ASSESSMENT of RISKS to the FRENCH FINANCIAL SYSTEM

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Preface

This assessment of risks and vulnerabilities in the French financial system brings together analyses prepared by staff from the Banque de France and the Autorité de contrôle prudentiel et de résolution. The exercise is steered and coordinated by the Banque de France's Financial Stability Directorate, with an assessment published twice yearly, in June and December. This is done as part of the financial stability assignment entrusted to the Banque de France by Act 2013/672 of 26 July 2013 on the separation and regulation of banking activities, and is coordinated with France's Haut Conseil de stabilité financière (High Council for Financial Stability – HCSF).

The following report seeks to identify the risks and vulnerabilities present in the French financial system along with the system's strengths and sources of resilience. This analysis is used in particular to inform the deliberations of the Banque de France's governing authorities and of the HCSF. It seeks to provide support for proposals on macroprudential policy made by the governor of the Banque de France to the HCSF and, where applicable, to assess the impact of these prudential proposals or measures on financial stability.

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Governor of the Banque de France

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1 Summary: Assessment of risks and vulnerabilities to the French financial system

Against the backdrop of an overall deterioration in macroeconomic and financial conditions, the risks to financial stability in France remain under control.

This assessment notes improved macroeconomic conditions both in France and the euro area as a whole. According to macroeconomic projections for France conducted within the framework of the Eurosystem, average annual GDP growth is set to pick up slightly compared with 2015 to reach 1.4% in 2016. The recovery is expected to gain momentum thereafter, with GDP rising by 1.5% in 2017 and 1.6% in 2018. French growth should benefit from renewed activity in the euro area, spurred in particular by the accommodative monetary policy pursued by the European Central Bank (ECB). Yet this upturn will take place against the backdrop of a weak global economic environment according to the International Monetary Fund (IMF), which estimates that world GDP will expand by a mere 3.1-3.2% in 2016 and 3.5% in 2017. Despite accommodative monetary policies, global demand, whether in terms of consumption or investment, is softening, especially in emerging countries, amid financial volatility, weak commodity prices and uncertainty over monetary policy decoupling in advanced economies.

Risk aversion, which guided financial markets in the early part of the year and unleashed high volatility, seems to have abated, but markets remain on edge and sensitive to short-term economic data. Many participants are citing illiquidity issues on certain segments, such as repo and corporate debt markets, as well as long-term pricing anomalies, including, for instance, the fact that swap rates have been persistently below sovereign bond yields. Meanwhile, total negative-yielding sovereign bonds outstanding worldwide have swelled to almost USD 10 trillion,[1] fuelled notably by the introduction of negative yields in Japan.

The commodity market continues to feature an imbalance between plentiful supply and weak demand. That said, oil prices have returned to the USD 45-50 mark, which should relieve some of the pressure on producer countries and financial institutions with exposure to the energy sector in general and oil in particular.

In this challenging environment, characterised by extremely low interest rates, which are expected to last for a prolonged period in the euro area, French financial institutions uphold solid financial performances. The consolidated net profit of France's six main banks climbed to EUR 23.7 billion, while their aggregate CET1 ratio rose by 0.5 of a percentage point (pp) to 12.5%, and their aggregate leverage ratio now exceeds 4%. Faced with a decline in returns owing to low interest rates, coupled with stiffer regulatory requirements, banks are implementing offsetting strategies to maintain positive earnings. Measures include building up and diversifying certain business activities (insurance, asset management, innovative services, increased lending volumes), trimming costs by shutting branches, shedding jobs and selling off non-strategic businesses, and identifying new income sources (fee increases, charges for corporate deposits). Insurers, meanwhile, reported 3.4% revenue growth in 2015, although the low interest-rate environment means a close watch must be kept on the life insurance sector in the medium term. Notwithstanding portfolio reallocations aimed at generating better returns, the average overall return on non-money market funds fell on an annual basis over 2015 and actually entered negative territory in early 2016. Returns on money market funds also decreased, but are still slightly positive in nominal and real terms.

France's residential real estate market stabilised, while the commercial market continued to expand vigorously. Commercial real estate prices remained on an upward trend, especially in the commercial segment and to a lesser extent for office space in the Ile de France region. Lower interest rates have supported higher prices, despite rental yield compression. Overall, the main risks to the French financial system, in decreasing order of importance, are as follows:

1 *Source: Fitch Ratings.*

1. Macroeconomic risk: moderate recovery in France exposed to risks relating to the consequences of the Brexit referendum (financial climate, euro exchange rate, trade) and the risk of a slowdown for emerging economies

Macroeconomic risk remains predominant, notably because of the weak global economic outlook, with demand off pre-crisis trends in most advanced countries and emerging countries undergoing a macroeconomic adjustment, amid financial volatility, soft commodity prices and uncertainty over monetary policy decoupling in advanced economies.

Even so, signs of an economic upturn in France and Europe are firming, as is the scenario of a moderate recovery in activity. This scenario will be shaped in the very near term by the outcome of the UK's Brexit referendum and its eventual economic and financial consequences. If Britain decides on 23 June 2016 to leave the European Union (EU), this will have a major trade and macroeconomic impact on the UK economy according to the available estimates. The sterling depreciation expected in the event of an exit would adversely affect the price competitiveness of euro area exports. Given the City of London's importance to the financial system, Brexit could affect French banks, but it is possible that financial activities might be relocated elsewhere in Europe. In addition to the direct macroeconomic channels of transmission and potential financial spillovers, the political costs of a questioning of the European integration process and possible knock-on effects for the integration and governance preferences of other European Member States or regions also exist but are hard to quantify.

The debt carried by non-financial companies (NFCs) in France, potentially encouraged by the low interest-rate environment, is a point to watch for financial stability. France is the only major European country where the growth trajectory of NFC debt shows no signs of reversing. Furthermore, a comparison of the share of bank lending in the total debt of euro area companies reveals a far more pronounced trend towards disintermediation in France than in other countries since 2008. French NFCs carry far more debt via debt securities than those in other major euro area countries, and France was the only country where this type of debt increased in the recent period prior the stabilisation observed in 2015. Large companies with access to fixed income markets are largely responsible for this growth.

2. Risk linked to the low interest rate environment: risk of an abrupt correction to risk premia on bond assets; pressure on the profitability of banks and insurers; increase in household and corporate debt; increase in interest rate risk through the expected duration of the low interest rate environment and the expanded scope of negative-yielding instruments

Given the scenario of a moderate pick-up in activity in Europe, we do not expect the low interest rate environment in France to change in the short term. As a result, the strategies pursued by certain financial institutions searching for yield could create risks for financial stability. Although these strategies do not yet seem to be prominent among French banks, insurers and investment funds, we are nevertheless closely tracking and analysing the associated risks.

For French banks, the low interest rate environment is a key point to watch, because banks are heavily dependent on interest income from their lending activities. Low interest rates encourage banks to reallocate portfolios towards higher yielding but also riskier assets – although they are doing so in small proportions for the time being – and could prompt them to increase risk taking in their lending activities. Waves of mortgage renegotiations and repurchases over recent years have left banking books essentially made up of fixed rate loans at close to record lows, which will be a drag on bank margins in the event that interest rates go up.

Low interest rates also pose a sustainability risk for insurers' business models. Some entities have already adjusted their models by concentrating on selling unit-linked contracts, which transfer financial risk to the insured party, while there was a slight increase in the share of investments in corporate bonds in 2015 and a 1% increase in asset duration, which could be linked, among other things, to the search for yield.

In the low interest rate environment, investments in collective investment schemes are being redirected towards mixed and equity funds that offer the prospects of a better return on investment. Asset managers searching for yield are stepping up their investments in longer-term securities issued by higher-risk foreign issuers (private issuers, in particular NFCs). Despite these portfolio reallocations, the average overall return on non-money market funds declined on an annual basis over 2015 and actually became negative in early 2016 (-5.3% in March 2016). In addition, the average residual duration of the debt securities held by non-money market funds has continued to increase, rising to 6.7 years in late 2015 from 6.4 at end-2014 and 5.5 at end-2013, exposing these funds to the risk of an abrupt increase in long rates. The substantial value losses suffered by bond and mixed funds in the second quarter of 2015 following the upturn in long rates illustrate this risk factor. More generally, the low interest rate environment in the euro area could challenge the French money market management industry's European leadership by encouraging investors to move into positive-yielding currencies.

3. Market risk: reassessment of risk premia; commodity price volatility generating portfolio risk; risk of financial volatility linked to the outcome of the UK Brexit referendum

After a bout of high volatility in the early part of the year severely affected securities linked to the energy and banking sectors, relative calm has been restored, but financial markets are clearly still on edge. The chief risk to Europe's financial markets would be a larger-than-expected increase in US policy rates, which would pull European rates along despite cyclical decoupling, in echo of the 2013 taper tantrum. Yield spreads could also trigger a massive outflow from European to US funds, bringing a decline in European asset prices and further euro depreciation against the dollar. At any rate, it seems reasonable to expect further spells of heightened volatility on European markets in the upcoming months as the Brexit referendum looms.

Table 1

SUMMARY OF THE MAIN RISKS TO THE FRENCH FINANCIAL SYSTEM: LEVEL AND CHANGE

Main risks to the French financial system	Current level and change [a]
1. Macroeconomic risk Scenario of a moderate recovery in France exposed to risks relating to the consequences of the Brexit referendum and the risk of a slowdown for emerging economies.	→
2. Risk linked to the low interest rate environment Risk of an abrupt correction to risk premia on bond assets; pressure on the profitability of banks and insurers; increase in household and corporate debt; increase in interest rate risk through expected duration of the low interest rate environment and the expanded scope of negative-yielding instruments.	→
3. Market risk Extreme commodity price volatility generating portfolio risk, risk of financial volatility linked to the outcome of the UK Brexit referendum.	→
4. Real estate risk Resilience of deposit system for residential real estate loans; risks concentrated on commercial market owing to significant price overvaluation of offices in the Ile de France region.	↑
5. Regulatory risk for French banks Heavy regulatory pressure to adjust the business models and balance sheets of French banks to comply with Basel ratios between now and when the rules are implemented; new reforms currently being finalised could generate additional adjustment costs.	↑

↑ Systemic risk ↑ High risk ↑ Moderate risk

a) The current level (shown by the colour code) is based on an expert assessment that reflects the probability that the risk will occur and its potential systemic impact on a six-month horizon. The change (shown by the direction of the arrow) reflects the change since the last risk assessment. The identified vulnerabilities are the result of a review of indicators included in the risk mapping exercise (whose scores reflect the intensity of risks to financial stability) combined with more qualitative data.

Bond market liquidity, which measures the ability to swiftly execute transactions at low cost without materially affecting prices, is currently the subject of differing assessments, with the findings of qualitative surveys of market participants and operators contrasting with those of long-standing quantitative indicators, such as volume, market depth and bid-ask spreads. Numerous reports and surveys reveal that market participants have major concerns over the state of liquidity on bond markets, particularly on the corporate bonds segment, whereas direct measures of the price of liquidity (bid-ask spreads) remain at levels comparable to those observed before the financial crisis, and recent episodes of stress have not had long-lasting consequences. The multidimensional nature of liquidity makes the concept a hard one to grasp and measure, especially since the available data for European bond markets are often of inferior quality. The increasing frequency of flash crashes appears to point to a change in the nature of bond market liquidity, which has the potential to vanish suddenly. On bond markets, the gap between the supply of and demand for market making services, which is generally linked to regulatory and technological developments, seems to have made market liquidity more fragile.

Non-standard monetary policy measures, led by asset purchase programmes, now form a crucial factor in determining financial asset prices and market expectations. A report on bond market liquidity published in early 2016 by the Committee on the Global Financial System (CGFS) reveals that while these policies support primary markets and initially improve liquidity, they could, after a prolonged period, play a part in reducing the liquidity of market segments covered by purchase programmes, generate expectations of a deterioration during the normalisation phase, and encourage herd behaviour by investors. In the case of the Eurosystem, the securities lending system put in place as part of the non-standard operations is designed to mitigate this risk. So far, banks have made little use of the facility.

4. Real estate risk: strong growth in commercial real estate prices, especially for office space in the Ile-de-France region

A close watch still needs to be kept on commercial real estate, where prices in some segments have risen to high levels, particularly in the Ile-de-France office sector, with a widening and significant gap opening up over the returns on these assets. The presence of excess supply on the commercial real estate market associated with a financial shock in the event of an increase in interest rates could lead prices to collapse across the board. This, in turn, might lead to total or partial defaults by the holders of real estate investment funds. In this regard, France's Haut Conseil de Stabilité Financière (High Council for Financial Stability – HCSF) published a detailed report in April 2016 on developments and risks on the commercial real estate market and began a consultation with the main market participants.

Despite the first signs of recovery, the residential real estate market is still exposed to a correction, particularly if financing terms suddenly become more restrictive, because prices have not come down by much since their rise in the 2000s. Furthermore, the upturn could encourage riskier behaviour by lenders and borrowers alike. Accordingly, although an analysis of lending terms does not point to increased risk taking by banks in 2015, the levels of debt carried by French households, while lower than in the United States or the United Kingdom, have risen steadily in the last two years, unlike in other major euro area countries.

5. Regulatory risk for French banks: regulatory pressure to adjust the business models and balance sheets of French banks to comply with Basel ratios before their implementation; new reforms currently being finalised could generate additional adjustment costs.

The viability of the business models applied by the main French banks does not appear to be challenged in the medium term. However, economic and financial conditions are a drag on banks' profitability, as are heightened competition from non-banks (especially investment funds) in lending and the emergence of innovative financial services providers known as fintechs. Moreover, the banking sector's reliance on computer technology and the trend towards outsourcing critical functions make banks more vulnerable to operational risks, and particularly to cyber-attacks. Banks' detection systems foil many attacks, but several major incidents in the recent period underscore the growing sophistication of these threats and the magnitude of the associated risks.

French banks have carried out the bulk of the adjustments linked to the requirements introduced by the Basel III reforms (December 2010, June 2011), but the Basel Committee is still discussing measures to complete the framework. Banks will also have to comply with new constraints connected with the introduction of Total Loss Absorbing Capacity (TLAC) and new provision requirements (IFRS 9). Accordingly, compliance with the G20 commitment to complete Basel III without a significant increase in capital requirements for the banking sector as a whole will be necessary to prevent the overall regulatory reforms from having unwanted effects.

Main points to watch in the second half of 2016

- Slowdown in emerging countries and its macroeconomic consequences for Europe and France
- Adjustments by financial institutions, including banks, insurers and asset managers, to a prolonged period of low or even negative interest rates
- Households and NFC debt
- In the event of Brexit, negotiations between the UK and the EU on exit terms and the consequences of the high volatility expected on financial markets.

2 Risks linked to the macroeconomic and macrofinancial environment

Macroeconomic conditions are improving in France and the euro area. According to projections for France conducted within the framework of the Eurosystem, average annual GDP growth is set to pick up slightly compared with 2015 to reach 1.4% in 2016. The recovery is expected to gain momentum thereafter, with GDP rising by 1.5% in 2017 and 1.6% in 2018. French growth should benefit from renewed activity in the euro area, spurred in particular by the accommodative monetary policy pursued by the European Central Bank (ECB). Domestic demand will firm markedly with a sharp increase in private consumption, especially during the first half of 2016, and evidence of a sustained pick-up in business investment. Moreover, household and government investment will gradually cease to dampen growth. Driven downwards by the past decline in oil prices, inflation is expected to be extremely muted in 2016, at 0.2% on an annual average, before recovering in stages to 1.1% in 2017 and 1.4% in 2018.

This scenario will be shaped in the very near term by the outcome of the UK's Brexit referendum and its eventual economic and financial consequences. If Britain decides on 23 June 2016 to leave the European Union (EU), this will have a major trade and macroeconomic impact on the UK economy. According to our estimates, the decline in activity owing solely to the trade impact of a UK exit would be limited for France in the long run, although the sterling depreciation expected in the event of an exit would adversely affect the price competitiveness of euro area exports. Given the City of London's importance to the financial system, Brexit could affect French banks (concentration of market infrastructures, location of specialised activities, local counterparties), but it is possible that financial activities might be relocated within Europe. In addition to the direct macroeconomic channels of transmission and potential financial spillovers, the political costs of a challenge to the European integration process and possible knock-on effects for the integration and governance preferences of other European Member States or regions also exist but are hard to quantify at this stage.

Yet this macro improvement is taking place against the backdrop of a weak global economic environment according to the International Monetary Fund (IMF), which estimates that world GDP will expand by a mere 3.1-3.2% in 2016 and 3.5% in 2017. Despite accommodative monetary policies, global demand, whether in terms of consumption or investment, is off pre-crisis trends in most advanced countries. Emerging countries, meanwhile, are engaged in a macroeconomic adjustment (rebalancing in China, end of the commodity supercycle), which is causing the pace of growth to cool. The economic slowdown observed since 2011 is continuing and the international organisations have cut their growth forecasts for emerging countries amid financial volatility, soft commodity prices and uncertainty over monetary policy decoupling in advanced economies. The second risk identified in this assessment is therefore that of a real slowdown for emerging economies, compounded by a currency shock.

2.1. Growth and inflation prospects in France

a. Activity rebounded in France in 2015, pulled along by domestic demand

After three years of weak growth, activity rebounded in France in 2015. The decline in oil and import prices led to pronounced purchasing power gains, which paved the way for a sharp uptick in private consumption. Furthermore, after falling steeply for several years, total investment stopped decreasing in 2015, with, in particular, evidence of a recovery in business investment. The growth contribution from external trade remained negative in 2015, however, owing to a strong performance by imports, even though exports accelerated briskly on more sustained demand within the euro area and the positive effects of previous currency depreciation. French GDP growth is expected to

rise on an average annual basis from 1.2% in 2015 to at least 1.4% in 2016, 1.5% in 2017 and 1.6% in 2018.[1]

The additional slide in oil prices at the close of 2015 will provide support to domestic demand in 2016. In a setting of weak inflation, household purchasing power gains will be significant, especially in the first half of the year. Private consumption is therefore expected to rise sharply in 2016 and remain strong in 2017-2018 as purchasing power gains are gradually spent.

Conditions should favour continued growth in business investment, particularly thanks to the ECB's highly accommodative monetary policy. Labour cost moderation is also expected to help corporate profit margins to rebuild in 2016 before settling in 2018 at levels close to those seen observed in the first half of the 2000s prior to the crisis. After contracting sharply in 2014 and 2015, government investment should contribute positively to growth again between 2016 and 2018. Household investment will shrink again in 2016 but should increase slightly in 2017 and 2018.

Global demand, while brisk, is expected to accelerate only weakly in 2016 because the growth outlook for emerging countries is dimmer than previously expected. Further, export growth in 2016 and 2017 will be hampered by effective exchange rate appreciation since December. By contrast, import growth will continue to be sustained by vigorous domestic demand. As a result, the net growth contribution of external trade will be sharply negative in 2016 before becoming neutral by the end of the forecast period.

Table 2

Summary of projections for France

	2015 (17/05) unadjusted	2015 (29/04) adjusted for seasonal variations and working days	2016	2017	2018
HICP	**0.1**	**0.1**	**0.2**	**1.1**	**1.4**
HICP excluding food and energy	**0.6**	**0.6**	**0.6**	**0.7**	**1.1**
GDP deflator		1.2	1.1	1.1	1.3
Real GDP	**1.3**	**1.2**	**1.4**	**1.5**	**1.6**
Contributions (in GDP percentage points)*:					
Domestic demand excl. changes in inventories	1.3	1.1	1.8	1.6	1.7
Net exports	-0.3	-0.2	-0.6	0.0	0.0
Changes in inventories	0.1	0.3	0.3	-0.1	0.0
Private consumption	1.5	1.4	1.9	1.6	1.7
Government consumption	1.4	1.5	1.4	0.8	0.8
Total investment	1.0	0.0	2.0	2.4	2.4
Government investment	-3.8	-3.0	1.2	1.4	1.9
Household investment	-0.8	-2.7	-1.2	0.9	0.1
Business investment (NFCs-FCs-IEs)	2.8	1.9	3.4	3.1	3.3
Exports	6.1	6.1	2.9	4.6	4.5
Imports	6.6	6.4	4.9	4.5	4.5
Household real gross disposable income	1.6	1.8	2.1	1.4	1.6
Household saving ratio (% of gross disposable income)	14.5	15.4	15.6	15.4	15.3
ILO unemployment rate (France and overseas territories,% of labour force)	10.3	10.3	10.1	10.0	9.8

Sources: INSEE for 2014 and 2015, Banque de France projections shaded. Annual growth rate unless stated otherwise.
** Because of rounding, the sum of contributions does not necessarily match GDP growth.*

1 *This forecast updates the previous forecast made in December 2015 for 2016-2017 and is extended to include 2018. It was completed in mid-May as part of the Eurosystem's coordinated forecasting exercises. It thus draws on international assumptions to 10 May 2016 and on national quarterly accounts for France published by Insee on 29 April 2016. For timetabling reasons linked to the coordination of forecasts within the Eurosystem, this forecast does not include the national quarterly accounts as revised on 30 May. These accounts amended certain annual averages and quarterly profiles and contained upward revisions for Q1 2016 growth and the growth contributions of several items (see also implications in terms of risks to the outlook for activity, below). The growth rate of 1.2% in 2015 (adjusted for working days), which was the starting point for the 2016-2018 forecast, was, however, confirmed.*

b. Inflation is expected to be weak in 2016 before climbing gradually in 2017 and 2018

Inflation, measured by the harmonised index of consumer prices (HICP), is forecast to reach 0.2% in 2016 on an average annual basis, after 0.1% in 2015. It is expected to gradually rise to 1.1% on an average annual basis in 2017 and 1.4% in 2018, reaching 1.5% year-on-year (yoy) in the final quarter of 2018. Stripping out food and energy, inflation should be stable in 2016 at 0.6% on an average annual basis, the same as in 2015, before easing up to 0.7% in 2017 and 1.1% in 2018.

