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## FINANCIAL STABILITY AND FINANCIAL SYSTEM

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**Antoine Lalliard**

*Traditional indicators could have led us to wrongly conclude that house prices were persistently overvalued. However, new indicators, incorporating changes in the financial environment, show that house price tensions were in reality largely absorbed in 2016.*
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**William Arrata, Alexandre Gautier, Pierlauro Lopez, Imène Rahmouni-Rousseau, Mattia Girotti, Benoît Mojon, Urszula Szczerbowicz, Miklos Vari et Thierry Foucault**

*Given the profound changes in the financial sector brought about by the collapse of Lehman Brothers and the subsequent strengthening of regulations, it is vital to acquire greater knowledge in order to anticipate the possible response of financial markets to the new regulations or to monetary policy measures.*

## INTERNATIONAL ECONOMICS AND FINANCING

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**Corinne Devillers and Kevin Parra Ramirez**

*French banks rank fourth worldwide in terms of international activity, with a strong geographical diversification. This diversification is mainly achieved through intra-group financing and the collection of deposits by a large network of local branches. The activity of French banks contributes positively to the balance of payments.*

## MACROECONOMICS, MICROECONOMICS AND STRUCTURES


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Summary of the third Labour Market Conference held in Aix-en-Provence on 1 and 2 December 2016 by the Aix-Marseille School of Economics and the Banque de France

**Clémence Berson, Clément Malgouyres and Simon Ray**

*The AMSE and the Banque de France organised, in December 2016, their fifth conference on the labour market bringing together academics and representatives of central banks. Discussions mainly focused on policies aimed at reducing the cost of labour, the assessment of labour market policies and wage rigidities.*


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*Companies' turnover, value added and profitability all rose in 2015. Conversely, corporate investment continued to decline. In a low interest rate environment, the debt ratio of large enterprises increased, while that of small and medium-sized enterprises (SMEs) and intermediate-sized enterprises (ISEs) contracted. Financial profitability improved significantly.*

**STATISTICS**

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# An alternative method for capturing tensions in the residential property market

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Residential property prices are the focus of particular scrutiny, first because they directly influence household living conditions (the cost of acquiring a home, the savings rate and the choice of asset allocation), and second because they played a decisive role in triggering certain financial crises (notably the 2007-2008 subprime loans crisis).

In France and in many other comparable euro area economies, residential property prices grew markedly from the late 1990s up to 2008. Any sharp rise in prices naturally prompts the question of whether levels have become “too” high and therefore constitute a speculative bubble. This in turn raises two further questions: how can we describe a rise in prices in unequivocal terms? And how should we interpret the levels attained? On this first point, Dujardin, Kelber and Lalliard (2015) have demonstrated that, in order to provide an objective picture of price levels, it is important to use time series where house prices are expressed as explicit values, that is in euro/m<sup>2</sup>. On the second point, identifying whether or not house prices are overvalued implies linking them to other economic factors that are assumed to describe their natural evolution.

We believe that price-to-income and price-to-rent ratios, which are frequently used in economic analysis, do not take full account of all the economic factors involved in the formation of house prices. Using data expressed in euro/m<sup>2</sup>, we propose other indicators that better capture the housing cycle and periods of price tensions.

Key words: House prices, asset prices, property bubbles, return on assets, financial stability, price indices, statistical methods

JEL codes: C10, C43, E31, G12, R31

## Key figures

### 194 monthly rents

the average price of a residential property in France at the start of 2016 (compared with 251 monthly rents in Germany and 230 in Italy)

### 12% of household gross disposable income

the average price per square metre for residential property in France in 2016

### 6.2% per year

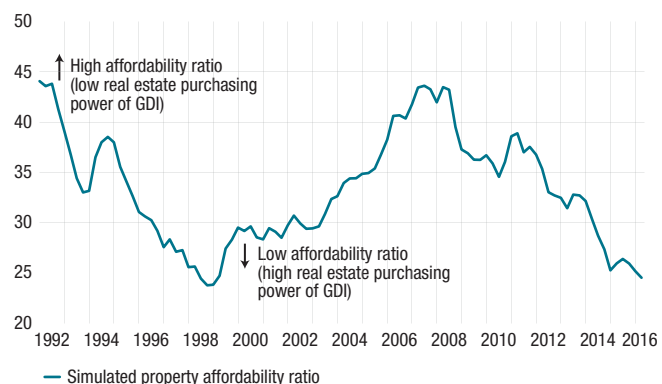
the average apparent rental yield of a residential property in France at the start of 2016 (compared with 4.8% in Germany and 4.9% in Italy).

### 25%

the share of per capita gross disposable income needed to meet the mortgage repayments on a standard 50 m<sup>2</sup> property at the start of 2016 (compared with 43% in 2007).

### Indicator of house price tensions in France from the point of view of the real estate purchasing power of GDI

(as a % of average per capita GDI)



### 1. Describing and qualifying price evolutions using ratios expressed in terms of explicit values

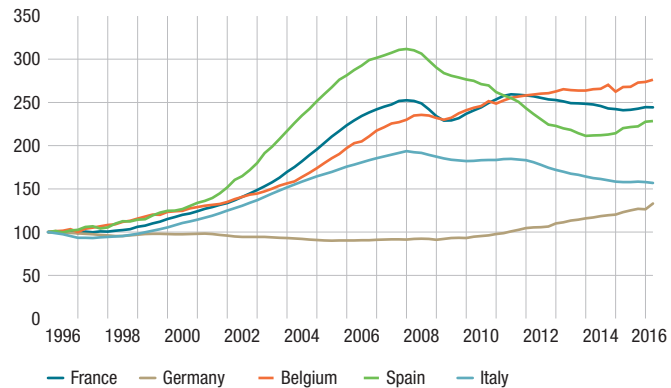
#### Recent developments

The vast majority of economic and econometric studies of house prices use series where prices are expressed in index points, and where a base year is chosen arbitrarily and given the value 100. In their 2015 study, Dujardin, Kelber and Lalliard highlight the limitations of using this type of series to assess the level of house prices. Indeed, price index series do not show actual prices (i. e. in units of money per unit of surface area). On this basis, cross-country comparisons of prices expressed in index points provide a misleading picture of the relative magnitude of house prices in each country (see charts 1a and 1b). Using price series in euro/m<sup>2</sup> provides a more reliable comparison of price levels across countries.

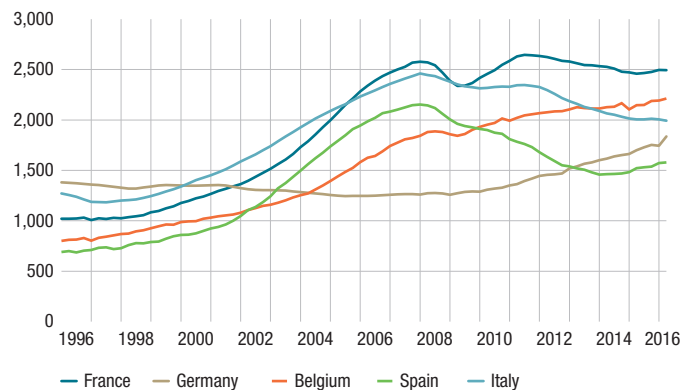
In addition to the measurement of price levels, there is also the question of whether prices are under- or overvalued. A standard way of determining this, used widely throughout the literature and by international bodies in assessing tensions in the housing market, is to compare house price series to data on rents (price-to-rent ratio) or on per capita disposable income (price-to-income ratio). Using these two indicators to measure tensions affecting house prices implicitly assumes that, over the long term, house prices follow a parallel trajectory to household income and rents. In other words, under this hypothesis, price-to-rent and price-to-income ratios should remain more or less constant over the long term. A high price-to-rent ratio is taken to indicate that house prices are overvalued in relation to rents, and that buy-to-let investment is therefore not sufficiently profitable. Similarly, a high price-to-income ratio is taken to mean that prices are disproportionately high relative to household purchasing power.

#### C1 Residential property prices

a) In index points  
(Q1 1996 = 100)



b) In euro/m<sup>2</sup>



Sources: OECD, Banque de France calculations.

By extending the methodology used by Dujardin et al. (2015), we construct time series for price-to-rent and price-to-income ratios using house prices and rents expressed in euro/m<sup>2</sup> and gross disposable income expressed in euro/year. This allows us to propose tension indicators that can be interpreted in absolute terms, something that is not possible with price and rent index series. The tension indicators show respectively the number of monthly rents that is equivalent to the price of the asset

(price-to-rent ratio), and the price per square metre expressed as a percentage of gross annual disposable income per capita (price-to-income ratio). As with price series, these two tension indicators enable an objective comparison to be made between countries, rather than one that depends on the chosen base year (see charts 2a and 2b).

**Limits of price-to-income and price-to-rent ratios as tension indicators**

The use of explicit values as opposed to indices allows us to construct objective price-to-income and price-to-rent ratios (that is ratios that are not dependent on the choice of base year) which in turn produce more reliable international comparisons.

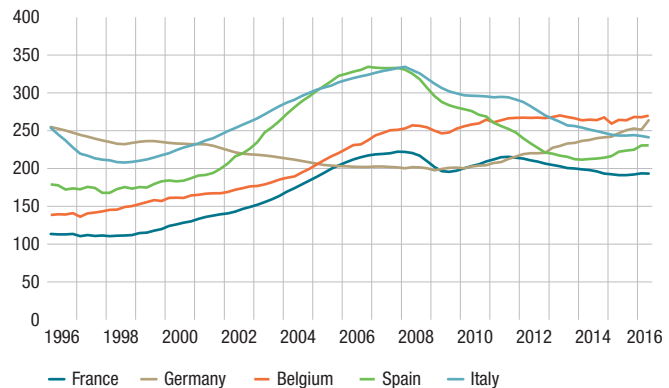
In France (and notably in Belgium, Spain and Italy), the ratios used as indicators of housing market tensions rose sharply between the late 1990s and late 2000s as house prices surged, and remained high compared with the levels previously attained, despite the price correction which followed the 2007-2008 crisis (see Chart 3).

Current price-to-rent and price-to-income ratios appear to indicate that in France, as in many other countries, house prices remain persistently overvalued, both in relation to incomes and rents. In his study of the long-term evolution of France's price-to-income ratio, Friggit (2017) notably shows that the ratio was relatively stable between the 1960s and early 2000s, but subsequently broke out of its previous range and surged to a particularly high level in the mid-2000s.

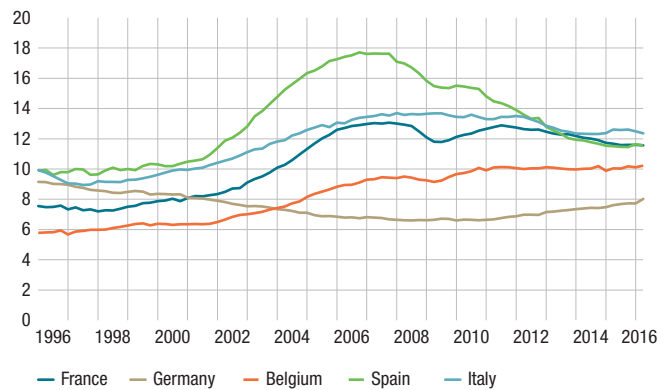
Although these conventional indicators are useful for studying the affordability of housing (the house-purchasing power of household income), we believe they are problematic for the following reason: if price-to-income and price-to-rent ratios were reliable indicators of tensions in the housing market, then they would remain stationary over

**C2 Conventional indicators of tensions expressed in explicit values, per country**

a) Price-to-rent ratio expressed as the number of monthly rents equal to the price of the property (in number of monthly rents)



b) Price-to-income ratio expressed as the average price per m<sup>2</sup> as a % of per capita GDI (in %)



Sources: OECD, Banque de France calculations.

the long term. It is tempting to interpret the surge in ratios as an abnormal deviation from the “equilibrium” level observed prior to the 2000s. But if there were such an equilibrium level beyond which prices could be deemed to be overvalued and therefore due for a downward correction sooner or later, how do we explain the fact that the correction after the 2007-2008 crisis was

not sufficient to bring these ratios back to their equilibrium level, that is the level observed at the end of the 1990s?

In addition, in order to provide a measure of tensions in the market, these ratios should evolve in line with the house price cycle – in other words, they should be low at the start of the cycle, when prices begin to rise, then high at the end of the cycle, when prices enter a downward phase. Yet the fluctuations in these indicators do not appear to coincide fully with the upward and downward phases in house prices. In France, although house prices declined from 2011 to the end of 2015, this was insufficient to bring the price-to-income and price-to-rent ratios back to the levels observed at the end of the 1990s. On the contrary, at end-2015, both ratios were still well above the levels seen up to the 1990s, while French house prices appeared to be on the rise again.

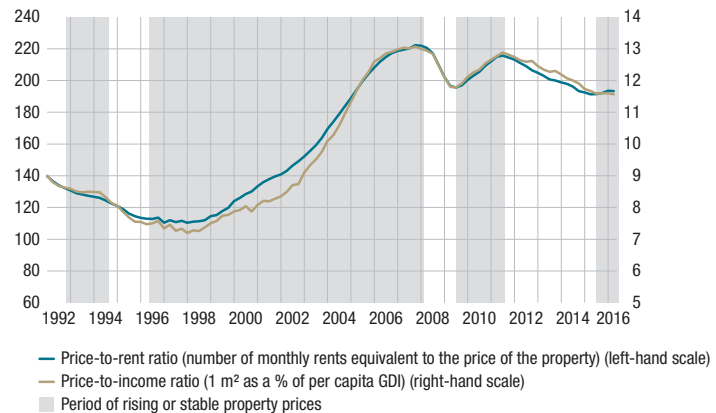
Ultimately, price-to-income and price-to-rent ratios do not appear to be reliable indicators of whether prices are under- or overvalued.

The other problem with these ratios is that they fail to take into account the financial environment. Indeed, the price-to-income ratio implicitly assumes that a house purchase is made using free credit, simply by spreading the payment of the purchase price out over time. In reality, households' ability to afford property varies according to the mortgage conditions granted by lenders. Therefore, an increase in the price-to-income ratio may not necessarily imply a decline in housing affordability if, at the same time, interest rates fall sufficiently to increase the amount a household can borrow on a given level of income.

Similarly, the price-to-rent ratio, when expressed in terms of explicit values (number of monthly rental payments needed to make up the price of the asset) is simply the inverse of the rental yield on a new buy-to-let investment. In reality, however, the incentive to invest in a property

### C3 Change in conventional indicators of tensions (France)

(in number of monthly rents; as a % of average per capita GDI)



Sources: OECD, Banque de France calculations.

that provides a given rental yield depends on the expected returns that can be derived from alternative investments at that particular point in time. Thus, an increase in the price-to-rent ratio, i. e. a decline in the rental yield on a buy-to-let investment, may not translate into a decline in the incentive to invest in property if, at the same time, the returns on alternative investments fall to a similar or indeed greater extent.

## 2. Construction of two new tension indicators using price and rent series in euro per square metre

### Indicators using the real estate purchasing power of gross disposable income and the incentive to invest in buy-to-let property

Friggit (2015) notes that the financial context may have played a role in keeping house prices at levels deemed excessively high after the 2007-2008 crisis. We therefore propose two tension indicators that take into account the financial context and which are thus more relevant than price-to-income and price-to-rent ratios.



With regards to household purchasing power, we propose incorporating financing conditions into our assessment by calculating the debt service cost of a borrower earning the average level of GDI, and acquiring a property of a standard size, chosen at random and remaining constant over time, at the current price in euro/m<sup>2</sup>, using a mortgage charging the current rate of interest and with a standard maturity, also chosen at random and remaining constant over time. This debt service cost, calculated in euro/year, is then divided by the amount in euro of average per capita GDI to give a ratio that we will call the simulated affordability ratio or *indicator of price tensions from the point of view of the real estate purchasing power of household gross disposable income*.

With regards to the incentive for buy-to-let investments, we define the annual return on a buy-to-let investment as the ratio between the current average rent and current average acquisition price in euro/m<sup>2</sup>. We then calculate the difference between this return and a benchmark rate of return to obtain our *indicator of price tensions from the point of view of the incentive to invest in a buy-to-let property*.

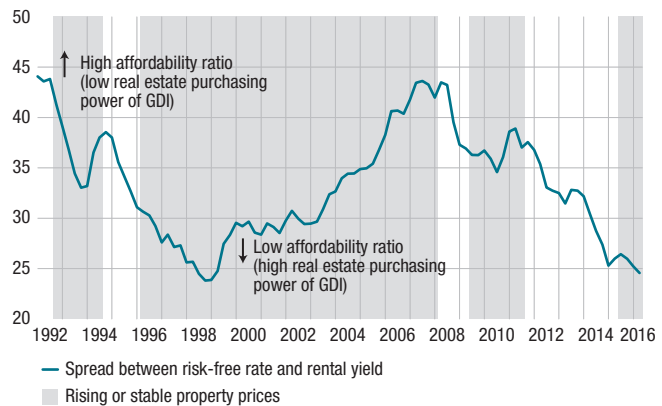
**Tension indicators that are more aligned with the house price cycle**

Whereas the price-to-income and price-to-rent ratios point to a persistent overheating in the market, an observation that does not appear to be borne out by the actual evolution in prices, the indicators that we propose follow a more cyclical path that seems to correspond more closely to the fluctuations in residential real estate prices (see charts 4a and 4b).

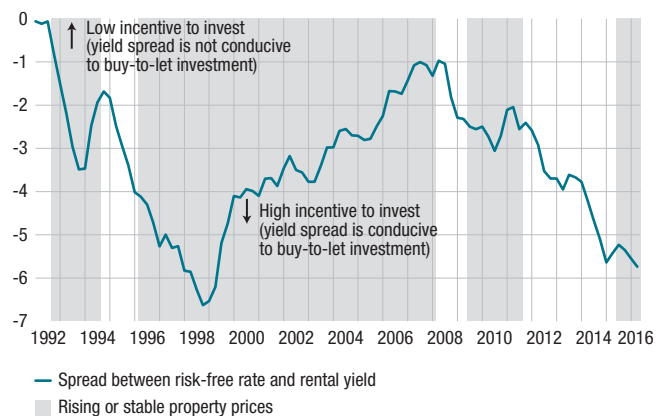
Firstly, these new indicators of house price tensions evolve cyclically, without the major break at the start of the 2000s which appears in conventional indicators. Secondly, these indicators appear to show an appropriate degree of correlation with changes in house prices. In France, the

**C4 Change in the new tension indicators, France**

a) Indicator of house price tensions from the point of view of the real estate purchasing power of GDI (as a % of average per capita GDI)



b) Indicator of house prices tensions from the point of view of the incentive to invest in a buy-to-let property (in percentage points)



decline in house prices at the start of the 1990s corresponds to the peak in property price tensions: real estate was particularly expensive relative to the purchasing power of household income and credit conditions at the time (see Chart 4a), while buy-to-let returns were low compared with those on bond investments (see Chart 4b). By contrast, during the steady increase in house prices from the end of the 1990s to the start of the crisis in 2007,

## Box

## Construction of new indicators of house price tensions.

**Indicator of tensions from the point of view of the real estate purchasing power of household gross disposable income**

Using price series in euro/m<sup>2</sup>, we calculate, for each time  $t$  and for a property with a given and constant surface area  $S$ , the amount of the annual repayments on a mortgage equal to the price ( $S \times P_t$ ) of the property, with a given and constant maturity  $M$ , and charging the current rate of interest  $\tau_t$ .

In the results given here, the interest rate for all countries is the 10-year government bond yield; the surface area is the same for all countries, remains constant and is fixed randomly at  $S = 50$  m<sup>2</sup>; and the maturity is fixed at  $M = 25$  years.

The amount of the annual repayment is calculated using the equation  $A_t = \frac{\tau_t \times P_t \times S}{1 - (1 + \tau_t)^{-M}}$

The affordability ratio for a property with surface area  $S$  at time  $t$  is as follows:

$$\text{Simulated affordability ratio}_t = \frac{A_t}{RDB_t} = \frac{\tau_t \times P_t \times S}{RDB_t \times [1 - (1 + \tau_t)^{-M}]}$$

Thus, when the affordability ratio is high, the share of average income required to purchase a property with a given standard normative surface area  $S$  is higher, suggesting that house prices are significantly stretched. When the ratio is low, this means that property prices, financing conditions and income levels are such that it is cheaper to buy a property with a standard surface area  $S$  and therefore that tensions in prices are unwinding.

**Indicator of tensions from the point of view of the incentive to invest in a buy-to-let property**

Using price and rent series in euro/m<sup>2</sup>, the rental yield on a property investment can be calculated as follows:

$$\text{rental yield}_t = \frac{\text{annual return}_t}{\text{price}_t} = \frac{12 \times \text{monthly rent}_t}{\text{price}_t}$$

The indicator of the incentive to invest in a buy-to-let property is then the difference between this rental yield and the benchmark long-term rate of return  $\tau_t$  (e.g. the 10-year OAT yield).

$$\text{Difference in rates of return}_t = \tau_t - \text{rental yield}_t$$

Thus, when the value of the incentive to invest indicator is positive, this indicates that alternative investments offer higher rates of return than a residential buy-to-let investment and hence that house prices are overvalued. Conversely, when the value of the indicator is negative, residential investment is more attractive relative to alternative investment options, indicating that the overheating in house prices is starting to cool.

Although these indicators are not perfect, in that they fail to take into account property purchases partially paid for in cash, changes in average maturities, national specificities or chronological changes in down payment requirements, the average surface area or the average maturity, they do capture the financial context and therefore represent a significant improvement on price-to-income and price-to-rent ratios.

housing market tensions reached a low according to these two criteria. 2008 corresponds to the start of the recent downward correction in prices (2008-2009, then 2011-2015) and coincides with a peak in tensions in the local property market; however, contrary to what the price-to-income and price-to-rent ratios suggest, this peak is not disproportionately high in historical terms – on the contrary, tensions at the time were broadly comparable with the levels seen at the start of the 1990s. Moreover, the renewed upswing in house prices as of the second half of 2015 can be attributed to the unwinding of tensions between 2008 and 2015, owing to the fall in nominal prices over the period and the sharp drop in interest rates. Indeed, according to our indicators, tensions in house prices reached the same levels in 2016 as in 1998, whereas conventional indicators suggest prices are still significantly overvalued and that tensions have not fully unwound since 2008.

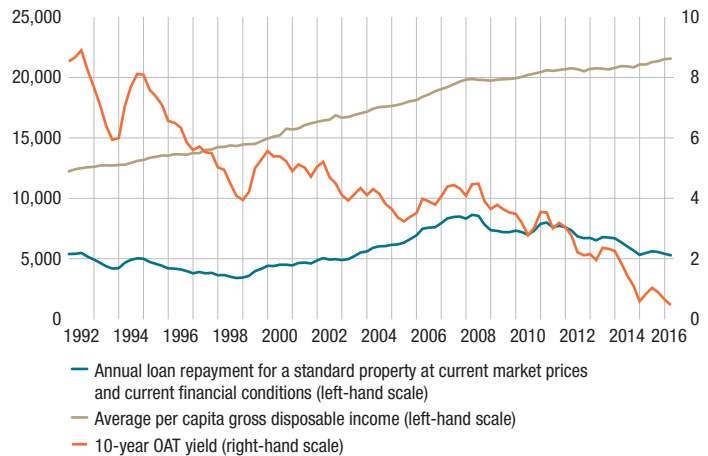
**Interpretation of the results**

Including the financial context in indicators of house price tensions appears to solve the enigma that emerges when looking at price-to-income and price-to-rent ratios alone. The strong appreciation in house prices observed in France between 1998 and 2007 can be better understood in light of financial conditions at the time. Over the period, inflation and interest rates fell sharply while tensions in house prices appear to have temporarily declined. This lowering of the cost of credit gave a significant boost to house-buying power, which in turn fuelled further increases in prices. Similarly, the continued cuts in interest rates from 2008 onwards probably amplified the impact of the price falls and thus helped to restore some of the house-buying power of household income, despite the slowdown in price declines between 2011 and 2015 (see Chart 5a).

