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2016 RISK OUTLOOK

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EDITORIAL

The June 23rd referendum deciding the UK's exit from the EU ushers in a period of profound uncertainty that we wish to be as short as possible, despite the complex political negotiating process. The final impact of the UK's exit will naturally depend on its eventual status vis-à-vis the EU, i.e. whether it maintains the closest possible relationship (membership in the European Economic Area) or the most distant one (no specific agreement at all with the EU).

The City's role in the financial sector warrants special attention to these negotiations, which will affect the organisation of the financial markets in the remaining 27 countries of the EU. At this stage, we are focused on the way the "third country" regime, scheduled in many European rules, may be used. Furthermore, we must ensure our ability to continue to effectively supervise the markets, in terms of access to UK data coming from trade repositories, investment firms, or trading platforms. Finally we must raise the question of locating within the EU the clearing of euro-denominated securities.

The UK's decision came as a shock to Europe and created additional internal uncertainties, at a time when global geopolitical risks are already quite high. As a result, the financial markets were largely affected in the days following the referendum's results. The UK's choice shows market participants that the construction of Europe is not an irreversible process. The likelihood that other European countries will call the EU project into question will presumably increase. That's why the countries supporting the EU must give together a new start to European construction:.

Beyond these risks, vigilance is required chiefly in relation to the very low interest rate environment in the euro area, which is the result of expansionary monetary policies. This environment weakens participants such as banks and life insurance companies; it also jeopardizes the orderly functioning of markets and disorients investors' behaviour. There are no historical precedents for an orderly exit from such an environment, and the example of Japan — where inflation has never resumed — highlights the challenges and limitations of central banks' policies of balance sheet expansion.

In this environment, the financial markets' ability to put a price on time, to price risk, and to guide investment decisions appears to be at risk. On the bond market, there is now USD 10 trillion in negative-rate sovereign debt while risk and term premiums look very low relative to issuers' fundamentals. While issuers are benefiting from exceptional funding conditions, they seem to be doing little to increase any productive investment likely to fuel growth. Additionally, bond market liquidity remains uncertain should a stress occur, a scenario which could increase price adjustments with very high volatility when valuations have to realign with fundamentals.
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To conclude, status quo does not seem acceptable. We must, with our European partners, deepen the banking Union by answering the questions raised by new equity requirements and the insurance of deposits; assert again the strength and trustworthiness of euro-based market infrastructures, and organize the clearing of euro-denominated securities within the 27-countries bloc; revive the coordination of economic policies to foster growth and employment; finally, not be afraid to promote Paris as a financial centre which enjoys a tradition of sound regulation and benefits from strong financial and economic players acting at a European level.

Gérard Rameix,
Chairman, Autorité des Marchés Financiers

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SUMMARY OF IDENTIFIED RISKS

The UK's vote to leave the EU increases long-term uncertainty and should notably have an adverse impact through the confidence channel (higher volatility and risk premiums).

The impacts of the UK's exit will depend heavily on the terms of this exit and on the status it ultimately opts for vis-à-vis the EU. This uncertainty will not be lifted until the end of negotiations, which could drag on for several years. Throughout this process, during which the UK will remain a full member of the EU, uncertainty is expected to lead to higher risk premiums and increased volatility.

In addition to the direct UK-specific impacts associated with the negotiations, the unprecedented event of a country exiting the EU will lend a bit more credence to scenarios in which other countries may renegotiate their membership in, if not leave, the bloc. Important upcoming elections in several European countries where confidence in the EU project has eroded will increase the likelihood of these scenarios. Risk premiums and volatility should therefore rise further on these anticipations for countries other than the UK.

These anticipation and higher risk premium effects should initially override the other transmission channels that can affect the macro-financial environment. These channels may come into play at a later date (for example, the trade channel, whose impact depends on the outcome of the upcoming negotiations on customs and tariff agreements).

The impact on the organisation of the financial markets (especially the capital markets, post-trade and asset management activities) will be even greater if the UK becomes a third country in EU terms with no specific agreement.

The further the UK shifts away from the rules in force in the EU, the greater the impact of its decision. For this risk and trend mapping exercise, it is therefore useful to consider an extreme-case scenario in which the exit negotiations result in the EU considering the UK as a third country, with no specific agreement.

In this scenario, the provision of investment services between the EU and the UK would be severely affected (to provide this service, companies would have to establish a branch or a subsidiary, as the case may be, and obtain local authorisation). Trade repositories established in the UK will have to undergo an equivalence and recognition procedure to continue to provide services to EU clients. This procedure has never before been utilised in practice and will be quite complicated to implement. Additionally, the UK will have to create a supervisory regime for these trade repositories (currently supervised directly by the European Securities and Markets Authority) to ensure market oversight. Lastly, if the EU does not recognise the UK's clearing houses, European clearing members that use these houses could face a greater regulatory burden. Clearing of euro-denominated contracts could also suffer, in the UK, if British clearing houses were to lose the euro credit lines they enjoy through the Bank of England – ECB swap agreements. This type of clearing might no longer be authorised at all, if the EU requires that it be done within its territory.

With regard to asset management, UK funds account for 5% of the number of funds coming into France, and the UK is the destination for 9% of outgoing French funds. As there is no "third-country" passport regime for AIFs (for which such a regime has been developed but not yet activated) or UCITS (for which no such regime has been developed), UK funds can be marketed in the EU only through the private placement regime, which has its own specific constraints. Conversely, the only way to market European funds in the UK will be to comply with the UK private placement regime.

At a time when the UK's decision has reinforced the already-high uncertainty, the greatest risk seems to be a sharp re-pricing of financial assets, particularly as the change in valuations appears to be shifting them away from economic fundamentals and deteriorating liquidity could intensify price adjustments by exacerbating volatility.

The re-pricing risk has already partially materialised and can be explained by new information about the macro-financial environment, such as assets exposed to the slowdown in emerging countries, falling oil prices and the health of the banking sector. But there are no ostensible fundamental explanations for many of the trends in the financial markets, as illustrated by the French 10-year government bond (OAT), which rose from 0.4% to 1.3% in 2015 before falling back to 0.4% in 2016. On the bond markets, the massive stock of securities yielding negative nominal returns (USD 10 trillion in sovereign debt in June 2016, according to Fitch) and the near disappearance of risk and term premiums reflect the disconnect between borrower valuations and fundamentals. A return to fundamental values would justify large-scale price movements, which could be magnified if liquidity on the bond markets were to deteriorate at the same time. Changes in allocation by investors could put pressure on the liquidity of money-market funds and bond funds (as demonstrated by Third Capital's troubles in the high-yield segment in the USA in 2015). The equity markets are more liquid and could therefore also have to absorb shocks, particularly if the risk premium is repriced in a highly uncertain geopolitical environment with multiple upcoming elections. At the same time, the authorities seem to have less leeway to respond (governments' fiscal policy, central banks' monetary policy).

The strengthening of the ECB's unconventional monetary policy reduces the risk of uncontrolled interest rate hikes but further weakens financial participants, disrupts the allocation of savings, and encourages but does not reward risk-taking.

Uncontrolled interest rate hikes appear highly unlikely in the euro area in light of the policy announced by the ECB and the tools at its disposal (allowing it to intervene across the entire yield curve for both sovereigns and corporates). This risk is greater in the USA, and could then certainly spread to the euro area, but less through the interest rate channel than through the confidence channel. The greatest risk for the euro area is thus a prolonged environment of excessively low interest rates. This environment exacerbates the challenges to the traditional business models and profitability of financial participants, such as banks, which have also been weakened for reasons both technological (digital competition, FinTechs) and regulatory (uncertainty about future capital requirements). Moreover, it prompts investors and fund managers to increase their exposure to risky or illiquid assets which, despite these characteristics, offer only modest additional returns. Lastly, households are disoriented by this environment and the corresponding low inflation, and their savings choices are shifting even further away from the appropriate allocation: low equity holdings; large proportion of bank deposits (or of risk-free funds in company savings plans, which are nonetheless long-term savings); reckless risk-taking on unusual products; and use of real estate despite high prices and falling returns.

Credit risk is increasing, as the trajectories for public and private debt do not appear sustainable beyond the temporary artificial support from monetary policies. Where debt is rising, it does not seem to be contributing to a rebound in growth as productive investment has not resumed.

The sustainability of the global debt stock appears to have deteriorated due to a macroeconomic climate in which low inflation and the lack of a rebound in activity have led to lower-than-expected growth in nominal incomes. Additionally, lower oil prices destabilise debt in the energy sector along with the finances of oil-producing countries. Yet, even before these events, the debt of several emerging countries (Brazil, etc.) seemed particularly vulnerable. Lastly, in Europe, the stock of non-performing loans on bank balance sheets has not declined and, at 6% of total loans, remains three times the US and Japanese ratios; in parallel, public debt is decreasing slowly or not at all. At the same time, the private sector has been able to increase its use of debt due to the unusual conditions created by expansionary monetary policies. In France, leading non-financial companies are using market-based debt without increasing their productive investment, and there appear to be significant issues of hybrid debt in the banking sector. The debt of retail real-estate funds, whose amounts are rising sharply (although they remain low), has also surged. Credit risk, while temporarily obscured by monetary policy, remains intact in the long term.

The shift in the financial markets leads to a concentration of risk in clearing houses and introduces new uncertainties, such as growth in passive management and its impact on price formation and liquidity.

Regulations intended to prevent the mechanisms that led to previous crises are not yet fully implemented, which has triggered residual risks specific to the organisation of the financial markets. Risk is therefore being concentrated, as anticipated, in clearing houses before there is a recovery and resolution regime for these institutions. The risks associated with securities financing transactions have been identified but can not be well estimated due to the lack of data, as the improvement expected from the corresponding regulation is not anticipated before 2018. Structural changes in the markets call for renewed vigilance. The passive management sector is growing mainly through the development of exchange-traded funds (ETFs): the quality of the price formation mechanism could be affected (as could the liquidity of the underlying securities), as demonstrated by the disconnection between US ETFs and their underlying assets during the 24 August 2015 trading session.

	Description of risks	Level at mid-2016	2016-2015	Outlook for 2017
Financial stability	1. Increased risk premiums, weakening indebted firms or those with assets whose prices do not reflect their fundamentals, could correct sharply BREXIT EFFECT (heightened uncertainty, repricing of geopolitical risk in Europe, etc.)		↗	↗
	2. Lack of coordination in monetary and fiscal policies, lack of coordination in regulatory adjustments in the financial sector		↘	→
	3. Credit risk, unsustainable debt trajectories, non-performing loans		↗	↗
Market organisation and functioning	4. Volatility, sharp fluctuations in liquidity conditions, large-scale shifts by investors from one asset class to another BREXIT EFFECT (uncertainty leading to higher volatility, asset reallocation, etc.)		↗	→
	5. Increasing needs for high-quality collateral, with an ill-controlled reuse and transformation risk, in light of a potentially scarce supply of local collateral in a stress scenario		→	↘
	6. Reorganisation of market infrastructure BREXIT EFFECT (market supervision and access to UK trade depository data; UK clearing houses and euro clearing)		↗	→
Financing economic activity	7. Profitability of financial institutions in a low interest rate environment and a still-fragile economic environment BREXIT EFFECT (weakening of the financial sector, flight to quality resulting in still-lower risk-free interest rates, etc.)		↗	↗
	8. Challenges facing companies, particularly SMEs, that wish to access the financial markets		↘	→
	9. Lack of investor protection when there is little information about the risks associated with certain investments or distribution channels		↗	↗

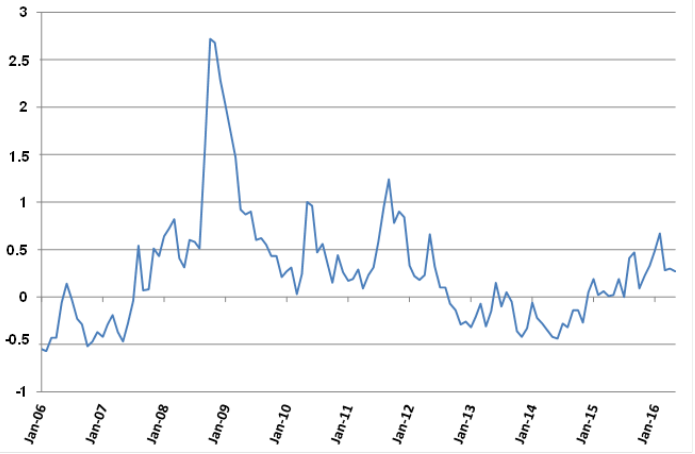
Level of risk at mid-2016	
	Systemic
	High
	Material
	Low

Change in risk since 2015 or outlook for 2017	
↘	Lower
→	Stable
↗	Higher

CHAPTER 1: FINANCING ECONOMIC ACTIVITY

In 2015 and the first few months of 2016, the financial markets were confronted with a particularly uncertain environment, as the resilient US economy and strengthening European recovery stood in stark contrast to concerns about weak commodity prices and the slowdown in emerging countries, chief among them China, as well as their impacts on the global economy. Against this backdrop, still-accommodative monetary policies helped maintain generally favourable financing conditions, particularly in Europe. However, the question of the effects of abundant liquidity on financial stability and the prospect of a US rate hike were ongoing concerns. In addition to these economic and financial risks, there were mounting geopolitical risks, mainly in Europe (Brexit risk, which materialised in June 2016; migrant crisis; terrorism) and the Middle East. In this unsettled environment, the markets experienced significant turmoil (Figure 1), characterised by bouts of high volatility, with alternating phases of corrections — sometimes sharp ones — and rebounds. These were a drag on the equity markets while the primary markets proved resilient, with the notable exception of the speculative debt and IPO segments.

Figure 1: Global Financial Stress Index (GFSI)



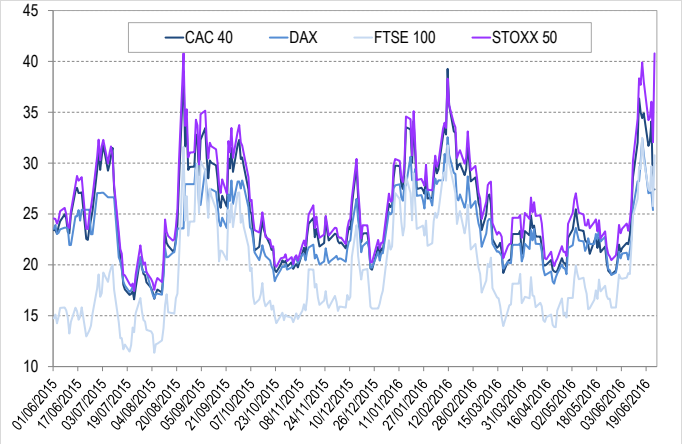
Source: BofA Merrill Lynch
Note: A value higher (or lower) than zero indicates heightened (or lessened) financial stress.

Box 1: Brexit: Impact on the markets

There is still considerable uncertainty surrounding the UK's exit from the EU, an event with no historical precedent, as the practical details of the withdrawal will be negotiated at a future date.

Against this backdrop, Brexit's main immediate impact on the financial markets is expected to be an overall increase in volatility and in risk premiums affecting all geographic areas through the confidence channel.

Figure I: Main implied volatility indices



Source: Bloomberg.

Next, taking a market-by-market approach, the main impacts expected by market participants are described below. The actual impact measured will depend on:

- the degree of market participants' anticipation (some of these impacts may be priced very quickly, or may even have been excessively priced just after the referendum, meaning there would be no further change or correction thereafter);
- actions taken by central banks (on the foreign exchange market in particular).

Aside from volatility, the most critical factors to consider from a macro-financial risk standpoint are therefore:

- euro-area spreads (an increase would reflect a fuller appreciation of the risk of euro-area dislocation);
- yields in the corporate bond markets (stress-testing liquidity in a market stress scenario).

1. Foreign exchange

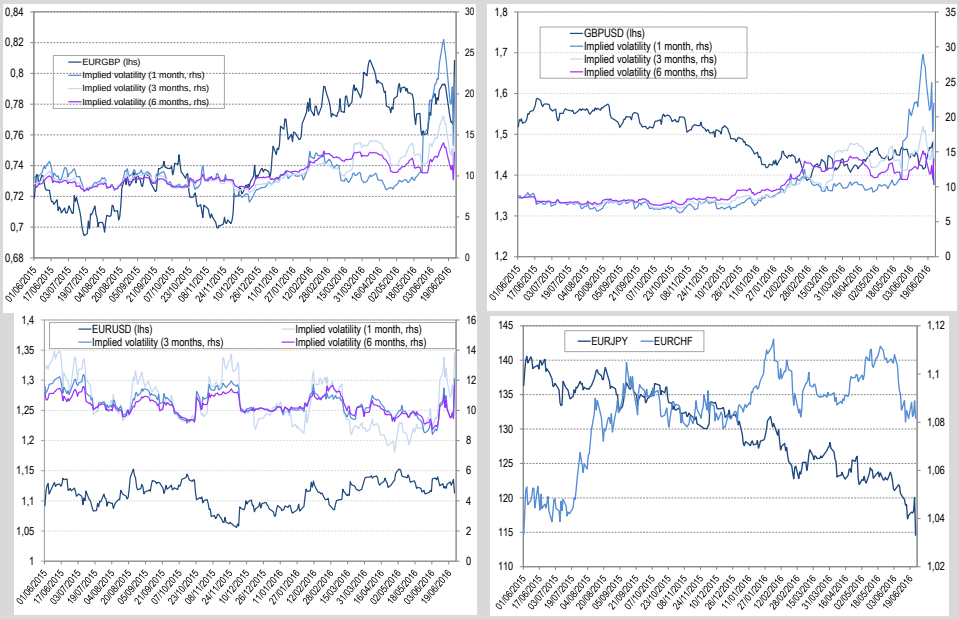
The most natural impact would be for the pound sterling to depreciate against all currencies.

Other European currencies, starting with the euro, could also weaken against the dollar or yen, as market participants may believe that the UK's decision is negative for the EU economy as a whole, or even that it increases the likelihood of other countries leaving the euro area.

As the negative impacts of the exit are in principle greater for the UK than for the euro area, the GBP/EUR bilateral exchange rate is likely to trend towards the depreciation of the pound against the euro.

Currencies viewed as safe havens, such as the Swiss franc and the yen, could appreciate.

Figure II - Foreign exchange rates



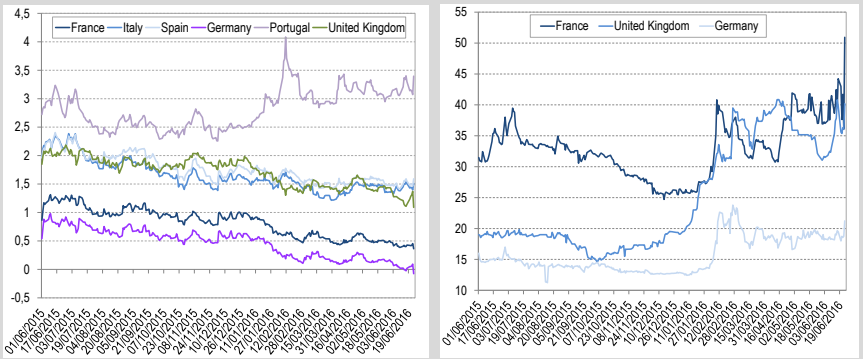
Source: Bloomberg.

2. Sovereign bond market

A rise in risk could trigger a fall in the yields of sovereign bonds considered to be safe in Europe (German bonds, in particular). On the UK market, government bonds are expected to benefit from a flight to quality.

If market participants believe the UK's decision increases the likelihood of other countries exiting the euro area, spreads should increase for issuers such as Spain and Italy.

Figure III - 10-year sovereign yields (left) and 5-year CDS premiums (right)



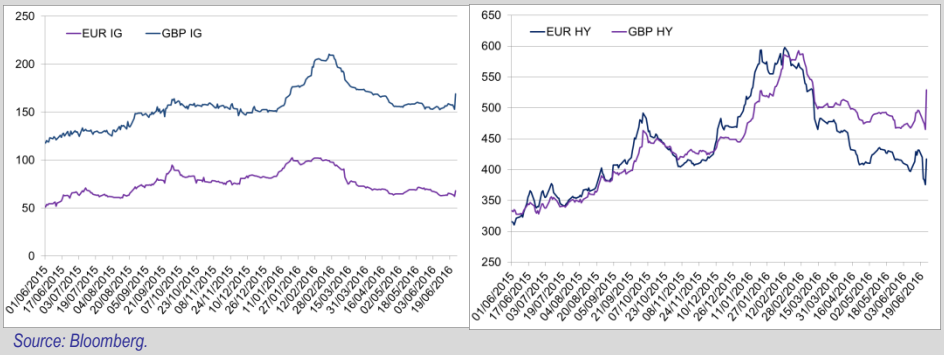
Source: Bloomberg.

3. Corporate bond market

The effects are uncertain, between the fall in sovereign yields and an increase in corporate spreads reflecting the negative economic impact of the UK's exit on non-financial companies (in both the UK and the countries remaining in the EU).

Brexit is a natural experience of market stress: how liquidity behaves on the bond market in the period ahead will give some indication of the market's ability to absorb this shock. The liquidity indicator developed by the AMF appears to be highly correlated to risk, and this liquidity can therefore be expected to deteriorate if the correlation continues.

Figure IV - Investment-grade (left) and high-yield (right) corporate debt spreads, for all maturities



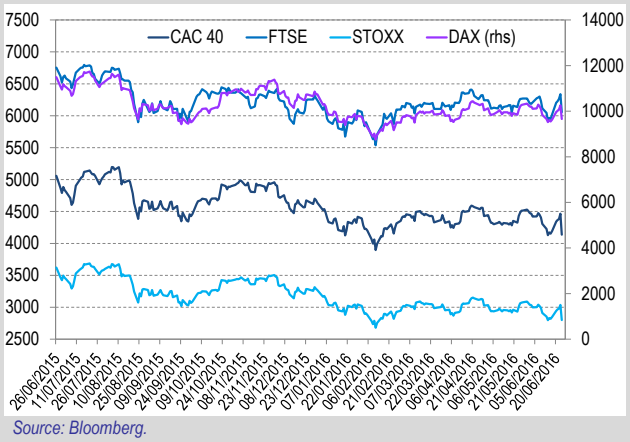
Source: Bloomberg.

4. Equity markets

General aspects

The higher risk premium and negative macroeconomic impact could cause share prices to plunge.

Figure V: Main indices

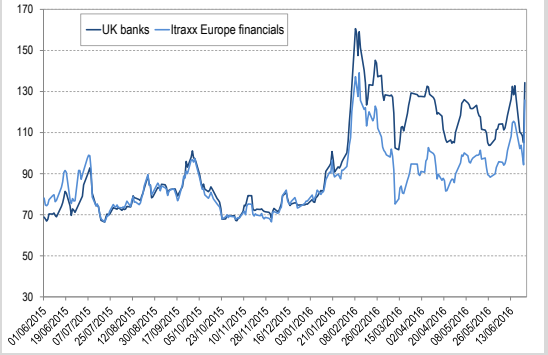


Source: Bloomberg.

Sector-specific aspects

Financial stocks, particularly those exposed to the UK's exit, are expected to be hit harder.

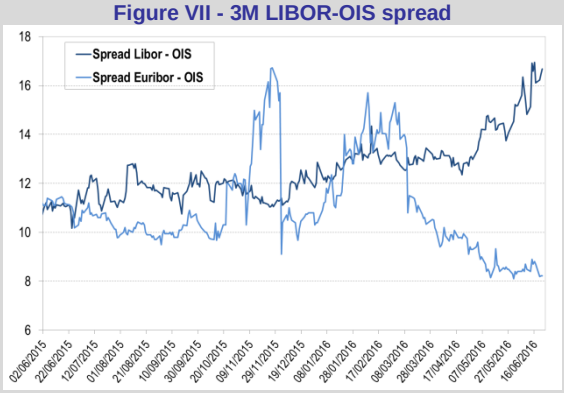
Figure VI: Premiums on five-year CDS on senior debt



Source: Bloomberg.
(*) Barclays, Lloyds, HSBC, Royal Bank of Scotland, Standard Chartered

Mistrust of the UK banking sector could also translate into a larger spread between short-term secured and unsecured loans (LIBOR-OIS).

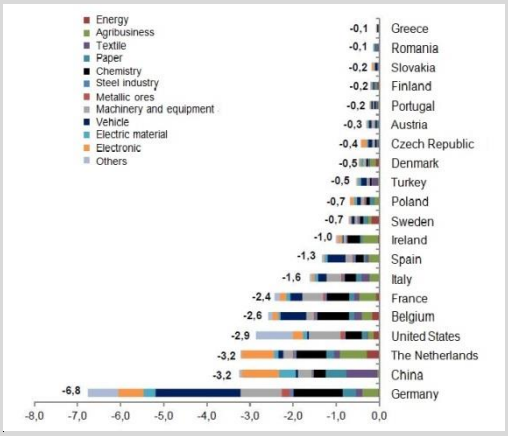
Figure VII - 3M LIBOR-OIS spread



Source: Bloomberg.

Other sectors could be significantly affected due to their business relationships with the UK. In France, the sectors that would suffer most are capital goods, agri-food and chemicals, according to Euler Hermes.

Figure VIII - Export losses by country and by sector, in EUR billion, as estimated by Euler Hermes

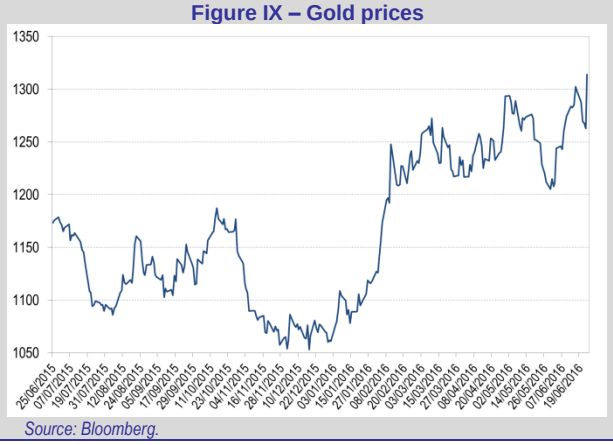


Source: Chelem, Euler Hermes.

8. Commodity markets

Gold is rising and could serve as a safe haven.

Figure IX – Gold prices

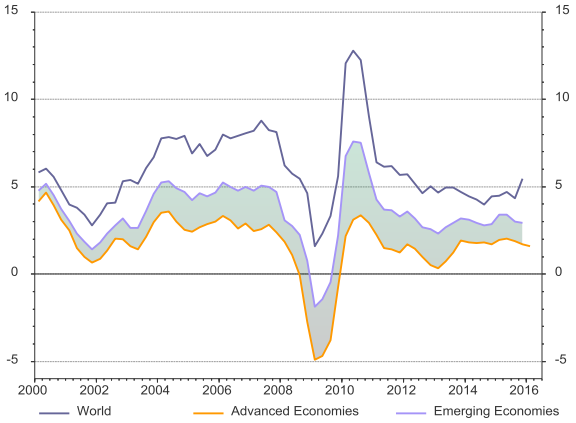


Source: Bloomberg.

1.1. The deteriorating economic and financial environment has had a dampening impact on risk perception

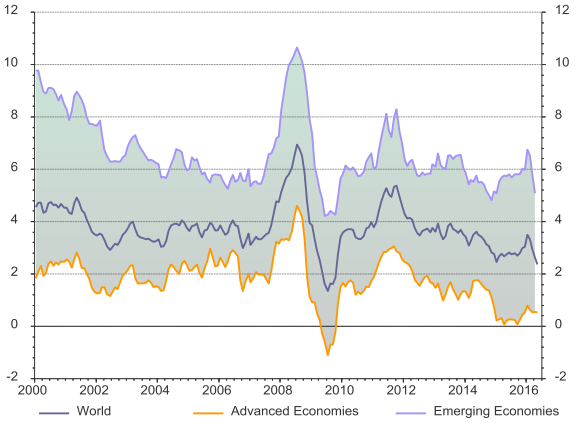
In a global environment still characterised by moderate economic growth and low inflation (Figure 2 and Figure 3), the major developed-country central banks continued to conduct fundamentally accommodative monetary policies.

Figure 2: Change in global production
(year-on-year % change)



Source: IMF.

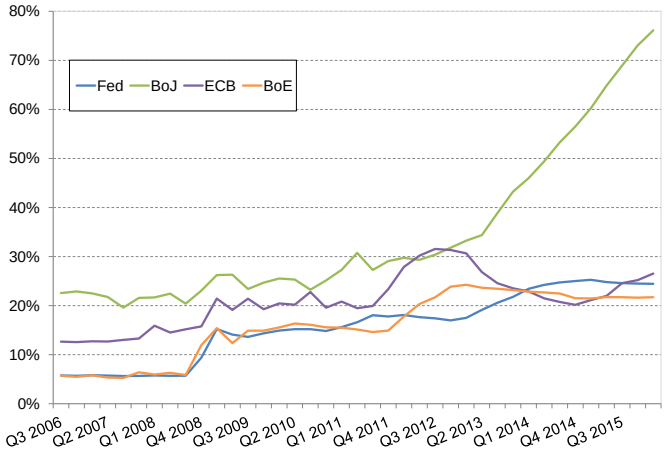
Figure 3: Change in consumer prices (year-on-year % change)



Source: IMF. Last updated: April 2016.

In December 2015, the US Federal Reserve implemented an initial 25-basis-point increase in its federal funds rate, which ended the zero interest rate policy in effect for seven years and began the process of monetary normalisation. However, this process is still in the very early stages and is expected to unfold at a moderate pace. In addition, at mid-2016 the size of the central bank's balance sheet remained at an all-time high (Figure 4).

Figure 4: Size of central bank balance sheets
(as a % of GDP)



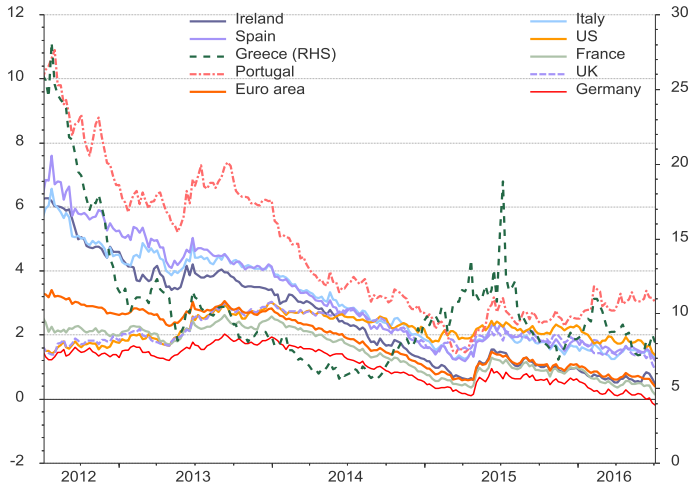
Source: Thomson Reuters Datastream. Last updated: April 2016.