The sharp decline in oil prices since the second half of 2015 is expected to have a highly adverse impact on headline inflation in 2016. Inflation excluding energy and food should increase very moderately owing to weak growth in unit labour costs and a persistently high unemployment rate. In 2017, however, energy inflation will recover, as will service-sector inflation following the pick-up in nominal wages. Meanwhile, the recent exchange rate appreciation will act as a drag, with a lag of several quarters, on inflation for manufactured products. These effects will subside in 2018, at which time inflation will recover more markedly as the output gap narrows and capacity utilisation rates steadily increase.

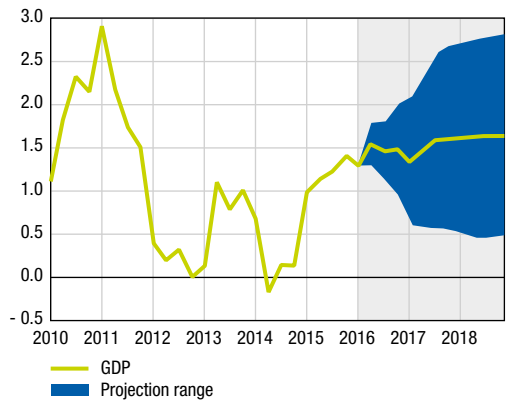
c. Downside risks to the outlook for activity

The integration of the revisions published on 30 May, and the uncertainties surrounding our baseline economic scenario could lead to a slight upwards revision of the growth projection for 2016. Insee, France's national statistics agency, revised Q1 2016 growth upwards on 30 May, and GDP growth carryover for 2016 at the end of Q1 stood at 1.1%, compared with 1.0% in the initial estimate. This makes it likely that average annual growth could be slightly more sustained in 2016. By contrast, Insee's report of 30 May also showed that the saving rate was sharply lower in 2015 and Q1 2016 than suggested by the quarterly accounts published at the end of April. The vigorous private consumption performance following the oil counter-shock could therefore be slightly more moderate than expected, because it has less chance of being supported by a fresh decline in the saving rate. Such a scenario could affect growth in 2017 and even in 2018. Moreover, the projections for 2017 onwards, in accordance with convention, do not factor in the impact of additional budget consolidation measures that may be necessary to get the government deficit below 3% by 2017.

Chart 1

Projection ranges for GDP growth

(year-on-year change)

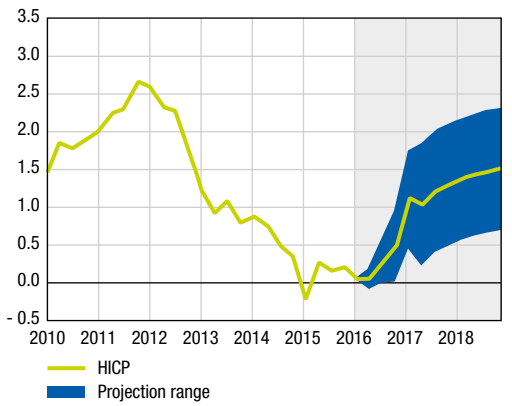


Source: Banque de France.

Chart 2

Projection ranges for GDP inflation

(year-on-year change)



Source: Banque de France.

As regards inflation, the main risks are balanced on the whole. Activity-related risks cast uncertainty over the scale of the recovery in inflation over the forecast horizon. However, a bigger-than-expected rise in oil and import prices could help to push up headline inflation more quickly. Furthermore, the inflationary effects of highly accommodative monetary policy could exceed those written into the forecasts.

2.2. Impact of Brexit on UK and European trade and activity

If Britain decides on 23 June 2016 to leave the EU, this will have a major trade and macroeconomic impact on the UK economy with negative knock-on effects on other European economies. Studies estimate that Brexit would reduce the level of UK GDP by between 2% and 8% over the long run. Heightened uncertainty is also expected to have a significant short-term impact, curbing economic activity by between 2% and 4% in the United Kingdom and between 0.3% and 0.9% in the euro area.

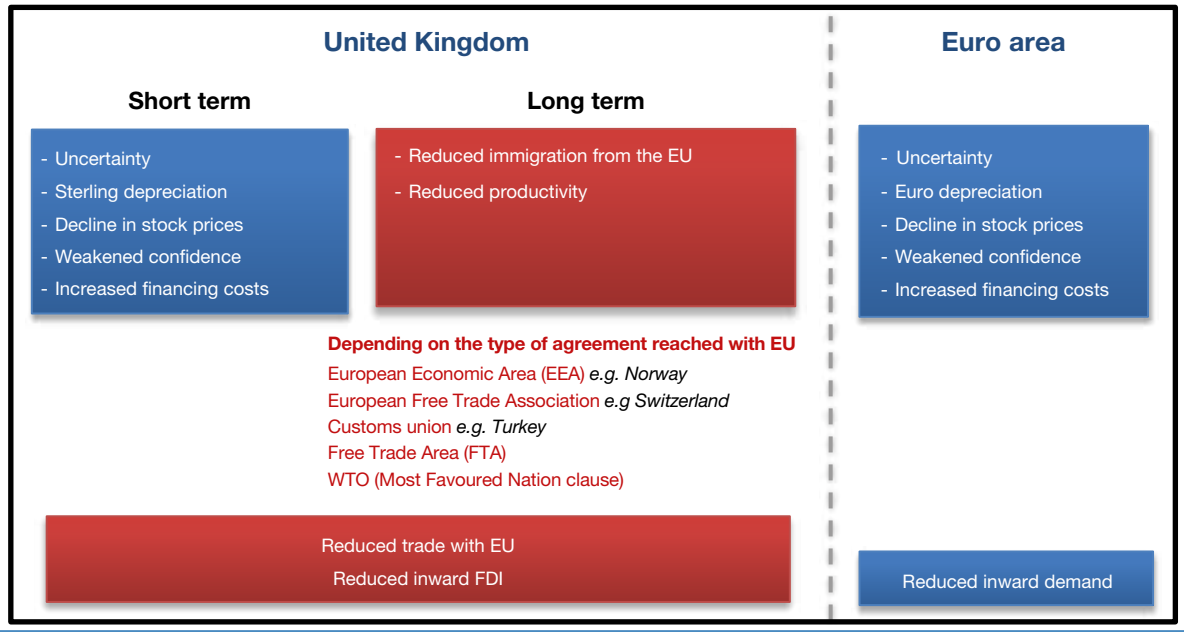
The substantial uncertainty generated by Brexit would bring short-term transitional costs and raise issues for long-term potential growth.

a. Channels of transmission for Brexit effects

There are acknowledged legal and institutional risks connected to the UK exit from the EU. The exit procedure and negotiating a new relationship with the EU and third countries will take time, placing the country and its economy in a state of uncertainty for some years. Depending on the terms of the exit agreement, the United Kingdom could be deprived of access to a wide range of community mechanisms and policies, including loss of access to the single market and the end of police and judicial cooperation.

Table 3

Channels of transmission for Brexit effects



Source: Banque de France.

In the event of Brexit, the United Kingdom will have two years to negotiate an exit agreement with the EU. During this time, the UK and euro area economies may experience severe volatility on financial markets. This situation could also lead to a resurgence in political risk in Europe.

b. Impact of Brexit in the short to medium term

The OECD,[2] NiESR[3] and HM Treasury[4] have examined the short to medium-term impact of Brexit using a NiGEM model (Table 4). The financial shocks considered correspond to uncertainty shocks that materialise in the shape of lower stock prices, higher risk premia, increased precautionary saving and sterling depreciation. In the medium term (after two years), these estimates factor in a reduction in UK trade, productivity and migration flows. In addition, the OECD estimates the short-term impact of Brexit on European economies at -0.9% by combining the financial shock with a negative shock to demand from the United Kingdom.[5]

Table 4

Impact of Brexit on the UK economy in the short and medium term

Short/medium term	OCDE+		NiSER			HM Treasury		LES/CEP	
2020	WTO / FTA		EEA	FTA	WTO	FTA	WTO	ZLE	OMC
GDP (%)	**-3.3**		**-1.9**	**-2.1**	**-2.9**	**-3.6**	**-6.0**	**-1.3**	**-2.6**
Trade (%)	**-8.1**	**-6.4**	**-15.0**	**-17.0**	**26.5**				
Assumptions									
Financial shock	*	*	*	*	*	*	*		
Reduced trade	*	*	*	*	*	*	*	*	*
Productivity	*	*				*	*		
Immigration	*	*							

Sources: OECD, NiESR, HM Treasury, London School of Economics (Center for Economic Performance).
Note: The OECD's estimates are based on the assumption that the United Kingdom will initially follow WTO rules before signing a free trade agreement with the EU.

c. Brexit's possible impact on French banks

Brexit's impact on French banks will depend on several factors, including the UK's exit procedures and whether tax or regulatory dumping strategies are adopted to restore competitiveness. With this in mind, the impact could be felt through three different channels.

The first channel relates to the use by French banks of market infrastructures located on British territory. In April 2016, UK-based platforms accounted for 43% of trading in the Euro Stoxx 50 index (20% for BATS Chi-X, 12% for Turquoise and 10% for LSE), ahead of Euronext (28%) and Xetra (21%). UK-based infrastructures are even more dominant in other areas when it comes to interest rate products, accounting for 69% of transactions in euro interest rate derivatives at the beginning of 2013 (compared with 11% for France and 7% for Germany), 45% of euro trading volumes on the Forex market (compared with 18% for the United States, 5% for France, 4% for Switzerland and 3% for Japan and Singapore), while UK central counterparty LCH.Clearnet boasts a market share of 95% in the clearing of interest rate swaps through SwapClear, its specialised clearing house. Given the UK financial centre's commanding share of these

2 OECD (2016), "The economic consequences of Brexit: a taxing decision", OECD Policy Paper No. 16.
3 NiESR (2016), "The short-term economic impact of leaving the EU", J. Baker, O. Carreras, M. Ebell, I. Hurst, S. Kirby, J. Meaning, R. Piggott, J. Warren, National Institute Economic Review No. 236 May.
4 HM Treasury (2016), "HM Treasury analysis: the immediate economic impact of leaving the EU".
5 The UK accounts for 12% of demand for euro area products and services.

different segments, it seems unlikely that its dominance will be challenged. That being said, clearing activities for euro-denominated products could be repatriated to the euro area.

The second channel involves the presence of French banks in the United Kingdom. French banks conduct global management of some of their specialised businesses, such as project finance, shipping finance and, to a lesser extent, capital market activities, particularly derivatives, through London subsidiaries, notably because of the supportive ecosystem and the availability of associated services, including legal and tax experts. Brexit might prompt banks to bring some of these activities back to France, particularly where transactions involve EU counterparties or euro-denominated underlyings.

The third channel concerns the exposure of French banks to UK counterparties, including the UK subsidiaries of French banks. In late 2015, French banks carried exposure (ultimate risk) of USD 228 billion to counterparties resident in the UK (including USD 102 billion for the UK banking sector), or about 10% of the total exposure of foreign banks to UK counterparties. If Britain leaves the EU, French banks could redirect a portion of their transactions to European counterparties. This effect could potentially be magnified by the relocation of the subsidiaries of third country banks (notably US institutions) from London to other European financial centres.

French banks could also be adversely affected by Brexit's impact on European financial stability. Severe sterling devaluation – estimates suggest that the pound could depreciate by 10% to 20% over two years against the currencies of the UK's partners – would substantially reduce the value of assets denominated in pounds from the perspective of euro area counterparties. This could fuel concerns over the soundness of systemically important intermediaries, which could in turn put strain on liquidity. With this in mind, the Bank of England announced that it would hold two liquidity-providing operations before the referendum and a third one afterwards. Moreover, it has a number of tools at its disposal to contain these pressures.

However, should stress appear on market segments in which the United Kingdom plays a major role for the euro area and should this stress spill over to the euro area because of a breakdown of trust between participants (fears of large-scale exposure to affected intermediaries), the ECB can also call on a broad range of instruments to relieve the pressures.

2.3. Risks linked to emerging countries

a. Description of factors that could trigger the possible scenarios

The situation of emerging countries remains characterised by a number of downside risk factors, including a more pronounced economic slowdown in China as the country rebalances its growth model, a deepening crisis for countries already in recession (Russia, Brazil), increased weakening in oil-exporting countries, and more non-economic shocks, ranging from conflicts to geopolitical risk and pandemics. The issue of weaker potential growth in emerging countries is a further concern. A major source of vulnerability for emerging countries lies in the increase in their overall debt, which swelled from 140% of GDP at the end of 2010 to 170% in late 2015, with the private sector accounting for more than half of the total. Given the large stock of dollar-denominated debt, the debt increase could result in major balance sheet and currency mismatch risks if currency depreciation trends remain in place.

However, there are also upside factors. These include the prospect that the Fed might raise rates more gradually than initially expected, an upturn in portfolio flows in early 2016

after net capital outflows in 2015 for emerging countries overall, and more favourable developments in the recent period for some countries (strength of China's expansion, ruble recovery on the rebound in oil prices, Argentina's return to international debt markets with USD 16.5 billion issue in May 2016). In addition, emerging economies are now better equipped to deal with volatility on markets and in capital flows thanks to their experience in crisis management, their accumulation of sizeable foreign reserves, greater monetary policy credibility and more flexible exchange rate regimes, which limit the risks of speculative currency movements. Furthermore, some commodity-importing countries, including India, Mexico and central European nations, continue to record strong growth. These factors temper the emerging risks but not enough to completely rule out the scenario described below.

b. Scenarios based on a simultaneous slowdown for large emerging nations and spillover effects to advanced economies

Several scenarios were assessed to gauge the consequences for the global economy of a slowdown in emerging economies and associated exchange rate variations.[6]

i. A real slowdown in emerging economies…

The scenario assumes a simultaneous slowdown for China, Brazil, Russia, Turkey and South Africa. The growth rate of domestic demand in each country is assumed to suffer a one-off 2 pp shock over one year. This assumption corresponds to the average slowdown in domestic demand in these countries observed since 2013, during which Russia, Brazil and Turkey have been hardest hit. Partner economies would be affected through the trade channel via a decline in global demand for their products and services.

ii. … compounded by a currency shock

Since the start of 2016, capital flows from emerging to advanced countries have driven the US and European currencies upwards. These flows are partly linked to increased risk aversion among economic agents towards emerging countries in connection with the fall in commodity prices and a reassessment of risk linked to the disappointing economic performances of recent years.

In this scenario, we assume that the risk premium on emerging currencies increases, leading to a depreciation over one year of 5% against the dollar in China and 10% in Russia, Brazil, Turkey and South Africa. This additional currency shock compounds the domestic demand shock in order to more effectively capture currency movements observed in similar circumstances and that are underestimated in the NiGEM model's endogenous reactions. Monetary policies pursued in advanced countries have a major impact on the volatility of capital flows and hence on the currencies of emerging countries. Despite negative interest rates in Japan and the euro area, a rise in US rates in the second half of 2016 could lead to more sudden stops in capital flows towards emerging countries and to currency depreciation, as in 2015.

The effect of emerging-currency depreciation should offset the negative impact of the domestic demand shock. Currency depreciation would have both a positive impact on the exports of these countries (through improved price competitiveness) and a negative effect on imports (by making imported goods more expensive). Developed economies, by contrast, would be more affected by the relative appreciation of their currencies.

6 *The scenarios were created using the National Institute of Economic and Social Research's NiGEM model.*

iii. Impact on global activity

For emerging countries exposed to an initial domestic demand shock, the economies that are most open to trade (China and South Africa) would suffer a smaller contraction in activity owing to the fall in imports triggered by weaker demand. In the event of an additional currency shock, all emerging countries would be less affected thanks to the beneficial impact of exchange rate depreciation on their net exports. In terms of the spillover of the real shock to advanced economies, Japan and the euro area would be harder hit than the US and the UK, notably because of their stronger trade ties to affected emerging countries. All developed economies except for the United States would be more affected if the real shock were accompanied by emerging-currency depreciation, which would lead to effective appreciation of developed economies' currencies.

The impact on US GDP is lessened if the domestic demand shock is accompanied by currency depreciation in emerging economies. In the case of the United States, monetary easing by the Federal Reserve (25 basis points in the event of a real shock, 45 basis points if the shock is accompanied by dollar appreciation) would make it possible to mitigate the external shock to the US economy. This effect is closely linked to the assumptions underlying the scenario, which assumes a gradual increase of 86 basis points in US rates over the course of 2016 that will free up room for manoeuvre in monetary policy. The baseline scenario for Europe does not include rate hikes in 2016. Accordingly, European monetary policy does not have room to adjust the policy rate to cushion the adverse effects of an external shock.

Overall, compared with a scenario featuring no shock, global GDP is estimated to contract by between two-tenths and three-tenths of a percentage point under a stressed scenario comprising a real slowdown and a currency shock for emerging countries. The impact of the combined demand/currency shock on France would be relatively limited at around one-tenth of a percentage point in 2016.

c. Exposure of the French financial system to emerging economies

In its most recent Global Financial Stability Report (GFSR) in April 2016, the IMF showed that the integration of emerging economies in the global economic and financial system has increased considerably in the last two decades, leading to a rise in spillovers from emerging economies. The equity market shock in early 2016, which can be traced back to China, attests to the growing interconnections.

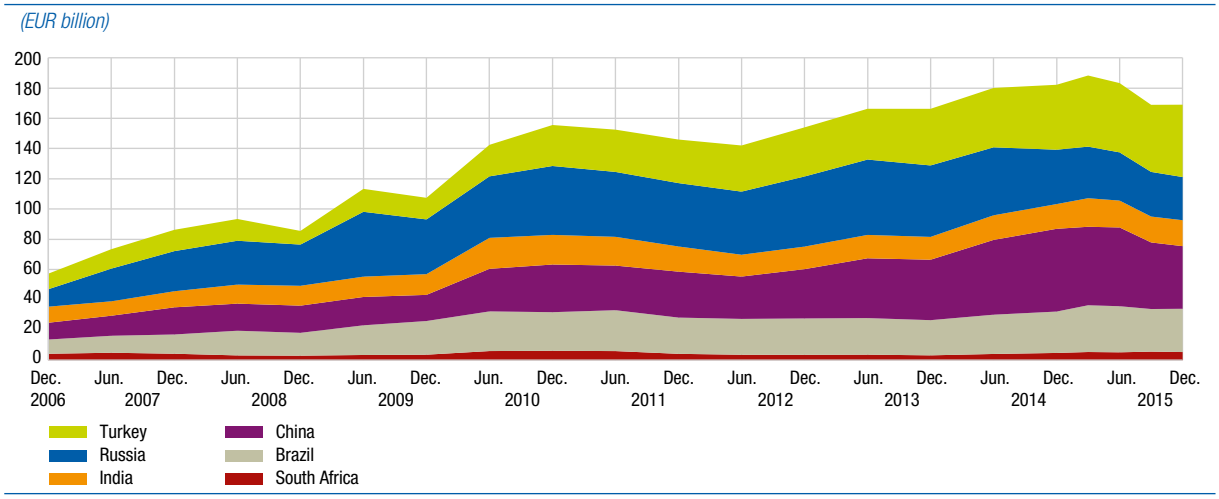
That being said, the direct exposure of Europe's financial system to emerging countries and financial markets remains relatively limited. European banks had exposure of EUR 2.3 trillion (11% of risk-weighted assets) to emerging markets at 30 June 2015,[7] while the exposure of major European insurers amounted to 3.4% of assets in June 2014.[8] Euro area investment funds were exposed to the tune of EUR 669 billion (9.5% of assets under management) in the third quarter of 2015.

