EUROPEAN CENTRAL BANK

EUROSYSTEM

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Contents

Update on economic and monetary developments

Summary

The monetary policy decisions taken in December 2016 have succeeded in preserving the very favourable financing conditions that are necessary to secure a sustained convergence of inflation rates towards levels below, but close to, 2% over the medium term. Borrowing conditions for firms and households continue to benefit from the pass-through of the ECB's measures. As expected, headline inflation has increased recently, largely owing to base effects in energy prices, but underlying inflation pressures remain subdued. The Governing Council will continue to look through changes in HICP inflation if judged to be transient and to have no implication for the medium-term outlook for price stability.

Available global indicators point to a continued moderate rebound in world activity and trade growth towards the end of 2016. Meanwhile, global financial conditions have tightened and emerging market economies have been confronted with capital outflows. Global headline inflation has increased on the back of waning negative contributions from energy prices. Risks to the outlook for world activity remain on the downside and relate, in particular, to political uncertainty and financial imbalances.

Since the Governing Council meeting on 8 December 2016, sovereign bond yields in the euro area have declined slightly and the EONIA forward curve has edged downwards for medium-term maturities. Equity prices of non-financial corporations have risen and the spreads on corporate debt have fallen. The euro exchange rate remained broadly stable in trade-weighted terms.

The economic expansion in the euro area is proceeding and strengthening, driven mainly by domestic demand. Looking ahead, the economic expansion is expected to firm further. The pass-through of the ECB's monetary policy measures is supporting domestic demand and facilitating the ongoing deleveraging process. The very favourable financing conditions and improvements in corporate profitability continue to promote the recovery in investment. Moreover, sustained employment gains, which are also benefiting from past structural reforms, provide support for private consumption via increases in households' real disposable income. At the same time, there are signs of a somewhat stronger global recovery. However, economic growth in the euro area is expected to be dampened by a sluggish pace of implementation of structural reforms and remaining balance sheet adjustments in a number of sectors. The risks surrounding the euro area growth outlook remain tilted to the downside and relate predominantly to global factors.

According to Eurostat, euro area annual HICP inflation in December 2016 was 1.1%, up from 0.6% in November. This reflected mainly a strong increase in annual energy inflation, while there are no signs yet of a convincing upward trend in underlying inflation. Looking ahead, on the basis of current oil futures prices, headline inflation

is likely to pick up further in the near term, largely reflecting movements in the annual rate of change of energy prices. However, measures of underlying inflation are expected to rise more gradually over the medium term, supported by the ECB's monetary policy measures, the expected economic recovery and the corresponding gradual absorption of slack.

Although developments in bank credit continue to reflect the lagged relationship with the business cycle, credit risk and the ongoing adjustment of financial and non-financial sector balance sheets, the monetary policy measures put in place since June 2014 are significantly supporting borrowing conditions for firms and households and thereby credit flows across the euro area. The euro area bank lending survey for the fourth quarter of 2016 indicates that credit standards for loans to enterprises are broadly stabilising, while loan demand has continued to expand at a robust pace across all loan categories. Loan growth to the private sector has thus continued its gradual recovery. Moreover, the overall nominal cost of external financing for non-financial corporations is estimated to have declined slightly in December.
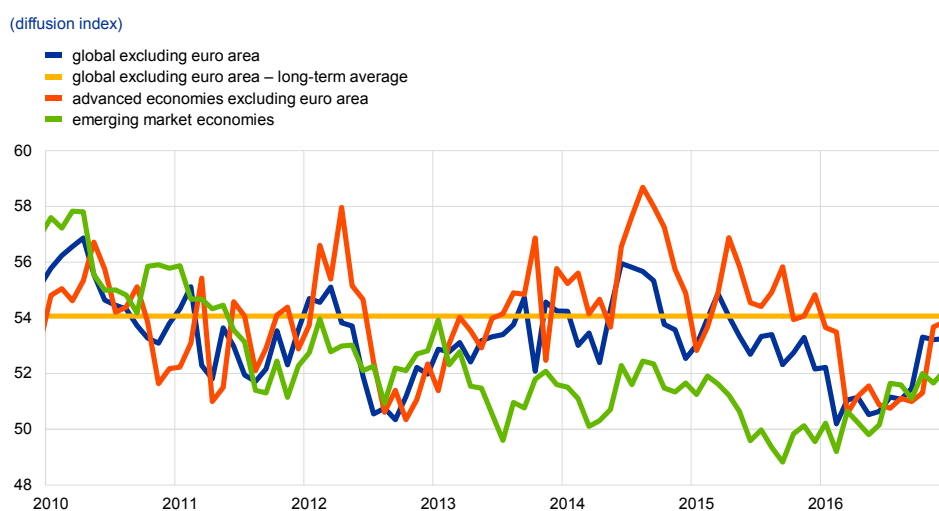
At its meeting on 19 January 2017, based on the regular economic and monetary analyses, the Governing Council decided to keep the key ECB interest rates unchanged. The Governing Council continues to expect the key ECB interest rates to remain at present or lower levels for an extended period of time, and well past the horizon of the net asset purchases. Regarding non-standard monetary policy measures, the Governing Council confirmed that the Eurosystem will continue to make purchases under the asset purchase programme at the current monthly pace of €80 billion until the end of March 2017 and that, from April 2017, net asset purchases are intended to continue at a monthly pace of €60 billion until the end of December 2017, or beyond, if necessary, and in any case until the Governing Council sees a sustained adjustment in the path of inflation consistent with its inflation aim. The net purchases will be made alongside reinvestments of the principal payments from maturing securities purchased under the asset purchase programme.

Looking ahead, the Governing Council confirmed that a very substantial degree of monetary accommodation is needed for euro area inflation pressures to build up and support headline inflation in the medium term. If warranted to achieve its objective, the Governing Council will act by using all the instruments available within its mandate. In particular, if the outlook becomes less favourable, or if financial conditions become inconsistent with further progress towards a sustained adjustment in the path of inflation, the Governing Council stands ready to increase the asset purchase programme in terms of size and/or duration.

1   External environment

Surveys point to a continued moderate recovery of global growth towards the end of 2016. The global composite output Purchasing Managers' Index (PMI) reached the highest level recorded in more than a year (Chart 1), increasing to 53.3 in the final quarter of 2016. Quarterly PMIs rose in all major advanced economies, with PMIs in Japan returning to an expansionary path. PMIs increased in China and Russia, while India's PMI showed a sharp decline in light of the disruptive effects of the recent government decision to change the legal tender status of some of its currency notes. Survey indicators remained very weak in Brazil.

Chart 1
Global composite output PMI

(diffusion index)
- global excluding euro area
- global excluding euro area – long-term average
- advanced economies excluding euro area
- emerging market economies

Sources: Markit and ECB calculations.
Note: The latest observations are for December 2016.

Global financial conditions have tightened. Bond yields increased in the United States and across the world in recent months. The tightening of financial conditions has, in part, reflected central bank action in the United States. In December 2016, the Federal Reserve System's Federal Open Market Committee decided to raise the target range for the federal funds rate by 25 basis points, to 0.5% to 0.75%. Amid tighter financial conditions, some emerging market economies (EMEs) have faced considerable capital outflow pressures towards the end of 2016 (see Chart 2). Mexico and Turkey were affected to a particular degree, recording a noticeable depreciation of their currencies and a sharp rise in interest rates. In Turkey, global developments were amplified by domestic political uncertainties and macroeconomic vulnerabilities. China also experienced significant capital outflows and a reduction of its foreign exchange reserves. In Russia, by contrast, the rouble appreciated and stock prices surged, mainly on account of the recovery in oil prices.

Chart 2

Emerging market economies' capital flows

(USD billions, 28-day trailing moving-average)

- equity flows
- debt flows
- total flows
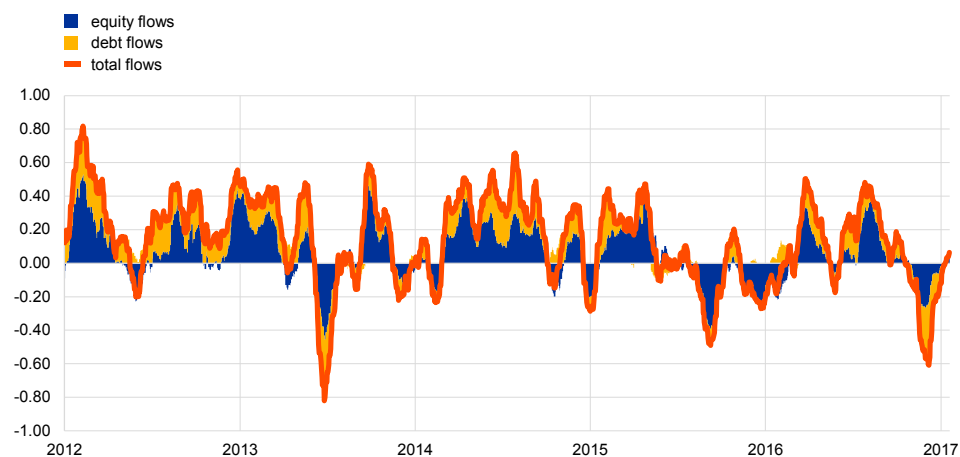
Source: Institute of International Finance.
Notes: The most recent observation refers to 18 January 2017. Positive values correspond to capital inflows, while negative values refer to capital outflows. The sample of emerging market economies includes Indonesia, India, Korea, Thailand, South Africa, Brazil, Philippines and Turkey.

Global trade remained on a path of subdued recovery towards the year-end.
Global trade growth remained in positive territory for the fourth time in succession in October, with the volume of world goods imports increasing by 0.8% in that month (in three month-on-three month terms), after a weak first half of 2016. Leading indicators also confirm the positive trend. The global PMI for new export orders reached its highest level in more than two years, rising to 51.4 in December.

Global inflation continued to increase in November, on the back of waning negative contributions from energy prices. Annual consumer price inflation in the member countries of the Organisation for Economic Co-operation and Development (OECD) picked up to 1.4% in November, reaching the highest figure in two years. Excluding food and energy, annual inflation in the OECD stabilised at 1.7%. Fading base effects of past declines in commodity prices are expected to support a further increase in headline inflation in the months ahead, while the presence of spare capacity will continue to weigh on global inflation.

The price of Brent crude oil remained in the range of USD 52 to USD 56 in the wake of the announcement of cuts in oil production. Oil prices were supported by the decision taken by the Organization of the Petroleum Exporting Countries (OPEC) on 30 November to cut output by 1.2 million barrels per day as from January 2017, and were buoyed further by non-OPEC producers' agreement on 12 December to cut output by 0.6 million barrels per day. At horizons beyond six months, market expectations have remained largely unaffected by the OPEC decision, suggesting that this has not changed the fundamentals of the oil market. Global oil supplies totalled 98.2 million barrels per day in November, a record high, as reductions of non-OPEC output were offset by increased OPEC production. The growth in oil demand is expected to have continued in the fourth quarter of 2016 (by 1.3 million barrels per day relative to a year ago), driven partly by upward revisions to Chinese consumption. The prices of non-oil commodities have increased

marginally since mid-December, driven mainly by a substantial rise in iron ore and copper prices, related to higher-than-expected demand for metals in China and some supply disruptions.

Economic activity in the United States is robust, notwithstanding significant political uncertainty. Real GDP grew at an annualised rate of 3.5% in the third quarter of 2016, supported primarily by consumer spending, net trade and a turnaround in the contribution of inventories. Recent indicators suggest a continued robust expansion in the final quarter of 2016, albeit at a slower pace than in the previous quarter. Notwithstanding political uncertainty – as only few details have emerged of policy changes under the new Administration – confidence surveys released after the US elections suggest an upbeat near-term outlook. Labour market conditions tightened further, with monthly increases in non-farm payroll employment averaging 165,000 in the three months up to December. This contributed to a further acceleration of wage gains, with annual growth in average hourly earnings rising to 2.9%. In December, annual headline consumer price index (CPI) inflation in the United States increased to 2.1%, mainly on the back of higher gasoline prices, while the CPI excluding food and energy rose to 2.2%.

Economic growth in Japan remains modest. Real GDP there increased by 0.3%, quarter on quarter, in the third quarter of 2016, as both domestic demand growth and net trade remained subdued. Latest data suggest a pick-up in real exports and industrial production towards the end of the year, while the momentum of private consumption remained weak, and surveys suggest that companies remain cautious about the outlook. Despite the tight labour market, evidenced by the unemployment rate remaining at 3% in October, annual real wage growth was flat in October. Headline CPI inflation rose further in November, standing at 0.5%, year on year. At the same time, annual growth in the CPI excluding fresh food and energy – the Bank of Japan's preferred measure of core inflation – decelerated to 0.2%.

In the United Kingdom, recent indicators suggest renewed signs of economic resilience amid a notable increase in inflation. In the third quarter of 2016, real GDP increased by 0.6%, quarter on quarter, defying expectations of an abrupt slowdown in the immediate aftermath of the UK referendum on EU membership. Available indicators suggest that economic activity remained resilient in the final quarter of the year. Annual CPI inflation accelerated to 1.6% in December 2016, driven partly by energy prices. The impact of the weakening of the pound sterling is also becoming increasingly visible in the first stages of the pricing chain, as shown by sharp increases in import and producer prices over recent months.

Economic growth in the Chinese economy has stabilised. The latest data are consistent with a stabilisation of real GDP growth, following the rise to 6.7%, year on year, in the third quarter. Data covering November show stable overall industrial production growth, with a pick-up in activity by state-owned enterprises. Fixed-asset investment has stabilised as well, while PMIs have trended higher since the mid-year. Annual CPI inflation stood at 2.1% in December, down from 2.3% in November. CPI inflation excluding food and energy remained unchanged at 1.9%. Meanwhile, annual producer price inflation has picked up strongly, accelerating to 5.5% in

December, the highest rate of increase recorded since September 2011, as prices for mining products and energy rose sharply.

2 Financial developments

Euro area government bond yields have decreased slightly since early December. During the period under review (8 December 2016 to 18 January 2017), interest rates on euro area ten-year sovereign bonds decreased by around 5 basis points. Spreads vis-à-vis German ten-year bonds remained broadly stable in most countries, with the exception of Greece where they rose by 48 basis points.