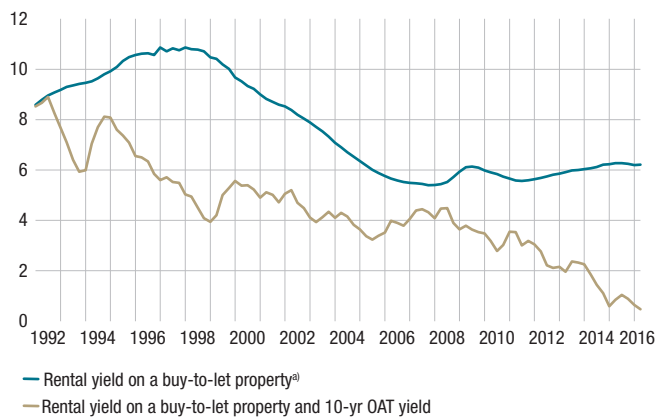
A similar line of reasoning can be applied to buy-to-let investments. The high level of the

**C5 Change in the macroeconomic determinants of the proposed tension indicators**

a) Annual repayment for the purchase of a standard property using a mortgage, at current conditions, average GDI per capita, and 10-year OAT yield (in euro; in %)



b) Rental yield on buy-to-let property and 10-year OAT yield (in %)



a) The rental yield of a property is expressed as the ratio between the annual rental payments and the current asset price.

price-to-rent ratio, reflecting a decline in rental yields, needs to be interpreted in light of the financial context. With interest rates falling, the relative attractiveness of buy-to-let investment also appears to have been largely restored in 2016 (see Chart 5b).

In our view, therefore, the remarkable rise in real estate prices in France between 1998 and 2008 should not be seen as a valuation anomaly or as an excessive deviation from a “natural” equilibrium level. On the contrary, integrating financial parameters into the equation leads to the conclusion that the rise is in fact a normal and proportionate response to the transition from a regime of sustained inflation and high interest rates to one of low inflation and low interest rates. Under current financial conditions, therefore, the price levels reached are not intrinsically

excessive and are in fact consistent with (i) the ease of access to credit; and (ii) the low returns on other asset classes. Thus, if the large deviation of price-to-income and price-to-rent ratios from the levels seen up to the end of the 1990s is attributable to the change in financial conditions (i. e. cuts in interest rates), then there is no reason to expect that these ratios will spontaneously revert to the levels seen prior to the price rises of 1998-2008, unless of course we see a return to the financial conditions prevailing before this period.

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# Fiscal consolidation episodes in OECD countries: the role of tax compliance and fiscal space

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 International Syntheses Division

*This paper looks at fiscal consolidation episodes in OECD countries from 1978 to 2009, relying on the database of Devries et al. (2011). We show that a large proportion of these episodes (41% of the total) occurs during the low phase of the business cycle. As regards their composition, the average consolidation amounts to 1% of GDP, around two-thirds being driven by cuts in public spending and one-third by a rise in taxes. We investigate the drivers of the composition of fiscal consolidation episodes by focusing mainly on the level of fiscal space and fluctuations in tax compliance over the business cycle. We find that when countries have less fiscal space and more pro-cyclical tax compliance, the fiscal consolidation relies more on spending cuts than on tax hikes.*

Key words: fiscal consolidation, fiscal space, tax compliance

JEL Codes: E02, E62, H26

Note: Germain Gauthier contributed to this paper as a trainee.

## Key Figures

### 1% of GDP

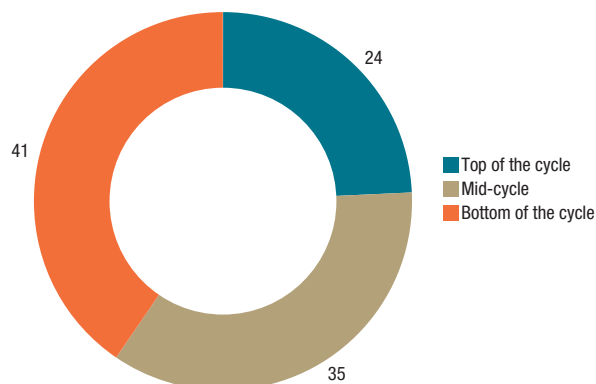
average scale of fiscal consolidation episodes in OECD countries. Government spending cuts represents 0.63% of GDP and higher taxes represent 0.37%

### 41%

percentage of fiscal consolidation episodes that take place at the bottom of the economic cycle, compared with 24% during expansionary economic periods

### Timing of fiscal consolidation episodes

(in %)



Source: Banque de France and authors' calculations.

Since the global financial crisis, central banks in advanced economies have put in place accommodative monetary policies in response to persistently low economic growth and natural interest rates, especially by implementing innovative unconventional tools (like forward guidance or asset purchase programmes). In spite of this monetary stimulus, economic activity has not fully recovered leading to intense economic policy debates among policy circles about the roots of the sluggish global growth since 2011. In this respect, the possibility of a collective fiscal stimulus among G20 countries was recently put forward, especially by international institutions like the IMF, calling for a comprehensive approach to generate growth combining loose monetary policy, fiscal stimulus (including through more growth-friendly fiscal composition) and implementation of relevant structural reforms (see Gaspar, Obstfeld, Sahay, 2016).

The ability for a country to implement a given fiscal policy, either expansionary or contractionary, and the tools adopted – i.e. changes in taxes and/or changes in government expenditure – is constrained by the available fiscal space and the ability of the government to collect taxes, among other factors. In this paper we focus on fiscal consolidation episodes and investigate the impact of fiscal space and the cyclical behaviour of tax compliance on the composition of fiscal consolidations. We first carry out an empirical analysis of fiscal consolidation episodes in OECD countries over the 1978-2009 period and show that (i) contrary to conventional wisdom, 41% of consolidations are carried out during the low phase of the business cycle, and (ii) those fiscal consolidations are generally implemented through cuts in spending instead of rises in taxes. Then, we show that both tax compliance and fiscal space may explain the composition of consolidations. Indeed, when countries have less fiscal space and more pro-cyclical tax compliance, fiscal consolidation relies more on spending cuts than on tax hikes.

## Related literature

Our study forms part of a broad body of literature on the role of fiscal tools in stabilising macroeconomic activity. In particular, there has been a significant debate on the size of fiscal multipliers. Ramey (2011) reviews the literature on the size of government spending multipliers and concludes that it probably lies between 0.8 and 1.5, according to the type of government expenditure and the phase of the business cycle. Blanchard and Leigh (2013) investigate the relationship between growth forecast errors and planned fiscal consolidation during the crisis and find that fiscal multipliers were substantially higher than implicitly assumed by forecasters. In this paper we do not investigate the impact of fiscal policy on the aggregate economy but we rather focus on the ability of countries to undertake fiscal consolidations. This issue, which is widely discussed in international policy fora, refers to the fiscal space that countries have, generally calculated as the difference between the current level of public debt and an estimated level of sustainable debt. Obviously, this level cannot be observed and has to be estimated, leading in turn to lively methodological and conceptual debates – see for example Ghosh et al. (2013). Finally, while we focus on the impact of fiscal space and pro-cyclical tax compliance on the choice of fiscal tools implemented during fiscal consolidation, several papers focus instead on the consequences of the composition of fiscal consolidation in terms of output losses or debt reduction. For example, Alesina and Ardagna (2013) or Alesina et al. (2015) show that fiscal consolidation based upon spending cuts is much less costly in terms of mid-term output losses than tax-based consolidations. They find that spending-based adjustments have been associated with mild and short-lived recessions and in certain situations can generate growth. In an OECD working paper, Cournède et al. (2013) show that, in order to reduce excess debt, it seems preferable to maintain spending on education, childcare and family or social security contributions and



to cut subsidies and pensions or to raise property taxes. However, few studies try to explain to what extent a country is likely to use spending cuts or tax hikes in a consolidation phase, which is the objective of this paper.

### 1. Empirical analysis of fiscal consolidation episodes in OECD countries

A major challenge in the literature is to properly identify fiscal consolidation episodes, i.e. discretionary fiscal policy, and differentiate them from cyclical fluctuations in the primary balance. In order to do so, the literature has recently taken a historical approach, also sometimes referred to as a narrative approach, as in Ramey and Shapiro (1998), Romer and Romer (2010) and Devries et al. (2011). Relying on historical sources, the objective of this kind of approach is to clearly identify discretionary fiscal policy episodes.

In this paper, we define fiscal consolidation episodes using the methodology put forward by Devries et al. (2011).<sup>1</sup> The database contains 173 fiscal consolidation episodes for 17 OECD

countries<sup>2</sup> over the period 1978-2009. Devries et al. (2011) adopt a narrative approach focusing on “discretionary changes in taxes and government spending primarily motivated by a desire to reduce the budget deficit and not by a response to prospective economic conditions”. We also consider the composition of the fiscal consolidations by looking at the share of tax hikes and spending cuts for a given fiscal consolidation. In our analysis, GDP-related variables are taken from the Penn World Table dataset and the remaining aggregate variables are taken from standard sources such as the OECD database and the World Economic Outlook.

The Devries et al. (2011) dataset provides us with useful information on the timing and characteristics of fiscal consolidation episodes. Unsurprisingly, fiscal consolidations are undertaken as debt ratios increase and primary balances run large deficits. In Chart 1, we present the fiscal consolidation episodes in Finland, Canada and France, as examples.

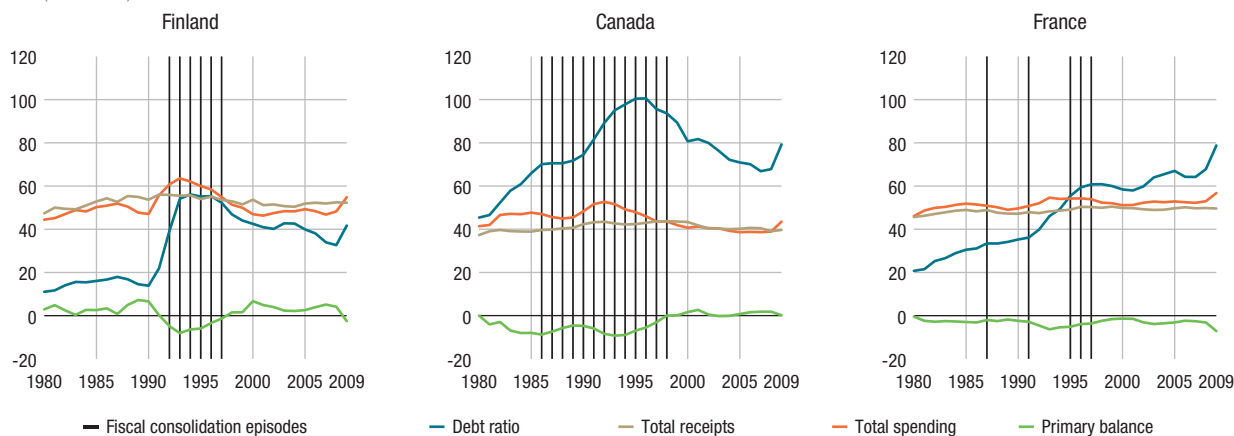
In the early 1990s, the Finnish banking crisis strongly undermined the country’s financial sector, pushing the government to intervene.

<sup>1</sup> More specifically, we incorporate the modifications made by Alesina et al. (2015). While the Devries et al. (2011) dataset only reports year by year fiscal shocks without distinguishing between announced and unanticipated policy shifts, Alesina et al. (2015) extend the dataset by clustering individual shifts in taxes or spending into multi-year fiscal plans consisting of announced and unanticipated exogenous fiscal shocks.

<sup>2</sup> The countries are: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, the Netherlands, Portugal, Spain, Sweden, the United Kingdom and the United States.

#### C1 Fiscal policy and debt dynamics (1980-2009)

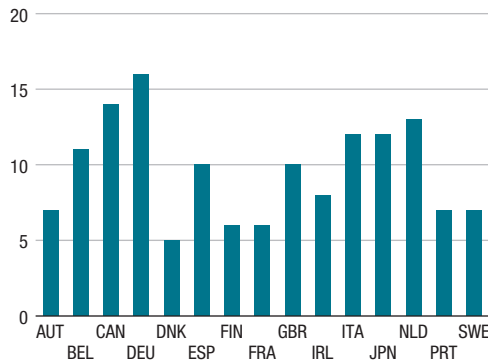
(in % of GDP)



Source: Banque de France and authors' calculations.

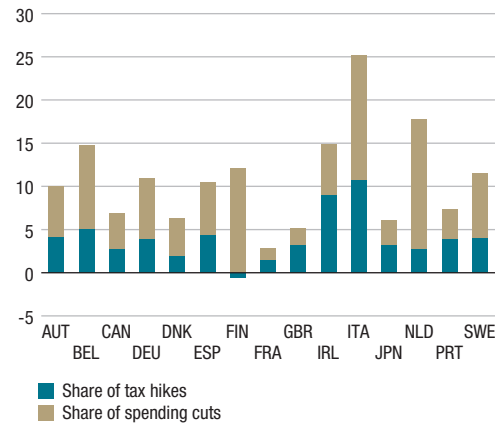
C2 Fiscal consolidation by country (1978-2009)

a) Number of episodes



b) Scale of fiscal consolidation

(in % of GDP)



|     |         |     |          |     |                |     |         |     |             |
|-----|---------|-----|----------|-----|----------------|-----|---------|-----|-------------|
| AUT | Austria | DEU | Germany  | FIN | Finland        | IRL | Ireland | NLD | Netherlands |
| BEL | Belgium | DNK | Danemark | FRA | France         | ITA | Italy   | PRT | Portugal    |
| CAN | Canada  | ESP | Spain    | GBR | United Kingdom | JPN | Japan   | SWE | Sweden      |

Source: Banque de France and authors' calculations.

The government ran large deficits and debt more than doubled in three years. Six consolidation episodes were undertaken. The Finnish primary balance was brought back on a sustainable path and the debt ratio progressively decreased. From the early 1980s to the mid-1990s, Canada also ran large deficits mainly for political and social reasons: debt doubled in 15 years. As debt increased, the Canadian government reacted and generated a primary surplus through multi-year fiscal consolidation plans. From 1995 onwards, the debt ratio steadily decreased as the country ran primary surpluses. France is another interesting illustrative example, as the country did not manage to actually stabilise its debt ratio and primary balance. Though some fiscal consolidation episodes were attempted, they were not frequent and large enough to reverse the fiscal trend. In all three case-studies, there is clearly an abrupt increase of the debt ratio in 2008-2009 due to the subprime economic crisis.

Charts 2 and 3 display respectively the total number of fiscal consolidations and their size,

broken down between spending cuts and tax hikes, over the period for each country. Some countries, such as the United Kingdom and France, have consolidated less than 5% of their GDP over the 1978-2009 period. On the other hand, Italy has led numerous fiscal consolidation episodes accounting for 25% of GDP over thirty years. Most fiscal consolidations involve spending cuts and tax hikes simultaneously but the shares are clearly country specific. For example, Finland is an extreme case, as the country almost entirely relied on spending cuts over the period. One should also keep in mind that spending cuts are on average larger than tax hikes. Averaging over the countries and the sample, we find that the size of a typical fiscal consolidation is roughly 1% of GDP. Average spending cuts amount to 0.63% of GDP whereas average tax hikes amount to 0.37% of GDP. Overall, around 60% of fiscal consolidations in the sample are expenditure-based.<sup>3</sup>

Lastly, we consider fiscal consolidation episodes in conjunction with economic cycles. We define

<sup>3</sup> We define fiscal consolidations as expenditure-based if spending cuts are larger than tax hikes.

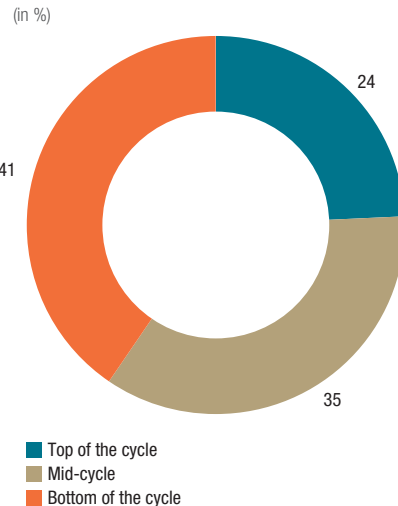
economic cycles as deviations from long-term economic trends. In this respect, the output gap based on real GDP is calculated using the Hodrick-Prescott filter and divided into quartiles. We find that fiscal consolidations are often undertaken during economic downturns as shown in Chart 3, with 41% of fiscal consolidation episodes occurring during the low phase of the business cycle, compared to 24% during economic booms. Such timing is definitely at odds with standard Keynesian policy recommendations and the existing literature on the cyclical nature of fiscal policies that tends to argue that advanced countries ought to implement a-cyclical or counter-cyclical fiscal policies.<sup>4</sup>

## 2. The role of fiscal space and tax compliance in the composition of fiscal consolidation episodes

As shown in Chart 2b, the composition of fiscal consolidation episodes is characterised by large cross-country heterogeneity (whether they are carried out through spending cuts or tax hikes). The objective of this section is to understand what determines the composition of fiscal consolidations and more specifically to explain the share of spending cuts in total fiscal consolidations. In particular, we focus on the possible constraints that the fiscal space and a government's capacity to collect tax revenues in full put on the available fiscal instruments. In this respect we differ from existing literature – e.g. Alesina et al. (2015) – which rather focuses on the different outcomes of fiscal consolidation episodes according to their composition.

Fiscal space may be defined as the room for undertaking discretionary fiscal policy without undermining fiscal sustainability. Obviously, this value cannot be directly observed and several measures of fiscal space have been put forward in the literature and are discussed among policy circles.<sup>5</sup> Measures of fiscal space include various aspects

### G3 Timing of fiscal consolidation episodes



Source: Banque de France and authors' calculations.

of debt sustainability: monetary policy, interest rates on sovereign debt, growth prospects and the government's discretionary fiscal policy. A structural approach, pioneered by Ghosh et al. (2013) and also used by Fournier and Fall (2015) among others, is based on the government's estimated fiscal reaction function. As the debt-to-GDP ratio increases, the government progressively increases its primary balance to service the debt. This works up to a critical level of debt where the government displays fiscal fatigue and is unable to generate larger primary surpluses than the current level. Eventually the government is unable to service its debt, interest rates increase drastically and the country loses market access. Relying on this theoretical framework, fiscal space is defined as the difference between the current level of debt and the debt ceilings measured by Ghosh et al. (2013).<sup>6</sup>

Assessing the capacity to collect tax revenues is crucial as governments control tax rates, but do not control tax revenues. In this respect, Pappadà and Zylberberg (2015, 2016) argue that tax compliance and its fluctuations should be taken into account as to a large extent they determine fluctuations

<sup>4</sup> See Vegh and Vuletin (2015) on the cyclical properties of tax rates.

<sup>5</sup> Determining the size of fiscal space is crucial when an international organisation, like the IMF or the OECD, makes economic policy recommendations for a country.

<sup>6</sup> In contrast with Ghosh et al. (2013), Collard et al. (2015) estimate maximum sustainable debt levels and argue that countries can go beyond these thresholds without necessarily defaulting, but with the risk of seeing their probability of default strongly increase.

in tax revenues. More precisely, they show that when a country raises tax rates, tax compliance decreases, thus mitigating the increase in tax revenues. In order to measure tax compliance, we borrow the VAT compliance indicator from Pappadà and Zylberberg (2015).<sup>7</sup> Aggregate tax compliance  $TC_{t,c}$  is defined as the ratio between tax revenues from total declared transactions and the counterfactual tax revenues from actual transactions. Letting  $T_{t,c}$  denote VAT revenues in year  $t$  for country  $c$ ,  $\tau_{t,c,j}$  the VAT rate for good  $j$ , and  $C_{t,c,j}$  the reported consumption of good  $j$ , we have that:

$$TC_{t,c} = \frac{T_{t,c}}{\sum_j \tau_{t,c,j} C_{t,c,j}}$$

where the gap between tax revenues and expected tax revenues captures imperfect tax enforcement from tax authorities.

In order to study the determinants of the spending cuts as a share of total fiscal consolidations, we proceed in two steps. In the first step, for each country we estimate the elasticity of tax compliance to the cycle by also controlling for changes both in tax rates and tax base. This is important because tax compliance is sensitive to changes in taxes. Without doing this we would overestimate the effects of the cycle on tax compliance.<sup>8</sup> For instance, considering the elasticity of tax compliance to the cycle alone might result in a tax hike for a given country being taken into account, thereby overestimating the effects of the cycle on tax compliance.

In the second step, we then embed the elasticity of tax compliance to the cycle in the following panel regression:

$$\text{Share}_G_{t,c} = \alpha + \beta D_{t,c} + \gamma \xi_c + \delta \xi_c D_{t-1,c} + \sigma X_{t-1,c} + \rho_t + \mu_c + \varepsilon_{t,c}$$

where  $t$  stands for years and  $c$  stands for the country.  $\text{Share}_G_{t,c}$  is the share of spending cuts in the fiscal

**T1 Share of spending cuts in fiscal consolidation episodes**

(in %)

|  | (1)               | (2)                | (3)                | (4)                |
|--|-------------------|--------------------|--------------------|--------------------|
| Elasticity $\xi_c$                     | -3.757<br>(5.969) | -4.812<br>(6.061)  | -130.8<br>(180.9)  | -373.4*<br>(218.2) |
| Debt-to-GDP ratio                      |                   | -0.0456<br>(0.113) | -0.481<br>(0.441)  | -0.683<br>(0.494)  |
| Elasticity $\xi_c$ x Debt-to-GDP ratio |                   |                    | 0.592**<br>(0.273) | 0.567**<br>(0.269) |
| Observations                           | 121               | 118                | 118                | 118                |
| Fixed annual effects                   | Yes               | Yes                | Yes                | Yes                |
| Fixed domestic effects                 | No                | No                 | Yes                | Yes                |
| Controls                               | No                | No                 | No                 | Yes                |

Source: Banque de France and authors' calculations. Standard deviations in brackets. p-value: \* p < 0.10; \*\* p < 0.05; \*\*\* p < 0.01.

consolidation.  $D_{t,c}$  is the government debt as a percentage of GDP, and  $\xi_c$  is the average elasticity of tax compliance to the cycle in country  $c$ , estimated in the previous step. The vector  $X$  will include controls, such as the economic cycle, a dependency ratio to account for the ageing of the population and the average expenditure as a percentage of GDP over the period to account for the size of the government. The regression is weighted by fiscal consolidation size as a percentage of GDP.  $\mu_c$  captures the country-specific components,  $\rho_t$  controls for year-fixed effects and  $\varepsilon_{t,c}$  is the error term. The interest coefficient is  $\delta$  and can be interpreted as the influence of the elasticity of tax compliance on the share of spending cuts in fiscal consolidation as fiscal space increases.

The empirical results are presented in Table 1. We first investigate whether the elasticity of tax compliance and the level of debt ratio have a direct impact on the composition of fiscal consolidation episodes. Columns (1) and (2) show that this is not the case: countries with a high debt ratio or more sensitive tax compliance do not necessarily design their fiscal consolidations based on government expenditure cuts. Instead, as shown in column (3), it is the interaction between the elasticity of tax compliance and the level of debt ratio that matters: when countries have high levels of debt

7 The dataset covers an unbalanced panel of 36 (European and non-European) countries between 1990 and 2012.

8 Estimates are based on fiscal consolidation episodes for 15 countries over the 1978-2009 period. The United States and Australia are taken out of the sample, because there is no VAT in the United States and the value of the elasticity of tax compliance for Australia is an outlier.

– thus a reduced fiscal space – and a high elasticity of tax compliance, they cut expenditure rather than increase taxes when implementing a fiscal consolidation.<sup>9</sup> The intuition is straightforward: as the government cannot increase its debt further, it will generate a primary surplus by cutting spending rather than increasing taxes because the response of tax compliance to a tax hike could hinder the increase in tax revenues. This result is robust to the addition of control variables such as the output gap, the dependency ratio or the average level of government expenditure as reported in column (4).

## Conclusions

This article focuses on fiscal consolidation episodes in OECD countries from 1978 to 2009. Using a standard definition of fiscal consolidations, we first show that 41% of fiscal consolidations occur during the low phase of the business cycle, which stands at odds with benchmark textbooks suggesting that fiscal policy should be counter-cyclical. We also show that the average fiscal consolidation plan amounts to 1% of GDP, around two-thirds being driven by spending cuts and one third by rises in taxes.