The French financial sector is also weakly exposed to emerging countries. Moreover, these exposures are on the decline, seemingly in response to the appearance of downside risks to the growth of these economies. French banks cut their exposure to emerging economies from a peak in March 2015 of EUR 188 billion to EUR 169 billion at 31 December 2015 (Chart 3). Exposure to China, in particular, was slashed by 20% in the space of a year to EUR 41.4 billion, while exposure to Russia was trimmed by 10% to EUR 28.5 billion. French investment funds drastically reduced their exposure to securities issued on emerging markets[9] by EUR 1.93 billion between the end of 2014

7 *Source: European Banking Authority (EBA).*
8 *Source: EIOPA.*
9 *BRICS + Turkey.*

Chart 3

Exposure of France's five main banking groups to the BRICS and Turkey at 31/12/2015 (EUR billion)



Source: ACPR.

and the end of 2015 to EUR 5.80 billion, or a mere 0.42% of assets under management. Insurers also have low exposure to emerging countries: outstanding debt securities held by the French insurance sector and issued by emerging countries[10] stood at just EUR 1.435 billion at 31 December 2014, or less than 0.1% of assets.

Beyond this direct exposure, the second-round effects of a slowdown in emerging economies, especially China, could impact the European financial system. Muted growth in China could cause Chinese investors to exit Europe, which would weaken the financial institutions from which they withdraw most of all.

Last but not least, more than half of all emerging debt is denominated in foreign currencies, especially US dollars. Higher interest rates in the United States and pronounced dollar appreciation could spark massive defaults affecting financial institutions with exposure to these borrowers, notably commodity-producing emerging countries.

2.4. Risks linked to the low interest rate environment

a. Effect of the prolonged low or negative interest rate environment for banks, insurers and asset managers

Despite the persistent low interest rate environment, French financial institutions continue to turn in solid financial performances. The decline in returns linked to the low level of interest rates is forcing them to implement offsetting strategies to improve profitability, boost business or find new income sources in order to maintain positive earnings. Some measures could potentially create risks for financial stability – particularly the increase in duration and in the riskiness of assets held – but do not yet seem to be material among French banks, insurers and money market funds.

i. Banking sector

Impact of the low interest rate environment on the earnings of French banks

a. French banks' 2015 earnings show that net banking income (NBI) held up despite the low interest rate environment

10 BRICS + Turkey.

After substantial one-off expenses in 2014, the 2015 earnings of France's six main banking groups[11] showed a recovery.

Despite the low interest rate environment and renewed market volatility, aggregate NBI increased by 7.3% between 2014 and 2015 from EUR 136.4 billion to EUR 146.3 billion; a portion of the increase was attributable to currency effects, which were substantial in some cases, and to the impact of the reevaluation of their own debt for certain groups;

Overall, net income attributable to equity holders (NI) consolidated net profit rose by 65.9%, climbing by EUR 9.4 billion compared with 2014 to EUR 23.7 billion. Restated for non-recurring items that impacted the results in 2014, consolidated NI was up by 8%.

b. Net interest margin was relatively stable in 2015

The components of NBI changed as follows:

- net interest margin, which increased in absolute terms by 2.3% compared with 2014, remains far and away banks' chief source of income. The fact that net interest margin held up in the low interest rate environment was partly due to sustained growth in lending in 2015, especially in the home loan segment;

- fees and commissions were up 5.3% compared with the previous year as a result of strong growth in fees and commissions earned across virtually all business areas;

- the increase in NBI between 2014 and 2015 was also attributable to 17.2% growth in other net income, primarily from net gains on financial instruments at market value through profit or loss and on available for sale financial assets, and from net income from other activities such as insurance (6.2% increase in NBI in 2015).

c. Q1 2016 earnings were more mixed

Bank earnings were more disappointing over the first three months of 2016, with the aggregate NBI of France's four main banking groups (BNPP, SG, GCA and GBPCE) shrinking 5% compared with the same period in the previous year to EUR 29.9 billion. The decline was primarily attributable to corporate and investment banking, which had to contend with challenging market conditions, including mounting risk aversion and renewed volatility across all markets, echoing the uncertainty over global growth and the timing of rate hikes in the United States. Aggregate consolidated net profit contracted by 6% to EUR 4.1 billion.

In Q1 2016, earnings from retail banking in France were less positive than in 2015. NBI at the main French banks fell as net interest income, fees and commissions declined relative to Q1 2015. The downturn in net interest income reflected the effect of the wave of home loan renegotiations in the second half of 2015, although this was partly offset by brisker lending volumes over the first quarter of 2016, with the growth rate in lending to individuals remaining high, at 3.7%, in March 2016. On the liabilities side, the cost of deposits and market financing fell gradually, which also helped to restrain the reduction in net income. The weaker fee and commission performance in Q1 stemmed from securities-related commissions, which were affected by market conditions during that quarter.

11 The BNP Paribas (BNPP), Société Générale (SG), Crédit Agricole (GCA), Banques Populaires Caisses Épargne (GBPCE), Crédit Mutuel (GCM) and Banque Postale (LBP) groups.

Risks to banks arising from the low interest rate environment

There are multiple risks associated with a prolonged low interest rate environment:

– Net interest margin could be squeezed by a flat yield curve that is unfavourable to transformation and by competitive pressure on rates offered to customers.

The low interest rate environment encourages banks to move into higher-earning but riskier assets. Monetary and financial institutions (MFIs) made structural adjustments in 2015 to their securities portfolios.[12] The share of sovereign securities was trimmed in favour of securities issued by financial and non-financial companies. As regards other asset categories, portfolio structures were unchanged over the course of the year. The reconstitution of MFI fixed income portfolios has come with increased interest rate risk. Banks would be relatively more exposed to capital losses should interest rates go up because the average duration of MFI portfolios lengthened in 2015.

– The low level of interest rates might tempt banks to step up risk taking in credit provision. The ECB's monthly lending survey in April 2016 showed that French banks continue to ease their credit standards, particularly as regards interest margin.

In the April 2016 survey, French banks globally reported thinning margins on medium-risk business loans, while margins on the riskiest loans were steady during the first quarter of 2016. According to the banks, the main factor contributing to narrower margins was competitive pressure across the three main segments, i.e. business, home and consumer loans. In the case of home loans, credit standards were eased mainly by reducing margins on medium- and high-risk loans, while in consumer loans, they were relaxed essentially by cutting margins on the highest-risk loans.

ii. Insurance sector

Insurers maintained revenues and profit despite the low interest rate environment in 2015

In 2015, insurers grew their revenues by 3.4% on an all-business, all-region basis.[13] The increase was more moderate in 2015 than in 2014, when revenues accelerated by 6.6%. Nevertheless, the good performance reflected strong showings both for life and health insurance (3.1% growth) and for property and liability insurance (4.6% growth). Echoing the same trend, operating profit and net profit were up 7.1% and 4.1% respectively, with life and health insurance enjoying a sharper increase of its operating profit (9.2%) than property and liability insurance (3.9%).

Risks posed by the low interest rate environment for insurance undertakings

In 2015, with Europe experiencing an unprecedented low interest rate environment, the Autorité de contrôle prudentiel et de résolution (ACPR) asked insurance undertakings to review the medium-term outlook for their solvency, financial equilibrium and compliance with commitments in this environment through two multi-year scenarios, within the framework of the Solvency II preparatory exercise. If interest rates remain at end-2014 levels, which is the less severe of the two scenarios but close to actual conditions observed at end-2015, the French market shows good relative resilience, but the results should nevertheless spur insurers to step up efforts to adjust to the low interest rate environment whilst also endeavouring to improve risk management.

12 The MFI sector is principally made up of banks in France.

13 Based on financial reporting by a sample of listed insurance groups doing business in France and data gathered from the insurance subsidiaries of major French banking groups. Source: Analyses et Synthèses – May 2016 – Situation d'un échantillon de groupes d'assurance actifs en France à fin 2015.

An analysis of Solvency II preparatory filings (since the new regulations are more effective than the Solvency I rules at capturing the effects of the low interest rate environment) between 2013 and 2014 confirms this state of affairs.[14] Life and composite insurers saw their median solvency capital requirement (SCR) decline from 239% in 2013 to 216% in 2014, while distribution narrowed between 2013 and 2014. This contrasted with the overall market, whose median SCR climbed from 256% in 2013 to 260% in 2014.

Based on trends observed in 2015, life insurers may find it increasingly hard to obtain sufficient return on assets to deliver satisfactory revaluation rates:

– some contracts, particularly older ones, offer high guaranteed rates compared with the possible rates of return on assets on financial markets today.

– in the case of more recent contracts, even if the contractually guaranteed rate is zero, insurers are under competitive pressure, which may cause some undertakings not to echo the decline in French ten-year government bond yields in their own revaluation rates.

Insurers are attempting to adapt to the low interest rate environment by adjusting their marketing policies regarding net inflows.

A shift was observed over the period, with marketing strategies being geared more aggressively towards products offering higher returns for policyholders in return for more measured risk for insurers (such as unit-linked contracts), coupled with steps to limit the outstanding amounts in products offering greater guarantees to policyholders. Ultimately, unit-linked contracts continued to increase their share of net inflow.

Search for yield behaviour in the French insurance industry

In France, search for yield behaviour looks to be limited for the time being. An analysis of the assets of French insurers highlights a tiny increase in the share of investments in NFC bonds in 2015 compared with end-2014 (as a percentage of the net book value of total investments) among the 12 main life insurers.[15] This increase took place at the expense of other assets such as sovereign bonds.

In 2014, the duration of the assets held by insurers in France rose by 1%. This was a minor increase and not statistically significant given the dispersion of insurers' earnings.

Overall, there was no pronounced reallocation towards securities with longer durations or higher risk premia. Moreover, it is necessary to take care when interpreting and considering the source of changes to insurers' asset allocations over the recent period, which could be due to the low interest rate environment, but which might also reflect regulatory developments,[16] including the entry into effect of the Solvency II framework on 1 January 2016, or changes in assets' market valuations.

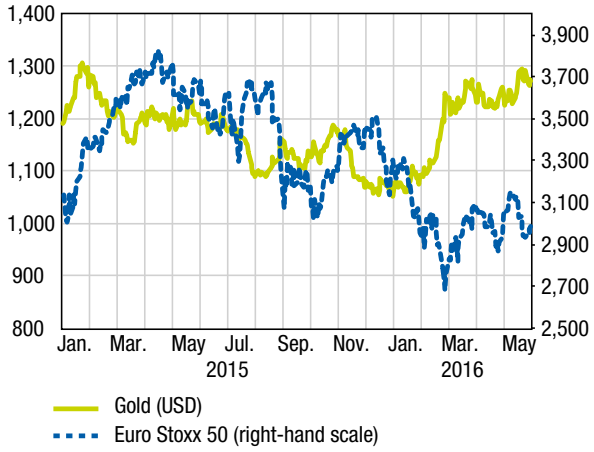
b. Disruption of financial markets in a low or negative interest rates environment

Risk aversion guided financial markets in the early part of the year: equity markets plummeted as investors turned towards lower-risk assets such as sovereign bonds and gold, triggering heightened volatility in a setting of reduced liquidity on secondary markets. Outstanding sovereign securities with negative yields swelled to around USD 10 trillion

14 Source: Analyses et Synthèses – *December 2015 – Analyse de l'exercice 2015 de préparation à solvabilité II.*
15 Analyses et Synthèses – *March 2016 – Suivi de la collecte et des placements des 12 principaux assureurs-vie à fin décembre 2015.*
16 Solvency II includes regulatory incentives to match asset and liability duration.

Chart 4

Equity and gold market performances



Source: Bloomberg.

worldwide according to Fitch Ratings, a credit rating agency, driven particularly by Japan's introduction of negative yields.

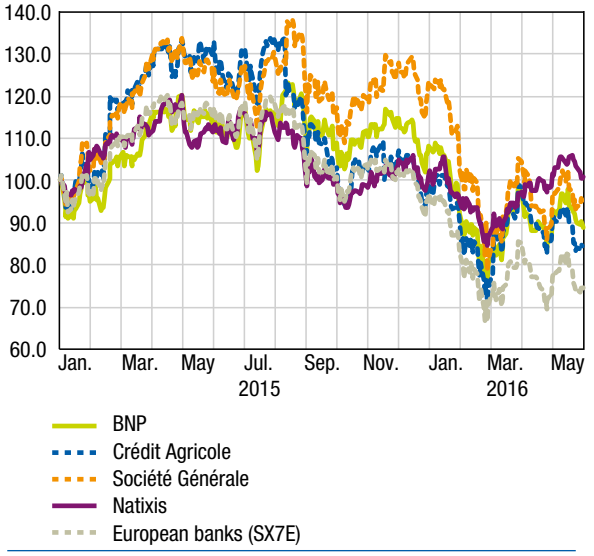
Bank stocks experienced a sharp correction at the beginning of the year in response to downbeat reports, particularly on outstanding non-performing loans on the balance sheets of Italian banks, Crédit Suisse's earnings and the possibility that Deutsche Bank might not pay coupons on its contingent convertible bonds. These gloomy microeconomic indicators were accompanied by adverse market sentiment linked to global macroeconomic conditions, especially weaker-than-expected growth in China, concerns over the sustainability of the US upturn and the depressed macroeconomic environment in the euro area.

Markets recovered in mid-February but remained on edge, displaying high levels of volatility. Concerns over the banking sector persisted but were confined to a few institutions rather than the entire sector, while French banks outperformed the SX7E, Europe's bank index. Fears out of China were mitigated by reassuring announcements by the People's Bank of China, while the US Federal Reserve issued carefully worded forward guidance. Although European equity markets made it back to the levels at which they started the year, they remained off the highs seen in July 2015 (before the Chinese crisis) and well short of the levels seen in 2007, in contrast with US markets, which put in a more vigorous recovery, stimulated by an accommodation of the monetary policy a step ahead of the euro zone.

Valuations of European banks remained depressed, however, with price-to-book ratios well below par at approximately 0.6, reflecting the market's perception of their inability to generate profit in a constrained macroeconomic setting and against a backdrop of persistently low interest rates. Non-financial stocks in Europe, meanwhile, were at

Chart 5

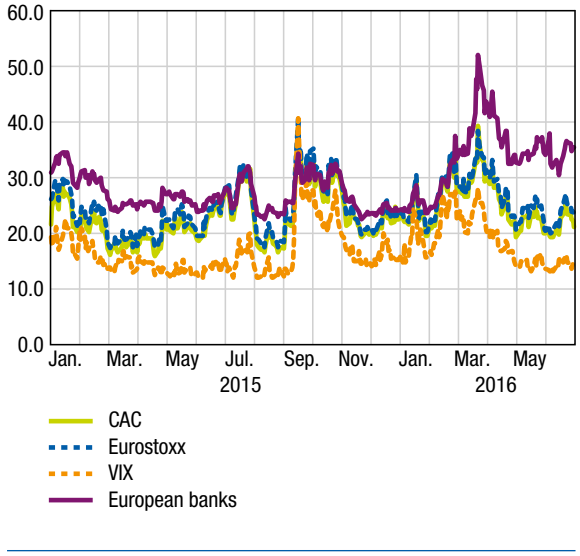
Bank indices (1 January 2015 = 100)



Source: Bloomberg.

Chart 6

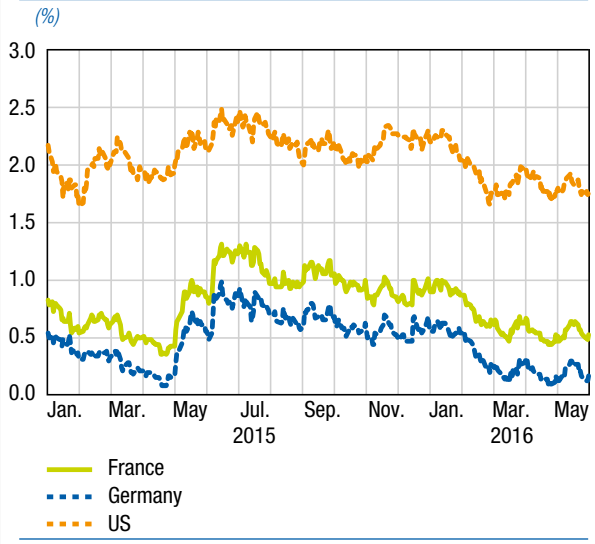
Equity market volatility



Source: Bloomberg.

Chart 7

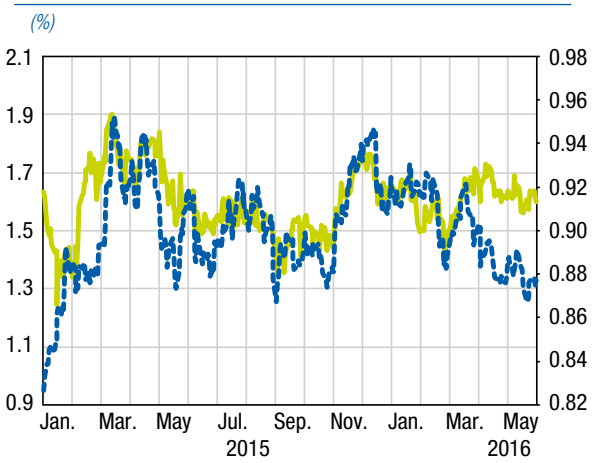
Ten-year sovereign bonds yields



Source: Bloomberg.

Chart 8

USD/EUR exchange rate and US-DE 10Y yield spread



Source : Bloomberg.

valuations levels consistent with long-term averages, with some analysts even talking about overvaluation.

In contrast to the euro area, which continued to expand at a modest pace (1.5% in 2015, and an unemployment rate of 10.2% in March 2016), US growth stood at 2.4% in 2015, with an unemployment rate of 5%, or close to the level seen in 2005. The cyclical gap between the two economic regions is reflected in monetary policy divergence: after terminating its QE3 asset purchase programme in autumn 2014, the US Federal Reserve raised interest rates for the first time in a decade in December 2015, while the ECB continued to ease policy.

Since summer 2014, the ECB has implemented a set of non-standard policy measures, including negative rates on the deposit facility, TLTROs and its asset purchase programme (APP), in a bid to make its monetary policy more accommodative. In June 2016, the Eurosystem launched two new monetary policy measures that were announced in March 2016: the corporate sector purchase programme (CSPP), which is part of the APP and involves purchases of corporate bonds, and a new round of targeted long-term refinancing operations (TLTRO II), which mature in four years. These two measures will support the additional cut to policy rates in March and the EUR 20 billion increase in monthly purchases within the framework of the APP.

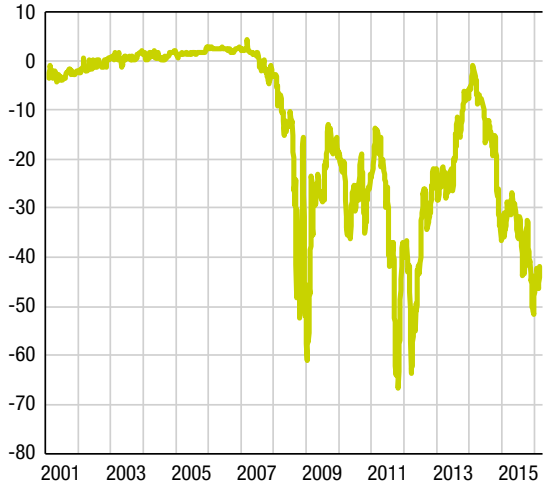
More specifically, TLTRO II operations and the CSPP are designed to support financing for the real economy, with the CSPP aiming to enhance the APP's impact on financing conditions and TLTRO II operations intended to act via the banking channel by encouraging banks to lend to economic participants.

In a sign that monetary policy cycles have become desynchronised, the probability of a rate increase in 2016 is 0% for the ECB compared with around 60% for the Fed, according to current market expectations. These monetary policy differences are reflected in a divergence of sovereign yields between the two economic zones: German yields are negative through to eight years and below 0.2% on ten-year bonds, while US ten-year yields are fluctuating around 1.8%, which has propelled the ten-year yield spread to historically high levels.

Chart 9

EUR/USD five-year basis swap

(basis points)



Source: Bloomberg.

In the absence of observable strain on the USD financing conditions of European banks, recent movements in the EUR/USD basis swap spread[17] are unquestionably a market anomaly whose causes have yet to be explained (regulatory impact of solvency ratios, displacement of a portion of the market to the shadow banking sector, withdrawal by banks from market making). This situation generates a de facto additional cost for European participants seeking to hedge a USD position, which might therefore opt for short-term hedging strategies, leading to asset/liability mismatching.

