

Source: ACPR, annual survey of housing finance.

Last point: 2018: average initial maturities excluding loan transfers are only available as of 2010.

• **Loan down payments have been declining since 2007**

The down payment on a loan is the share of the purchase price of the property that is paid for from the borrower’s own financial wealth (built up before the purchase). Down payments have been trending downwards for a number of years (see Chart 16). From a peak of 23.5% in 2008, the average down payment has fallen to 12.7% in 2018. In particular, the share of loans with a down payment of less than 15% has jumped from 48.1% to 60.9% over the period. This downward trend can be observed in all segments of the market.

All else being equal, the reduction in down payments since 2015 leaves households more exposed to the risk that their property may have suffered a marked decline in value in the event of a default. That said, given that nearly all housing loans are instalment loans, the risk (represented by the outstanding principal) diminishes over the life of the loan.

![Chart 16: Average down payment on new loans (rhs) and distribution by tranche (lhs)](chart.png)

Source: ACPR, annual survey of housing finance.

Last point: 2018
2.4. Consequences of the changes in lending standards

- **The increase in DSTI ratios and loan maturities is weighing on household consumption and may even ultimately increase their risk of default**

A high DSTI ratio makes borrowers more vulnerable to adverse events that might lower their income or increase their essential spending. If such an event occurs, the household will have to make greater cuts to non-essential spending and, beyond a certain point, may become less able to afford its loan repayments, leading potentially to a default.

Adverse events may be economic (unemployment, loss of income) or take the form of an unexpected life event (such as a divorce, accident or sickness; although some 90% of loans are at least partially insured against the risk of death or an inability to work). From the point of view of the lender, unexpected life events are by nature idiosyncratic and diversifiable. In contrast, economic events tend to have common underlying determinants, although they can also be idiosyncratic to an extent.

In parallel, given that an increase in the initial maturity of a loan determines its effective maturity, it also raises the probability that a household will default. The longer the maturity of a loan, the higher the probability that the household will suffer a negative income shock (or positive expenses shock) over the life of the loan.

The recent developments in lending conditions (increase in DSTI ratios and initial maturities) therefore have a dual micro- and macroeconomic effect. From a microeconomic standpoint, a higher DSTI ratio makes a household more vulnerable to adverse events, whereas a longer loan maturity increases the probability that such an event will occur over the life of the loan: overall, the risk that the household will default tends to rise. From a macroeconomic perspective, these two developments in lending standards are mutually reinforcing and make household consumption less resilient to shocks (given that non-essential spending is more sensitive to economic shocks, this macroeconomic effect appears even if there is no increase in loan defaults).

- **The reduction in down payments could increase potential losses**

If a borrower defaults on a housing loan and no amicable settlement can be found, the lender is forced to foreclose on the loan. In this case, the borrower is immediately required to repay the remaining principal in full. In most cases, the preferred option to cover this debt is to sell the property purchased using the loan. However, if the value of the property has fallen since it was purchased, a residual debt may remain, adding to the borrower’s financial difficulties.

The initial down payment is designed to offer a buffer in the event of a default. The higher the down payment, the greater the borrower’s ability to withstand a decline in the value of his/her property relative to its purchase price, as the value after depreciation will still be high enough to cover the outstanding principal of the loan. The significant decline in down payments since 2007 could therefore amplify the effects of a crisis affecting borrower solvency.
III. Risks for credit institutions

3.1. Squeeze in profits: French banks’ margins on housing loans have fallen markedly

- **Bank margins on new loans have been close to zero since 2017**

French banks’ estimated average gross margin on housing loans\(^9\) declined steadily between 2012 and end-2016 (see Chart 17). Since 2017, it has stabilised at around 0.8%, which is a historical low (see Appendix 2).

This gross margin is only slightly higher than the cost of transforming deposits into loans (implicit cost of hedging the related interest rate risk, as the loans - on the asset side - carry a fixed rate of interest and a long maturity whereas the sources of financing - on the liability side - have a shorter maturity). As a result, estimated net margins, i.e. gross margins minus this transformation cost,\(^10\) have been stuck at around zero since the end of 2016. The compression of gross margins is mainly attributable to the steady decline in the interest rates offered to households on new housing loans.