In Europe, in addition to the most recent cut to its policy rates, particularly the lowering of the deposit facility rate to -0.4%, the ECB decided in March 2016 to bolster its unconventional monetary policy. The monthly volume of securities purchases thus increased from EUR 60 billion to EUR 80 billion and the range of eligible assets was expanded to investment-

grade bonds issued by non-bank corporations[1], with securities purchases capped at 70% of each bond issue. Also notable is that, in order to lessen the negative impact of the policy rate cut on bank refinancing and facilitate the financing of economic activity, the rates applied to the targeted longer-term refinancing operations (TLTROs) now depend on bank lending patterns and will range between the deposit facility rate and the main refinancing rate[2]. The Bank of Japan cut its deposit rate into negative territory for the first time (-0.1%) while leaving its bond-buying programme unchanged[3] in an effort to boost inflation and demand.

The doubling down on expansionary monetary policies helped keep nominal interest rates on government bonds at record-low levels, with the notable exception of certain southern European countries such as Greece — until the beginning of 2016 — and Portugal, pointing to the persistent sovereign risk in Europe.

Figure 5: Government bond yields (%)



Sources: Thomson Reuters Datastream. Last updated: 15/06/2016.

Funding conditions for corporate issuers deteriorated in the high-risk debt segment

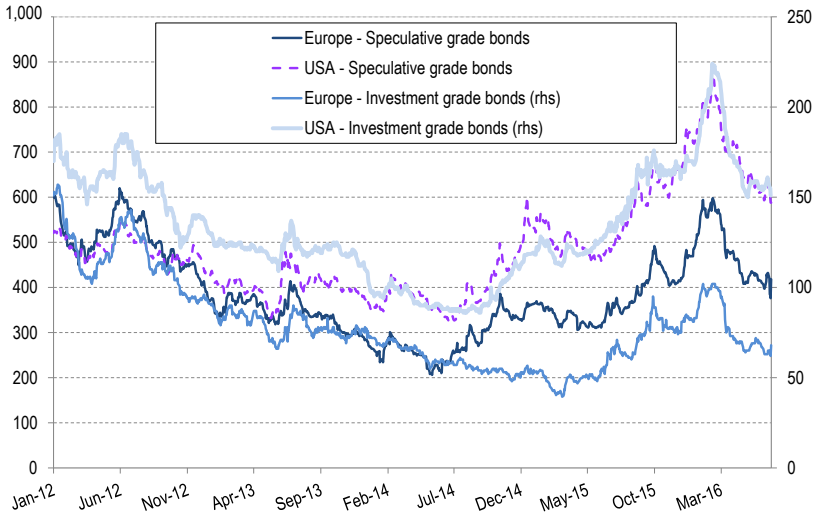
In contrast, funding conditions for private issuers in the non-bank sector deteriorated until early 2016, and to a particularly significant extent in the US high-yield bond segment. On this market, the repricing of credit risk continued until the beginning of 2016, due to the difficulties faced by unconventional oil producers as the latter have been jeopardised by the price slump[4]. The decline in credit quality is also reflected in the increase in default rates to 4% at the end of first-quarter 2016 (6.5% for the oil sector), the highest level since 2010 according to Moody's, and in the amount of outstanding distressed bonds, which reached USD 400 billion in May 2016[5] versus USD 300 billion at end-2014.

In Europe, the tightening of funding conditions was overall not as sharp as in the USA, as it is at a different point in the financial cycle and, in the case of the high-yield segment, has much better credit quality than across the Atlantic[6]. The tightening of funding conditions reversed in first-quarter 2016, with the ECB's decision to include highly rated bonds of non-

[1] See Chapter 2, p.35.
[2] The ECB introduced these quarterly TLTROs in the summer of 2014. Originally, the rate applied to financing granted to banks under the TLTROs was the same as that used for principal refinancing transactions (i.e. 0.05% until March 2016). The characteristics of the TLROs (renamed TLTRO II) are such that the ECB can lend to banks at negative rates.
[3] This bond-buying programme totals JPY 80 trillion per year (equivalent to EUR 650 billion in May 2016).
[4] Energy sector companies represent a large share of the high-yield bond market in the USA (15% in May 2016).
[5] Distressed bonds are securities traded on TRACE over 5 days, with a yield more than 10% above government bonds.
[6] The European high-yield segment is thus less exposed to the oil sector than in the USA with default rates that are low and below their long-term average.

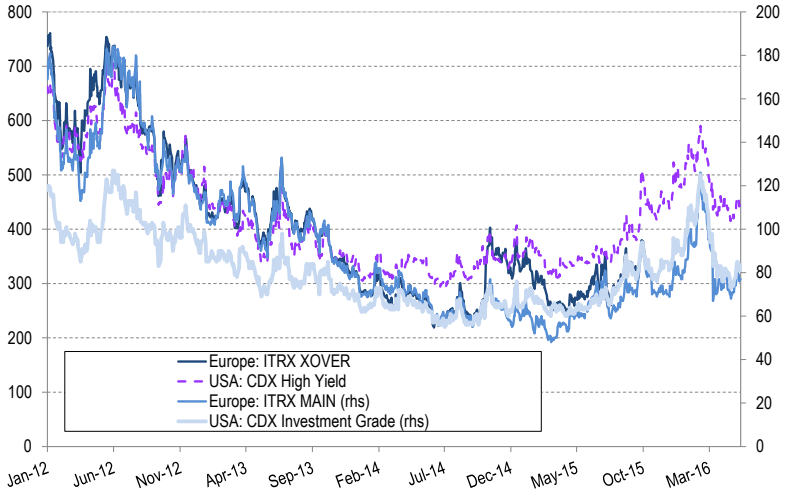
bank companies in the scope of assets eligible for quantitative easing. This helped compress risk premiums across the corporate market, including the high-yield segment, which began to look even more attractive to investors in search of yield (Figure 6 and Figure 7).

Figure 6: Corporate spreads, by rating category (basis points)



Source: Bloomberg. Last updated: 15/05/2016.

Figure 7: CDS indices for corporate issuers in Europe and the USA
(basis points)



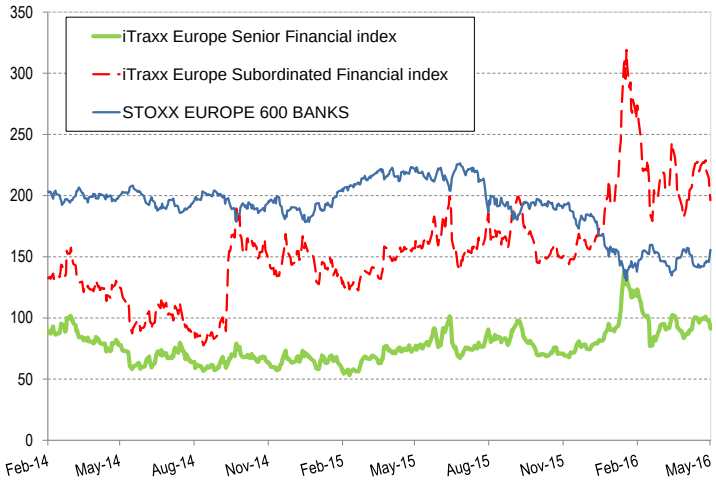
Source: Bloomberg. Last updated: 15/05/2016.

In the financial sector, the subordinated debt segment was highly volatile early in the year

In the financial sector, risk perception deteriorated sharply at the turn of the year 2016 in Europe, before positive 2015 earnings reports, the ECB's announcement of the TLTRO II programme and higher oil prices restored some calm (Figure 8). This turmoil, illustrated by the sudden spike in bank credit default swap (CDS) premiums, reflects growing concerns about the profitability of European banks, which are facing a difficult environment: implementation of macroprudential frameworks (Liquidity Coverage Ratio –LCR-, and, Net Stable Funding Ratio

–NSFR-, limits on leverage, raising of additional capital by 2019 for the total loss-absorbing capacity (TLAC) requirement), heavier fines imposed on several European banks following probes of LIBOR rate manipulation, pressure on interest margins and expectations of an increase in non-performing loans, with persistently low interest rates and flattening yield curves, which both have an adverse impact on the intermediation business[7].

Figure 8: CDS and equity indices in the European banking sector



Source: Bloomberg.

The turbulence had a particularly strong impact on the subordinated debt market owing to serious concerns about the actual payment of contingent convertible bond (CoCo) coupons[8]. These fears then spread to the valuations of shares of all banks in the sector, whether or not they had issued CoCos in the past. This episode reflects a real awakening to the risks inherent in this recent market, discussed at length by the AMF since the instrument was created in 2009. In addition to the complexity of CoCos, the interrelationships between valuations for this asset class and those of the equity markets have been exposed, raising the spectre of destabilising self-fulfilling expectations, as the anticipation of implementation of the loss-absorption mechanism contributes to the decrease in share prices. This would reduce a bank's soundness and ultimately lead to loss absorption.

Ultimately, it was this instrument's actual ability to contribute to financial stability that was put to the test. However, it must be said that the turbulence is also partially due to the existence of uncertainties and/or the challenging interaction between several regulatory frameworks covering implementation of bank bail-in measures (Box 1). The significant difference between the loss-absorption mechanism trigger levels selected (for example, the minimum CET 1 ratio under Basel III, or 5.125% of risk-weighted assets) and the minimum amount of capital required by TLAC for systemic banks (16% of risk-weighted assets) thus increases the likelihood of discretionary activation of the absorption mechanism and hence adds to the uncertainty surrounding its implementation[9].

At this stage, it is worth noting that the above-mentioned contagion risk concerns not only the issuing banks but also all CoCo holders. Accordingly, to limit this risk, the Financial Stability Board (FSB) advocates the development of prudential measures aimed at discouraging

[7] This risk has materialised in Italy where, unlike in other European countries, non-performing loans have increased steadily. The deterioration in the soundness of Italian banks also led to the creation of the alternative fund Atlante in April 2016.
[8] CoCos are subordinated debt securities that are meant to absorb the losses of their issuing banks (bail-in) if their financial strength falls below a predefined level. The loss-absorption mechanism can however also be triggered at the regulator's discretion if it believes the bank is nearing its point of non-viability (PONV). Losses may be absorbed by converting bonds into shares, reducing the nominal value and/or delaying the payment of the coupon.
[9] See "Assessment of Risks to the French Financial System" published by the Banque de France in June 2016.

international banks from holding TLAC-eligible securities (including CoCos) issued by systemic banks[10].

Box 2: Implementation of TLAC in the EU

After the 2008 financial crisis, international mechanisms were put in place to keep taxpayers from having to foot the bill to bail out failing banks and to lessen the knock-on effects of systemic contagion. These mechanisms require that bank shareholders and creditors (bondholders or uninsured depositors) absorb bank losses through haircuts on their securities or through conversions into shares. They also set minimum requirements for liabilities eligible for a bail-in (as opposed to a bailout).

- At the international level, the total loss-absorbing capacity (TLAC) mechanism was defined by the Financial Stability Board in November 2015[11]. It requires that, by 2019, systemic banks have a minimum level of eligible liabilities equal to the higher of 16% of risk-weighted assets (excluding buffers) or 6% of leverage exposure; these minimums rise to 18% and 6.75%, respectively, as from 2022.
- At the European level, the minimum requirement for own funds and eligible liabilities (MREL), defined in the Recovery and Resolution Directive (BRRD), has applied since the beginning of 2016[12] to all banks domiciled in the European Union (and not just to systemic banks). It has two components: one relating to loss absorption, the other to the recapitalisation of failing institutions. No minimum level is specified for securities available for loss absorption, unlike TLAC. The resolution authorities are responsible to setting this level on a case-by-case basis when drawing up resolution plans, as the scope of eligible securities is defined at the national level owing to the national character of insolvency law. This combination of individual and national approaches creates the risk of non-convergence in the implementation of rules among different banking entities in the same Member States and, more broadly, among Member States.

Although TLAC and MREL share a single objective, their characteristics do not appear to be strictly compatible (see Table 1). Consequently, transposition of the TLAC provisions into European law will, in the short term, require amendments to bank capital legislation (CRR/CRD4) and the BRRD, including changes and clarifications to the MREL, in terms of both eligible liabilities and minimum requirements[13].

Table 1: Main differences between MREL and TLAC

	TLAC	MREL
Scope	Systemic banks/worldwide	Banks domiciled in the EU
Definition	Standardised	On a case-by-case basis
Calculation	■ 16% of risk-weighted assets or 6% of leverage exposure (excluding additional capital buffers) ■ Holdings of TLAC-eligible securities issued by another bank in the same group must be deducted from their own TLAC	■ Amount determined on a case-by-case basis, and as a percentage of total liabilities (the securities may also be recognised as regulatory buffers)
Eligible debt securities	Subordinated unsecured debt due in more than one year, senior unsecured debt due in more than one year, up to a maximum of 2.5% of risk-weighted assets (3.5% in 2022) ■ Structured products excluded	Unsecured debt (no subordination condition) with a residual maturity of more than one year ■ Structured products eligible
Transparency	Additional disclosure requirements for banks regarding the ranking of creditors and the loss-absorption mechanism	

In particular, the issue of the composition of eligible liabilities is critical given its impact on banks' additional needs to be able to meet the TLAC requirements[14]. According to the Financial Stability Board and the Basel Committee, these may vary by a factor of two depending on the eligibility criteria used, i.e. EUR 767 billion if senior debt is excluded versus EUR 307 billion if it is included in full.

Differentiated strategies for treating senior debt have already been adopted in the different European countries. In Germany, for example, senior unsecured debt is now considered subordinated and thus retroactively eligible for TLAC. In France, the creditor ranking reform proposed in the "Sapin 2" bill

[10] "Total Loss-Absorbing Capacity (TLAC) Principles and Term Sheet", November 2015. See also Stiefmüller (2016), "TLAC/MREL: Market failure possible?", Finance Watch Policy Brief, March.
[11] *Op. cit.*.
[12] Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms (Banking Recovery & Resolution Directive, BRRD) came into force on 2 July 2014 with a transposition deadline of end-2014, except for the provisions relating to the bail-in. This framework was transposed into French law by Order no. 2015-1024 of 20 August 2015.
[13] See also "Loss absorbing capacity in the Banking Union: TLAC implementation and MREL review", European Parliament, Briefing, May 2016.
[14] "*Summary of Findings from the TLAC Impact Assessment Studies. Overview Report*", November 2015.

creates a new category of senior debt securities issued by banks and eligible for TLAC. These securities would be capable of absorbing losses in liquidation proceedings after subordinated instruments and before traditional senior debt, provided their inclusion in this subordination rank is explicitly stated.

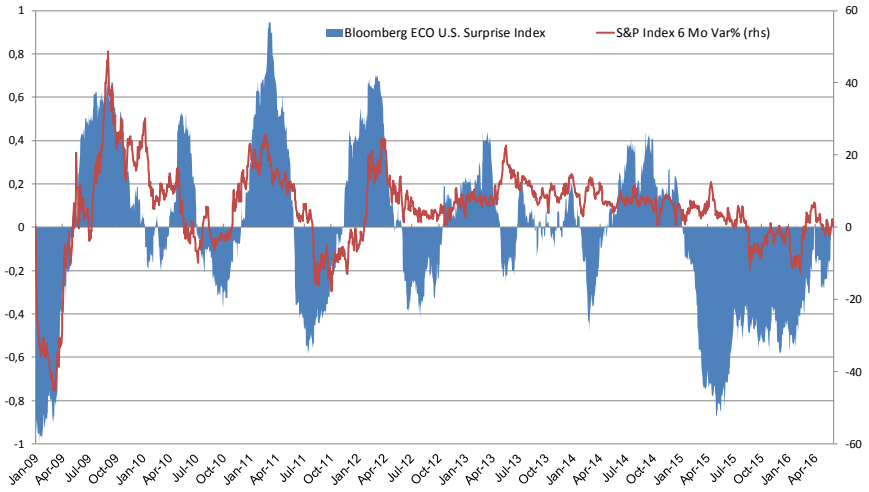
The broad range of strategies adopted and the different European legal frameworks for creditor rankings will require that issuers provide greater transparency to investors. The FSB[15] therefore underscores the need to have the clearest possible ex ante information on the loss-absorption and recapitalisation mechanism. In Europe, ESMA clarified in a Q&A[16] the additional information that must be included in prospectuses for debt securities that can participate in loss absorption, particularly in the risk factors and summary sections.

Pending clarifications, the uncertainty surrounding implementation of the TLAC and MREL measures increases the perception of the risk to the European banking sector.

A series of correction phases and renewed volatility in the equity markets

The year 2015 was a mixed one for equities worldwide. The main indices rose in the first half of the year and then corrected sharply in the second half, indicating that the valuation risk identified in 2015 had materialised. More specifically, after hitting a high in the spring of 2015, stock market valuations fell due to the greater-than-expected slowdown in the US economy (Figure 9) related to falling oil prices and then, in the summer, due to concerns about slowing growth in China, following the devaluation of the renminbi, and their impacts on emerging-country and, more broadly, global growth.

Figure 9: Economic surprises in the USA



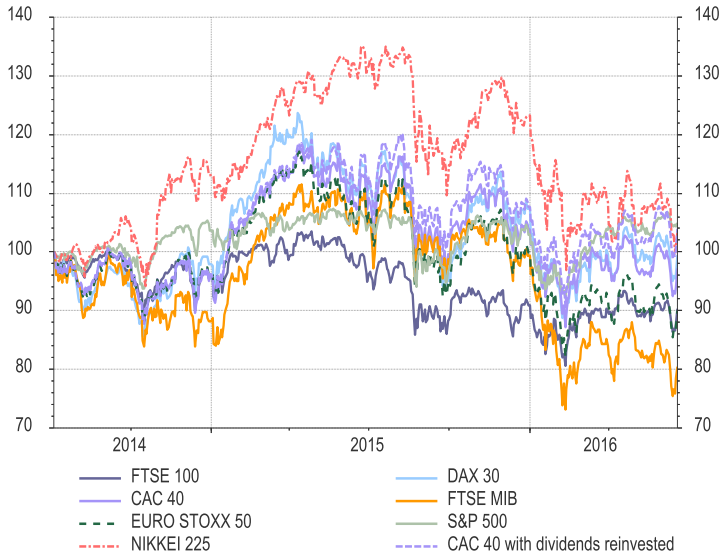
Source: Bloomberg. Last updated: 30/05/2016.Note: The Bloomberg Eco Surprise Index measures the difference between analyst expectations and economic data releases

The trading day of 24 August 2015, which suffered the biggest decline of the year (CAC 40 down 5.36%), is an example of this sharp correction movement with an increase in the risk premium demanded by investors, given the uncertainties about global growth.

[15] *Op. cit. p.17.*

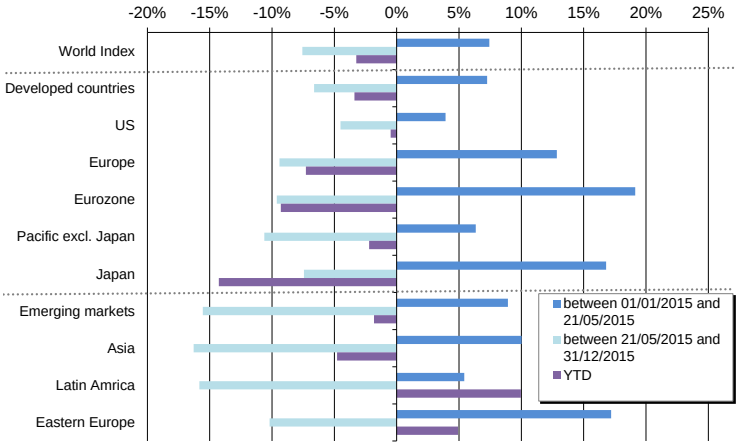
[16] ESMA (2016): "Questions and Answers Prospectuses, 24th updated version", April.

Figure 10: Developed country stock indices (20 June 2014 = 100)



Source: Thomson Reuters Datastream. Last updated: 20/06/2016.

Figure 11: Main stock indices, by geographical area
(MSCI indices in local currencies, as at 15/05/2016, %)



Source: Thomson Reuters Datastream, AMF calculations.

Since then, after rebounding between end-September and end-November 2015, the European equity markets went through additional correction phases in February 2016, which were particularly sharp for bank stocks, and again in June 2016 ahead of the UK's Brexit referendum.

The poor stock market performance since the spring of 2015 was only partially offset by still generous payout policies. According to Henderson Global Investors, total shareholder dividend income rose 3% in 2015[17]. In the USA, S&P 500 companies paid out USD 415 billion in 2015, up 11% on the previous year. In France, payouts were up 8% to nearly EUR 43 billion[18]. At the same time, listed companies bought back their shares on a

[17] This figure is adjusted for special dividends, which were particularly widespread in 2015, and foreign exchange effects.
[18] Excluding LVMH's exceptional distribution of Hermès shares for a total amount of EUR 6.5 billion.

large scale. These buybacks remained stable for S&P 500 companies after a sharp 18% rise in 2014[19].

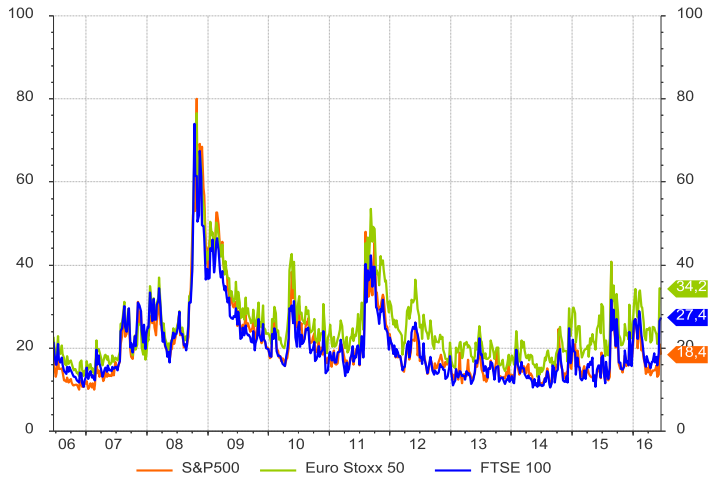
High risk of new bouts of volatility

Tracking volatility conditions shows that each correction in the equity markets was accompanied by a sharp increase in volatility, particularly in Europe (Figure 12).

The data show that while volatility remained relatively low until early 2015, it increased sharply in the second half of 2015 and early 2016, with periods of spiking volatility and levels not seen since 2011, the height of the European sovereign debt crisis. This affected all financial centres, as demonstrated by the parallel trends in the various volatility indices considered.

Additionally, an analysis of the VVIX[20], which measures the market's ability to propose volatility hedges and reached an average level of 87 in early 2016 compared with 75 in 2006, shows a high risk of new periods of spiking volatility.

Figure 12: Implied volatility indices



Source: Thomson Reuters Datastream. Last updated: 20/06/2016

The risk of asset repricing is therefore likely to persist. While the accommodative policies conducted by the central banks eased pressure on the solvency of non-financial agents, they simultaneously helped weaken certain sectors, including the financial sector. They also helped increase the risk of inefficient asset allocation, whether this concerns investments in non-viable projects (credit risk misjudged due to disappearing risk premiums) or reallocations of portfolios to non-standard assets (due to the search for yield and the reduction in the supply of bond asset securities). Lastly the impact of monetary normalisation in the USA on financial markets across the Atlantic and, beyond that, in emerging countries and Europe, remains uncertain. For the euro area, although it now appears to have settled into a period of persistently low rates, the risks of tougher funding conditions cannot be ruled out, as monetary policies on both sides of the Atlantic are out of sync, but also because of the domestic risks that remain (political risk associated with a number of upcoming elections, re-emergence of sovereign risk) and could help erode confidence in the soundness of the Monetary Union.

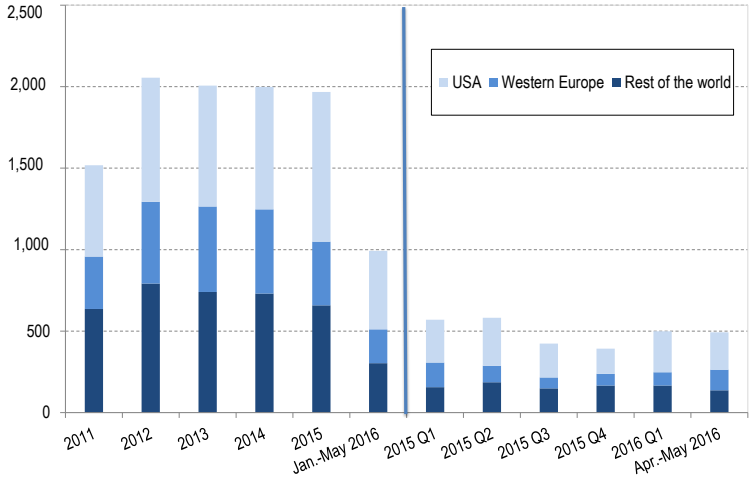
[19] Source: Factset.
[20] The VVIX corresponds to the volatility of the implied volatility of S&P 500 options.

1.2. Primary market activity overall proved fairly resilient to the deteriorating financial environment…until end-2015

Corporate bond issues remained buoyant, with the exception of the high-yield segment

Despite the worsening credit risk perception and the resulting increase in bond spreads in 2015, bond issues remained brisk in 2015 and the initial months of 2016.

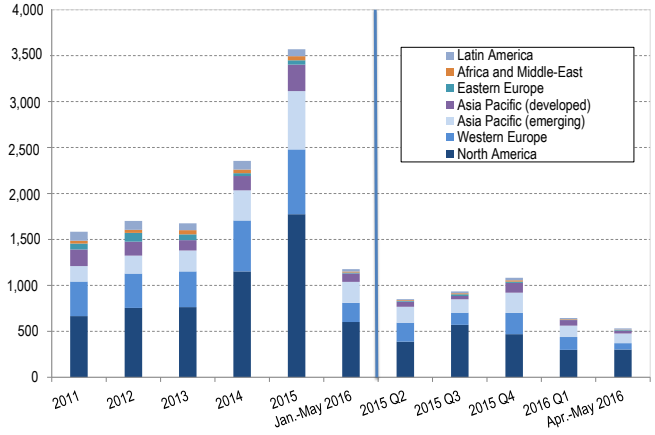
Figure 13: Global issuance of debt securities by non-financial companies
(USD billion)



Source: Bloomberg.

The strength of the primary market is partly due to the record level of acquisitions (Figure 14), which benefitted from a number of support factors: weak organic growth, low rate environment, abundant liquidity and, in the case of the USA, dollar appreciation. US companies were therefore involved in more than half the transactions announced in 2015. In France, in contrast, activity slowed after an exceptional 2014 in terms of transaction numbers and volumes (down 30%).

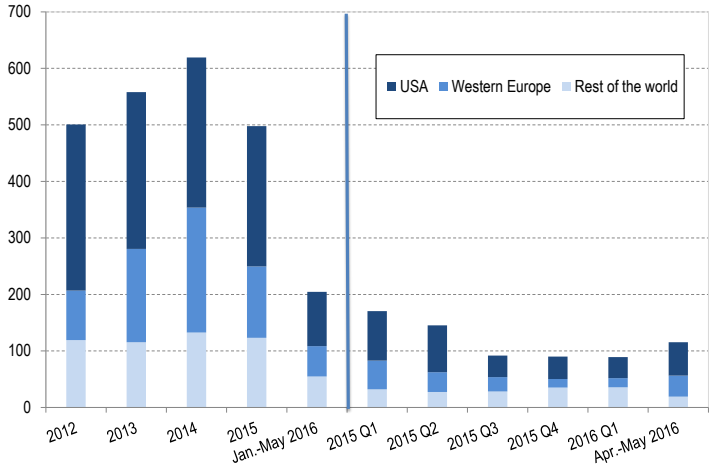
Figure 14: Worldwide M&A by geographical area
(USD billion)



Source: Bloomberg. Note: Transactions completed or in progress as at 01/06/2016.

The blanket statement that bond issuance was healthy nonetheless conceals mixed performances by market segment and, in particular, by securities rating. Issues of debt securities considered to be of high quality (rated investment grade) remained brisk, serving as safe havens during the worst of the turbulence. In contrast, issues of speculative bonds declined, particularly in the USA. In this regard, the rise in oil prices in early 2016 helped ease the solvency constraint of US energy sector issuers and was the catalyst, if not for a trend reversal, at least for a pick-up at the beginning of the second quarter. The trend was slightly different in France and, more broadly, in Europe, with a very sharp slowdown in issues in the second half of 2015 and an even more marked drop in foreign currency issues. Issues by French companies fell 35% to EUR 57 billion. This trend came to a halt at the end of first-quarter 2016 after the ECB announced the expansion of its asset purchases to investment grade-rated corporate bonds, which was positive for the market as a whole.

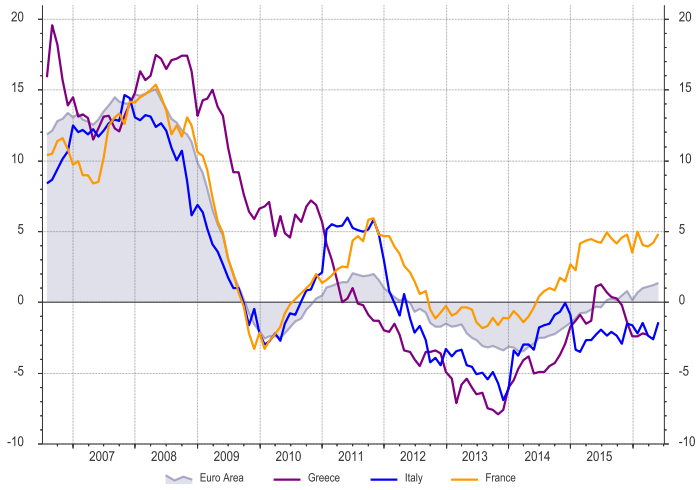
Figure 15: Global issuance of speculative debt securities by non-financial companies
(USD billion)



Source: Bloomberg.

Within the euro area, the strong performance by the primary bond markets since the beginning of the year was accompanied by a significant pick-up in lending to non-financial companies. However, this was not the case for all countries in the region, particularly certain southern European countries (Figure 16).

Figure 16: Bank lending to non-financial companies in Europe
(year-on-year % change)

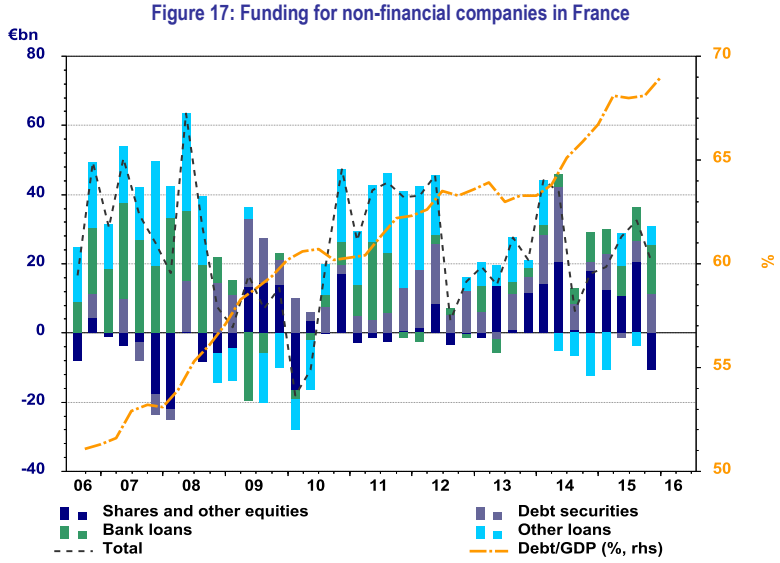


Source: ECB.