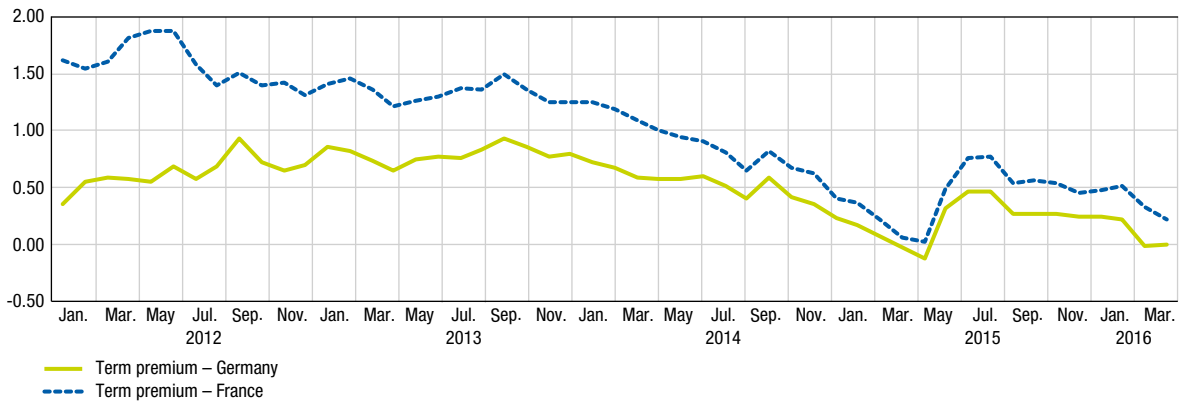
Although the phenomenon is not specific to European markets, the steady decline in yields on medium and long-term sovereign bonds (theoretically a reflection of inflation and growth expectations rather than a direct consequence of monetary policies) has been accompanied by thinner term premia, with premia even entering negative territory according to some models.

Accordingly, the main risk to European financial markets is that of a sharper-than-expected increase in US policy rates (the ECB having made clear its intention to keep rates low for a prolonged period): the surprise effect could upset financial markets globally and trigger a spell of high volatility on currency, fixed income and equity markets, in an echo of the 2013 taper tantrum. The yield differential could also spur a massive outflow from European funds into US funds, causing a decline in European assets and valuations and additional euro depreciation against the dollar. In any event, it seems reasonable to expect further bouts of heightened volatility on European markets in the months leading up to the Brexit referendum. The risk of a resurgence in stress linked to the refinancing of Greek debt seems to be subsiding, although Europeans and the IMF continue to differ in their analyses concerning the sustainability of this debt.

Chart 10

DE and FR term premia

(%)



Source: Bloomberg, Banque de France calculations.

17 A negative EUR/USD basis swap spread measures the penalty paid by a USD against EUR borrower in a currency swap. It therefore evidences the additional cost for a USD against EUR borrower.

2.5. Weak commodity prices

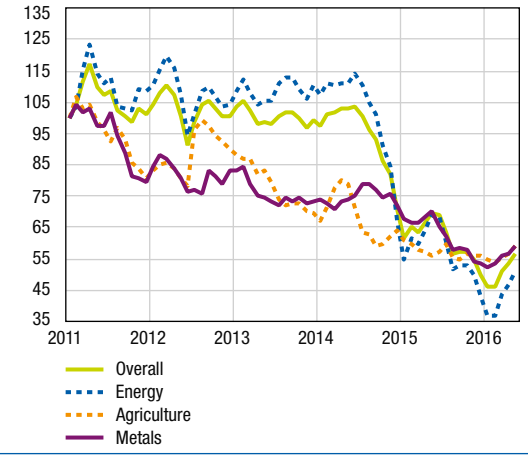
The risks linked to weak commodity prices have waned since the last risk assessment in December 2015. The sharp drop in early 2016, which took oil prices below USD 30, was followed by a gradual rebound, with prices now sitting at USD 45-50. The imbalance between plentiful supply and milder-than-expected demand persists, but according to the most recent report by the International Energy Agency (IAE), the market is expected to come back into balance in the latter half of 2016, setting the stage for higher prices. While the forest fires in Canada, chronic instability in the Middle East and hopes of an agreement on production levels are support factors for oil prices, continued low prices nevertheless pose macroeconomic and financial risks, and another price slump further out is possible.

a. The shock to producers affects financial institutions and markets

Continued low commodity prices for a prolonged period represent a risk factor for the financial system. The system is exposed to these risks through a variety of channels, which are detailed in the December 2015 assessment. The historic decline in oil prices in January accelerated the transmission of these risks, but the price rebound in more recent months could provide a welcome respite to oil producers.

Chart 11

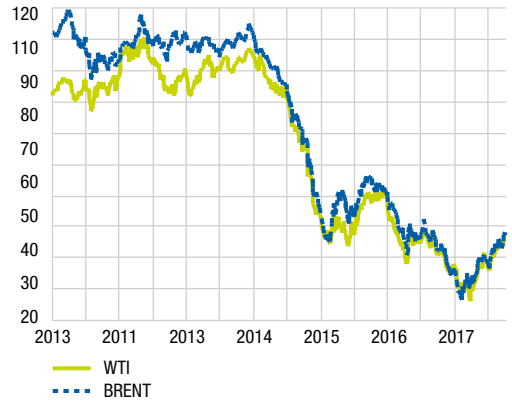
Commodity indices (January 2011 = 100)



Source: S&P Goldman Sachs Commodity Index.

Chart 12

Oil prices (USD/barrel)



Source: Bloomberg.

i. The reduced profitability of commodity producers increases the risk that these firms could default on their bank or bond debt, impacting bank balance sheets as well as valuations on equity and bond markets, particularly the high yield segment. Since the start of 2015, 26 companies from the commodity sector have defaulted (Table 4), in a trend exacerbated by the steep drop in prices in the early part of the year. According to Fitch, energy defaults have already hit USD 26 billion in 2016, compared with USD 17.5 billion in 2015, bringing the sector default rate to 14% for the last 12 months. The rating agency predicts that this rate will increase to 20% for 2016 as a whole. More recently, the rebound in oil prices has seen valuations increase on the high yield market along with a recovery in energy indices, particularly the S&P, which has a strong positive correlation with oil prices.

ii. The solvency of commodity-producing countries has been undermined by the sharp drop in export revenues, which has generally been accompanied by substantial exchange rate depreciation. Some emerging countries that are heavily dependent on energy exports, such as Venezuela, Nigeria and Azerbaijan, are in serious trouble and

Table 5

Number of companies defaulting since 01/01/2015

Sector	Number of companies	Debt (USD billion)
Oil and gas	17	34.2
Mining	9	35.1
Total	26	69.3

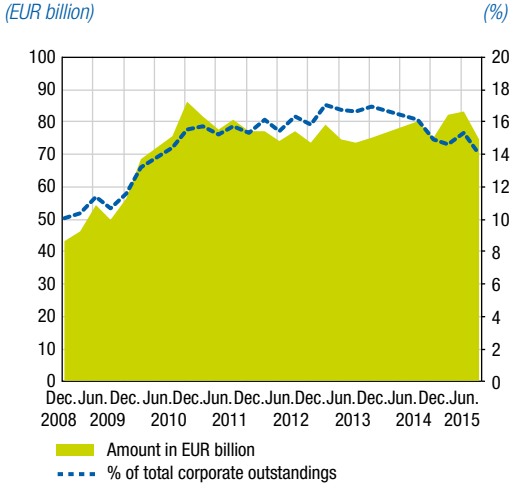
Source : Bloomberg

could default on their public debt in the absence of new financing. Financial markets are particularly impacted by greater volatility on the forex market and by lower prices (and higher yields) for sovereign bonds. This represents a risk for creditor financial institutions.

iii. As the oil money has dried up, some exporting countries, including Norway and the United Arab Emirates, have tapped their sovereign wealth funds to keep the government finances in balance. These withdrawals may have played a part in the equity market slump in early 2016, which took a heavy toll on European bank stocks. These funds held total assets worth USD 4.2 trillion as of 31/03/2016 and are heavily invested in the financial and real estate markets of developed economies. Accordingly, sizeable withdrawals could trigger pronounced valuation declines. Sovereign funds are notably trimming their investments in the financial sector, which could potentially have a major impact on institutions in which the funds hold large capital stakes, such as Standard Chartered (17%), the London Stock Exchange (12%), Barclays (7%), UBS (6%) and Crédit Suisse (5%).[18]

Chart 13

Exposure to the oil & gas sector (net risk) of the five main French banking groups



Source: ACPR.

b. Risks to the French financial system are less pronounced

The risks to the French financial system connected with weak commodity prices are weaker overall than they were in the December 2015 assessment, as the system has cut its global exposure to the commodity and energy sector since prices began falling in 2014.

The five largest French banks slashed their exposure to the oil & gas and commodity sectors between 30 June and 30 September 2015 from EUR 99.9 billion to EUR 90.7 billion.[19] Net exposure to the oil & gas sector in particular was reduced by 10% to EUR 74.8 billion to make up 14% of total corporate debt outstanding compared with 15.3% previously.

French banks have little exposure to struggling producer countries, according to BIS ultimate risk data to 31/12/2015, at USD 1 billion for Azerbaijan, USD 2.3 billion for Nigeria and USD 0.8 billion for

18 Source: Deutsche Bank.

19 The reduction in exposure could however be partly due to a price effect linked to the decline in the valuation of corporate equities and bonds over the period, or to large volumes of maturing debt.

Box 1

The macroeconomic impact of lower commodity prices

A fall in commodity prices is generally regarded as being positive for the global economy, notably because it lowers input prices for companies and boosts purchasing power for households in advanced countries, who have a higher propensity to spend. At the end of 2014, the IMF estimated that purchasing power gains in importing countries would more than offset the negative impact of cheaper commodities on producer countries, adding 0.7 percentage point (pp) to world GDP growth in 2015 and 0.8 pp in 2016.

In retrospect, the negative effects for exporting countries have far outweighed the positive effects for importers (see Chart 14).

These disappointing results can be attributed to a number of factors:

1. First, the contribution of global demand to lower oil prices was significantly underestimated; economists initially saw the drop in prices as being driven solely by the supply shock caused by US shale production, which had significant macroeconomic effects. Lower demand is now estimated to have accounted for around a third of the aggregate price drop since mid-2014.

2. Second, the fall in commodity prices dragged on inflation, leading to a mechanical increase in real interest rates and hence a slowdown in investment.

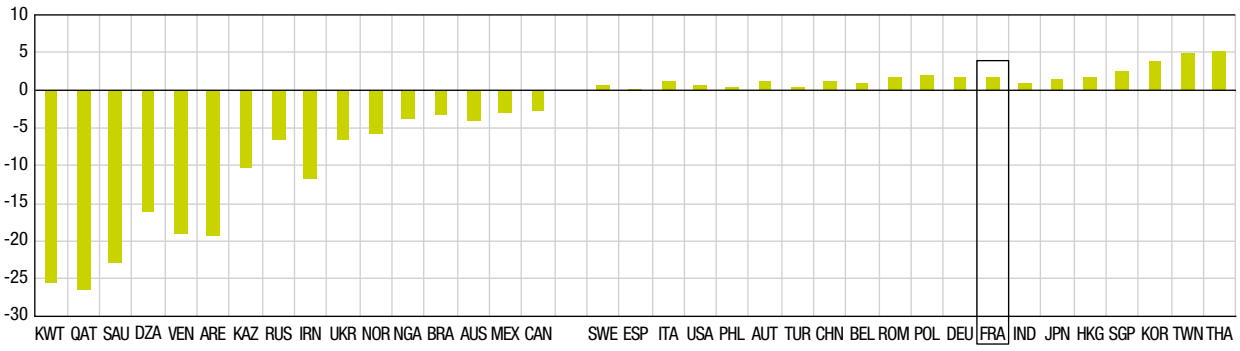
3. Lastly, the drop had markedly different effects on exporting and importing countries. For the less diversified exporting countries, lower oil revenues combined with sharp currency depreciation prompted major cuts to public spending, resulting in lower-than-expected domestic demand. A number of net exporters, including Saudi Arabia and Nigeria, responded by introducing capital controls. Meanwhile, in some major commodity exporters, such as Canada and Australia, activity was negatively affected by a deterioration in the terms of trade. For importing countries, the effects were more mixed. In the United States, oil sector investment plunged by 80%, weighing on consumption and therefore on growth. In contrast, in other advanced economies, particularly in the euro area, the decline in commodity prices generally had a positive impact on consumption, although households initially assumed the drop would be temporary, preferring to increase savings at the expense of spending. In emerging and developing economies, however, the positive effects were limited due to a low pass-through of international prices to domestic prices.

As a net importer of commodities, France benefited from the fall in prices. An Insee report published in March 2016 evaluated the gains from cheaper commodities at EUR 23 billion in 2015 relative to 2013.[1] Meanwhile, the draft budget for 2016 estimated that the reduction in oil prices would improve France's energy trade balance by EUR 3 billion in 2015 and EUR 13 billion in 2016. The IMF[2] has put the annual gains for France for the period 2014-15 at an average of 0.9% of GDP. Comparing this period to 2012-13, the IMF also highlights a rise of 0.83% in domestic demand, 3.98% in imports and 0.24% in GDP, all of which could be linked to cheaper commodities.

1 *Of which EUR 14.2 billion from oil, EUR 3.9 billion from natural gas and EUR 4.9 billion from imports of refined products.*
2 *IMF, World Economic Outlook, April 2016.*

Chart 14

Terms-of-trade windfall gains and losses linked to oil prices



Source: IMF, World Economic Outlook, 2016.

Venezuela. Exposure to Russia, another country hard hit by the fall in oil prices, stands at USD 24 billion, including EUR 2.7 billion in exposure to the banking sector, EUR 3 billion to the public sector, and USD 18 billion to NFCs.

French investment funds scaled back their holdings of securities issued by companies from the energy sector between 31/12/2014 and 31/12/2015 from EUR 39.1 billion to EUR 36.1 billion over the period. Stripping out employee investment funds, exposure was even lower, shrinking 8% over the period to EUR 29.5 billion.

2.6. Risks linked to rising debt among non-financial companies

a. The broad debt of French non-financial companies (NFCs) is an area to watch

The BIS[20] provides a definition for "broad" debt, which is measured using national financial accounts data. In the case of France, these data are prepared by the Directorate General of Statistics (DGS) in accordance with international standards set down in the European System of Accounts. Broad debt comprises three main elements: debt securities (at market value), bank loans and other credits (essentially intragroup lending), plus interest accrued but not yet due, which is a minor component. It does not include trade credits and advances. Lenders include all resident and non-resident agents.

Debt securities

Since 2008 and especially since 2011, debt securities as measured by their nominal value have doubled their share of NFC debt, from 12% in the third quarter of 2008 to 23% in Q1 2015. Their share of GDP rose similarly over the same period from 13.6% to 25.3%. This increase was accentuated by valuation effects. Of the 18 pp rise in the NFC debt/GDP ratio between Q3 2008 and Q1 2015, 15 points were attributable to the increase in debt securities alone.

However this trend seems to have slowed: the increase in outstanding debt securities in nominal terms has eased drastically, falling to an annualised growth rate of 3.4% between the first and fourth quarters of 2015, compared with 10.6% on average over the period from the third quarter of 2008 to Q1 2015. In market value terms, there was actually a 3.0% decline in 2015. When this shift is coupled with the increase in bank lending to large companies, it would appear that the trend towards substituting debt securities for bank loans has gone into reverse.

Bank loans

Loans from resident and non-resident banks to NFCs rose steadily between 2010 and mid-2014 in value terms but accounted for a more or less unchanged percentage of GDP, a fact that held true for long-term loans[21] (between 34% and 35%) and short-term loans (between 8.0% and 8.5%) alike. Even over the long run, bank loans have remained fairly stable, rising from 38.8% to 42.8% of GDP between the fourth quarter of 1995 and the second quarter of 2014.

Over the recent period, however, long-term bank loans have jumped, rising continuously from 33.5% of GDP in Q2 2014 to 35.0% in Q4 2015, while short-term loans have held steady at around 8.3%.

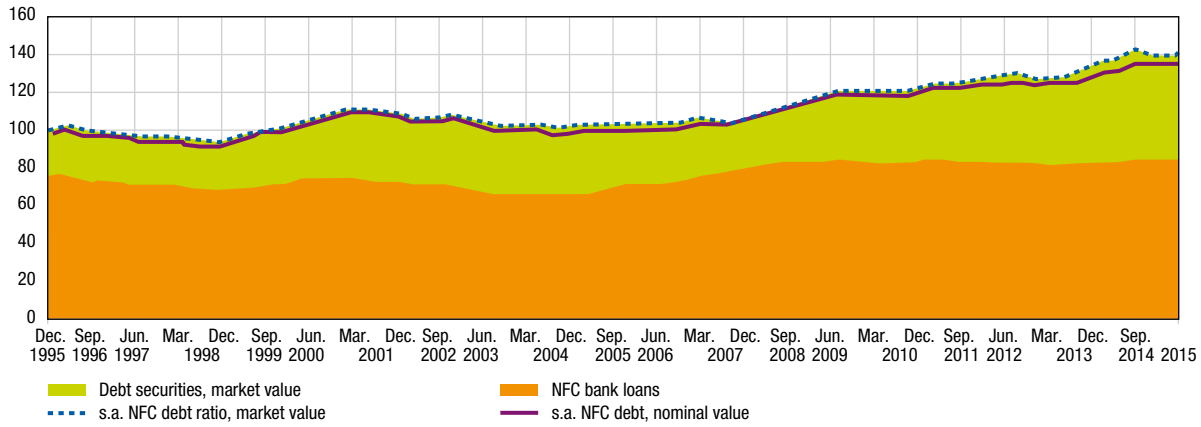
20 BIS: Long series on total credit and bank domestic credit to the private non-financial sector.
21 Over one year.

Because the decline in the market value of outstanding debt securities issued by French NFCs exceeded the rise in bank lending to NFCs, the market value of the combined market and bank debt of French NFCs fell from 72.0% of GDP in Q1 2015 to 71.1% in Q4.

Chart 15

NFC bank debt and debt securities

(% of NFC gross value added)



Source: Insee, Banque de France.

Other credits (essentially intragroup lending):

Other credits outstanding (essentially intragroup lending) fell from 54.5% to 53.8% of GDP over the same period.

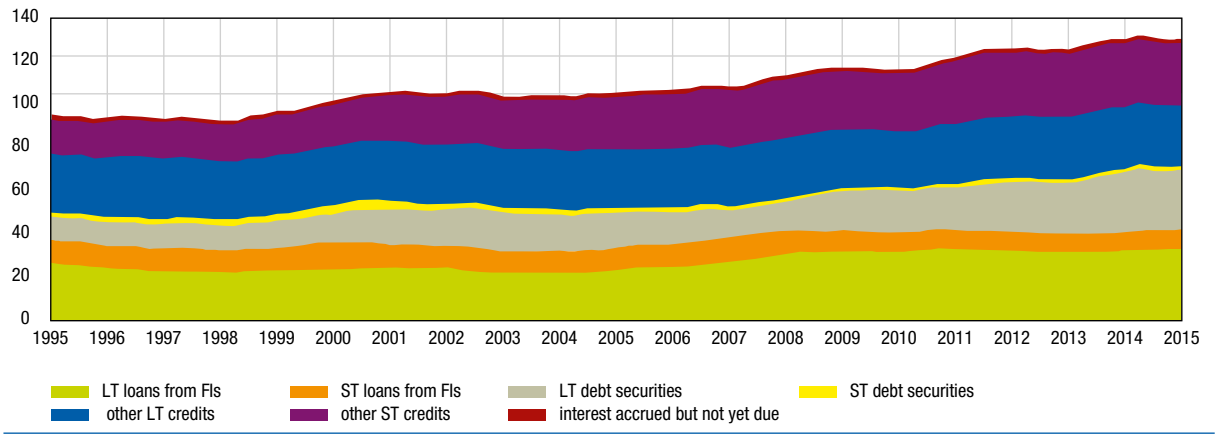
Broad debt of French NFCs compared with other European countries:

Overall, the debt to GDP ratio of French NFCs decreased from 126.4% to 124.9% between Q1 and Q4 2015.