Chart 3
Selected euro area and US equity price indices

(1 January 2016 = 100)
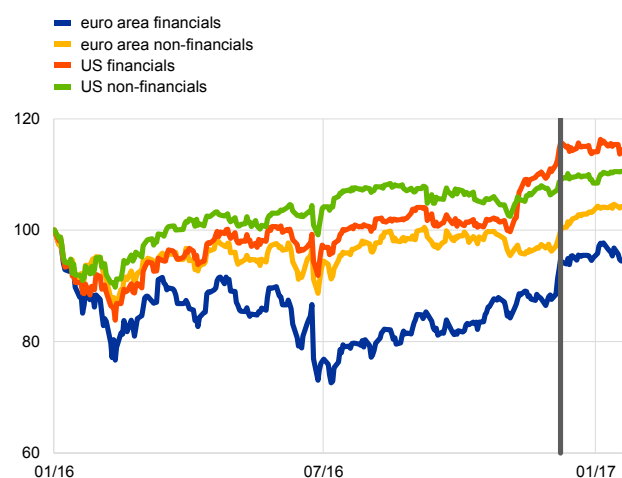
Source: Thomson Reuters.
Notes: Daily data. The black vertical line refers to the start of the review period (8 December 2016). The latest observation is for 18 January 2017.

Euro area equity prices have increased since early December. At the end of the period under review, the equity prices of euro area non-financial corporations (NFCs) were around 4% higher than at the beginning. The equity prices of financial corporations fell slightly; however, over a longer horizon, they are now around 30% higher than the lows recorded in the aftermath of the outcome of the United Kingdom's referendum on EU membership (see Chart 3). During the period under review, equity prices of NFCs also increased in the United States, the United Kingdom and Japan, namely by around 2%, 6% and 1% respectively. The equity prices of financial corporations underperformed relative to NFCs in all three economic areas. Market expectations of equity price volatility fell slightly in the euro area, and remain significantly lower than historical averages.

Spreads on bonds issued by NFCs fell during the period under review. On 18 January, investment-grade NFC bond spreads were around 3 basis points lower than on 8 December, and 45 basis points lower than in March 2016, when the Governing Council announced the launch of the corporate sector purchase programme (CSPP). Spreads on non-investment grade NFC and financial sector debt (which is ineligible for purchase under the CSPP) also declined during the period under review, by 19 and 3 basis points respectively.

The euro overnight index average (EONIA) remained stable at around -35 basis points in the period under review, except for a small increase at the end of the year. During the period under review, excess liquidity increased by around €80 billion, to around €1,265 billion, in the context of the Eurosystem's purchases under the asset purchase programme. The increase in excess liquidity also reflected participation in the third targeted longer-term refinancing operation (TLTRO-II).

The EONIA forward curve has flattened slightly. During the period under review, the EONIA forward curve for medium-term maturities moved downwards by around 5 basis points. The downward shift of the curve for maturities below two years has been marginal, and the curve remains below zero for maturities prior to 2021.

Chart 4

Changes in the exchange rate of the euro vis-à-vis selected currencies

(percentages)

- since 8 December 2016
- since 18 January 2016
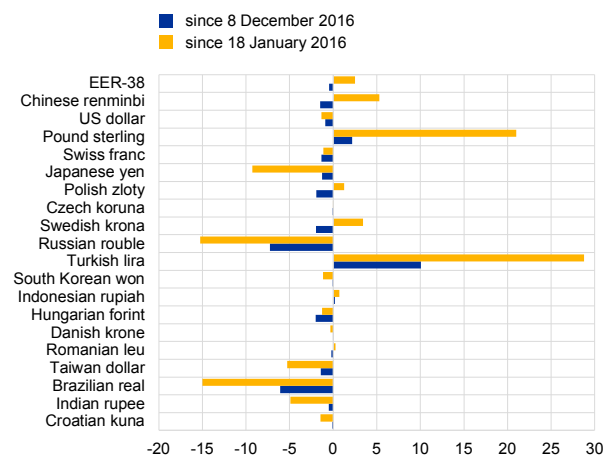
Source: ECB.
Note: EER-38 is the nominal effective exchange rate of the euro against the currencies of 38 of the euro area's most important trading partners.

In foreign exchange markets, the euro was broadly stable in trade-weighted terms. In bilateral terms, since 8 December, the euro has appreciated by 2.2% against the pound sterling, amid heightened uncertainty about the United Kingdom's prospects of leaving the European Union. The euro depreciated vis-à-vis a number of other major currencies of advanced economies, including the US dollar (by 0.9%), the Japanese yen (by 1.3%) and the Swiss franc (by 1.4%). The euro also depreciated against most currencies of emerging market economies, including the Chinese renminbi (by 1.5%), as well as against the currencies of other non-euro area EU countries (see Chart 4).

3   Economic activity

Economic expansion in the euro area is proceeding and strengthening, driven mainly by domestic demand. In addition, growth has been broadening across sectors and, more recently, also across countries (see Box 1). Real GDP increased by 0.3%, quarter on quarter, in the third quarter of 2016, on the back of positive contributions from domestic demand and, to a lesser extent, changes in inventories (see Chart 5). At the same time, net trade provided a negative contribution to GDP growth in the third quarter. The latest economic indicators, both hard data and survey results, have continued to show some resilience and point to somewhat stronger growth in the fourth quarter.

Chart 5

Euro area real GDP, the Economic Sentiment Indicator (ESI) and the composite output Purchasing Managers' Index (PMI)

(quarter-on-quarter percentage growth; index; diffusion index)

- real GDP (right-hand scale)
- ESI (left-hand scale)
- composite output PMI (left-hand scale)
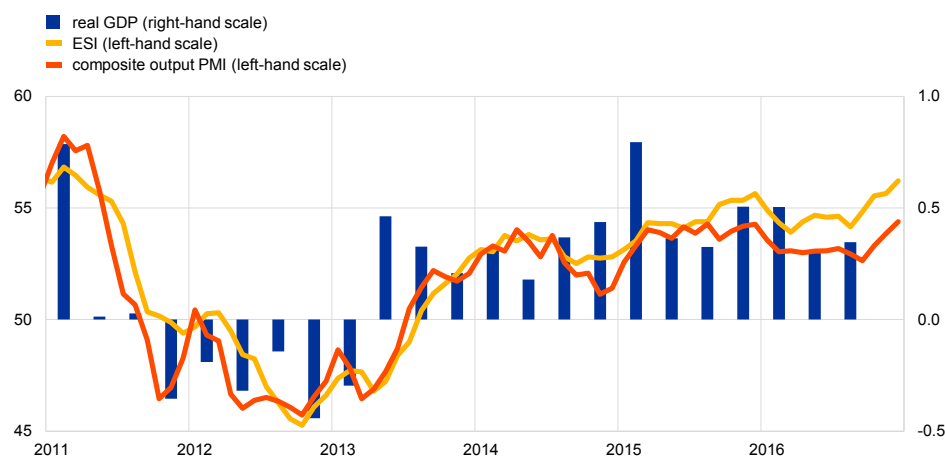
Sources: Eurostat, European Commission, Markit and ECB.
Notes: The ESI is normalised with the mean and standard deviation of the PMI. The latest observations are for the third quarter of 2016 for real GDP and December 2016 for the ESI and the PMI.

Consumer spending, the main driver behind the ongoing recovery, continued to contribute positively to GDP growth in the third quarter of 2016. Private consumption growth stood at 0.3%, quarter on quarter, only slightly higher than in the second quarter. This relatively modest outcome, at least when seen in comparison with developments in 2015 and early 2016, may partly reflect heightened uncertainty in the wake of the referendum in the United Kingdom and terror attacks, as well as the increase in oil prices in the course of 2016. On an annual basis, consumption rose by 1.6% in the third quarter, after 1.7% in the second quarter. This slight moderation mirrored a sharper slowdown in households' real disposable income growth, to 1.7%, year on year, in the third quarter, from 2.5% in the previous quarter. Income growth, despite the latest decline, remains high by historical standards. Indeed, consumer spending during the ongoing recovery has been benefiting from rising real disposable income for households, which has primarily reflected rising employment and low oil prices.

Euro area labour markets have improved further, thus continuing to support consumption. Employment rose further, by 0.2%, quarter on quarter, in the third quarter of 2016, resulting in an annual increase of 1.2%. Since the second quarter of 2013, when employment first started to pick up, the number of persons employed has risen by an accumulated 3.1%. The unemployment rate in the euro area was unchanged at 9.8% in November 2016, i.e. 2.3 percentage points below its post-crisis peak in April 2013 (see Chart 6). This decline was broad-based across gender and age groups. Long-term unemployment (persons who have been unemployed for at least 12 months) remains slightly above 5% of the labour force.

Chart 6
Euro area employment, PMI employment expectations and unemployment

(quarter-on-quarter percentage changes; diffusion index; percentage of labour force)
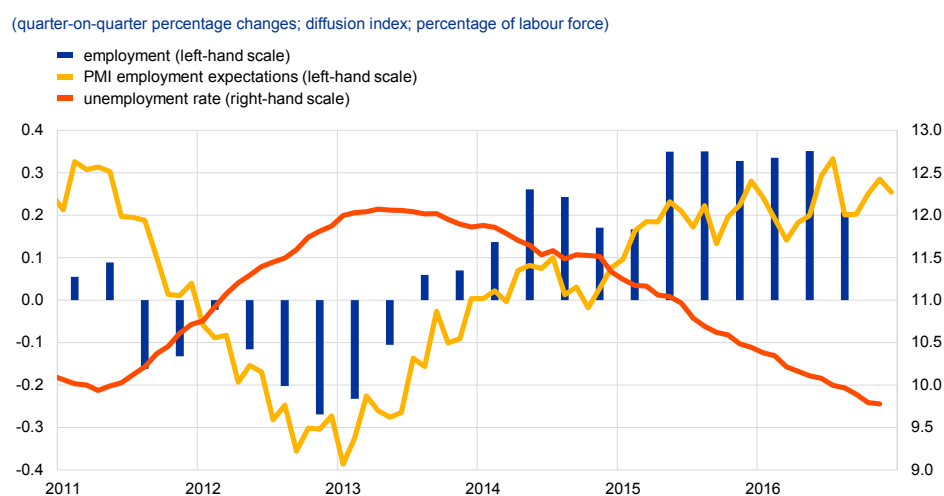
Sources: Eurostat, Markit and ECB calculations.
Notes: The PMI is expressed as the deviation from 50 divided by 10. The latest observations are for the third quarter of 2016 for employment, December 2016 for the PMI and November 2016 for unemployment.

Going forward, consumption growth should strengthen. After having edged down in the third quarter of 2016, consumer confidence increased significantly in the fourth quarter. As a result, consumer sentiment stands well above its long-term average. Moreover, data on retail trade (up to November 2016) and new passenger car registrations (for the full fourth quarter) are in line with positive growth in consumer spending in the fourth quarter, possibly at a somewhat faster pace than in the third quarter. Moreover, further employment growth, as suggested by the latest survey indicators, should also continue to support consumer spending. Finally, households' balance sheets have become less constrained, as indicated by the declining debt-to-income ratio. This is a development that should add to the robustness of overall consumption growth.

Investment activity slowed in the third quarter, after a quite positive outcome in the second quarter. According to Eurostat's second estimate of euro area national accounts for the third quarter of 2016, published on 6 December 2016, total investment rose by 0.2%, quarter on quarter, reflecting a rise in construction investment that was partly offset by a decline in non-construction investment. The decline in non-construction investment in the third quarter was due to a contraction of investment in transport equipment, which can partly be viewed as a reversal after

the favourable growth outcome in the second quarter. Investment in other equipment remained broadly unchanged in the third quarter, while investment in intellectual property products posted positive growth. At the same time, the increase in construction investment mainly reflected rising housing investment. The latest developments in construction investment tend to confirm the recovery in the sector.

In the fourth quarter of 2016, incoming information suggests that business investment picked up, while construction investment rose at a slightly slower pace than in the third quarter. The increase in industrial production of capital goods over October and November suggests stronger growth in business investment in the fourth quarter. Moreover, confidence in the capital goods sector was, on average, higher in the fourth quarter than in the third quarter, and the assessment of order books improved both overall and in terms of orders from abroad. With regard to construction investment, monthly construction production data point to positive growth in the fourth quarter of 2016, albeit less marked than in the third quarter. In addition, survey indicators on the demand situation and the assessment of order books, as well as building permits, are still in line with a continued recovery in the short term.

The recovery in investment is expected to continue beyond the near term. Business investment is likely to be supported by very favourable financing conditions, replacement needs and improving profits. Box 2 discusses the impact of financial cycles on potential output and related measurement issues. As regards construction investment, factors such as households' rising disposable income and improving lending conditions should underpin demand in the sector. Downside risks to the outlook for business investment relate to geopolitical factors, including uncertainties surrounding "Brexit" and US trade policies.

Extra-euro area goods trade data point to slightly improving export momentum in the fourth quarter. While total euro area exports declined in the third quarter, mainly on account of weak goods exports, monthly trade outcomes for October and November suggest that extra-euro area goods export growth increased somewhat in the fourth quarter. This slight upturn was driven by demand from both emerging and advanced economies. Among the emerging market economies, export growth to China accelerated, together with positive export growth to Russia and Latin America. As for the advanced economies, exports to the United States were broadly stable, while exports to non-euro area Europe are likely to have increased.

Euro area exports are expected to gradually recover in line with global trade. Survey indicators signal improvements in foreign demand and new export orders. In addition, the depreciation of the effective exchange rate of the euro since the third quarter of 2016 should provide some gains in competiveness for euro area exporters. However, any emergence of protectionist tendencies around the world could pose downside risks to the outlook for foreign demand in the longer term.

Overall, the latest economic indicators are, on balance, consistent with somewhat stronger growth in the last quarter of 2016 than in in the third quarter. Industrial production (excluding construction) in October and November was, on average, 1.0% above the level recorded in the third quarter, when

production rose by 0.5% on a quarterly basis. More timely survey data are also in line with moderately increasing growth in the near term. The composite output Purchasing Managers' Index (PMI) averaged 53.8 in the fourth quarter of 2016, compared with 52.9 in the third quarter, while the European Commission's Economic Sentiment Indicator (ESI) rose to 106.9, from 104.3 in the third quarter (see Chart 5). Consequently, both the ESI and the PMI remain above their respective long-term averages.