We then investigate the determinants of the composition of fiscal consolidations. Relying on a VAT compliance indicator put forward by

Pappadà and Zylberberg (2015), we argue that both the fiscal space and the elasticity of tax compliance to the cycle influence the composition of consolidation episodes. When fiscal space is low, fiscal consolidation implemented in a country with highly elastic tax compliance is likely to rely more heavily on spending cuts than on tax hikes to bring a deficit back on a sustainable path.

These findings have important policy implications. First, more reliable real-time evaluations of the business cycle have to be developed in order to put in place a true contra-cyclical fiscal policy. Implementing fiscal consolidations during the low phase of the business cycle is likely to damage short-term growth (see e.g. Blanchard and Leigh, 2013), as well as long-term growth through hysteresis effects (see Fatas and Summers, 2016).

Second, countries should reinforce tax compliance to avoid excessive elasticity to the business cycle. Lower elasticity enables governments to exercise greater freedom in choosing the tools that compose their fiscal policy: spending cuts and rises in taxes.

Third, we point out the role of fiscal space in the composition of fiscal policy. However, the jury is still out about fiscal space measurement. It seems important that the economic literature and policy discussions come to a consensus on this sensitive issue.

9 The results are robust to (i) replacing the debt to GDP ratio with fiscal space estimates, by Ghosh et al. (2013), or Fournier and Fall (2015), and (ii) considering episodes of fiscal consolidations implemented in booms and recessions, separately.

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# 12th Annual Central Bank Workshop on the Microstructure of Financial Markets

## 29-30 September 2016, Banque de France (Non-technical summary)

The purpose of this conference was to gather analyses on the microstructure of financial markets, i.e. “the study of the process and outcomes of exchanging assets under a specific set of rules.” The conference brought on fruitful discussions on a number of theoretical and empirical studies covering several countries. Topics included assets price changes following the introduction of additional bank regulation, the effect of central bank interventions on asset prices, the implications of “relationship trading”, and the impact of disturbances to trading facilities.

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Keywords: Market  
microstructure, liquidity,  
information, regulation  
JEL codes: G10, G12, G18, E52

NB: The authors wish to  
thank Guillaume Horny for his  
suggestions.

## Key figures

### 10 basis points

the share of the impact of quantitative easing programmes that can be explained by microstructure phenomena

### 19 basis points

the saving achieved on the US repo market, by borrowing from a well-known counterparty

### USD 8 trillion

the weight of the corporate bond market

### Bid-ask spread on government bonds in the European Union, between 2005 and 2012

(in basis points)



Note: This chart shows the deterioration in bond market liquidity since 2008.  
Source: Presentation by Jean-David Sigaux (HEC), using data from the MTS platform.

## 1. Liquidity and intermediation

The first session of the workshop included three recent studies on the relationship between the liquidity of different types of financial assets and how the markets for these assets are organised. For example, bonds are typically traded in a different way from stocks. Bonds – and corporate bonds in particular – are traded predominantly through decentralised, intermediated, over-the-counter (OTC) markets. In contrast, stocks are mostly traded on centralised exchanges. Whether these different arrangements are economically optimal outcomes and how regulation affects the organisation of these markets are important questions.

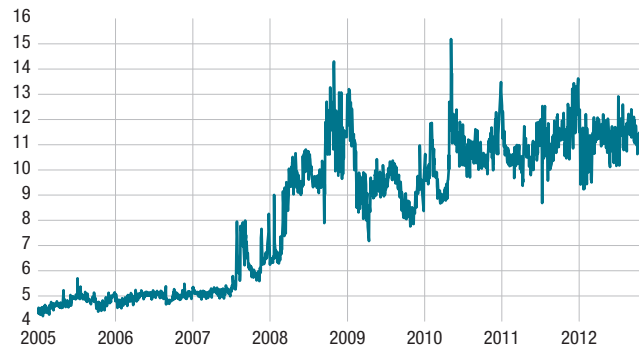
Avi Wohl (Tel Aviv University) analysed the Israeli capital market, where both corporate bonds and stocks are traded on centralised exchanges; in the Tel Aviv Stock Exchange corporate bonds are traded in a market as deep and liquid as the stock market. While it is difficult to identify the reasons behind the formation of a centralised market for corporate bonds, Wohl offers an example of how it is possible to trade corporate bonds on centralised exchanges with tight bid-ask spreads, limited retail trading costs and high retail customer participation.

In his discussion, Bernt Arne Odegaard suggested that a more explicit examination of the differences between Israel and the United States, especially in terms of regulation, could help understand why bond trading is centralised in Israel and not in the United States.

Anders Trolle (École polytechnique fédérale de Lausanne and Swiss Finance Institute) characterised the current, two-tiered structure of the decentralised market for Credit Default Swap (CDS) indexes. He documented that the inter-dealer portion of this market (decentralised market) has proved to be robust to the introduction by the Dodd-Frank Act

### C1 Bid-ask spread on government bonds in the European Union, between 2005 and 2012

(in basis points)



Source: Presentation by Jean-David Sigaux (HEC) using data from the MTS platform.  
Note: This chart shows the deterioration in bond market liquidity since 2008.

of a centralised part. In particular, it seems that the decentralised portion of the market features lower transaction costs and has more modest price impacts than the centralised part. Laurence Lescourret (ESSEC) asked for additional clarifications to help interpret the authors' measure of price impact as a measure of liquidity. She cautioned against potential sources of bias in the identification algorithm.

Regulation could impact liquidity (the ease with which an asset can be exchanged for cash) in a decentralised market via the introduction of a regulatory leverage ratio limiting the borrowing capacity of financial intermediaries. Sebastian Infante (Federal Reserve Board) presented a model in which dealers (financial intermediaries specialised in trading securities) rely on repurchase agreements ("repo") as an efficient way of increasing market liquidity. In this framework, limiting the maximum leverage of dealers would reduce their ability to engage in repo transactions and thus in providing liquidity to securities markets. Given the important role of repos in bond market intermediation, this suggests that the leverage ratio (which deters dealers from participating



D1 How do you beat the market? Liquidity and information



Source: Presentation by Lasse Pedersen (Copenhagen Business School and NYU Stern School of Business).  
Note: This diagram shows the different types of strategies used by various financial intermediaries.

in the repo market) could be responsible for the recent deterioration in the liquidity of US Treasury securities. Jean-David Sigaux (HEC) suggested rollover risk of dealers as an alternative explanation for the deterioration in liquidity.

Finally, Lasse Pedersen (Copenhagen Business School and NYU Stern School of Business) presented his paper “Efficiently Inefficient Markets for Assets and Asset Management” which also focuses on the role of asset managers as financial intermediaries. This work explores a key feature of financial markets, namely the fact that investors can rely on “asset managers” that actively look for particular assets to buy on their behalf. The theoretical model used in this paper shows that the functioning of asset markets is impeded by the presence of short-sighted traders, by the costs of acquiring information on the value of assets and by the cost of searching for asset managers. In the model asset managers have a superior information gathering technology, so it would be more efficient

if all investors invested actively their resources through asset managers rather than doing it by themselves. It follows that asset markets become more efficient if the cost of searching for an asset manager decreases, as more and more investors can afford their services. The cost of acquiring information about assets is thus shared among more investors through the fees that they pay to asset managers, and information frictions on asset markets are mitigated as a consequence.

**2. Relationship trading**

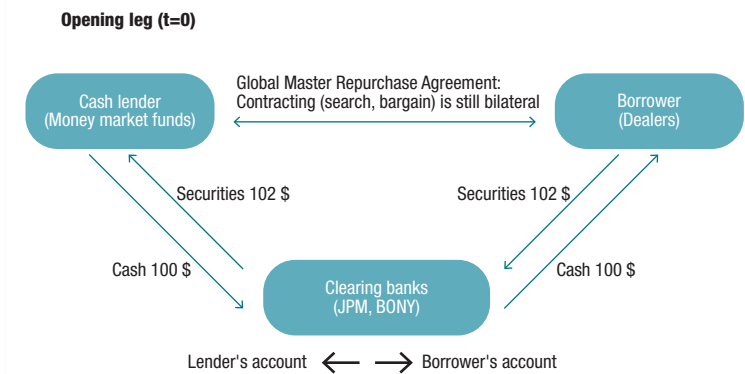
Two presentations focused on “relationship trading”, i.e. trading among agents that interact regularly, on decentralised (over-the counter) financial markets.

The paper presented by Norman Schürhoff (HEC Lausanne) investigates the market for bonds issued by private non-financial corporations (“corporate bonds”). This market is an important source of

financing for US firms and represents a total of around USD 8 trillion. It is also a privileged investment vehicle for insurance companies which hold 30% of such bonds issued. The market is intermediated by dealers who buy corporate bonds and distribute them to insurance companies. In this market, transactions between specific insurer-dealer pairs tend to persist. When choosing the number of dealers with which to interact, insurance companies weigh two considerations: putting the dealers in competition (which tends to increase the number of dealers in the trading network) and taking advantage of the better prices obtained by making repeated interactions with a single dealer (which tends to limit the number of dealers). Larger insurers have larger networks than small insurers and transact at better prices on average. Smaller ones benefit most from repeated interactions. Such interactions improve the price at which they transact by an average of 40 basis points.

Song Han (Federal Reserve Board) explored a segment of the US market for repurchase agreements (“repo”), the “tri-party” repo market. In this market lenders of cash (typically “money market funds”) lend their liquidity to institutions (typically “dealers”), which pledge assets to guarantee the transaction. The collateral is kept with a third party but agents still have to search for counterparties by themselves. This implies that there could also be significant search costs on this market, which in turn could foster relationship lending. Thanks to a new dataset covering transactions on the tri-repo market between 2012 and 2015, the authors showed that participants in this market are more likely to repeat transactions with previous counterparties. They also find that unexpected liquidity shocks on this market are better absorbed by those with stronger relationships. In case of a negative funding shock, interest rates offered to borrowers by the counterparties with which they have a relationship are on average 19 basis points lower than those offered by other counterparties.

## D2 Triparty Repos



Source: Song Han (member of the Federal Reserve Board).

Note: This diagram shows the intermediaries involved in a tri-party repurchase agreement (“repo”).

## 3. Central banks, liquidity and prices

Jens Christensen (Federal Reserve Bank of San Francisco) argued that as a result of asset purchase programmes (Quantitative Easing or QE) by the central bank, agents anticipate that they can always sell their bonds to the central bank at a reasonable price, if needed. This has the effect of improving the market liquidity of these assets. Authors find that during the so called “QE2” programme of the US Federal Reserve in 2010-2011, this channel explains 10 basis points of the decline in bond yields of US Treasury Inflation Protected Securities (a relatively illiquid market).

Then, Peter Hoffmann (European Central Bank) presented the effect of tiers in the interbank market. He finds that a small amount of banks transact with many counterparties while a large amount of banks transact only with a few counterparties. Depending on the relative quantities of these two types of banks present on the market, the equilibrium outcome might be economically inefficient as some trades that would be mutually beneficial do not occur.

Artem Neklyudov (University of Lausanne) invited the authors to clarify why in the model core banks

are not the most profitable, while they have access to the best functioning market.

Benjamin Muller (SNB) measured the effect of recent liquidity regulation (the Liquidity Coverage Ratio) on security prices. This banking regulation gives some financial assets the status of “High Quality Liquid Assets” (HQLA), and incentivises banks to hold such assets. As a result these securities might be more valuable to banks and their price might increase. The authors look at the change in the prices of these securities when the list was made public by the regulator in Switzerland. Taking similar euro-denominated assets as a reference point and adopting a so-called “difference in difference” approach, they find that the Liquidity Coverage Ratio led to a decrease in the yield of High Quality Liquid assets (an increase in their prices) of 4 basis points.

Alain Chaboud (Federal Reserve Board) wondered whether the features of the Swiss market were relevant for understanding the effects of the LCR in other countries. Most notably, the high level of excess liquidity created by the purchases of the Swiss National Bank implied that Swiss banks got flooded with large amounts of HQLA. In turn this limited the scarcity of liquid assets for these banks, such that the LCR constraints would not necessarily be binding.

#### 4. Markets: design and quality

Ayan Bhattacharya (Cornell and Baruch, City University of NY) investigated whether Exchange Traded Funds (ETFs) actually increase market fragility. ETFs are financial institutions that finance themselves by issuing shares that are traded on centralised exchange markets. These entities typically buy securities that are not traded on centralised exchanges. Thus, they allow investors that wish to invest in corporate bonds (which are typically not traded on exchanges) to invest in ETFs shares, thereby improving the

liquidity profile of investors’ portfolios. The paper focuses on those ETFs whose underlying assets are difficult to trade, such as high-yield bonds. In this context, informed trading may take place in the ETF. Underlying market makers then have an incentive to learn from the ETF price when setting prices in their respective markets. The paper shows that this learning is imperfect. Market makers pick up information unrelated to asset value along with pertinent information. This leads to the propagation of shocks unrelated to fundamentals and causes market instability. Sabrina Buti (University of Paris-Dauphine) stressed that ETFs whose underlying assets are strictly speaking hard to trade represent a small share of the industry. As a consequence, policy implications should be interpreted with caution. ETFs may also increase the liquidity of the underlying assets.

The second paper, presented by Evangelos Benos (Bank of England), studies the effects of the Dodd-Frank Act on the interest rate swap market in euros and US dollars. Their results suggest that both activity and market liquidity have increased as a result of the change in regulation. Furthermore, the associated reduction in execution costs is economically significant. In USD mandated contracts the drop is of the order of about USD 7 million – USD 13 million per day. Jean-Edouard Colliard (HEC), suggested distinguishing between a channel that acts via changes in market structure and a channel that acts via changes in market transparency.

The paper presented by Sean Foley (University of Sydney) studies the effects on market efficiency and integrity of introducing closing auctions in 20 exchanges around the world. They delineate two main categories of closing auctions (those in which on-close orders can be entered throughout the day, and those with a distinct end-of-day auction period) and examine four auction design features. The main finding is that closing auctions significantly improve market quality, with on-close mechanisms providing the greatest benefits. Closing

auctions tend to be more beneficial if they have randomised closing times, extensions if volatility thresholds are breached (which prevents traders from altering their orders during the pre-close time) and do not display indicative closing prices.

The keynote lecture by Bruno Biais (Toulouse School of Economics) “Incentive constrained risk sharing and asset pricing” also addressed issues of market design. Derivative products are contracts between different agents that give rise to the exchange of resources depending on the price or payoff of some other product, for instance the price of a commodity at a given date. However, one party to the contract can default on its payment once it comes due. The authors explore the consequences of these strategic defaults when only an insufficient amount of collateral is pledged. In such a case, agents engage only in a limited amount of derivative trading. A lower amount of trading is compatible with the incentive of all parties and ensures that payments are made. However, this constraint on the amount of derivative contracts that are assumed by agents limits the possibility of arbitrage. Typically, the arbitrage between the price of derivative contracts and the underlying assets cannot take place, and as a result their prices differ. Also, agents cannot fully insure each other against the fluctuation of physical assets. Markets are then said to be “incomplete”. Furthermore, different types of agents will have different portfolios, a situation referred to as “market segmentation”.

## 5. Session 5: market disruptions

Carol Osler (Brandeis University) analysed the manipulation of official financial prices such as the official US dollar/Japanese yen exchange rate. The paper models the optimal trading strategies of dealers around the “fixing” time, i.e. the time of the day where a snapshot of the price is taken to serve as the official financial price for that day. In the model, dealers on the foreign exchange market can trade

on behalf of their clients or for their own account. The model shows how dealers can make additional profits by colluding on the price at which they transact and by exchanging information about their clients, thus explaining the pattern observed around fixing times in the data. The discussion from Dafinn Rime (BI Norwegian Business School) pointed to a puzzle in the fact that, despite the potential for wide market manipulation around the fix, there are still some counterparties that accept to trade with dealers during this time window. Knowing more about the profile of the dealers’ counterparties around the fix would enhance our understanding of market dynamics.

Guillaume Vuilleme (HEC) questioned the post-crisis conventional wisdom that wholesale funding is vulnerable to market-wide freezes. The author studies the French market for certificates of deposits (CD), which are short-term uncollateralised securities with a maturity of less than one year issued by banks. The French CD market is large (debt outstanding of around EUR 400 billion) and comparable in size to the repo market, while being larger than the unsecured interbank market. The author shows the resilience of CDs as a source of funding. This market did not suffer a market-wide freeze that would hurt indiscriminately good and bad banks. The paper rather shows that 1) there were several episodes of bank-specific funding runs on the French CD market during the period 2008-2014, which includes both the financial crisis and the European sovereign crisis, but no episode of market-wide freeze; and 2) there is a reallocation of funds during periods of stress from weak banks to strong banks. More specifically, banks facing runs exhibit lower future performance, which is not attributed to reverse causality, while banks that increase funding tend to perform well in the future.

Angelo Ranaldo (University of St Gallen) questioned how banks that suffered a run financed themselves. Most probably, these banks have recourse to central bank facilities. He acknowledged, however,

that the data needed to investigate this point are still confidential.

## 6. Trading in the 21st century

The two papers of this session presented empirical evidence on the effects of high frequency trading and on market liquidity and welfare. Andriy Shkilko (Wilfrid Laurier University) argued that having access to the most recent technology enables trading firms to maintain their speed advantage when posting their market quotes. However, such technology is often accessible only to a small number of trading firms, leading to substantial speed differentials among traders. The author investigates the effects of such speed advantages on market liquidity and volatility. To address this question, he studies a series of exogenous episodes that temporarily remove the speed advantage of the fastest traders. More specifically, he measures the impact of the precipitations that disrupt the microwave networks linking Chicago Mercantile Exchange and NY equity markets. He finds that during these episodes, market trading conditions improve. Adverse selection declines, liquidity improves and volatility is reduced. These results are confirmed in an event-study setting. It suggests that speed differentials among traders harm market functioning. Sophie Moinas (Toulouse School of Economics) stressed that from a theoretical point of view the effect of a disruption in the speed advantage is equivocal: fast traders may impose adverse selection costs in normal times but they

can also monitor the market better. Their exit does not generate the same effects depending on how they fulfill these functions.

Badrinath Kottimukkalur (Emory University) contributed to the debate about the welfare implications and the regulation of high frequency trading (HFT). He first looks at trading around scheduled macroeconomic announcements and finds that stock index exchange traded funds and futures prices respond to surprise announcements within a tenth of a second, with trading intensity increasing tenfold in the quarter second following the news release. To answer the question about the welfare implications he estimates the super-short-term trading revenues from trading strategies based on announcements. He presents evidence that profits from trading on surprise announcements are relatively small and have declined in recent years. Moreover, the competition reduces the rents from high frequency news trading. The author concludes that these results mitigate the need to regulate HFTs. In response, Katya Malinova (University of Toronto) argued that HFT profits are not the only criterion for HFT regulation as they are not necessarily representative of the overall impact of HFT on other market participants. Moreover, she emphasized that the revenues from trading on macroeconomic announcements may not be the only source of HFT profits as HF traders derive profits from multiple securities, asset classes and geographical areas and their strategies change over time.

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# French banks confirm their fourth rank in international banking

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The French banking system ranks fourth worldwide in terms of international activity. On a consolidated basis, the international exposure of French banks stood at USD 2,632 billion in the second quarter of 2016, i.e. 10% of the total of banks reporting to the Bank for International Settlements (BIS). This strong international dimension illustrates the French banks' competence in all financial services – international trade financing, asset management for institutional investors, financial arrangements, currency trading and hedging services for banks and companies, as well as their know-how in retail banking activities carried out through their foreign banking outlets.

This international activity makes a positive contribution of more than EUR 9 billion to the current transactions account in the balance of payments. As a percentage of France's GDP, it is above the average for G7 countries (in second place with 108% of GDP,<sup>1</sup> behind the United Kingdom with 120%).

This article draws on an enhanced set of international banking statistics, recently made available by the Banque de France as part of the G20 "Data Gaps Initiative", coordinated by BIS. The aim is to gain better knowledge of international financial interconnections.

1 Source: World Bank, 2015 GDP.

Key words: international financing, international banking statistics, balance of payments, banking crises, intra-group flows, network of local offices, deposit taking, change in banking model

JEL codes: F30, G21

NB: The authors wish to thank Frulgence Noumagnon and Gilles Muller for their assistance with the data.

## Key figures

### 82%

the share of OECD countries in the international liabilities of French banks

### 100

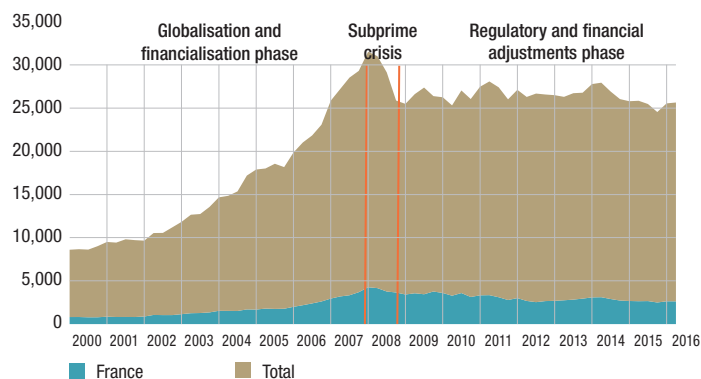
the number of countries in which French banks have local operations

### EUR 9 billion

the positive contribution made by French banks to the balance of payments' current account

### Outstanding amounts of foreign claims of French banks and banks in BIS-reporting countries

(in billions of US dollars)



Sources: Banque de France and Bank for International Settlements - consolidated bank claims.

## 1. Since 2006, French banks have retained their fourth place in the world ranking

### Controlled development of international financing and dynamic momentum of activities rooted in the local economies

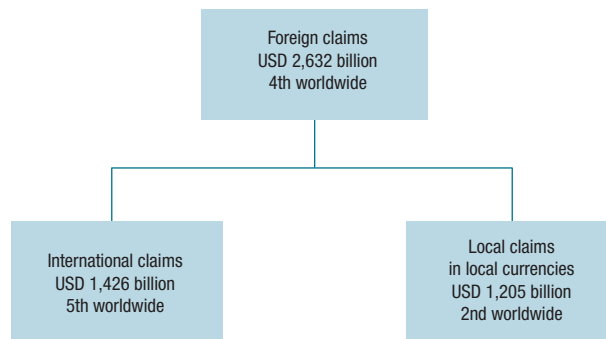
In the second quarter of 2016, the consolidated foreign claims (see Box 1) of French banks totalled USD 2,632 billion, ranking French banks in fourth position behind Japanese banks (USD 3,927 billion), UK banks (USD 3,200 billion) and US banks (USD 3,026 billion).

Over the past ten years, the volume of consolidated foreign claims held by French banks has grown by 32%, from USD 2,000 billion to USD 2,632 billion. This increase in foreign claims is attributable mainly to strong growth in “local claims in local currencies”, which represents the activity of French foreign banking subsidiaries developed based on deposits taken locally. The corresponding volumes have risen from USD 695 billion in 2006 (fourth in world ranking) to USD 1,205 billion in 2016 (second in world ranking), corresponding to growth of 75%. This performance reflects the preference shown by French banks for international expansion based on ‘multi-domestic’ operations, with activity developed through local banking subsidiaries that can collect local deposits, without depending entirely on intra-group refinancing. International claims – which sub-divide into cross-border claims and local claims in foreign currencies – have grown at a more moderate pace, up by 9% from USD 1,305 billion to USD 1,426 billion, bringing French banks down from third to fifth position in terms of this type of exposure.

### Substantial weight of French banks in international banking activities

In the second quarter of 2016, French banks held 10% of the foreign claims held by all the banks of BIS-reporting countries, 15% of foreign claims

### Illustration Breakdown of foreign claims



Sources: Banque de France and Bank for International Settlements - consolidated bank claims.