Chart 16

Broad NFC debt – Percentage of nominal GDP

(NFC debt, % of GDP)



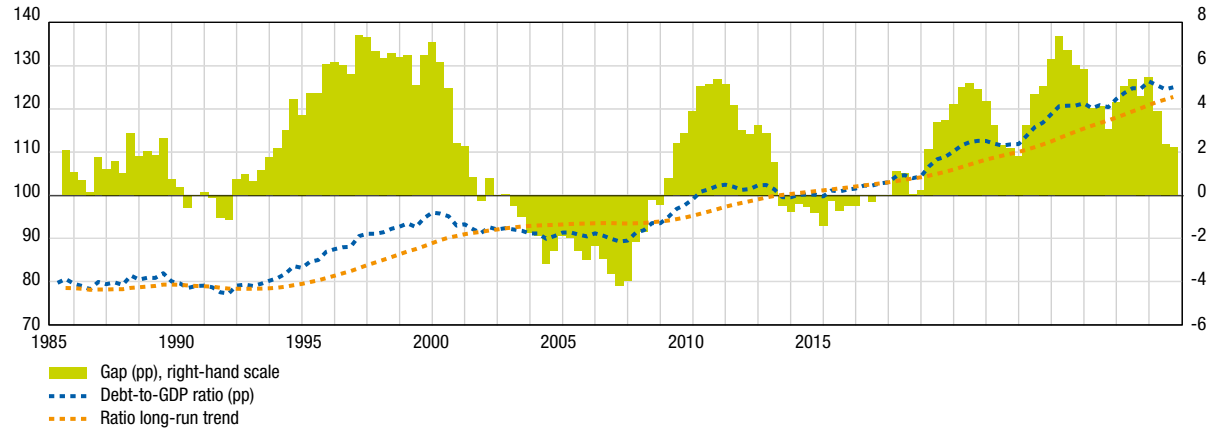
Source: Insee, Banque de France.

Furthermore, the standardised credit-to-GDP gap or "Basel gap" for NFCs stood at 2.1 percentage points in Q4 2015, down from 2.3 points in the third quarter of 2015 and 5.6 points in the first quarter of 2015.[22] This decline is attributable to the weak contribution from bank lending, the end of the increase in debt securities and inertia in the long-run trend. Although sharp, the narrowing of the gap is not exceptional, since this measure is subject to some volatility.

Chart 17

Basel gap – Non-financial companies

(% of NFCs' gross added value)



Source: BIS (2010), BIS, ECB, Insee, Banque de France calculations.
Notes: Credit-to-GDP gap calculated using a statistical filter (Hodrick, Prescott, 1981) and a smoothing parameter set to 400,000 (BIS, 2010; Drehmann, Juselius, 2013). The trend is estimated in "real time".

France is the only large European country to exhibit a wide and positive NFC gap and a long-run trend showing no sign of reversal. Notwithstanding the recent narrowing of the gap, the long-run trend of the debt-to-GDP ratio of French NFCs is therefore a point to watch from a financial stability perspective.

That being said, a cross-country comparison reveals that the credit of French NFCs is not unusually high. The sum of NFCs' international bank credits and intragroup loans[23] as a percentage of value added is lower in France than the euro area average. Moreover, a comparison of the share of bank loans in the total debt of euro area NFCs points to a far more pronounced trend towards banking disintermediation in France than in other countries since 2008. French NFCs carry far more debt via debt securities than those in other major euro area countries, and France was the only country where this type of debt increased in the recent period prior the stabilisation observed in 2015.

One of the reasons for this is the large relative share of major companies in France's industrial fabric. To all intents and purposes, access to the bond market remains confined to these large companies, with a mere 200 firms issuing bonds in France.

22 Previous gaps were reviewed because of a revision to balance of payments data on intragroup loans from the rest of the world to France (a component of the broad credit series).

23 There are substantial cross-country differences in levels of intragroup loans, largely owing to differences in company aggregation levels. When making international comparisons, to eliminate this bias, it is possible to take out sub-national intragroup loans, but not international intragroup loans, owing to a lack of international data.

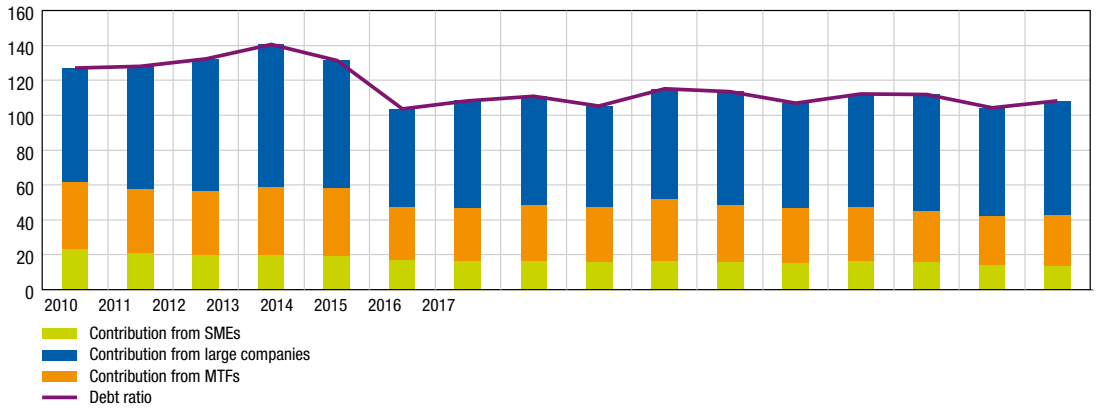
b. Typology of indebted French NFCs

Large businesses make the biggest contribution to the level of and change in the financial debt ratio of French companies, owing to their share of own funds and the growth trajectory of their financial debt.[24]

Chart 18

Gross financial debt ratio adjusted for double counting

(% of own funds)



Source: Banque de France.

The gross financial debt ratio must be below 100% to guarantee that capital providers will be repaid in the event of liquidation. In 2014, the median ratios were below this critical value for small and medium-sized enterprises – SMEs (39%) and mid-tier firms – MTFs (65%) but close to it in the case of large companies (92%). In addition, median values have been trending downwards since the early 2000s for SMEs and MTFs (54% for SMEs and 78% for MTFs in 2000), while holding fairly steady at around 90% for large companies.

Furthermore, the final quartile of the debt ratio in 2014 was 115% for SMEs, 146% for MTFs and 160% for large companies. It too has been trending downwards for SMEs and MTFs, while fluctuating at between 150% and 200% for large companies since the early 2000s. Debt concerns are accordingly greater for large firms and are especially pressing for those carrying the most debt.

The debt situation should be mirrored by the company's repayment capability, measured here by the ratio of financial debt to cash generation. This ratio gives a theoretical period of repayment in years that would be reached if the equivalent of the total cash generated for the current year were entirely put towards debt repayment. Typically, a three-year period is considered to be a critical value. In 2014, most SMEs and MTFs were below this threshold, with a median of 1.4 years for SMEs and 2.7 years for MTFs. Large companies, by contrast, are well above, with a median of 6.3 years in 2014. Moreover, this period has lengthened considerably among large corporations, as the median value was around four years until 2008. Looking at the 25% of companies with the longest theoretical repayment periods, SMEs are at 3.5 years, MTFs at 6.5 years and large companies at 10 years. However, the longest durations did decrease in 2014.

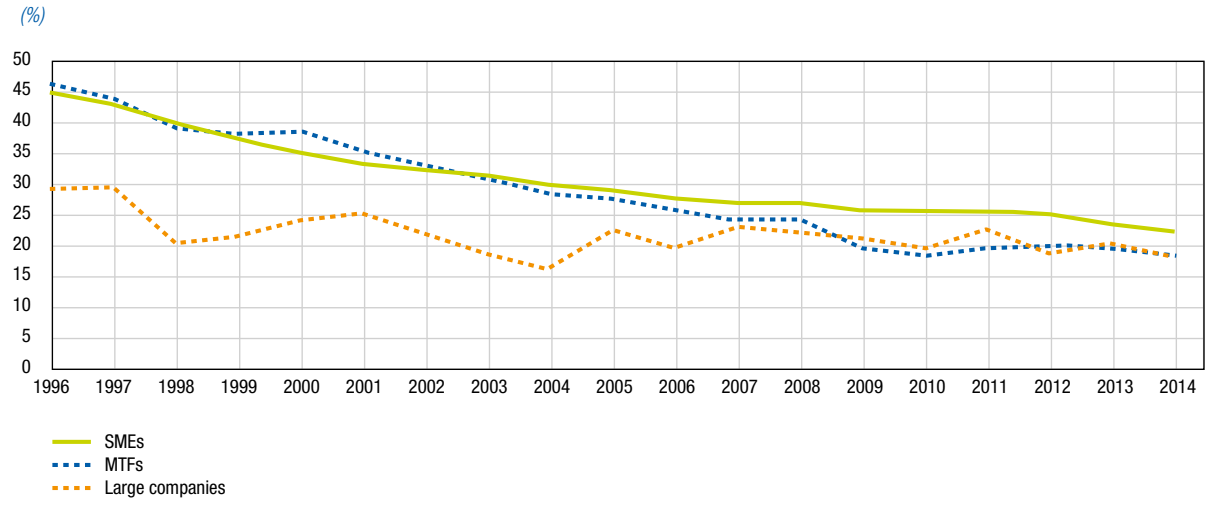
24 The contribution by a category of companies to the overall financial debt ratio of all companies is equal to the debt ratio of that category weighted by the category's share in the total own funds of all companies.

On the whole, the financial burden represented by this debt is under control across all categories. The median value of the ratio of financial charges to gross operating surplus ranges from 4.8% for SMEs to 8.0% for MTFs and 18.4% for large companies. The standard critical value is 40%. Furthermore, this burden has remained relatively stable across all categories. The increase seen in 2008, especially for SMEs and MTFs, was followed by a period of adjustment, with the result that the situation in 2014 was comparable to that of the mid-2000s.

Furthermore, over the long run, the proportion of companies with a funding requirement,[25] which therefore comprise the population of companies with the greatest exposure to an increase in interest rates, has declined sharply in the SME and MTF segments, while remaining fairly stable among large companies. The proportion stood at around 20% in 2014 when all company categories are taken into account.

Chart 19

Proportion of French NFCs with a funding requirement



Source: Banque de France.

c. Analysis of major corporate risks on bank balance sheets

Major risk disclosures[26] can be used to conduct a close analysis of the exposures of French banks to major corporate counterparties, particularly French ones (EUR 229.6 billion in gross exposure, or 7.8% of total bank assets and 215% of the aggregate capital of the five main banking groups).

The data from major risk disclosures cast a nuanced light on the growth of exposures to French companies, revealing a reversion to levels observed in 2010. The analysis does not point to a concentration towards certain companies. If anything, the trend is towards less concentration, as reflected in the fall in the Herfindahl-Hirschman index from 1.40% to 1.30% between December 2012 and June 2015.

Furthermore, a comparison of major risk disclosures against the credit ratings and debt of listed groups reveals that large French banks generally have limited exposure when it

25 A company is defined as having a funding requirement if its aggregate net working capital is negative (it has a long-term funding requirement, because its fixed assets exceed outstanding stable funding) or its net cash situation is negative (because the (positive) aggregate net working capital does not cover the working capital requirement).

26 Regulatory disclosure reporting exposures for each related beneficiary, which may not exceed 25% of own funds.
Threshold for reporting a major risk: gross exposure of more than EUR 300 million or more than 10% of own funds.
Related beneficiaries: beneficiaries are considered to be related if it is probable that financial problems for one beneficiary would likely result in the others experiencing repayment difficulties.

comes to financing counterparties with below investment grade ratings or a high debt burden.

There were few defaults in the major risks category at end-June 2015 and they showed little change compared with the end of December 2014, rising from EUR 4.1 billion to EUR 4.4 billion and accounting for a stable 0.74% of total corporate outstandings given the increase in the latter. The default rate has been more or less stable for French corporates since 2014 and is substantially lower than that of corporates overall (0.20% in June 2015).

Provisions and value adjustments for French corporates have increased along with the default rate, rising by 0.08% compared with 0.34% for all corporates.

2.7. Risks linked to real estate prices

Since the last risk assessment in December 2015, the residential real estate market has picked up slightly. Commercial real estate, particularly office space in the Ile-de-France region, still needs to be monitored. In this regard, France's Haut Conseil de Stabilité Financière (High Council for Financial Stability – HCSF) published a detailed report in April 2016 on developments and risks on the commercial real estate market and began a consultation with the main market participants.

a. Recovery on the residential real estate market

The most recent available data point to a pick-up on the residential real estate market:

– Existing home prices have risen over the recent period (0.2% in Q3 and 0.5% in Q4 2015), making for a stable performance over 2015 as a whole. Business is recovering on the residential real estate market, with the number of deals in the existing homes segment up 16% year-on-year at end-2015.

– On the new homes segment, prices continue to climb moderately, gaining 1.7% year-on-year in Q4 2015, while business is showing marked signs of recovery. In Q1 2016, housing starts were up by 3% compared with the previous year, while the number of building permits rose by 7%. However, the proportion of cancelled building permits also remained high, at 20%. The positive impact of these developments on the growth of household investment could become evident towards the end of the second half of 2016. Business in the construction sector continues its mild recovery.

– Banks are reporting increased demand for real estate loans, reflected in substantial growth in monthly flows of home loans, with an average of more than EUR 16 billion in new loans per month in Q4 2015, and over EUR 14 billion in Q1 2016.

This pick-up seems to be linked primarily to the decline in interest rates (rates on new home loans edged down once again, from 2.34% in December 2015 to 2.19% in March 2016, according to Banque de France data), which may have encouraged buyers to take advantage of the windfall represented by record low interest rates, in a setting where the share of renegotiations in new home loans is on the decline, shrinking from around 55% in September 2015 to about 25% in March 2016. Government measures aimed at reforming zero-interest loans – the goal is to double the number of beneficiaries between 2015 and 2016 – should provide additional support for this trend. Finally, the decline in the euro exchange rate may also have spurred a return by foreign buyers, especially to the high-end Parisian market. Local issues, such as increased sales by landlords aimed at avoiding rent controls in Paris, Lille and Grenoble, may also have fuelled the increase in the number of transactions.

Two risks could materialise in this environment. However, they look unlikely to threaten financial stability, either because they are low-probability events or because the potential consequences are under control:

– a first scenario involving a sudden correction on real estate markets, which have come down only slightly since prices ran up in the 2000s;

– a second scenario based on increased risky behaviour by lenders and borrowers during the upswing.

In the first scenario, factors supporting demand will ensure that any correction is moderate, even in the event of residual overvaluation:

– From the perspective of first-time buyers, the admittedly modest increase in gross disposable income per person, combined with the recent price decline and, more importantly, the lower cost of credit have largely restored the real estate purchasing power of household gross disposable income,[27] which is now back on a par with levels seen at the close of the 1990s;

– From the perspective of buy-to-let investors, the profitability of residential assets has been restored, especially in a setting where government bond yields are so low (once again, conditions are similar to those seen in 1997-98);

– Accordingly, this risk is unlikely to materialise unless financing conditions, e.g. interest rates, initial loan terms and credit standards, become sharply and abruptly tighter.

As regards the second risk scenario, an analysis of credit standards, which give a key role to borrower solvency, does not point to increased risk taking by banks in 2015:

– the average initial loan term declined by more than six months compared with end-2014 to 18 years (compared with a peak of around 20 years in 2008);

– the affordability ratio continued the downtrend that began in 2010, reaching 29.4% in 2015;

– the average loan amount continued to increase, growing by 3.4% year-on-year, in step with the 1.8% rise in average borrower income;

– loan-to-income (LTI) ratios, which measure the relationship between borrowers' property debt and income, inched up 7 bps year-on-year to 4.33% at end-2015;

– loan-to-value (LTV) ratios jumped from 82.7% to 85.7% between 2014 and 2015, reaching their highest level since 2001; the increase reflects higher LTVs for first-time buyers, other buyers of primary residences, buy-to-let investors and other loans as well as the surge in the share of new lending accounted for by external loan consolidation, which has a higher-than-average LTV; excluding external debt consolidation, the average LTV ratio was slightly lower, but still increased from 81% to 84% between 2014 and 2015.

However, several points need to be watched:

27 This methodology, which is used by the HCSF to assess whether real estate is overvalued, consists in measuring the share of average gross disposable income per capita devoted to credit financing for the purchase of a standard real estate asset at current prices and market conditions.

a. Waves of mortgage renegotiations and repurchases over recent years have left banking books essentially made up of fixed-rate loans at close to record lows, which could be a drag on bank margins in the event that interest rates go up;

b. LTV ratios are at a record high, including when corrected for external debt consolidation (see above); moreover, the share of loans including extra financing leapt from 9.5% at end-2014 to 11.5% in December 2015, although this was still well off the peak of 16.2% seen in 2007;

c. The debt levels of French households, which, at 86.4% of gross disposable income in Q4 2015, remain considerably lower than those seen in the United States (134.8%), the United Kingdom (128.4%) and even the euro area average (93.3%), but have been rising steadily over the last two years, unlike in other large euro area countries.

b. Overvaluation of the commercial real estate market

Investors had another busy year on the commercial real estate market in 2015, with investments totalling EUR 25.5 billion over the year,[28] reflecting the vibrant market. Activity was supported by mid-sized deals. As in previous years, investments were mainly concentrated in the Île-de-France region (84%) and offices (72%). While the Paris central business district (PCBD)[29] remains a prime area, real estate professionals report greater openness to riskier assets. French investors account for the majority (60%) of transactions, with investment funds, insurers and other institutional investors also sustaining the market. After a strong showing in 2015, investment in Ile-de-France in office real estate was relatively moderate in Q1 2016, owing to a dearth of major deals and a quieter market.

The office real estate market still looks imbalanced and may be showing the first signs of a correction. In Q1 2016, the vacancy rate for Ile-de-France office space edged down[30] to 7.3% compared with 7.6% in Q1 2015. The decline was especially pronounced in the PCBD (5.6% to 4.6%) and La Défense (10.9% to 8.4%), where property available for immediate occupancy was also sharply down year-on-year. The vacancy rate is still high and on the rise in some zones, however, including the area surrounding La Défense (14.9% to 17%). Furthermore, the gap between building permits and starts has not narrowed since 2014, potentially reflecting the lacklustre construction sector.

Commercial real estate prices are trending upwards overall and have added 10.8% since Q1 2014,[31] especially in the commercial segment, which put on 8.7% year-on-year in Q4 2015, and, to a lesser extent, offices, which gained 5.4%. Lower interest rates have supported price growth despite the squeeze on rental yields, as the decline in ten-year government bond yields, the traditional benchmark for property investors, has exceeded rental yield compression. As the HCSF's April 2016 report stresses, the influx of investments to a commercial real estate sector suffering from reduced profitability in a setting of low interest rates calls for caution.

Given the brisk transaction levels in 2014 and 2015 amid high and still rising prices, prices are estimated to be approximately 20% overvalued. Special attention is being paid to certain market segments, notably offices, particularly in the CPBD. While this is a relatively narrow section of the sector, there is the danger of knock-on effects or unfavourable signals for the wider market. Note however that office prices in France came down in Q4 2015 compared with the previous quarter.

28 Source: CBRE.
29 Comprising portions of the 1st, 2nd, 8th, 9th, 16th and 17th arrondissements, the Paris Central Business District (PCBD) comprises a very unique economic zone including numerous major decision-making centres.
30 Source: BNP Paribas Real Estate.
31 Source: MSCI data.

As regards the financing market for real estate professionals, the first round of data gathered by the ACPR to end-June 2015 reveal some stability in the structure of new financing and the exposure of the main French banks, after correcting for changes in scope:

– New financing, which came to EUR 26.7 billion, was primarily concentrated in France (59.8%), well ahead of the rest of Europe (24.8%) and the rest of the world (15.3%); investors and mortgage companies occupy a dominant position (57.1%), followed by promoters and real estate agents (41.3%); in terms of financed assets, new lending was chiefly earmarked for the residential real estate market (37.4%) and offices (25.4%).

– Total gross exposure, which came to EUR 149.6 billion, was relatively stable on a like-for-like basis and exhibited a profile broadly similar to that of new lending, i.e. exposure was chiefly concentrated in France (60.4%) and directed towards investors and mortgage companies (64%), followed by promoters and real estate agents (32.8%); again, exposure was mainly in the home (33%) and office (23.5%) segments.

While total outstanding non-performing loans were down compared with end-2014, the decline in the total amount of exposure between the two periods owing to changes in scope resulted in a 1 pp increase in the non-performing loan ratio to 7.6%, which is still below the level seen during the 2010-12 period. Credit risk appears to be stable, with an average provisioning ratio of 38.8%. However, these averages mask differences – some sizeable – between institutions and geographical regions, with the rest of Europe in particular reporting a much higher than average non-performing loan ratio (15.84%).

Mirroring the trend in other sectors, office real estate is appreciating. The PCBD is experiencing the fastest increase, which, combined with slower growth in rents, has led to a steep fall in rental yields.

Rental yields have fallen much more dramatically for Parisian offices compared with properties in other major European cities. With the exception of London, rental yields on Parisian offices were the highest for a long period. They have now fallen to levels seen in Madrid, Milan and Frankfurt, and have been comfortably overtaken by Munich.