In net terms, the total debt of euro-area non-financial companies continued to rise over the recent period[21]. This trend is not in itself a concern, as it has been accompanied by a strengthening of companies' capital and they can also more easily cover the interest expenses on their loans due to persistently low interest rates. However, the question of the sustainability of non-financial companies' debt cannot be ignored, particularly if the debt is not intended to finance productive investment. Firms with particularly high debt levels, including large corporations, could also have trouble refinancing if there is a shock to the equity markets that automatically worsens corporate solvency or if there is no clear pick-up in activity[22]. At the macroeconomic level, studies show that there is a debt threshold above which uncertainties about corporate solvency can be detrimental to growth. Cecchetti, Mohanty and Zampolli (2011) show that, in excess of a certain threshold, uncertainties about debt sustainability cause a loss of efficiency at the macroeconomic level. In a best-case scenario, the authors estimate this level at 99% for the debt/GDP ratio while in the most restrictive scenario, the threshold is 73%. With the debt ratio of non-financial companies at 69% of GDP by the end of 2015, France remains below but ever closer to this critical threshold.

[21] See also "Assessment of Risks to the French Financial System" (June 2016) and the 2016 Annual Report of the Haut Conseil de Stabilité Financière.
[22] At end-2014, the cash flow/debt ratio was at an all-time high of eight years on average for large corporations while the time frame typically viewed as critical is three years.

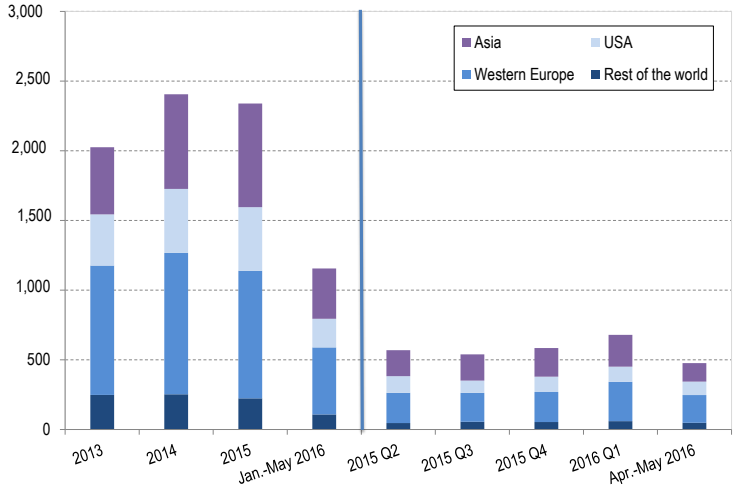
Figure 17: Funding for non-financial companies in France



Sources: Banque de France, Thomson Reuters Datastream.

In the financial sector, primary market activity was also brisk throughout 2015 and, except for February, in the first few months of 2016 across all geographic areas.

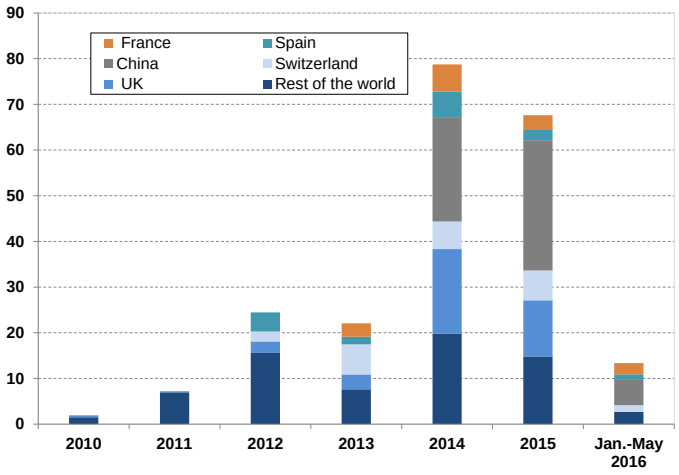
Figure 18: Bond issues in the financial sector
(EUR billion)



Source: Bloomberg.

However, here again, this blanket statement conceals mixed performances by market segment. In Europe, despite growing concerns about the risk of a real-estate bubble, there was renewed interest in covered bond issues in second-half 2015, when overall market conditions deteriorated. In contrast, it stands to reason that turmoil in the contingent convertible bond market led to a scarcity of issues in early 2016.

Figure 19: Global issuance of CoCos
(EUR billion)

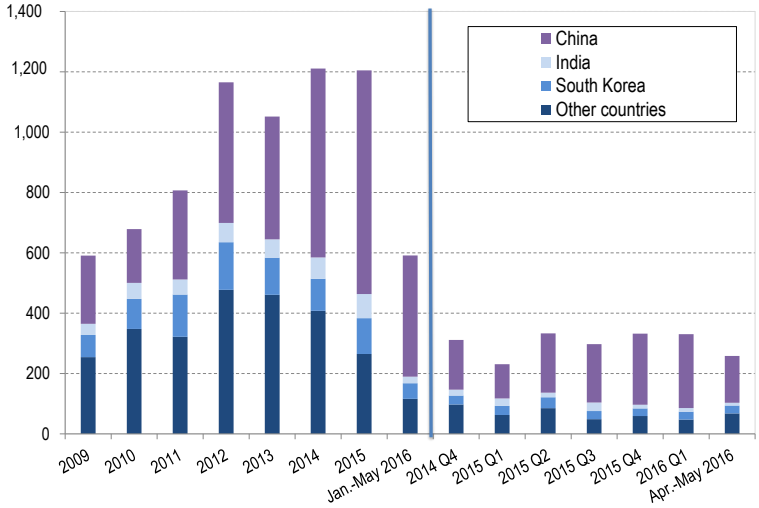


Sources: Bloomberg, AMF calculations. Note: Data as at 27/05/2015.

Private debt in emerging countries remains a key focus

In emerging markets, bond issues remained buoyant despite high market volatility and the deteriorating economic environment. That is paradoxically the case in China, where companies are increasingly tapping the market despite concerns about the slowdown in economic growth (Figure 20). In light of the significant appreciation in the dollar relative to major local currencies (Figure 21), dollar-denominated issues were less in demand in 2015 and the first few months of 2016 than in previous years.

Figure 20: Corporate debt issuance in emerging countries
(USD billion)

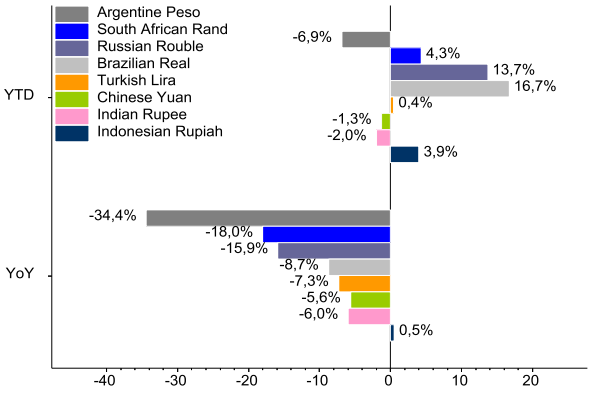


Source: Bloomberg, AMF calculations.

However, this appreciation, combined with the rising debt seen primarily in the private sector (Figure 22) against the backdrop of the economic slowdown and low commodity prices, helped increase the refinancing risk for maturing debt in dollars[23], and could adversely affect the growth and solvency of economic agents.

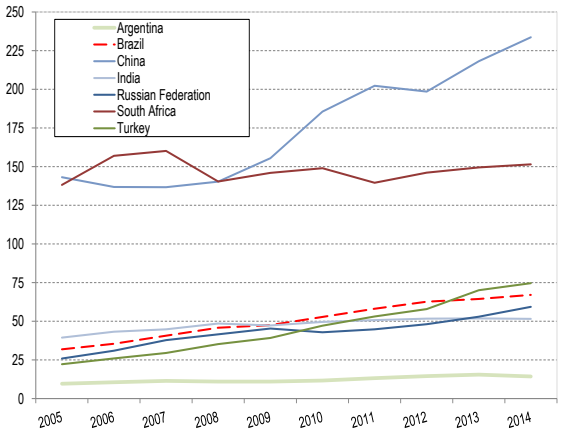
[23] In emerging countries, outstanding bonds maturing by 2017 are estimated at more than USD 1 trillion for the corporate sector, of which 20% corresponds to dollar-denominated debt. The increase in distressed bonds, defined as bonds that yield more than 10% above sovereign bonds, to more than USD 220 billion at mid-June 2016 should also be noted.

Figure 21: Exchange rates against the dollar
(as at 20/06/2016, % change)



Source: Thomson Reuters Datastream.

Figure 22: Lending to private sector agents (% of GDP)



Source: World Bank.

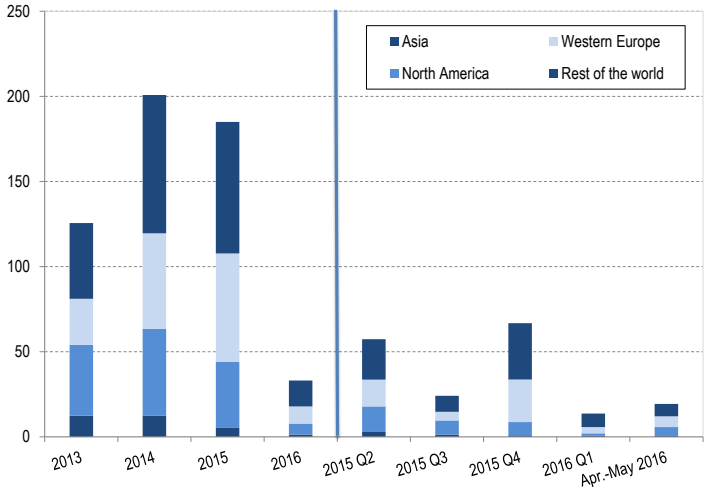
Companies tapped the equity markets much less often at the turn of the year

Share issuance remained very brisk overall until end-2015 before becoming less frequent as of the beginning of the year, coinciding with the sharp deterioration in the financial environment. Total volumes were up 25% to more than EUR 1.1 trillion (up 11% in dollar terms) in 2015. However, this blanket statement conceals fairly mixed performances by market segment and geographic area.

IPOs in trouble, particularly in the USA

In the summer of 2015, increased financial instability, combined with falling valuations, therefore began to dampen the hitherto highly active IPO market. IPO activity hit two air pockets: the first one in third-quarter 2015, following the strong correction in the markets in August, and the second one after a sharp rebound at the end of the year, in first-quarter 2016, when oil prices hit a low and bank stocks came under attack. At the global level, capital raised in these transactions in the first five months of 2016 was thus down nearly 30% year on year, despite a significant pick-up in the spring.

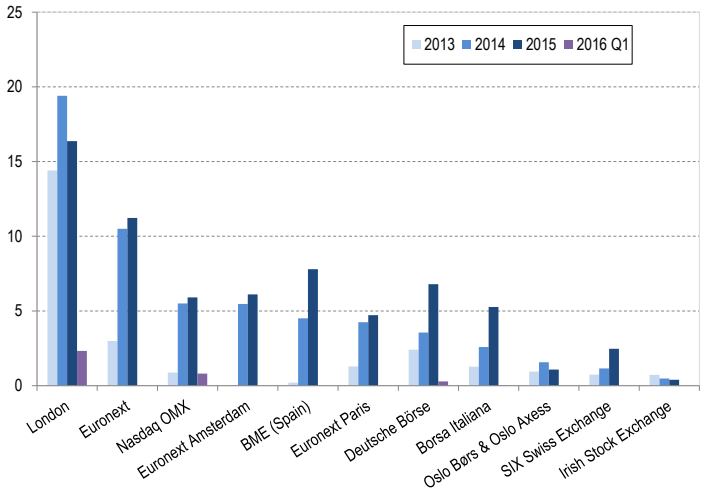
Figure 23: Capital raised through IPOs
(USD billion)



Source: Bloomberg. Note: Data as at 30/05/2016.*

While the slowdown in activity affected all geographic areas, it was particularly pronounced in the USA, where transaction volumes plunged in 2015 (down 25% excluding the Alibaba transaction) before literally collapsing in early 2016 (down 60% in the first five months of the year compared with the year-ago period). In western Europe, excluding the air pocket in the fall, activity held up well in 2015, lifting transaction volumes by 14% to nearly EUR 64 billion. The market was nevertheless shut in most financial centres in first-quarter 2016, with the exception of the London Stock Exchange and the Nasdaq OMX, where the occasional transaction took place.

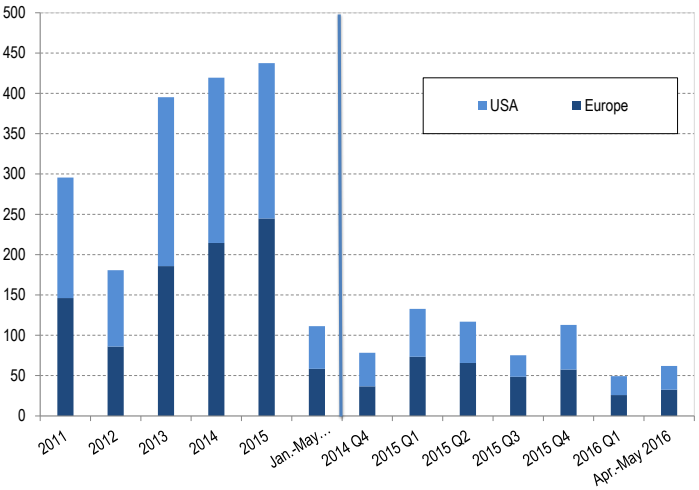
Figure 24: Capital raised through IPOs in Europe per year and by listing market (EUR billion)



Source: PwC IPO Watch Europe.

Companies that were already listed went to the market with greater frequency. At the global level, capital increases were up more than 25% to nearly USD 600 billion. This trend was evident in Europe where issues were nearly EUR 180 billion. In this regard, France remained outside the general trend, with transaction volumes down slightly from 2015 to EUR 16 billion.

Figure 25: Amounts raised on the worldwide equity markets from secondary issues (USD billion)



Source: Bloomberg. Note: Data as at 30/05/2016.*

The active secondary market in 2015 partly reflected the strengthening of capital in the banking sector, which represented a little less than one-fourth of capital raised during the year. For non-financial companies, the strong issue activity may also have been related to acquisition financing, as well as restructurings and funding for dividend policies.

Box 3: Brexit's impact on the market's financing of economic activity

The start of negotiations in the European Council on the procedures for the UK's exit from the EU following the referendum on 23 June 2016 is expected to have an enormous impact on the European markets, as they will be lengthy[24] and the size of the financial sector across the Channel is quite large. The first and very immediate consequence would be a sharp and lasting increase in volatility on the European financial markets across all asset classes — a trend already clearly apparent in the run-up to the referendum — given the uncertainty surrounding the substance of the agreement. The possibility also exists that the UK referendum will fuel fears that other EU countries will go down a similar path, causing the risk of euro-area dislocation to resurface and leading to capital outflows and deteriorating funding conditions. This would also increase the likelihood that the central banks, including the Bank of England, will maintain their accommodative monetary policies.

The UK's status vis-à-vis the European Union will depend on the agreement that is negotiated. There are three main scenarios:

- Membership in the European Economic Area (EEA), which would entail broad access to the single market and the free movement of goods, services, capital and persons, but would also require that the UK continue to contribute to the EU's budget;
- A bilateral agreement with the European Union of which the financial sector would be just one component.
- No specific agreement with the European Union, in which case trade relations would be covered by the rules of the World Trade Organization (WTO) and the UK would be subject to the "third-country" regime.

Regarding capital markets activities, it is worth noting that investment services passports would be affected if the UK adopts "third country" status vis-à-vis the EU as provided for in MiFID II. More specifically, investment firms established in the UK and currently holding a European passport will have to establish a branch in Europe to be able to provide investment services to EU retail clients[25]. Investment firms authorised in France (or in any other EU Member State) will in the future no longer be able to provide investment services directly in the UK based on the European passport and will have to establish a subsidiary in the UK and obtain the necessary authorisation from the competent local authority, the Financial Conduct Authority (FCA), which will incur costs associated with authorising, incorporating and operating the new entity.

Regarding issuers, the UK could take advantage of the European third-country equivalence regime provided for in the Prospectus and Transparency Directives; application of this regime basically reverts back to the Member States, in the absence of harmonised European criteria for assessing the equivalence of the obligations of third countries under these directives. One challenge will be how to manage these equivalences in the long term as the legal regimes in place could diverge.

Lastly, rating agencies established in the UK will have their registrations withdrawn but could then apply for certification from ESMA (if they are not established in Europe and are not systemically important).

[24] Article 50 of the Treaty on European Union stipulates that an agreement must be reached within two years after British authorities have notified the European Council of the country's decision to withdraw.

[25] This obligation would not be automatic in the case of services provided to professional clients, as MiFID II introduced different types of third-country regimes based on whether the investment firm's client is a retail or professional client.

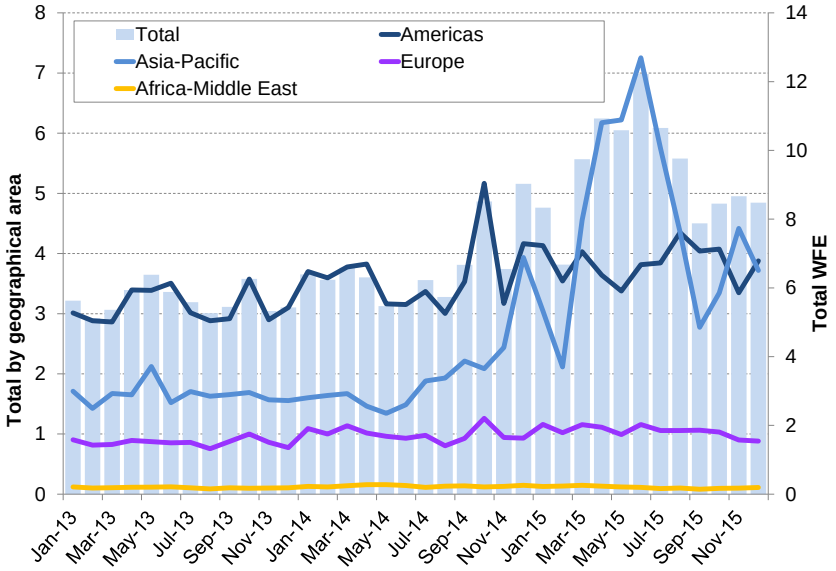
CHAPTER 2: MARKET ORGANISATION AND INTERMEDIATION

2.1. Increased activity on equity markets was essentially attributable to the steep fall on Chinese markets in summer 2015

Sharp increase in trading volumes

In 2015, the total value of share trading in the electronic order books of members of the World Federation of Exchanges[26] (WFE) rose by 41% relative to 2014 to reach USD 114 trillion (Figure 26). Most of the increase was attributable to the Asia-Pacific region, where the value of trading stood at USD 54 trillion (USD 43 trillion for the Chinese markets alone), overtaking that of the Americas. The increase in trading volumes, which was basically concentrated in the summer as fears surfaced in China, was due to growth in the number of trades, which leapt by 55% over the same period to 23.7 billion, including over 15.5 billion for the Asia-Pacific region.

Figure 26: Value of share trading in exchanges' electronic order books, by month
(USD trillion)



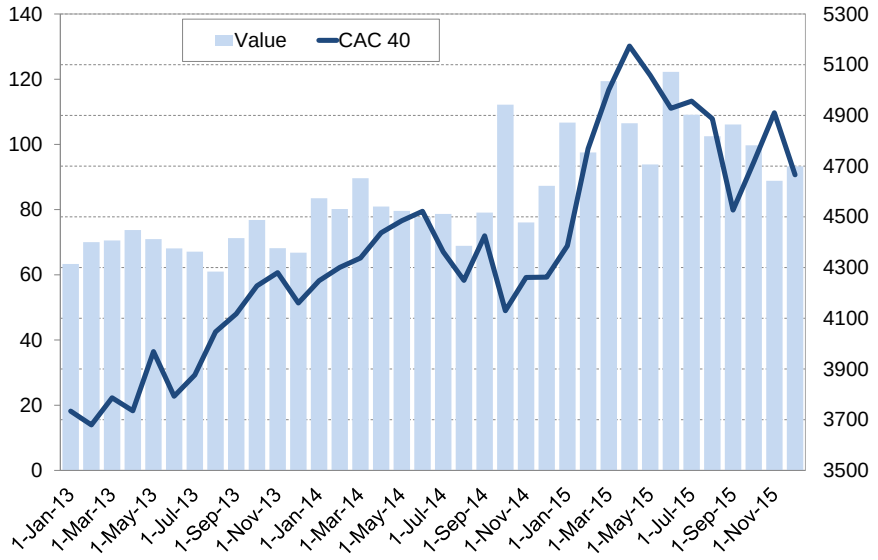
Source: AMF, World Federation of Exchanges.

The value of share trading on European markets increased more modestly, rising by 5.5% from USD 12 trillion in 2014 to USD 12.6 trillion in 2015. Meanwhile, the number of securities traded on European exchanges surged by 21% over the same period to reach 1.6 trillion.

The value of share trading reported by Euronext Paris also showed a sharp increase in 2015, climbing by 25% from EUR 994 billion to EUR 1.246 trillion, following on from a 20% increase in 2014 (Figure 27). This took place against the backdrop of heightened volatility in the second half of 2015[27], which featured a number of record-breaking days, including 24 August 2015, when the value of trading spiked to almost EUR 8 billion, as compared with a daily range of EUR 2 billion-EUR 3 billion under normal market conditions.

[26] The World Federation of Exchanges comprises 81 regulated markets with electronic order books. Equity-related data cover 81 markets and do not include trades conducted on multilateral trading facilities or over-the-counter. (For Europe, BATS CHI-X trading volumes are included in the data because this platform was granted regulated market status in April 2014.)
[27] See Chapter 1 for an analysis of the impact of these bouts of volatility.

Figure 27: Value of share trading on Euronext Paris, by month
(EUR billion)

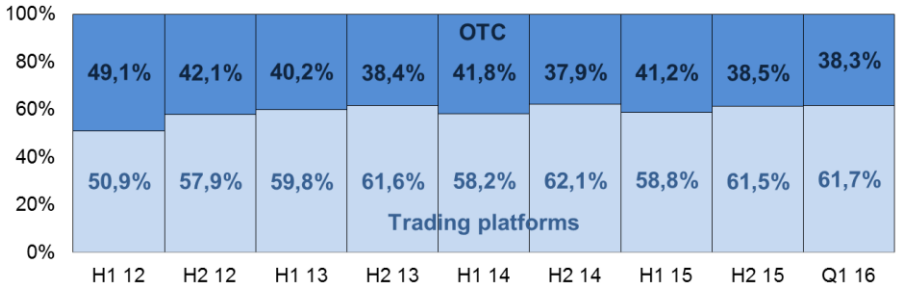


Sources: AMF, Euronext.

The share of trading platforms volumes remained stable

An analysis of trading volumes in CAC 40 securities reveals that the market share of trading platforms relative to that of over-the-counter (OTC) was virtually unchanged in 2015. These shares have been steady since 2013 following the migration to organised markets.

Figure 28: CAC 40 trading volumes by execution type



Source: AMF, Fidessa.

However, the share of volumes traded on dark venues is on the rise

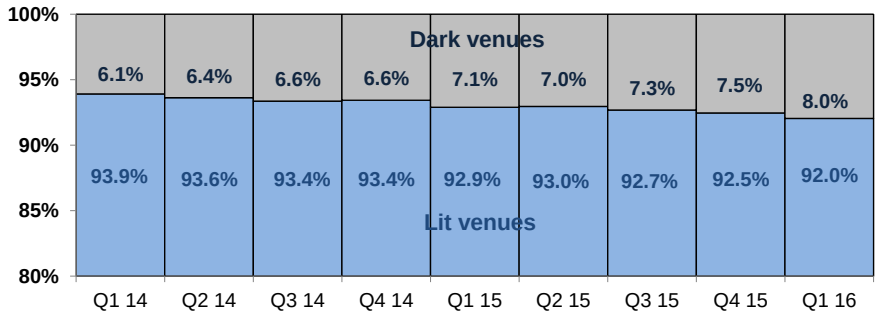
A decomposition of volumes traded on lit venues, which offer pre-trade transparency, and dark venues, which are covered by waivers to MiFID I pre-trade transparency requirements, reveals however that another type of migration is underway within trading venues. Specifically, there is a shift towards dark venues, which now have a record market share of 8% in CAC 40 securities (Figure 29). This has revived concerns about the risks associated with the development of this type of trading, which include the risk of a deterioration in the price formation process and the risk that dark pools could be diverted from their initial purpose (to mitigate the risk of adverse selection when executing large trades, i.e. the risk that other agents will take advantage at lower cost of the information provided to the market about price levels revealed by these trades)[28].

[28] Regulators are paying attention to the rise of dark trading. A number of disputes have been settled in the USA, while one sanction has been imposed in Hong Kong. Complaints in these cases centered for the most part on the communication of information to unauthorised third parties or persons. Those who obtain such information can take advantage, leading to competitive distortions between participants. Both of the abovementioned jurisdictions have proposed measures to strengthen the applicable rules. In 2015, the UK's Financial Conduct Authority (FCA) also announced plans to investigate dark pools.

This level of market share is the maximum that will be allowable once MiFID 2 comes into effect. Under the new European directive, no more than 8% of volumes in a given security may be executed on dark venues as a whole (with a cap of 4% per individual venue).

Trading venues are making changes to ready themselves for the restrictions under the future regime. However, the effects of these restrictions will not be felt until 2018, because MiFID 2's entry into force has been pushed back by one year.

Figure 29: Share of CAC 40 trading volumes on dark venues



Source: AMF, BATS-CHI-X.

2.2. Persistent concerns over bond market liquidity

Reduced activity on secondary bond markets in 2015

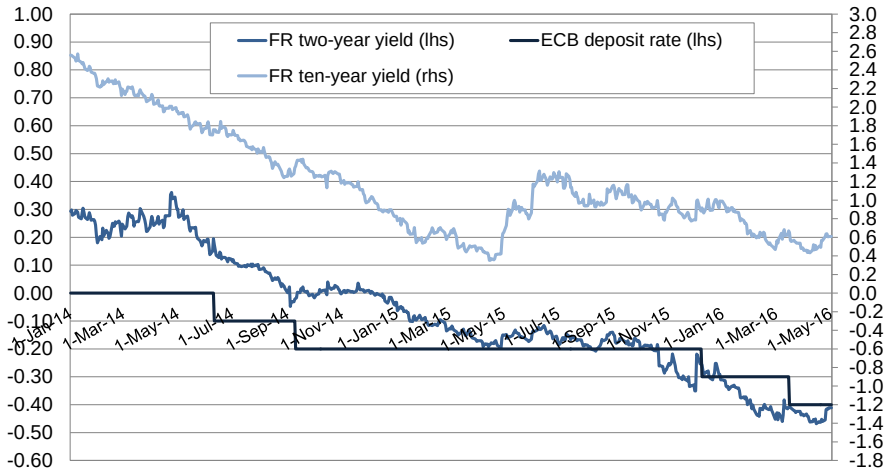
After a substantial increase in 2014, activity on French bond markets declined in connection with volatility spikes in government and corporate bonds. The value of trading on secondary markets fell by around 16% to EUR 4.690 trillion from EUR 5.567 trillion in 2014, taking all French issuers into account. The corporate bond segment saw the largest decline, with a 17% drop-off, compared with 13% for government bonds[29].

The ECB's accommodative policy continued to drive yields downwards

Bond markets also experienced large-scale swings. The yield on French ten-year government bonds, for example, surged upwards between April and June 2015 from 0.35% to 1.30%. This reflected a correction following a multi-quarter downtrend attributable to a flight to quality fuelled by fears over global growth. That said, the downward movement observed since the European Central Bank (ECB) first implemented its accommodative policy resumed in December, prompted by two successive cuts to the deposit rate in December 2015 and March 2016. By May 2016, French two-year yields were sitting at -0.4% and ten-year yields at 0.6% (Figure 30).

[29] Estimates based on trade reporting by investment firms.

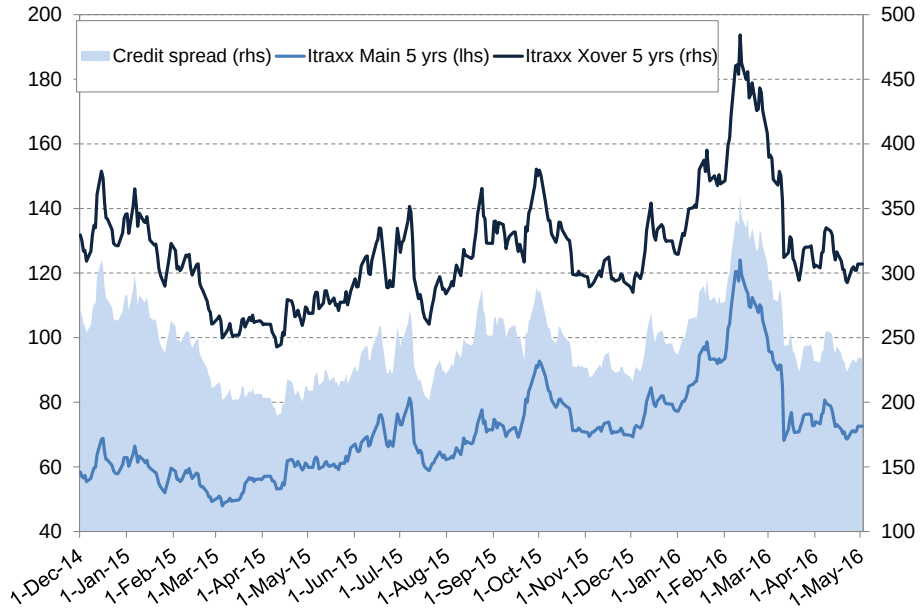
Figure 30: ECB deposit rate and French two-year and ten-year yields



Source: Bloomberg.

Corporate bonds moved in step with equities over the year (Figure 31). The hunt for yield prompted by accommodative monetary policies caused risk premia to narrow over the first part of 2015. Thereafter, global growth fears sparked major volatility that halted the contraction in spreads. From the end of 2015 until their peak in February 2016, credit spreads actually surged higher in connection with the increase in the risk premium owing to these concerns.

Figure 31: European credit spreads on the investment grade and high yield segments



Source: Bloomberg

As a result, although the ECB maintained its low interest rate monetary policy, cutting the deposit rate still further, the hunt for yield on bond markets was accompanied by risks associated with large swings in yields and the threat of stress on these markets[30].