![Chart 17: French banks’ gross and net margin on new housing loans to households](chart)

Source: Reuters, DataInsight, ECB, French Treasury calculations.

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\(^9\) There is no standard method for calculating margins. As a result, gross and net margins on new lending cannot be directly observed but instead have to be modelled using various assumptions (see Appendix 2 for methodology). In short, the gross margin is the difference between the interest charged on new loans (on the asset side) and the interest paid on the liabilities used to finance these loans. The net margin is the gross margin minus “the cost of transforming deposits into loans”, which is linked to the difference between the maturity of the new housing loans and the maturity of the deposits primarily used to finance these loans. The calculation of net margin used here differs from that defined in corporate accounting (net income/turnover).

\(^10\) Margins (gross and net) do not take into account the cost of risk associated with the losses banks would incur in the event of a default. This is because of the low level of this cost (0.04% of average outstanding loans in 2017) and because it is methodologically difficult to calculate the cost of risk on new loans at each date. Margins are also calculated without taking into account the fact that when the loan is taken out, the borrower also tends to purchase other services from the lending bank (loan insurance, opening of a current account, etc.) whether or not he/she is contractually obliged to do so. These services and the associated profits are therefore linked for the bank.
Banks are prepared to grant housing loans with near-zero net margins as they hope to offset this by selling other services with positive margins to the clients recruited through lending activities, or by providing insurance for the loan or the financed property. Therefore, having a net margin that is temporarily close to zero does not necessarily raise questions as to the relevance for French banks of carrying out housing lending activities. Nonetheless, recent developments in loan pricing seem contradictory given the downward pressures observed on banks’ other sources of revenue.

- **Low margins on new lending are continuing to weigh on the profitability of outstanding housing loans**

In the period 2015-18, which was marked by very low margins on new flows, new lending was particularly dynamic, buoyed notably by renegotiations of existing loans. As a result, the average margin on the outstanding stock of housing loans\(^\text{11}\) declined markedly, and by the end of 2018 had dropped by 1 percentage point from its peak of December 2014 (see Chart 18). Taking into account overheads (e.g. payroll costs and taxes), banks’ margin on outstanding loans has thus been negative since the end of 2016. This drop of around 60 basis points between 2016 and 2019 represents a decline of EUR 6 billion a year in profits, or around 10% of lenders’ total net interest margin.\(^\text{12}\)

As the loans granted over the recent period carry low, fixed rates of interest, there are unlikely to be many renegotiations in the future. The average interest rate on outstanding loans will remain low over the long term and will continue to weigh on outstanding loan margins for some time.

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\(^{11}\)The calculation of the margin on outstanding lending differs from the calculation of the margin on new lending and the levels are not directly comparable. The margin on outstanding lending corresponds to the average interest rate on the loans (interest income divided by the outstanding amount of the loans), less the average cost of liabilities (interest expenses divided by the size of the balance sheet) and overheads (payroll costs, cost of external services and taxes divided by the size of the balance sheet). It does not include the cost of hedging interest rate risk.

\(^{12}\)The total net interest margin of the 6 largest French banking groups amounted to EUR 64.9 billion in 2017, see 2017 ACPR Statistical Report (link).
• *If borrowing rates continue to fall, there is a risk that a new wave of loan renegotiations could take place, weakening the banking sector*

Loan renegotiations rose from 17.8% of new lending in June 2019 to 19.6% in July 2019. The average interest rate on new housing loans continued to fall in July 2019, reaching 1.35% versus 1.39% in June. Over the past ten years, borrowing rates have followed the path of French sovereign yields (10-year OAT).

If borrowing rates continue to track OATs and hence decline further, there is a risk we could see a new wave of renegotiations, which would be even more worrying as it would come at a time when bank profitability is already low (see Chart 19).

![Chart 19: Annual fall in the 10-year OAT and borrowing rates relative to the share of loan renegotiations in new housing lending](chart19)

Sources: Banque de France.

3.2 *If housing loan delinquencies were to increase, bank profitability would deteriorate further*

Credit institutions are exposed to the risk of borrower default, as examined in the previous section, and to the risk of losses on their assets if borrowers are unable to repay their debts. Losses on housing loans have a negative impact on lenders’ financial results (the cost of risk is not deducted from the net margin in the previous calculation) and consequently on their balance sheets: they reduce credit institutions’ capital and as a result affect their solvency.