### T1 Top ten nationalities of banks holding claims in the first quarter of 2006 and the second quarter of 2016

#### a) Foreign claims

(in billions of US dollars)

| Country        | Total volume of claims 2006 | 2006 ranking | Total volume of claims 2016 | 2016 ranking |
|----------------|-----------------------------|--------------|-----------------------------|--------------|
| Japan          | 1,638                       | 6            | 3,927                       | 1            |
| United Kingdom | 2,766                       | 2            | 3,200                       | 2            |
| United States  | 1,182                       | 7            | 3,026                       | 3            |
| France         | 2,000                       | 4            | 2,632                       | 4            |
| Germany        | 3,148                       | 1            | 2,333                       | 5            |
| Spain          | 886                         | 9            | 1,563                       | 6            |
| Switzerland    | 2,131                       | 3            | 1,546                       | 7            |
| Canada         | 522                         | 11           | 1,356                       | 8            |
| Netherlands    | 1,864                       | 5            | 1,193                       | 9            |
| Sweden         | 539                         | 10           | 842                         | 10           |

Sources: Banque de France and Bank for International Settlements - consolidated bank claims.

#### b) Local claims in local currencies

(in billions of US dollars)

| Country        | Local claims in local currencies 2006 | 2006 ranking | Local claims in local currencies 2016 | 2016 ranking |
|----------------|---------------------------------------|--------------|---------------------------------------|--------------|
| United Kingdom | 1,494                                 | 1            | 1,745                                 | 1            |
| France         | 695                                   | 4            | 1,205                                 | 2            |
| Spain          | 543                                   | 6            | 1,162                                 | 3            |
| United States  | 478                                   | 7            | 1,081                                 | 4            |
| Canada         | 298                                   | 9            | 895                                   | 5            |
| Japan          | 212                                   | 11           | 822                                   | 6            |
| Netherlands    | 949                                   | 3            | 611                                   | 7            |
| Switzerland    | 1,055                                 | 2            | 554                                   | 8            |
| Sweden         | 282                                   | 10           | 541                                   | 9            |
| Germany        | 544                                   | 5            | 493                                   | 10           |

Sources: Banque de France and Bank for International Settlements - consolidated bank claims.



### T1 Top ten nationalities of banks holding claims in the first quarter of 2006 and the second quarter of 2016 (cont.)

c) International claims  
(in billions of US dollars)

| Country        | International claims 2006 | 2006 ranking | International claims 2016 | 2016 ranking |
|----------------|---------------------------|--------------|---------------------------|--------------|
| Japan          | 1,425                     | 2            | 3,106                     | 1            |
| United States  | 704                       | 7            | 1,945                     | 2            |
| Germany        | 2,604                     | 1            | 1,840                     | 3            |
| United Kingdom | 1,272                     | 4            | 1,455                     | 4            |
| France         | 1,305                     | 3            | 1,427                     | 5            |
| Switzerland    | 1,077                     | 5            | 976                       | 6            |
| Netherlands    | 916                       | 6            | 582                       | 7            |
| Canada         | 223                       | 14           | 462                       | 8            |
| Italy          | 286                       | 11           | 420                       | 9            |
| Spain          | 343                       | 10           | 401                       | 10           |

Sources: Banque de France and Bank for International Settlements - consolidated bank claims.

#### Box 1

#### International banking statistics

The Bank for International Settlements publishes two sets of statistics on international banking activity: locational banking statistics (LBS) and consolidated banking statistics (CBS) on immediate counterparty or ultimate risk bases. The analyses carried out in this entire sub-section are based on CBS on an immediate counterparty basis, whose profile is close to that of 'ultimate risk' but which offers greater detail and comparability. Unlike LBS, CBS does not take into account intra-group transactions between French and foreign operations but includes the activity of foreign operations.

For more information on these statistics: <https://www.banque-france.fr/statistiques/balance-des-paiements/lactivite-bancaire-internationale>.

2 United States, Japan, Germany, France, United Kingdom, Italy and Canada.

3 The data of thirteen euro-zone countries are published since 2008: Germany, Austria, Belgium, Cyprus, Spain, Finland, France, Greece, Ireland, Italy, Luxembourg, Netherlands and Portugal. The data of the other countries are not published or not reported.

4 The data for other countries are not published due to the disclosure policies of each central bank.

held by G7<sup>2</sup> banks and 28% of those held by euro area banks.<sup>3</sup>

claims with USD 2,936 billion of these claims, i.e. 77% of domestic claims, denominated in euro.

The small difference between French banks' share of all BIS-reporting banks and their share among G7 banks reflects the predominant weight of G7 banks in terms of foreign claims held.

Nonetheless, the activity of French banks continues to be predominantly focused on the French economy: in the second quarter of 2016, claims on the French economy held by French banks<sup>4</sup> totalled USD 3,791 billion, i.e. 59% of total

### T2 Share of French banks in 2016

| (in %)  |    |
|---|----|
| Share of France in BIS-reporting countries as a whole | 10 |
| Share of France in the G7                             | 15 |
| Share of France in the G20 <sup>a)</sup>              | 14 |
| Share of France in the euro area                      | 28 |

Sources: Banque de France and Bank for International Settlements - consolidated bank claims.

a) Twelve G20 countries publish data since 2006: Germany, Australia, Brazil, Canada, United States, France, India, Italy, Japan, Mexico, United Kingdom, Turkey. South Korea publishes data since the fourth quarter of 2011. At the time of this study, China, South Africa, Saudi Arabia, Argentina, Indonesia and Russia did not contribute to CBS data.

## 2. French banks in the post-crisis consolidation of international banking activities

### French banks' international activities, measured in euro, have contracted slightly since 2008

Between March 2000 and June 2006, there have been two distinct phases in the trend in consolidated foreign claims of all BIS-reporting countries (see Chart 1). The first phase, from 2000 to the first quarter of 2008, featured strong growth in foreign claims. This growth resulted from the general globalisation movement which, for the banking sector, led to international expansion in all banking activities and easier access to larger markets. In 2000, BIS-reporting banks as a whole held foreign claims totalling USD 8,588 billion. By the first quarter of 2008, this amount had more than tripled, to USD 31,400 billion.<sup>5</sup> French banks shared in this movement, with foreign claims up from USD 817 billion in 2000 to USD 4,264 billion in 2008.

Since the subprime crisis, a second phase has been underway. After a sharp decrease in 2008, with an 18% fall to USD 25,750 billion in total foreign claims held by BIS-reporting banks, the level has

### T3 Comparison of domestic claims and foreign claims held by French banks in the second quarter of 2016

(in billions of US dollars)

|  |              |
|--|--------------|
| Foreign claims                         | 2,632        |
| Domestic claims                        | 3,791        |
| o/w local claims in euro               | 2,936        |
| o/w local claims in foreign currencies | 751          |
| <b>Total</b>                           | <b>6,423</b> |

Sources: Banque de France and Bank for International Settlements - consolidated bank claims.

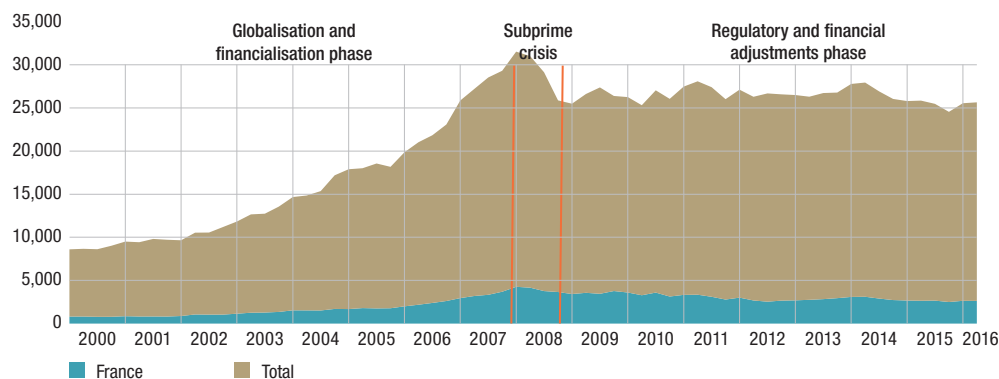
stabilised. In the second quarter of 2016, foreign claims totalled USD 25,400 billion, virtually stable compared with the end of 2008.

In the same way, the foreign claims of French banks diminished by 14% between the first and fourth quarters of 2008, dropping to USD 3,659 billion. The decline in foreign claims has continued: at the end of the second quarter of 2016, the foreign claims of French banks totalled USD 2,632 or 28% less than at the end of 2008. However, these figures need to be put into perspective given the fall in euro/dollar exchange rates since 2008: expressed in euro, foreign claims held by French banks decreased by only 3% in 2008 and by 10% from the end of 2008 to the second quarter of 2016 (see Chart 2).<sup>6</sup>

International banking activity, as measured by consolidated claims, has also evolved in line

### C1 Outstanding amounts of foreign claims of French banks and banks in BIS-reporting countries

(in billions of US dollars)

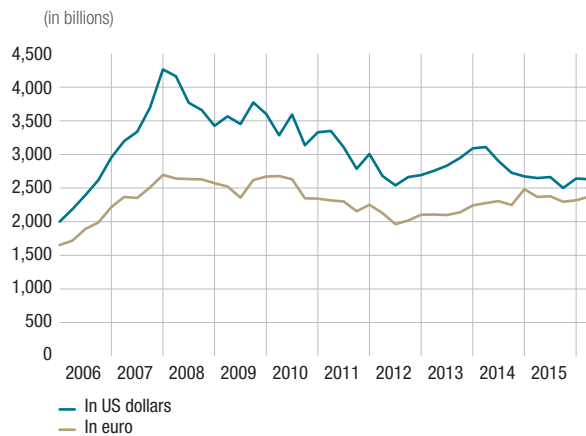


Sources: Banque de France and Bank for International Settlements - consolidated bank claims.

<sup>5</sup> The changes in scope of BIS-reporting countries should be taken into account here. At constant scope, total foreign claims amounted to USD 30,295 billion in the first quarter of 2008.

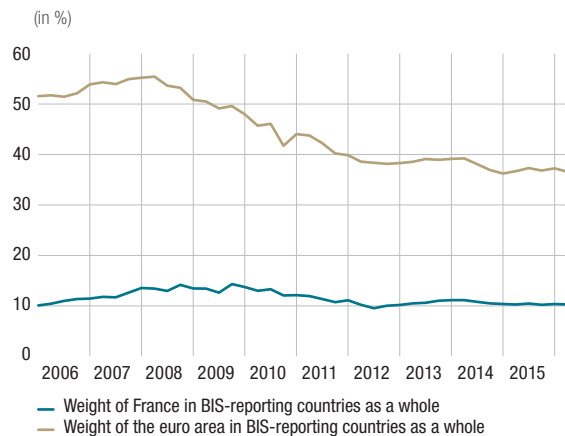
<sup>6</sup> The currency effect is examined in "The international banking activities of France's main banking groups since 2006", ACPR, *Analyses et Synthèses*, no. 36, October 2014. [https://acpr.banque-france.fr/fileadmin/user\\_upload/acpr/publications/analyses-syntheses/20150331-AS36-The-international-banking-activities-of-France-s-main-banking-groups.pdf](https://acpr.banque-france.fr/fileadmin/user_upload/acpr/publications/analyses-syntheses/20150331-AS36-The-international-banking-activities-of-France-s-main-banking-groups.pdf)

C2 Foreign claims of French banks



Sources: Banque de France and Bank for International Settlements - consolidated bank claims.

C3 Weight of French banks and euro area banking groups among BIS-reporting banks as a whole



Sources: Banque de France and Bank for International Settlements - consolidated bank claims.

with the acquisitions and disposals made by French banks. In 2009, BNP Paribas' takeover of Fortis automatically increased the foreign claims of French banks, with a symmetrical fall in the foreign claims held by Belgian banks.

The period from 2010 to end-2012, corresponding to the euro area sovereign debt crisis, was marked by a steady fall in French banks' foreign claims. Other European banks recorded similar falls, with foreign claims down by 23% for the euro area banks and by 26% for the French banks. In volume, this amounted to a decrease of USD 2,950 billion for euro area banks as a whole and a decrease of USD 1,110 billion for the French banks. The decreases recorded by French, German (USD 620 billion) and Irish (USD 478 billion) banks accounted for 75% of the overall contraction in foreign claims held by European banks.

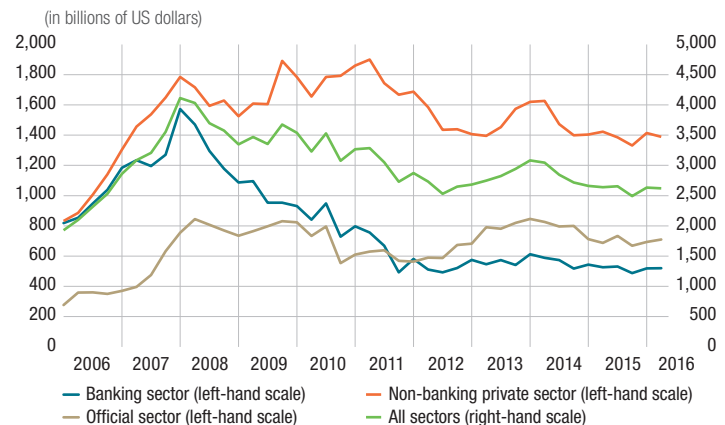
Claims on bank counterparties has decreased by 67% since 2008

An analysis of the trend in foreign claims by counterparty sector gives a better understanding of the changes underway.<sup>7</sup>

The decrease in French banks' foreign claims mainly reflects the decrease in claims on bank counterparties. Out of the total decrease of USD 1,491 billion in foreign claims held by French banks, USD 1,053 billion correspond to the decrease in claims on bank counterparties (see Chart 4). The fall in claims on the non-banking private sector was far more moderate and claims on the

7 In this section the data are analysed on an 'ultimate risk' basis as they are broken down by counterparty sector. Note that the immediate counterparty country is the country where the initial risk exposure is, i. e. the immediate counterparty's country of residence. The ultimate risk counterparty country is the country where the ultimate risk lies, defined as the country of residence of the guarantor of the claim.

C4 Foreign claims of French banks by counterparty sector



Sources: Banque de France and Bank for International Settlements - consolidated bank claims.

official sector<sup>8</sup> have remained virtually stable. These movements are characteristic of the trends recorded in all the main banking systems in the aftermath of the crisis: banks have reduced their claims on other banks in favour of placements with their central banks and government securities representing safe investments.

### 3. International activities consist mainly of intra-group flows and deposit taking

#### Strong growth in intra-group cross-border claims over the past decade

The cross-border claims of French banks consist mainly of intra-group financial transactions<sup>9</sup>,<sup>10</sup> and transactions with the “non-banking sector”, comprised mainly of corporates. These two types of transactions accounted for 80% of cross-border claims, with a 40% share for each type.

While the large proportion of cross-border claims with non-banking sector counterparties is comparable with the average of other BIS-reporting

banking systems, the proportion of intra-group flows is substantially larger, particularly compared with the German, Japanese and UK banking systems. This suggests that the cash management of French banking groups is more centralised than that of their peers in other countries.

Since 2006, intra-group claims have increased by 70%, up by USD 496 billion from USD 712 billion to USD 1,208 billion.

This move towards more centralised cash management forms part of efforts to achieve more rational collateral management, optimise trading capacities in the markets and better meet investors’ demands in terms of instruments and amounts issued. It can also be explained by a desire to limit the adverse consequences of turbulence in local financial markets.

In response to the drying up of US dollar flows from US money market funds to US subsidiaries of European banks during the euro area sovereign debt crisis (2011), the parent groups developed dollar financing for their subsidiaries and branches,

#### T4 Counterparty sectors of claims held by main world banking systems in the second quarter of 2016

##### a) In amount

(in billions of US dollars)

| Counterparty sector                | France | Germany | United States | Japan | United Kingdom |
|------------------------------------|--------|---------|---------------|-------|----------------|
| Banking sector                     | 1,779  | 1,637   | 1,807         | 1,762 | 1,396          |
| <i>o/w intra-group</i>             | 1,208  | 978     | 1,215         | 1,175 | 972            |
| <i>o/w interbank outside group</i> | 572    | 659     | 592           | 587   | 424            |
| Non-banking sector                 | 1,174  | 1,226   | 1,287         | 2,679 | 1,249          |
| Total <sup>a)</sup>                | 3,039  | 2,868   | 3,109         | 4,442 | 2,651          |

Sources: Banque de France and Bank for International Settlements - locational claims by bank nationality.

a) The “Total” is the sum of banking sector, non-banking sector and unallocated amounts.

##### b) As a percentage

| Counterparty sector                | France | Germany | United States | Japan | United Kingdom |
|------------------------------------|--------|---------|---------------|-------|----------------|
| Banking sector                     | 59     | 57      | 58            | 40    | 53             |
| <i>o/w intra-group</i>             | 40     | 34      | 39            | 26    | 37             |
| <i>o/w interbank outside group</i> | 19     | 23      | 19            | 13    | 16             |
| Non-banking sector                 | 39     | 43      | 41            | 60    | 47             |

Sources: Banque de France and Bank for International Settlements - locational claims by bank nationality.

Note: See appendix 1 for the compared 2006 data. The sum of banking and non-banking sectors may differ from 100 due to unallocated amounts.

<sup>8</sup> Sector including governments, central banks and international bodies.

<sup>9</sup> To isolate the intra-group role, this sub-section is based on locational claims, by bank nationality (Locational Banking Statistics, <https://www.banque-france.fr/statistiques/balance-des-paiements/lactivite-bancaire-internationale>).

<sup>10</sup> Defined as claims on subsidiaries and branches.

drawing for some time in the Term Auction Facility (TAF) and the swap agreements between the US Federal Reserve system and Eurosystem.<sup>11</sup>

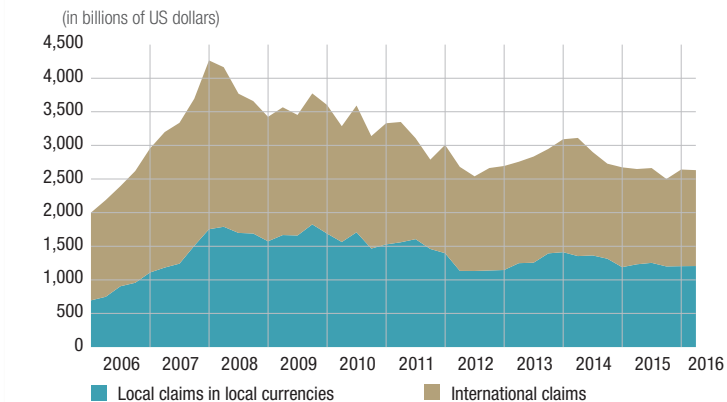
In these conditions, at the end of the second quarter of 2016, French banks had a significantly higher level of claims financing the activities of their foreign banking subsidiaries than before the crisis. In relative value, the weight of intra-group claims has risen from 26% to 40% of cross-border financing.

**Developing the activity of local banking offices plays a relatively important part in the international activities of French banks**

To define their international activity, banks arbitrage between two types of risk. Transactions on the international markets, undoubtedly more volatile but which can be adjusted rapidly, and traditional “local” intermediation banking activities, which are more stable but exposed to the macroeconomic risks specific to the local economies. Since 2006, French banks have shown a preference for developing local activities.

Between the first quarter of 2006 and the second quarter of 2016, local claims in local currencies<sup>12</sup> held by French banks increased by 73%, i.e. by

**C5 Foreign claims of French banks by type of claim**

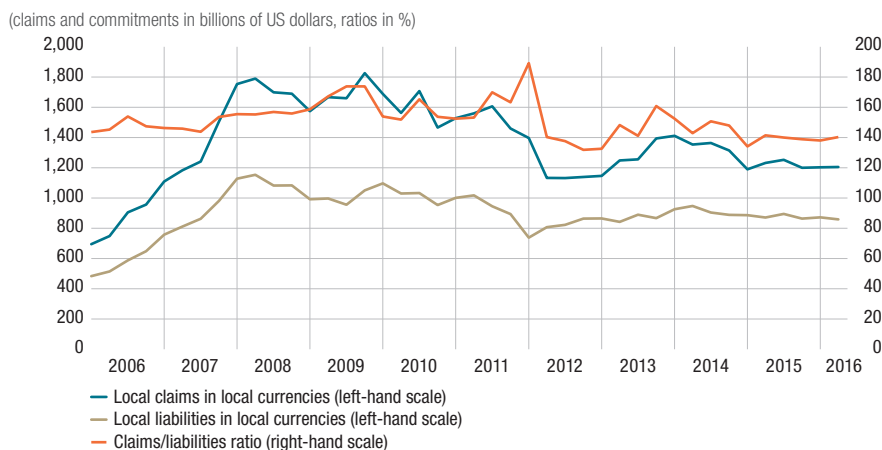


Sources: Banque de France and Bank for International Settlements - consolidated bank claims.

USD 511 billion (from USD 695 to 1,205 billion). Over the same period, international claims<sup>13</sup> increased by USD 121 billion, up 9% from USD 1,305 billion to USD 1,427 billion.

Over the period as a whole, local claims in local currencies seem less volatile than financial claims. In 2008, local claims in local currencies fell by only 3.7% (USD 1,689 billion in the fourth quarter of 2008) compared with a 21.5% fall in international claims<sup>14</sup> (USD 1,970 billion in the fourth quarter of 2008).

**C6 Local claims backed by local liabilities for French banks**



Sources: Banque de France and Bank for International Settlements - consolidated bank claims.

11 For a description of these mechanisms, see *Banque de France Annual Report 2008* and *Banque de France Annual Report 2012*.

12 Claims of local banking offices in the currency of the country of outlet.

13 Comprising local claims in foreign currencies and cross-border claims regardless of the currency used.

14 As indicated in section 1, the changes are strongly linked to a currency effect.

**T5 Local claims of French banks backed by local liabilities in the second quarter of 2016**

(in billions of US dollars)

| Counterparty country | Local claims in local currencies | Local liabilities in local currencies | Ratio of local claims in local currencies to local liabilities in local currencies |
|----------------------|----------------------------------|---------------------------------------|--|
| United States        | 329                              | 236                                   | 1.39   |
| Italy                | 204                              | 107                                   | 1.90   |
| Belgium              | 140                              | 140                                   | 1.00   |
| Japan                | 99                               | 29                                    | 3.39   |
| Germany              | 65                               | 73                                    | 0.89   |
| United Kingdom       | 32                               | 24                                    | 1.30   |
| Spain                | 31                               | 13                                    | 2.36   |
| Czech Republic       | 29                               | 26                                    | 1.12   |
| Luxembourg           | 29                               | 54                                    | 0.54   |
| Switzerland          | 27                               | 6                                     | 4.49   |
| Netherlands          | 25                               | 6                                     | 4.09   |
| Poland               | 25                               | 19                                    | 1.32   |
| Turkey               | 21                               | 11                                    | 1.81   |
| Morocco              | 19                               | 13                                    | 1.40   |
| Russia               | 10                               | 7                                     | 1.50   |

Sources: Banque de France and Bank for International Settlements - consolidated bank claims.

Two main factors can explain the relative inertia of local claims in local currencies. First of all, these claims are representative of the relations between the bank and the local economic players, which constitute a business goodwill that can a priori be developed throughout the different economic cycles. Secondly, the bulk of the activities carried out by their foreign retail banking subsidiaries did not concern the international market instruments most severely affected by the 2008 crisis. The exposure to structured products<sup>15</sup> of subsidiaries dedicated to financing local companies and households was therefore relatively low.

In the case of French banks, local deposits finance at least half of local claims, in most cases (see Table 5). In the majority of cases, the ratio of local claims to local liabilities in local currency<sup>16</sup> ranges between 1.40 and 1.60, which means that financing granted locally exceeds funds raised locally. A strong coverage of local claims by local deposits has the benefit of limiting foreign exchange risk and ensures, when deposits are spread across a large base of depositors, a stability of funding for the bank concerned.

Moreover, taken globally, the variations in the amounts of claims and liabilities in local currencies have been strongly and positively correlated since 2006, with a correlation coefficient of 0.93.

**4. Strong and stable geographic diversification****Comparatively greater geographic diversification than other banking systems**

In the second quarter of 2016, French banks held consolidated claims in 191 of the 214 countries and territories listed by BIS. This figure reflects the extensive geographic coverage of French banks (see Table 6).

**T6 International presence of French banks**

(in number of countries)

|                                      |     |
|--------------------------------------|-----|
| More than four French banking groups | 162 |
| Only four French banking groups      | 23  |
| Only three French banking groups     | 5   |
| Only two French banking groups       | 1   |
| Only one French banking group        | 0   |

Sources: Banque de France and Bank for International Settlements - consolidated bank claims.

Note: This table shows the concentration of French banks that hold foreign claims.