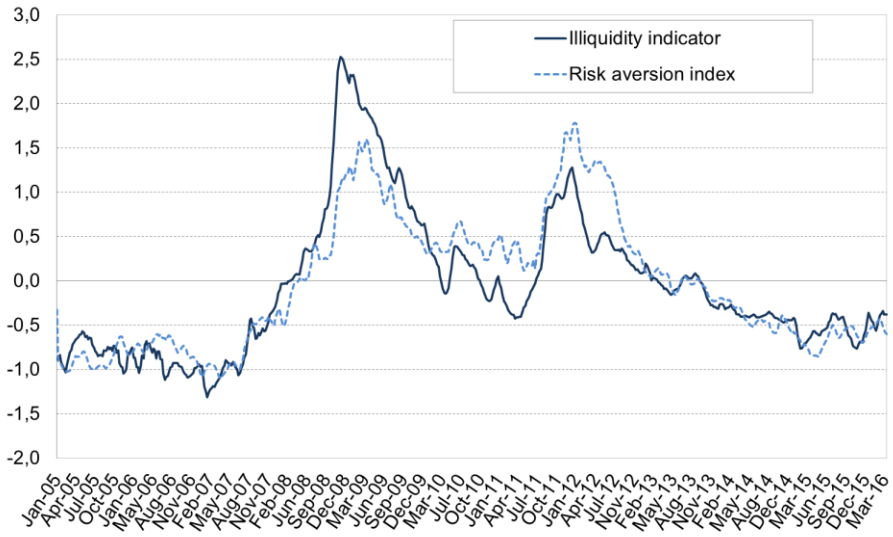
These twin trends fuelled concerns over the level of bond market liquidity

The decline in volumes observed on secondary markets, coupled with narrower spreads, fuelled fears throughout the year about the level of liquidity on secondary bond markets. These were not new concerns. The entry into effect of post-crisis regulatory requirements had already been accused of triggering a decline in market-making by banks, while the vast purchases made by central banks as part of quantitative easing programmes were also thought to have played a part in reducing liquidity. The latter concern resurfaced in Europe following the March announcement by the ECB that it would increase its purchases from EUR 60 billion to EUR 80 billion a month and extend the scope of securities covered by the corporate debt programme starting in June 2016 (cf.Box 5).

Responding to this situation, the AMF created a composite indicator based on trade reporting and data on bid-ask spreads to quantify changes in the liquidity of French bond markets[31] (Figure 32).

The results obtained from the indicator are in line with those of other papers published on the topic, including the Global Financial Stability Report (GFSR, 2015) and studies by the Bank of England (2015), the Committee on the Global Financial System (CGFS, 2016) and the Financial Conduct Authority (FCA, 2016).

Figure 32: Indicator of liquidity in French bond markets



Source: AMF, Bloomberg

According to the AMF's quantitative indicator, bond market liquidity is holding steady for the time being

The results suggest that after two substantial deteriorations linked to the two major financial crises of 2007-2009 (global) and 2011 (euro area), French bond market liquidity improved once again between 2012 and 2014 without getting back to pre-crisis levels (2005-2007). Note that the liquidity level observed before the crisis does not necessarily represent the equilibrium level towards which liquidity needs to gravitate, since liquidity risk was probably heavily underestimated during this period because of the bubble that was taking shape and eventually burst in 2007-08. Liquidity is also tending to become more concentrated in instruments offering the lowest risk or the greatest market depth. Note that this improved

[30] See Chapter 4 for an analysis of how the hunt for yield has impacted asset management.
[31] See AMF, November 2015, *Study of liquidity in French bond markets*.

level of liquidity in bond markets does not signify resilience to shocks. However, as Box 4 shows, post-crisis rules do not appear thus far to have significantly affected liquidity in French bond markets.

Box 4: Research on the impact of regulations on bond liquidity

There has been widespread criticism of the way in which banking and market regulations and their adverse effect on profitability have caused traditional banks to scale back their market making activities. The rules, it is argued, are responsible for the decline in inventories and a deterioration in bond market liquidity.

Various studies have sought to measure the change in market makers' inventories. PwC (2015) [32], for instance, estimates that the inventories of US primary dealers have shrunk by around 80%. Goldman Sachs (2015) [33], however, estimates that the decline in inventories is greatly overestimated because until April 2014 inventory data reported to the Federal Reserve included mortgage-backed securities in addition to positions in plain vanilla bonds. It therefore puts the decline at approximately 40%.

Meanwhile, the FCA (2016) [34] estimates that on UK markets inventories fell from GBP 400 billion in 2008 to GBP 250 billion at the end of 2014.

This type of data is not currently available for the French bond market. That said, the International Organization of Securities Commissions (IOSCO) and the European Systemic Risk Board (ESRB) are currently working to gather data and conduct surveys, which should shed quantitative light on these developments.

It remains hard to directly measure the quantitative impact of regulations on the level of liquidity. For one thing, rules are the subject of lengthy discussions and may be introduced sequentially. Moreover, they are often anticipated by affected parties, with the result that their effect is spread over time and tricky to pinpoint.

A paper by Trebbi and Xiao[35], published in December 2015, is the first to propose a methodological approach that seeks to take account of these biases and quantify the impact of regulatory intervention. It offers an analysis of the impact of the Dodd-Frank Act, notably the Volker Rule, on the liquidity of US bond markets. Using data on trading in US government and corporate bond markets between 1 April 2005 and 31 December 2014, the authors find that except during the crisis (2007-2009), liquidity did not deteriorate on these two segments. In fact, the results suggest that liquidity improved.

However, analyses do show that the change in liquidity in French bond markets is closely tied to cyclical factors, as demonstrated for example by the strong correlation between movements in the liquidity level and risk appetite measured by the risk aversion index[36] (Figure 32). This suggests that if risk aversion goes up, bond market liquidity will probably decline.

While for a long time concerns over market liquidity concentrated on the impact of post-crisis regulations, changes in market structure resulting partly from these rules are feeding new fears connected with the potential emergence of a less intermediated and more electronic-based model[37].

[32] PWC (2015), Global financial markets liquidity study
[33] Goldman Sachs Economics Research (2015),The state of play in the leveraged market : OK for now
[34] Financial Conduct Authority (2016) Occasional Paper No. 14: Liquidity in the UK corporate bond market: evidence from trade data.
[35] Trebbi, Xiao (December 2015), *Regulation and Market Liquidity*, NBER.
[36] This composite indicator of risk aversion on the bond market is calculated using credit spreads, long and short rate slopes, the France-Germany spread and the interbank spread.
[37]Comittee on the Gobal financial System (CGFS) (2016) Electronic trading in fixed income markets , Banque des Règlements Internationaux (BRI) (2016)), Fixed Income market Liquidity .

These developments are being driven:

- on the supply side by the impact of the ECB's non-standard policy measures, which have curtailed the supply of bonds available for trading and reduced banks' inventories, so lessening their market-making capabilities (cf. Box 5 for a description of the quantitative easing programme);
- on the demand side by the increase in assets under management, which could lead to strain in terms of demand for liquidity in underlying assets.

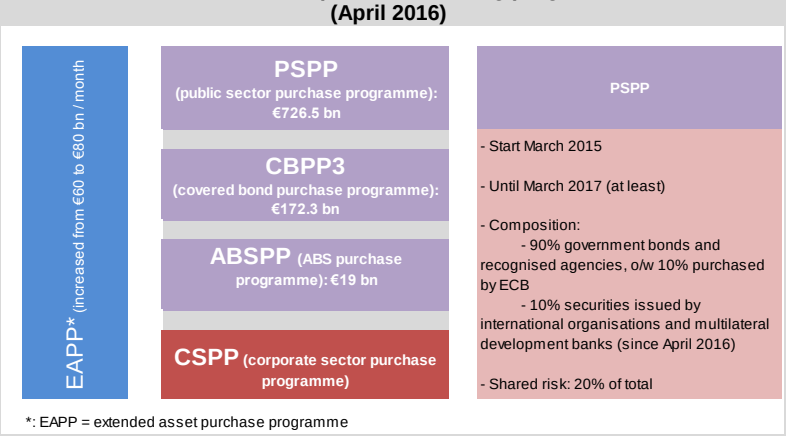
Box 5: The ECB's quantitative easing programme

On 22 January 2015, with interest rates low and actual and expected inflation drifting towards record low levels, the ECB announced a public sector purchase programme (PSPP) as part of efforts to provide monetary support to the economy. The programme came into effect in March 2015 and supplemented the asset-backed securities purchase programme (ABSPP) and the covered bond purchase programme (CBPP) launched in 2014. Total purchases under the overall asset purchase programme (APP) were set at EUR 60 billion per month.

On 10 March 2016, the ECB decided to enhance the APP with a new corporate sector purchase programme (CSPP) that began at the end of the second quarter of 2016. Cumulative purchases under this extended programme were stepped up to EUR 80 billion.

The CSPP, like the PSPP, will be accompanied by a securities lending facility.

Overview of the quantitative easing programme (April 2016)



Source: Banque de France.

2.3. Derivatives markets continue their transformation

2.3.1. Notional amounts declined substantially, driven downwards by portfolio compression techniques and central clearing

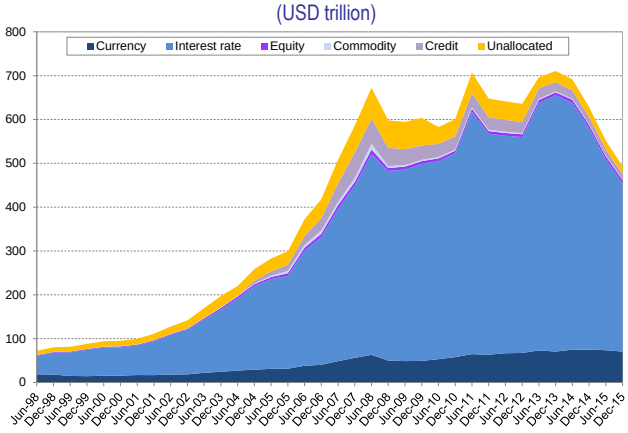
The notional amount of OTC derivatives worldwide shrank by 27% in 2015

In 2015 the total gross notional amount[38] of OTC derivatives worldwide recorded by the Bank for International Settlements (BIS) fell again, shrinking by 27% from USD 628 trillion at end-2014 to USD 493 trillion at end-2015[39] (Figure 33). This reduction, which was much more pronounced than the 11% fall seen in 2014, was once again largely attributable to interest rate derivatives, which accounted for 78% of the global OTC derivatives market. The notional amount of interest rate derivatives fell by 32% to USD 384 trillion in December 2015 compared with USD 505 trillion in December 2014. Increased use of portfolio compression

[38] The notional amount of a derivative corresponds to the value of the asset underlying the derivative contract.
[39] Although this decline was magnified by a currency effect for contracts denominated in non-USD currencies, the BIS nevertheless estimates that over 80% was attributable to a reduction in outstandings.

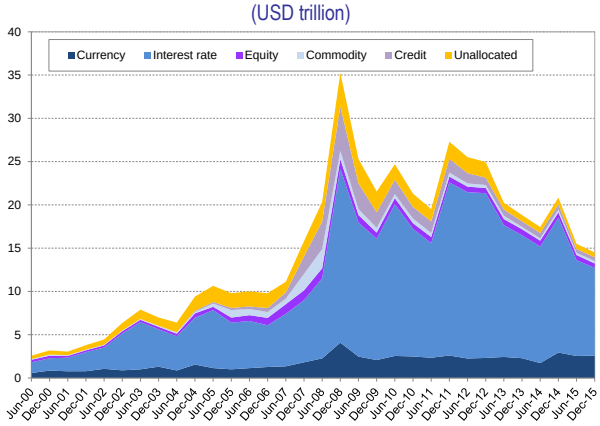
techniques[40] and more widespread central clearing of these contracts remain the main explanations for the downturn.

Figure 33: OTC derivatives: global notional amount
(USD trillion)



Source: BIS.

Figure 34: Gross market value
(USD trillion)



Source: BIS.

Gross market values fell by 30% in 2015

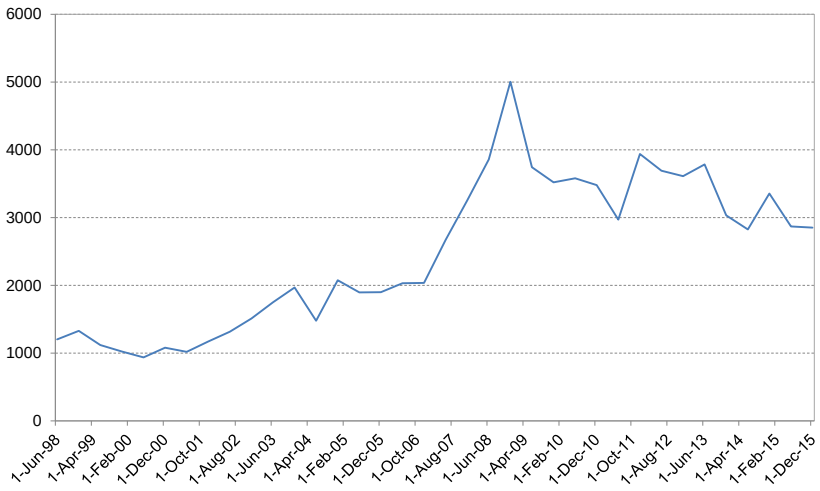
After rising in 2014, the gross market values of derivative contracts[41] fell substantially in 2015, shrinking 30% from USD 21 trillion at end-2014 to USD 15 trillion in 2015 (Figure 34). The contraction was attributable to the decline in nominal amounts, but also to a narrowing of yield spreads between the contract inception date and the reporting date, which materially affected interest rate derivatives. Most of the reduction occurred in the first half of 2015, with a far less pronounced decline in gross values in the second half.

Gross credit exposure also fell by 15% in 2015

Gross credit exposure[42], which adjusts gross market values for cross exposures between financial institutions, is used to measure aggregate exposure to counterparty risk generated by derivatives positions. This exposure fell by 15% from USD 3.350 trillion in December 2014 to USD 2.900 trillion in December 2015 (Figure 35). Once again, this trend was most in evidence in the first half.

[40] These techniques make it possible to reduce notional amounts of derivatives by eliminating opposite exposures between one or more counterparties and exposures that do not contribute to portfolio risk.
[41] That is, the market values of derivative contracts of each reporting dealer, which give a rough indication of the aggregate net asset value of derivative contracts.
[42] Here, "gross" means that the collateralised or non-collateralised nature of the exposure is not taken into account.

Figure 35: Gross credit exposure
(USD trillion)



Source: BIS

Overall, in 2015, the decline in gross notional amounts was accompanied by a sharp fall in gross market values and gross market exposures, reflecting a reduction in risk connected with the derivatives activities of financial institutions. However, while the decrease was extremely pronounced in the first half, it seemingly slowed in the second, raising the question of whether this trend is likely to continue.

2.3.2. Clearing obligations come into force in Europe, although the CCP recovery and resolution regime remains unfinished

Growing use of central clearing as regulations come into force

Central clearing for OTC derivatives is a key component of post-crisis reforms, giving clearing houses (or central counterparties – CCPs) a vital part to play in reducing systemic risk. In Europe, the obligation comes into effect at the end of June 2016 for interest rate swaps denominated in EUR, GBP, USD and JPY (Box 6). Implementation of the clearing obligation will simplify and centralise the management of counterparty risk[43], but means that risk is concentrated with CCPs.

Since the G20 recommendations were first implemented, use of central clearing has increased steadily, as revealed by the latest available data. According to the International Swaps and Derivatives Association (ISDA), 67% of the notional amounts of interest rate swaps were cleared[44], or 95% of eligible contracts, at end-June 2015. The BIS (2015)[45] estimates that the amount of credit derivatives cleared more than tripled between 2009 and 2014 to cover 45% of notional amounts outstanding. This trend is likely to become even more established when the first clearing obligations for credit derivatives come into force in Europe in 2017.

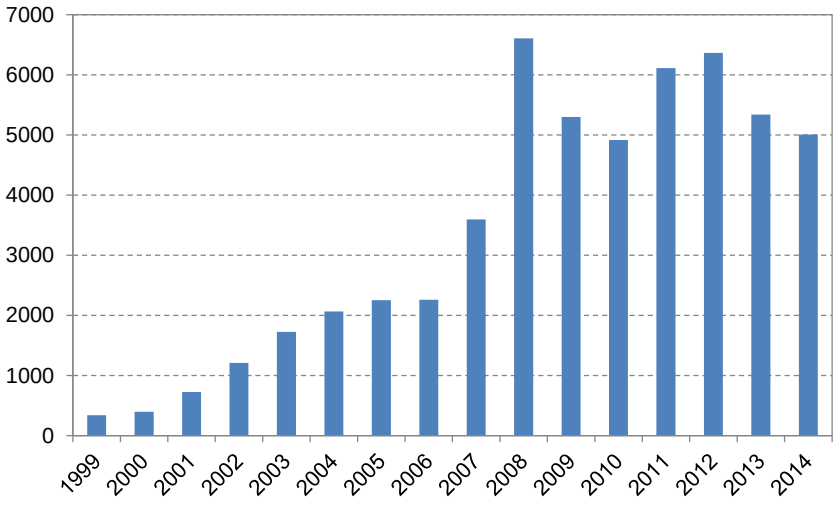
Collateralised amounts are consequently declining for non-cleared OTC derivatives

This shift can be seen in an analysis of collateralised amounts. According to the ISDA (2015)[46], estimated collateral supporting non-cleared transactions decreased by 6.2% from USD 5.340 trillion in 2014 to USD 5 trillion in 2015, continuing the decline that began in 2013 amid growing use of central clearing. At the same time, collateral (received and posted) for

[43] Because the CCP becomes the counterparty to all transactions by clearing members.
[44] However, this share has declined since December 2015, when it reached 72% owing to increased provision of compression services by the main CCPs on the market (LCH, CME) in 2015.
[45] BIS (2015), *Central clearing: trends and current issues* (*BIS Quarterly Review*, December 2015).
[46] *ISDA Margin Survey 2015.*

cleared transactions increased by 54% over the same period from USD 297 billion to USD 455 billion.

Figure 36: Estimated collateral in circulation for non-cleared OTC derivatives transactions
(USD trillion)



Source: ISDA

The entry into force of new regulations will drive industry concentration

These changes are being accompanied by changes in the post-trade landscape, with the provision of clearing services becoming increasingly concentrated with a handful of firms. This trend is set to continue as the new regulations are extended and phased in. Clearing entails substantial fixed costs and is based on netting positions, which promotes efforts to achieve economies of scale and the widest possible range of cleared products (vertical concentration). Thus, at end-2014, statistics compiled by the Committee on Payments and Market Infrastructures (CPMI)[47] indicated that two CCPs accounted for around 60% of total cleared volumes. Furthermore, the Herfindhal index, which measures an industry's degree of concentration, rose from 18% in 2012 to 22% in 2014, corroborating this trend. CCPs are also largely owned or operated by market undertakings (83% of CCPs according to the BIS). In this regard, the merger between the London Stock Exchange and Deutsche Börse may raise concerns, since the two exchanges own two of Europe's largest CCPs.

Horizontal concentration is also in evidence, with 40% of CCP offering clearing services for cash, derivatives and repo markets at end-2014, compared with 20% in 2006[48].

[47] *CPMI statistics on payment, clearing and settlement systems* (December 2015).
[48] BIS (2015), *Central clearing: trends and current issues* (*BIS Quarterly Review*, December 2015).

Box 6: State of play in Europe's clearing obligations

In Europe, products declared eligible for mandatory clearing are currently as follows:

1. Interest rate swaps (IRS) denominated in EUR, GBP, JPY and USD, including fixed for floating swaps, basis swaps, forward rate agreements and overnight index swaps. The obligation to clear these derivatives will be phased in between June 2016 and December 2018 according to the nature of the counterparty and the volume of derivatives subject to the obligation.
2. Credit derivatives based on the Untranched iTraxx Main Index CDS (EUR, 5 years) and Untranched iTraxx Crossover Index CDS (EUR, 5 years). The clearing obligation will come into force based on a timetable running from February 2017 to May 2019 and according to the same procedures.
3. Interest rate derivatives denominated in the Polish, Norwegian and Swedish currencies. The corresponding Regulatory Technical Standards (RTS) were sent on 10 November 2015 to the European Commission, which has not yet adopted them.

The concentration of counterparty risk management with CCPs poses several risks to the financial system:

- risks inherent in the CCP's own operations and relating to management of the CCP's activities (operational risk);
- risks inherent in clearing members and their ability to honour transaction-related obligations, including liquidity risk, if the CCP has to honour payments that participants cannot meet, as well as credit risk if the counterparty cannot cover losses linked to a default.

To these effects are added the risks inherent in the procyclical nature of margin calls. If the market value of assets held goes down or if the value of securities posted as collateral declines, investors will face margin calls precisely at the time when their portfolios are depreciating. This could prompt them to sell assets to be able to meet the call, further exacerbating the price decline. Rules setting margins that increase at times when volatility is high or prices are declining will therefore tend to exacerbate this procyclicality.

These risks are increased by the fact that clearing obligations are coming into effect at a time when the industry is concentrating but recovery and resolution mechanisms have not yet been finalised (Box 7).

Box 7: CCP crisis management mechanisms

Given the systemic importance of CCPs to orderly financial markets, which has increased with the introduction of the requirement to centrally clear standardised OTC derivatives, international regulators have deemed it necessary to establish crisis management mechanisms for CCPs.
These mechanisms comprise three phases:

1- Default waterfall
The waterfall phase covers CCP risk management in normal conditions. At international level, the IMF set out the broad principles for CCP risk management with its Principles for Financial Market Infrastructures (PFMIs). Europe took up these principles in its EMIR Regulation, which covers such aspects as margin calls, skin in the game and stress testing.
A joint CPMI-IOSCO group has began work aimed at analysing existing practices in various jurisdictions in terms of margins, cover standards (to cover potential losses in the future) in the event of a default by the one or two clearing members with the largest exposures, CCP skin in the game, and CCP stress tests.

2- Recovery
The recovery phase covers the period during which a CCP has to cope with an event that threatens its viability (typically the default of a clearing member), without entering the resolution phase. The framework governing this phase (including the analysis of recovery tools and requirements for using them) was the subject of a specific report published by the CPMI-IOSCO group in October 2014. In Europe, the report is expected to be transposed as part of a future legislative proposal by the European Commission.
Since March 2015, the joint CPMI-IOSCO group has been using questionnaires to take stock of the situation and compare current CCP recovery mechanisms, looking particularly at loss allocation tools, such as variation margin haircutting, partial and total tear-up of contracts, and cash calls.

3- Resolution
CCP resolution encompasses the measures undertaken by resolution authorities to deal with a crisis involving a CCP that could not be handled by the CCP itself. In other words, this stage is the last line of defence before failure. The resolution procedure is activated if, following default waterfall and recovery measures taken by the CCP, the CCP is unable to restore viability or if there are no realistic prospects of a swift return to viability.

At international level, CCP resolution was covered in a report appended to the Key Attributes of Effective Resolution Regimes for Financial Institutions published in October 2014 by the Financial Stability Board (FSB). The report stipulated the goals of resolution (preserve financial stability, avoid using public funds to bail out CCPs, maintain member access to CCP services), resolution powers and tools (such as cash calls) and implementation procedures for these tools. Since some points of the report were insufficiently developed or hard to implement, the FSB decided in June 2015 to extend its work on CCP resolution and plans to issue a final report for consultation in November 2016.

While CCP supervisory authorities, which in France are the AMF, the ACPR and the Banque de France, monitor the orderly conduct of the default waterfall and recovery phases (and are authorised to intervene during these phases), the resolution phase gives a central role to resolution authorities (ACPR in France[49]), which are responsible for the operational implementation of resolution plans. Europe currently has 17 authorised CCPs, including the French clearing house, LCH SA.

However, this situation can be viewed from several angles. First of all, while Europe has pushed back publication of a legislative proposal, which was initially scheduled for end-2015, to end-2016, this is to be able to take account of the FSB's findings. To be effective, it is important for European regulations to be aligned with these principles, given the need for international coordination in this area and the cross-border nature of clearing activities, which could lead to regulatory shopping. On 15 March 2016, the European Commission released an equivalence decision on the rules applicable to CCPs authorised by the Commodity Futures Trading Commission (CFTC). This represents a first step towards recognition of US CPPs by ESMA, which will allow them to offer services in Europe.

[49] Insofar as, at present, LCH SA has credit institution status.

The phased-in introduction of EMIR provisions (risk mitigation techniques, central clearing obligation, trade reporting) has helped to reduce systemic risk and make OTC derivatives trading more transparent.

At the end of April 2016, ESMA published the results of its first stress testing exercise, which was designed to measure the ability of European CCPs to withstand the simultaneous default of several clearing members in an environment of major stress on financial markets. The findings showed that the resources of the 17 CCPs, which stand at around EUR 150 billion, were sufficient to cover the default of the two largest European clearing members, even in stressed market conditions. A default by 25 clearing members in Europe would lead to a funding shortfall of between EUR 0.1 and EUR 4 billion, but this is considered to be an extreme event insofar as it did not occur during the crisis. ESMA therefore considers that European CCPs are sufficiently robust at the present time.

Box 8: Brexit's potential impact on central clearing

In the post-trade sector, a UK exit from the European Union (Brexit) raises the question of whether European clearing members would be able to continue clearing contracts through UK CCPs, given:

- the higher prudential charges that will be applied to them if UK CCPs are not recognised by the EU;
- the possibility that UK CCPs might not be able to clear EUR-denominated contracts.

To access the European market, i.e. provide access to clearing members and connect to European trading platforms, UK-based CCPs have to be recognised as equivalent following a recognition procedure conducted by ESMA and the European Commission. Obtaining this recognition should not pose a problem in the short term, assuming that UK law keeps EMIR provisions. But any revision of EMIR might lead to a review of the equivalence of the UK regulatory framework for CCPs, potentially affecting EU recognition of UK CCPs and the ability of British CCPs to clear contracts concluded by European counterparties[50].
Moreover, Brexit is forcing the euro area in a paradoxical position in which the euro becomes the only one of the four major currencies whose derivatives were mainly cleared outside its own area. Euro area authorities might be led to challenge this situation. The recent judgment by the European Court of Justice[51] restricted the ECB's ability to prevent EUR-denominated contracts from being cleared outside the area, but did not consider clearing outside the EU. Moreover, the future of credit lines between ECB and Bank of England on one hand, and CCPs on the other hand, remains uncertain.

Table 2: Distribution of daily turnover in interest rate swaps and foreign exchange, by currency and by country (USD billion)

Currencies/contract type - 2013	Interest rate swaps		Currencies	
GBP	187	*8%*	631	*12%*
EUR	1,146	*49%*	1,786	*33%*
USD	657	*28%*	4,652	*87%*
JPY	70	*2%*	1,231	*23%*
Total turnover, all currencies	2,343		5,345	

Geographical distribution - 2013	Interest rate swaps		Currencies	
France	202	*7%*	190	*3%*
Germany	101	*4%*	11	*2%*
UK	1,348	*49%*	2,726	*41%*

Source: BIS, Triennial survey (2013)

[50] Article 4 of EMIR states that the clearing obligation applies to derivative contracts if they have been concluded "between two entities established in one or more third countries that would be subject to the clearing obligation if they were established in the Union, provided that the contract has a direct, substantial and foreseeable effect within the Union or where such an obligation is necessary or appropriate to prevent the evasion of any provisions of this Regulation".

[51] Judgment T 496/11 by the European Court of Justice of 4 March 2015 annulling the Eurosystem Oversight Policy Framework. The ruling concluded that "the ECB does not have the competence necessary to regulate the activity of securities clearing systems, so that, insofar as the Policy Framework imposes on CCPs involved in the clearing of securities a requirement to be located within the euro area, it must be annulled for lack of competence".

So if new relations have to be established between the EU and the UK, a key issue – to be considered as part of the EMIR revision – will be the clearing of EUR-denominated derivative contracts outside the euro area/EU.

Box 9: Brexit's impact on market surveillance

The access of European regulators to UK-based trade repositories (TRs) could be questioned by Brexit, which would have an impact on market surveillance. TRs established in the UK, which are currently registered and supervised by ESMA, would effectively become based in a third country and to continue providing services to European customers would be required to undergo an equivalence and recognition procedure. This procedure has never been tried out in practice and would appear to be extremely complex to implement. Furthermore, the UK will have to create a supervisory regime for its TRs, which are currently supervised directly by ESMA, in order to conduct market supervision.

Additionally, Brexit would impact systems for information sharing and cooperation by the national competent authorities of Member States in the supervision of markets in financial instruments, such as the mechanism for sharing information about trades reported by ISPs under MiFID I and the future MiFID II, as well as AMF access to the order data of UK platforms through the FCA under MiFID II.

Brexit would also deprive the AMF of access to the market data that it receives or that are made available to it under MiFID I at present and from January 2018 under MiFID II, which could lessen the effectiveness of market supervision.

2.3.3. The risks inherent in securities financing transactions (SFTs) will soon be more effectively assessed and regulated

Transactions that are a source of risk for the financial system

Securities financing transactions (SFTs) allow market participants to access secured financing. They comprise all transactions where securities are posted as collateral[52] and are typically used to generate short-term financing resources. Examples include securities lending and borrowing transactions, repos, buy/sell-backs and margin lending transactions.

Credit intermediation outside the banking system through SFTs has grown considerably in recent years. While this type of intermediation plays a part in financing the real economy, it is also a source of systemic risk and may increase the procyclical nature of the financial system through the functions covered by these transactions, including maturity and liquidity transformation, or the use of leverage (notably through the ability to reuse securities posted as collateral). Meanwhile, concerns are beginning to emerge over the liquidity of repo markets: the New York Fed, for example, has noted a sharp decline in volume on these markets, which could ultimately have a material impact on the financing capabilities of financial institutions.

The market is not very transparent and hard to measure

The lack of transparency around these transactions makes it hard to gain a precise picture of the SFT market in Europe. The European Systemic Risk Board (ESRB) conducted a data-gathering exercise in autumn 2014, collecting information from a sample of 38 European banks accounting for 60% of the sector's consolidated assets. This revealed that SFT collateral volumes stood at around EUR 4.6 trillion, with 80% attributable to repos and 20% to securities lending transactions. In terms of the securities received as collateral by these banks, the majority (94%) were eligible for reuse and, on average, each security was reused once. Assets posted as collateral chiefly comprised sovereign debt (61% of collateral posted and collected by respondent banks), followed by equities (13%) and debt securities issued by financial institutions (8%).

[52] According to the terminology used by the Financial Stability Board (FSB), the term "collateral" covers assets provided as security against cash financing.

International work aimed at identifying, monitoring and regulating these risks by 2018

Various international programmes have been set in train to be able to identify and track the potentially systemic risks associated with these transactions. In August 2013, the FSB published a series of 11 recommendations aimed in particular at making these transactions more transparent and establishing rules on reusing securities posted as collateral. Europe took up these recommendations in the Securities Financing Transactions Regulation (SFTR) adopted in November 2015 (Box 10).