An essential feature of the French housing lending model is the very low rate of delinquencies. Since 2006, despite the loosening of lending standards and the developments in the economic environment (even after the crisis of 2008), lenders have seen no significant rise in their cost of risk for the real estate segment (see Chart 20) that might upset the balance of this model. Indeed, the cost of risk has remained below 0.08% of outstanding lending, which is lower than the margin of error in the margin calculation methodology described earlier.
To ensure lenders remain solvent, banking regulations require them to maintain a minimum level of available capital on their balance sheets. For the portion relating to credit exposures, this minimum is calculated as follows:

\[ \text{outstanding loans} \times \text{average risk-weighting} \times \text{lender's minimum capital requirement}. \]

In France, the risk-weighting of 90% of housing loans is calculated using internal models developed by the credit institutions themselves and authorised by their supervisory authority. These internal models notably estimate the probability of default and the expected loss given default. The probability of default depends on a borrowing household's ability to repay its debts (and therefore on any shocks to income), whereas the expected loss given default depends on the surety on the loan, which in most cases in France takes the form of a loan guarantee (60% of outstanding loans).

Due to the low probability of default and low expected losses, as well as the presence of certain protection mechanisms (see below), the average risk-weighting of French housing loans is lower than the European average.
• **Lenders benefit from some protection**

In France, the vast majority of housing loans are backed by some form of surety that mitigates the lender’s losses in the event of a borrower default.

The most common mechanism is the loan guarantee, which covered 60% of outstanding loans in 2018 (see Chart 22). In this case, the loan is guaranteed by a third party (guarantee company), to which the borrower pays a premium at the origination of the loan (the premium may be partially reimbursed at the term of the loan). If the borrower defaults, the guarantee company pays back the lender on the borrower’s behalf and assumes responsibility for recovering the debt from the borrower. Guarantee companies are generally subsidiaries of banking groups or insurers. The guarantee system basically consists in pooling the losses caused by defaults and getting borrowers to bear the cost, at least partially, via the premium paid at loan origination.

The second most common type of surety is the mortgage, or a simplified version known as a lender’s lien (for completed properties only). In this case, if the borrower defaults, the lender can repossess the mortgaged property, which is not necessarily the property purchased with the loan. This type of surety is more expensive for the borrower than the guarantee system, due to the need for intervention by a notary.

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### Chart 22: Breakdown of outstanding housing loans by type of surety

<table>
<thead>
<tr>
<th>Year</th>
<th>No surety</th>
<th>Other surety</th>
<th>Mortgage or lender’s lien</th>
<th>Guarantee</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>20%</td>
<td>70%</td>
<td>10%</td>
<td>0%</td>
</tr>
<tr>
<td>2011</td>
<td>19%</td>
<td>69%</td>
<td>12%</td>
<td>0%</td>
</tr>
<tr>
<td>2012</td>
<td>18%</td>
<td>68%</td>
<td>13%</td>
<td>0%</td>
</tr>
<tr>
<td>2013</td>
<td>17%</td>
<td>67%</td>
<td>14%</td>
<td>0%</td>
</tr>
<tr>
<td>2014</td>
<td>16%</td>
<td>66%</td>
<td>15%</td>
<td>0%</td>
</tr>
<tr>
<td>2015</td>
<td>15%</td>
<td>65%</td>
<td>16%</td>
<td>0%</td>
</tr>
<tr>
<td>2016</td>
<td>14%</td>
<td>64%</td>
<td>17%</td>
<td>0%</td>
</tr>
<tr>
<td>2017</td>
<td>13%</td>
<td>63%</td>
<td>18%</td>
<td>0%</td>
</tr>
<tr>
<td>2018</td>
<td>12%</td>
<td>62%</td>
<td>19%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Source: ACPR, annual survey of housing finance. Last point: 2018

• **The rate of borrower delinquencies is currently low**

The French housing finance market continues to benefit from low delinquency rates. Non-performing loans (NPLs), that is those on which a payment is at least 90 days past due, amounted to EUR 13.2 billion in 2018, or 1.3% of the total outstanding stock of loans (see Chart 23). The NPL ratio increased after the 2008 financial crisis, rising from a low of 0.9% in 2007 to 1.6% in 2014 (which is higher than the levels observed at the start of the 2000s). It then declined again, gradually and mechanically, due to the rise in total outstanding loans. The amount of outstanding NPLs only declined in 2018.