Looking ahead, the economic expansion is expected to firm further. The pass-through of the monetary policy measures is supporting domestic demand and facilitating the ongoing deleveraging process. The very favourable financing conditions and improvements in corporate profitability continue to promote the recovery in investment. Moreover, sustained employment gains, which are also benefiting from past structural reforms, provide support for private consumption via increases in households' real disposable income. At the same time, there are signs of a somewhat stronger global recovery. However, economic growth in the euro area is expected to be dampened by a sluggish pace of implementation of structural reforms and remaining balance sheet adjustments in a number of sectors. The risks surrounding the euro area growth outlook remain tilted to the downside and relate predominantly to global factors. The results of the latest round of the ECB's Survey of Professional Forecasters, conducted in early January, show that private sector GDP growth forecasts were revised only modestly in comparison with the previous round of early October, pointing to growth at around 1.5% over the period 2017 to 2019.

4   Prices and costs

Headline inflation increased markedly in December 2016. HICP inflation rose to 1.1% in December from 0.6% in November (see Chart 7). This increase was driven in particular by much higher energy price inflation, which continued to play a dominant role in the recovery of headline inflation since the low of -0.2% in April 2016. A large part of the higher energy price inflation can be explained by sizeable upward base effects, which will also affect inflation in early 2017 (see Box 4).

Chart 7
Contributions of components to euro area headline HICP inflation

(annual percentage changes; percentage point contributions)
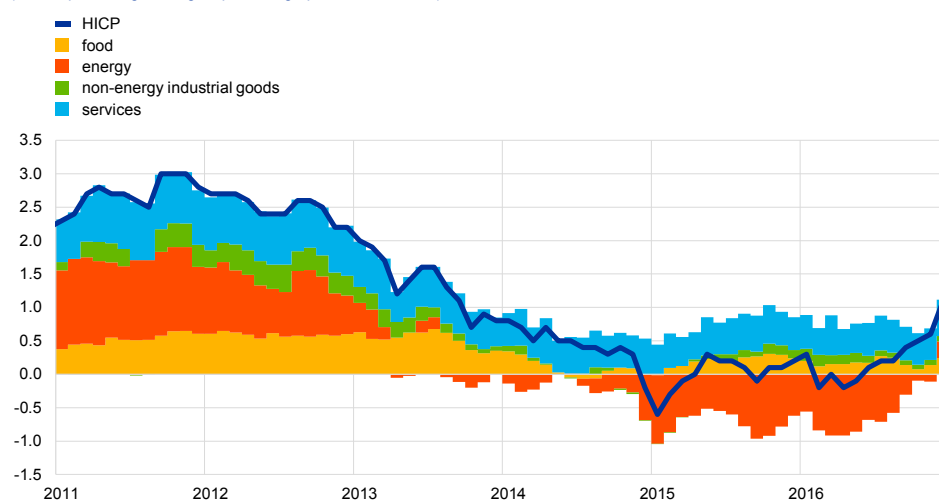
Sources: Eurostat and ECB calculations.
Note: The latest observations are for December 2016.

Underlying inflation showed no signs of a convincing upward trend. The annual rate of HICP inflation excluding food and energy was 0.9% in December, following 0.8% for the four months to November. Available data at the national level suggest that the December uptick was largely the result of an upsurge in the volatile travel-related component. HICP inflation excluding food and energy remains well below its long-term average of 1.5%. Furthermore, alternative measures do not indicate a pick-up in underlying inflationary pressures. This may reflect in part the lagged downward indirect effects of past low oil prices but, more fundamentally, also continued weak domestic cost pressures.

Pipeline price pressures have remained muted. The annual rate of change in import prices for non-food consumer goods was -0.9% in November, down from -0.5% in October, while corresponding producer price inflation remained unchanged at 0.2% in November. So far, upward pressures associated with increases in capacity utilisation and the lagged impact of past euro exchange rate depreciation seem to have been offset by downward pressures associated with the lagged pass-through of lower commodity prices and more general global disinflationary pressures.

Wage growth in the euro area increased slightly, albeit from a low level. Annual growth in compensation per employee rose somewhat to 1.3% in the third quarter of 2016 from 1.1% in the previous quarter. Nonetheless, wage growth remains subdued by historical standards. Factors that may be weighing on wage growth include still significant slack in the labour market, weak productivity growth and the ongoing impact of labour market reforms implemented in some countries during the crisis. In addition, the low inflation environment over recent years has been contributing to lower wage growth through formal and informal indexation mechanisms.

Longer-term market-based inflation expectations increased further and the gap vis-à-vis higher survey-based measures narrowed. Since early December, market-based measures of inflation expectations have recovered further across all maturities, continuing a trend which began in the second half of 2016. The five-year forward inflation rate five years ahead increased from 1.70% in early December to 1.73% in mid-January. The rise primarily reflects an increase in the inflation risk premium. The latest round of the ECB's Survey of Professional Forecasters (SPF), conducted in January, shows that long-term inflation expectations for the euro area remained broadly stable at around 1.8%. Inflation expectations for the near-term were revised upwards slightly (see Chart 8), which was probably driven by oil price developments (see also Box 5).

Chart 8
Market and survey-based measures of inflation expectations

(annual percentage changes)

- SPF Q1 2017
- SPF Q4 2016
- Consensus economics forecasts (December 2016)
- Eurosystem staff macroeconomic projections (December 2016)
- market-based measures of inflation expectations (18 January 2017)
- market-based measures of inflation expectations (31 October 2016)
- HICP
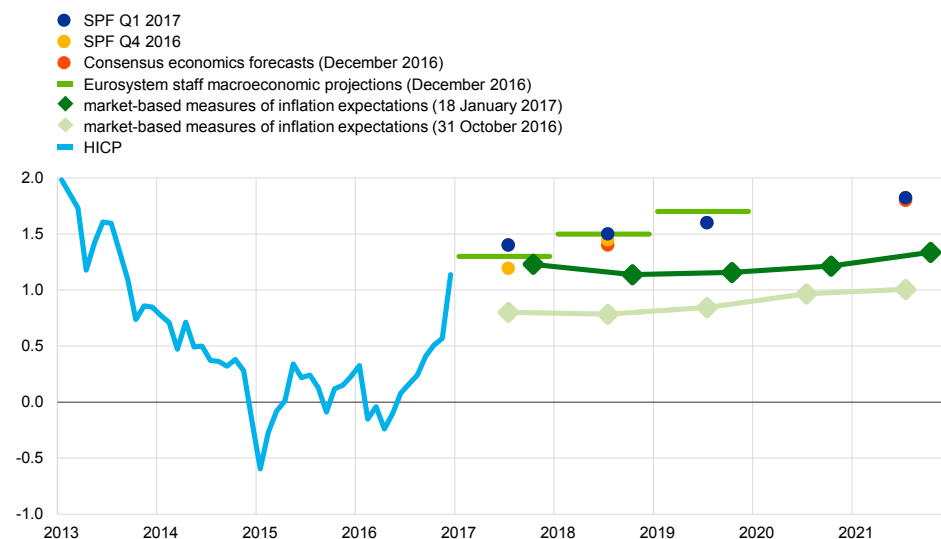
Sources: ECB Survey of Professional Forecasters (SPF), Thomson Reuters, Consensus Economics, Eurosystem staff macroeconomic projections and ECB calculations.
Note: The market-based measures of inflation expectations refer to 1-year forward rates derived from HICPx (euro area HICP excluding tobacco) zero coupon inflation-linked swaps and adjusted for a 3-month indexation lag. The latest observations are for 18 January 2017.

5   Money and credit

Broad money growth remained solid. The annual growth rate of M3 picked up in November, rising to 4.8% from 4.4% in October, after having hovered around 5% since April 2015 (see Chart 9 and 10). Growth in M3 continued to be driven by its most liquid components, given the low opportunity cost of holding liquid deposits in an environment of very low interest rates and a flat yield curve. After a series of slowdowns from its peak in July 2015, annual M1 growth edged up to 8.7% in November from 8.0% in October.

Chart 9

M3 and its counterparts

(annual percentage changes, percentage point contributions)

- M3
- external counterparts (net external assets)
- general government debt securities held by the Eurosystem
- credit to general government from MFIs excluding the Eurosystem
- domestic counterparts other than credit to general government
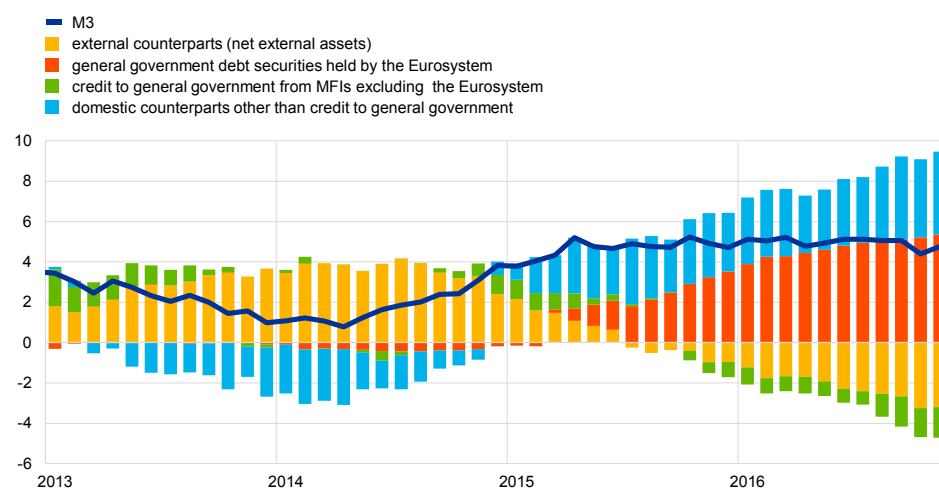
Source: ECB.
Notes: "Domestic counterparts other than credit to general government" includes MFIs' longer-term financial liabilities (including capital and reserves), MFI credit to the private sector and other counterparts. The latest observation is for November 2016.

Broad money growth was again driven by domestic sources of money creation. Purchases of debt securities in the context of the public sector purchase programme (PSPP) continued to have a considerable positive impact on M3 growth (see the orange bars in Chart 9). By contrast, the contribution of credit from monetary financial institutions (MFIs) excluding the Eurosystem to general government remained negative (see the green bars in Chart 9).

Domestic counterparts other than credit to general government also exerted a positive impact on M3 growth (see the blue bars in Chart 9). On one hand, this reflects the gradual recovery in the growth of credit to the private sector. On the other hand, the significantly negative annual rate of change in MFIs' longer-term financial liabilities (excluding capital and reserves) continued to support M3 growth. This is partly explained by the flatness of the yield curve, which is linked to the ECB's monetary policy measures and has made it less attractive for investors to hold long-term deposits and bank bonds. The availability of the targeted longer-term refinancing operations (TLTROs) as an alternative to longer-term market-based bank funding also played a role.

The MFI sector's net external asset position continued to weigh on annual M3 growth (see the yellow bars in Chart 9). This development reflects ongoing capital outflows from the euro area. PSPP-related sales of euro area government bonds by non-residents make an important contribution to this trend, as their proceeds are invested mainly in non-euro area instruments.

The gradual recovery in loan growth continued. The annual growth rate of MFI loans to the private sector (adjusted for sales, securitisation and notional cash pooling) was stable in November (see Chart 10), while annual growth of both loans to non-financial corporations (NFCs) and loans to households increased moderately. The recovery in loan growth was supported by significant decreases in bank lending rates since the summer of 2014 (largely owing to the ECB's monetary policy measures) and by improvements in the demand for bank loans. At the same time, the ongoing consolidation of financial and non-financial balance sheets and the need for adjustment of bank business models in some countries remain a drag on loan growth.

Chart 10

M3 and loans to the private sector

(annual rate of growth and annualised six-month growth rate)

- M3 (annual growth rate)
- M3 (annualised six-month growth rate)
- loans to the private sector (annual growth rate)
- loans to the private sector (annualised six-month growth rate)
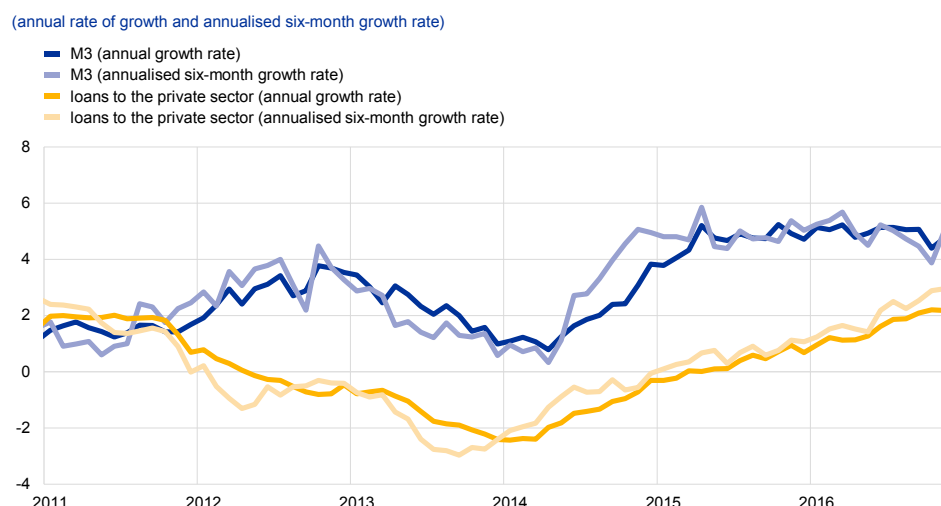
Source: ECB.
Notes: Loans are adjusted for loan sales, securitisation and notional cash pooling. The latest observation is for November 2016.

The January 2017 euro area bank lending survey **suggests that loan growth continued to be supported by increasing demand across all loan categories in the fourth quarter of 2016.** Credit standards for loans to enterprises and to households for house purchase are broadly stabilising. The increasing loan demand was driven by a variety of factors, in particular the low general level of interest rates, an increase in merger and acquisition activities and debt refinancing, favourable housing market prospects and rising consumer confidence. The TLTROs continued to have an easing impact on credit terms and conditions, and the easing impact on credit standards also increased in the second half of 2016. Banks reported that their participation in the third TLTRO-II operation in December was driven almost exclusively by profitability motives. Furthermore, as regards the use of funds obtained from past TLTROs, banks continued to report that they are using them to

grant loans, in particular loans to enterprises. Banks also continued to respond to regulatory and supervisory action in the second half of 2016 by further strengthening their capital positions and reducing their risk-weighted assets.