Also in November 2015, these recommendations were supplemented by an FSB report aimed at clarifying the procedures for implementing haircuts for certain SFTs. These haircuts require the counterparty providing collateral to provide an additional amount to secure the commitment to return the cash provided by the other party. The FSB said that this system should come into force at the end of 2018. To enable the European Commission to assess whether to transpose the haircuts into Community law, ESMA, the European Banking Authority (EBA) and the ESRB are required to submit a report to the Commission, the Parliament and the Council by 16 October 2016 in which they will assess:

- whether the SFT use leads to a substantial increase in leverage that is not addressed by the existing rules;
- if applicable, the available solutions to deal with this increase;
- whether other measures are needed to reduce the procyclical effects of this leverage.

Box 10: SFTR

The European Securities Financing Transactions Regulation (SFTR)[53] transposes into the Community framework four of the eleven recommendations put forward in August 2013 by the FSB and specifically the recommendations on introducing transparency requirements (recommendations 1, 2 and 5), along with some provisions of recommendation 7 on the framework for the reuse of securities posted as collateral[54].

SFTR imposes three new types of obligations:
- the obligation to report transactions to trade repositories;
- the obligation to act transparently towards investors by ensuring that fund managers disclose any use made of SFTs and total return swaps (which are recognised as having an equivalent effect to SFTs) in periodical reports and pre-contractual documents;
- a framework for the reuse of securities posted as collateral in any type of transaction, i.e. not merely SFTs.

While the entry into effect of the regulation's provisions will be phased in gradually through to 2018, several obligations have been in force since 12 January 2016:

- fund managers are required to publish, for UCITS and AIFs established before that date, detailed information (in section B of the annex to the regulation) on their use of SFTs and total return swaps in pre-contractual documents (UCITS prospectus or information to be made available to AIF investors);

- all SFT counterparties shall keep a record of any SFT that they have concluded, modified or terminated for at least five years following the termination of the transaction.

2.4. Increased market electronification fosters the emergence of new risks

Electronification rates are increasing sharply in many asset classes

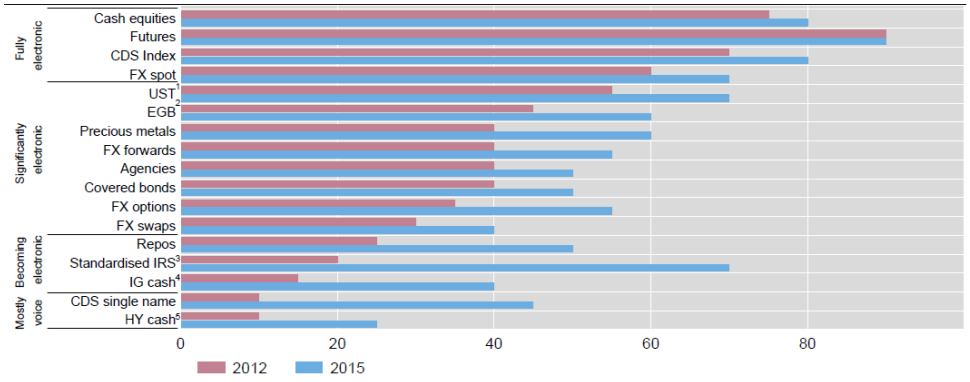
Trading approaches have seen major changes with an increase in electronic trading flows for many asset classes. This trend is set to continue in the coming years and will significantly impact the structure of these markets. According to the BIS, while electronification has been around for longer in some asset classes, with equities and futures,

[53] Regulation (EU) 2015/2365 of 25 November 2015 on transparency of securities financing transactions and of reuse.

[54] Recommendations 1 and 2 concern the obligation for competent authorities to collect additional data on the use of SFTs; Recommendation 5 concerns reporting requirements for fund managers to end investors; Recommendation 7 covers regulations for the rehypothecation of client assets.

for example, reporting rates ranging from 75% to 85% going back to 2012, over the last three years, levels of electronic trading have been rising, even doubling in some cases, within other classes, such as interest rate swaps, single name credit derivatives and corporate but especially government bonds. To give an example, the share of electronic trading in interest rate swaps increased from around 25% in 2012 to 70% in 2015 (Figure 37).

Figure 37: State of electronification in various asset classes
(share of trading volumes)



[1] US Treasuries. [2] European government bonds. [3] Standardised interest rate swaps. [4] Investment grade cash bonds. [5] High-yield cash bonds.

Sources: BIS[55], Greenwich Associates (2014), McKinsey & Company and Greenwich Associates (2013).

These structural changes are partly the result of natural evolution driven by technological progress and efforts to enhance efficiency in terms of transactional costs. Over the recent period, however, they may also reflect the implementation of post-crisis regulations that have affected the nature of market making and could be further strengthened by the forthcoming implementation of new MiFID 2 trading rules, with the entry into force of the requirement to trade derivatives on trading venues, for example[56], along with new transparency rules for non-equity instruments.

The pace of electronification may pick up on secondary bond markets

These new transparency rules are expected to particularly affect secondary bond markets, impacting their structure and, consequently, their level of liquidity (cf. 2.2). But it is hard predict what the impact will be. The International Capital Market Association (ICMA) reckons that while the signs heralding a new structure are there, it is impossible to foresee how secondary bond markets will look five to ten years from now. The ICMA has nevertheless suggested that MiFID 2's entry into force could feasibly result initially in an increase in the share of trades conducted off automated systems, followed by a gradual migration to electronic venues as the market gets used to the new environment.

The actual concept of electronification spans multiple aspects. Since it encompasses all technological solutions used to support trading, it ranges from data aggregation systems and/or solutions designed to make it easier to connect participants without necessarily involving execution, to trading platforms themselves. After drawing up an inventory of the solutions available on European corporate bond markets[57], the ICMA found marked growth in data aggregation platforms over the recent period: out of the 28 identified platforms, five are data aggregation platforms, of which four were launched in 2014-2015. These developments reflect efforts to get ready for the entry into effect of transparency obligations.

[55] *Electronic trading in fixed income markets*, BIS, January 2016
[56] The Markets in Financial Instruments Regulation (MiFIR), adopted on 15 April 2014, will require derivatives that are subject to the central clearing obligation under the European Market Infrastructure Regulation (EMIR) and deemed sufficiently liquid by ESMA to be traded on a trading venue.
[57] Electronic Trading Platforms - ICMA Mapping Study (European cash bonds).

Trading platforms, meanwhile, may employ central limit order books (CLOBs), which, through the direct matching of buy and sell orders, offer the highlest level of automation and enable the use of algorithms, or request for quote (RFQ) systems, which automate requests for quotes that have traditionally been voice-based and which facilitate execution; RFQ systems are therefore less conducive to increased use of algorithms.

According to the BIS, the share of electronic trading is rising steadily in all bond segments (government and private). In 2015, in Europe, electronic trading accounted for 60% of trading in government bonds and around 50% in corporate bonds. That said, the BIS estimate uses a broad definition of electronic trading[58]. An analysis of volumes on French markets reveals that the share of electronic trading was less than 20% in 2015 if only volumes on execution platforms are taken into account[59].
Furthermore, these volumes are concentrated with a dozen or so venues that primarily use an RFQ approach. While no CLOB-based venue has a major market share of the corporate debt market, two such venues account for a significant portion of government debt trading volumes. However, they cannot be accessed by end clients, and only a restricted group of participants, whose actions are strictly regulated, are authorised by the Agence France Trésor, to trade on these venues.

Electronification could involve growth of HFT and associated risks

The main concern relating to the rise of electronic trading and the widespread use of algorithms concerns the risks associated with the development of high-frequency trading (HFT), which could have potentially adverse consequences, including an increase in flash events, such as those affecting equity markets on 10 May 2010 or US Treasuries on 15 October 2014. Moreover, while HFT appears to promote liquidity under normal market conditions, there is uncertainty over its impact during times of stress. A recent study published by ESMA[60] reveals that the emergence of HFT firms is leading the amount of liquidity that is actually available in the order book to be overestimated. In a fragmented market, if participants are unsure where they will be able to trade, they are likely to send the same order simultaneously to several venues, so generating duplicate orders. In so doing, they expose themselves to the risk that several orders could be executed at once, i.e. for a greater quantity than they intended. As a result, once one order has been executed, they immediately cancel their other orders. While this effect is a feature of fragmented markets, the presence of HFT firms increases it considerably: on average, HFTers post a duplicate order rate of 34%, compared with 12% for non-HFT firms, thereby causing the amount of liquidity actually available to be significantly overestimated.
The question of HFT's growth seems to be settled for equity markets: HFT's share of CAC 40 securities, for instance, appeared to top out at around 45% in 2015. But the question remains open in the case of other asset classes. Taking the example of fixed income markets, although HFT seems to have experienced limited growth in France owing to the dominant position of RFQ systems (for corporate bonds) and restrictions on CLOB business (for government bonds), the question of HFT's impact is being raised because of the significant presence of HFT firms on futures markets, which indirectly affect cash markets for government debt.
The second concern involves the indirect impact of growing electronification on equity markets. Given the speed of reactions and spillovers resulting from this shift, it seems certain that, insofar as any shock affecting a given asset class will eventually be passed on, more or less elastically, to equity markets, these markets will therefore find themselves acting as de facto shock absorbers. The question of setting up and properly calibrating shock absorbers on these markets is therefore critical.

[58] The definition used covers trading venues but also data aggregation solutions.
[59] Analysis carried out using MiFID reporting data.
[60] ESMA, 2015, *Order duplication and liquidity measurement in EU equity markets.*

Electronification is fostering the emergence of new risks linked to cyber security

Increased electronification is also fostering the emergence of a new form of risk – cyber risk – with attendant questions over cyber security issues. These questions affect market infrastructures, such as trading venues, CCPs and CSDs, as well as financial participants, including financial intermediaries and management companies.

Cyber threats are defined as any activities executed via computers, IT systems and/or the internet that target the confidentiality, integrity and accessibility of the information systems, data and online presence of targeted firms[61]. In the financial sector, cyber attacks may be motivated by a desire to harm the system (attacks on market infrastructures) and/or a desire to make a profit, for example by stealing data. An examination of the changing shape of cyber threats reveals (i) upscaling of attack methods and (ii) growing sophistication of attacks, particularly through the deployment of malware, new version/function downloads and internal tools.

The most spectacular cyber attacks over the recent period show that they can have extremely detrimental effects, whether in terms of direct financial losses (the 2013 Carnabak scam inflicted an estimated USD 1 billion in losses for targeted banks) or indirect damage via image-related risk, as suffered by Target, a US retail chain, also in 2013.

The significance of this type of threat means that cyber risk needs to be taken into account in a systemic and appropriate manner in operational risk management and business continuity plans[62]. For this reason, questions relating to cyber security are increasingly on the agenda for international regulators such as IOSCO[63], the BIS, FSB and G7, which have launched initiatives to look at the cyber security of financial institutions. The work done so far has not resulted in much rulemaking, but has been aimed at (i) analysing and comparing national approaches to cyber security, (ii) promoting good practices and a basic framework for responding to cyber risk, and (iii) organising exchanges between supervisory authorities on cyber risk and possible responses.

The European Network and Information Security (NIS) Directive, which is currently being adopted, establishes measures that will need to be adopted by operators of essential services, including financial services, as well as practices for managing risk and reporting security incidents. In France, meanwhile, the Act on military programming, whose orders regarding the financial sector could be published in summer 2016, will impose a set of specific security rules for operators of vital importance.

[61] This definition amalgamates elements used in several IOSCO reports and by national authorities, including FINRA and the Québec Financial Markets Authority. To date, there is no uniform global definition of cyber security.

[62] The subject of cyber security is not explicitly cited in laws and regulations. However, MIFID2, EMIR and CSDR have strengthened the operational requirements for investment services providers and market infrastructures.

[63] In particular, in April 2016 IOSCO published *Cyber Security in Securities Markets – An International Perspective: Report on IOSCO's cyber risk coordination efforts,* which seeks to analyse and compare national approaches to cyber security.

CHAPTER 3: HOUSEHOLD SAVINGS

Net flows of household financial savings grew by EUR 2 billion between 2014 and 2015, with part of the increase being channelled into equities and unit-linked life insurance. However, the bulk of these savings is still invested in bank deposits and non unit-linked life insurance. Several all-time records were set in 2015, notably EUR 55 billion of inflows to contractual savings vehicles (chiefly housing savings accounts) and transferrable deposits,[64] and EUR 11 billion withdrawn on demand from Livret A, Livret Bleu, Sustainable Development, Popular Savings, and Youth Savings passbooks, as well as from housing savings and taxable passbook accounts.

That households are attracted to bank deposits and non unit-linked life insurance poses a risk to savers, now that individual households' contributions to managing non-occupational risk are on the rise.

Too many households, disappointed with low returns, are investing in speculative and atypical products to generate additional income streams. This could result in substantial financial losses. The number of complaints to the AMF's savings information platform, Épargne Info Service, continues to grows, along with the case-load of the Mediation service.

If the spread of full-digital distribution results in products being sold remotely without appropriate advice, financially illiterate savers could be exposed to misallocation risk. Another source of risk is the lack of financial literacy in France. Since households now have to exercise greater individual responsibility in financial matters, their investments need to be suited to their long-term needs. Accordingly, savers who are not sufficiently financially literate are ill-equipped to make the right choices.

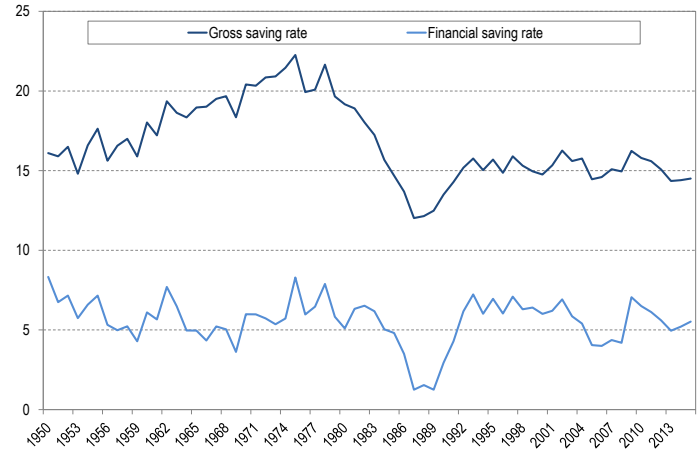
3.1. Households still attracted to bank deposits and life insurance

3.1.1. Net financial investment rose sharply in 2015

In national account terms, households'[65] savings flows are the share of their gross disposable income not used for final consumption expenditure[66]. In 2015, the household savings rate in France was 14.5%, slightly below the 2014 level of 14.4% and in line with previous years (the savings rate has fluctuated around 15% since the 1990s, as shown in Figure 38). The household financial savings rate is defined as the ratio of financing capacity to gross disposable income. Households' financing capacity is equal to savings plus net capital transfers less expenditure for accumulation purposes (mainly non-financial assets such as housing and land). The financial savings rate in 2015 was 5.5% (Figure 38).

[64] Transferable deposits are deposits (in domestic or foreign currency) which may be converted immediately into cash or which may be transferred by cheque, credit transfer, debit entry or any other method without significant charges or major restrictions.
[65] Including entrepreneurs.
[66] Gross household disposable income comprises "all income available […] after the payment of current taxes on income and wealth, social contributions and the reception of social benefits" (source: INSEE).

Figure 38: Household gross saving rate and financial saving rate
(% of gross disposable income)



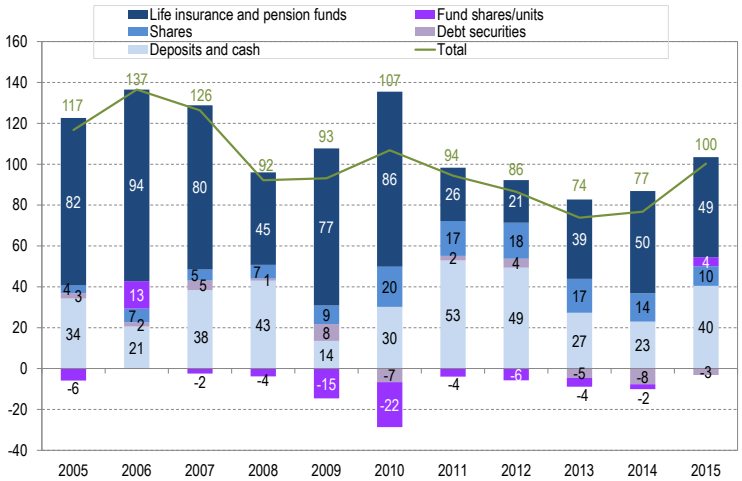
Source: INSEE

France has one of the highest savings rates in the euro area, exceeded only by Germany, which had a rate of 17% in 2015 according to Eurostat. Countries such as Italy and Spain have mid-range rates, at 10.2% and 8.9% respectively in 2015. By contrast, the UK's rate is low (4.2% in 2015, according to Eurostat) by comparison with the other European Union countries and the euro area. France's substantial savings pool, with EUR 196 billion of saving flows in 2015, attracts numerous financial investment offerings, but allocation is key in a context where people are increasingly responsible for dealing with non-occupational risk.

A fresh rise in households' main net financial investment flows

Accordingly, the higher household financial savings rate is reflected in the larger amount allocated to the main financial investments, which rose by a sharp EUR 23 billion in 2015 (Figure 39). Looking at aggregate financial investments[67], households' net savings flows grew by EUR 2 billion, from EUR 82.8 billion in 2014 to EUR 84.8 billion in 2015.

Figure 39: Main household financial investment flows
(net annual flows, EUR billion)



Source: Banque de France, National Financial Accounts, base year 2010, AMF calculations.

Much of the increase in net inflows to the main financial investments went into deposits and cash, which increased by a substantial EUR 17.4 billion despite widely contrasting patterns

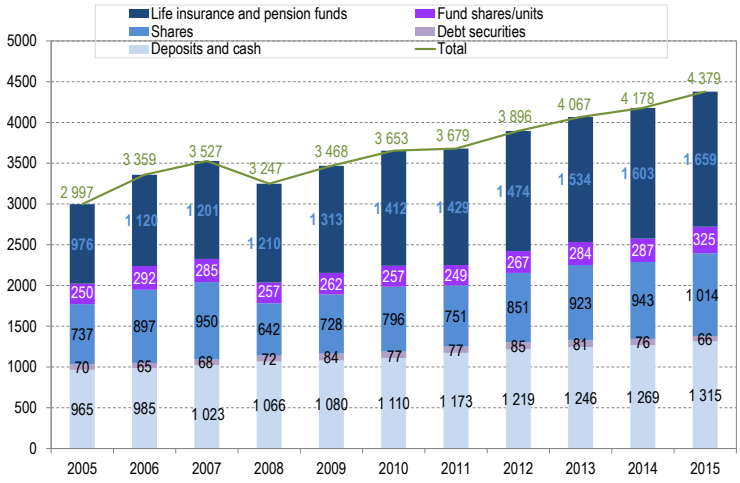
[67] Aggregate financial investments include loans, other accounts receivable/payable and net equity in life insurance reserves and in pension funds reserves.

of banking investments (Section 3.1.2). Life insurance was still the main investment vehicle for French savers.

Bank savings and life insurance attracted 89% of the main household financial investment flows. Stripping out unlisted shares and other equity, the proportion rises to 97%[68]. Investment flows into directly held equity, debt securities and fund shares and units were in the minority. Equity inflows were positive in 2015 but to a lesser extent than previous years (EUR 4.2 billion less than in 2014). Debt securities saw net outflows in 2015, as in 2013 and 2014. And, for the first time since 2006, households' inflows to collective investment schemes were positive.

Household financial wealth grew by EUR 201.1 billion between 2014 and 2015, the highest level since 1996. Half of that increase is attributable to a rise in financial investment flows, and the other half to a price effect. The wealth structure was the same as in prior years, with 70% invested in low-risk or risk-free assets such as non unit-linked life insurance[69], deposits and cash (Figure 40).

Figure 40: Households' main financial net assets
(net annual outstanding, EUR billion)



Source: Banque de France, National Financial Accounts, base year 2010, AMF calculations.

[68] In general, holdings of unlisted shares and other equity are not considered as financial savings because they mainly comprise shares in limited-liability companies (SARLs) owned by households and independent workers.
[69] Non-unit linked insurance investments accounted for an estimated EUR 1.364 trillion of the total EUR 1.659 trillion of life insurance policies held by households in 2015.

3.1.2. Transferable deposits and non unit-linked life insurance favoured in 2015

Box 11: Types of bank savings

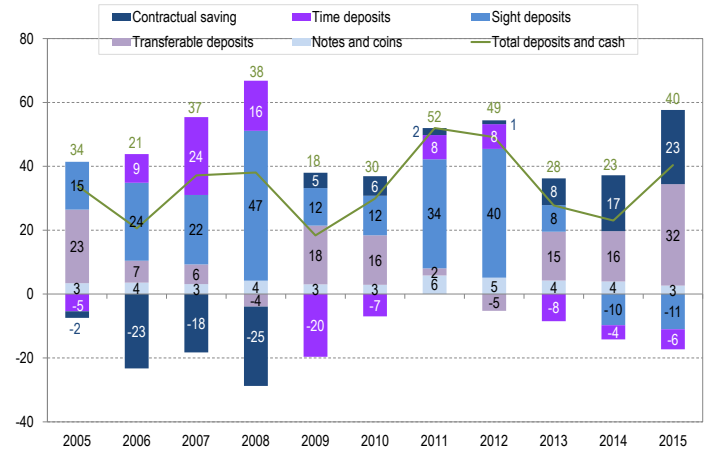
Five main types of bank savings and investments are recognised in the French national financial accounts:

- **banknotes and coins** in circulation that are commonly used as a means of payment;
- **transferable deposits,** comprising deposits (in domestic or foreign currency) which may be converted immediately into cash or which may be transferred by cheque, credit transfer, debit entry or any other method without significant charges or major restrictions;
- **investments withdrawable on demand**, consisting of Livret A, Livret Bleu, Sustainable Development, Popular Savings, and Youth Savings passbooks, as well as home-savings and taxable passbook accounts;
- **time deposits,** composed of term deposits (fixed-term accounts, unavailable factoring accounts, securities futures transactions), interest-bearing notes and savings certificates;
- **contractual savings**, made up of deposits created under a savings contract or plan, notably the *Plan d'épargne logement* (PEL – housing savings plan), business savings plans, the *Plan d'épargne populaire* (PEP – personal savings plan) and funds due to be employed under personal equity plans.

Source: Banque de France

In 2015, French households put EUR 40 billion into bank savings, notably in the form of transferable deposits (Figure 41).

Figure 41: Main bank financial investments
(net annual flows, EUR billion)



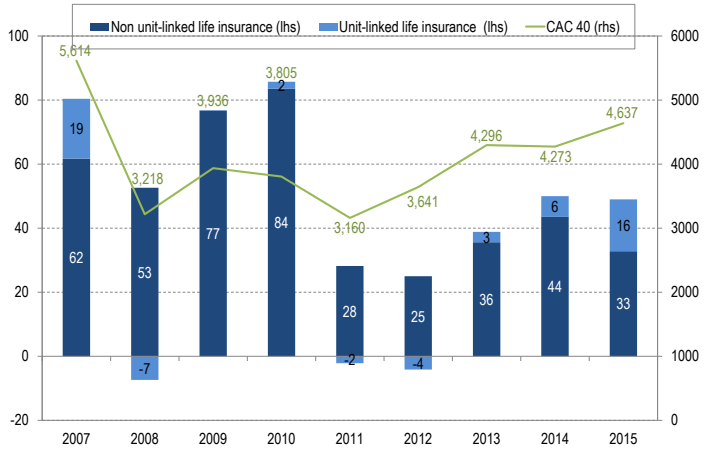
Source: Banque de France, National Financial Accounts, base year 2010, AMF calculations.

Record net inflows to transferable deposits and contractual saving

In consequence, they continued to shun sight deposits, which fell by a record EUR 11 billion. This was largely due to outflows from the Livret A passbook, the interest rate on which declined steadily from February onwards, reaching 0.75% in August 2015. At the same time, investment flows into contractual savings, mainly the PEL housing savings account, rose because the product offered a 2% rate of return until February 2016, in addition to being non-risky and tax-favoured. The contractual saving attracted record inflows of EUR 23 billion. Transferable deposits accounted for the bulk of the main bank financial investments, with a record-breaking EUR 32 billion.

Life insurance investments continued to appeal to households, due to the declining returns on sight deposits. In this category, the proportional share of unit-linked life insurance rose sharply (Figure 42).

Figure 42: Annual investment flows to life insurance policies
(net annual flows in EUR billion; CAC 40 index in points)



Source: Banque de France, National Financial Accounts, base year 2010, Datastream, AMF calculations.

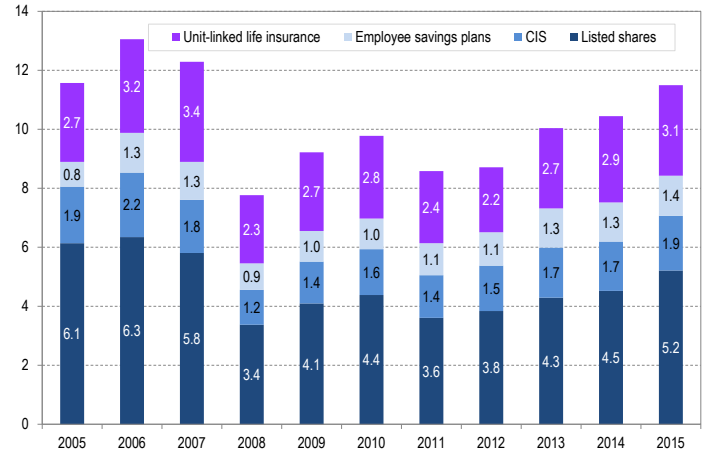
Steep increase in inflows to non unit-linked life insurance vehicles

Non unit-linked life insurance contracts were the main investment vehicle once again, attracting two-thirds of total life insurance investment flows. However, unit-linked contracts also made headway in 2015, gaining EUR 9.7 billion as a result of marketing policies offering a higher return on non-unit linked funds provided that a portion of the payments was invested in unit-linked vehicles. In 2015, one in five promotional offerings for life insurance offered a higher rate of return on non unit-linked contracts as a quid pro quo for a minimum investment in unit-linked contracts.

3.1.3. Low levels of direct and indirect shareholding

In 2015, total holdings of equity – both directly in listed and unlisted shares and other equity, and indirectly through unit-linked life insurance, collective investment schemes and employee savings plans –amounted to EUR 1.289 trillion, compared with EUR 1.190 trillion in 2014. Stripping out unlisted shares and other equity, total shareholding in 2015 amounted to EUR 503 billion, equivalent to 11.5% of net household outstandings, the highest level since 2008 (Figure 43).

Figure 43: Directly and indirectly held shares as a percentage of households' main net financial assets, by type
(% of net outstandings, EUR billion)



Source: Banque de France, National Financial Accounts, base year 2010, AGF, and AMF calculations.

The data show that French households' equity holdings increased between 2014 and 2015, nearing pre-crisis levels. In particular, direct holdings of listed equity rose sharply. That said, the trend was due to financial asset price effects[70] rather than to substantial net new inflows. Net household investment in listed equity amounted to EUR 1.4 billion in 2015 (compared with EUR 5.7 billion in 2014), whereas the price effect was EUR 35.7 billion. At the same time, the rate of direct equity ownership in France has been falling steadily: according to TNS Sofres, it was 6.2% in March 2016 compared with 6.6% in March 2015 and 13% in March 2009.

Even the level of equity ownership through employee savings schemes is low, even though this is a way of building up medium-to-long-term savings, since the investment is locked in for at least five years. At 31 December 2015, according to AFG, 32.5% of the amount outstanding in these schemes (excluding employee shareholder funds) was invested in money-market funds and 18.1% in equity funds. This allocation is sub-optimal because the money locked in for five years is invested in short-term holdings.

Direct and indirect investment in equity is low compared with investments in bank deposits and non unit-linked life insurance. Many factors are responsible for equity's lack of appeal, notably the fact that banking advisors have few proposals for this type of investment (Box 12).

[70] The CAC 40 index rose by 8.5% between 31 December 2014 and 31 December 2015.

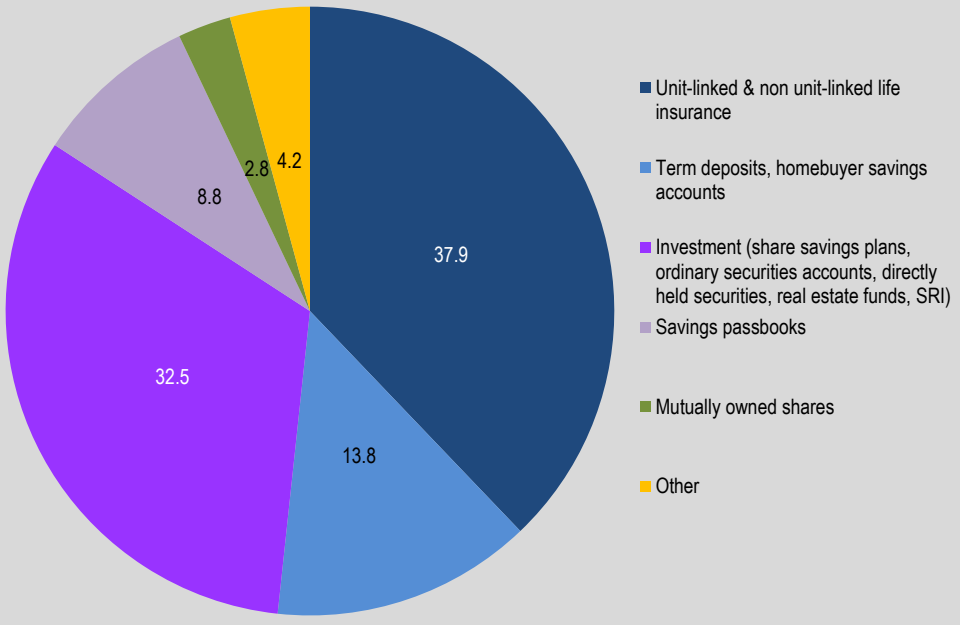
Box 12: The latest mystery shopping visits show that few banking advisors suggest investing in equity

The AMF conducts mystery shopping visits to gauge the quality of the questions that banks ask their prospective clients, and also to assess whether their sales proposals are client-responsive. One of the scenarios tested on 11 banks between October and December 2015 is the "young high-potential risk-seeking earner", who has the following profile: he or she is relatively well-off (earning a net EUR 3,200 per month) and has already built a substantial cushion of financial savings (EUR 58,000), in particular through employee savings schemes (EUR 20,000). As prospective clients, young high-potential risk-seeking earners have no medium to long-term spending plans, are willing to take risks, and show an interest in the economy. They are interested in equities and riskier investments such as warrants and certificates as well as in socially responsible investing.