However, the deterioration in lending standards since 2015 could raise the risk of a rise in delinquencies in the coming years as households appear less able to withstand a shock to their income, especially in the event of a widespread economic crisis (see Box 2 for an estimate of the impact on the default rate).
In conclusion, the HCSF is paying particularly close attention to:

- **rising levels of household indebtedness**, driven by a very dynamic supply of housing credit;
- **the evolution of borrowing households’ solvency** given the rise observed in the average DSTI ratio;
- **the deterioration in the profitability of housing loans** which is weighing on banks’ overall profitability and making the sector more vulnerable;
- **the risk of a new wave of loan renegotiations** if the continued decline in borrowing rates is confirmed.

Over the coming months, the HCSF will examine the appropriate and proportionate responses that could be implemented to contain these risks.
Appendix 1:  

**Borrower stress test methodology (Box 2)**

The INSEE 2017 Wealth Survey provides individual data on the characteristics of surveyed households (composition, employment, qualifications, etc.), their financial debt and their income.

The financial margin of each household is defined as follows:

\[ \text{financial margin} = \text{disposable income} - \text{loan repayments} - \text{rent payments} - \text{daytoday living expenses} \]

Disposable income includes all income received by the household, net of taxes, which is calculated using the tax bases. Loan repayments take into account all loans declared by the household, and not just housing loans. Day-to-day living expenses, excluding housing costs, are supposed to be sufficient to guarantee a minimum standard of living. They are defined according to the scales used by the overindebtedness commissions in 2017: EUR 723 per month for the first person in the household, then EUR 253 for each additional person.

A negative financial margin means that the household has insufficient income to cover all its expenses. In 2017, 12.9% of outstanding housing loans were to households with a negative financial margin. It is important to note, however, that households with a negative financial margin are not necessarily in default: they may have sufficient financial wealth to make up for the income shortfall, or their day-to-day living expenses may in fact be lower than the adopted scales.

According to ACPR data, 1.46% of outstanding housing loans to French residents were in default in 2017. For the rest of the stress test, we assume that these two variables – the share of outstanding loans held by households with a negative financial margin, and the share of outstanding loans in default – evolve in the same proportion.

The stress-test scenario consists in a sudden rise in France’s unemployment rate in 2017 (last date for which data were available in the INSEE Wealth Survey). During the stress period, we assume that borrowing households remain 3.5 times less likely to become unemployed than non-borrowers (probability observed in the wealth survey data). Thus, a 1 percentage point rise in the overall unemployment rate only leads to a 0.41 percentage point rise in the unemployment rate among borrowers.

We also assume that the rise in the unemployment rate among borrowers only results in a certain portion of workers transitioning from employment to unemployment (we do not take into account potential flows in the opposite direction, i.e. from unemployment to employment). A rise of \( x \) percentage points in the unemployment rate among workers with housing debt therefore pushes \((1 - U) \times x\) workers into unemployment, where \( U \) is the initial unemployment rate. The workers who find themselves unemployed are determined using random sampling. The final results are estimated by calculating the average of a high number of random samplings (Monte Carlo method).

The wage income of the workers selected by random sampling is replaced in the short term by the corresponding amount of unemployment benefit (see calculations below), and in the long term by zero. Disposable income and hence financial margins, both for the short and long term, are recalculated for each household. Each household is guaranteed a minimum level of disposable income, corresponding to the highest of either the revenu de solidarité active (RSA
or income support, which is determined by the number of dependants in the household) or the *allocation de solidarité spécifique* (ASS or specific solidarity allowance, which depends solely on the number of adults). Households who are no longer entitled to unemployment benefit can request one or other of these benefits. The RSA is only higher for very large families. The result obtained is the new proportion of housing loans held by households with a negative financial margin.