Bank lending rates for NFCs and households stabilised at their historical lows in November (see Chart 11). Between May 2014 and November 2016, composite lending rates on loans to euro area NFCs and households fell by around 110 basis points. Composite lending rates for NFCs and households have decreased by significantly more than market reference rates since the announcement of the ECB's credit easing measures in June 2014. The decline in bank lending rates over this period was stronger in vulnerable euro area countries than in other euro area countries, indicating an improvement in the pass-through of monetary policy measures to bank lending rates. Over the same period, the spread between interest rates charged on very small loans (loans of up to €0.25 million) and those charged on large loans (loans of above €1 million) in the euro area followed a downward path. This indicates that, in general, small and medium-sized enterprises have benefited to a greater extent than large companies from the decline in lending rates.

Chart 11

Composite bank lending rates for NFCs and households

(percentages per annum)
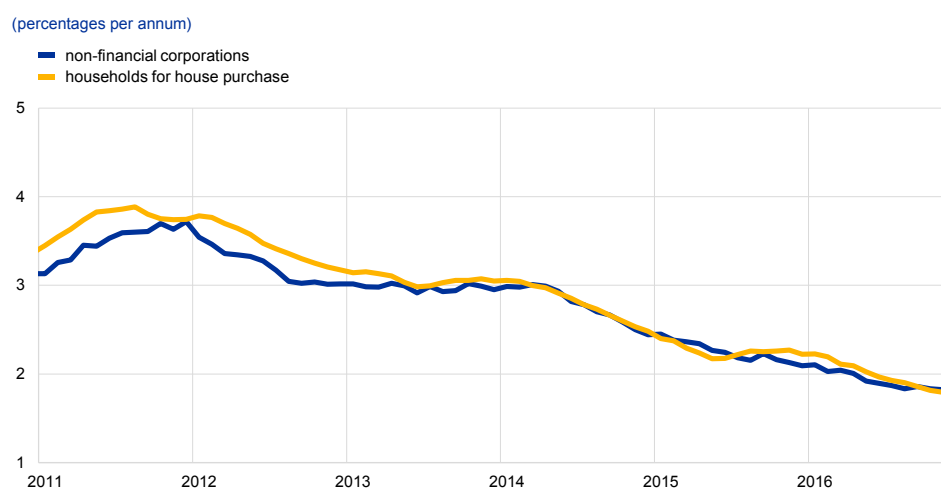
Source: ECB.
Notes: Composite bank lending rates are calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes. The latest observation is for November 2016.

The net issuance of debt securities by NFCs remained robust in the fourth quarter of 2016, albeit moderating in December. The latest ECB data show that issuance activity remained dynamic in October and November. Issuance continued to be supported by, among other factors, the ECB's corporate bond purchases. Preliminary data suggest that issuance moderated in December owing to the global increase in yields as well as seasonal factors. The issuance of listed shares by NFCs strengthened significantly in the fourth quarter.

Financing costs for euro area NFCs are estimated to have remained favourable in December. The overall nominal cost of external financing for NFCs is estimated to have declined slightly in December 2016, returning to the historically low level reached in July, after remaining broadly stable in October and November. The fall in

the overall cost of financing in December is fully explained by a decline in the cost of equity financing. The decline in the cost of equity was due to both an increase in expected earnings and a decline in equity risk premia. The cost of debt financing has shown signs of a possible turnaround in recent months, following the global increase in yields.

Boxes

1 Economic growth in the euro area is broadening

Euro area economic growth has been broadening since 2013. Euro area output has been expanding for nearly four years since the recovery began in the second quarter of 2013. Although the recovery has been gradual and moderate, there is evidence that it is becoming more broadly based and firmer, both in terms of country developments and across sectors. This bodes well for economic growth going forward, as expansions tend to be stronger and more resilient when growth is broader. These developments stand in sharp contrast to the short-lived recovery in 2009-10, when growth was relatively uneven.

The economic expansion has reached an increasing number of euro area countries and sectors. Chart A uses value-added data for the nine main economic sectors (excluding agriculture) in 18 euro area countries (excluding Malta), i.e. 162 country-sector pairs. The yellow area in Chart A shows the percentage share of all country-sector pairs with positive year-on-year growth.[1] This measure aims to capture the breadth of the recovery, as small and large countries and sectors are given the same weight. The measure has been rising steadily since 2013, and stood above 80% in the third quarter of 2016, well above both the average of 73% between 1996 and 2016 and the level observed during the 2009-10 recovery.

Chart A
Share of sectors with positive growth and dispersion of value-added growth across countries and sectors

(percentages; percentage points)
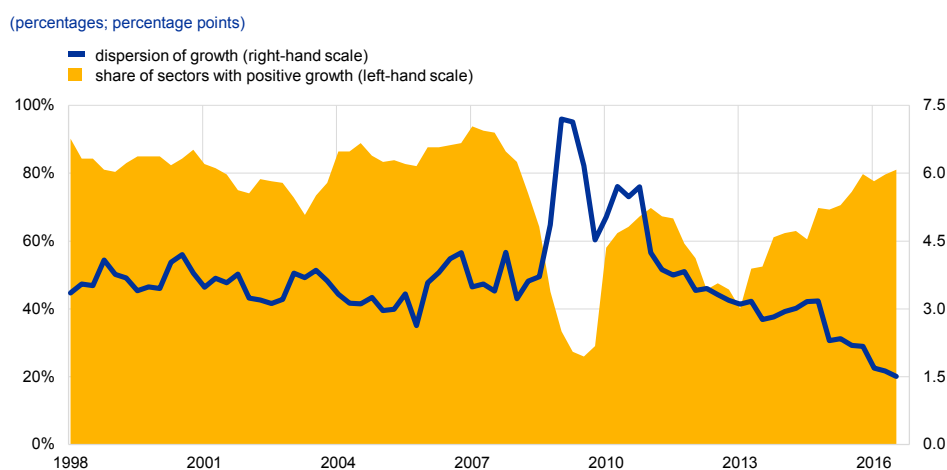
Sources: Eurostat and ECB calculations.
Notes: The share of sectors with positive growth is constructed as the percentage of the 162 country-sector pairs that reported positive year-on-year growth in value added. The dispersion of growth is measured as the weighted standard deviation of year-on-year growth in value added in the same 162 country-sector pairs. The latest observation is for the third quarter of 2016.

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[1] A value of 100% would indicate that all sectors in all countries report positive growth, while a value of 0% would indicate declining activity in all sectors in all countries.

Chart B

Dispersion of value-added growth across euro area countries and sectors

(percentage points)
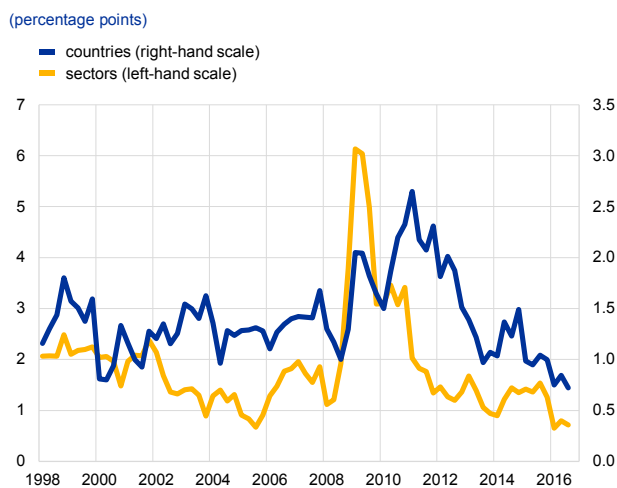
Sources: Eurostat and ECB calculations.
Notes: The dispersion of growth across countries is measured as the weighted standard deviation of year-on-year growth in value added in 18 euro area countries, excluding Malta. The dispersion of growth across sectors is measured as the weighted standard deviation of year-on-year growth in value added in the nine main euro area economic sectors, excluding agriculture. The latest observation is for the third quarter of 2016.

The dispersion of growth across sectors and countries has declined significantly. Since 2009 the weighted standard deviation of year-on-year value-added growth across the 162 country-sector pairs referred to above has decreased steadily. The peak in dispersion across sectors in 2009 was related to the busts in global trade (i.e. the industrial sector) and in the housing market (i.e. construction), whereas the peak in dispersion across countries in 2011 was related to the sovereign debt crisis (Chart B). The subsequent reduction in the dispersion of growth across countries has largely coincided with a reduction in fragmentation in financing conditions across euro area countries.[2] In the current recovery, the combined dispersion of value-added growth across sectors and countries has reached levels not seen since the start of EMU. Together with the breadth of the recovery, this suggests that growth has become much more evenly spread across euro area sectors and countries.

The broadening of economic growth is an encouraging development, as it can be seen as a sign of positive aggregate demand spillovers. Input-output linkages across sectors and trade linkages across countries can create complementarities across activities in sectors and countries.[3] This creates a positive relationship between spending in one sector or country and spending in other sectors or countries. Through this demand externality, spending in one sector or country can result in aggregate demand spillovers.[4] The broadening of economic growth can therefore be seen as a sign that demand is spilling over to an increasing number of sectors and countries, which should further support aggregate demand. This stands in stark contrast to the stubbornly strong dispersion seen during the 2009-10 recovery.

Current economic growth is broader than the recovery in 2009-10 following the financial crisis. The recovery in 2009-10, which followed the financial crisis, mainly reflected improvements in the industrial sector and "other services". As the bust in the housing market in some euro area countries was still ongoing, the construction sector was still contracting. Since 2013, following the sovereign debt crisis, the recovery has been much broader and now also includes trade services. More recently, even the construction sector has started to expand, in line with the recovery in the housing market (see Charts C and D).

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[2] See also the article "MFI lending rates: pass-through in the time of non-standard monetary policy" in this issue of the Economic Bulletin.

[3] See Cooper, R. and John, A., "Coordinating Coordination Failures in Keynesian Models", *The Quarterly Journal of Economics*, Vol. 103, 1988, pp. 441-463.

[4] See Schleifer, A. and Vishny, R., "The Efficiency of Investment in the Presence of Aggregate Demand Spillovers", *Journal of Political Economy*, Vol. 96, 1988, pp. 1221-1231.

Chart C

Euro area value added during the 2009-10 recovery (following the financial crisis)

(accumulated percentage growth)

- industry excluding construction
- construction
- trade (services)
- financial services
- other services
- total
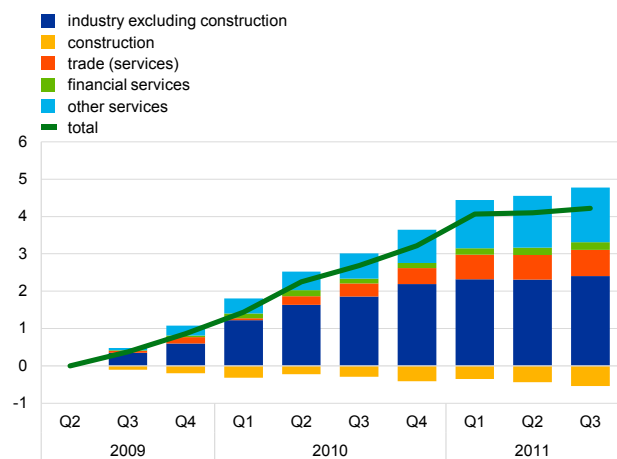
Sources: Eurostat and ECB calculations.
Note: "Other services" includes, for example, information and communication, real estate, scientific and technical activities, public administration, defence, education and health.

Chart D

Euro area value added since 2013 (following the sovereign debt crisis)
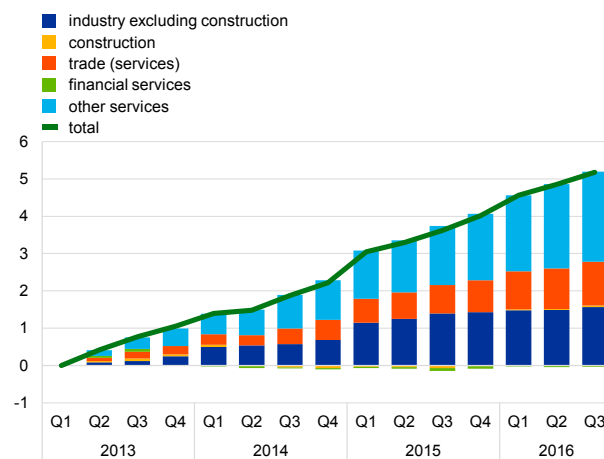
(accumulated percentage growth)

- industry excluding construction
- construction
- trade (services)
- financial services
- other services
- total

Sources: Eurostat and ECB calculations.
Note: "Other services" includes, for example, information and communication, real estate, scientific and technical activities, public administration, defence, education and health.

Recent growth is being driven more by domestic demand, making the recovery more self-sustained. Another important difference between the recovery that began in 2009 and the current recovery is that the former was largely driven by the upswing in euro area exports. By contrast, the more recent period of growth, starting in 2013, has been driven more by domestic demand and less by foreign demand. In this regard, the current recovery is arguably more self-sustained. In addition, the current growth period is less influenced by changes in inventories, which played a more significant role in the recovery in 2009-10 (see Charts E and F).

Chart E

Euro area GDP and expenditure breakdown during the 2009-10 recovery (following the financial crisis)

(accumulated percentage growth)

- GDP
- private consumption
- government consumption
- investment
- net exports
- changes in inventories
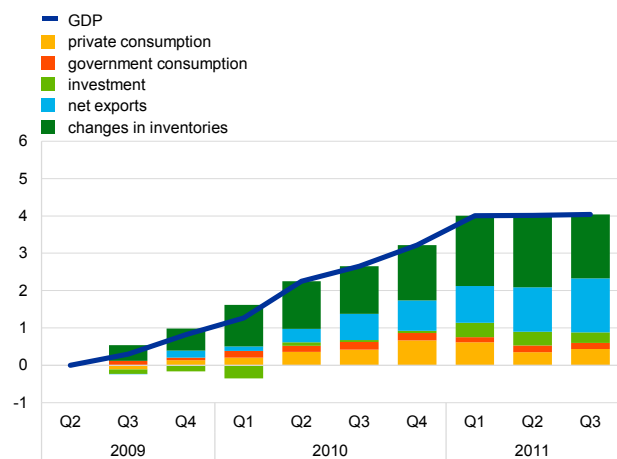
Sources: Eurostat and ECB calculations.