Two risk-spillover scenarios leading to a fall in asset prices could occur:

– excess supply of commercial assets further out. The production cycle for commercial real estate assets is between two and six years. Although the steady rise in prices gives promoters no incentive to scale back the pace of new builds, they could face degraded market conditions at completion because of the rising vacancy rate and issues of building obsolescence. Consequently, excess supply could emerge swiftly in a few years, leading to a sharp decline in prices fuelled by high vacancy rates. However, although possible, such a scenario has yet to manifest itself;

– a financial shock: If interest rates go up suddenly, the spread between the return on commercial property assets and government bond yields will narrow, squeezing risk premia and making assets less appealing. More muted demand from institutional investors, fund managers and retail savers could curb demand for assets, with an attendant price correction.

A combination of these scenarios could trigger an across-the-board reduction in commercial real estate prices, reducing or wiping out the income prospects of certain funds or listed mortgage companies. In this situation (i) the returns on commercial real estate investments could be reduced or wiped out, and (ii) the risk associated with these

transactions would increase. This could lead to total or partial defaults by owners, which include mortgage companies, insurers, pension funds and investment funds.

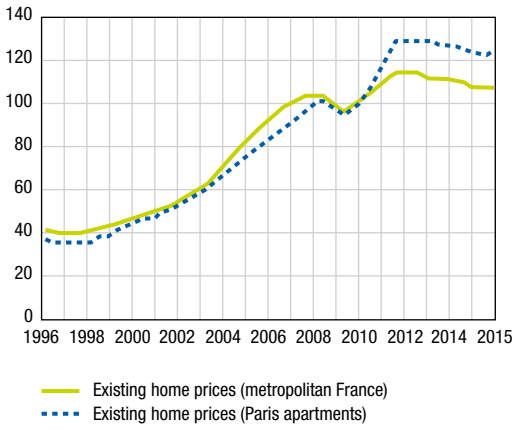
At this stage, the HCSF has taken preventive macroprudential measures to highlight the risk of imbalance in this sector, including a communication aimed at raising awareness among market participants. This communication took the form of an April 2016 publication setting out the HCSF's assessment of the commercial real estate sector, which included a public consultation. The Chairman of the HCSF, who is also the Minister for Public Finances and Accounts, additionally wrote a letter to the French banking federation, real estate industry associations and the main market participants.

Based on the consultation feedback, an action plan and more restrictive measures may be introduced at a later stage.

Chart 20

Existing home prices

(Q1 2010 = 100)

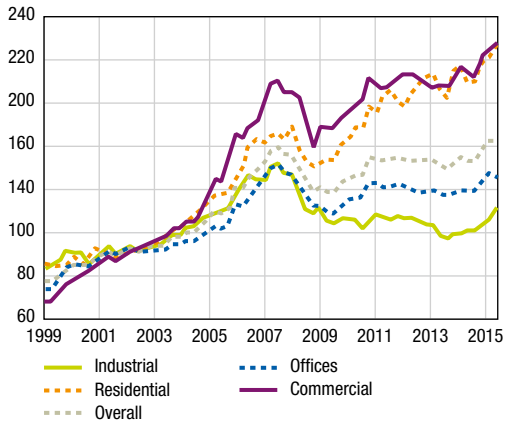


Source: Insee.

Chart 21

Commercial real estate prices, France

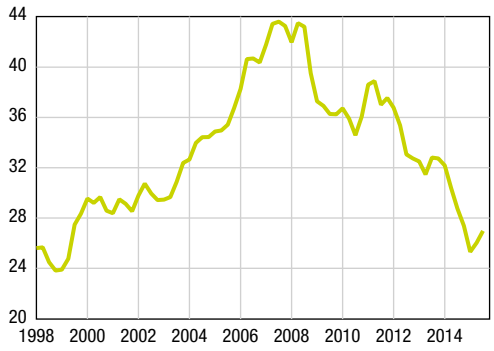
(Q1 2003 = 100)



Source: MSCI.

Chart 22

Share of income assigned to a theoretical real estate loan under market conditions



Source: Banque de France calculations.

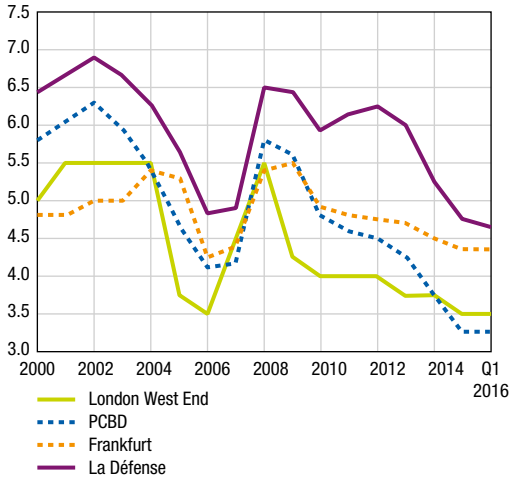
Chart 23

Spread between 10Y bond yield and rental yield in the residential sector

Source: Banque de France calculations.

Chart 24

Net rate of return, prime office space, as a %

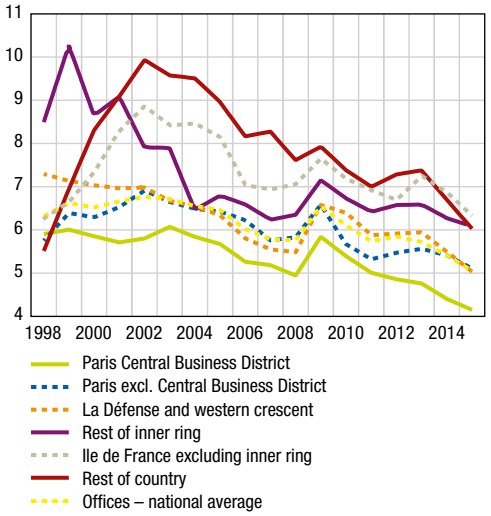


Source: Banque de France.

Chart 25

Rental yields on office space, France, by sector and national average,%

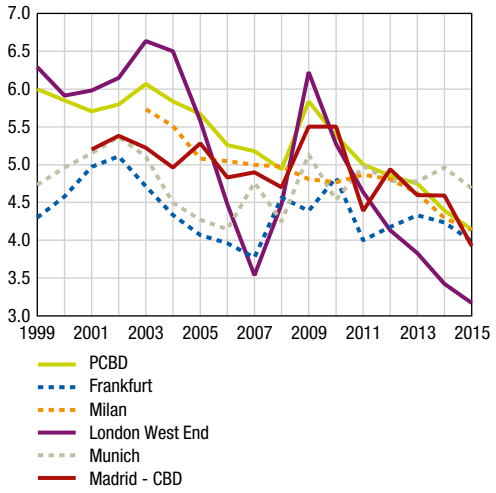
Office real estate - Cost-adjusted yield – France



Source : Banque de France.

Chart 26

Rental yields on office space, Paris vs. other major European cities,%



Source: Banque de France.

3 Risks for financial institutions

3.1. Sustainability of bank business models

French and European banks alike are doing business in a challenging and uncertain environment, featuring degraded macroeconomic conditions, low interest rates, competition from the shadow banking sector, the rise of digital financial technologies through fintechs, new regulations, and pressure from investors to deliver returns. With this in mind, the ECB has identified challenges in maintaining satisfactory profitability and possible consequences for the viability of business models as the number-one risk for banks in 2016.[1] The viability of the business models pursued by the main French banks does not look to be threatened in the medium term, notably because of the strategic adjustments that these institutions are making to maintain their competitive edge.

a. The business models of French banks are exposed to multiple threats

French and European banks remain under pressure from investors, whose requirements in terms of expected returns continue to exceed the observed return on capital.

The retail business of French banks is being hurt by its European foundations in a setting of depressed economic conditions. At end-September 2015, Europe accounted for over 45% of the exposure the main French banks to foreign counterparties.[2] The low interest rate environment in Europe is a vital point to watch, because French banks rely on interest income, primarily from their lending activities. Furthermore, new regulatory initiatives both in France and Europe[3] aimed at encouraging non-banks, particularly investment funds, to finance the real economy, are intensifying the competitive pressure on banks' lending activities. The emergence of new entrants offering digital financial services, known as fintechs, generates pressure between banks and these firms, but also and above all within the banking sector itself.[4]

Box 2

French banks' funding structure

At this stage, the funding structure of French banks gives no particular cause for concern, and their liability structure remains stable. Dollar-denominated funding is limited, accounting for an average of 18% of medium and long-term debt. Short-term borrowing from US money market funds fell by 29% between January 2015 and March 2016, from USD 185 billion to a total of USD 132 billion.

A rise in US policy rates would have a limited impact on French banks' cost of funding in the short term for two reasons: first, French banks have no excessive concentration of dollar debt repayments falling due in the short term; second, only a limited amount of their outstanding dollar-denominated debt carries a variable rate. In addition, banks have adopted hedging strategies to offset the negative effects of US monetary tightening.

In the medium term, however, if the spread between the cost of euro- and dollar-denominated funding were to remain significant, this could potentially impact French banks' debt issuance strategies.

1 *ECB, supervisory priorities for 2016 of the Single Supervisory Mechanism.*
2 *Source: ACPR. Italy accounts for the largest European exposure of France's main banking groups (EUR 275 billion) and this exposure increased by 1.9% between 2014 and 2015. French banking groups remain the most exposed to Italy in terms of their share compared with banking groups from other nations reporting to the BIS. The exposure to Italy nevertheless remains measured when considered relative to the total immediate risk exposure – including France – of French groups, accounting for just 4.7%.*
3 *Supplementary budget for 2015 allowing securitisation funds and vehicles to grant loans since 1 January 2016 subject to conditions, with plans to expand the scope of authorised funds in H1 2016; discussions within the European Commission on establishing a harmonised framework for loan origination by investment funds.*
4 *In many cases, the lack of the necessary authorisation to provide financial services prevents fintechs from replacing banks.*

Corporate and investment banking's share of the net banking income of the main French groups declined by two percentage points between 2010 and 2015 from 22% to 20%.[5] This sector is especially subject to regulatory pressure. It displays large income variations from one year to the next and relies partially on global economic conditions. In Europe, it is currently challenged by the rise of US competitors, which could soon occupy the top spot in this segment by market share.[6]

b. French banks are continuing to make adjustments, stepping up their use of digital technology, cutting costs and diversifying income

The emergence of fintechs is prompting banks to take swift action on integrating new technologies in order to address evolving customer needs and hold onto market share. Banks are overhauling their product distribution approaches in payment, fund transfer and asset management services and are getting involved in peer-to-peer and business-to-business lending. They are also streamlining their branch networks and developing entirely online banking services. These changes entail heavy technological investments, which banks may take on directly or through their acquisition of fintechs. Banks will have to continue to upgrade workforce skills, particularly through training programmes, and ensure that they are able to cope with IT failures. Those that will not be able to adapt will be exposed to the risk of major income loss.

At the same time, banks are attempting to cut costs to boost profitability, notably by shedding jobs and shutting branches. For the time being, though, the cuts have been largely offset by investments, especially in digital projects. As a result, banks' operating costs increased by 5.8% between 2014 and 2015.[7] Given that the short-term effectiveness of these cost-cutting measures is not immediately apparent, the medium-term impact will need to be monitored.

French banks are also trying to diversify their income sources. Fee and commission income in the French banking sector is up 2.6% since 2007 and rose by 1.8% between 2012 and 2014.[8] In 2015, banks continued to build up this type of income, as attested to by the widespread introduction of charges for current accounts in retail banking. The recent period also featured renewed interest in real estate lending, which may be attributable to brisk demand in a setting of low interest rates and to the opportunities created by this type of loss-leader product in terms of establishing enduring customer relationships. Home loans have traditionally been low-profit products because they are subject to fierce competition and often charge fixed rates of interest; yet they offer a way to attract new customers, who are often disinclined to change banks. However, in the event that interest rates go up, banks could face problems if the hedges in place to cope with this risk prove inadequate. Even so, the characteristics of banks' outstanding loans do not appear to have materially changed.[9]

In corporate and investment banking, the main French banks are repositioning themselves in their traditional business areas and in areas where they enjoy a comparative advantage. They are stepping up their fee-generating businesses (advisory) and relying on stable sources of income such as global transaction services (cash management and trade finance). Brisk inflows of new money into insurance and asset management drove strong income growth in these segments as well, with an increase of 9.8%

5 *Calculations by the ACPR based on financial reporting by the six main French banks.*

6 *Goodhart C. and Schoenmaker D., "The United States dominates global investment banking: does it matter for Europe?", Bruegel Policy Contribution, No. 2016/06, March 2016. The US banks examined include Goldman Sachs, Morgan Stanley, JP Morgan, Citigroup and Bank of America Merrill Lynch.*

7 *Calculations by the ACPR based on financial reporting by the six main French banks. The cost-to-income ratio did however decline by nine-tenths of a point to 66.4% owing to a larger increase in NBI.*

8 *Source: ECB (Statistical Data Warehouse). Scope: French banking sector.*

9 *The portion of outstanding non-performing home loans, which had been trending upwards since 2009, increased by a mere 3 bps to 1.55% at end-2015 (compared with 13 bps between 2012 and 2013 and 12 bps between 2013 and 2014); the provisioning ratio continues to rise gradually and stood at 29% compared with 27.4% one year previously (cf. 1.5).*

between 31 December 2014 and 31 December 2015.[10] In general, banks are targeting high-potential customers, offering them high value-added services that do not consume large amounts of regulatory capital.

In addition, French banks are continuing to offload non-strategic businesses in order to rationalise risk-weighted assets. The worrying situation of emerging countries is prompting them to scale back their at-risk exposures (cf. 1.1 and 1.3) and to refocus on their core European market, while simultaneously bolstering positions in some fast-growing countries from the region.

In conclusion, French banks look to be trying to preserve their universal banking model – the resilience provided by their diversified business base demonstrated its worth during the crisis – but they also want to rationalise the model to reduce its vulnerabilities. Banks are expected to continue adjusting their business models in 2016, as the strategic plans that they have set in train remain unfinished and extend out to the end of 2016 and even into 2017. Cost-cutting efforts, in particular, remain to be made. Whatever the case may be, given the rising prominence of new players and the growing trend towards disintermediation, banks are more likely to evolve to take on a new role rather than lose momentum.

3.2. Increased regulatory requirements

While French banks have made the bulk of the adjustments linked to the requirements introduced by Basel III (December 2010, June 2011), it is essential that the reforms under discussion within the Basel Committee aiming at finalising the Basel III framework comply with the G20 commitment set in February 2016 to complete Basel III without further significant increase in capital requirements for the banking sector as a whole. In addition to the Basel reforms, banks will also have to comply with new constraints connected with the introduction of Total Loss Absorbing Capacity (TLAC) and new provisioning requirements (IFRS 9).

a. State of prudential requirements pertaining to capital and liquidity for major French banks

i. Solvency and leverage requirements

In second-half 2015, the aggregate CET1 ratio of France's six main banks rose by 0.5 pp to 12.5%. This sharp increase, as compared with a 0.2 pp rise in the first half of 2015, was essentially attributable to earnings retention, since risk weighted assets (RWAs) were more or less stable over the period, contracting by just 0.1%. The overall aggregate ratio jumped by 0.9 pp to 15.7%, as banks continued to pursue active Tier 2 issuance policies (EUR 10.7 billion).

At end-December 2015, the six main French banks had an aggregate leverage ratio of more than 4%.[11]

ii. Liquidity requirements (LCR, NSFR)

At 31 December 2015, the aggregate liquidity coverage ratio (LCR) of the six main French banks stood at 126.5%, up 13.1 pp compared with June 2015 (113.4%). Individual ratios all exceeded 120%.

10 Source: banks' financing reporting.

11 The actual level depends on the decision to be taken by European supervisors on application of the special treatment provided for in the European delegated act to regulated savings centralised with Caisse des dépôts et consignations.

b. Finalising Basel III

The Basel Committee is in the process of finalising a proposed package of reforms to RWA measurement as well as to measurement and calibration of the leverage ratio. According to the mandate drawn up by the BIS Group of Central Bank Governors and Heads of Supervision (GHOS) and to the G20 communiqué released in February 2016, the framework established by post-crisis reforms must not significantly increase overall capital requirements across the banking sector.

i. Review of the solvency ratio

- *Requirements in respect of credit risk*:

The Basel Committee's proposals to place additional constraints on the use of the internal ratings-based approach (IRB) to measuring credit risk were published on 24 March. These proposals form part of the Committee's programme to simplify RWAs and make them more comparable, particularly with a view to reducing their variability from one institution to the next. The main aspects covered by the consultation included the removal of the option to model certain portfolios or risks (such as exposures to financial institutions, including banks, and large companies) and the adoption of floors for the regulatory parameters that banks are required to estimate.[12]

Reforms to the standardised approach to credit risk are also underway and seek to improve the simplicity, comparability and risk sensitivity of RWAs.

Furthermore, in the wake of the subprime crisis, a new regulatory framework for securitisation transactions was published in December 2014, aimed at enhancing risk sensitivity and ensuring more prudent calibration of capital requirements. A second set of reforms is currently underway to identify simple, transparent and comparable (STC) securitisations, which could be subject to alleviated capital requirements. A consultation by the Basel Committee on this topic was completed in February 2016.

- *Requirements in respect of market risk*:

The fundamental review of the trading book (FRTB) includes a redefinition of the trading book to limit the options for arbitrage between the banking book and the trading book, a review of internal models and model validation methods, and a revision of the standardised approach.

Building on work connected with the FRTB, the definition of capital requirements relating to credit valuation adjustment (CVA) risk is currently under review. As part of this, the internal model-based approach could be phased out and replaced by a standardised approach (SA-CVA) inspired by the standardised approach of the FRTB and a basic approach (BA-CVA) derived from the current standardised approach.

- *Requirements in respect of operational risk*:

A proposed new standardised measurement approach for operational risk (SMA) was published in early March as a replacement for all existing approaches, including the advanced measurement approach (AMA), which would be removed.

ii. Review of capital floors

Furthermore, the Basel Committee's consultative document on reviewing internal model approaches to credit risk published in March 2016 indicates that the Committee

12 Probability of default – PD, Loss given default – LGD, Exposure at default – EAD.

is looking at the possible introduction of an aggregate capital floor to constrain RWAs produced by internal models relative to those produced using the standardised approach. An indicative range of 60% to 90% is mentioned.

iii. Leverage ratio

The review of the leverage ratio is in the process of being finalised. In accordance with the GHOS agreement of January 2016, the ratio will be set at 3% and be based on a Tier 1 definition of capital. However, as proposed in the consultative document published on 25 April 2016, a surcharge for G-SIBs could be applied. The related calibration has yet to be determined.

iv. New TLAC requirements

In addition to enhanced capital requirements, banks will also have to contend with the introduction of new Total Loss-Absorbing Capacity (TLAC) requirements. Global Systemically Important Banks (G-SIBs) will be required to have TLAC of at least 18% of their RWAs and 6.75% of their non-weighted exposures (leverage ratio denominator) as from 1 January 2022. In addition to own funds elements, loss-absorbing capacity will comprise liabilities whose level of subordination is higher than that of excluded liabilities listed by the Financial Stability Board (FSB). European institutions may however include in their loss-absorbing capacity senior debt in an amount up to 3.5% of RWAs, as well as, in the case of French institutions, the new intermediate securities that will be allowed to be issued once France will have adopted the current reform to creditor rankings.

Based on these assumptions, according to information published by French institutions themselves and rating agencies, French banks have an estimated TLAC shortfall of approximately EUR 40 to 50 billion, although there are sizable differences between groups.

Even so, all groups are confident in their ability to meet the objectives set when the new requirements come into effect, even if the amounts in question are significant with regard to the volume of the subordinated debt market in Europe.

The procedures for introducing TLAC into European law and the Single Resolution Board's Minimum Requirement for Own Funds and Eligible Liabilities (MREL) policy will however be key factors in determining the ability of French institutions to meet the future requirements.

c. Impact of IFRS9

In addition to the changes to prudential standards, banks will also be required to cope with changes to accounting standards with the introduction of International Financial Reporting Standard 9 (IFRS9). The new impairment model is likely to require institutions to substantially increase provisioning volumes, which could materially impact the CET1 ratios of the main French groups. The European Banking Authority is in the process of conducting an impact study.

3.3. Operational risks for banks

Banking activities rely heavily on computer technology. The information systems of banking groups typically comprise a patchwork of diverse – sometimes even competing – applications created to address new needs or resulting from mergers and acquisitions,

requiring the introduction of numerous interfaces. The main French groups use thousands of applications, which often necessitate complex and costly maintenance.

Yet these information systems have to be adapted to accommodate environmental changes, including: i) the digital transformation; ii) outsourcing of critical functions, and iii) efforts to prevent cyber-attacks. These developments create opportunities but also operational risks for system availability, data confidentiality and data integrity.

a. Digital transformation

The "digital revolution" represents an opportunity that has led banks to revisit their business models. The medium-term strategic plans of France's main banking groups now address the digital transformation by focusing on customer relationships and combining traditional branch-based channels with online and smartphone banking.