<table>
<thead>
<tr>
<th>Calculation of the unemployment benefit corresponding to the annual wage: values applicable from 01/07/2017 to 30/06/2018 (Circular No. 2017-14 published by Unedic, the French body charged with managing unemployment benefit).</th>
</tr>
</thead>
</table>

Value in euro of the highest of (i) 365*28.86 (ii) 0.404*wage + 365*11.84 and (iii) 0.57*wage, capped at 0.75*wage.

<table>
<thead>
<tr>
<th>Calculation of the RSA: monthly values applicable from 01/04/2017 to 31/08/2017 (Decree No. 2017-739)</th>
</tr>
</thead>
</table>

Adult living alone: EUR 536.78
Couple with children: EUR 805.17
Couple with children: EUR 966.20 for 1 child, EUR 1127.24 for 2 children, EUR 214.71 for each additional child.

<table>
<thead>
<tr>
<th>Calculation of the ASS: monthly values applicable from 01/04/2017 to 31/03/2018 (Decree No. 2017-1022)</th>
</tr>
</thead>
</table>

Adult living alone: EUR 1142.41
Couple: EUR 1795.20

### Results of scenario 1: 3 percentage point shock to unemployment in 2017

<table>
<thead>
<tr>
<th></th>
<th>Unemployment rate among borrowers</th>
<th>Share of households with a negative financial margin</th>
<th>Share of loans in default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial</td>
<td>4.5%</td>
<td>12.9%</td>
<td>1.46%</td>
</tr>
<tr>
<td>In the short term after the shock</td>
<td>5.7%</td>
<td>13.2%</td>
<td>1.50%</td>
</tr>
<tr>
<td>In the long term after the shock</td>
<td>5.7%</td>
<td>14.0%</td>
<td>1.59%</td>
</tr>
</tbody>
</table>

### Results of scenario 2: 5 percentage point shock to unemployment in 2017

<table>
<thead>
<tr>
<th></th>
<th>Unemployment rate among borrowers</th>
<th>Share of households with a negative financial margin</th>
<th>Share of loans in default</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial</td>
<td>4.5%</td>
<td>12.9%</td>
<td>1.46%</td>
</tr>
<tr>
<td>In the short term after the shock</td>
<td>6.5%</td>
<td>13.4%</td>
<td>1.52%</td>
</tr>
<tr>
<td>In the long term after the shock</td>
<td>6.5%</td>
<td>14.8%</td>
<td>1.68%</td>
</tr>
</tbody>
</table>
Appendix 2: Methodology for calculating bank margins on new housing lending

Bank margins on new housing lending are not observed directly, but instead are estimated using a model. They therefore depend on a number of assumptions, in particular regarding banks’ asset and liability matching, and the proxies used for the costs of different types of financing.

1. Reconstruction of the liabilities associated with real estate lending activities

Using the financial accounts compiled by the Banque de France and market sources, it is possible – using a number of assumptions – to reconstruct the approximate liabilities associated with banks’ real estate lending activities.

Loans to households and government administrations are in part financed using covered bonds with a maturity at issuance of around 9 years, and which can be specifically attributed to these two institutional sectors. With regard to other sources of funding in the form of borrowings (household deposits, NFC deposits, market financing), the amounts are broken down on a pro rata basis between the three borrowing institutional sectors (households, NFCs and government administrations). With regard to the share of funding taken from own funds, a flat rate of 5% of all loans granted is applied. It is thus possible to determine the mix of liabilities (weight of each source of funding) used by banking sector to finance its domestic retail lending activities. The chart below shows the financing structure thus obtained for lending to households, which is then used to estimate housing loan margins.

2. Assumptions used to construct the net margin

- Assumptions regarding hedged risks

Given the minimum cost of risk for banks linked to the non-repayment of housing loans (0.043% of average outstanding in 2017, see “Housing finance in 2017”, ACPR Analyses & Synthèses No. 98), and without taking into account the liquidity risk associated with refinancing, the margin net of the cost of risk can be estimated by calculating the margin net of the cost of maturity transformation. This is done by subtracting from the gross margin an estimate of the transformation margin (or cost of maturity transformation), corresponding to the cost that a bank would incur if it wanted to hedge its exposure to fluctuations in market interest rates over the life of the loan.