Chart F

Euro area GDP and expenditure breakdown since 2013 (following the sovereign debt crisis)

(accumulated percentage growth)

- GDP
- private consumption
- government consumption
- investment
- net exports
- changes in inventories
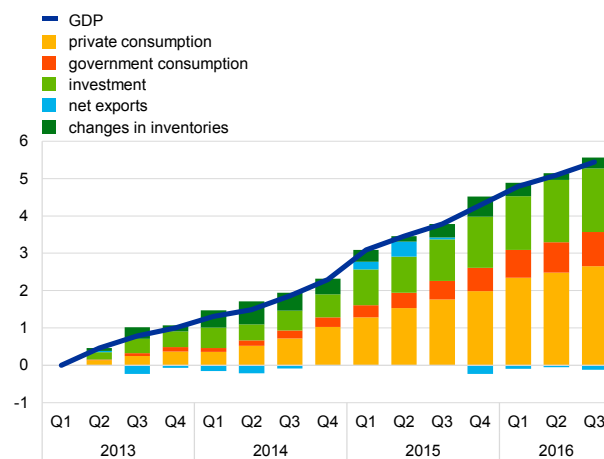
Sources: Eurostat and ECB calculations.

In line with economic activity, euro area labour markets continued to show broad-based improvements. Euro area employment has been growing since mid-2013 and is now almost back to its pre-crisis level. This contrasts with the recovery in 2009-10, during which headcount employment was still falling. Alongside the recent decline in the dispersion of value-added growth across countries and sectors (Chart A), the dispersion of employment growth has also fallen steadily as the sectoral reallocation of employment has progressed. An improved alignment of labour demand and supply may also imply a decrease in the non-accelerating inflation rate of unemployment (NAIRU).[5] As labour demand is again shifting towards unemployed workers who were previously employed in sectors that contracted heavily (e.g. construction), wage pressures might still remain muted for some time to come.

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[5] See Lilien, D., "Sectoral Shifts and Cyclical Unemployment", *Journal of Political Economy*, Vol. 90, 1982, pp. 777-793.

2 Financial cycles and the macroeconomy

This box discusses the relationship between financial cycles, the macroeconomy and potential output. The financial cycle can be thought of as economic fluctuations that are amplified by – or stem directly from – the financial system. It typically manifests itself as a co-movement between credit aggregates and asset prices with a possible impact on real economic developments as well. While cyclical fluctuations in real economic variables do not always correspond to financial cycles, when they do, the resulting business cycles can be much more pronounced, with troughs often accompanied by financial crises. There is a growing body of literature which claims that, in such cases, the estimation of potential output can benefit from including information about the financial cycle.[6] Without such information, potential output may be overestimated in the boom period and underestimated during the bust phase.

Economic theory points to a potential role for the financial system over the business cycle. Financial factors have been regarded as a possible driving force behind business cycle fluctuations since at least the time of the Great Depression.[7] More recent general equilibrium approaches also emphasise the role of financial frictions in output fluctuations.[8] According to these approaches, the financial system can both act as an amplifier of shocks and be the source of shocks that trigger business cycle fluctuations in the first place. The balance sheets of households, firms and banks can give rise to various pro-cyclical mechanisms (such as the financial accelerator). For example, demand shocks can be amplified through corresponding changes in the value of collateral (such as residential or commercial property) and the real value of nominally fixed debt. These theoretical considerations suggest that credit and asset price-driven cyclical fluctuations can be expected to yield higher peaks and lower troughs than normal business cycles, possibly with more prolonged periods of boom and bust.

There is growing empirical evidence for a role of the financial system in business cycle fluctuations. While not all business cycle fluctuations are driven by the financial system, or go hand-in-hand with financial booms and busts, there is evidence that the most severe fluctuations are typically associated with the build-up and unravelling of financial imbalances.[9] A comprehensive macrofinancial historical database covering 17 advanced economies over the last 150 years suggests that

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[6]   Borio, C., Disyatat, P. and Juselius, M., "Rethinking potential output: Embedding information about the financial cycle", *BIS Working Papers*, No 404, Bank for International Settlements (BIS), 2013; Borio, C., Disyatat, P. and Juselius, M., "A parsimonious approach to incorporating economic information in measures of potential output", *BIS Working Papers*, No 442, BIS, 2014.

[7]   Fisher, I., "The Debt-Deflation Theory of Great Depressions", *Econometrica*, Vol. 1(4), 1933, pp. 337-57.

[8]   See, for example, Kiyotaki, N. and Moore, J., "Credit cycles", *Journal of Political Economy*, Vol. 105, 1997, pp. 211-248; Gertler, M. and Karadi, P., "A Model of Unconventional Monetary Policy", *Journal of Monetary Economics*, Vol. 58(1), 2011, pp. 17-34; Bernanke, B.S., Gertler, M. and Gilchrist, S., "The financial accelerator in a quantitative business cycle framework", in Taylor, J. and Woodford, M. (eds.), *Handbook of Macroeconomics*, Vol. 1, Part C, 1999, pp. 1341-1393; Iacoviello, M., "House Prices, Borrowing Constraints, and Monetary Policy in the Business Cycle", *The American Economic Review*, Vol. 95(3), 2005, pp. 739-764.

[9]   See, for example, Rogoff, K., "Debt supercycle, not secular stagnation", VoxEU.org, Centre for Economic Policy Research, 2015.

financial and business cycles tend to co-move and be in the same phase significantly more often than not.[10] It is also found that the correlation of output, consumption and investment growth with credit growth has strengthened substantially over recent decades, in parallel with an unprecedented increase in mortgage lending. There is also evidence that credit and asset price variables are relatively important in explaining real economic fluctuations at the global level.[11] These findings suggests that economic expansions associated with strong credit growth are driven more by cyclical (as opposed to structural) factors than are other upturns.

The path of potential output may be overestimated in credit-driven booms.
Standard tools for potential output estimation which do not take into account the role of the financial system in business cycle fluctuations may provide an overly optimistic assessment of the supply side of the economy during financial booms. This is particularly true when nominal variables give weaker signals about the overheating of the economy, such as when inflation expectations are well anchored. While the availability of financing and low risk aversion in the expansion phase of the business cycle can boost underlying productivity growth by enabling more innovation, credit-driven expansion can also give rise to capital misallocation. Such episodes often entail significant increases in residential property investment, owing to the ability to collateralise this asset type via mortgage borrowing, with capital being concentrated disproportionately in relatively low-productivity projects and activities (such as housing and property development).[12] Moreover, since residential property is included in typical measures of the capital stock, production function-based methodologies which use these data have a tendency to overestimate the productive capacity of the economy.[13] As an illustration, the chart below shows potential output measures for the euro area, calculated using three different methodologies, including one that assumes a link between the financial cycle and real economic fluctuations. The latter method yields a lower path for the level of potential output in the pre-crisis boom years and a higher path in the post-2008 period than the methods that are not informed by financial variables. However, all three methods imply a slowdown in potential output growth after 2008.

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[10] Jorda, O., Schularick, M. and Taylor, A.M., "Macrofinancial History and the New Business Cycle Facts", *NBER Macroeconomics Annual*, Vol. 31, National Bureau of Economic Research, 2016.

[11] Dées, S., "Credit, asset prices and business cycles at the global level", *Working Paper Series*, No 1895, ECB, April, 2016.

[12] However, capital misallocation is not necessarily confined to real estate type assets. For more detail, see Cecchetti, S.G. and Kharroubi, E., "Why does financial sector growth crowd out real economic growth?", *BIS Working Papers*, No 490, BIS, 2015.

[13] The overestimation of potential output can lead to overly optimistic assessments of the fiscal policy stance and debt sustainability of countries experiencing financial cycle driven booms which may limit fiscal space and thus add to the drag on output in the event of a financial crisis. See Borio, C., Lombardi, M. and Zampolli, F., "Fiscal sustainability and the financial cycle", *BIS Working Papers*, No 552, BIS, 2016.

Chart

Real GDP and different measures of potential output in the euro area

(EUR trillions; quarterly data)

- real GDP
- trend 1: Hodrick-Prescott
- trend 2: macroeconomic information only
- trend 3: macroeconomic and financial information
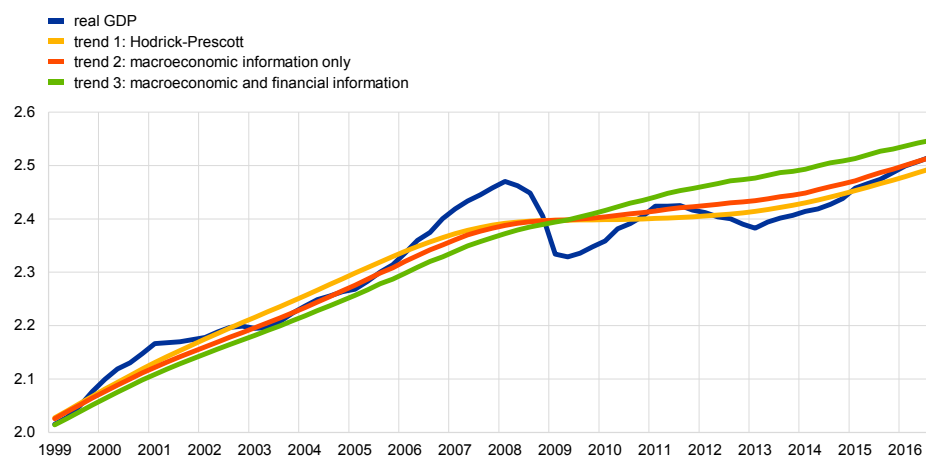
Sources: Eurostat and ECB staff calculations.[14]
Notes: Trend 1 refers to a measure derived using the two-sided Hodrick-Prescott filter with the standard smoothing parameter for quarterly data (1600). Trend 2 refers to an estimate derived from a small unobserved components model that decomposes real GDP into trend and cyclical components with the help of reduced-form macroeconomic relationships such as Okun's law and a Phillips curve. Trend 3 refers to the same model augmented with a financial cycle component which is estimated as a common latent factor driving fluctuations in a number of financial variables, such as real credit growth to households and non-financial corporations, real growth rate of M3 and real growth rate of residential property prices. As potential output is an unobservable variable, all methods carry a high degree of uncertainty.

Severe downturns following credit-driven booms can have a negative impact on potential output. While economic downturns, such as the recent Great Recession, can arguably give rise to cleansing effects with a beneficial impact on future productivity growth, the reallocation of resources towards more productive uses may be hindered by supply constraints in the financial system. In particular, high non-performing loan (NPL) ratios, coupled with inadequate insolvency and bank resolution, can tie up capital in low-productivity firms and make acquisitions and the entry or expansion of innovative and potentially highly productive firms less likely to happen.[15] Nominally fixed debt that has been accumulated in the boom period, coupled with collateral that has lost value during the bust, can limit the options for otherwise healthy firms to obtain external financing for productive investment projects – particularly when the lower bound on nominal interest rates is binding. The ensuing long process of repairing private sector balance sheets can further weaken domestic demand and lead to persistently high unemployment rates. With long periods of high unemployment, there is a greater chance of labour market hysteresis effects, particularly in rigid, overregulated labour markets. The reallocation process itself may introduce a temporary dip in potential output if, for example, the acquisition of resources that were locked in low-productivity activities is hampered by high barriers to entry.

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[14] For a similar approach, see Melolinna, M. and Tóth, M., "Output gaps, inflation and financial cycles in the United Kingdom", *Staff Working Paper*, No 585, Bank of England, 2016.

[15] See Adalet Mcgowen, M., Andrews, D. and Millot, V., "The Walking Dead? Zombie Firms and Productivity Performance in OECD Countries", *Economics Department Working Papers*, No 1372, OECD, 2016.

The negative supply-side effects of financial bust episodes are not necessarily persistent and depend on the policy context. While credit constraints and other financial imperfections may well put a significant drag on economic growth during a recovery period, their impact on resource allocation might be expected to diminish over time. Therefore estimates of potential output that do not take these possible features into account may yield an overly pessimistic view of the supply-side potential during recoveries from financial crises. Therefore, at present, both the cyclical recovery and supply-side capacity of the economy could benefit from adequate insolvency and resolution policies and an effective workout of NPLs, particularly in the context of accommodative monetary policy.

3 Wage adjustment and employment in Europe: some results from the Wage Dynamics Network Survey

This box examines the link between collective bargaining arrangements, downward wage rigidities and employment. Several past studies using aggregate macroeconomic data found that some institutional features which affect the wage-setting process are associated with downward wage rigidity which, in turn, may exacerbate employment losses during downturns.[16] This box uses micro data based on a survey of firms to investigate whether the above effects were also evident at firm level in the euro area during the period 2010-13. Overall, the findings confirm that wage bargaining institutions have contributed to wage rigidities in Europe and may have exacerbated employment losses during recessions.

This box uses data from the third wave of the ESCB's Wage Dynamics Network (WDN) surveys.[17] The WDN3 survey provides firm-level information on economic conditions and collective pay agreements in 25 EU Member States during the period 2010-2013. These data show substantial variation in developments across the surveyed enterprises during the period under scrutiny, which was characterised by the sovereign debt crisis. While 44% of firms experienced a decrease in demand, 32% indicated that demand increased. The proportion of firms that reduced employment or wages is significantly higher for firms that experienced a fall in demand: employment fell in 43% of the firms that experienced a fall in demand, and 14% of these firms reduced base wages. Given the extent of the fall in demand and the cuts in employment, the relatively small percentage of wage decreases seems to be an indication of downward nominal wage rigidity. Indeed, almost one quarter of all the firms surveyed reported that they had frozen nominal wages. Wage freezes are also a strong indication of downward wage rigidity as they suggest that firms are keeping wages unchanged in order to avoid the possible tensions associated with reducing wages, even when economic conditions may justify a cut.[18]

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[16] These institutional features associated with wage rigidities may cover a broad range of characteristics, such as trade union density, collective bargaining arrangements, employment protection, etc. For relevant results, and a concise overview of the literature, see, for example, the box entitled "Downward wage rigidity and the role of structural reforms in the euro area", *Economic Bulletin*, Issue 8, ECB, 2015; and the box entitled "The impact of institutional rigidities on wage responsiveness in the euro area", in the article entitled "Increasing resilience and long-term growth: the importance of sound institutions and economic structures for euro are countries and EMU", *Economic Bulletin*, Issue 5, ECB, 2016.

[17] For full details of the latest Wage Dynamics Network Survey, as well as an overview of the main results, see the article entitled "New evidence on wage adjustment in Europe during the period 2010-13", *Economic Bulletin*, Issue 5, ECB, 2016.