When these prospects made it clear to a banking adviser that they were interested in equities, they were questioned about their experience and financial knowledge in only fifty per cent of cases. Slightly more than one adviser in two enquired whether they were able to take risks, and only one in five asked how much they might be prepared to lose.

In addition to failing to ask sufficient questions, advisers proposed few risky investments even though the prospective client had the right profile. Risky investments were proposed in only 32.5% of cases, with most advisers offering life insurance or term savings (fixed-term accounts and housing savings plans).

Figure 44: Sales proposals to "young high-potential risk-seeking earners"
(%)



Source: AMF mystery shopping visits, 2015

3.1.4. Assessing households' risk

The extent to which households are exposed to principal risk varies according to the asset under consideration. This risk ranges from zero, where the principal is fully guaranteed, to maximum when there is absolutely no guarantee and the principal could be lost in full when the investment matures.

Households' principal risk exposure can be assessed by making an estimated breakdown of the intermediation chain[71] for the securities they hold. For that purpose, households' financial assets are classified (Table 1) based on the degree of risk. Risk rises in line with the index, with Class 1 comprising low-risk assets.

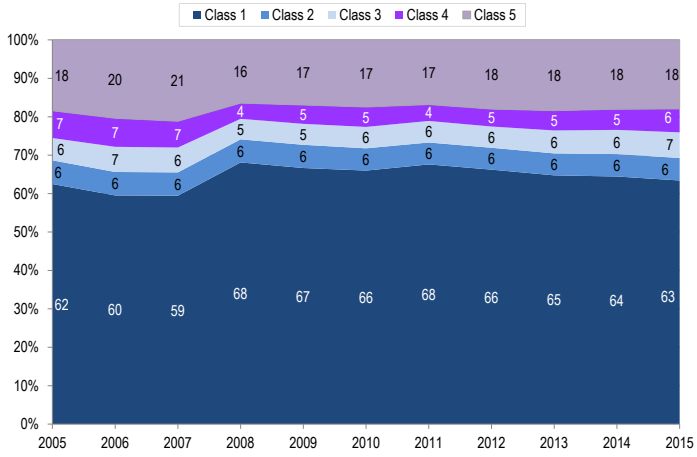
Table 3: Risk classes

Degree of risk	Components
Class 1	- Currency and deposits, including cash and savings held at banks (sight deposits, passbooks savings accounts, fixed-term deposits, PELs, PEPs) - Money market fund units - Short-term debt securities held directly - Non unit-linked life insurance
Class 2	- Longer-term debt securities (bonds) held directly - Bond funds - Structured and guaranteed funds
Class 3	- Equity funds - Balanced and alternative-investment funds
Class 4	- Listed shares held directly - Listed shares held in employee savings plans
Class 5	- Equity other than listed and unlisted shares - Unlisted shares

Source: AMF.

Dividing up households' main financial assets according to this grid of risk classes produces the following results (Figure 45).

Figure 45: Proportion of household financial asset by risk class
(% of main financial assets)



Sources: Banque de France, National Financial Accounts, base year 2010, AFG and AMF calculations.

Low risk exposure for households' financial net worth

Households' financial net worth is low-risk, consisting mainly of Class 1 assets, which accounted for 63% of their main financial investments at end-2015. The table shows a slight increase in the proportion of net worth held in Class 3 and Class 4 assets, resulting from direct holding of balanced and equity funds and from a price effect for listed equity.

Savings that are undiversified and concentrated in bank deposits and non unit-linked life insurance are exposed to long-term risk. Research[72] shows that long-term returns on equity are higher than on any other type of investment. Savers with a lengthening investment

[71] Measuring households' exposure to principal risk on the basis of their financial wealth is complicated by the rise of intermediation: a life insurance investment can be held in collective investment scheme units, for example. Detailed risk measurement is therefore required in order to analyse the intermediation chain.

[72] AMF Economic and Financial Newsletter No 3, 2013, http://www.amf-france.org/en_US/Publications/Lettres-et-cahiers/Lettre-economique-et-financiere/Archives.html?docId=workspace%3A%2F%2FSpacesStore%2F0e2cf3e6-0d92-4a45-8b2a-32e053dd2ebe

horizon should therefore invest a significant portion of their savings in shares. This applies to French households facing age-related spending on pension plans, dependency cover and so on.

French households seem to take a pessimistic view of financial markets

That French households are not attracted by risky assets may be due to a supply-side problem – for instance, few of these products are sold through bank networks (Box 12) – or to a problem of demand, attributable to risk aversion or misperception of the expected returns. French households do indeed seem to have become more cautious and less inclined to make risky investments. Luc Arrondel and André Masson[73] have attempted to explain this shift in behaviour by using the multi-wave PATER survey, which measures preferences and wealth in relation to time and risk. The authors have found that three factors influence households' savings choices: present available "resources", expectations and beliefs about the future, and risk preferences. They show that changing patterns of savers' behaviour are not due to changing preferences (particularly not to a lesser risk appetite) but mainly to increasingly pessimistic expectations about returns and risks on financial assets.

Furthermore, as academic research has shown, the French are not sufficiently financially literate. A recent report[74] that uses a Standard & Poor's database on financial literacy assesses financial knowledge by asking questions on four concepts: numeracy (interest), compound interest, inflation and risk diversification. A person is considered financially literate if they correctly answer at least three out of four questions. According to the report, 52% of adults in France are financially literate, compared with 66% in Germany, 67% in the UK and 71% in Sweden. For France, these findings are corroborated by the PATER surveys (Box 13).

Box 13: Findings of the 2014 PATER survey of household financial literacy

PATER is the name given to a series of surveys conducted between 1998 and 2014 to provide supplemental information for the INSEE Households Wealth surveys by addressing subjective and qualitative aspects of households' wealth-related behaviours. The 2014 survey featured questions on household financial literacy. For instance, 75% of respondents answered correctly when asked: "Assume you have 100 euros on a savings account that returns an annual rate of 2%. After one year, how much would you have on your account if you have not spent your initial deposit?". But when the question was made slightly more complex – "And after five years, how much would you have on the account if you have not spent your initial deposit?" only 53% gave the right answer.

[73] Arrondel L., Masson A. (2016). *French savers in the "great recession: Preferences, financial expectations, and portfolio choice*, working paper, Paris School of Economics.
[74] Klapper L., Lusardi A. and Van Oudheusden P. (2014) *Financial Literacy Around the World: Insights from the Standard & Poor's Ratings Services Global Financial Literacy Survey.*

This knowledge gap is also noticeable when it comes to savers managing their workplace savings. A survey by TNS Sofres for the AMF on employee savings[75] found that 40% of employees in active employment and enrolled in a savings plan were unable to answer the question about the type of funds chosen for their plan.

French savers still insufficiently financially literate

Financially illiterate savers are ill-equipped to manage their financial savings, even though this will be a key issue going forward. In future, individuals may well have to assume greater responsibility for coping with non-occupational risks such as sickness, retirement and unemployment. This is due both to greater pressure on public finances and to social trends such as longer life expectancy and population ageing. It is therefore important that French households' financial investments should be consistent with their long-term needs. Which is why financial literacy is vitally important[76].

3.2 No lull in investment offerings involving atypical or unrealistic products

3.2.1. Unrealistic and highly risky savings offerings are potentially harmful

Savers are turning to risky or atypical products, put off by the low interest rate environment (Chapter 1), which depresses yields on guaranteed investments, and by a pessimist view of financial assets[77]. Some are investing in foreign exchange (forex) markets and binary options without actually understanding the risks entailed in these products.

Box 14: CFDs, binary options and forex

A contract for difference (CFD) is a financial contract between two parties that gives an investor the right to receive, or the obligation to pay, the difference between the current value of the underlying asset (e.g. a currency pair[78], a share, a stock index) when the CFD is sold and its value at the contract time. CFDs are risky because they provide leverage that enhances the investor's gains or losses.

A binary option is an over-the-counter financial instrument that can be used to speculate for very short periods (several minutes or hours) on an equity, currency or other asset, with two possible outcomes: the asset gains or loses value. If a trader has properly anticipated the price movement, he earns a pre-arranged gain; if not, he loses his entire initial investment when the option expires.

The forex market trades all the world's currencies around the clock, without interruption. Prices are set directly by market participants such as banks and financial institutions, and exchange rates between currencies fluctuate constantly. Individuals can bet on forex movements using a choice of derivatives, including:

- CFDs on currency pairs,
- binary options on currency pairs,
- rolling spot forex contracts[79].

[75] For more information, see (in French only): http://www.amf-france.org/Publications/Rapports-etudes-et-analyses/Epargne-et-prestataires.html?docId=workspace%3A%2F%2FSpacesStore%2F972397fc-6ac9-48fc-a9f4-d9937ed94dc8
[76] Arrondel, L., Debbich, M., & Savignac, F. (2013). *Financial literacy and financial planning in France*. Numeracy, 6(2), 8.
[77] See the conclusions of the paper by Luc Arrondel and André Masson.
[78] All foreign exchange transactions involve two currencies, one bought, the other sold.
[79] A rolling spot forex contract is a financial derivative used to make a leveraged bet on a currency pair. The position is tacitly rolled over daily unless the investor closes it out.

Savers investing in forex or binary options are exposed to severe financial loss

The risks to savers who invest in these products are very high, regardless of whether the platforms they trade on are authorised. In any case, there is a significant risk of principal loss. The leverage generally built into these products multiplies investors' losses and may cause them to lose more than the amount they have invested. Savers are at risk even on regulated platforms, as shown by a 2014 AMF study[80].

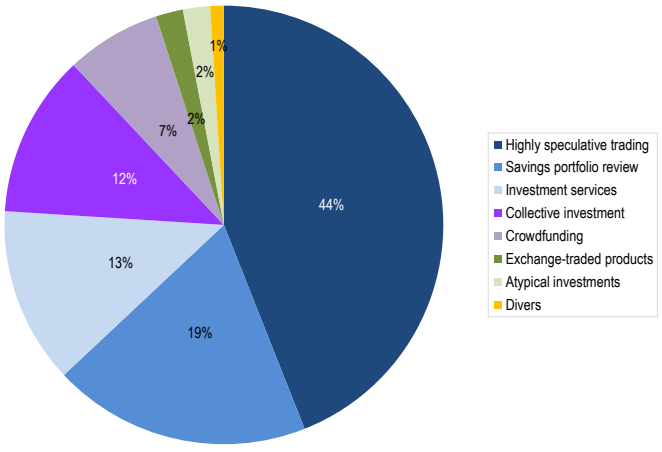
Savers who use unauthorised platforms run a substantial risk of being scammed. In some cases, their money is misappropriated and they have limited access to remedy because many of the platforms are located outside the investors' home country. According to the Paris public prosecutor, an estimated EUR 4 billion has been lost to illegal forex and binary option sites and a further EUR 0.5 billion to fraudulent transfer orders over the past six years. Most of these cases involve organised crime.

As a result, the number of complaints filed by savers with the AMF's Épargne Info Service about forex and binary option trading platforms has grown constantly over the past five years. The AMF received just 64 complaints on this issue in 2011; by 2015 the number had risen to 1,656[81]. Most of the complaints relate to unauthorised platforms.

Likewise, a growing number of cases involving forex and binary options are being referred to the AMF's mediation department, numbering 228 in 2015 compared with 46 in 2011. Authorised firms now account for the majority of these cases; since complaints involving unauthorised firms cannot be dealt with by the department, they are referred to the public prosecutor[82].

Speculative trading platforms manage to attract investors through misleading advertising on the internet. In 2015, 44% of all new online investment advertising was for highly speculative trading (Figure 46).

Figure 46: New investment advertising in 2015
(%)



Source: AMF.

In addition to the internet, these platforms attract new investors by means of social networks, smartphone-based advertising and sponsorship of soccer clubs.

[80] http://www.amf-france.org/Publications/Rapports-etudes-et-analyses/Epargne-et-prestataires.html?docId=workspace%3A%2F%2FSpacesStore%2F677d4221-e377-4804-9c10-752c94495b51 (in French only)
[81] For more information, read the AMF's 2015 annual report (in French only): http://www.amf-france.org/Publications/Rapports-annuels/Rapports-annuels-de-l-AMF/annee-2015-2019.html?docId=workspace%3A%2F%2FSpacesStore%2Ffc4b00fa-fb81-4a7d-ace5-88e5e5aa34de
[82] For more information, read the 2015 report of the AMF Ombudsman (in French only): http://www.amf-france.org/Publications/Rapports-annuels/Rapports-annuels-du-mediateur/Dernier-publie.html

As testimony to the popularity of forex and binary option trading platforms, 44% of people in France have already heard of web-based offerings, according to a poll conducted in 2015 by CSA for the AMF. In all, 22% have already been in contact with or approached by companies offering this type of investment, 6% say they have invested, while 4% report that they have been swindled through these investments.

To protect savers from these risky products, draft legislation currently before parliament – the Sapin II bill on transparency and economic modernisation – includes a measure to prevent the riskiest products from being advertised online.

3.2.2. Offerings of atypical investment products are on the increase

Furthermore, offerings of atypical investment products such as renewable energies, wines, diamonds and artworks seem to be on the increase. In particular, a rise in the number of offers to invest in rare earths, precious metals and diamonds was observed in late 2015 and early 2016. In this respect, instances of malpractice by some intermediaries in miscellaneous property have been noted, including misrepresenting a product by stressing a high yield while minimising the risk of loss, highlighting a non-existent principal guarantee, and, in the case of some sites, totally defrauding investors. Advertising for these atypical investments is regulated by the Hamon Act of 17 March 2014; the AMF does not examine these adverts beforehand, only after the fact in certain cases. The examination focuses solely on compliance with the criteria laid down in the Markets in Financial Instruments Directive concerning marketing materials, notably whether the information on risk and expected performance is properly balanced. Furthermore, the AMF has no powers of sanction over firms that propose investments in atypical products but do not offer a management service. These firms are overseen by the DGCCRF, the government department responsible for competition, consumption and fraud prevention, which may issue formal notices and administrative penalties.

3.3. The spread of digital offerings creates opportunities and dangers

3.3.1. Advantages of digital development

Internet expansion has inherent advantages for consumers because it lowers distribution costs and fosters new offerings aimed at savers. Thanks to new online subscription possibilities, savers have a wide choice of easily accessible service providers and an extensive range of investment solutions. They also have greater access to information about products and to comparative data; as a result, they rely increasingly on the internet to manage their savings and go less frequently to their bank. A survey for the French Banking Federation[83] has found that 62% of respondents visited their bank branch several times a month in 2007, compared with 21% in 2015.

Theoretically, new technologies make it easier for professionals and savers to interact with each other and allow for systematic use of questionnaires before any advice is provided. Digital questionnaires have been standardised, resulting in a uniform degree of quality. They can also be monitored more easily: digitisation improves both traceability and storage of the information provided. New technologies can also make it easier to keep in touch with clients and update their personal details, thus preventing the risk that products will be mis-sold due to lack of recent information about a client's situation.

[83] An annual opinion survey is conducted by BVA for the French Banking Federation among 1,000 French respondents aged 15 and over.

3.3.2. Risks of digital development

Despite the advantages, online questionnaires have their limitations because information is mostly self-reported. Likewise, as recent online mystery shopping visits have shown, some firms have no mechanisms for double-checking answers; and, in some cases, clients are encouraged to alter their answers in order to access risker products that do not match their original profile[84].

The rise of digital platforms could increase the risk of misallocation

Savers may also be under a misapprehension: just because products are easy to access does not mean they are simple. The risk is that complex products could be offered to anyone, whereas only seasoned investors are able to understand them and the risks they entail. In particular, the least financially literate consumers could be more exposed than others to the risk of misunderstanding or mis-selling. And when they go online, consumers may easily react hastily and impulsively because they are unable to step back and think their actions through.

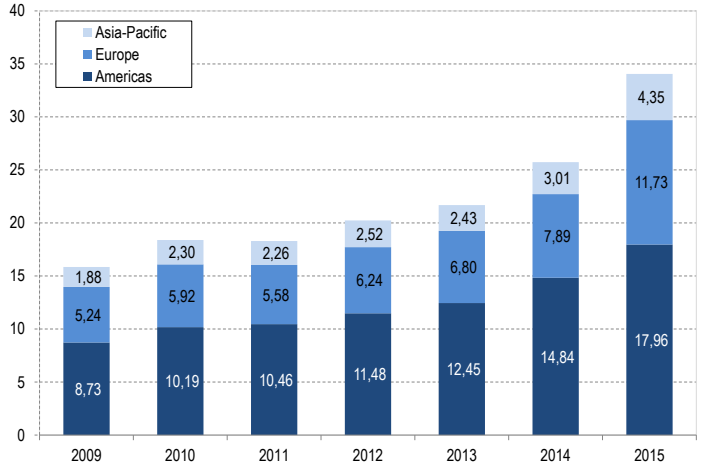
[84] For more details, read the AMF's 2015 Risk and Trend Mapping (pages 73-75): http://www.amf-france.org/en_US/Publications/Lettres-et-cahiers/Risques-et-tendances/Archives.html?docId=workspace%3A%2F%2FSpacesStore%2F0f6ebd5e-6c42-4a59-9a65-04ff1fdf1ac9

CHAPTER 4: COLLECTIVE INVESTMENT

4.1 Significant growth in assets in 2015, driven by Europe and emerging countries

The past two years have seen a significant increase in assets in collective investment at the international level. Accommodative monetary policy and banks' reduced debt leverage following the financial crisis, together with stricter banking regulation, have contributed to this trend by prompting the development of other financing vehicles. Assets invested in collective investment vehicles (including funds of funds) internationally reached EUR 37,000 billion at end 2015, up 12% year on year[85]. This growth in assets under management was mainly driven by significant net inflows (almost EUR 2,000 billion), mainly into equity funds[86] and money market funds[87]. Inflows into bond funds were lower than the previous year at EUR 7,500 billion, highlighting the role of the decline in bond yields (see Chapter 1). This increase in assets automatically entails stronger interaction between funds' or underlying investors' investment decisions and the market.

Figure 47: Global assets in collective investment funds (excluding funds of funds)
(EUR trillions)

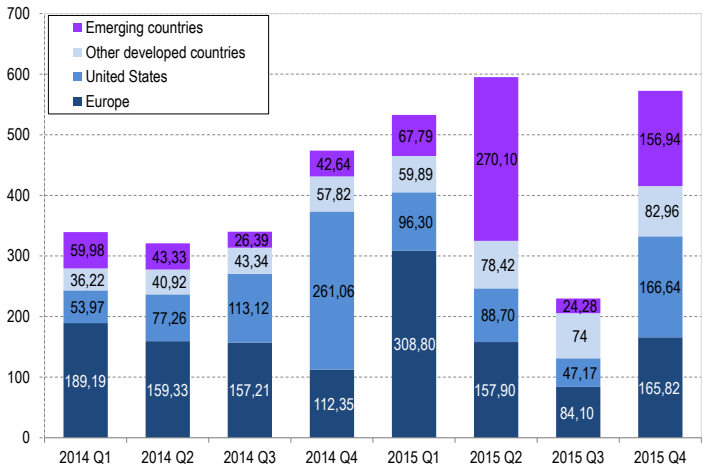


Source: EFAMA.

In 2015, international inflows were driven more by emerging countries, which accounted for 26% of the EUR 1,970 billion in net inflows (compared with 12% in 2014) (Figure 48).
In the United States, the year-on-year decline in inflows (down 21% to EUR 398 billion in 2015) was driven by lower inflows into equity funds as well as net outflows from money market funds in the first half of the year. The asset management sector also reacted in 2015 to significant uncertainty on equity markets during the summer, with inflows in the third quarter only half the quarterly average for the full year.

[85] This growth was not affected by any exchange rate effect: annual growth in dollars was comparable to that in euros.
[86] The steady rise in the price of international equities favoured inflows from international investors.
[87] Driven by the persistent appeal of this low-performance liquid investment compared with holding cash at times of negative money market rates.

Figure 48: International net inflows into collective investment funds
(EUR billions, including funds of funds)



Sources: EFAMA, AMF.

In the euro area, assets in collective investment have also increased notably since 2009, more than doubling from EUR 4,500 billion to over EUR 10,300 billion at end 2015 (up 131%). According to the ECB[88], the sector grew by 30% over the period once the effects of valuation and statistical reclassification are excluded. Moreover, 2015 saw record inflows of EUR 725 billion, up 16% relative to 2014, mainly driven by buying activity by "long-term" UCITS (equity, bond and mixed funds), which garnered EUR 496 billion in the year[89].
Meanwhile, the French collective investment market saw assets under management grow 4.5% in 2015, up EUR 61 billion (excluding securitisation vehicles) to once again exceed EUR 1,400 billion[90].

[88] ECB (2015), "Report on Financial Structures", October.
[89] EFAMA (2016), "Trends in the European Investment Fund Industry – Results for the Full Year of 2015", February.
[90] See the AMF's 2015 Annual Report.

Box 15: Impact of Brexit on collective investment in Europe

As regards collective investment, the main impact will concern new terms for the cross-border marketing of UCITS and AIFs. While British managers could distribute their funds in Europe under the European marketing passport (and, conversely, European funds could distribute their funds in the United Kingdom), this possibility will no longer apply once the United Kingdom leaves the European Union. For the time being, the extent of such cross-border trade appears modest. At end 2014, the United Kingdom accounted for 8% by number of European funds distributed in another European country[91]. In France, while the United Kingdom was the number two country in terms of the number of incoming AIFs and number three for incoming UCITS at end 2015, the total was a mere 339 funds – less than 3% of the total number of funds marketed in France. As regards exports of French funds, the United Kingdom is the number four distributor of UCITS (9% of French outward marketing passports in Europe), but only number six for AIFs (7%), with a total of 195 French funds marketed in the United Kingdom at end 2015.

For both British funds sold in Europe and European funds sold in the United Kingdom, the United Kingdom's exit from the European Union poses a problem given the absence of a European marketing passport scheme for "third countries" in the investment management sector, under which the United Kingdom could be eligible for a European marketing passport. While such a scheme is provided for in the AIFM Directive, it has yet to be activated; and the UCITS Directive provides for no such arrangement.

As such, European funds will only be able to be marketed in the United Kingdom if they comply with the British private placement rules.

For British AIFs, managers will probably have to initially rely on the private placement marketing rules, although these only apply to professional clients. Subsequently, if and when the AIF third country passport comes into effect, British AIF managers will be eligible for it and will be able to market their AIFs (whether British, European or third-country) in Europe to professional clients. To do so, they will first need to obtain a licence in a reference Member State, comply with all the provisions of the AIFM Directive and have a legal representative in Europe.

For UCITS funds, in the absence of third country rules, British managers will no longer be able to distribute their funds in Europe and European managers will no longer be able to distribute UCITS funds in the United Kingdom. They will be forced to turn to the private placement regime. Some will be able to opt to convert their UCITS into AIFs and distribute them – subject to the extension of the third country passport – to European professionals. In this context, it is also important to note that British UCITS funds will lose their UCITS status, which can constitute an internationally recognised mark of confidence. Moreover, European managers will continue to comply with the investment ratios laid down in the UCITS Directive, under which funds may not invest more than 30% of their portfolios in non-UCITS funds: this provision will have the effect of limiting European funds' investments in British funds.

The private placement regime – currently the only possible marketing solution – is specific to each Member State. It would therefore not be possible to have a marketing regime between Member States: a British fund, once licensed, could only be marketed in the Member State that had delivered the licence. British managers will be forced to open a branch in Europe, which will then be able to delegate head office portfolio management (subject to compliance with the provisions of the relevant directive concerning delegation – UCITS V or AIFM) to a non-European manager. They will therefore find themselves in a similar situation to American managers, which is more expensive and entails an additional administrative burden.

Finally, British European long-term investment funds (ELTIFs) would no longer be able to be distributed in Europe and vice versa[92], since this label is only accessible to AIFs governed by European law.

Low interest rates prompt funds to take risks

The low interest rate environment gives rise to three types of risk for the asset management industry: liquidity risk linked to the possibility of investors reallocating their funds between different asset classes and pulling out of bond funds; risk linked to the possible distortion of portfolio structures within each fund towards higher yields and a higher risk profile; and portfolio valuation and liquidity risk. While the search for yield is the usual objective of

[91] PricewaterhouseCoopers (2015), "Benchmarking your global fund distribution".
[92] It should be noted that in May 2016, there were as yet no British ELTIFs.

financial system participants, it becomes undesirable whenever managers' risk appetite exceeds their investment objectives and such portfolio reallocation, by virtue of its scale, contributes to downward market pressure. In their quest for more profitable investments, investment funds could contribute to the formation of excessive market valuations.
Funds can search for yield by, for example, lengthening the duration of bond or money market funds (within the confines of regulatory constraints), selecting lower credit quality issuers (high-yield bonds, emerging country corporate securities, etc.) or increasing their leverage by using derivatives or lending securities. This portfolio distortion can be a major risk factor in the event of a market downturn. However, among the fund portfolios observed, it remains difficult to distinguish movements resulting from the search for yield from managers' usual optimisation behaviours. Furthermore, within a given portfolio, it is impossible at this stage to differentiate a deterioration in the credit rating of assets held from a deterioration arising from purchases of assets with a lower credit rating.

The AMF's supervision, based on the requirement for a specific programme of operations to be submitted for prior authorisation, allows it to observe some of these phenomena. Managers wishing to use new asset classes or investment processes must notify the Authority in advance.

For example, CoCos are increasingly in demand among investors searching for yield, since they offer attractive returns upon issue due to their level of subordination and the significant risk of capital loss they carry (see Chapter 1). However, the difficulties observed in this market this year, caused by the contingent convertible bond index stalling in February and losing 8% as a result of the difficulties encountered by certain German, Italian and Portuguese banks, show that these bonds can be subject to unexpected valuation movements. Furthermore, given the lack of standard terms for activating absorption mechanisms and standard absorption types, CoCos are hard to value and carry risks that are difficult for retail investors to grasp[93].

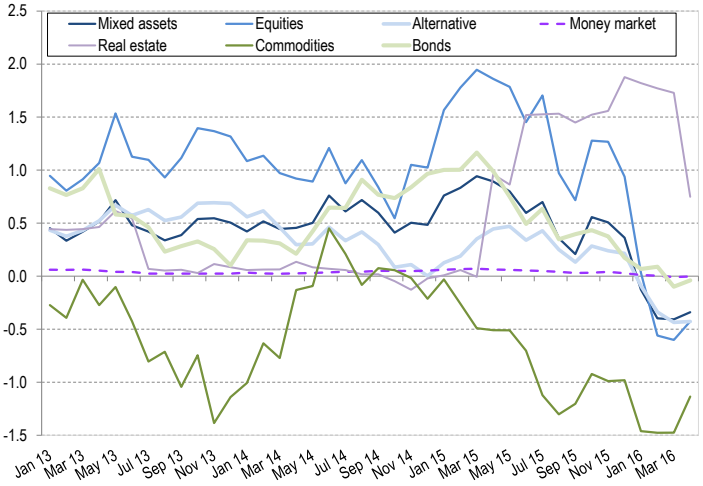
A few French management companies have opted to invest in CoCos on behalf of their collective investment schemes. Although CoCos can behave like standard bonds in conditions very far from those under which loss absorption is triggered, they should not be considered as standard bonds lest their complexity, and therefore the associated risk, be underestimated. In this regard, the AMF will be vigilant to ensure that affected management companies have in place appropriate risk management arrangements and skills.

The volatility and decline in the performance of collective investment have raised fears of liquidity risk

The impact of market movements on collective investment was particularly visible in 2015. In the second half of the year, equity market corrections in August and the decline in commodity prices had very serious repercussions on the performance[94] of funds invested in equities and commodities. The performance gap between different types of funds also narrowed, and performance declined across all asset classes in the second half of 2015 before picking up again in the first quarter of 2016 (Figure 49).

[93] One of the unanticipated risks is the possibility that holders of CoCos might be forced to shoulder losses before the bank's shareholders, without having the same rights. Some of these investors henceforth expect to be involved in discussions between the board of directors and the regulator in the event that a bail-in process is initiated. See Jankins P. (2016), "Bank bondholders need rights like shareholders", The Financial Times, 18 April. This situation could give rise to potentially costly legal-financial conflicts between holders of CoCos and shareholders. See Demartini, Garrau and Rocamora (2014), "*Les évolutions récentes du marché des Contingent Convertible bonds*" ("Recent changes in the market for contingent convertible bonds"), *Lettre économique et financière* 2014-3.
[94] Performance is defined as the change in a fund's net asset value, including current charges but not including entry or exit charges.

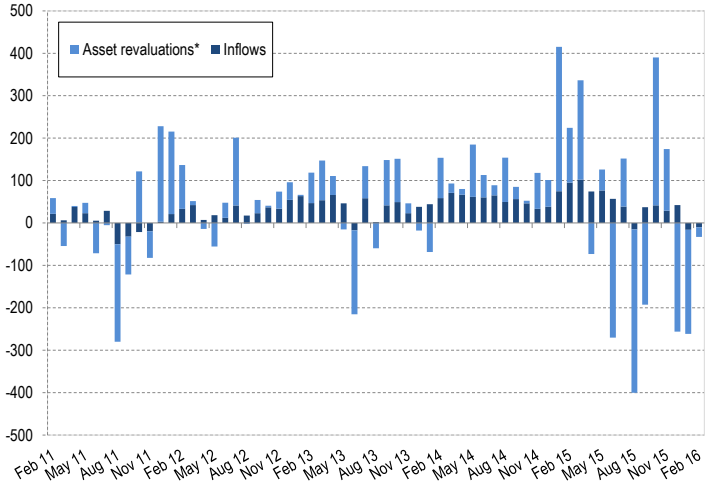
Figure 49: Weighted performance of the main asset classes held by European funds (%)



**Note: Performance here means the annual averages of the weighted monthly performance of assets under management.*
Sources: Lipper, AMF.

Another key feature of 2015 was very strong portfolio revaluation effects within the euro area, reaching record levels. These changes could be seen in movements driving changes in fund assets: while inflows remained relatively stable, upward and downward fluctuations in the valuations of portfolio assets (due to market effects) were particularly large last year, and especially in summer 2015, as well as more recently (Figure 50).

Figure 50: Euro area portfolio valuations and inflows (excluding money market funds) (EUR billions)



**Asset revaluation effects include changes in the price of assets held, foreign exchange effects and the effects of statistical reclassifications.*
Sources: ECB, AMF.

The volatility of European funds (volatility in their performance, valuations and inflows), combined with their increasing interconnection, could endanger funds' ability to meet redemption requests. This risk of a liquidity mismatch can be particularly significant for funds that offer daily liquidity by investing in less liquid assets such as bond funds, and especially those that invest in the least liquid markets[95]. This liquidity risk, combined with potentially lower liquidity in certain vulnerable markets, can amplify the risk of an upturn in market risk premia.