This shift comes with deep-seated changes to organisational structures, particularly at the branch level, and to IT, as banks work to offer suitable tools. New products and services are being created, necessitating the execution of IT projects, many of which include a significant security dimension. Examples range from smartphone and tablet-based banking to electronic signatures, strong authentication and digital safety deposit boxes. Banks also have to embrace new practices, such as Agile development[13] (rather than a V-cycle approach)[14] and cloud computing,[15] which blends powerful computing capacity with flexibility.

These disruptions obviously need to be managed, because they entail major operational risks that could threaten business continuity.

The arrangements for managing operational risk set out under the Basel framework are in principle designed to identify all risks using seven categories of events that could affect business lines. But while the emergence of an IT risk, such as the downtime of an application, may be incurred by the business line and included in its operational risk mapping, the vulnerability has its roots in the information system (e.g. failure to bring an upgraded version onstream). This makes it necessary to establish a classification of transversal IT risks, including security risks. The frequency with which such events occur and the risk mitigation measures to lower their probability will affect the business line's risk rating, but can only be determined by the IT division. In many instances, the operational risk ratings of banks' individual business lines do not fully capture IT failures, with the result that these risks may be only partially assessed.

To better identify the risks linked to information systems, the ECB has been conducting on-site inspections since early 2015, particularly in France, focusing solely on IT aspects, primarily in G-SIBs. It is now important for banks to build up their analyses and cross-cutting quantification of IT risks and for supervisors to integrate this aspect in their supervisory priorities.

b. Outsourcing of critical functions

The main activities outsourced by French banks are IT and payment functions. Pressure on margins has driven banks to outsource a growing share of these activities either to entities from the same group or to outside providers, potentially through offshoring.[16] In the IT area, data centres, network solutions, production, development, maintenance and security solutions such as strong authentication and cyber-surveillance are outsourced to

13 Agile methods are based on an iterative, incremental and evolutional structure.
14 Development standard in use since the 1980s. It makes it possible to limit the return to the previous steps in the event of a problem.
15 Cloud computing is used to tap into the computing or storage capabilities of remote servers through a network, typically the internet.
16 Offshoring is when companies move service or production activities to low-wage countries.

varying degrees by the main French banking groups.[17] This trend, which has already been in place for some time, is now spreading to big data[18] with the rise of cloud computing.

Outsourcing allows banks to harness state-of-the-art IT solutions, but may also be the source of material risks if not properly controlled through the establishment of a precise contractual framework (audit clause, service commitments, regular reporting, reversibility clause) and close monitoring and coordination of the service. Otherwise, continuity of the service, or even of the business line that depends on the service, and control of security risks, especially data confidentiality, could be compromised.

Outsourcing in France is currently governed by i) the Executive Order of 3 November 2014 on Internal Control,[19] and ii) a document on "the risks associated with cloud computing" published by the ACPR in July 2013. In particular, the French regulatory framework provides that banks retain full responsibility for any outsourced activities. Critical functions may be outsourced.

The EBA is currently looking at recommendations on cloud computing, which could be incorporated into the Guidelines on outsourcing, which are scheduled to be updated in 2017. The question of direct oversight by supervisors of systemically important service providers like Microsoft and Amazon, as in the United States, will be one of the topics addressed.

Furthermore, many IT activities are entrusted to non-bank third parties. While the Executive Order of 3 November 2014 allows some of these activities to be treated as essential services, its current wording means that other activities cannot be considered as essential services and thus receive special monitoring even though they are critical functions. These include the provision of security services, such as cyber-surveillance and authentication request processing. Given the developments in practices and associated risks, it would be worth re-examining the scope of essential services.

To provide a better framework to mitigate the risks linked to outsourcing, the role of the supervisor during the establishment of large-scale outsourcing projects, such as IT production, which have a major bearing on banks' business, or involving systemically important service providers, could be re-examined. The regulatory definition of essential services, which require a specific contractual framework and monitoring arrangements, could be revised.

c. Prevention of cyber-attacks

The banking sector is highly exposed to exponential growth in cyber-attacks chiefly through advanced persistent threat (APT), phishing and denial of service attacks. Société Générale has said for example that "the volume of attacks targeting the group increases each year by between two and ten times".[20] Banks' detection systems foil many attacks, but several major incidents in the recent period show how these threats are evolving, growing more sophisticated and taking a variety of shapes. These include the theft of personal data on 76 million user accounts from JP Morgan Chase bank, in June 2014, the blocking of European online banking websites in 2014, the racketing of Greek banks along with the threat of denial of service attacks in 2015, and the fraudulent transfer of USD 81 million from the Bangladesh Central Bank in February 2016.

17 The BPCE group outsources production and development within the group, BNP Paribas and Société Générale have offshored IT activities to India, while Crédit Agricole CIB offshores IT processing of KYC data.
18 The term "big data" denotes datasets that are so large that they are hard to work with using standard database or information management tools.
19 Which transposes the Guidelines on Outsourcing issued by the Committee of European Banking Supervisors (CEBS) in 2006.
20 Source: Revue Banque, *February 2016.*

Box 3

The Swift network

The Swift network has 11,000 members across the world - including 9,600 banks - and handles around 2.5 billion payment orders a year.

The theft suffered by the Central Bank of Bangladesh was carried out using transfer orders sent via the Swift network. By exploiting weaknesses in the computers the bank used to connect to the local Swift interface, the attackers were able to send fraudulent payment messages via the Swift network.

The incident highlighted a number of areas to watch: i) underestimation of risks by managers, ii) security failings in the IT systems, including insufficient segregation between environments and inadequate management of administrator access rights, and iii) failings in control systems.

The authorities are gradually taking steps to address these risks. Europe adopted the NIS[21] Directive on 17 May 2016. In France, the 2013 Military Spending Act, supplemented by decree in March 2015, applies to operators of vital importance, including in the banking sector, and requires security incidents to be reported to ANSSI[22] according to procedures to be established by executive order.

In spring 2015, the ECB conducted a far-reaching survey of cyber-risk at 110 systemically important European banks. This exercise will be extended to institutions under direct ACPR supervision in 2016. The ECB has also organised a number of cyber-security audits since early 2015, including several in French banking groups. In February 2016, it began collecting information on serious cyber-security incidents from a number of banks and plans to expand this system to include all systemically important institutions in 2017. The Banco de España and Banca d'Italia began collecting such data in 2010 and February 2015 respectively. In 2014, meanwhile, the Bank of England conducted a stock-taking of practices linked to cyber-risk and called on banks to conduct intrusion tests as part of the CBEST programme. For its part, the ACPR will cooperate with ANSSI on rolling out the Military Spending Act. It is also taking part in European and international work on cyber-security and has created an in-house network of experts.

To face up to the cyber-threats, banks need to make profound changes to their IT security systems by using specialised teams to strengthen i) the protection of their information systems, ii) the surveillance to detect attacks, and iii) incident processing. Protection requires, in particular, a detailed procedural framework, appropriate risk awareness among staff and customers, security arrangements to protect developments, introduction of technical solutions such as firewalls and strong authentication, separation of environments, access rights on a strictly need-only basis and a rigorous internal control system. Regular intrusion tests, appropriate supervision of outsourced services and the establishment of emergency and business continuity plans that specifically recognise risks linked to cyber-security are also vital.

Most importantly of all, senior managers need to be aware of the issues so that they include these risks in the company's strategy and earmark the requisite funding to set up systems to mitigate cyber-security risks. Information system security officers should also report to the Risk Division to ensure independence.

Accordingly, it is vital for bank senior managers to take the full measure of cyber-security risks and for security systems to be strengthened.

21 Network and Information Security.
22 National Agency for Information System Security.

3.4. Reallocation of asset manager portfolios

Total assets in French collective investment schemes amounted to EUR 1.388 trillion at end-December 2015, comprising EUR 1.066 trillion in non-money market funds (non-MMFs) and EUR 312 billion in money market funds (MMFs).

Two categories of investors can be identified in the current low interest rate environment: those opting for higher risk funds, and those choosing MMFs that offer very low returns (though still positive in nominal or real terms), reflecting a trade-off in favour of liquidity.

Fund managers stepped up their investments in 2015 in longer-term securities issued by higher-risk issuers not resident in the euro area (e.g. private issuers, especially non-financial companies).

Notwithstanding portfolio reallocations aimed at generating better returns, the average overall return on non-MMFs fell on an annual basis over 2015 to 5.1% at end-2015, compared with 8.6% at end-2013, and actually entered negative territory in early 2016 (-5.3% in March 2016). Returns on MMFs also decreased, but are still slightly positive in nominal and real terms (0.18% at end-2015 and 0.05% in March 2016 on an annual basis).

a. As they search for yield, investors in non-MMFs steer their investments towards mixed and equity funds

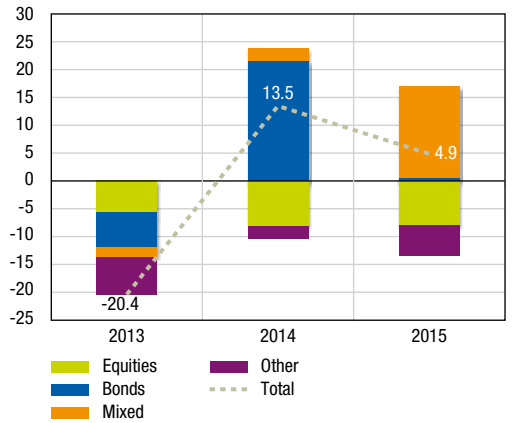
Net investments in non-MMFs, which came to EUR 4.9 billion in 2015, featured a pronounced shift towards mixed funds (EUR 16.5 billion increase), which offer brighter return prospects than bond funds owing to their portfolio structure (20% invested in equities). Mixed funds achieved a return of 3.1% in 2015 compared with 0.8% for bond funds.

In 2015, the largest investors in non-MMFs were credit institutions (EUR 6.5 billion), general government (EUR 4 billion) and non-MMFs (EUR 3.5 billion). Insurers and non-residents took out EUR 6.5 billion and EUR 3.6 billion respectively.

Equity funds recorded net outflows in 2015 owing to cross-border mergers, which led funds to leave France, primarily for Luxembourg. These mergers totalled

Chart 27

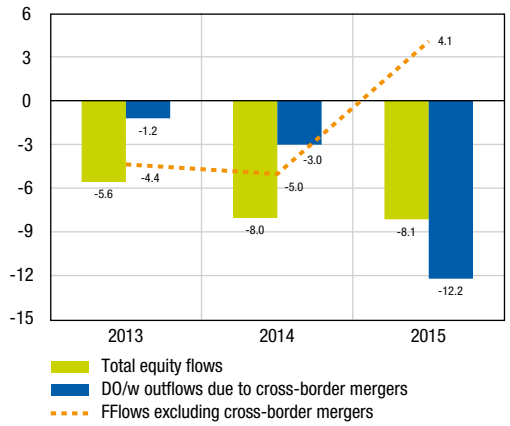
Net investment flows, by non-MMF category (EUR billion)



Source: Banque de France.

Chart 28

Net investments in equity funds (EUR billion)



Source: Banque de France.

EUR 12.2 billion in 2015. Stripping them out, equity funds rose by EUR 4.1 billion over 2015, confirming investors' appetite for this type of high risk/reward product.

These trends are still to be confirmed in 2016: Q1 featured a slight outflow from mixed funds (EUR 5 billion) and also from equity funds excluding cross-border mergers (EUR 1.3 billion), possibly reflecting the downturn on stockmarkets.

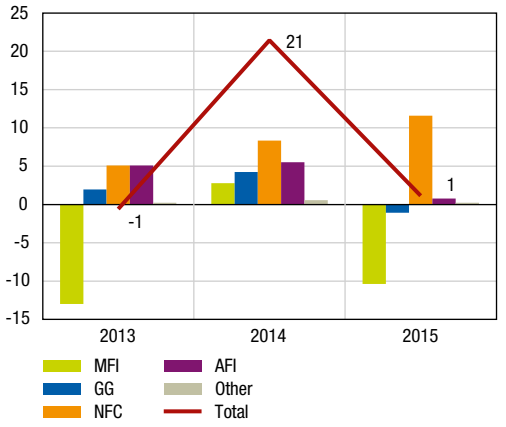
b. The extended duration of investments and exposure to riskier sectors make funds more vulnerable

The average residual duration of the debt securities held by non-MMFs has continued to increase, rising to 6.7 years in late 2015 from 6.4 at end-2014 and 5.5 at end-2013, exposing these funds to the risk of an abrupt increase in long rates. The substantial value losses suffered by bond and mixed funds in the second quarter of 2015 following the upturn in long rates illustrate this risk factor.

While non-MMFs primarily purchase securities issued by non-financial companies (NFCs) from countries outside the euro area (Charts 29 and 30), in terms of outstanding amounts, geographical diversification remains chiefly intra-European (77%). Notably, exposure to emerging countries remains tiny (less than 0.5% of outstanding at end-2015). General government (GG) were the subject of net divestment (EUR 2 billion increase for resident GG offset by EUR 3.3 billion decrease for euro area GG) as were financial institutions (EUR 6.6 billion decrease for resident MFIs and EUR 3.1 billion for euro area MFIs), reflecting large volumes of maturing debt securities within this sector.

Chart 29

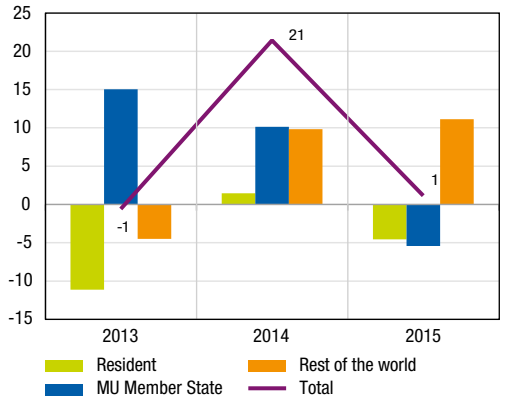
Non-MMF investment in debt securities by issuing sector (EUR billion)



Source: Banque de France.

Chart 30

Non-MMF investment in debt securities by geographical zone (billion EUR)



Source: Banque de France.

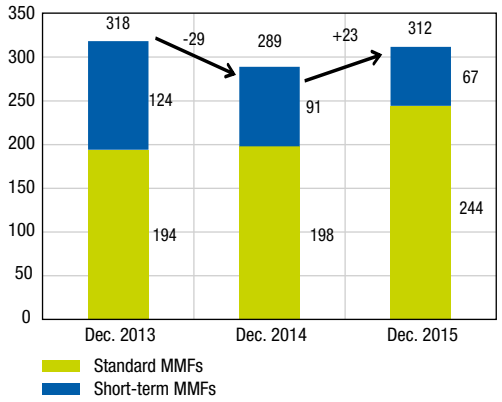
c. Inflows into MMFs reflect a wait-and-see attitude among investors and a trade-off in favour of liquidity

With EUR 22.6 billion in net investment flows over 2015 (Chart 31), MMFs drew in investors, especially NFCs (EUR 11.6 billion) and non-residents (EUR 11.2 billion).

This trend gathered momentum in Q1 2016, with net inflows reaching EUR 17.8 billion. In the current environment of low or even negative interest rates, this type of low-return but highly liquid investment offers positive real returns (0.18% in 2015 and 0.05% in March 2016). The relative resistance of MMF returns is partly due to the reallocation of

Chart 31

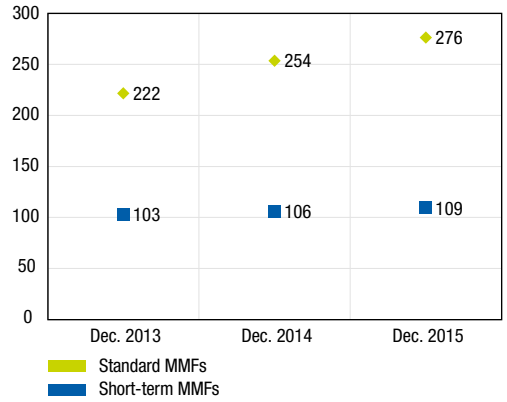
Decomposition of MMF assets (EUR billion)



Source: Banque de France.

Chart 32

Average residual maturity of MMF portfolios (number of days)



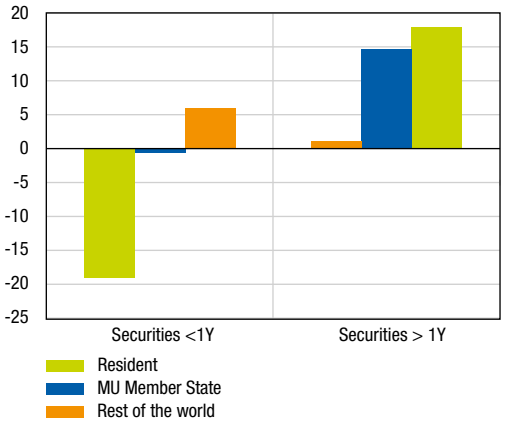
Source: Banque de France.

funds towards "standard" MMFs offering longer durations: these types of funds, whose average residual maturity must not exceed 365 days (EUR 46 billion in 2015), were heavily preferred to "short-term" MMFs (outflow of EUR 24 billion in 2015, average residual duration capped at 120 days). The average residual duration of each of the two types of contracts has increased over the last two years, with that of short-term MMFs nearing the authorised maximum (109 days compared with a cap of 120, Chart 32). Investments in longer-term securities allow MMFs to maintain above-inflation positive returns (+0.05% in March 2016 as compared with -0.1% for the CPI on an annual basis, Chart 34). However, in Q1 2016, portfolios were readjusted to include more short-term securities (increase of EUR 15.7 billion), reflecting increasingly reduced room for manoeuvre in terms of lengthening investment horizons owing to regulatory constraints.

Furthermore, as with non-MMFs, MMF investments are tending to become more geographically diverse (Chart 33), with the Credit Rating Agencies Directive allowing funds to select unrated issuers under certain conditions (notably use of internal ratings).

Chart 33

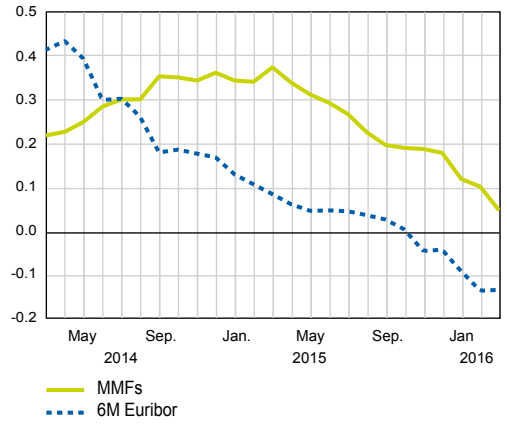
MMF investment in debt securities (2015)



Source: Banque de France.

Chart 34

Annual return on MMFs (%)



Source: Banque de France.

4 Risks for financial markets

The functioning of financial markets is subject to numerous pressure points resulting from the effects of various factors associated with the introduction of new regulations, the rise of electronic trading, the impact of non-standard monetary policies and the shifting balance of power among different types of participants, with, notably, the rise to prominence of the asset management sector and a reduced role for banks. These factors are combining and interacting to restructure all financial markets, including stock, bond and forex markets.

4.1. Risks linked to financial market liquidity

a. The average level of bond market liquidity appears to be satisfactory, despite differences between indicator readings and the perception of market participants

Bond market liquidity, which measures the ability to swiftly execute transactions at low cost without materially affecting prices, is a key component when analysing the stability of the French financial system. But differences are appearing in liquidity assessments provided by qualitative surveys as compared with the findings from quantitative indicators.[1] Numerous reports and questionnaires, including the ICMA's 2014 report on the European corporate bond market,[2] reveal that market participants have major concerns over the state of liquidity on bond markets.

Contrasting this, as indicated in the January 2016 report on bond market liquidity published by the Committee on the Global Financial System (CGFS),[3] direct measures of the price of liquidity (bid-ask spreads) remain at levels comparable to those observed before the financial crisis, and recent episodes of stress have not had long-lasting consequences. It is necessary to turn to quantitative indicators (market depth, average size of transactions, etc.) to detect a decrease in liquidity; and even here, the decline varies across segments and geographical zones.

These differences underscore the fact that liquidity is, by virtue of its multidimensional nature, a hard concept to capture and measure. Compounding this issue, the data available on European bond markets are often lacking in quality and quantity. Accordingly, no single gauge can be used to assess bond market liquidity, and the most recent indicators recognise its multidimensional qualities.