[18] It should be noted that in the cases of Greece and Cyprus, a significant share of firms cut wages during the reference period, following particularly significant declines in GDP in these countries.

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Chart A

Share of workers covered by collective pay agreements – country overview in 2013
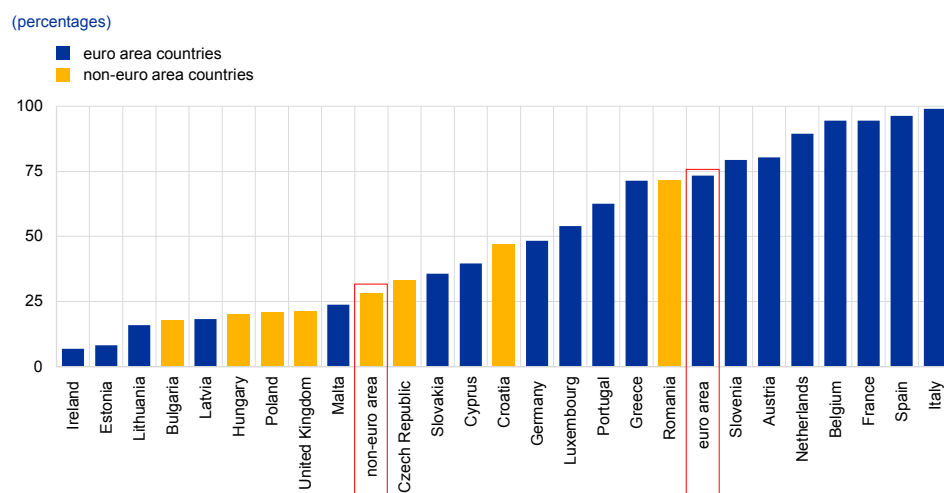
(percentages)

■ euro area countries
■ non-euro area countries

In the analysis below, collective pay agreements play a key role.[19] According to the WDN survey (Chart A), the share of workers covered by a collective pay agreement in the euro area countries (average almost 75%) is much higher than in the non-euro area countries (almost 30%). Several countries are significantly above the euro area average, particularly Italy, Spain, France, Belgium and the Netherlands. With the exception of the Netherlands and the Baltic countries, these high levels are mainly driven by collective bargaining agreements outside the firm (i.e. national or sectoral, rather than more decentralised firm-level agreements). Meanwhile, Ireland, Estonia, Latvia and Lithuania have collective bargaining coverage substantially below the euro area average (i.e. below 20%). Among the non-euro area EU Member States, Bulgaria, Hungary, Poland and the United Kingdom have lower proportions of workers covered by collective pay agreements, while Romania and Croatia have higher proportions.

Using the WDN firm-level dataset, this box reports estimates of the wage response to changes in the level of demand and the impact of wages on

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[19] Examples of studies showing that downward wage rigidities reflect institutional factors such as a high degree of union coverage and employment protection are: Holden, S. and Wulfsberg, F., "Downward Nominal Wage Rigidity in the OECD", *Journal of Macroeconomics*, Vol. 8, 2008, pp. 1-48; Anderton, R. and Bonthuis, B., "Downward Wage Rigidities in the Euro Area", *GEP Research Paper Series*, No 2015/09, University of Nottingham, July 2015. Various results also show that institutional factors can affect employment via wage rigidities. For example, Dias et al. (2013) find that firms with more flexible base wages are less likely to reduce employment (Dias, D.A., Marques, C.R. and Martins, F., 'Wage rigidity and employment adjustment at the firm level: Evidence from survey data', *Labour Economics*, Vol. 23, 2013), and Barwell and Schweitzer (2007) find for the United Kingdom that downward wage rigidities increase the probability of lay-offs (Barwell, R.D. and Schweitzer, M.E., "The Incidence of Nominal and Real Wage Rigidities in Great Britain: 1978-98." Economic Journal, Vol. 117, No 524, 2007). By contrast, Babecky et al. (2012) highlight possible substitutability between base wage flexibility and alternative labour cost adjustments (e.g. by changing the flexible component of wages) (Babecký, J., Du Caju, P., Kosma, T., Lawless, M., Messina, J. and Rõõm, T., "How do European firms adjust their labour costs when nominal wages are rigid?", *Labour Economics*, Vol. 19, No 5, October 2012).

employment during a negative demand shock.[20] By pooling the data across the 25 countries, and using ordered probit models, wage and employment responses at the aggregate EU level can be estimated.[21] As regards wages, the WDN survey allows five different outcomes when firms state what happened to their nominal base wages during the period 2010-2013, namely: strong decrease, moderate decrease, unchanged, moderate increase and strong increase. The wage specification also includes various explanatory variables such as the share of workers covered by a collective pay agreement, and developments in demand (all five categories).[22]

Focussing on the heterogeneous responses of wages to changes in demand, econometric results indicate asymmetric demand elasticities for wages which suggests downward nominal wage rigidity.[23] Chart B shows that the rise in the probability of downward base wage responses to a decrease in demand is significantly smaller than the rise in the probability of an upward wage response to an increase in demand (i.e. wages are more rigid downwards than upwards). Furthermore, a strong or moderate fall in demand significantly increases the probability that base wages will remain unchanged, whereas one might expect such decreases in demand to actually reduce wages. This is further evidence of downward nominal wage rigidity, as the distribution of changes in wages starts to bunch around unchanged base wages when demand falls. By contrast, when there is a moderate or strong increase in demand there is a lower probability of base wages remaining unchanged.

Evidence of downward nominal wage rigidity is also indicated in the estimates in Chart C (Panel A) with collective bargaining agreements reducing the probability of downward wage adjustment.[24] The higher the proportion of employees in the company who are covered by a collective bargaining agreement, the lower the probability of a wage reduction and the higher the probability of a wage rise. Given the aforementioned wide range of collective bargaining coverage across euro area countries, this result also implies significantly more downward nominal wage rigidities in countries with higher shares of employees covered by collective pay agreements.

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[20] All econometric results which are reported in Charts B and C use the WDN survey data and are based on Tables 3 and 4 (respectively) in Marotzke, P., Anderton, R., Bairrao, A., Berson, C. and Tóth, P., "Wage adjustment and employment in Europe", *GEP Research Paper Series*, No 2016/19, University of Nottingham, November 2016.

[21] If the estimation is only carried out for the euro area countries, then all of the econometric results are qualitatively the same for the euro area (with only marginal differences in the magnitudes of parameters). See the box entitled "Wage rigidity and employment in the euro area: an analysis with firm-level data", *Monthly Report*, Deutsche Bundesbank, December 2016, pp. 42-44.

[22] A host of other control variables are also included in the specification.

[23] These asymmetric demand elasticities remain de facto unchanged regardless of whether the collective pay agreement variable is included in the equation.

[24] The significant correlation of the error terms confirms that wages are endogenous in the employment equation and that the instrumental variables approach is adequate.

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Chart B

Estimated wage responses to various developments in demand

(decimals; increase in the probability of a change in wages)
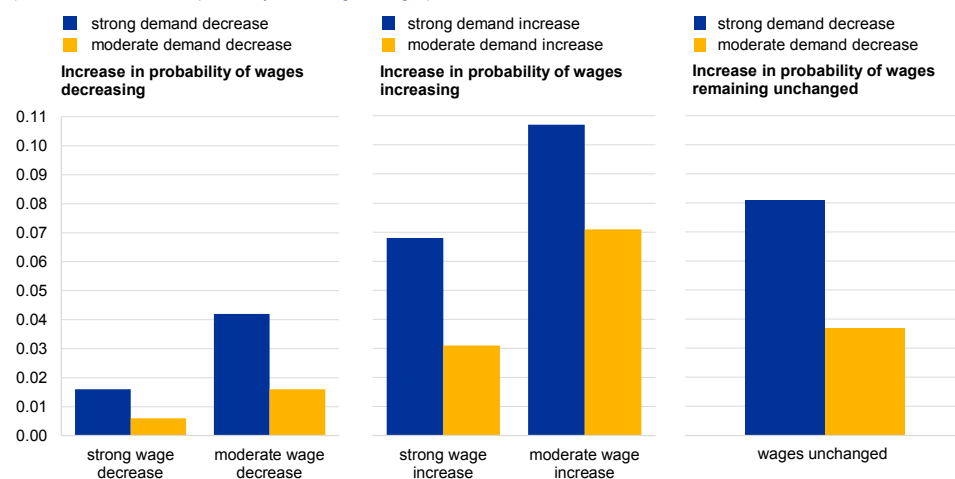
Sources: Marotzke et al. (2016).
Notes: Estimates based on ordered probit estimation methods (i.e. marginal effects on the probability of observing the outcome). The chart shows, for various developments in demand, the estimated probability of a certain wage development compared with the reference category of unchanged demand. For instance, the far left hand side column shows that the estimated probability of a strong decrease in wages given a strong decrease in demand is 1.6 percentage points higher than when demand is unchanged (see Table 3 of the source for further details). All parameters are statistically significant, mostly at the 1% level based on robust standard errors.

However, downward wage rigidities, such as the asymmetric wage behaviour highlighted in Chart B, may also be due to other factors – possibly unrelated to collective bargaining – such as employers fearing that wage cuts may reduce employees' motivation and have a negative impact on productivity.[25]

Estimation results also point to a negative effect of downward wage rigidities on employment (Chart C, Panel B). The impact of wage adjustments on employment also proves to be significant. The probability that employment will fall or remain unchanged is significantly lower when wages decrease (compared to the reference category of unchanged base wages). The probability of an increase in employment is accordingly raised if wages decrease. By contrast, if wages increase, the probability of a decrease in employment is higher (compared to the reference category of unchanged base wages).

Overall, the study presented in this box confirms that wage rigidities in Europe during the period 2010-13 were associated with more negative employment developments. First, collective pay agreements seem to reduce the probability of downward wage adjustment; second, the rise in the probability of downward wage responses to a decrease in demand was significantly smaller than the rise in the

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[25]   Although not part of the empirical results of the study on which the results in Charts B and C are based, efficiency wages are often cited as a potential cause of downward wage rigidities. See, for example, Chapter 3 in Layard, R., Nickell, S. and Jackman, R., *Unemployment: Macroeconomic Performance and the Labour Market*, Oxford University Press, 1991; Stiglitz, J., "Alternative Theories of Wage Determination and Unemployment in LDCs: The Labor Turnover Model", *Quarterly Journal of Economics*, Vol. 88, 1974, pp. 194-227; Solow, R., "Another possible source of wage stickiness", *Journal of Macroeconomics*, Vol. 1, Issue 1, 1979, pp. 79-82; and Du Caju, P., Kosma, T., Lawless, M., Messina, J. and Rõõm, T., "Why firms avoid cutting wages: survey evidence from European firms", *ILR Review*, Vol. 68, Issue 4, 2015.

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probability of an upward wage response to an increase in demand (i.e. suggesting downward wage rigidities and asymmetric wage behaviour).[26] Finally, the results point to a negative effect of downward wage rigidities on employment at firm level.

Chart C

Wage and employment responses to collective pay agreements and wage dynamics

(decimals; change in probability of a change in wages (Panel A); change in probability of a change in employment (Panel B))

Panel A   Change in the probability of change in wages due to collective pay agreements

Panel B   Change in the probability of change in employment due to various wage developments
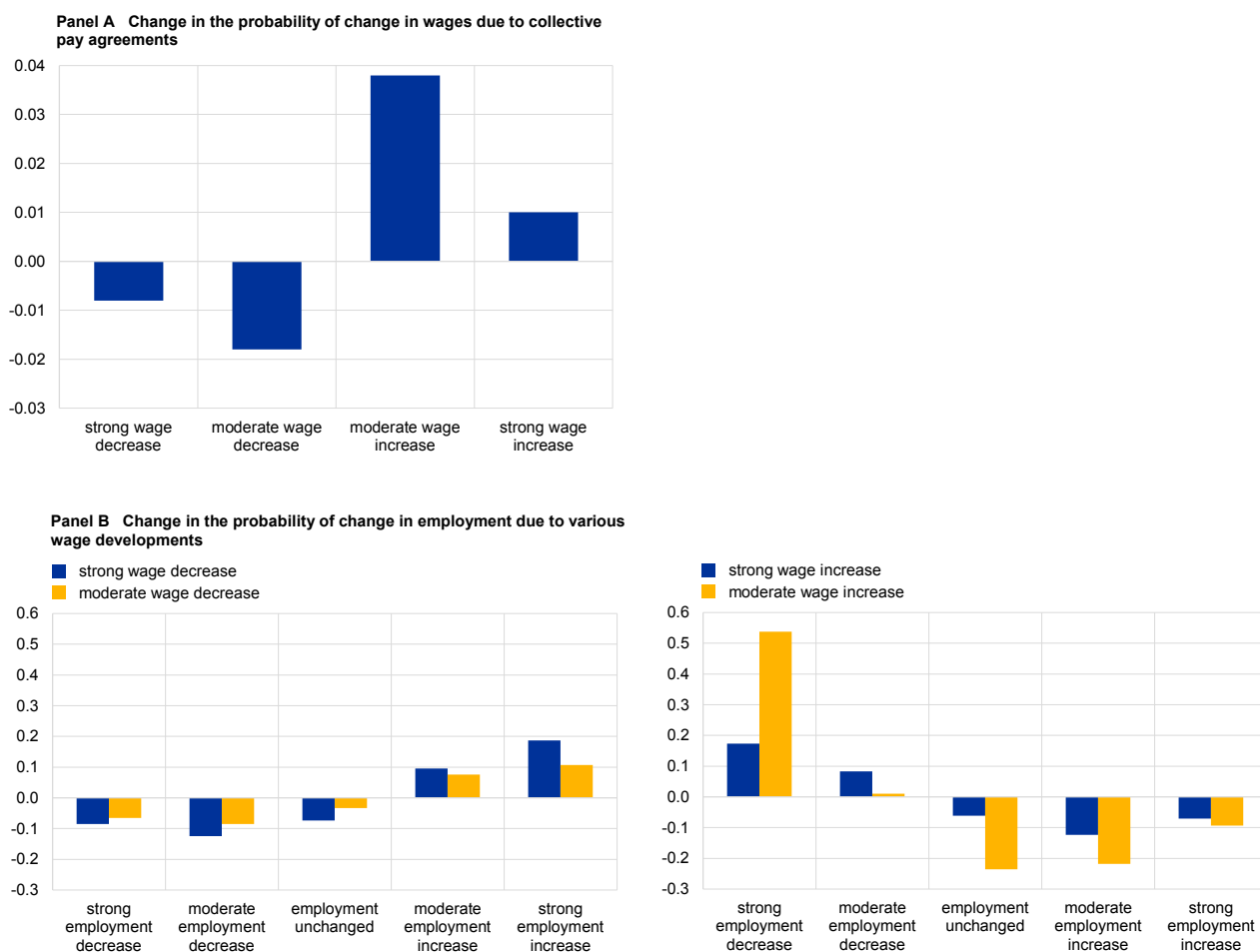
Sources: Marotzke et al. (2016).
Notes: Estimates based on instrumental variable ordered probit estimation methods (marginal effects on the probability of observing the outcome). Panel A shows how the estimated probability of a certain wage development changes when the share of employees covered by a collective wage agreement rises. The marginal effects on the probability of observing a change in wages are in absolute terms and not in comparison to a reference category. Results are based only on firms experiencing a fall in demand, but parameters and results are very similar for the whole sample of firms and all five categories of demand. Panel B shows, for various wage developments, the estimated probability of a certain development in employment compared with the reference category of unchanged wages. All parameters are statistically significant, mostly at the 1% level based on robust standard errors.