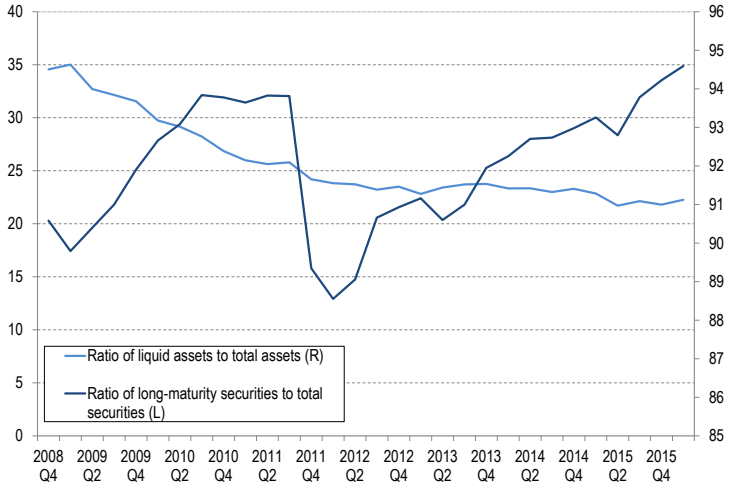
Indeed, bond market liquidity is increasingly raising concerns within the financial community (see Chapter 2.3). In the event of a shock, the systemic effects of bond funds could amplify

[95] ESMA (2016), "Report on Trends, Risks and Vulnerabilities", no. 1.

the shock and destabilise price dynamics if investor redemption requests were to result in fire sales, affecting the operation of bond markets and issuer funding. Within the euro area, liquidity and maturity transformation in bond funds has continued to increase since 2011 (Figure 51). These funds, which are structurally invested in long-term assets, in line with their investment policies, have slowly increased their holdings of long-term assets, reaching 94.6% of total securities held in the first quarter of 2016, and decreased their holdings of liquid assets. Although this decline in holdings of liquid assets plateaued in 2015, concerns remain over the ability of these funds to meet potential redemption requests in the event of an unexpected rise in interest rates.

Figure 51: Maturity and liquidity transformation by euro area bond funds

(%)



**Note: Liquid assets consist of euro area sovereign bonds and deposits and loans to euro area financial institutions. Long-maturity securities are bonds with maturities of greater than two years.*
Sources: ECB, AMF.

Furthermore, euro area funds' exposure to economies outside the area has increased since 2009, on both the asset and the liability side (48% of securities held and 27% of securities issued in 2015, compared with 39% and 19% respectively in 2009). This exposure to non-European economies heightens the risk of international market movements being propagated. While the increasing role of collective investment in credit intermediation[96] helps diversify financing of the economy, particularly welcome in Europe[97], the ECB has warned against the increased risk of contagion from stress within the sector to the real economy. However, in its recent report on financial stability, it still assesses this risk as "potential" – the lowest rating on its risk scale[98].

[96] At end 2015, euro area investment funds held EUR 1,200 billion in loans to euro area financial institutions, EUR 950 billion in loans to euro area governments and EUR 330 billion in loans to companies.
[97] Langfield, S., and M. Pagano (2016), "Bank bias in Europe: Effects on systemic risk and growth", Economic Policy, 31(85): 51-106.
[98] ECB (2016), "Financial Stability Review".

Box 16: Tools for managing liquidity risk in the asset management industry

The liquidity risk of a collective investment undertaking is the risk that a position in the portfolio might not be able to be sold, liquidated or closed out at limited cost and within a sufficiently short timescale, thus compromising the undertaking's ability to comply at all times with the obligation to redeem units at the request of unitholders and with contractual obligations arising from an investment management agreement.

The FSB recently put out to public consultation recommendations relating to structural vulnerabilities in the asset management sector[99], mainly concerning the management of liquidity risk for open-end funds and their use of leverage.

As regards the management of liquidity risk, the FSB's recommendations build on the principles published by IOSCO in 2013[100] and call for IOSCO to continue its work in a number of areas, such as preventive liquidity risk management measures and the provision of tools to managers for such purposes.

More specifically, the following is proposed for open-end funds:

- That data collection and investor disclosures be increased and improved so as to provide an exhaustive, cross-cutting view of areas of risk (recommendations 1 and 11);
- That closer alignment between fund assets and liabilities be favoured so as to limit liquidity transformation (recommendation 3);
- That participants be given access to a broad range of liquidity management tools to cater for various stress scenarios and increase the likelihood of being able to honour redemption requests. In particular, authorities should authorise funds to make use of swing pricing (a mechanism for adjusting a fund's net asset value) or an equivalent mechanism, so as to reduce the risk of large-scale redemptions associated with the phenomenon of first mover advantage (recommendations 4 and 5);
- That managers be encouraged to carry out regular stress tests (recommendation 6);
- That managers be encouraged to establish a robust and clear governance framework, in particular with regard to the activation of extraordinary liquidity management tools (such as suspension of redemptions), and that continuity plans be in place in the event of severe crises (recommendations 7 and 8).

The AMF considers these recommendations a step forward; it is now a question of assessing the extent to which they call for a change in the French liquidity risk management framework.

This framework is built around the core principle that managers must be able to honour investors' redemption requests, implying that they must have in place an appropriate risk management system enabling them to meet this requirement. To this end, it is critical that key characteristics (strategy, size, types of liabilities, net asset value frequency, etc.) be correctly calibrated when a collective investment undertaking is formed. Risk management arrangements must also be appropriate to redemption obligations on the liability side; this may, for example, mean putting in place internal investment limits and alert thresholds specific to the strategy in place. In particular, the net asset value frequency must be appropriate to the estimated liquidity of assets.

Beyond this key principle, European regulations provide for various measures for reducing the liquidity risk to which funds might be exposed, through the UCITS Directive (asset diversification) [101] and the AIFM Directive (ex ante risk management)[102].

In addition to these European provisions, the French regulatory framework provides for a number of additional measures per product type.

To facilitate ongoing liquidity management throughout the life of a fund, with effect from 2013 French management companies can, after notifying the AMF, put in place mechanisms to adjust the redemption price depending on the liquidity of assets, such as swing pricing. In France, these tools are used by a number of managers, for a selection of funds defined on the basis of potential valuation differences on the underlying securities, and ensure that remaining investors are not disadvantaged in the event of significant redemptions. Furthermore, in the near future the AMF is to publish best practice on stress tests for management companies.

[99] FSB (2016), "Proposed Policy Recommendations to Address Structural Vulnerabilities from Asset Management Activities".
[100] IOSCO (2013), "Principles of Liquidity Risk Management for Collective Investment Schemes".
[101] The UCITS Directive lays down a number of constraints in terms of diversification and concentration ratios, which help reduce funds' liquidity risk by limiting their exposure to a single issuer, as well as restrictions on eligible assets that limit funds' investments in illiquid assets. These measures are together intended to ensure that UCITS funds fulfil their obligation to meet unitholders' redemption requests.
[102] The AIFM Directive requires management companies to put in place robust risk management systems that are appropriate to their funds' strategies and to carry out regular stress tests. Such tests enable management companies to better measure changes in the level of risk they carry so that, where necessary, they can take corrective action to avoid a crisis.

Where liquidity conditions have deteriorated significantly, the use of mechanisms to limit redemptions[103] can, where permitted by law and provided for in fund documentation, limit the extent of the crisis and allow it to be resolved in the interest of unitholders. The AMF is currently working on the possibility of extending mechanisms to partially cap redemptions of units or shares (known as "gates") to all French funds[104]*. Other avenues will also be explored so as to comply with the international recommendations.*

If a specific market segment deteriorates, management companies may, after obtaining agreement from the AMF, create "side pockets" within a fund – i.e. set aside (in a specially created fund) illiquid and very hard-to-value assets. This solution makes it possible to treat all unitholders fairly by allocating them units in the new illiquid fund.

Finally, in the event of an exceptionally severe crisis, a management company or the AMF may decide to temporarily suspend some or all redemptions of units or shares of a collective investment undertaking.

4.2 Particular vigilance with regard to money market funds

There are two sources of concern in relation to money market funds: first, the extremely low interest rate environment, which calls into question their economic model; and second, uncertainty over the impact on their economic model of the future final European agreement.

A higher level of vigilance is therefore called for at the European level as regards the money market fund industry. Money market funds play a critical role in financing the economy in the short term, particularly for euro area financial institutions. Within the European Union, although they represent only 1% of the total financial sector[105], they are at the heart of short-term transactions, on the one hand offering investors an investment similar to deposits (for managing surplus cash), and on the other hand providing short-term funding for institutional investors, financial institutions and public authorities. With European money market funds substantially invested in euro area financial institutions (70% of their assets), any threat to their economic model could be detrimental to bank financing. Market stress or large-scale withdrawals could trigger contagion to the real economy[106]. In France, however, money market funds have reduced their exposure to French financial institutions, halving their investments in value terms since 2008 (from EUR 288 billion to EUR 147 billion in 2015) from 60% to 47% of their total assets.

In spite of near-zero yields, assets under management have risen at both the French and European levels

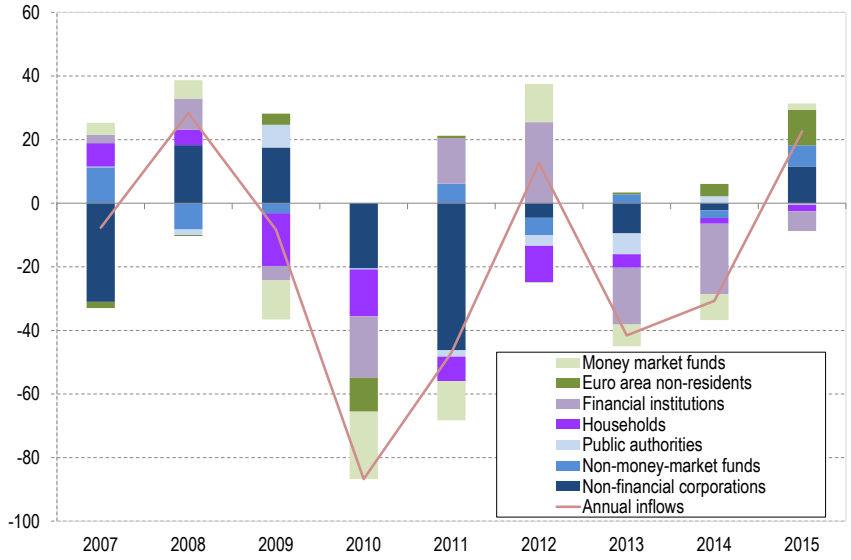
After declining for 19 consecutive quarters since 2009, assets held in European money market funds have once again been increasing since 2014. European assets under management totalled EUR 1,088 billion at end 2015, almost EUR 150 billion more than at end 2014 and close to the level seen in 2008. Assets under management in France have also continued to grow, up from EUR 316 billion in 2014 to EUR 343 billion in 2015.

This momentum indicates persistent demand for short-duration liquid products and for cash investments via diversified vehicles, including when yields are low. Part of the recent increase in European inflows is linked to euro area companies which, faced with negative bank deposit rates, prefer to invest in money market funds, including low-performing funds[107]. This phenomenon can be seen in France, where recent inflows have mainly been driven by non-financial corporations, other collective investment undertakings and non-

[103] To meet significant redemption requests and where liquidity conditions have deteriorated significantly, a fund can be forced to immediately sell off its assets, potentially to the detriment of the remaining unitholders. The option for the manager to cap redemptions makes it possible to avoid this situation and phase both redemptions and asset sales over time.
[104] This possibility is already provided for in the case of alternative funds of funds and professional investment funds.
[105] ECB figure based on the financial accounts of the euro area financial sector and European Union Member States, estimated to total EUR 105,000 billion in the third quarter of 2015.
[106] European Supervisory Authorities (2016), "Joint Committee report on risks and vulnerabilities in the EU financial system", March.
[107] ECB (2016), "Financial Stability Review".

residents, who see in money market funds an opportunity to invest unused cash, rather than investing in longer-maturity investments (temporary allocation) (Figure 52).

Figure 52: Investment flows by agent and annual inflows into French money market funds
(EUR billions)

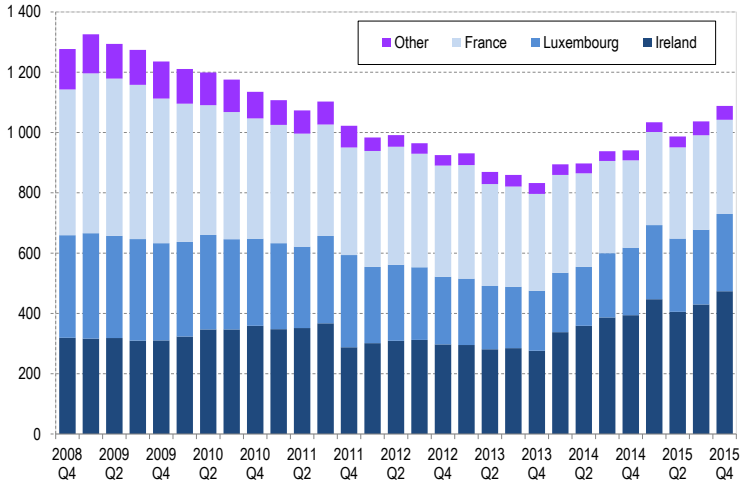


Sources: Banque de France, AMF.

Growing market share of money market funds less focused on the euro area

The euro area market is concentrated around three countries that together account for more than 95% of the assets held in money market funds in the area. Over the years, concentration in the market for money market funds has shifted towards Ireland, a market traditionally focused outside the euro area and dominated by dollar-denominated money market funds. Assets in French money market funds represented 38% of total such assets in the euro area in 2008; today, they represent only 29%. Luxembourg's market share has also decreased (from 27% in 2008 to 24% in 2015), as has that of other euro area countries with money market funds (from 10% to 4% over the same period). At end 2015, Ireland accounted for 44% of assets in money market funds in the euro area (Figure 53). This market trend gives rise to concentration risk (due to less diversification of participants and portfolios and concentration of credit risk) that could amplify any downturn in the sector.

Figure 53: Change in assets held by euro area money market funds
(EUR billions)



Sources: ECB, Central Bank of Ireland, Banque Centrale du Luxembourg, Banque de France, AMF.

Buoyant investment in Irish – and, to a lesser extent, Luxembourg – money market funds can be partly explained by their appeal to investors located outside the euro area. A striking feature of Irish and Luxembourg funds is that they are mainly focused outside the euro area on both the asset and the liability side, and denominated in foreign currencies (the dollar and sterling). In Ireland, 55% of their assets and 83% of the securities they issue are placed or purchased by investors outside the euro area – a proportion that has held steady over time. Luxembourg money market funds also place 49% of their debt securities outside the euro area. Conversely, French money market funds' non-euro area exposure remains low on both the asset and liability sides (20% and 11% respectively), though it is rising (Table 4). Another distinguishing feature of Luxembourg and Irish money market funds is that they are mostly built on the model of constant net asset value (CNAV) money market funds[108].

Table 4: Change in asset and liability exposure of euro area money market funds

		Asset, % of total asset		Liabilities, % of total liabilities	
		2010	2015	2010	2015
France	Euro area	90%	80%	96%	89%
	Non euro area	10%	20%	4%	11%
Ireland	Euro area	27%	23%	18%	15%
	Non euro area	60%	55%	81%	83%
Luxembourg	Euro area	40%	32%	-	-
	Non euro area	38%	49%	-	-

Sources: ECB, Central Bank of Ireland, Banque Centrale du Luxembourg, Banque de France, AMF.
Note: Liability data for Luxembourg funds are not available by counterparty nationality. For Irish and Luxembourg funds: on the asset side, in addition to euro area and non-euro area securities, other assets such as securities (loans, fund units) are included in the 100% total; similarly, on the liability side, debts to credit institutions and other liabilities are also included in the 100% total.

Assets held by European CNAV funds declined in the early part of the year due to a decline in inflows into dollar-denominated CNAV funds partly resulting from changes in US monetary policy[109]. Assets under management in European CNAV funds thus totalled EUR 525 billion in the first quarter of 2016, down 10% relative to end 2015[110].

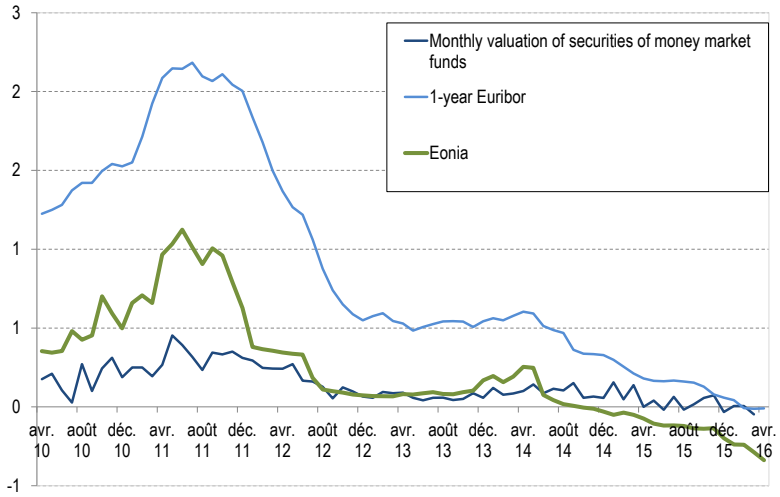
[108] There are two net asset value (NAV) models for money market funds. The net asset value of variable net asset value (VNAV) funds fluctuates daily in line with the value of securities in the portfolio. Constant net asset value (CNAV) funds show a constant net asset value (USD 1 or EUR 1), supposedly allowed for by the regular distribution of revenue and the use of amortised cost accounting to smooth performance.
[109] In 2015, expectations of a US rate hike had attracted foreign investors; when the Fed signalled in December that this rise would be deferred, those investors withdrew their temporary allocations.
[110] Fitch (2015), "European MMF Quarterly – 4Q2015", Fitch Ratings.

A low interest rate environment unfavourable to the economic model of money market funds, leading to particular concerns over constant net asset value funds

Because these funds have invested on the money markets and in short-maturity bonds (sovereign and corporate), their performance has been directly affected by the new environment of low interest rates (such as Eonia and Euribor[111]*). In particular, the ECB's monetary policy ties money market rates to the deposit facility rate, and therefore in negative territory (see Chapter 1).*

Unable to boost their returns by investing in riskier assets as a result of obligations[112] concerning the make-up of their portfolios, money market funds are thus forced to see their returns decline (Figure 54). Some European managers have opted to cut management fees rather than see performance suffer.

Figure 54: Change in valuation of securities held by French money market funds and money market rates
(%)



Note: The valuation of securities held is the change in the fund's net asset value.
Sources: ECB, Banque de France.

As emphasised by the BIS[113], the funds most likely to suffer as a result of negative interest rates are European CNAV funds: while VNAV funds can reduce their net asset value in response to lower than expected interest rates, CNAV funds must keep maintain a constant net asset value on a daily basis. Some choose to circumvent this constraint by destroying units in proportion to the reduction in their value as a result of negative interest rates[114]. This mechanism means these funds are no longer managing to keep their net asset value within the required range, raising fears that their risk is not properly assessed, and that this is not taken into account by rating agencies. The risk of investors not being properly informed of the possibility and extent of losses to be expected is also exacerbated, and this can prompt withdrawals from these funds during periods of stress, reinforced by the first mover advantage intrinsic to the very structure of CNAV funds.

[111] The Euro Interbank Offered Rate (Euribor) is the interbank interest rate offered between top-tier banks for euro area deposits. The Euro Overnight Index Average (Eonia) is the weighted average of all overnight unsecured lending transactions conducted by those banks included in the calculation of Euribor.
[112] The residual maturity of each security in a money market fund's portfolio may not exceed two years for standard money market funds and 397 days for short-term money market funds, and the weighted average maturity of securities held may not exceed 12 months (and even 6 months for floating rate instruments). (These thresholds are 120 days and 60 days respectively for short-term money market funds.)
[113] Linnemann Bech M. and A. Malkhozov (2016), "How have central banks implemented negative policy rates?", BIS Quarterly Review, March.
[114] The amortised cost accounting used by CNAV funds entails risks: at times of stress, declines in the valuation do not translate into a reduction in the fund's net asset value, leaving the fund artificially overvalued. If the market value of the underlying assets declines, these funds do not provide their unitholders with any transparency as to the conversion value they might obtain. They are authorised to maintain a constant net asset value within a fluctuation range of 50 bps. These funds are therefore liable to sudden drops in value when the amortisation mechanism reaches its limits (known as "breaking the buck").

According to the BIS, it is therefore logical for European CNAV funds to opt to become VNAV funds. France has no CNAV funds, only VNAV funds that are marked to market daily, eliminating the risk of valuations being disconnected from the market. However, it remains exposed to the risk of shocks to the sector that might occur in Europe.

Increased liquidity risk and maturity risk in European money market funds

At the European level, the average weekly liquidity of European money market fund portfolios is more or less stable (they consist of 43% highly liquid assets[115]). However, they need this liquidity to cater for a high degree of volatility in investor redemption requests, which accelerated in the first quarter of 2016, with some funds experiencing outflows of as much as 45% of their assets in one week[116]. Up to now, funds have been able to meet these redemption requests without distorting their risk profiles.

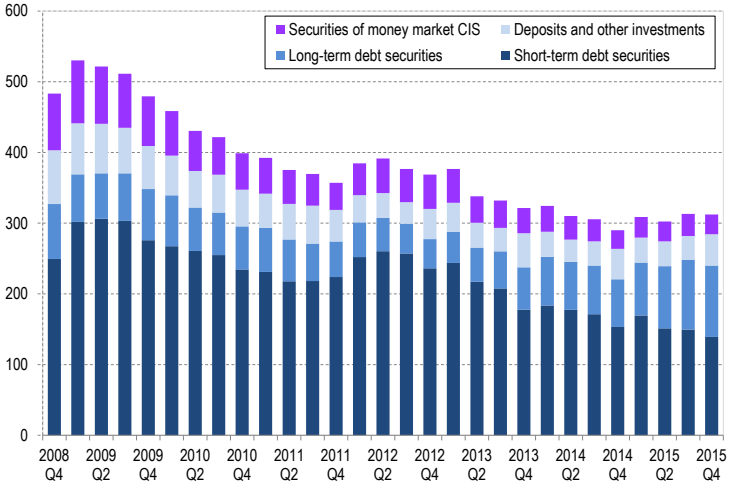
In France, maturities have also lengthened and sector concentration has accelerated. Money market yields have led investors to favour "standard" money market funds, with longer average portfolio maturities, over "short-term" money market funds[117]. The latter represented only 20% of total assets held by French money market funds at end 2015, compared with 50% at end 2012.

There has also been a shift in the investments made by French money market funds. In this low interest rate environment, they are making more use of longer-term debt securities (less than two years) at the expense of short-term debt securities: after representing 55% of their assets in the first quarter of 2015, the latter represented only 45% at end 2015. Conversely, long-term debt securities increased from 24% to 32% of French money market fund assets over the same period (Figure 55). The observed lengthening of investment periods means these funds are subject to a greater degree of maturity risk. This shift in portfolios should also be considered in light of the impact of banking regulations on the volume of short-term securities issued by banks, as a result of which short-term securities are in short supply on the market.

Finally, the number of money market collective investment undertakings fell 12% to 293 at end 2015, showing the beginnings of concentration in the French market to benefit from returns to scale at a time of low yields (0.18% for 2015).

[115] Seven-day liquidity.
[116] In 2015, one rating agency noted nine cases in which outflows from European money market funds rated by it exceeded 20% of assets; there were four such cases in the first quarter of 2016 alone. See Fitch (2016), "European MMF Quarterly – 1Q16".
[117] "Short-term" money market funds are characterised by additional constraints on the maturity of their investments.

Figure 55: Change in money market funds' investments in securities (EUR billion)



Sources: Banque de France, AMF.

US and European reforms expected to transform the market

The 2007-2008 financial crisis showed that CNAV money market funds had been able to fuel the illusion that investors were making a safe investment, while such funds in fact remained vulnerable to runs[118]. *Having invested in asset-backed commercial paper, their first losses in August 2007 were borne by their sponsors. However, when Lehman Brothers collapsed, US fund Reserve Primary Fund, faced with heavy redemption requests, found itself unable to keep its net asset value constant, contributing to the destabilisation of short-term funding markets and forcing public authorities to intervene.*

After an initial wave of reforms in 2010 in the United States[119] and Europe[120] aimed at clarifying the provisions applicable to money market funds, a second wave of reforms is underway to better control the risks likely to be posed to the stability of the financial system by money market funds. The United States adopted a reform in July 2014, which will fully apply to US money market funds in October 2016 (assets under management in May 2016: EUR 2,710 billion). This reform requires CNAV funds invested in corporate debt and offered to institutional investors (prime institutional, which accounted for 34% of total US money market fund assets in 2014) to be converted to VNAV funds, and the remaining CNAV funds, including those distributed to retail investors, to introduce fees and gates to address the risk of runs. Only government money market funds[121] *were exempted from these measures (they represented 45% of total US money market fund assets in 2014).*

In anticipation of the implementation of these regulations, a move to reclassify prime institutional money market funds as government funds is already apparent. Total assets held by the latter increased by 8% (USD 92 billion) between December 2015 and May 2016, while assets held by money market funds aimed at institutional investors declined by 13% (USD 110 billion) over the same period. This market redistribution will likely continue until the reform is introduced. One can also expect funds to be withdrawn from CNAV money market funds and moved into other types of funds with fewer restrictions on portfolio maturity (ETFs, short-term bond funds, liquidity funds, etc.), bank deposits and discretionary investment management accounts.

[118] McCabe P. (2010), "The Cross Section of Money Market Fund Risks and Financial Crises", Federal Reserve System Working Paper No. 2010-51.
[119] SEC (2009), "Money Market Fund Reform".
[120] CESR (2010), "CESR's Guidelines on a common definition of European money market funds".
[121] The SEC defines a government money market fund (MMF) as an MMF whose assets consist of more than 99.5% government securities or securities issued by a US federal agency, cash or repo transactions fully collateralised by cash or government securities.

For US CNAV money market funds, with the switch to transparent daily net asset values encouraging money market fund managers to favour the least risky investments in order to minimise associated volatility, portfolios can be expected to shift towards more conservative investments. For other money market funds, the desire to avoid the requirement to introduce gates should lead them to do likewise (shorter portfolio durations, and a higher level of liquid assets). Although the US money market fund market is significantly different from the European market[122], these changes will directly affect the European market via the dollar financing of European – and particularly French – banks.

Box 17: Update on the European reform of money market funds: a major step forward on the way to European regulations, but risks remain

In 2012 and 2013, IOSCO[123], together with the European Systemic Risk Board (ESRB)[124], published recommendations aimed at making money market funds more resilient, emphasising the need to introduce a regulatory framework that would guarantee the security and stability of financial markets. These recommendations aimed to strengthen all money market funds, as well as pushing for a requirement that, as far as possible, CNAV funds adopt variable net asset values so that their net asset value is directly related to their market value and thus reflects fluctuations in the instruments they hold; failing that, it was recommended that provisions be introduced to control the risks specific to such funds.

Taking into account these recommendations, in September 2013 the European Commission published a proposed text aimed at strengthening the regulatory framework applicable to all European money market funds, including both CNAV and VNAV funds. The proposal included a number of measures relating to eligible assets, investment and transparency rules, liquidity management and valuation rules[125]. Regarding CNAV funds, the Commission proposed a capital buffer of 3% of assets, without which funds would be forced to switch to variable net asset value.

In April 2015, the European Parliament adopted a revised proposed text that differed from the European Commission's initial proposal in a number of respects and was inspired by the reform adopted by the US regulator, the SEC, in summer 2014. In particular, the European Parliament did not retain the 3% capital buffer proposed by the European Commission. MEPs restricted use of the CNAV model to two new categories of funds absent from the typology of European money market funds: funds marketed to non-professional investors excluding consumers (charities, non-profits, public authorities, public foundations, etc.) and money market funds mainly invested in European public debt securities. Moreover, they proposed that a new type of fund be created with a five-year life span (through a sunset clause): low-volatility net asset value (LVNAV) money market funds[126]. They authorised CNAV and LVNAV funds to make use of redemption fees and/or suspend redemptions under certain circumstances. Besides these provisions, the Parliament's text also changed the general framework proposed by the Commission, for example in the areas of portfolio diversification and instrument eligibility rules, liquidity constraints and reporting requirements.

On 15 June 2016, the Council of the European Union ("the Council") adopted a proposed text introducing positions that differ from those of the Commission and the Parliament in a number of respects. In particular, with regard to funds with a constant net asset value, including both CNAV and LVNAV funds, the Council rejected both the 3% capital buffer and the five-year sunset clause for LVNAV funds. Conversely, it proposed that the universe of CNAV funds be limited purely to funds mainly invested in European sovereign debt, and that stricter limits be applied to the permitted volatility of LVNAV funds[127]. The Council also relaxed the liquidity ratios proposed by the Parliament for all money market funds. In a break from previous texts, it also authorised money market funds to

[122] Apart from the French special case of FCPE employee investment money market funds, there are no money market funds reserved exclusively for retail investors, which account for only a very small proportion of total assets held by European MMFs (4% in France and estimated to be less than 10% in Europe).
[123] IOSCO (2012), "Policy Recommendations for Money Market Funds".
[124] ESRB (2013), "Recommendation of the European Systemic Risk Board of 20 December 2012 on money market funds", 2013/C 146/01.
[125] The Commission was thus proposing to create a regulation based on the recommendations of the Committee of European Securities Regulators, which had clarified the definition of European money market funds in 2010, and to round out existing arrangements by adapting international recommendations to the European context. CESR (2010), "Common Definition of European Money Market Funds", (CESR/10-049).
[126] LVNAV funds could continue to use the amortised cost method to measure assets with maturities shorter than 90 days and show a constant net asset value within a maximum fluctuation of 20 basis points above or below the market value of their portfolios. Beyond this threshold, such funds would be required to allow their net asset value to fluctuate in line with the market values of the underlying instruments.
[127] The use of the amortised cost method would henceforth be reserved for assets with maturities of no more than 75 days, on the twofold condition that the linear value of each such instrument not diverge from its market value by more than 10 basis points and that its constant net asset value remain within 20 basis points above or below the market value of the portfolio as a whole.

seek a rating from rating agency. However, it maintained reporting requirements and the ban on sponsors. Finally, the Council amended the provisions applicable to portfolio diversification and instrument eligibility rules to take into account the depth and specific characteristics of the European market. European trilogues are set to kick off in the near future.

The AMF welcomes the outcome of the negotiations and the securing of a compromise facilitating the adoption of a common European reform. At this stage, however, this compromise does not fully address the challenges to financial stability posed by the CNAV and LVNAV money market fund industry. Only a reform that would ultimately require all money market funds to adopt a variable net asset value could reduce the risks inherent in the sector, namely the incentive for investors to withdraw suddenly – given the benefit of first mover advantage – and the continuing risk of confusion between CNAV funds and bank deposits.