Example: There are 162 countries where more than four French banking groups operate.

15 The structured products were mainly in the form of cross-border claims on American borrowers. See McGuire and von Peter, "The Resilience of Banks' International Operations", BIS Quarterly Review, March 2016.

16 Local liabilities in local currency are comprised mainly of transactions excluding securities (local deposits and delivered repos).

**T7 Geographic areas of counterparties of foreign claims of French, US and UK banks in 2016**

(in %)

| Geographic region              | France | United States | United Kingdom |
|--------------------------------|--------|---------------|----------------|
| G7                             | 51     | 44            | 42             |
| G20                            | 59     | 62            | 58             |
| Euro area                      | 39     | 23            | 20             |
| OECD                           | 82     | 66            | 59             |
| Offshore centres <sup>a)</sup> | 4      | 18            | 20             |

Sources: Banque de France and Bank for International Settlements - consolidated bank claims.

a) Twenty-one countries according to BIS list - see Appendix 2.

counterparty countries for French banks than for US and UK banks. Offshore centres<sup>19</sup> represent 4% of French banks' foreign claims.

Since 2006, regardless of the nationality of the banks examined, the claims on G7 countries occupy a primordial position in the major trends observed among the other geographic zones. However, proportionally, claims on G7 and OECD country counterparties is declining. For French groups this shift is in favour of the euro area countries, reflecting the development of their banking operations in numerous euro area countries.

**Stability of counterparty countries over time**

The diversity of the counterparty countries for the foreign claims of French banks was already visible before the crisis and has remained that way. The normalised Herfindahl-Hirschmann index (HHI)<sup>20</sup> has remained stable at around 0.07, below the 0.10 level that indicates low concentration. France is not an exception in this respect as in 2006, none of the bank nationalities examined<sup>21</sup> exceeded this threshold and the level has remained fairly stable since then.

17 Part of the difference may come from the fact that some reporting countries do not yet give BIS an exhaustive geographic breakdown of the international exposures of their national banks.

18 Given the more limited number of counterparty countries reported by the Japanese and German banking systems, we decided, for the sake of robustness, not to include them in these comparisons.

19 Various international bodies have published lists of offshore centres (see Appendix 2). The BIS typology is used in the study, given that the study is based on BIS statistics.

20  $HHI = \frac{H-1/n}{1-1/n}$  où  $H = \sum_{i=1}^n s_i^2$

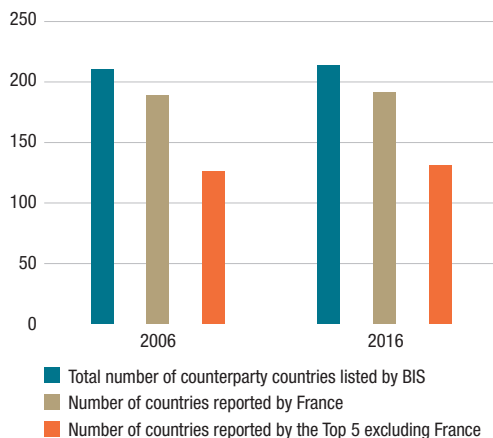
s the share of exposure to country i relative to the total exposure of a reporting country and n the number of countries. The large number of counterparty countries results in convergence between the normalised index and the usual index thereby facilitating the interpretation of the results.

21 As the counterparty countries of Japanese and German banks are relatively less fully reported, they have been excluded from the analysis.

By way of comparison, the world's top five banking groups are present in 131 countries on average.<sup>17</sup>

OECD countries are the top counterparty countries of claims held by French banks (82% of all foreign claims in 2016). G7 countries are the counterparty countries for 50% of the claims. These levels are higher than those of the UK and US banks<sup>18</sup> with levels of, respectively, 59% and 66% of claims on OECD countries and 42% and 44% on G7 counterparties. Unsurprising, proportionally and in volume, euro area countries are more often the

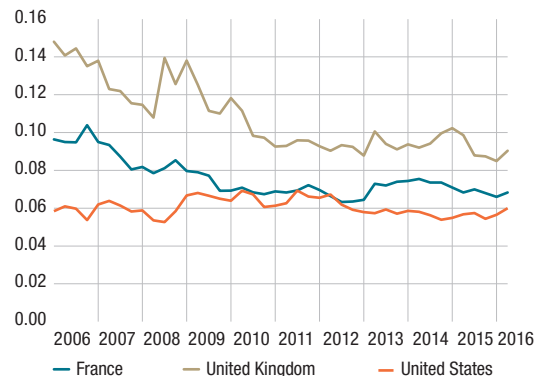
**C7 Reporting level of main nationalities of banking groups**



Sources: Banque de France and Bank for International Settlements - consolidated bank claims.

**C8 Geographic diversification of foreign claims of the three top bank nationalities**

(normalised Herfindahl-Hirschmann index)



Sources: Banque de France and Bank for International Settlements - consolidated bank claims.

## Box 2

## Outward FATS survey on international activity of French groups

Globalisation and the expanding role of multi-national enterprises has prompted the European Union to set up a mechanism for monitoring subsidiaries operating in a country but controlled by a foreign multi-national in order to gather more information on these developments.

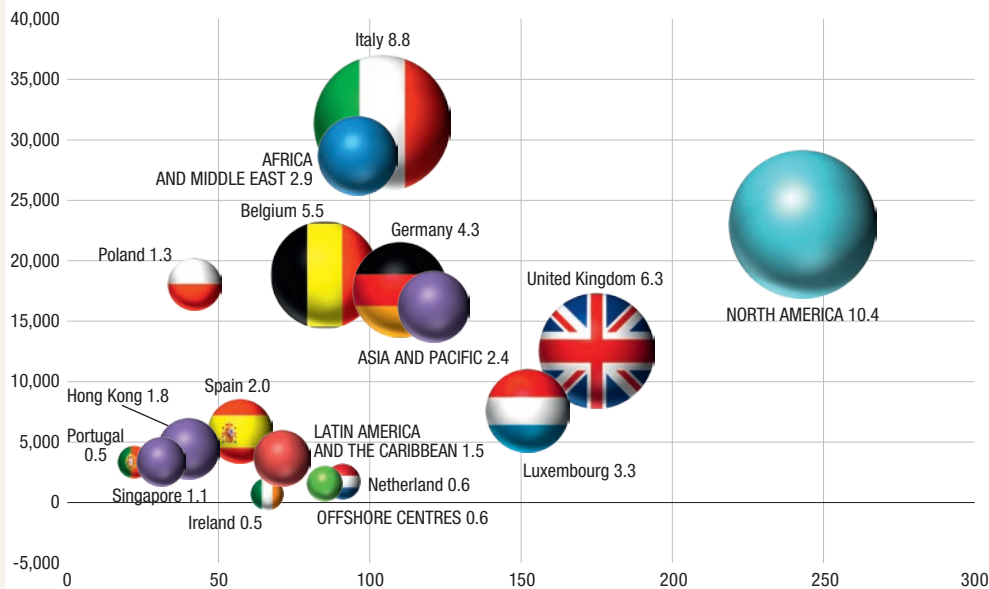
This mechanism is the Foreign Affiliates Statistics (FATS) survey. It includes two sections: Inward FATS which monitors foreign firms operating in the national territory and Outward FATS which monitors subsidiaries controlled by national groups operating in foreign countries.

The Banque de France collects the FATS data for the French banking sector.

In 2015, French banking groups had 1,909 banking operations in 100 countries, employed 271,131 people and generated EUR 62 billion of net banking income. The number of countries in which French banks operate has increased since 2011. Generation of net banking income seems relatively evenly spread between the countries where the main financial markets are located, where investment banking activities are developed (United Kingdom, United States and Japan in particular), and countries where they have retail banking operations (particularly Belgium, Italy and Germany).

### French banking operations in the main European countries and major geographic areas in December 2015

(size of bubbles represents net banking income in EUR billions; x axis: number of operations; y axis: employees)



Source: Banque de France – Outward Foreign Affiliates Statistics (OFATS).

Note: Banque de France publishes a regularly updated analysis of foreign banking operations on its website:

<https://www.banque-france.fr/statistiques/balance-paiements/es-implantations-bancaires-etranger-outward-fats>



The rotation between the 20 top counterparty countries for French banks is low. The quarterly rotation rate<sup>22</sup> since 2006 is 0.86. This means that on average there are few changes in the structure of the top 20 counterparty countries, with a change of less than one country per quarter. The rotation rates of US and UK banks are also low, at respectively 0.64 and 0.52.

The relative stability of counterparty countries reflects the organisation of a commercial presence aimed in particular at building their knowledge of the customer base over the various economic cycles.

## 5. The contribution of French international banking activities to the French economy

French international banking activities generate a positive fall out for the French economy, in particular through a net income contribution to the balance of payments<sup>23</sup> current account<sup>24</sup> (see Table 8).

In 2015, financial services, which to a large extent concern banking activities, contributed EUR 5.4 billion to the overall services balance of EUR 8.8 billion. This surplus was on the same scale as that of income from tourism<sup>25</sup> which amounted to EUR 6.8 billion in 2015. It was attributable for two thirds to financial intermediation services indirectly measured (EUR 3.5 billion) and for one third (EUR 1.9 billion) to explicitly charged services and other financial services, which is wholly contributed by the financial sector – in majority the large banks but also a number of asset management firms that offer value added services to foreign asset managers.

The primary income surplus<sup>26</sup> amounted to EUR 52 billion in 2015, of which EUR 23.2 billion came from the investment income surplus. This last includes income from direct investment, portfolio investments and “other investments”, which

correspond to lending and borrowing activities. Banking activity made mixed contributions to these three items. It contributed EUR 6.7 billion to the direct investment income surplus (EUR 41.9 billion), reflecting the positive contribution of international retail banking operations in particular; in contrast, it showed deficits of EUR 1.8 billion and EUR 1 billion in respect of portfolio investments and other investments (which recorded deficits of respectively EUR 17.6 billion and EUR 1.7 billion), reflecting in particular the takeover of responsibility for group financing by the heads of the groups. Overall, international banking activity made a positive contribution to the primary income balance with a surplus of EUR 3.9 billion.

Taking the services surplus and the income surplus together, the international activity of French banks contributed net income of around EUR 9 billion to the balance of payments.

22 The rotation rate corresponds to the average number of new countries, from one quarter to the next, that enter the list of the top 20 countries on which French banks hold the most claims.

23 Net income of French owned banks in France and net income of foreign banks resident in France.

24 Current account comprises transactions in goods and services and primary and secondary income.

25 This is the “travel” line in the balance of payments.

26 Primary income includes compensation of employees, investment income and other primary income.

### T8 Current account of France's balance of payments in 2015

(in billions of euro)

|  | Credits | Debits | Balance |
|--|---------|--------|---------|
| 1. Current account   | 852.6   | 857.0  | -4.4    |
| 1.1. Goods   | 460.7   | 484.7  | -24.0   |
| 1.2. Services  | 217.8   | 209.0  | 8.8     |
| <i>o/w Financial services</i>  | 11.1    | 5.6    | 5.4     |
| <i>o/w financial intermediation services indirectly measured (FISIM)</i>         | 4.7     | 1.2    | 3.5     |
| <i>o/w services giving rise to explicit charges and other financial services</i> | 6.4     | 4.5    | 1.9     |
| <i>o/w financial sector<sup>a)</sup></i>   | 5.4     | 3.4    | 2.0     |
| <i>o/w non-financial sector</i>  | 1.0     | 1.1    | -0.1    |
| 1.3. Primary income  | 157.1   | 105.1  | 52.0    |
| <i>o/w 1.3.2 Investment income</i>   | 124.6   | 101.4  | 23.2    |
| <i>o/w direct investment</i>   | 59.7    | 17.8   | 41.9    |
| <i>o/w arising on banking activities</i>   | 6.9     | 0.2    | 6.7     |
| <i>o/w portfolio investment</i>  | 54.5    | 72.1   | -17.6   |
| <i>o/w arising on banking activities</i>   | 12.0    | 13.7   | -1.8    |
| <i>o/w other investment</i>  | 9.9     | 11.6   | -1.7    |
| <i>o/w arising on banking activities</i>   | 8.0     | 9.0    | -1.0    |
| 1.4. Secondary income  | 17.1    | 58.2   | -41.1   |

a) The financial sector comprises credit institutions, investment firms and asset management companies.

## Box 3

**Income from international banking activities measured by the balance of payments**

Income from international banking activities circulate through different channels: provision of services, income from banking transactions (portfolio, lending-borrowing) and income from direct investments (holdings).

Financial services consist of:

- services with explicit charges and other financial services, and
- Financial Intermediation Services Indirectly Measured (FISIM).<sup>1</sup>

The positive FISIM balance therefore represents value creation generated by international financial intermediation services.<sup>2</sup> The balance, also positive, of services with explicit charges includes fees and commissions, such as those for portfolio management services, account charges, custody fees, trading and foreign exchange hedging fees, etc. whether for French companies that need international financing or for large international customers.

For banking activities, direct investment income comprises:

- dividends;
- reinvested earnings.

Intra-group refinancing operations are recorded under the “other investments” heading in the balance of payments, in the same way as international bank loans and borrowings with third-party counterparties.

Apart from intra-group refinancing, income from other investments comprises “pure” interest received and paid by financial intermediaries, i. e. the portion of interest that does not correspond to FISIM. A large part arises from international bank loans and borrowings.

1 The concepts of the balance of payments are defined in detail in the balance of payments methodology: [https://www.banque-france.fr/sites/default/files/media/2016/12/20/bdp-methodologie\\_072015.pdf](https://www.banque-france.fr/sites/default/files/media/2016/12/20/bdp-methodologie_072015.pdf)

2 In macroeconomic statistics, FISIM is estimated based on the difference between the cost of access to bank liquidity and the interest rate charged, the remuneration of the bank's intermediation activity considered as a service: intermediary between the provider of funds and the borrower, controlling the risk linked to all aspects of the transaction (transport of funds, legal documentation, monitoring repayments, etc.).

# Appendix 1

## Elements for historical comparison with 2006

### TA1 Counterparty sectors of claims held by main world banking systems in the first quarter of 2006

a) In value  
(amount in billions of US dollars)

| Counterparty sector                | France       | Germany      | United States | Japan        | United Kingdom |
|------------------------------------|--------------|--------------|---------------|--------------|----------------|
| Banking sector                     | 1,707        | 2,250        | 1,319         | 724          | 1,307          |
| <i>o/w intra-group</i>             | 712          | 1,188        | 998           | 347          | 533            |
| <i>o/w interbank outside group</i> | 995          | 1,061        | 321           | 377          | 774            |
| Non-banking sector                 | 978          | 1,553        | 788           | 1,212        | 895            |
| <b>Total<sup>a)</sup></b>          | <b>2,721</b> | <b>3,860</b> | <b>2,174</b>  | <b>1,990</b> | <b>2,233</b>   |

a) The "Total" is the sum of banking sector, non-banking sector and unallocated amounts.

b) In share  
(in %)

| Counterparty sector                | France | Germany | United States | Japan | United Kingdom |
|------------------------------------|--------|---------|---------------|-------|----------------|
| Banking sector                     | 63     | 58      | 61            | 36    | 59             |
| <i>o/w intra-group</i>             | 26     | 31      | 46            | 17    | 24             |
| <i>o/w interbank outside group</i> | 37     | 27      | 15            | 19    | 35             |
| Non-banking sector                 | 36     | 40      | 36            | 61    | 40             |

Note: The sum of banking and non-banking sectors may differ from 100 due to unallocated amounts.

### TA2 Geographical area of counterparties of foreign claims of French, US and UK banks in 2006

(in %)

| Geographical area              | France | United States | United Kingdom |
|--------------------------------|--------|---------------|----------------|
| G7                             | 59     | 44            | 53             |
| G20                            | 64     | 66            | 65             |
| Euro area                      | 34     | 26            | 26             |
| OECD                           | 87     | 77            | 77             |
| Offshore centres <sup>a)</sup> | 7      | 9             | 12             |

Sources: Banque de France and Bank for International Settlements - consolidated bank claims.

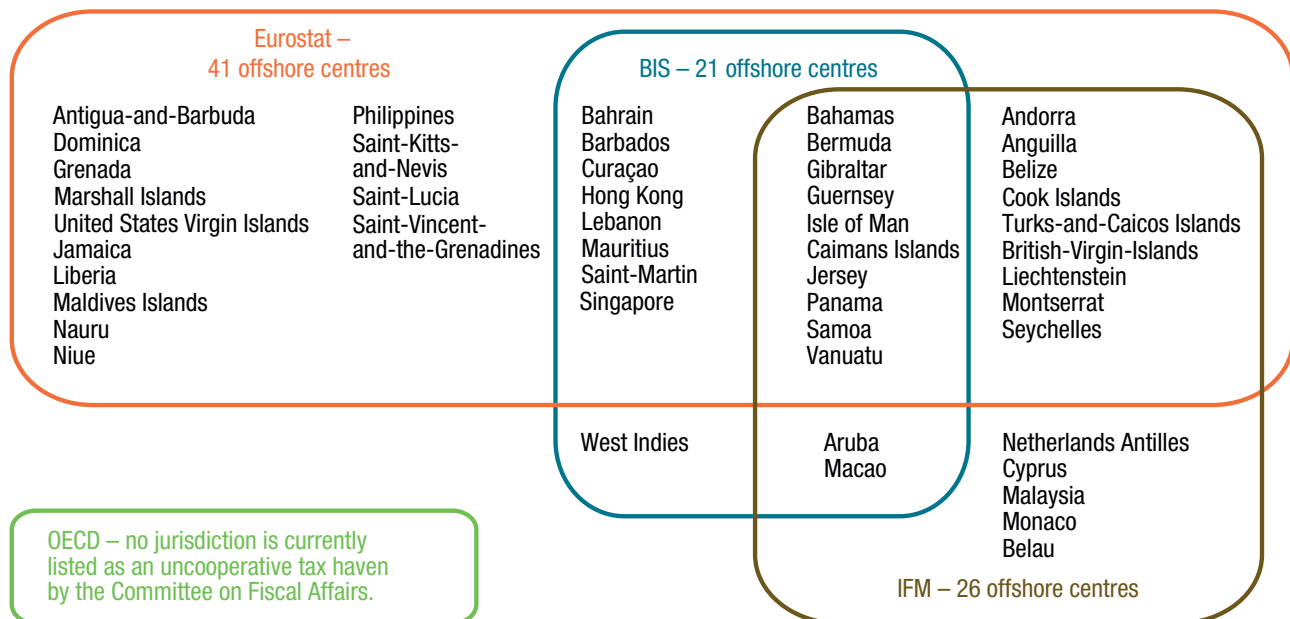
a) Twenty-one countries according to BIS list - see Appendix 2.

## Appendix 2

# Typology of offshore centres

The BIS typology is used in this study. However, there are a number of different lists of offshore centres published by international bodies. The main ones are provided below.

Comparison of scopes of offshore centres (situation at 31 December 2016)



# The labour market: institutions and reforms

## Summary of the third Labour Market Conference held in Aix-en-Provence on 1 and 2 December 2016 by the Aix-Marseille School of Economics and the Banque de France

Clémence Berson  
Clément Malgouyres  
Simon Ray  
Microeconomic  
and Structural Analysis

The *École d'économie d'Aix Marseille* (Aix Marseille School of Economics – AMSE) and the Banque de France organised, in December 2016, their fifth conference on the labour market bringing together academics and representatives of European national central banks. Discussions focused, on the one hand, on policies aimed at reducing the cost of labour and the assessment of labour market policies and, on the other, on wage rigidities. Based closely on current events, some sessions were devoted to the impact of immigration on the labour market.

Key words: labour market, reforms, wages

JEL codes: J2, J3, J5, J6, J7

### Key figures

**98%**

the percentage of workers covered by a collective wage agreement (including administrative extensions) in France (database on the characteristics of trade unions and wage setting – ICTWSS)

**–5.2 percentage points**

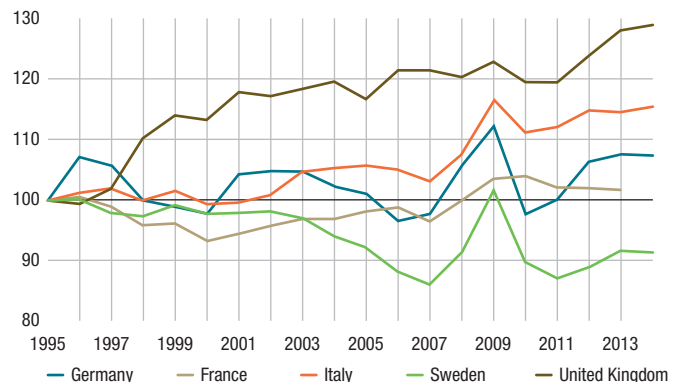
change in the unemployment rate in Germany between 2003 and 2015 (Eurostat)

**4.8%**

share in 2014 of the UK population born in a non-EU 28 country (Eurostat)

#### Real unit labour costs in the manufacturing sector – international comparison

(index with 1995 = 100)



Source: Macrobond cited by Michael Burda in his presentation.

The Aix-Marseille School of Economics (AMSE) and the Banque de France held their fifth conference on labour markets in Aix-en-Provence, bringing together academics and central bankers.<sup>1</sup> Nine recent academic papers were presented during three thematic sessions. Michael Burda, professor of economics at Humboldt University of Berlin and Alan Manning, professor of economics at the London School of Economics (LSE), each delivered an address in the plenary sessions. These presentations were brought to a close with a roundtable debate on labour market policies aimed at reducing the cost of labour.

Gilbert Cette, Deputy Director General of Economics and International Relations at the Banque de France, and Alain Trannoy, chairman of the AMSE, opened the conference by highlighting the fruitful exchanges between the two institutions, as illustrated by this annual conference. The different sessions examined structural issues, crucial in a context where labour market divergence within the euro area raises challenges for monetary policy implementation. This conference provided a forum for academics and central bankers to share their views on labour markets.

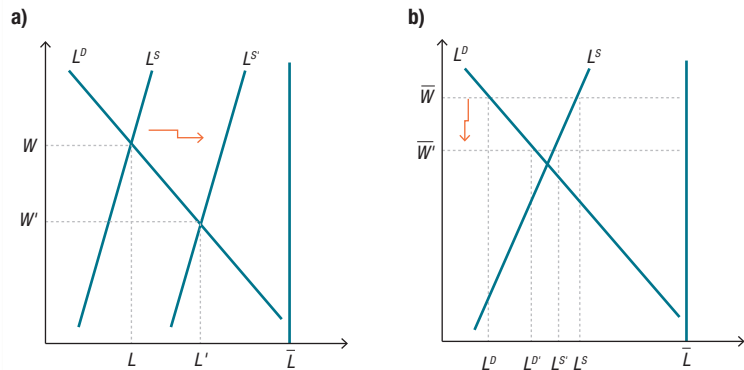
### 1. Labour market reforms in Germany between 2003 and 2005 – an assessment

Gilbert Cette introduced the speech by Michael Burda by recalling his highly influential contributions in macroeconomics and labour economics. Gilbert Cette also stressed that this presentation on labour market reforms in Germany was eagerly awaited following the ideas voiced by Christian Dustmann in a previous edition of this conference. The latter had indeed stated that the Hartz reforms had not been the primary reason for the strong labour market performances in Germany.<sup>2</sup>

First, Michael Burda mentioned some simple facts to illustrate what he called “a miraculous

### C1 The impact of a labour supply shock

(x-axis: employment; y-axis: wages)



Note: Chart a) shows, in a Marshallian representation of the labour market, a policy that leads to a rightwards shift in the labour supply curve of a given workforce. Wages decline while employment and the labour participation rate (ratio  $LS$  over  $L$ ) decline. In Chart b), a reduction in wage rigidity leads to a decline in wages and an increase in jobs as well as a decrease in unemployment (ILO rate). However, the decrease also leads to a decline in the labour participation rate.

improvement in the German labour market since the middle of the last decade”. After rising by just 2.6% between 1992 and 2005, the number of jobs has increased by 8.4% (or 2.5 million jobs) since 2005. In the recent period, the unemployment rate fell from 11% to 5%. He also recalled that the stylised facts contrast greatly with the situation actually observed in France. These developments in Germany have been accompanied by wage moderation since the middle of the 1990s, as well as a growing wage dispersion, at the top of the distribution since 1995 and at the bottom of the distribution since 2003. Michael Burda believes that this wage dispersion can be explained by the decentralisation of wage bargaining, in both East and West Germany, as well as by the implementation of the Hartz reforms (2003-2005) which increased the pressure on the unemployed to accept jobs, including temporary work. This argument suggests that the determinants of labour supply were crucial in labour market developments after 2003. This assumption appears to be supported by the fact that changes in the labour participation rate have been negatively correlated with wage developments since the implementation of the Hartz reforms (see Chart 1). From this perspective,

1 These conferences are held each year and take place alternately in Aix-Marseille and Paris. Summaries of previous conferences may be consulted on the Banque de France's website.