From a policy perspective, collective bargaining seems to contribute to downward wage rigidities which, in turn, may exacerbate employment losses during recessions. During the crisis, some euro area countries introduced reforms which provided firms with more options to move towards wage bargaining at firm level and away from more centralised collective bargaining agreements which tie the firm to national, regional or sectoral wage agreements. Part of the motivation for this is to allow firms to negotiate wage agreements which are more closely related to the

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[26]   Again these changes in probability are compared to the situation when demand is unchanged.

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specific economic conditions faced by the firm. Other results from the WDN survey have shown that reforms of collective bargaining agreements along these lines have made it easier for firms to adjust wages.[27] Accordingly, further reforms in this direction may be beneficial for euro area countries and could have the potential to reduce job losses in any future downturns.

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[27] For example, the WDN Survey showed that Spanish firms perceived that it had become easier to adjust wages during the crisis and that this was at least partly connected to reforms of labour laws in Spain (for example, where the collective bargaining system was reformed to give firm-level agreements priority over any sectoral or regional agreements). See the box entitled "Firms perceptions of changes in the ease of labour market adjustment and the role of reforms in stressed euro area countries during the periods 2010-13 (based on the WDN3 survey)", in the article "New evidence on wage adjustment in Europe during the period 2010-13", *Economic Bulletin*, Issue 5, ECB, 2016.

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4   The role of energy base effects in short-term inflation developments

The current increase in headline HICP inflation is largely due to higher energy price inflation. HICP inflation increased to 1.1% in December 2016 from 0.6% in the previous month. This was largely due to an almost four percentage point surge in energy price inflation between November and December 2016. This surge reflected two factors: a strong month-on-month increase in energy prices and a sizeable upward base effect. This box shows that base effects will also play an important role in driving HICP inflation at the start of 2017.

The recent decision by oil producing countries to reduce supply has led to a surge in the price of oil.[28] Between November and December oil prices increased by about 20% in euro terms, and this was quickly transmitted to the fuel components of HICP energy inflation (see Chart A). However, most of the increase in the annual rate of change in energy prices in December 2016 came from an upward base effect. Base effects are the extent to which the change from one month to the next in the year-on-year rate of inflation can be explained by the "dropping out" from the price index of an atypical month-on-month change 12 months earlier, in this case in December 2015.

Chart A
Oil prices and HICP energy inflation

(EUR per barrel and annual percentage changes)

- HICP energy – annual percentage change (left-hand scale)
- brent oil price – euro per barrel (right-hand scale)
- brent oil price in euro – annual percentage changes (right-hand scale)
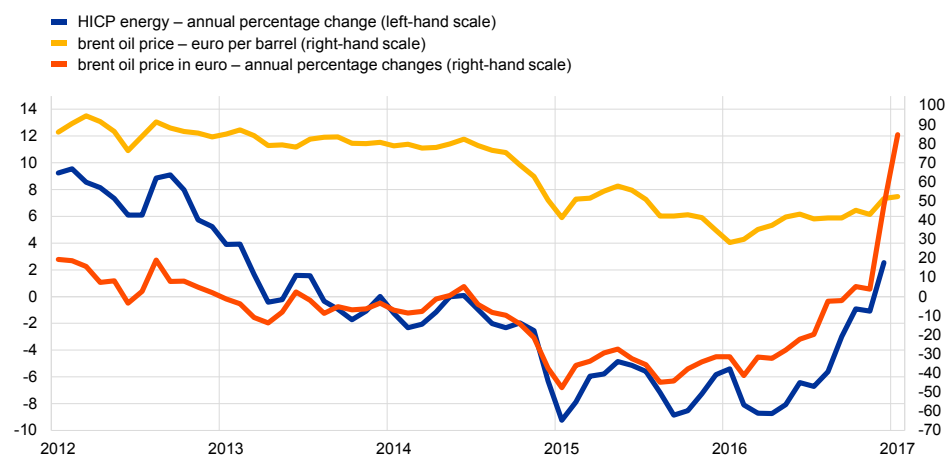
Sources: Bloomberg and Eurostat.

Energy base effects will have a strong impact on the development of HICP inflation in the coming months. The quantification of base effects is subject to a degree of uncertainty, as there is no single way to compute the impact of an atypical month-on-month change. In past analyses reported in the ECB's Economic Bulletin or Monthly Bulletin, this impact has been computed by subtracting the actual month-on-month change from the typical movement (i.e. an estimated seasonal effect and a

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28   See the box entitled "Impact of the November 2016 OPEC agreement on the oil market", *Economic Bulletin*, Issue 8, ECB, 2016.

"trend", quantified as the average month-on-month change since the mid-1990s).[29]
Chart B shows the estimated contribution of base effects from the energy component
to the change in the annual HICP inflation rate from one month to the next which will
occur in 2017. It is estimated that this contribution will be positive up to February
2017, rather muted in March and April and negative in May and June. The second
half of 2017 will also be characterised by a succession of positive and negative base
effects. The cumulative impact on overall HICP inflation of base effects in energy
inflation is always shown relative to a specific reference month. For example, relative
to the annual headline inflation rate in December 2016, the cumulative impact on
headline HICP inflation of energy base effects will amount to over 0.4 percentage
point in February 2017. However, as base effects will be predominantly negative in
the following months, the cumulative impact on headline HICP inflation will be
negligible by December 2017.

Chart B
Contribution of energy price base effects to developments in HICP inflation

(percentage point contributions)

■ base effects in the energy component
■ cumulative impact of base effects in energy prices relative to December 2016
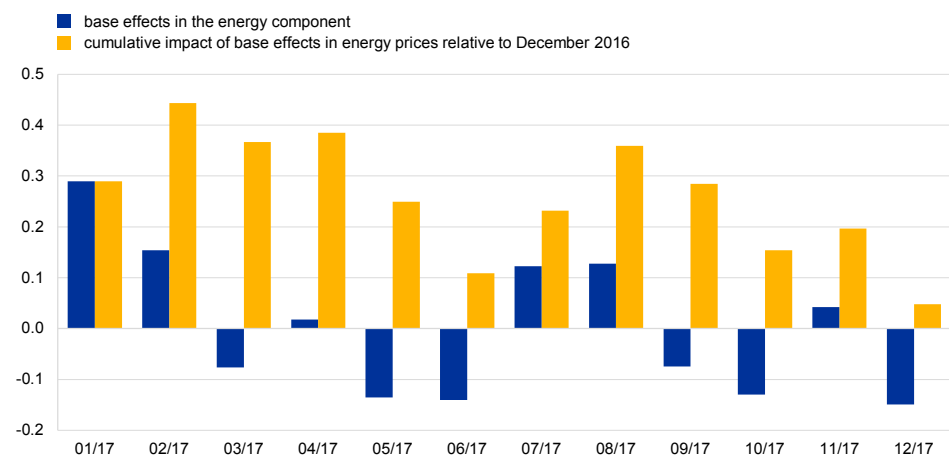
Source: ECB calculations.

However, when assessing the impact of base effects on likely outcomes of energy
and headline HICP inflation in the period ahead, it must also be borne in mind that
future annual rates of inflation will, of course, also depend on actual month-on-month
changes in energy prices in the intervening period, which will, in turn, largely reflect
developments in crude oil prices at the time. Clearly, the strong increase in oil and
energy prices since December 2016 will have an upward impact on changes in HICP
inflation in early 2017 in addition to the cumulative impact of energy base effects of
over 0.4 percentage point by February 2017.

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[29]   See, for instance, the box entitled "Base effects from the volatile components of the HICP and their
        impact on HICP inflation in 2014", *Monthly Bulletin*, ECB, February 2014.

5   What has been driving developments in professional forecasters' inflation expectations?

The period after 2012 was characterised by a fall in HICP inflation that was both marked and largely unexpected. HICP inflation fell more or less continuously from rates of above 2% to around -0.5% in early 2015, and remained at very low rates until mid-2016 (see Chart A). The magnitude and sustained nature of this fall led to successive errors in projections for the inflation outlook across the forecasting community, including in Eurosystem and ECB staff macroeconomic projections. This box looks at the nature and possible sources of the revisions to the aggregate inflation expectations in the ECB's Survey of Professional Forecasters (SPF).[30]

Chart A
HICP inflation and various vintages of SPF HICP inflation expectations

(annual percentage changes; grey lines: 12-month, 24-month and five-year expectations from successive SPF rounds; blue line: actual HICP inflation)
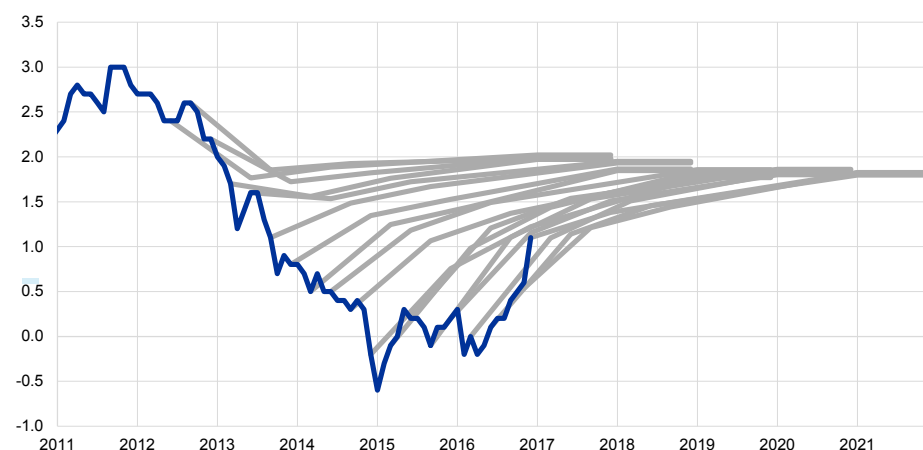
Sources: Eurostat and ECB calculations based on SPF results.

The fall in HICP inflation has been accompanied by successive downward revisions to SPF inflation expectations. These downward revisions were greatest for near-term inflation expectations, implying at first a steepening in the profile for expected inflation (see Chart A). From 2015 onwards, the expected path of inflation stopped steepening, and instead started shifting further out, as inflation remained low. Longer-term expectations (five years ahead) also fell, but more modestly, standing at 1.8% on average since the first quarter of 2016, compared to an average of 2.0% in 2012. The factors driving changes in near-term and longer-term inflation expectations are likely to be different, and other data from the SPF can shed light on these different drivers. These data, collected since the early 2000s, include forecasters' assumptions regarding the oil price and the euro/dollar exchange rate, and their wage growth expectations.

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[30]   More information about the Survey of Professional Forecasters can be found at
http://www.ecb.europa.eu/stats/prices/indic/forecast/html/index.en.html

The main source of revisions to the near-term inflation outlook is likely to have been the decline in oil prices. For much of the period of recurring inflation over-predictions, aggregate SPF oil price expectations, in euro terms, consistently turned out to be too high (see Chart B). Information from a special questionnaire suggests that professional forecasters' oil price expectations are, to a reasonable extent, informed by futures prices.[31] This is also the technical assumption in the Eurosystem/ECB macroeconomic projections, and accounted for a large part of the Eurosystem/ECB HICP projection error in recent years.

Chart B
Brent oil price and various vintages of SPF oil price expectations

(EUR per barrel; grey lines: forecasters' assumptions from successive SPF vintages for the following four quarters and, where available, the calendar-year averages for one and two years after the survey; blue line: actual oil price)
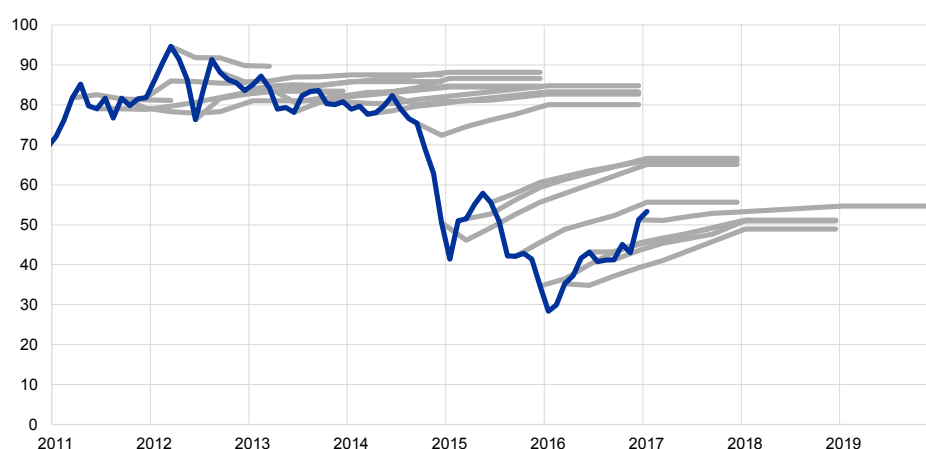
Sources: Bloomberg, BIS and ECB calculations based on SPF results.
Note: The latter part of each SPF forecast is plotted assuming that the value reported for the final year, as a whole, applies to each quarter of that year.