4.3 Is the use of leverage by investment funds a reason for concern?

The nature of the risk arising from the use of leverage by investment funds

Investment funds can use leverage to increase their market exposure or secure additional returns. While the use of leverage cannot be considered an indicator of systemic risk as such, in combination with other factors it forms part of any overall assessment of sector risk. The example of US fund Long Term Capital Management (LCTM, 1998) demonstrates that excessive use of leverage, combined with a large fund size, poor liquidity management and more risky investments, can have an impact on systemic risk.

Leverage can be gained through borrowing ("real" leverage) but also by using derivatives or securities lending ("synthetic" leverage). As such, it is therefore a potential amplifier of systemic risk: since leveraged funds have greater risk exposure and are less able to absorb losses, an economic downturn can cast doubt on their repayment capacity. International and European institutions' current vigilance as to the use of leverage by investment funds is also explained by the fact that credit risk increases at times of low interest rates, with leverage facilitated by the low cost of borrowing.

And, while derivatives can be used to hedge such risk, synthetic leverage increases portfolio sensitivity to market fluctuations and increases the risk of both direct contagion (via counterparties) and indirect contagion (via their exposure). Finally, margining practices and the negative consequences of fire sales to meet margin calls or redemption requests during periods of stress can give rise to harmful pro-cyclical phenomena[128].

A robust European framework

Europe has an established restrictive framework defining and governing leverage. A majority of European investment funds are either constrained by regulations or operate without leverage.

Regulations applicable to UCITS lay down strict limits on leverage, irrespective of its source (borrowing or derivatives) and how it is calculated. Other funds, alternative investment funds (AIFs), are not subject to a regulatory quantitative limit, but must regularly notify the regulator of how much leverage they are using. Their leverage may be capped by the competent authority if it reaches a level that is deemed to present a risk to financial stability (Box 19).

In the United States, a draft reform concerning the rules on the use of derivatives by mutual funds has been put out to consultation by the SEC and should be completed in 2016[129]. *The*

[128] Chan N., Getmansky M., Haas S. and Lo A. (2007), "Systemic Risk and Hedge Funds, The Risks of Financial Institutions", eds. Mark Carey and Renee Stulz, University of Chicago Press, Chicago, IL, pp. 235-338.
[129] See SEC (2015), "Use of Derivatives by Registered Investment Companies and Business Development Companies", Release No. IC-31933. The FSOC

Financial Stability Oversight Council has also proposed a data collection effort to plug current gaps in the data used to estimate the use of leverage by alternative funds[130].

The FSB also recently issued recommendations relating to structural vulnerabilities in the asset management sector (see Box 16 on liquidity management tools)[131]. As regards leverage, IOSCO has been asked to develop a consistent and simple measure of leverage, together with risk indicators.

However, given the methodological disparities still present within the European framework (see box), it could be opportune to harmonise the procedures for using these methods under the UCITS IV and AIFM directives. Furthermore, the work to be kicked off further to the FSB's recommendations[132] could be an opportunity to initiate new discussions on how to improve and unify the existing methods.

Box 18: Different understandings of leverage within the European framework

To assess their aggregate risk exposure, the two types of European vehicle (UCITS and AIFs) may use two calculation methods.

(1) The commitment method is a measure of leverage arising from the use of financial futures, temporary sales or purchases of financial instruments (repos) and derivatives[133]. This exposure is the sum of the absolute values of:

- the individual commitments on each futures contract, offset against any hedging positions put in place, as the case may be;
- commitments on temporary sales or purchases of financial contracts.

In spite of adopting a similar approach, there are differences between the calculations used to assess a fund's exposure depending on the type of fund: UCITS need only take into account this amount, while for AIFs it is expressed as a ratio of this amount to the fund's net asset value. For AIFs, the commitment method also differs in that they have the option of using this net commitment method or the gross method, which consists in making the same calculation but excluding cash.

This means direct comparisons between UCITS and AIFs are not possible, even though the end goals of supervision and risk assessment are the same. These disparities are detrimental to the regulator's ability to assess the degree of leverage actually used in the asset management industry, as well as to investors' understanding of the risks and strategies associated with the various types of vehicles.

(2) If a fund uses complex or non-standard financial futures, it can also use the value at risk (VaR) calculation method, which can, in some cases, allow for more substantial leverage. However, this method also requires additional human and technical resources, prior notification of investors and the regulator, and an independent risk controller. This method does not strictly speaking measure leverage; rather, it measures a portfolio's potential loss over a period of time, for a defined confidence interval and assuming normal market conditions[134]*. This loss may be calculated in relative terms, i.e. in comparison to a reference portfolio, or in terms of absolute VaR, by comparing potential losses at a fixed threshold.*

[130] The Financial Stability Oversight Council is the US body responsible for financial stability and coordination between financial regulation and consumer protection bodies. See FSOC (2016), "Update on review of asset management product and activities", April.
[131] FSB (2016), "Proposed Policy Recommendations to Address Structural Vulnerabilities from Asset Management Activities".
[132] The ESRB, in cooperation with ESMA, is working on this subject within dedicated working groups.
[133] The concept of commitment consists in converting the position of each of these contracts into the market value of an equivalent position in the underlying asset. Conversion formulas for standard financial contracts are known and are often a function of the nominal value of the position multiplied by the level of the index. For non-standard contracts, particularly where they account for a non-negligible proportion of a UCITS portfolio, the AMF encourages the fund to use a more prudent technique (price of the futures contract or nominal value of the position).
[134] For UCITS, this VaR must be defined over a one-month period, with a 99% confidence interval.

Box 19: Control of leverage in European regulations

The UCITS and AIFM Directives impose constraints on the potential use of leverage by European funds.

As regards "real" leverage, UCITS cannot borrow more than 10% of their assets, and then only temporarily, and such amounts cannot be used for investment purposes. UCITS are also subject to constraints on their aggregate risk exposure and, in particular, their use of derivatives:

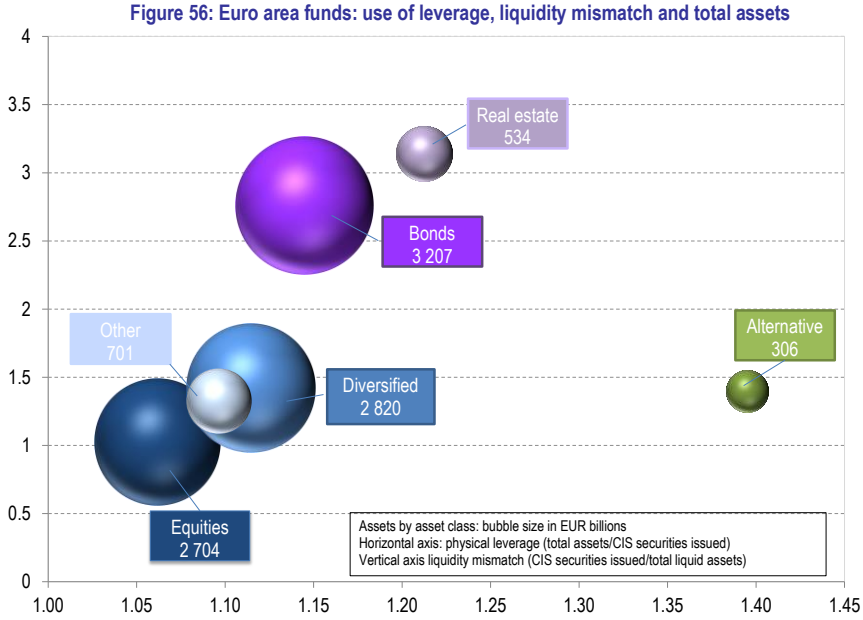
- Those that use the commitment method cannot be exposed beyond the net value of their portfolio: total leverage, obtained by adding together real and synthetic leverage, may not exceed 2.1 times net asset value.
- Those that use the VaR method may not be exposed to losses twice as high as a reference portfolio (relative VaR method) or losses exceeding 20% of the portfolio's net value (absolute VaR method).

AIFs are not subject to caps on their leverage as such. However, they are subject to general transparency requirements regarding the use of leverage, with stricter obligations where leverage is "substantial". For example, if leverage exceeds 300% of net portfolio value, stricter notification requirements apply in terms of disclosures on funding and investments. Pursuant to these notification requirements, managers must, in particular, define the maximum level of leverage they intend to use. When considering whether to license a fund, the supervisory authority assesses this limit, and in particular its appropriateness relative to the fund's target investors. Finally, in the event of risk to the stability and integrity of the financial system, the national supervisory authority can also limit the degree of leverage used by a manager pursuant to Article 25 of the AIFM Directive.

As a result of these constraints, the majority of euro area funds appear not to make substantial use of leverage. To compensate for the measurement difficulties described in Box 15 and gaps in the data concerning UCITS, "real" leverage can be approximated using available data by comparing a fund's total assets with the total number of securities issued. Since the amplifying role of leverage is closely linked to a fund's liquidity, it is interesting to compare physical leverage with the balance sheet liquidity mismatch by comparing securities issued (on the liability side) with liquid assets held (on the asset side). Such a comparison reveals a relatively low level of real leverage for all types of investment funds, albeit slightly higher for alternative funds. For bond funds, the leverage ratio, which increased in 2015[135], *combined with a large liquidity mismatch, appears relatively high and requires a higher level of vigilance. An analysis of synthetic leverage would round out this analysis.*

[135] ESMA (2016), "Report on Trends, Risks and Vulnerabilities", No. 1.

Figure 56: Euro area funds: use of leverage, liquidity mismatch and total assets



Note: The assumptions used are those of the ECB. The selected liquid assets are equities, euro area sovereign bonds, deposits with euro area financial institutions and other securities with maturities less than one year.
Interpretation: the use of leverage by euro area bond funds is 1.14 and their liquidity mismatch is estimated at 2.76, for total assets under management of EUR 3,207 billion. Real estate funds are thus naturally more exposed to this liquidity mismatch, since they invest more in illiquid physical assets.
Sources: ECB, AMF.

Furthermore, the collection of portfolio data from alternative funds, as laid down in the AIFM Directive, will make for a better understanding of their use of derivative instruments from now on. ESMA, in cooperation with national supervisors, is working on improving the quality of the data collected and its use for analytical and supervisory purposes, with a view to better understanding the risks arising from the use of leverage. In France, initial analysis by the AMF indicates that the use of derivatives by alternative funds in the third quarter of 2015 represented EUR 126 billion, half of which consisted of interest rate and exchange rate derivatives. This exposure represents 20% of alternative funds' assets under management. This initial analysis of alternative fund portfolios also shows that French funds continue to make little use of leverage, particularly funds that invest in long-term asset classes, such as equity funds. The use of leverage is highly concentrated among a small number of funds with specific strategies presented as such to their investors.

4.4 Assessing the risk of real estate funds

The HCSF calls for vigilance as regards commercial property and its potential risks

While the housing sector has not been declared of concern by European regulators, the commercial real estate sector[136] was recently the subject of a communication issued by the HCSF[137] aimed at gathering observations from players in that market and raising their awareness of its potential risks[138].

The commercial real estate market has recently been highlighted by the ECB and the European Systemic Risk Board (ESRB) as a potential source of risk to financial stability. There are multiple transmission channels: price effects, which have an impact on the exposure of institutional investors and banks (through loans to buyers and direct or indirect investment); collateral effects that increase loan-to-value (LTV) ratios and ultimately reduce the resilience of both borrowers and banks; and finally indirect effects, with any changes in the commercial real estate market having an effect on the construction sector[139]*. However, the diversity of assets and operators making up the commercial real estate sector tends to reduce the potential risk due to the diversification of (i) investments by market operators, and (ii) property owners and their strategies. Both these factors limit systemic risk.*

The ECB estimates that the French market is most exposed to overvaluation in the commercial real estate sector, with prices estimated to be overvalued by 57%[140]. In particular, it says these price trends must be monitored in the current context of low interest rates and the search for yield. The HSCF, on the other hand, is more measured in its assessment, estimating the overvaluation of prices to fall within a range of 15-20%, with figures approaching 30% in some segments, such as Paris office space[141].

A key point highlighted by both the ESRB and the HCSF relates to the availability of data on the commercial real estate market. Due to their scattered sources (usually private) and often restricted scope, the available indicators (e.g. covering price terms, achieved volumes and vacancy rates) do not reflect the full picture of the real estate market as a whole[142].

The French asset management industry's exposure to the commercial real estate sector

France is Europe's number three market in terms of commercial real estate transaction volumes, in a highly concentrated commercial real estate market, with the United Kingdom, Germany and France accounting for two thirds of European transactions in 2014[143]. Transactions were particularly buoyant in 2014 and 2015, with volumes reaching record levels in the second half of 2015: EUR 29 billion in corporate real estate transactions, of which EUR 19.2 billion in the second half of the year. The market remains highly concentrated, with 76% of transactions taking place in the Paris region.

The AMF monitors three types of vehicle making targeted investments in real estate: funds reserved for institutional investors (professional real estate collective investment

[136] Commercial real estate is defined as real estate assets owned by non-occupant professional operators and generating revenue. It encompasses several types of operators using a wide variety of financing methods (including bank or market debt, equities and investment by investment funds). These operators invest in corporate real estate assets (offices, retail premises, service premises – hotels, restaurants, etc.), non-residential properties like car parks or restaurants, and residential property (e.g. collective housing). With a view to capturing the associated risks, residential assets here include only those owned by professional investors and exclude owner-landlords and social housing operators.
[137] Haut conseil de stabilité financière (High Council for Financial Stability).
[138] HCSF (2015), "*Analyse du marché de l'immobilier commercial en France – Rapport de consultation publique*" ("Analysis of the commercial real estate market in France – public consultation report"), April.
[139] European Systemic Risk Board (2015), "Report on commercial real estate and financial stability in the EU", December.
[140] ECB (2015), "Financial Stability Review", November.
[141] It may be noted that the inclusion within the "commercial real estate" aggregate of residential assets, whose risk is not correlated with corporate real estate assets, tends to make the diagnostic difficult to interpret.
[142] This observation is corroborated by the AMF, which welcomes the ESRB's proposals to do more work on harmonising definitions and risk indicators, as well as finding the resources to make up this lack of data essential to European regulators.
[143] European Systemic Risk Board (2015), "Report on commercial real estate and financial stability in the EU", December.

undertakings – OPPCIs), funds aimed at retail investors (real estate investment companies – SCPIs, and real estate collective investment undertakings – OPCIs), and property companies and listed real estate investment companies (SIICs)[144], which the AMF supervises through its monitoring of listed companies.

Within this market, foreign operators account for 40% of total volumes, contributing to buoyant demand and supporting high prices. These foreign players (investment funds from English-speaking countries, pension funds, sovereign funds, etc.) fall outside the AMF's supervision. Institutional investors account for 37% of these transactions, followed by OPPCIs (29%), SIICs (16%) and SCPI and OPCI retail funds (8%). As regards exposure to commercial real estate, in 2013 the leading French investors were insurance companies (with total exposure in excess of EUR 100 billion), followed by SIICs (EUR 80 billion), wealth funds and retail funds.

Box 20: Tools for managing liquidity risk and leverage risk in OPCIs and SCPIs

Most management companies managing large real estate funds are subject to the AIFM Directive[145]. The latter lays down a protective European framework, particularly in relation to fund managers' remuneration, asset valuation and choice of a depositary dedicated to managing liquidity flows. It also requires that risk measurement and management procedures be put in place[146].

Under the AIFM Directive, open-end funds and closed-end funds that make use of leverage must carry out stress tests and have in place a liquidity management system[147].

In addition to the general European framework, the French regulatory framework includes specific provisions. First, French regulations lay down prudential requirements on capital, both quantitative (in proportion to the size of the fund manager's business) and qualitative (liquidity of capital instruments).

As regards constraints on leverage, the use of derivatives is prohibited for SCPIs, and OPCIs and OPPCIs may only use them for hedging purposes. For OPCIs, the use of leverage is capped at 40% of real estate assets. While there is no limit on leverage for OPPCIs and SCPIs, the AMF is very vigilant with regard to funds that might borrow significantly.

SCPIs are closed-end funds mainly offered to retail investors: their liquidity risk is therefore low. They are not under any obligation to honour redemption/withdrawal requests at all times. However, liquidity mechanisms have been put in place to allow shareholders to recover their assets prior to expiry of an SCPI in exceptional circumstances. The form of capital of these funds (variable or fixed capital) determines how they manage their liabilities:

- In fixed capital SCPIs, shares are purchased in the primary market upon issuance by the fund and redeemed in the secondary market through supply and demand. The execution price is the price at which the greatest quantity of units can be traded.
- Variable capital SCPIs are not, however, equivalent to open-end funds: for a redemption request to be met, the management company must have received a matching subscription request. The redemption price is determined by the management company and governed by appraisals carried out by real estate appraisers.

Where requests cannot be fulfilled, if unmet withdrawal requests/redemption orders more than 12 months old exceed 10% of the total value of shares issued by the SCPI, the company must convene a general meeting during which it will propose solutions to resolve the situation (e.g. by winding up the SCPI). It also has the option of setting aside a redemption fund that can be used to meet withdrawal requests and redemption orders in the absence of subscription requests.

Finally, "tax" SCPIs have no liquidity on either the asset or the liability side, with shareholders subscribing during the same period and holding onto their units until the vehicle is wound up so as to

[144] The French sector has around 40 companies with a combined market capitalisation of EUR 76.4 billion, of which EUR 70 billion for SIICs alone. They are encouraged under IFRS to arrange for semi-annual or annual real estate appraisals to assess the main assets on their balance sheets, investment properties. The AMF recommends that these companies provide information on the impact of any change in the rental market on the group's business, earnings, asset value and investment and development policy.

[145] Managers are subject to the Directive if their portfolio exceeds EUR 500 million if they do not use leverage; if they use leverage, this threshold falls to EUR 100 million. See Directive 2011/61/EU.

[146] The value at risk (VaR) method is one of the most frequently used methods of measuring the potential risk of loss on a fund's investments. Other methods may be used, provided that the supervisory authorities consider them appropriate to the fund's risk profile. If the fund has a complex investment strategy or invests significantly in derivatives, it must use more sophisticated risk measurement methods.

[147] Since SCPIs are closed-end funds that do not borrow, they are not subject to these liquidity monitoring constraints or to the stress test requirement laid down in the Directive.

qualify for tax benefits.

OPCIs are more flexible than SCPIs as regards asset allocation: OPCIs must invest at least 60% of their portfolio in real estate assets, while the remaining 40% may be freely invested.

OPCIs have a number of liquidity management mechanisms, including the following:

- Simply blocking redemptions (up to ten years).
- Limiting redemptions (gates).
- Redemption fees (which can encourage unitholders not to request redemption of their units during the life of the OPCI).
- Redemption notice periods and waiting periods between the date on which redemption requests are centrally received and the settlement date. Such arrangements allow the management company a potentially significant period of time to sell real estate assets in order to meet redemption requests (with a maximum settlement timescale of six months after the date on which a redemption request is centrally received).
- Holding liquid assets (holdings of cash or liquid assets can account for as much as 49% of total assets).

In practice, most OPPCIs are structured as follows: redemptions are blocked from three to ten years, following which they are limited to 0.1% of assets at each net asset value calculation, with a maximum settlement timescale of six months. As such, OPPCIs generally function as quasi-closed-end funds.

Non-professional OPCIs are the most strictly regulated due to their being open to retail investors: they are subject to management and liquidity rules designed to protect investors. OPCIs open to the public do not generally have any mechanism to limit redemptions. Furthermore, redemption request settlement timescales can be very short. In exchange, they must comply with a minimum 5% liquidity ratio and the AMF encourages them to hold at least 40% liquid assets (including shares of listed property companies) and allow for a reasonable settlement timescale. Moreover, their assets are usually more diversified than those of professional OPCIs. They can also put in place other liquidity management mechanisms[148].

Finally, when processing licence applications from OPCIs and OPPCIs, the AMF assesses each vehicle's liquidity profile. In particular, it requires dedicated OPPCIs[149] whose borrowing exceeds 50% of assets to provide a commitment from their shareholders to recapitalise if changes in net asset value make it necessary to boost their capital, or to accept the consequences of liquidation. It also requires other OPPCIs with borrowing in excess of 50% of assets, and all OPCIs open to the public, to carry out stress tests.

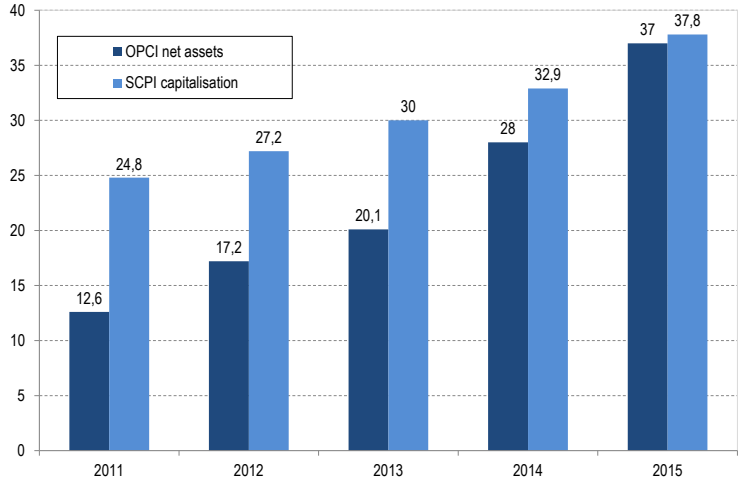
Real estate fund inflows and assets were very buoyant in 2015

According to ECB statistics, euro area real estate investment funds represented total assets of EUR 525 billion in February 2016, equating to 5% of the EUR 10,341 billion of assets under management in European funds. In France, real estate funds account for the same proportion of assets under management in French funds, with total assets of EUR 75 billion in 2015.

The total market capitalisation of SCPIs reached EUR 37.8 billion in 2015 (Figure 57), driven by substantial inflows of EUR 4.2 billion in the year. Although only recent arrivals in the market, OPCIs and OPPCIs have grown very quickly, with total net assets under management rising from EUR 5.8 billion in 2010 to EUR 37 billion in 2015. The total number of licensed OPCIs increased by 25% to 350. Assets held in OPCIs increased by EUR 9 billion in 2015. The segment of OPCIs open to professional investors was particularly buoyant, with assets rising from EUR 25.9 billion to EUR 32.6 billion in 2015 (up 26%). Meanwhile, assets held by OPCIs offered to retail investors more than doubled between 2014 and 2015 from EUR 2.1 billion to EUR 4.4 billion, mainly driven by two major market participants. This strong momentum is an area of vigilance for the AMF, which is monitoring this category particularly closely due to the potential risk to retail investors in the event of market stress.

[148] However, the redemption of units by a unitholder exceeding 2% of the total number of units or shares can be suspended (Article L.214-45 of the Monetary and Financial Code and Article 422-134 of the AMF General Regulation).
[149] OPPCIs with a limited number of investors and prohibited from marketing.

Figure 57: Change in SCPI and OPCI assets (EUR billion)



Sources: IEIF, ASPIM, AMF.

However, the AMF remains vigilant as regards borrowing by real estate funds. One potential area of concern is borrowing by OPCIs, which has grown moderately but steadily since 2012, reaching an average of 37% of gross assets (11% for OPCIs open to the public and 39% for OPPCIs). Recently licensed OPCIs are a particular focus of attention, with borrowing by funds created in 2015 equating to 64% of assets.

4.5 What are the risks associated with growth in the ETF market?

ETF assets growing strongly, both internationally and in France

Exchange-traded funds (ETFs) have seen spectacular growth over the past four years: at the beginning of 2016, their assets under management totalled EUR 2,520 billion, equating to 7% of total collective investment assets worldwide[150] *and up 25% relative to 2014. The United States accounts for more than 70% of global assets under management. The number of ETFs is also growing, with 681 new funds listed worldwide in 2015*[151]*. In Europe, 2015 inflows of EUR 71 billion drove a 22% increase in assets held by European ETFs, which totalled EUR 450 billion at end 2015.*

In France[152], ETFs account for 4% of collective investment assets, totalling EUR 62 billion in the first quarter of 2016[153]. Assets saw exceptional growth in 2015 (up 16%), driven by inflows of EUR 9.7 billion in the year. ETFs domiciled in France are extremely concentrated, with three companies accounting for 99% of total assets under management. Most are invested in equities (73% of assets) or bonds (20%), and the majority are listed in France[154].

[150] EFAMA International Statistical Release, Q4 2015.
[151] Deutsche Bank (2016), "ETF Annual Review and Outlook 2016 – Strong Growth to Continue Despite Volatile Markets", January.
[152] All following figures are extracted from Lipper data as at June 2016.
[153] The decline in European equity indices in the early part of 2016 contributed to a decline in ETF assets, which stood at EUR 64 billion at end 2015.
[154] Although 256 of France's 422 ETFs (60%) have reported to Lipper that they are listed in France, 35% of listing venues are not completed.

The risks inherent in these products, and their impact on the underlying market, must be better understood

The investor appeal of ETFs is driven by a number of factors intrinsic to their model: apparent daily liquidity, low management fees[155], transparency and clarity of underlying investments, portfolio diversification, and so on. However, the impact of this fast-growing market on the liquidity and market risk of the underlying securities remains poorly understood. The risk of market volatility being amplified by ETFs in the US market was highlighted on 24 August 2015. On that day, amid serious concerns over the Chinese economy and financial system, 302 ETFs, representing 19% of US ETFs, suspended trading – mainly those ETFs most closely correlated with the most popular index, the S&P 500[156]. In France, barriers were put in place as soon as ETFs emerged, with divergences from the index limited to 1.5%, unlike in the United States, where this range is much wider[157].

This episode confirmed a number of empirical studies showing that an ETF's ownership of stocks is correlated with higher intraday and daily volatility[158]. This potential externality for an underlying security resulting from its being held by an ETF echoes a broader observation: that the lengthening of the financial intermediation chain increases the risk of information asymmetry for investors and other market participants[159]. Although this market remains limited in size relative to the market in actively managed funds, risks specific to ETFs can already be identified.

First, index tracking by nature encourages uniformity of behaviours; by decreasing the diversity of positions entered into, growth in index tracking is likely to automatically entail an increase in the sector's procyclicality. Second, ETFs use a number of replication methods that affect their associated risks. With pure replication, the manager selects either a complete or a representative portfolio (the latter to optimise replication costs) of securities making up the reference index in appropriate proportions. In this case, shares are created and destroyed daily in the primary market by a limited number of qualified participants known as authorised participants, which are mainly large broker-dealers or banks. They play a fundamental role in this process. First, they ensure that ETF shares do not diverge too far from the market value of their underlying assets (due to their arbitrageability)[160]. Second, they also act as liquidity providers (market makers) in the ETF market. According to Malamud (2015), it is this dual role that makes the creation and redemption mechanism a factor in spreading systemic risk[161]. *This replication method covers 90% of international assets under management, with a 36%/54% split between full replication and optimised replication, reflecting the very high weighting of the United States – where this type of replication is preferred – in the ETF market, unlike France, where synthetic replication covers 91% of ETFs by number and 83% of assets.*

[155] The lower level of management fees is explained by the fact that managers of exchange-traded funds have to make few trades (e.g. to replicate a stock market index) compared with those needed to actively manage a fund.
[156] Gerig A. and K. Murphy (2016), "The Determinants of ETF Trading Pauses on August 24th, 2015", SEC White Paper, February.
[157] This upper and lower limit on authorised pricing spreads depends on listing category and time of day. The primary segment, which consists of the most highly traded shares such as those based on the S&P 500, is restricted to a price range of 10% above or below the reference price (i.e. 20% in total) from 3:35 p.m. to 9:45 a.m., thereafter falling to 5%.
[158] See, in particular, Ben-David, I., F. Franzoni and R. Moussawi. (2014), "Do ETFs Increase Stock Volatility?", Dice Center Working Paper 2011-20, Ohio State University.
[159] Ramaswamy S. (2011), "Market structures and systemic risks of exchange-traded funds", BIS Working Paper no. 343, April.
[160] When the price of an ETF's shares rises, the authorised participant may consider it profitable to create more shares at the end of the day: in this case, it buys the basket of securities underlying the ETF in the market and trades it at the end of the day for new shares, which are then sold at a price above that of the basket purchased during the day. The same type of arbitrage can also be undertaken when the price of an ETF's shares falls.
[161] The degree of liquidity in the primary market can lead to numerous corrections in the spread between an ETF's share price and the value of its underlying assets. However, since the creation and redemption mechanism only takes place once a day, the impact of the expectations of other market participants, as well as friction costs, come into play. This effect is particularly marked at times of stress, since authorised participants are unable to absorb very large liquidity shocks, and must therefore withdraw from the market. See Malamud, S. (2015), "A Dynamic Equilibrium Model of ETFs", Swiss Finance Institute Research Paper No. 15-37.

Synthetic replication aims to imitate the performance of an index by using swaps. Investors are thus automatically exposed to counterparty and collateral risk[162]. *Furthermore, the complexity of some synthetic ETFs can make it difficult for investors to assess their risk. "Smart beta" ETFs, which offer more selective and targeted pure or synthetic replication than straight index tracking, also carry this risk. ESMA recently issued a warning against the popularity of these products, highlighting not only their additional complexity for investors, but also the fact that, contrary to the investor's initial aim, they can concentrate risk exposure, with some ETFs concentrating their exposure in a single sector or type of product*[163].

Finally, another major worry concerning ETFs relates to their potential liquidity risk. During "normal" market trading, ETFs can provide liquidity by allowing for the possibility of an endogenous secondary market, enabling investors to keep trading in spite of lower liquidity in the underlying securities. However, their role during periods of stress has not been determined. When valuations and/or liquidity in the underlying market are highly volatile, the difficulty for an ETF lies in identifying a price, particularly for ETFs linked to assets with low liquidity. It then becomes more expensive for authorised participants to provide liquidity, or impossible if they withdraw from the market. Transmission of pressure on their funding liquidity, combined with increased redemption requests from shareholders, would further add to the observed liquidity shock. Shareholders are thus also exposed to the discount on the assets whose performance is replicated by the ETF. However, the extent of the impact of this liquidity risk has not yet been tested or studied sufficiently by economic researchers.

To better understand these potential risks, the AMF will continue to monitor this market as well as working towards a better understanding of the market impacts of passive investment.

[162] In such cases, rather than holding a basket of physical securities, the manager enters into a swap with a counterparty (usually a bank). In such cases, the market impact that must be taken into account is the dual effect of the ETF manager and the bank, which enters into parallel trades to hedge its exposure to the basket of securities. Collateral risk arises from the need to use collateral when entering into a swap. A recent empirical study tends to show that the collateral risk is relatively low, with the quality of collateral appearing high among those ETFs studied. See Hurlin C. et al (2014), "The Collateral Risk of ETFs", Les Cahiers de la Recherche d'HEC, no. 1050.

[163] European Supervisory Authorities (2016), "Joint Committee report on risks and vulnerabilities in the EU financial system", March.

FIGURES

TABLES

BOXES

Risk and Trend Mapping is produced by the Research, Strategy and Risks Division of the AMF Regulation Policy and International Affairs Directorate.

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