For example, the ECB recently assessed liquidity conditions on euro area secondary markets by using spider charts to aggregate several indicators, so as to more effectively capture the multidimensional nature of liquidity in sovereign securities. The findings suggest that liquidity conditions remain fragile but that the situation is considerably better than during the recent crisis periods. In a recent study, the Autorité des marchés financiers (AMF) proposed using a composite indicator based on three other indicators to monitor the liquidity of French bond markets.[4] The results obtained with this indicator show that while liquidity has improved since the beginning of 2012, it has yet to recover to pre-crisis levels (2005-07).[5]

While the overall level of bond market liquidity does not appear to be cause for particular concern under normal market conditions, two developments need to be

1 *One possible reason for this is that market participants always assess asset liquidity after the fact, taking into account trade times. But bond market indicators are unable to directly measure these times or the order splitting strategies used to achieve better execution.*
2 *International Capital Market Association Secondary Market Practices Committee,* The current state and future evolution of the European investment grade corporate bond secondary market: perspectives from the market, *November 2014.*
3 *CGFS, Fixed Income Market Liquidity, report by the working group chaired by D. Beau (Banque de France), January 2016.*
4 *The AMF's composite indicator is an equally-weighted average of three indicators (a bid-ask spread indicator, a zero return indicator and a price impact indicator) covering a sample of French listed bonds between 2005 and 2015. See Study of liquidity in French bond markets, AMF, 16 November 2015.*
5 *Note however that the liquidity level observed before the crisis does not necessarily represent the optimal level, as liquidity risk was underestimated prior to the financial crisis.*

Chart 35

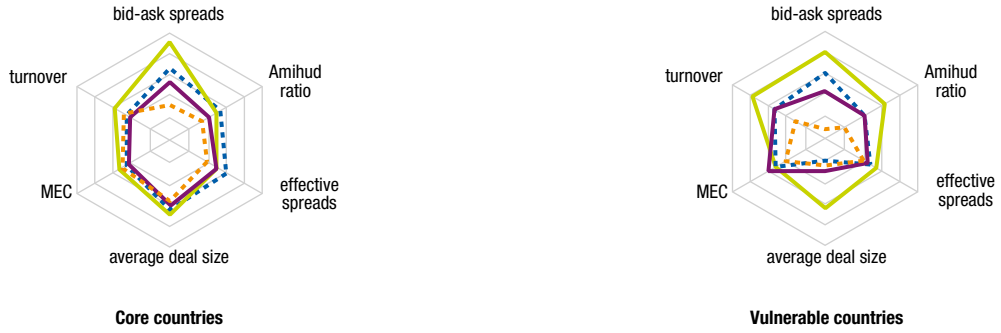
Liquidity conditions still fragile on sovereign markets

a) Euro area sovereign bond liquidity in non-vulnerable countries

(Jan. 2005 - Feb. 2016; average index value ranging from 0 (centre) to 1, where 1 = highly liquid)

b) Euro area sovereign bond liquidity in vulnerable countries

(Jan. 2005 - Feb. 2016; average index value ranging from 0 (centre) to 1, where 1 = highly liquid)



Source : ECB.

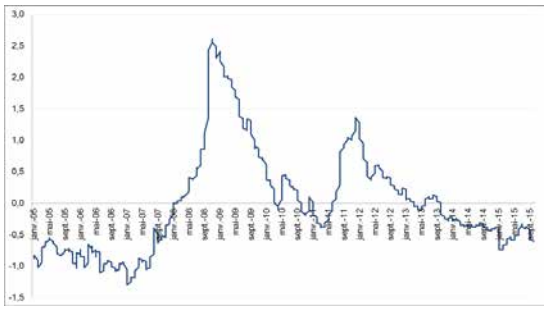
closely monitored, namely the ongoing trend towards bifurcation and the question of resilience.

b. Concerns over bifurcation and fragility issues

Bifurcation refers to the fact that liquidity is becoming concentrated in market segments that are already the most liquid or that enjoy the greatest depth, at the expense of other segments.[6] Between 2010 and 2014, the turnover ratio rose for government bonds owing to increased average trade size, while decreasing for corporate bonds over the same period (Table 5). On less liquid segments, the reduced capacity of market makers seems to have had a greater impact on liquidity because there are limited substitutes.

Chart 36

Composite indicator of illiquidity, French bond markets



Source: AMF, Bloomberg.
Note: The higher the indicator value, the less liquid the market is considered to be.

Meanwhile, the improved average level of liquidity under normal market conditions must not overshadow the question of resilience, that is, liquidity's reaction in the event of market stress. In particular, the increasing frequency of flash crashes, including in sovereign bonds that are considered to be highly liquid,[7] appears to point to a shift in the nature of bond market liquidity, which has the potential to vanish suddenly.

On bond markets, liquidity has indeed seemingly undergone a structural shift, becoming more fragile and more reliant on cyclical factors than in the past. In this case, fragility is characterised by difficulties in executing orders, sudden volatility and reduced depth with no clear explanatory factors, and may affect markets that have traditionally been among the most liquid. Since these markets act as benchmarks when pricing other instruments, any impact on their liquidity could spread to the wider bond market.

6 *See in particular recent reports by the CGFS (2014; 2016) and the IMF – GFSR (October 2015).*
7 *E.g. the flash rally in UST on 15 October 2014 and the bund tantrum in April/May 2015.*

Table 6

Distribution of volumes by sector, French bond market

Year	Supra-Gov-Agencies		Bank-Financial		Non Financial	
	Number of trades per bond	Monthly turnover ratio	Number of trades per bond	Monthly turnover ratio	Number of trades per bond	Monthly turnover ratio
2010	1,627	18%	426	7%	1,273	8%
2011	1,746	21%	407	8%	1,229	9%
2012	1,496	19%	484	7%	1,340	7%
2013	1,325	20%	538	6%	1,124	7%
2014	1,271	21%	482	7%	905	7%
2015(1)	1,056	19%	456	7%	653	8%

Source: AMF.
Note: The data for 2015 go to end-September.

4.2. A NEW LIQUIDITY REGIME DRIVEN BY STRUCTURAL AND CYCLICAL FACTORS

The factors driving this twin trend towards bifurcation and fragility are both structural and cyclical and are helping to reshape the market environment. Put another way, structural developments may have made market liquidity more sensitive to cyclical factors at a time when the inventories of markets makers have shrunk.

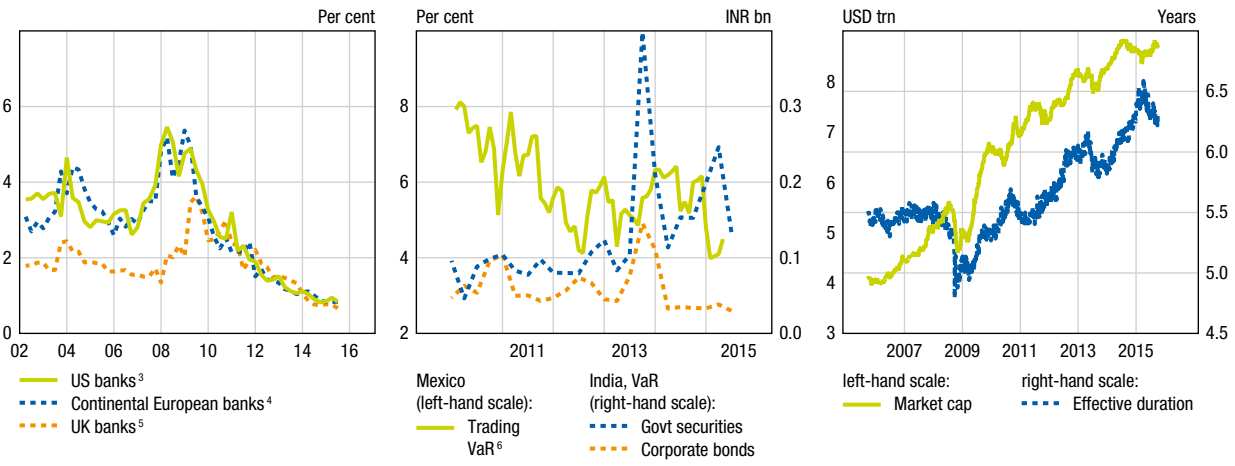
a. Supply of and demand for market making services are moving in opposite directions

The CGFS report on bond market liquidity (2016) notes that bond markets are in a transitional period owing to diverging trends in the supply of and demand for liquidity services. On the one hand, the supply of market making services is declining or at least exhibiting growing differentiation across segments because of the new market configuration (deleveraging, risk repricing and adjustments to comply with the new regulatory framework that are affecting the profitability of market activities, prompting market makers to reallocate their resources to scale back low-margin activities requiring major balance sheet capacity). On the other, demand for liquidity is increasing and becoming more concentrated with a substantial increase in the share and concentration of asset managers, more uniform investment practices and sharp growth on bond markets.

In this setting, market participants regularly emphasise the major negative impact of recent prudential and market regulations, citing their adverse impact on market making. However, it is hard to come to definitive conclusions about the actual impact of these new rules. In the first place, it is tricky to isolate the role of regulations in recent market

Chart 37

Financial risk indicators



[1] Annualised total trading VaR (99% confidence) divided by total equities, weighted by banks' total assets. [2] Based on the Merrill Lynch global corporate bond index. [3] Bank of America, Citigroup, Goldman Sachs, JP Morgan Chase, Lehman Brothers (to Q2 2008), Morgan Stanley. [4] BNP Paribas, Deutsche Bank, Société Générale, UBS. [5] Barclays, Royal Bank of Scotland, HSBC. [6] In percent of banks' net capital.
Source : BIS.

making trends from the impact of other market factors such as heightened dealer risk aversion. In the second place, market makers had begun deleveraging even before new regulations specifically affecting trading activities (such as restrictions on own account trading) were announced.[8]

b. Uncertainty over the impact of technological developments

Technological developments represent another major structural factor. The BIS estimated in 2016, for example, that high-frequency trading (HFT) accounted for over 50% of trading volumes in US Treasuries. European bond markets are seemingly less exposed to HFT owing to lower levels of standardisation and the use of request-for-quote protocols. Even so, HFT is taking a growing share of euro area futures markets.

The development of HFT has mixed effects on market liquidity,[9] particularly owing to the share of certain trading strategies (momentum trading, for example) and the resultant decline in the capacity of traditional market makers. HFT could exacerbate the bifurcation trend and alter the nature of liquidity provision, notably by reducing market depth.[10]

8 *Likewise, the reduction in the profitability of market making, which is often cited by market participants, is hard to measure, but does not appear to be particularly pronounced for banks with significant trading activity (Roengpitya et al (2014)).*
9 *Cf. the Banque de France's December 2015 assessment of risks to the French financial system.*
10 *BIS Markets Committee: "Electronic trading in fixed income markets", report by the study group chaired by J. Nagel, January 2016.*

Box 4

Algorithmic trading in foreign exchange markets

Algorithmic (algo) trading refers to the process of carrying out market transactions using computers programmed to implement a specific execution strategy – from the decision to place an order right through to its settlement.

Algo transactions have been made possible by the rapid rise in electronic trading, as contrasted with traditional voice trading methods.

Main characteristics of algo trading

The idea behind algo trading is to carry out transactions at extremely high speeds (in a few milliseconds compared with around 50 milliseconds for manual trading), and to access several different electronic trading platforms simultaneously.

- *Basic principles of algo trading*

Algorithms function by breaking up large orders into multiple smaller orders, making them easier for the market to absorb, and thereby minimising their price impact or making it possible to take advantage of the best available prices at a given instant on several different platforms.

Algorithms have already been around for a decade. The first to appear used fairly simple methods, consisting in spreading an initial order out over time and executing it in equal-sized blocks at regular intervals (time-weighted average price or TWAP algorithm). Another relatively simple method was to break up orders so as to achieve a volume-weighted average price (VWAP algorithm) over a specified period. Target volume (TVOL) algorithms function in a similar way to TWAPs or VWAPs, but in this case the objective is to achieve a set volume.

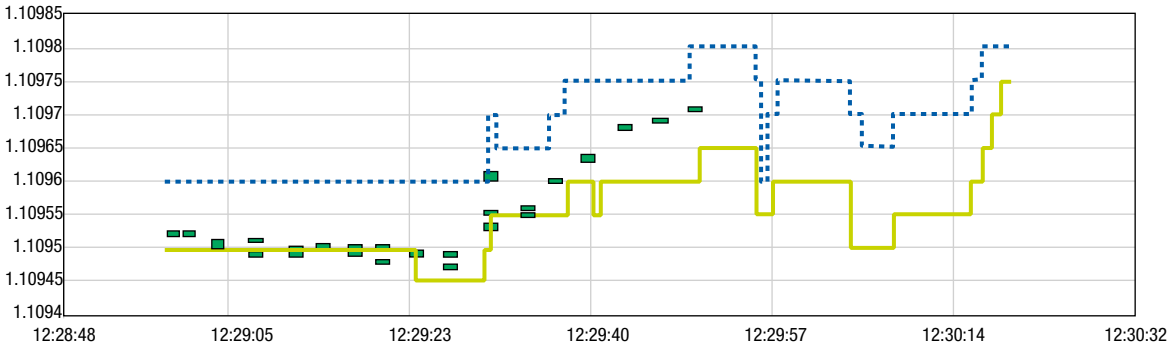
- *Growing sophistication of algorithms*

Over time, new, more intelligent types of algorithms began to appear in the market, capable of analysing order books (i.e. supply and demand for a given pair of currencies) and executing trades more or less passively or aggressively, depending on the client's needs. A TWAP algorithm, for example, could start off passively (adding limit orders to the order book on top of "at best" orders to achieve best execution) and then progress to a more aggressive strategy (market orders) in order to complete the entire order within the set time (although not at best price).

This type of strategy, where the execution style evolves over time, can be illustrated as follows:

Chart

TWAP EUR/USD sell order for EUR 15 million



Source : Banque de France.

Here, the sell order has been broken up into 26 smaller orders (green squares) that differ in size depending on the amount of liquidity at the time. The program starts by executing the individual orders aggressively, selling at or close to the market bid price (blue line) when the market is stable or falling slightly, then becomes more passive, selling closer to the offer price (red line) in order to take advantage of the subsequent rise in the market.

Recent growth in algo trading in foreign exchange markets

- *A rise in all forms of electronic trading*

The share of currency market transactions carried out electronically has increased markedly in recent years. According to the BIS's most recent triennial report, published in 2013,[1] electronic trading accounted for over 50% of currency market transactions in 2013, up from 41% in 2010. Confirming the trend, Euromoney's 2015 survey of forex markets showed electronic trading had become the dominant form of execution, accounting for 53% of total transaction volumes in that year.

- *Algo trading is increasing, but the extent of the rise is hard to measure*

Algo trading has evolved in line with the general trend for electronic trading. However, the exact extent of the rise is difficult to measure as it is hard to separate algo transactions from other forms of electronic execution. There are no official statistics available that are representative of all forex markets. Nonetheless, market participants seem to agree that the share of algo transactions has increased over the past three or four years, although opinion differs as to the speed of the rise.

Use of algo trading by market participants

- *Non-bank intermediation platforms*

Electronic Communication Networks (ECNs) connect market participants without acting as a counterparty. The main ECNs in the currency markets are Currenex, EBS, FX Connect, Hotspot, Reuters/FxAll and 360T. Some are regulated by market supervisory authorities, while others are unregulated.

1 Triennial Central Bank Survey of foreign exchange and derivatives market activity in 2013. http://www.bis.org/publ/rpfx13.htm

Not all ECNs offer their own algorithms – those that have developed them have generally done so in response to client demand. Some ECNs have taken steps to avoid favouring algo transactions over other forms of trading, for example by applying a speed delay of a few milliseconds during which incoming orders are collected and held on standby (latency floor of between 1 and 3 milliseconds), before being sent in batches to the trading platform where they are matched in random order rather than on a first-in-first-matched basis. In this way, algo orders, although faster, are not systematically given preference over other orders as they do not necessarily reach the platform first. These measures were taken in response to requests from ECN clients such as commercial banks, which wanted to ensure transactions requiring human intervention were not systematically penalised.

- *Single-bank algo platforms*

Single-bank platforms are those set up by commercial banks, where the bank itself acts as counterparty for all client orders, even if incoming orders are then broken up into smaller transactions and executed on multiple different electronic trading platforms, including the non-bank ECNs described above. Examples of single-bank platforms are Alpha (Société Générale), Autobahn (Deutsche Bank), BARX (Barclays), and Velocity (Citigroup).

- *Main users of algo trading in forex markets*

The first market participants to use algorithms for forex transactions were hedge funds, which developed their own automatic trading systems to execute pre-programmed strategies.

Following on from the hedge funds, the major commercial banks began to use algorithms to execute client orders internally (internalisation of flows); those orders that could not be matched were executed using algorithms. The banks subsequently opened up their algorithms to external clients (corporates, asset managers, etc.), leading to the creation of single-bank platforms. To avoid conflicts of interest, external clients can specify whether they want their orders to be matched with the bank's internalised orders, or executed exclusively in the market.

Overall, it would seem that the recent rise in algo trading in forex markets cannot be attributed to any single category of market participants, but rather that real money investors, commercial banks, corporates, sovereign funds and hedge funds all use algorithms to more or less significant extents.

c. The major role played by non-standard monetary policies

Post-crisis monetary policies have supported bond markets and enabled them to resume orderly operation. However, after a prolonged phase, interest rates of close to or below zero, coupled with massive purchase programmes, could generate the risk of shortages in certain asset classes, increased risk taking and hence violent reactions in the event of changes in the expectations or prospects for normalisation of accommodative policies. Also, non-standard policy measures conducted by the main central banks, including asset purchase programmes, now form a crucial factor in determining financial asset prices and market expectations.

A report by the CGFS (2016) suggests that the effects of monetary policies and central bank interventions may evolve over time. While these policies initially support primary markets and improve liquidity, they could, after a prolonged period, play a part in reducing the liquidity of market segments covered by purchase programmes, generate expectations of a deterioration during the normalisation phase, and encourage herd behaviour by investors. However, central banks are cognisant that their actions have ramifications for market liquidity and have tools at their disposal to closely monitor and prevent a serious deterioration in market liquidity conditions as well as obstacles to orderly functioning.

Accordingly, regulators continue to monitor liquidity and assess the combined effects of new regulations while holding discussions on the standardisation of securities to promote secondary market activity. In addition, recent volatility spikes highlight the need to assess the impact of HFT on markets as well as the effectiveness of existing circuit breakers.

Box 5

Impact of the PSPP on market liquidity

The Eurosystem's asset purchase programmes are part of a series of non-standard monetary policy tools implemented by the Governing Council to bring inflation back close to but just below 2%. Lead among them is the Public Sector Purchase Programme or PSPP. The effects of asset purchase programmes on market liquidity are difficult to quantify, first because the liquidity premium is not directly observable, and second because liquidity may be affected by other factors that are difficult to isolate (e.g. change in market maker business models, impact of high-frequency trading or of regulatory changes). Purchase programmes can in fact have a mixed impact on market liquidity. On the one hand, they boost liquidity by lowering yields on the classes of assets purchased. In the case of sovereign bonds, for example, they have reduced the cost of borrowing for semi-core and non-core countries, leading to greater homogeneity across the asset class (portfolio channel) and making certain euro area bonds more liquid. The fact that the PSPP is present each day as a buyer in the market also ensures greater predictability and liquidity in the secondary market.[1]

At the same time, however, the PSPP's presence in the market may prompt some investors to abandon certain asset classes, leading to a reduction in the usual demand (e.g. from agents that can no longer operate in a low yield environment or are not authorised to carry out transactions at negative yields). Moreover, strong demand from national central banks (NCBs) will only increase liquidity if there is a sufficient supply of "eligible" assets to buy. How the volume of new issues by major institutions, such as the Treasury, evolves therefore plays a crucial role.

Under the decentralised operational framework for Eurosystem monetary policy, participating NCBs are required to respect certain conditions in the implementation of asset purchase programmes, to preserve liquidity in the markets in which the Eurosystem operates:

- Issuer share limits. In the case of the PSPP, these limits were initially set at 25% then raised to 33% for the majority of securities in September 2015.

- The provision of securities lending facilities by the ECB and each NCB. These facilities are not intended to replace private repo markets but rather to prevent supply from drying up by putting high-demand securities back into the market.

- The principle of market neutrality. Purchases are spread along the yield curve to avoid weighing excessively on those segments where demand is strong. Wherever possible, NCBs will also avoid purchasing "specific" securities likely to become particularly popular on the repo market.

- The usual practices in terms of competition and best execution apply, to ensure balanced market functioning.

Traditional indicators show no deterioration in bond market liquidity, even after the targeted purchases for the PSPP were increased from EUR 60 billion to EUR 80 billion per month in April 2016.

1 This has been particularly apparent in recent weeks with French, Belgium and Spanish 50-year bond issues (even though their maturity puts them outside the scope of the purchase programme).