In this exercise, this cost is considered to be that incurred by a bank that wants to hedge all of the interest rate risk associated with transforming deposits into loans. This approach ignores the possibility that a bank might macro-hedge its interest rate risk for several activities together. Regarding the other sources of financing (covered bonds, medium to long-term funding), we assume that the risks linked to maturity differences between the bank’s loans and these other sources of financing are not hedged.

- Assumptions regarding the cost of hedging

The cost of maturity transformation can be proxied by the difference between the yield on a zero-coupon bond with the same maturity as the apparent contractual maturity of the loan, and

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13 Source: ECBC (European Covered Bond Council); mortgage and housing bonds, standard covered bonds and securities issued by the Caisse de refinancement de l’habitat (CRH – Housing Refinancing Fund).
14 Scope: F295 and F296 (French national accounting codes).
15 This assumption is based on the prudential capital that French banks allocate to retail activities divided by the corresponding amount of outstanding loans.
16 The average maturity of housing loans is obtained by weighting each monthly repayment of the loan principal by the term of the loan, based on the final maturity of the loan at origination.
the yield on a zero-coupon bond with the same expected maturity as the deposits. To estimate this cost, we need to make some assumptions regarding the expected maturity of the deposits.

Under the adopted approach, the cost of maturity transformation is considered to be the difference between the yield on a zero-coupon bond (derived from swaps) with the same maturity as the average apparent maturity at origination of the new loans, and the yield on a 1-year zero-coupon bond, which is considered to be the rate corresponding to the average apparent maturity of the bank’s liabilities. This is an approximation of the cost of hedging, based on the assumption that the average maturity of deposits is one year.

<table>
<thead>
<tr>
<th>French banks net and gross margin on new housing loans to households</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="chart.png" alt="Chart showing trends in net and gross margins for new housing loans." /></td>
</tr>
</tbody>
</table>

Source: Reuters, DataInsight, ECBC, French Treasury calculations.

Total net margin
Cost of transforming deposits into loans
Gross margin

<table>
<thead>
<tr>
<th>Factors influencing the evolution of margins since 2012</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="chart.png" alt="Chart showing factors influencing margin evolution." /></td>
</tr>
</tbody>
</table>

Source: Reuters, DataInsight, ECBC, French Treasury calculations.
Appendix 3:

Valuation of residential real estate prices

Several models have been developed by international institutions (e.g. ECB, OECD, IMF) and in the academic literature for evaluating the price of residential real estate. In this appendix, we apply these different models to France in order to examine the dynamics of property prices over the past 20 years. The models comprise real explanatory variables along with financial ones such as the amount of outstanding loans and interest rates. They consist in quantifying the difference between the observed level of prices on the one hand, and on the other hand an equilibrium price that is aligned with the economic fundamentals taken into account.

These models include:
- Ordinary least square models (OLS) that use either demand or both supply and demand as explanatory variables. This category of model does not take sufficient account of possible co-integration relationships (or long-term relationships) between variables.
- Vector error correction models (VECM) which have the advantage of identifying long-term equilibrium relationships following statistical tests.
- Simultaneous equation models which make it possible to jointly estimate the determinants of housing demand and supply.

On the whole, the estimations produced using these models are fairly heterogeneous and sensitive to the period under review. They indicate an imbalance of between -33% and +15% in Q4 2018, with a fair number of estimations of around 0%. Thus the estimations indicating an overvaluation are not predominant.

<table>
<thead>
<tr>
<th>Estimation of the overvaluation of French real estate prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caldera et al. (2013)</td>
</tr>
<tr>
<td>Ansoph-Durin (2014)</td>
</tr>
<tr>
<td>Antipa et al. (2013)</td>
</tr>
<tr>
<td>Moisbauer (2012)</td>
</tr>
<tr>
<td>PMI (2019)</td>
</tr>
<tr>
<td>Warlew (2017)</td>
</tr>
<tr>
<td>Saunders et al. (2010)</td>
</tr>
</tbody>
</table>

Note: The colours yellow, red and black indicate periods when prices were overvalued respectively by 0-5%, 5-15% and more than 15%. No colour indicates a period of undervaluation. For the IMF model only, the difference is in percentage points of price growth and not a percentage of the price. The vertical line indicates the last observed period, i.e. Q4 2018.
Source: Banque de France and Banque de France calculations.
Last point: Q4 2018
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