2 See Dustman et al. (2014) and Berson et al. (2015).

the “miraculous improvement in the German labour market” must be attributable to labour supply growth driven by stricter unemployment benefit conditions (level, length of time, incentives to accept job offers, etc.). These conditions have exerted downward pressure on the level of the reservation wage, which led to a rise in the acceptance rate of low-paid jobs (see Burda and Seele, 2016).

In conclusion, Michael Burda stressed that wage dispersion did not necessarily imply an increase in income inequality (which has only risen slightly since 2005 in Germany) due to the parallel rise in the labour participation rate and the subsequent redistribution, in the framework of the *Aufstocken* measure that provides for the possibility of claiming unemployment benefits and having income from activities.

## 2. Assessment of policies affecting labour markets

Clément Malgouyres (Banque de France) presented an article<sup>3</sup> that assesses the Tax Credit for Competitiveness and Employment (CICE), a mechanism that was implemented in 2013. This tax credit, aiming to foster investment and exports and to create jobs, took the form of a corporate income tax cut proportional to the wage bill of all employees earning less than 2.5 times the minimum wage. Clément Malgouyres recalled that the CICE was one of the most important economic reforms of the past few years in France. The threshold, set at 2.5 times the minimum wage, results in a change in treatment intensity between companies. The authors do not detect a statistically significant causal effect of this policy on the level or price of exports. Nor do they identify an impact on job creation. Nevertheless, they observe a statistically significant rise in companies’ profit margins and wages. Clément Malgouyres also stressed that the identification strategy used did not make it possible to determine

the potential macroeconomic effects or impact of this reform on firms’ survival.

Thomas Breda (CNRS<sup>4</sup> and PSE)<sup>5</sup> presented the conclusions of a study<sup>6</sup> on the impact of the 2008 reform which made significant changes to the representativeness of trade unions in France. This reform marked the end of the virtual monopoly granted to the main trade unions by establishing the right, for most unions, for candidates to stand in personnel elections. It also changed the legal conditions for granting representative union status, linking this status to the percentage of votes in personnel elections. The identification strategy used by the authors is based on the fact that the new law is applied at the level of each firm in the first personnel election following its enactment. This enables us to use a regression discontinuity model that compares the responses to the survey carried out among employees in the companies where the personnel elections have taken place before and after the law entered into force. The authors observe a strong positive impact of the reform on the probability of having a union representative in the workplace and on the percentage of unionised employees. They also observe that the opinion of the employers and employees about trade unions has significantly improved, in particular among the groups of workers that are traditionally the least represented by the unions (women, young workers, skilled workers and professionals and higher categories).

Antoine Devulder (Banque de France) assessed<sup>7</sup> the effects of a fiscal devaluation, consisting in a fiscally neutral transfer of employer contributions to value added tax (VAT). Given that VAT is refunded to exporters but paid by importers, the effects of this measure become comparable to those of a currency devaluation, making national producers more competitive and increasing the demand for labour. The authors used a DSGE model<sup>8</sup> calibrated for France and the rest of the euro area to simulate the macroeconomic effects of such a policy. This paper contributes to the large body of

3 Co-written with Clément Carbonnier, Loriane Py and Thierry Mayer.

4 The French National Centre for Scientific Research (Centre national de la recherche scientifique – CNRS).

5 Paris School of Economics.

6 Co-written with Philippe Askenazy.

7 Study co-written with Clémence Berson, François Langot and Clément Malgouyres.

8 Dynamic stochastic general equilibrium model.

existing theoretical literature on the impact of fiscal devaluations<sup>9</sup> by introducing a clear formalisation of the institutional framework specific to the French labour market (in particular national minimum wage dynamics) and a certain degree of worker heterogeneity. This model allows us to compare the results of two alternative implementations of a fiscal devaluation: (i) a reduction in the social security contributions identically affecting all employees and (ii) reductions in contributions targeted at low wages. The authors find that the two measures improve production, employment, investment and net exports, but that those targeting low wages are more effective.

### 3. Measures aiming to reduce labour costs

Gilbert Cette started this roundtable discussion by analysing the contribution of the divergence of unit labour costs (ULCs) to the growing current account imbalances between euro area member countries, notably in the wake of the global financial crisis of 2007-2008. He mainly sought to determine whether it would be preferable to resolve the intra-euro area imbalances by reducing the growth in ULCs in countries such as Italy or Spain, or rather by fostering their growth in Germany. Given the impact of the decline in domestic demand on GDP growth and the overall current account surplus of the euro area vis-à-vis the rest of the world, he opted for the latter option. Gilbert Cette summed up by highlighting the complementarity between fiscal devaluation and structural reforms.

Michael Burda analysed the rationale behind the Germans' desire to restrict the rise in their purchasing power. He believes that wage moderation can be considered a means for Germany to maintain its credibility vis-à-vis Southern European countries and to encourage them to limit their labour cost growth.

Stephen Bazen (AMSE) focused his presentation on the role of the minimum wage in France and

highlighted a number of salient features of the wage-setting process. In particular, he documented the diffusion of sectoral minimum wages along the wage distribution and stressed the role of the electoral cycle in explaining the rises in the minimum wage.

Alan Manning compared two recessions that affected the UK labour market in very different ways. The recession of the end of the 1970s was associated with a sharp rise in unemployment and a steady increase in real wages. Conversely, the Great Recession of 2008 in the United Kingdom triggered a moderate rise in unemployment whereas real wages fell by around 1.5%. Alan Manning stressed that, while most economists consider that the Great Recession was better managed than that of the 1970s, it appears more problematic from a political perspective in that a larger share of the population saw a decline in their wages. Indeed, in the latter case, the median voter is more lastingly and negatively affected than when the costs of the recession are concentrated among a minority of unemployed persons. The Great Recession thus resulted in more widespread disgruntlement towards politicians, which might explain the electoral success of more authoritarian and populist parties and the pro-Brexit vote in the June 2016 referendum.

Alain Trannoy recapped the recent studies on the assessment of the CICE – the tax credit discussed by Clément Malgouyres during the session on labour market policies. Alain Trannoy described the different methodologies used in these studies and highlighted the numerous difficulties that can jeopardise the identification of the actual effects of the CICE and to which such studies are subject. In particular, he mentioned the presence of contemporaneous shocks liable to skew the estimated impact of the programme. He concluded by questioning the equivalence between a decline in the cost of labour obtained through the direct reduction in social security contributions and that obtained via a tax credit.

<sup>9</sup> This question is addressed in an important paper by Farhi et al. (2014).



#### 4. Assessments of immigration policies and other sensitive issues

Stephen Bazen introduced Alan Manning and referred to his numerous contributions in the field of labour economics, particularly in relation to labour-market monopsony, the minimum wage and more recently, job polarisation in Europe. Alan Manning examined immigration, job polarisation and continuing regional inequality, all of which are important subjects in current labour market policies.

His more recent research indicates that even though concerns about immigration were not the only factor that contributed to the vote in favour of Brexit, they were sufficiently important to influence the final result of the referendum. Alan Manning reviewed the economic literature's key findings on the impact of immigration on the labour market and public finances in host countries. It was inconclusive as to whether immigration has a positive or negative effect on native workers in the labour market. Alan Manning emphasised that it was very likely that the tax impact of immigration varies depending on the migrant's country of origin and that consequently, for immigration to be financially beneficial to the resident population, a certain degree of selectivity would appear to be justified. He then presented his conclusions from one of his recent articles on the social impacts, as opposed to the economic effects, of immigration. His study uses longitudinal data to analyse the determining factors in people's affection for their neighbourhood and finds that the proportion of populations of European origin in the area has a significant positive impact. Further analyses show that this effect is driven by a fear of crime, a perceived decline in the quality of local services and a poorer social life. However, the research did not bring to light any implications for generalised trust or any other measure of social capital, which goes against a position reflected in some of the literature, particularly that of Robert Putnam.

Basing his findings on his recent work on job polarisation, he demonstrated the pervasiveness of this phenomenon in Europe and analysed its implications for wage inequality through the lens of a small model that considers companies' demand for labour in a context of heterogeneous skills. He highlighted the possibility that a technological change that increases the relative productivity of the most qualified workers can lead to a permanent increase in wage inequalities even in the event of perfect elasticity in skills training.

Lastly, Alan Manning addressed the question of regional inequalities, drawing attention to the marked persistence of local unemployment rates in the United Kingdom. It is also striking that this persistent unemployment, which theoretically should be reduced as a result of worker migration between the regional labour markets, can also be seen in the United States.

He concluded by pointing out that even if economists tend not to consider growing income inequalities to be a failure of the market, the current surge in social disenchantment makes them politically untenable.

#### 5. Assimilation into the labour market

Tanguy van Ypersele<sup>10</sup> (AMSE) put forward an analysis of the relationship between housing market regulation (HMR) and employment protection legislation (EPL). Empirically, the HMR and EPL indices appear to exhibit a strong positive correlation (see Chart 2). The authors argue that in a strictly regulated rental market, it may be rational for young people to support tough job protection measures. With a strict HMR, landlords need information to allow them to choose potential tenants and therefore reduce their risk of non-payment, and under these circumstances, obtaining a permanent contract on the labour market is a signal of a worker's ability to pay rent. A tougher EPL forces companies to

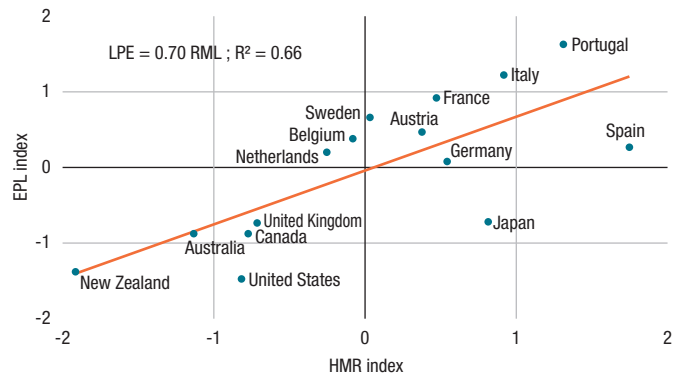
<sup>10</sup> Article co-written with Antoine Bonleu and Bruno Decreuse.

be more selective, thereby boosting the quality of the signal associated with obtaining a permanent contract. Using a stylised model of the rental and labour markets, the authors show that thanks to rental market rigidities, stronger protection for permanent jobs can enhance social welfare.

Eva Moreno-Galbis<sup>11</sup> (AMSE) analysed the difference in wage dynamics between immigrant and native workers. The authors assume that identical skills may be rewarded differently depending on the task to which they are applied. As professions differ in their task content, immigrants and natives may be paid differently for identical skills, simply because those skills are applied to different tasks as a result of their contrasting professional choices. They measure the extent to which changes in the returns to tasks – which, according to the literature, are divided into three categories: analytical, routine and manual – have affected returns to skills and have thus contributed to differences in wage dynamics between immigrants and natives. They conclude that most of the differences in wage dynamics between immigrants and natives are due to different occupational choices and not to differences in returns to skills within an occupation.

The objective of the paper presented by Xavier Joutard<sup>12</sup> (AMSE) based on French data is to establish whether atypical employment is a better “stepping-stone” toward permanent employment than unemployment. In addition, the paper estimates the impact of the Great Recession on this stepping-stone effect. The authors find that spells in atypical employment (part-time, temporary or subsidised) have a stepping-stone effect towards full employment: compared to periods of unemployment, they increase the likelihood of obtaining a full-time permanent contract. They also find that the impact of the Great Recession varied depending on gender, with positive consequences for the stepping-stone effect for men in temporary employment but few implications for women.

C2 Relationship between housing market regulation (HMR) and employment protection legislation (EPL)



Note: The HMR index measures the degree of regulation in the housing market. The EPL index is calculated by the OECD. For details see Bonleu et al. (2016).

6. Wage dynamics and rigidities

Petra Marotzke<sup>13</sup> (Bundesbank) explores the impact of wage adjustment on employment with a focus on the role of downward nominal wage rigidities. The authors use qualitative harmonised data for 25 European countries over the 2010-2013 period, compiled by the Wage Dynamics Network (WDN), which provides firm-level information on changes in economic conditions and collective wage agreements. Their findings confirm the presence of downward wage rigidities in Europe: first, collective wage agreements reduce the probability of downward wage adjustment; second, the probability of downward base wage responses to a decrease in demand is significantly smaller than the probability of an upward wage response to an increase in demand. Estimation results also point to a negative effect of downward wage rigidities on employment at firm level.

Ludmila Fadejeva (Latvijas Banka) presented a study<sup>14</sup> on how firms in new Member States of the European Union adjust to minimum wage increases. Using WDN data, the authors find that employment is not greatly affected by increases in the minimum wage. Based on firms’ responses to

11 Article co-written with Catherine Laffineur, Jeremy Tanguy and Ahmed Tritahz.

12 Article co-written with H el ene Couprie.

13 Article co-written with Robert Anderton, Ana Bairrao, Clemence Berson and Peter T oth.

14 Co-written with Liina Malk, Jurgita Pesliakait e, Stefania Iordache, Katalin Bodnar, Peter T oth, Natasa Todorovic Jemec and Robert Wyszynski.

this survey, it appears that the most commonly used adjustment channels in response to minimum wage increases are product price rises and non-labour related cost reductions. Dismissals are rare but recruitment is also commonly reduced. The study uses a probit model to demonstrate that the adjustment strategies adopted by firms depend on the proportion of employees paid the minimum wage and finds that the probability of product price rises and non-labour related cost reductions following an increase in the minimum wage heightens in line with this proportion.

Fernando Martins<sup>15</sup> (Banco de Portugal) used individual data in his article to focus on the

extension of minimum wage increases negotiated as part of collective wage agreements across entire sectors in Portugal. For each firm, the authors calculate the increase in payroll costs resulting from each new collective agreement and examine the influence of external wage shocks on staff rotation and the bankruptcy rates of firms. They demonstrate that firms that are more heavily affected by the change in negotiated wage floors decrease their hiring rates and significantly increase their separation rates, leading to substantial job destruction among surviving firms. They also find that firms most affected by higher wage rates are far more likely to go bankrupt.

15 Co-written with Paulo Guimarães and Pedro Portugal.

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# The financial situation of companies in France in 2015

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Companies registered in France posted an overall 0.7% rise in turnover in 2015, despite a decline of 0.6% for large enterprises (LEs). Value added increased at all companies, rising by 2.8% overall. Meanwhile, the combined profit margin rate improved to 23.6%, while nonetheless remaining below pre-crisis levels. Investment, in contrast, continued to trend downwards in 2015, shrinking by 8.3% relative to 2014. In a low interest rate environment, debt ratios increased for large enterprises, while at the same time contracting for small and medium-sized enterprises (SMEs) and for intermediate-sized enterprises (ISEs). Finally, all companies reported significant improvements in profitability, with the combined return on equity rising to 9.9%.

Key words: turnover, investment, debt, profitability, SMEs, ISEs, LEs

JEL codes: E22, G30, L25

## Key figures

**0.7%**  
the rise in turnover

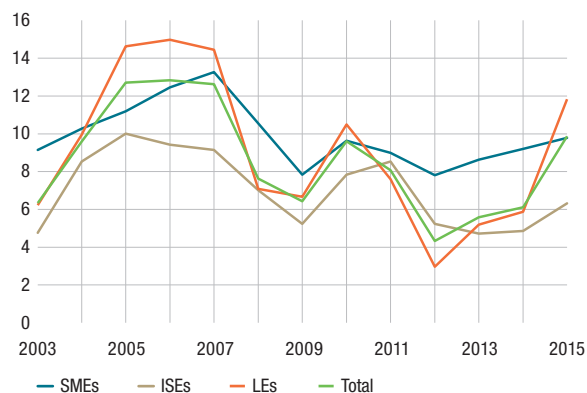
**23.6%**  
the profit margin rate of non-financial corporations

**-8.3%**  
the decline in operating investment

**3.8 percentage points**  
the rise in return on equity, to 9.9%

### Return on equity

(net self-financing capacity/shareholders' equity, in %)



Source: Banque de France, FIBEN, November 2016.

Scope: Non-financial corporations as defined by the Economic Modernisation Act (*Loi de modernisation de l'économie* - LME).

## 1. Rise in turnover and in the profit margin rate

### Overall growth in turnover despite a decline for large enterprises

Corporate turnover rose by 0.7% in France in 2015, accelerating slightly after the slowdown seen the previous year (0.2% growth in 2014, after 1.5% in 2013, see Table 1). The pick-up nonetheless masks divergences depending on the size of the company, with SMEs and ISEs posting respective growth of 1.8% and 1.3%, and large enterprises, in contrast, reporting a decline of 0.6%.

Turnover growth was notably driven by dynamic export performances. Against a mixed global backdrop, marked by slower growth in emerging countries and a confirmation of the recovery in the euro area, foreign sales rose by 2.3%. SMEs and ISEs posted the strongest export growth, at 5.1% and 4.0% respectively – the highest gains seen since 2010. LEs, meanwhile, saw more modest growth of 0.3%, but this still stood in marked contrast to the 1.0% fall seen in 2014.

### Increase in value added for all companies.

Corporate wealth creation increased sharply in 2015. Value added growth returned to a more sustained pace of 2.8%, after slowing to 0.6% in 2014. SMEs and ISEs posted strong gains of 2.0%

and 2.1% respectively. However, large enterprises reported a more substantial rise of 3.8%, suggesting they benefited to a greater extent from the decline in oil prices in 2015.

### Recovery in the profit margin rate

Firms' ability to generate cash, as measured by their gross operating profit (GOP), increased by 7.3%, the sharpest rate of growth seen since 2010. The improvement was particularly marked for large enterprises (up 13.8%), thanks to strong gains in value added and a slowdown in staff costs (see Table 2). SMEs and ISEs reported respective GOP growth of 2.1% and 3.6%, driven mainly by a drop in production taxes (down 3.8% and 1.3% respectively). The changes are consistent with the implementation of the Responsibility and Solidarity Pact (PRS), and more specifically the introduction of a rebate on companies' C3S social security contribution which tends to have a greater impact on firms with lower turnover.

Growth in staff costs remained relatively steady for all sizes of company: up 1.7% in 2013 and 2014, up 1.6% in 2015 (see Table 2). However, these rates are still well below the levels seen in previous years (up 5.7% in 2011 and 2.9% in 2012), that is before the introduction of the tax credit for competitiveness and employment (CICE) in 2013. Box 1 provides a more in-depth analysis of the link between the CICE and the evolution of labour costs.

### T1 Change in turnover and in value added

(in %)

|              | Turnover   |            |            | o/w exports |            |            | Value added |            |            |
|--------------|------------|------------|------------|-------------|------------|------------|-------------|------------|------------|
|              | 2013/2012  | 2014/2013  | 2015/2014  | 2013/2012   | 2014/2013  | 2015/2014  | 2013/2012   | 2014/2013  | 2015/2014  |
| SMEs         | 1.8        | 1.1        | 1.8        | 4.6         | 2.9        | 5.1        | 1.6         | 1.9        | 2.0        |
| ISEs         | 0.7        | -0.3       | 1.3        | 0.8         | 0.4        | 4.0        | 1.2         | 1.9        | 2.1        |
| LEs          | 2.0        | 0.0        | -0.6       | 3.9         | -1.0       | 0.3        | 4.7         | -1.3       | 3.8        |
| <b>Total</b> | <b>1.5</b> | <b>0.2</b> | <b>0.7</b> | <b>2.8</b>  | <b>0.0</b> | <b>2.3</b> | <b>2.7</b>  | <b>0.6</b> | <b>2.8</b> |

Source: Banque de France, FIBEN, November 2016.

Scope: Non-financial corporations (NFCs) as defined in the Economic Modernisation Act (*Loi sur la Modernisation de l'Économie* - LME).

Note: The changes are calculated for a sample of companies whose balance sheets are recorded in the FIBEN database for two consecutive years (balanced sample). Entries and exits to the sample resulting from mergers, bankruptcies or creations are not taken into account. The size of the enterprises is taken as that in n-1 regardless of the situation of the enterprise in year n (hence we use the 2014 size when comparing 2015 to 2014, and the 2013 size when comparing 2014 to 2013). For further details on the FIBEN database and the definition of company sizes according to LME criteria, see Appendices 1 and 2.

## Box 1

### The CICE (tax credit for competitiveness and employment) and changes in labour costs

The CICE, which came into effect on 1 January 2013, is a tax credit on a company's payroll costs, calculated as a percentage of all wages under 2.5 times the minimum wage. The rate was initially set at 4% in 2013, but was subsequently raised to 6% as of 2014.

Using the balance sheet data contained in the FIBEN database, it is possible to assess whether the pattern of labour costs over the past few years is consistent with the expected downward impact of the CICE. The Chart below shows the change in the average cost of labour for a sample of SMEs, ISEs and LEs for which annual data are available for the years 2010 to 2015.

The change should be interpreted with care as other public policy measures which had the opposite effect of raising labour costs were introduced immediately prior to or in parallel with the CICE (annualisation of the calculation of exemptions on low wages in 2011, reforms to overtime in 2012, etc.).<sup>1</sup> Moreover, the cuts to employers' social charges introduced in 2015 under the Responsibility and Solidarity Pact have also had the effect of lowering labour costs.

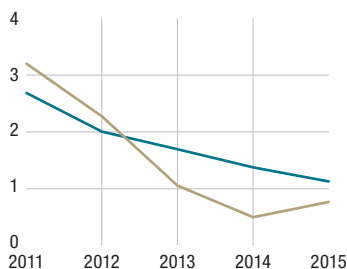
That said, a number of key points can nonetheless be observed in the chart. First, although the average cost of labour does not actually decline, there is still a slowdown in its pace of growth up to 2014 for all categories of company, followed by a rebound in 2015. In addition, there is a decoupling of labour cost growth and wage growth as of 2013 for SMEs (1.1% growth in labour costs compared with 1.7% in wages) and ISEs (1.4% compared with 2.0%), which appears to coincide with the implementation of the CICE. This decoupling occurs a year later in the case of LEs, i. e. in 2014 (1.3% growth in labour costs compared with 1.8% in wages), which coincides with the rise in the CICE rate from 4% to 6%. Lastly, over the entire 2013-2014 period, the decoupling is considerably more marked for SMEs than for ISEs and LEs. This is consistent with the observation made by the CICE monitoring committee in its 2016 report, that SMEs are more exposed to the CICE (in terms of the share of payroll eligible for the credit).

Another way of capturing the decoupling between labour costs and wages following the introduction of the CICE is to look at the evolution of the apparent rate of employers' social charges, i. e. total social charges as a share of total wages paid. Over the period 2010-2015, this rate peaked in 2012 for all categories of company (39.9% for SMEs, 43.4% for ISEs and 44.7% for LEs). It subsequently declined each year for all companies, although the drop was more marked for SMEs (down 2.2 pp in 2014 compared with 2012) and ISEs (down 1.7 pp) than for LEs (down 0.6 pp). At this stage, it seems reasonable to assume that a large part of these declines is linked to the CICE.

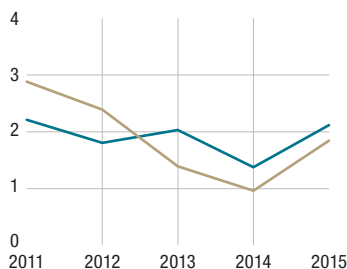
#### Rates of growth in wages paid and in labour costs

(in %)

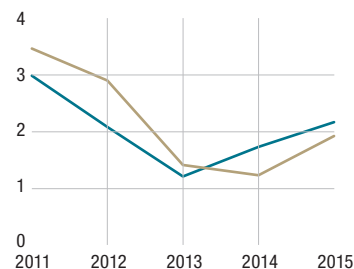
a) SMEs



b) ISEs



c) LEs



— Average wage per employee — Average cost of labour per employee

Source: Banque de France, FIBEN, November 2016.

Scope: Sample of companies for which balance sheets are available for the years 2010 to 2015 inclusive.

Note: Wages paid are measured as the ratio of "wages and salaries" (item FY in the financial statements) to "average FTE headcount" (item YP). The total cost is calculated by adding "social security contributions" (item FZ in the financial statements) to the numerator. The averages shown here are unweighted.

<sup>1</sup> For a more detailed description of these metrics, see, for example, the 2016 report by the CICE monitoring committee (France Stratégie, September 2016).

## T2 From value added to gross operating profit

(in %)

|              | Value added |            |            | Staff costs |            |            | Production taxes |            |             | Gross operating profit |             |            |
|--------------|-------------|------------|------------|-------------|------------|------------|------------------|------------|-------------|------------------------|-------------|------------|
|              | 2013/2012   | 2014/2013  | 2015/2014  | 2013/2012   | 2014/2013  | 2015/2014  | 2013/2012        | 2014/2013  | 2015/2014   | 2013/2012              | 2014/2013   | 2015/2014  |
| SMEs         | 1.6         | 1.9        | 2.0        | 1.9         | 2.0        | 2.3        | 3.1              | -1.4       | -3.8        | 0.0                    | 2.5         | 2.1        |
| ISEs         | 1.2         | 1.9        | 2.1        | 1.7         | 1.8        | 2.1        | 1.1              | 3.2        | -1.3        | -1.0                   | 2.2         | 3.6        |
| LEs          | 4.7         | -1.3       | 3.8        | 1.4         | 1.4        | 0.6        | 3.2              | 1.1        | 1.4         | 13.2                   | -9.5        | 13.8       |
| <b>Total</b> | <b>2.7</b>  | <b>0.6</b> | <b>2.8</b> | <b>1.7</b>  | <b>1.7</b> | <b>1.6</b> | <b>2.6</b>       | <b>1.2</b> | <b>-0.1</b> | <b>5.0</b>             | <b>-2.8</b> | <b>7.3</b> |

Source: Banque de France, FIBEN, November 2016.

Scope: Non-financial corporations as defined by the Economic Modernisation Act (*Loi de modernisation de l'économie* - LME).

Note: See Table 1.

Overall, the corporate profit margin rate, measured here as the ratio of gross operating profit to value added, rose to 23.6%, reflecting improvements across the board, irrespective of company size (see Chart 1). The figure nonetheless remained below pre-crisis levels (average of 25.8% for the period 2003-2007).

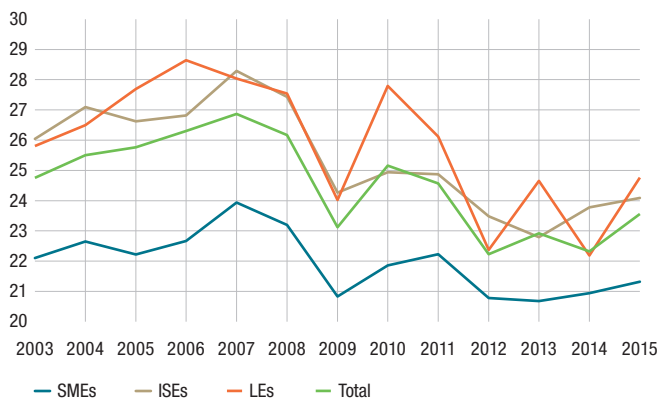
## 2. Decrease in working capital requirements; further cuts to investment

### Fall in OWCR, driven by large enterprises

A company's operating working capital requirement (OWCR) is the amount of funds it needs in order to be able to continue its activities. In 2015, the total OWCR for companies in France amounted to EUR 134 billion, down from EUR 141 billion a year earlier (see Chart 2). The reduction was primarily attributable to the large enterprise category where the total OCWR dropped by EUR 8 billion to EUR -1 billion. As a result, companies in this segment generated more cash than they used over the course of the operating cycle, enabling them to book a surplus. The decline in LEs' OWCR can principally be ascribed to a sharp drop in trade credit (year-on-year fall of EUR 7.2 billion to EUR -17.5 billion 2015). For SMEs and ISEs, OWCRs were significantly higher, at EUR 68 billion and EUR 66 billion respectively in 2015, and little changed on 2014.

## C1 Profit margin rate

(gross operating profit/value added, in %)



Source: Banque de France, FIBEN, November 2016.

Scope: Non-financial corporations as defined by the Economic Modernisation Act (*Loi de modernisation de l'économie* - LME).

## Ongoing contraction in investment

All companies reined in their investment expenditure<sup>1</sup> in 2015 (down 8.3%, see Table 3), making this the fourth consecutive year of major cuts. The reductions were biggest in the ISE segment, where investment fell by an average of 16%. The renewed decline seems to indicate that firms are sticking to a wait-and-see approach (see Box 2).

As a consequence, the investment rate, which measures investment expenditure as a share of value added, slipped back 1.1 pp to 20.9% in 2015 (see Chart 3), the lowest level seen since 2004.

<sup>1</sup> Throughout the text, the term investment expenditure rather than capital expenditure is used.



### T3 Change in investment

(in %)

|              | 2013/2012   | 2014/2013   | 2015/2014   |
|--------------|-------------|-------------|-------------|
| SMEs         | -10.1       | -3.6        | -3.3        |
| ISEs         | -9.9        | -0.5        | -16.1       |
| LEs          | 5.5         | -5.6        | -4.1        |
| <b>Total</b> | <b>-3.4</b> | <b>-3.5</b> | <b>-8.3</b> |

Source: Banque de France, FIBEN, November 2016.

Scope: Non-financial corporations as defined by the Economic Modernisation Act (*Loi de modernisation de l'économie* - LME).

Note: See Table 1. The changes in operating investments are calculated for a sample of companies whose investment figures are recorded in the FIBEN database for two consecutive years (balanced sample).

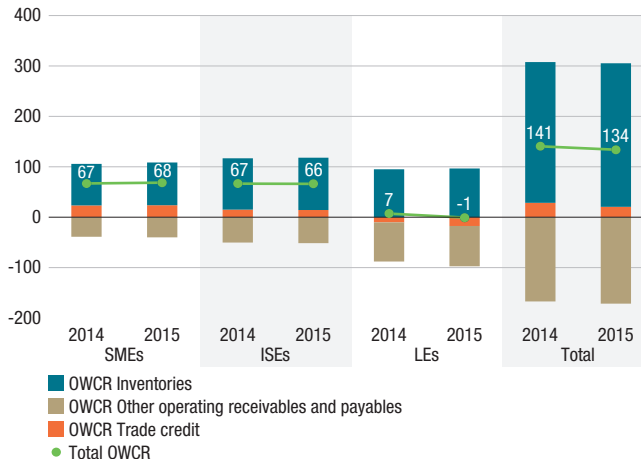
## 3. Contrasting developments in financial structures

### Increase in debt ratios for LEs, declines for SMEs and ISEs

The combined debt ratio for French-registered companies, measured as the ratio of financial debt to shareholders' equity, increased by 6.6 pp in 2015, reflecting a 7.1% contraction in shareholders' equity coupled with a small 1.5% upturn in financial debt (see Chart 4). The rise was driven by a 17.6 pp jump

### C2 Breakdown of OWCR

(EUR billions)



Source: Banque de France, FIBEN, November 2016.

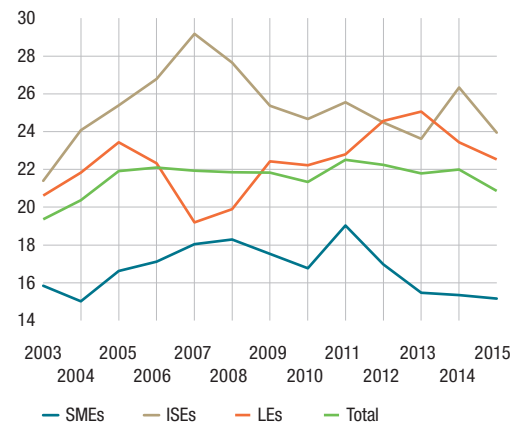
Scope: Non-financial corporations as defined by the Economic Modernisation Act (*Loi de modernisation de l'économie* - LME).

Note: The changes are calculated for a sample of companies whose balance sheets are recorded in the FIBEN database for two consecutive years (balanced sample).

in the debt ratio of large enterprises, resulting from a 14.1% drop in their shareholders' equity and a 1.4% rise in their financial debt.

### C3 Investment rate

(investment/value added, in %)

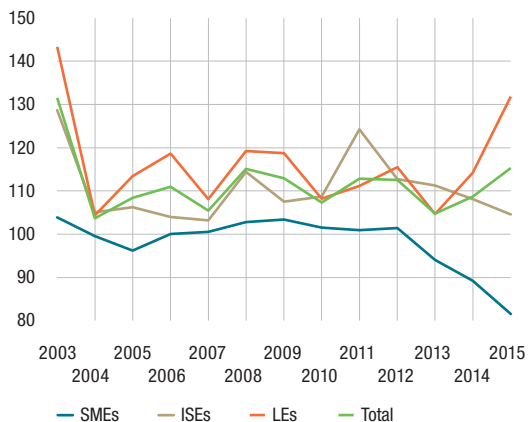


Source: Banque de France, FIBEN, November 2016.

Scope: Non-financial corporations as defined by the Economic Modernisation Act (*Loi de modernisation de l'économie* - LME).

### C4 Financial debt/shareholders' equity

(in %)



Source: Banque de France, FIBEN, November 2016.

Scope: Non-financial corporations as defined by the Economic Modernisation Act (*Loi de modernisation de l'économie* - LME).

Box 2

Decline in investment and strong corporate savings levels

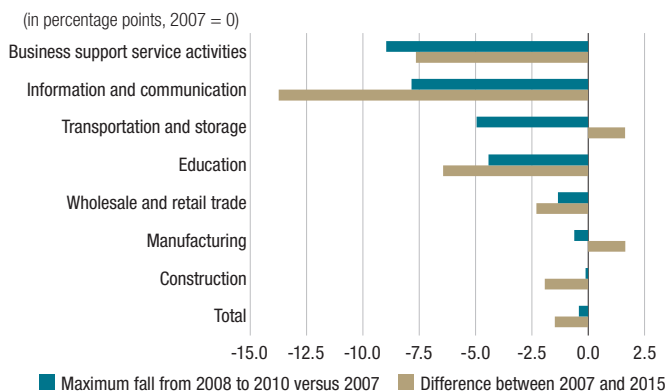
The 2008 crisis led to a drop in corporate investment both in France and across the globe. Between 2007 and 2015, levels of investment fell in all segments of the economy.

The difference between the investment rate – which measures the share of value added used for investment expenditure – in 2007 and the low reached during the crisis varies across sectors, ranging from –9 pp for business services to –0.1 pp in construction (see Chart A). Despite a sharp contraction in value added over the crisis, investment rates declined in all sectors.

Moreover, Chart A shows that in most sectors the downward trend persisted, even in the years following the crisis. In 2015, the investment rate was still lower than in 2007 in the majority of sectors. Only manufacturing and transport companies invested more on average than in 2007.

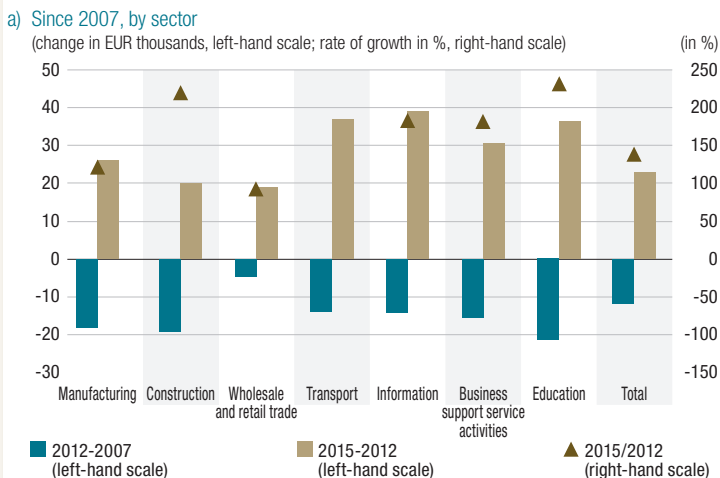
The sustained weakness in investment observed since 2012 nonetheless coincides with an improvement in corporate profitability. The dearth of investment has therefore resulted in a sharp increase in corporate savings, defined as the difference between self-financing capacity and investment expenditure (see Chart Ba). Corporate savings initially declined in all sectors from 2007 to 2012, largely as a result of the crisis (blue columns). The median level of savings for all company categories combined fell by EUR 12,000 over the period. However, since 2012 companies have considerably boosted their savings, with growth rates in most sectors exceeding 100% (brown triangles). Indeed, the median level of savings for all sectors combined rose by 141% between 2012 and 2015.

CA Change in the investment rate versus 2007



Source: Banque de France, FIBEN, November 2016.  
 Scope: Non-financial corporations as defined by the Economic Modernisation Act (*Loi de modernisation de l'économie* – LME).  
 Note: The investment rate measures investment expenditure as a share of value added.

CB Change in corporate savings (median)



Source: Banque de France, FIBEN, November 2016.  
 Scope: Non-financial corporations as defined by the Economic Modernisation Act (*Loi de modernisation de l'économie* – LME).  
 Note: The Chart shows the median level of corporate savings calculated as the difference between self-financing capacity and investment expenditure. The 2012 growth rate for the transport sector is not shown as it was negative.

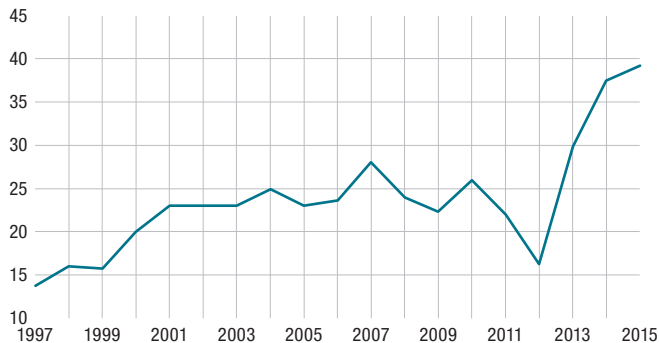
.../...

The upturn since 2012 is even more noteworthy when viewed from an historical perspective (see Chart Bb). As a result of the sharp acceleration since 2012, corporate savings in 2015 were significantly higher than the long-term average, and well in excess of pre-crisis levels. The increase therefore reflects more than just a recouping of the ground lost in the wake of the crisis.

Companies appear to be adopting a wait-and-see approach, preferring to set aside profits rather than use them to bolster production capacity. This behaviour can generally be attributed to the low level of demand which is discouraging investment. In addition, the high level of economic uncertainty is pushing business leaders to postpone their investment projects.<sup>1</sup>

**CB Change in corporate savings (median)**

b) All companies (EUR thousands)



Source: Banque de France, FIBEN, November 2016.  
 Scope: Non-financial corporations as defined by the Economic Modernisation Act (*Loi de modernisation de l'économie* – LME).  
 Note: The Chart shows the median level of corporate savings calculated as the difference between self-financing capacity and investment expenditure.

<sup>1</sup> According to a study by the Banque de France, expected demand accounts for 80% of the fall in investment, while uncertainty accounts for 17% (Bussière, Ferrara and Milovich, "Explaining the recent slump in investment: the role of expected demand and uncertainty", Banque de France, *Working Papers*, No. 571, 2015).

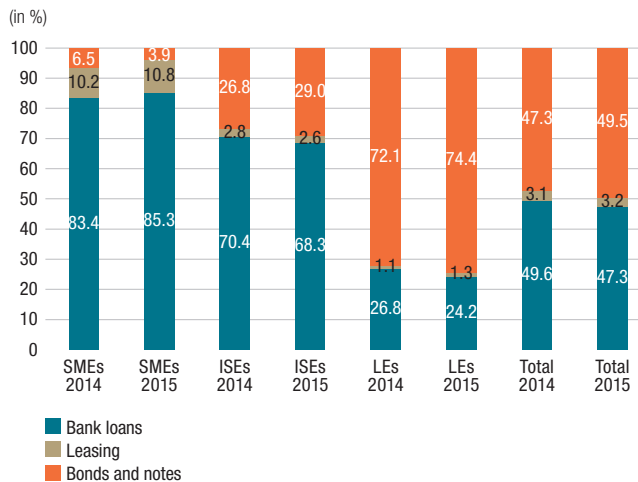
For SMEs and ISEs, however, the trends were markedly different. The debt ratio for SMEs contracted for the third consecutive year (down 7.7 pp), reflecting an 8.7% rise in shareholders' equity and a more moderate 2.5% increase in financial debt. For ISEs, meanwhile, the fall was less marked in 2015, down 3.3 pp.

**Ongoing decline in the share of bank credit**

Financial structures vary depending on the size of the company: in 2015, more than 80% of SMEs' debt was made up of bank loans, while for ISEs the figure was more than two thirds, and for large enterprises close to a quarter (see Chart 5). Bond debt remains the main source of financing for large enterprises.

The share of bank debt in corporate financing has been declining steadily since 2009, and continued to trend downwards over 2015 at all companies.

**C5 Breakdown of financial debt**



Source: Banque de France, FIBEN, November 2016.  
 Scope: Non-financial corporations as defined by the Economic Modernisation Act (*Loi de modernisation de l'économie* – LME).  
 Note: In this chart, financial debt excludes other debt and intragroup debt.

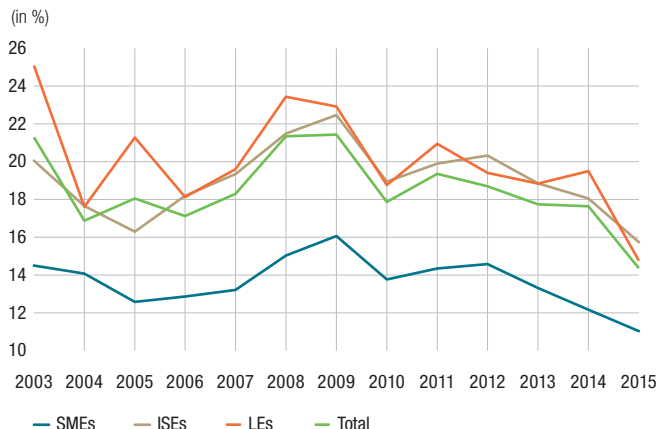
The proportion of bond debt diminished further in 2015 for SMEs, but increased for ISEs and large enterprises.

Although bank loans account for a declining share of overall financial debt, they are still an important source of corporate financing in France. At the end of 2015, the total outstanding amount of bank borrowing declared by companies to the Banque de France's Central Credit Register was EUR 374.0 billion for SMEs, EUR 251.5 billion for ISEs and EUR 84.5 billion for LEs.<sup>2</sup> Given the size of these amounts, it is interesting to look at how efficiently these loans are allocated. Box 3 examines the breakdown of new bank lending according to company productivity.

**Decline in the cost of debt**

All companies reported a sharp drop in their cost of debt in 2015. Debt servicing costs accounted for 14.4% of total gross profit, down from 17.6% in 2014 (see Chart 6). The decline was felt by all companies, irrespective of size, although it was more marked in the case of large enterprises at -4.7 pp, compared with -2.3 pp for ISEs and -1.1 pp for

**C6 Interest payments as a share of gross operating profit**



Source: Banque de France, FIBEN, November 2016.  
Scope: Non-financial corporations as defined by the Economic Modernisation Act (*Loi de modernisation de l'économie* – LME).

SMEs. More specifically, all companies reported a fall in interest payments in 2015, even as levels of borrowing rose. This indicates that companies benefited from the cuts to interest rates implemented under the Eurosystem's accommodative monetary policy stance. In addition, all companies saw a marked improvement in total gross profit.

<sup>2</sup> See *Stat info* "Les crédits aux entreprises (encours) – France – Décembre 2015", February 2016.

**Box 3**

**Productivity and the allocation of credit**

Within each segment of the economy, productivity levels range widely from one company to another. In other words, for a given quantity of factors of production (in this case labour, as measured by the average number of employees, and capital, as measured by the stock of tangible and intangible non-current assets), different companies will generate different levels of value added.<sup>1</sup> Based on this observation, it is interesting to look at how the funds provided by the banking sector are allocated across companies. In particular, are loans directed principally towards the most productive firms in the economy?

A partial response to this question can be found using data from the Banque de France's FIBEN database and the Central Credit Register. Corporate productivity<sup>2</sup> is calculated as at 31 December 2014. The Chart below shows, for each sector, the share of new lending in 2015 attributed to companies broken down by productivity quartile.

<sup>1</sup> For example, at 31 December 2014, a highly productive company (75th centile) in the manufacturing sector was three times more productive than a company in the same sector with low productivity (25th centile) (source: authors' calculations using FIBEN data).

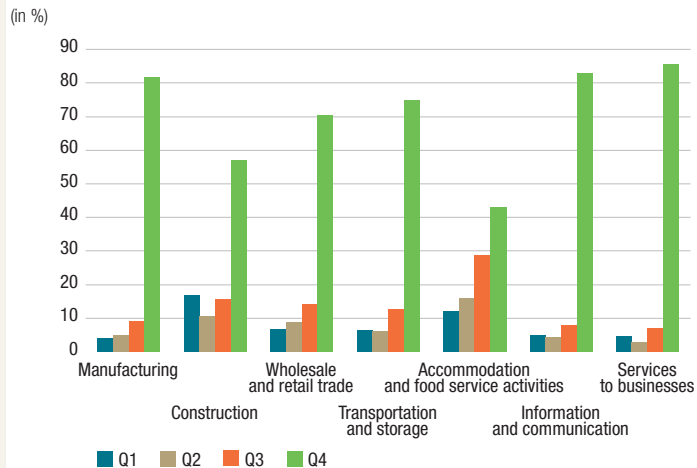
<sup>2</sup> The productivity of a company is measured as the ratio of nominal value added, deflated by the price index for that particular sector, to a combination of two factors of production: labour and capital. The weighting attributed to labour with respect to capital in this calculation depends on the sector in which the company operates, and is equal to the median share of payroll costs in value added.

.../...

The most productive firms are by far the biggest beneficiaries of new lending, regardless of sector. On average, the top 25% most productive companies in any given sector (i. e. the fourth quartile or Q4) received 70.8% of the total volume of new loans in 2015, whereas only 8% of new loans went to companies in the first quartile, 7.6% to the second quartile and 13.6% to the third quartile. Results nonetheless vary to an extent depending on the sector: in manufacturing, business services and information and communication, more than 80% of new lending went to companies in the most productive quartile (Q4), while in the construction and accommodation and food services sectors, the figures fall to 57.1% and 42.9% respectively.

In conclusion, the majority of new bank lending in 2015 went to the most productive companies. Bank credit is therefore principally directed towards those companies making the largest contribution to economic growth.

Share of new medium- and long-term credit in 2015, per productivity quartile



Source: Authors' calculations using data from the Banque de France FIBEN database and Central Credit Register. Scope: The companies in the sample are those for which data are available in FIBEN for both end-2014 and end-2015, and which registered an increase in outstanding medium- and long-term credit between the two dates. Note: The first quartile, referred to as Q1, consists of the 25% least productive companies in the sector. The fourth quartile (Q4) consists of the 25% most productive companies, while Q2 and Q3 are the two intermediate quartiles.

#### 4. Improvement in profitability

Profitability measures the ability of a company to generate wealth from its invested capital. It is gauged here using two indicators: operating profitability and financial profitability.

Operating profitability is the ratio of net operating profit to operating assets (comprised of non-current operating assets and operating WCR). In 2015, it increased for all companies, reaching 4.7% (see Chart 7a). It nonetheless remained below

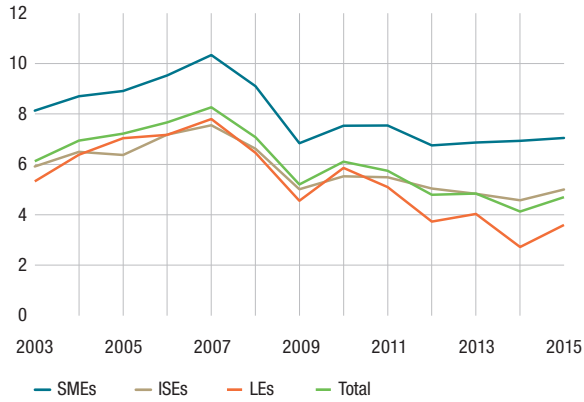
pre-crisis levels (average of 7.2% over the period 2003-2007).

Financial profitability, or return on equity, is the ratio of net self-financing capacity to shareholders' equity. In 2015, it rose markedly for all company categories, reaching a combined 9.9% for the year (up 3.8 pp relative to 2014; see Chart 7b). From an historical perspective, this ratio appears relatively high, as it has only been exceeded on three occasions since the start of the 2000s: in 2005, 2006 and 2007.

C7 Profitability

a) Operating profitability

(net operating profit/operating capital, in %)

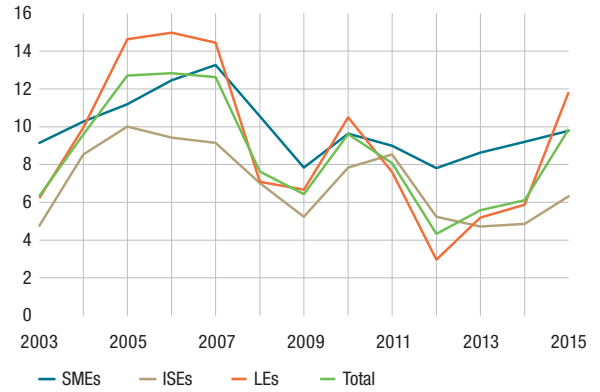


Source: Banque de France, FIBEN, November 2016.

Scope: Non-financial corporations as defined by the Economic Modernisation Act (*Loi de modernisation de l'économie* – LME).

b) Return on equity

(net self-financing capacity/shareholders' equity, in %)



# Appendix 1

## FIBEN data

### Database of company accounts

The Banque de France collects the financial statements of all companies taxed under the *bénéfice industriel et commercial* (industrial and commercial profits), and *bénéfice réel normal* (real and normal profits) (BIC BRN) regimes. The data cover all companies doing business in France and with a turnover exceeding EUR 0.75 million or, up to 2012, with bank debt exceeding EUR 0.38 million. The data cover over 75% of companies in most sectors and 80% or over in wholesale and retail trade, and in manufacturing.

### Main ratios used

An explanation of the financial analysis methodology and definitions of the ratios used can be found at the following address: [https://www.banque-france.fr/sites/default/files/media/2016/12/20/se2015\\_methodologie.pdf](https://www.banque-france.fr/sites/default/files/media/2016/12/20/se2015_methodologie.pdf)

### Financial links

The Banque de France identifies financial links and analyses the size of equity stakes held by other companies, classifying shareholders as non-financial corporations (including holding companies), financial institutions (banks, mutual funds or insurance companies), natural persons (individuals or employees), the government, or foreign companies. A distinction is made between independent companies and companies belonging to large or small groups.

### Database of consolidated accounts

Since 1992, the Banque de France has relied on its branch network to collect the consolidated

accounts drawn up by over 4,000 companies. This database includes the largest industrial and commercial companies operating in France. The study eliminates sub-groups that are consolidated by parent companies.

The consolidation, carried out by the companies themselves, consists in aggregating the individual accounts of legal entities within the group, after eliminating intra-group flows and parent company interests. The companies surveyed all have parent companies whose head offices are located in France. The scope of consolidation may include subsidiaries or second-tier subsidiaries that have headquarters outside France.

### Failures

In this paper, business failures are defined as the initiation of receivership proceedings or of liquidation proceedings when the latter have not been preceded by receivership proceedings. However, when a business continuation plan or disposal plan is put in place between a receivership and a liquidation or second receivership, it terminates the initial receivership. The liquidation or second receivership is therefore considered to be the initiation of proceedings, i. e. a new failure of the legal entity.

The information is provided by registries of commercial courts, automatically in 90% of cases and manually in the remaining cases (companies within the jurisdiction of the *Tribunaux de Grande Instance* (TGI – High Courts) that are competent to rule on commercial issues). Once data on proceedings is electronically recorded by the registries, it is transmitted to Banque de France within 24 hours. This data is then completed with information from the Legal Notices Bulletin and information transmitted manually by the TGI.

Legal events concerning natural persons only, such as personal bankruptcy, are not recorded.

as “drawn loans” and “undrawn loans”. Drawn loans include short-, medium- and long-term loans, finance leases and securitised loans.

### **The Central Credit Register**

The Central Credit Register makes monthly records of loans granted by credit institutions to each of their clients above a specific threshold (EUR 25,000 since January 2006). Loans recorded are classified

#### **Scope**

All business activities are included except sectors KZ (financial activities, excluding holding companies) and O (public administration).



## Appendix 2

# Company size and sector categories

Each data source does not necessarily provide all the information required to define company size as defined by the Economic Modernisation Act of 4 August 2008 (LME). In some cases, sizes are approximated as best as possible based on the information available.

### Attribution of size and activity sectors for the purposes of analysing company accounts

The decree implementing the LME published on 20 December 2008, which sets out the statistical definition of an enterprise,<sup>1</sup> specifies company size categories in line with European Commission definitions, and the criteria that define them. There are four thresholds: number of employees, turnover, total assets of legal units and the financial links between them.

The first three criteria are drawn up for each company, understood as the smallest combination of legal units that make up an organisational unit producing goods or services, which benefits from a certain degree of decision-making autonomy (defined on the basis of financial links). A financial link corresponds to a holding of at least 50% of the capital of a legal unit.

When a company consists of several legal entities (and is thus classed as a “multi-entity” company as opposed to a “single-entity” company), the company accounts of the constituent legal entities are aggregated to define the “company”. This approach does not address double counting between units of the same company.

Company sizes are defined as follows:

- **SMEs:** up to 250 employees and annual turnover not exceeding EUR 50 million, or a balance sheet total not exceeding EUR 43 million;
- **intermediate-sized enterprises (ISEs):** companies that are not SMEs, with up to 5,000 employees and annual turnover not exceeding EUR 1.5 billion, or a balance sheet total not exceeding EUR 2 billion;
- **large enterprises:** all other firms.

SMEs and ISEs may be either a single legal entity or a multi-entity reporting to either a French or a foreign parent company.

**The activity sector** is based on the 2008 aggregate nomenclature, itself based on the NAF (French nomenclature of activities) Rev. 2.

In the case of a multi-entity company, its sector is determined after allocating each of its entities to their corresponding sectors. The overall sector of a multi-entity company is decided by the “grouping” of legal entities that generates the highest annual turnover for the company, provided the turnover of the grouping exceeds 50% of total turnover. If it does not exceed 50%, the sector is determined based on the staff headcount criterion, again, provided that the staff of the largest grouping of different legal entities represents more than 50% of the total staff of the multi-entity. In cases where no single sector grouping of legal entities accounts for over 50% of turnover or staff, the sector of the grouping of legal entities with the highest annual turnover is assigned to the group as a whole.

<sup>1</sup> [http://www.legifrance.gouv.fr/affichTexte.do;jsessionid=AE22AD6AA9827C20CEBCA70F67427237.tpdjo01v\\_3?cidTexte=JORFTEXT000019961059&categorieLien=id](http://www.legifrance.gouv.fr/affichTexte.do;jsessionid=AE22AD6AA9827C20CEBCA70F67427237.tpdjo01v_3?cidTexte=JORFTEXT000019961059&categorieLien=id)

## Average size of each category of company in 2015

(in number and millions of euros)

|       | Number of companies | Number of legal entities <sup>a)</sup> | Average permanent headcount | Average turnover | Average value added | Average financial debt | Average bank debt | Average equity |
|-------|---------------------|--|-----------------------------|------------------|---------------------|------------------------|-------------------|----------------|
| Total | 177,433             | 374,380                                | 61                          | 17               | 5                   | 10                     | 3                 | 8              |
| SMEs  | 172,149             | 300,610                                | 21                          | 5                | 1                   | 1                      | 1                 | 1              |
| ISEs  | 5,041               | 53,448                                 | 609                         | 199              | 50                  | 91                     | 39                | 87             |
| LEs   | 243                 | 20,322                                 | 16,321                      | 4,969            | 1,380               | 4,347                  | 511               | 3,298          |

Source: Banque de France, FIBEN, November 2016.

Scope: NFCs as defined by the LME; all business sectors except sectors KZ (financial activities, excluding holding companies) and O (public administration).

a) The number of legal entities corresponds to the number of entities in the firm's consolidation scope as defined by the LME, irrespective of whether its balance sheet is in the FIBEN database.

## Economic weight of non-financial corporations in 2015

(headcount in thousands; turnover, value added, bank debt, financial debt and equity in EUR billions)

|  | Number of companies | Number of legal entities <sup>a)</sup> | Average permanent headcount | Average turnover | Average value added | Average financial debt | Average bank debt | Average equity |
|--|---------------------|--|-----------------------------|------------------|---------------------|------------------------|-------------------|----------------|
| Total  | 177,433             | 374,380                                | 10,474                      | 3,001            | 829                 | 1,723                  | 457               | 1,495          |
| By size                                      |                     |  |                             |                  |                     |                        |                   |                |
| SMEs   | 172,149             | 300,610                                | 3,438                       | 788              | 240                 | 207                    | 135               | 254            |
| <i>o/w subsidiaries of foreign companies</i> | 7,464               | 20,016                                 | 271                         | 96               | 26                  | 30                     | 12                | 24             |
| ISEs   | 5,041               | 53,448                                 | 3,070                       | 1,005            | 254                 | 459                    | 197               | 439            |
| <i>o/w subsidiaries of foreign companies</i> | 1,426               | 11,111                                 | 972                         | 379              | 95                  | 121                    | 28                | 118            |
| LEs  | 243                 | 20,322                                 | 3,966                       | 1,207            | 335                 | 1,056                  | 124               | 802            |
| By sector                                    |                     |  |                             |                  |                     |                        |                   |                |
| Agriculture, forestry and fishing            | 2,405               | 3,645                                  | 46                          | 11               | 3                   | 6                      | 4                 | 7              |
| Manufacturing                                | 26,908              | 67,051                                 | 2,484                       | 844              | 214                 | 499                    | 71                | 511            |
| Energy, water, waste                         | 1,901               | 7,813                                  | 392                         | 152              | 47                  | 267                    | 24                | 119            |
| Construction                                 | 27,567              | 50,088                                 | 883                         | 181              | 65                  | 83                     | 33                | 101            |
| Wholesale and retail trade                   | 68,654              | 126,443                                | 2,433                       | 1,163            | 188                 | 245                    | 81                | 330            |
| Transportation and storage                   | 7,558               | 17,289                                 | 1,059                       | 189              | 76                  | 165                    | 51                | 103            |
| Accommodation and food service activities    | 8,962               | 20,469                                 | 410                         | 45               | 21                  | 38                     | 14                | 24             |
| Information and communication                | 5,029               | 13,003                                 | 526                         | 142              | 74                  | 122                    | 20                | 95             |
| Real estate activities                       | 2,985               | 9,914                                  | 103                         | 33               | 20                  | 154                    | 106               | 88             |
| Business support service activities          | 18,690              | 43,261                                 | 1,707                       | 179              | 94                  | 113                    | 38                | 89             |
| Education, health                            | 4,587               | 10,461                                 | 319                         | 32               | 19                  | 18                     | 9                 | 16             |
| Services to households                       | 2,187               | 4,943                                  | 113                         | 29               | 8                   | 13                     | 5                 | 12             |

Source: Banque de France, FIBEN, November 2016.

Scope: NFCs as defined by the LME; all business sectors except sectors KZ (financial activities, excluding holding companies) and O (public administration).

a) The number of legal entities corresponds to the number of entities in the firm's consolidation scope as defined by the LME, irrespective of whether its balance sheet is in the FIBEN database.

## Economic weight of non-financial corporations in 2015

(breakdown in %)

|  | Number of companies | Number of legal entities <sup>a)</sup> | Average permanent headcount | Average turnover | Average value added | Average financial debt | Average bank debt | Average equity |
|--|---------------------|--|-----------------------------|------------------|---------------------|------------------------|-------------------|----------------|
| By size                                      |                     |  |                             |                  |                     |                        |                   |                |
| SMEs   | 97.0                | 80.3                                   | 32.8                        | 26.3             | 28.9                | 12.0                   | 29.6              | 17.0           |
| <i>o/w subsidiaries of foreign companies</i> | 4.2                 | 5.3                                    | 2.6                         | 3.2              | 3.1                 | 1.7                    | 2.6               | 1.6            |
| ISEs   | 2.8                 | 14.3                                   | 29.3                        | 33.5             | 30.7                | 26.7                   | 43.2              | 29.4           |
| <i>o/w subsidiaries of foreign companies</i> | 0.8                 | 3.0                                    | 9.3                         | 12.6             | 11.4                | 7.0                    | 6.0               | 7.9            |
| LEs  | 0.1                 | 5.4                                    | 37.9                        | 40.2             | 40.4                | 61.3                   | 27.2              | 53.6           |
| By sector                                    |                     |  |                             |                  |                     |                        |                   |                |
| Agriculture, forestry and fishing            | 1.4                 | 1.0                                    | 0.4                         | 0.4              | 0.4                 | 0.3                    | 0.8               | 0.5            |
| Manufacturing                                | 15.2                | 17.9                                   | 23.7                        | 28.1             | 25.8                | 29.0                   | 15.6              | 34.2           |
| Energy, water, waste                         | 1.1                 | 2.1                                    | 3.7                         | 5.1              | 5.6                 | 15.5                   | 5.3               | 8.0            |
| Construction                                 | 15.5                | 13.4                                   | 8.4                         | 6.0              | 7.8                 | 4.8                    | 7.2               | 6.7            |
| Wholesale and retail trade                   | 38.7                | 33.8                                   | 23.2                        | 38.8             | 22.6                | 14.2                   | 17.7              | 22.1           |
| Transportation and storage                   | 4.3                 | 4.6                                    | 10.1                        | 6.3              | 9.2                 | 9.6                    | 11.3              | 6.9            |
| Accommodation and food service activities    | 5.1                 | 5.5                                    | 3.9                         | 1.5              | 2.6                 | 2.2                    | 3.0               | 1.6            |
| Information and communication                | 2.8                 | 3.5                                    | 5.0                         | 4.7              | 8.9                 | 7.1                    | 4.4               | 6.3            |
| Real estate activities                       | 1.7                 | 2.6                                    | 1.0                         | 1.1              | 2.4                 | 8.9                    | 23.3              | 5.9            |
| Business support service activities          | 10.5                | 11.6                                   | 16.3                        | 6.0              | 11.3                | 6.6                    | 8.3               | 5.9            |
| Education, health                            | 2.6                 | 2.8                                    | 3.0                         | 1.1              | 2.3                 | 1.0                    | 2.0               | 1.1            |
| Services to households                       | 1.2                 | 1.3                                    | 1.1                         | 1.0              | 1.0                 | 0.8                    | 1.2               | 0.8            |

Source: Banque de France, FIBEN, November 2016.

Scope: NFCs as defined by the LME; all business sectors except sectors KZ (financial activities, excluding holding companies) and O (public administration).

a) The number of legal entities corresponds to the number of entities in the firm's consolidation scope as defined by the LME, irrespective of whether its balance sheet is in the FIBEN database.

## Appendix 3

# Profit and loss account

### Profit and loss account

(as a % of turnover)

|   | SMEs         |              | ISEs         |              | LEs          |              | Total        |              |
|---|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
|   | 2014         | 2015         | 2014         | 2015         | 2014         | 2015         | 2014         | 2015         |
| <b>Turnover</b>                                       | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> | <b>100.0</b> |
| (+) Production taken into inventory                   | 0.0          | 0.0          | 0.1          | 0.0          | -0.1         | 0.1          | 0.0          | 0.0          |
| (+) Production capitalised                            | 0.3          | 0.3          | 0.4          | 0.4          | 1.0          | 1.2          | 0.6          | 0.7          |
| <b>Production and sale of goods</b>                   | <b>100.3</b> | <b>100.3</b> | <b>100.6</b> | <b>100.4</b> | <b>100.9</b> | <b>101.3</b> | <b>100.7</b> | <b>100.7</b> |
| (-) Purchase cost of sold goods                       | 35.2         | 35.0         | 37.1         | 36.7         | 25.9         | 25.2         | 32.1         | 31.6         |
| (-) Cost of materials consumed                        | 12.3         | 12.0         | 15.6         | 15.3         | 18.9         | 17.8         | 16.0         | 15.5         |
| (-) External purchases and other expenses             | 22.7         | 22.9         | 22.9         | 23.1         | 29.7         | 30.5         | 25.6         | 26.0         |
| <b>BDF value added</b>                                | <b>30.2</b>  | <b>30.4</b>  | <b>25.0</b>  | <b>25.3</b>  | <b>26.5</b>  | <b>27.8</b>  | <b>27.0</b>  | <b>27.6</b>  |
| (+) Operating subsidies                               | 0.2          | 0.2          | 0.3          | 0.3          | 0.6          | 0.7          | 0.4          | 0.4          |
| (-) Wages and salaries, social security contributions | 21.1         | 21.2         | 15.7         | 16.0         | 16.9         | 16.9         | 17.6         | 17.7         |
| (-) External staff costs                              | 1.2          | 1.2          | 1.3          | 1.4          | 1.4          | 1.5          | 1.3          | 1.4          |
| (-) Taxes and related payments                        | 1.4          | 1.3          | 1.9          | 1.8          | 3.4          | 3.5          | 2.4          | 2.4          |
| (+) Other operating income and expenses               | -0.4         | -0.4         | -0.4         | -0.3         | 0.4          | 0.3          | -0.1         | -0.1         |
| <b>Gross operating profit</b>                         | <b>6.3</b>   | <b>6.5</b>   | <b>5.9</b>   | <b>6.1</b>   | <b>5.9</b>   | <b>6.9</b>   | <b>6.0</b>   | <b>6.5</b>   |
| <b>Net operating profit</b>                           | <b>4.0</b>   | <b>4.1</b>   | <b>3.4</b>   | <b>3.8</b>   | <b>2.5</b>   | <b>3.5</b>   | <b>3.2</b>   | <b>3.8</b>   |
| (+) Other non-operating transactions                  | 1.9          | 2.1          | 3.4          | 4.0          | 8.3          | 11.1         | 5.0          | 6.3          |
| <b>Total gross profit</b>                             | <b>8.3</b>   | <b>8.5</b>   | <b>9.4</b>   | <b>10.1</b>  | <b>14.1</b>  | <b>18.0</b>  | <b>11.0</b>  | <b>12.8</b>  |
| (-) Interest and related expenses                     | 1.0          | 1.0          | 1.7          | 1.6          | 2.7          | 2.7          | 1.9          | 1.9          |
| (-) Employee profit-sharing                           | 0.1          | 0.1          | 0.2          | 0.2          | 0.2          | 0.2          | 0.2          | 0.2          |
| (-) Corporate income tax                              | 1.0          | 1.0          | 0.8          | 0.9          | 0.6          | 0.7          | 0.8          | 0.8          |
| <b>Self-financing capacity</b>                        | <b>6.1</b>   | <b>6.5</b>   | <b>6.6</b>   | <b>7.4</b>   | <b>10.6</b>  | <b>14.3</b>  | <b>8.1</b>   | <b>9.9</b>   |
| (-) Net allocations to depreciation and provisions    | 3.4          | 3.3          | 4.6          | 4.6          | 6.3          | 6.5          | 5.0          | 5.0          |
| <b>Net self-financing capacity</b>                    | <b>2.8</b>   | <b>3.2</b>   | <b>2.0</b>   | <b>2.8</b>   | <b>4.3</b>   | <b>7.9</b>   | <b>3.1</b>   | <b>4.9</b>   |
| <b>Reported net profit</b>                            | <b>3.2</b>   | <b>3.6</b>   | <b>2.2</b>   | <b>3.2</b>   | <b>4.7</b>   | <b>7.7</b>   | <b>3.5</b>   | <b>5.1</b>   |

Source: Banque de France, FIBEN, November 2016.

Scope: NFCs as defined by the LME; all business sectors except sectors KZ (financial activities, excluding holding companies) and O (public administration).

No adjustments for double-accounting are made at this stage.

## Appendix 4

# Cash flow statement

### Cash flow statement

(for 100 euro of turnover)

|                                      | SMEs       |            | ISEs       |            | LEs        |             | Total      |            |
|--------------------------------------|------------|------------|------------|------------|------------|-------------|------------|------------|
|                                      | 2014       | 2015       | 2014       | 2015       | 2014       | 2015        | 2014       | 2015       |
| (+) Gross operating profit           | 6.4        | 6.5        | 5.7        | 6.2        | 6.2        | 6.8         | 6.1        | 6.5        |
| (-) Change in OWCR                   | 0.3        | 0.2        | 0.0        | 0.0        | 0.3        | -0.7        | 0.2        | -0.2       |
| <b>(=) Operating cash flow</b>       | <b>6.1</b> | <b>6.3</b> | <b>5.7</b> | <b>6.2</b> | <b>5.9</b> | <b>7.5</b>  | <b>5.9</b> | <b>6.7</b> |
| (+) Other non-operating transactions | 2.1        | 2.2        | 4.4        | 5.0        | 13.3       | 15.7        | 7.4        | 8.6        |
| (-) Interest expenses                | 1.0        | 1.0        | 1.8        | 1.7        | 3.3        | 3.1         | 2.2        | 2.1        |
| (-) Participating interests          | 0.1        | 0.1        | 0.2        | 0.2        | 0.2        | 0.2         | 0.2        | 0.2        |
| (-) Dividend payments                | 2.0        | 2.1        | 3.0        | 3.7        | 8.9        | 9.5         | 5.1        | 5.6        |
| (-) Corporation tax                  | 1.0        | 1.0        | 0.8        | 0.9        | 0.7        | 0.7         | 0.8        | 0.9        |
| (-) Change in non-operating WCR      | 0.3        | 0.0        | 0.3        | 0.4        | 0.6        | -0.7        | 0.4        | -0.1       |
| <b>(=) Total cash flow</b>           | <b>3.8</b> | <b>4.3</b> | <b>4.0</b> | <b>4.3</b> | <b>5.5</b> | <b>10.4</b> | <b>4.6</b> | <b>6.6</b> |
| <b>Net investment flows</b>          | <b>3.4</b> | <b>3.6</b> | <b>6.3</b> | <b>6.2</b> | <b>9.7</b> | <b>14.6</b> | <b>7.0</b> | <b>8.7</b> |
| <b>Net financing flows</b>           | <b>0.6</b> | <b>0.8</b> | <b>3.2</b> | <b>3.0</b> | <b>5.8</b> | <b>7.4</b>  | <b>3.6</b> | <b>4.2</b> |
| (+) Change in equity financing       | 0.8        | 0.6        | 1.9        | 1.4        | 0.5        | 1.2         | 1.1        | 1.1        |
| (+) Change in long-term debt         | -0.1       | 0.2        | 0.9        | 1.7        | 4.9        | 4.6         | 2.2        | 2.5        |
| (+) o/w bank loans                   | -0.3       | -0.2       | 0.0        | 0.5        | 0.1        | -0.7        | -0.1       | -0.2       |
| (+) Change in cash liabilities       | -0.1       | 0.0        | 0.4        | -0.1       | 0.4        | 1.6         | 0.3        | 0.6        |
| <b>(=) Change in cash assets</b>     | <b>1.0</b> | <b>1.5</b> | <b>0.9</b> | <b>1.1</b> | <b>1.6</b> | <b>3.2</b>  | <b>1.2</b> | <b>2.1</b> |
| Change in net cash position          | 1.1        | 1.5        | 0.5        | 1.2        | 1.2        | 1.6         | 0.9        | 1.5        |
| Change in NWC                        | 1.6        | 1.7        | 0.8        | 1.6        | 2.1        | 0.3         | 1.5        | 1.1        |
| Change in WCR                        | 0.6        | 0.2        | 0.3        | 0.4        | 0.9        | -1.4        | 0.6        | -0.3       |

Source: Banque de France, FIBEN, November 2016.



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