Shocks to oil price expectations have typically had a significant bearing on near-term inflation expectations, but little influence further out. Oil prices can affect inflation both directly, through the energy components of HICP, and indirectly, through the effect on production costs more generally. However, unless oil price developments trigger second-round effects, their direct and indirect effects should fade within a horizon of five years.[32] The panels in Chart C show that the strength of the relationship between changes in SPF expectations for oil prices and for inflation decreases as the forecast horizon increases. On average, a 10% increase in the one-year-ahead euro oil price expectation has been associated with a 0.1 percentage point increase in the one-year-ahead HICP inflation expectation, but there is no meaningful relationship between oil price expectations and five-year-ahead inflation expectations.

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[31] See "Results of the second special questionnaire for participants in the ECB Survey of Professional Forecasters", ECB, January 2014.

[32] An example of a second-round effect would be if the higher inflation brought about by higher oil prices led to higher wage demands and these, in turn, lead to higher prices. For more information on how energy prices affect inflation, see "Energy markets and the euro area macro economy", *Structural Issues Report*, ECB, 2010.

Chart C

Changes in SPF expectations for the euro oil price and for HICP inflation

(percentage points; x-axis: quarter-on-quarter change in the one-year-ahead expected oil price; y-axis: quarter-on-quarter change in expected inflation at three different horizons)
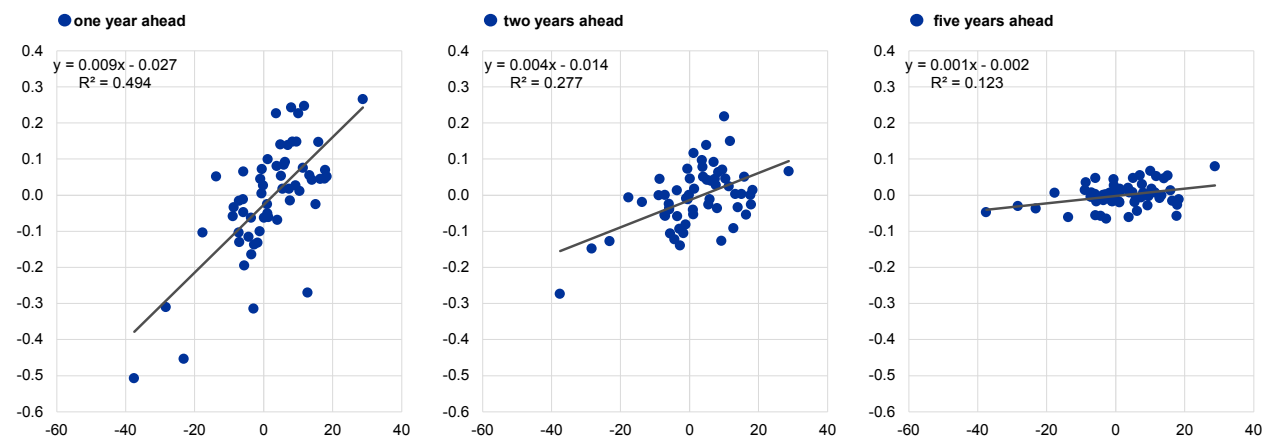
Sources: ECB calculations based on SPF results.
Note: Based on a sample period from 2002 to 2016.

In the last few years, there has also been little relation between longer-term inflation expectations and actual inflation trends. Longer-term inflation expectations fell from around 2.0% to around 1.8% in the course of 2013 and 2014. Since the start of 2015, however, longer-term inflation expectations have been stable, despite a significant decline in five-year average HICP inflation (see Chart D).

Chart D

Five-year-ahead SPF expectations for inflation and wage growth

(annual percentage changes)

- HICP, five-year-ahead expectation
- HICP outturns, five-year moving average
- compensation per employee, five-year-ahead expectation
- compensation per employee outturns, five-year moving average
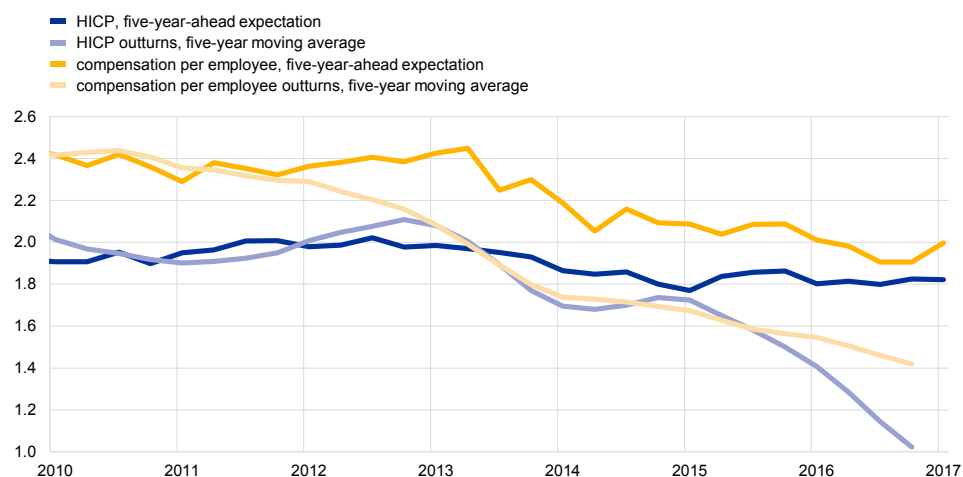
Sources: Eurostat and ECB calculations, based on SPF results.

Similarly, the decline in longer-term expectations for growth in compensation per employee was much less than the fall in the corresponding five-year average. Furthermore, growth in compensation per employee turned out weaker than expected in either the SPF or the Eurosystem/ECB macroeconomic projections. It is likely that the SPF and Eurosystem/ECB forecast errors were both driven by a similar set of factors, such as: underestimation of labour market slack; higher wage

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flexibility, in view of the depth of the crisis and following structural reforms in labour markets; a larger increase in low productivity jobs; and effects of the low inflation environment.[33]

Overall, the SPF continues to show that longer-term HICP inflation expectations remain anchored. In the survey for the first quarter of 2017, longer-term HICP inflation expectations remained at 1.8%, continuing the sideways movement seen since early 2015. This indicates that most SPF respondents expected that the past declines in inflation would probably be only temporary in nature. In turn, this may point to a perception among forecasters that the forceful monetary policy response of the ECB to low inflation has helped stabilise the outlook for price stability in the longer term.

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[33]   See the box entitled "Recent wage trends in the euro area", *Economic Bulletin*, Issue 3, ECB, 2016.

Article

1 MFI lending rates: pass-through in the time of non-standard monetary policy

This article presents new evidence about the impact of structural features, macroeconomic developments and other factors on the pass-through mechanism from policy rates to bank lending rates. The article shows that the cost of funding for banks and bank balance sheet characteristics are important driving forces behind changes in pass-through regularities. The article also demonstrates how the ECB's non-standard monetary policy measures have helped to restore the transmission mechanism.

Introduction

This article deals with the transmission of monetary policy to bank lending rates, economic activity and prices. In spite of the growing role of non-bank financing in recent years, the euro area financial system has remained largely bank-based. Bank lending rates represent a main external funding cost for economic agents in the euro area and are consequently an important channel for the transmission of monetary policy to the macroeconomy. It is thus crucial to monitor and assess how euro area banks are affected by monetary policy decisions and impulses, and how they pass on changes in monetary policy rates to their customers.

The protracted financial crisis, with its many developments, has had an important effect on the pass-through, as have changing regulations and supervisory practices. The crisis affected euro area banks' ability to effectively pass on changes in the monetary policy stance to non-financial corporations (NFCs) and households. This resulted in significant heterogeneity in bank lending rates across euro area countries.

Recent non-standard monetary policy measures have contributed to a steady and widespread decline in bank lending rates while narrowing their dispersion across countries. The Eurosystem's non-standard monetary policy measures, in particular the expanded asset purchase programme (APP), the introduction of negative deposit facility rates and the targeted longer-term refinancing operations (TLTROs) have played a major role in this process.[34] These measures have provided abundant liquidity in a low interest rate environment, mitigating distortions in funding

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[34] Since 2014 the ECB has adopted a number of policy measures with the aim of improving financing conditions for NFCs and households in order to stimulate credit creation, and support a return of inflation to levels below but close to 2% over the medium term. These measures involve (i) TLTROs, (ii) purchases of asset-backed securities, covered bonds, public sector securities and (more recently) corporate bonds, and (iii) a policy of negative deposit facility rates.

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markets and reducing the pro-cyclical contraction in lending to the non-financial private sector.

As nominal interest rates move closer to their effective lower bound, the likelihood of non-linearity in bank lending rate transmission increases. While there is substantial uncertainty on the precise level of the effective lower bound, it could be argued that some frictions may arise when nominal rates approach zero or become negative. With reference to banks' liabilities side, this lower bound may result from the reluctance of banks to charge negative rates on retail deposits, as these may damage their relationship with retail customers. In addition, customers may choose to retain more currency to avoid losses from possible fees for current accounts or negative deposit rates. Under these circumstances, banks may delay or refrain from transmitting further monetary accommodation to bank lending rates to avoid a deterioration in loan-deposit margins with a negative impact on their profits. This is contingent on the degree of competition in the market, as well as on bank balance sheet characteristics, including liquidity and capitalisation.[35] So far, there is no evidence that monetary policy transmission in the euro area is being significantly affected by this type of non-linearity. In this regard it should be noted that, even in a situation of lower loan-deposit margins, the negative impact on bank profits can be mitigated via two channels. First, lower lending rates are likely to stimulate loan demand, which should lead to increasing lending volumes. Second, lower lending rates should lead to fewer defaults, thereby reducing impairment-related costs for banks.

This article presents new evidence on the driving forces behind lending rate setting in the euro area in the context of the ECB's non-standard measures and the accompanying reduction in fragmentation following the recent financial crisis. It also attempts to analyse the sources of heterogeneity in the evolution of lending rates in the euro area. The second section presents the driving forces behind lending rate setting in the euro area. The third section discusses heterogeneity in lending rate behaviour in the euro area. The fourth section concludes.

Behaviour of and driving forces behind lending rate setting in the euro area

Bank retail lending rates have declined steadily since 2014 and their dispersion has narrowed considerably across the euro area. These developments follow a period marked by significant heterogeneity in cross-country lending rates. After the first recession in 2008-09, when global demand and uncertainty were common contractionary factors for all euro area economies, the sovereign debt crisis witnessed successive episodes of financial stress which led to acute cross-country heterogeneity in retail bank lending rates. As can be seen in Chart 1, the aggregate cost of borrowing indicator for both NFCs and households

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[35]   See, among others, Brissimis, S.N. and Delis, M.D., "Bank heterogeneity and monetary policy transmission", *Working Paper Series*, No 1233, ECB, August 2010.

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increased in the largest euro area countries between 2010 and 2012. Between 2012 and the end of 2013, the indicator declined in Germany and France but remained at an elevated level in Italy and Spain. Since the introduction of the ECB's non-standard policy measures in June 2014, the indicator has declined for both NFCs and households, reaching historical lows in 2016. Cross-country dispersion reached its peak in 2010 for loans to households for house purchase and in 2012 for non-financial corporate loans. Since 2014 there has been a significant reduction in dispersion, although it remains relatively high from a historical perspective.

Chart 1

Composite indicator of the cost of borrowing for NFCs and for households for house purchase

(percentages per annum)
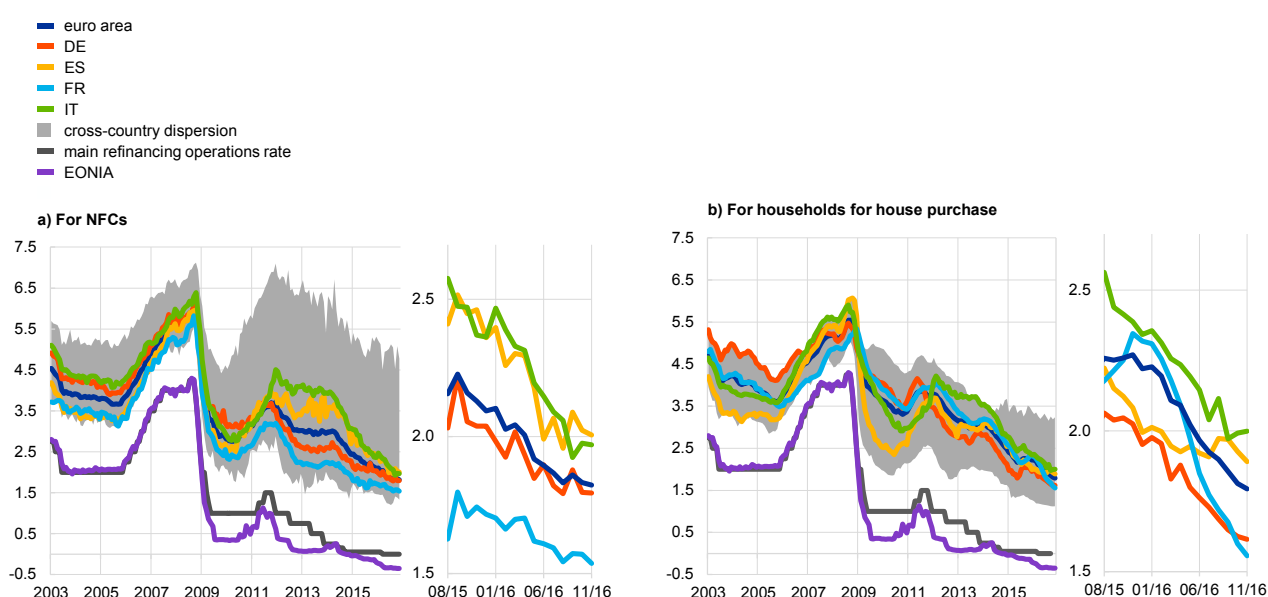
Sources: ECB and ECB calculations.
Notes: The indicator for the total cost of lending is calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes. The cross-country dispersion displays the minimum and maximum range over a fixed sample of 12 euro area countries. The latest observation is for November 2016.

The aforementioned declines in bank lending rates can be compared against the decline in monetary policy reference rates.[36] Focusing on the change in interest rates since the announcement of the credit easing package in early June 2014, it becomes apparent that (i) lending rates have declined significantly more than market reference rates, and (ii) the interest rate pass-through has been quite effective. As can be seen in Chart 2a, the decline in lending rates since May 2014 amounts to 111 basis points for the euro area. Italy and Spain registered much stronger declines (180 and 151 basis points, respectively) than Germany and France (81 and 63 basis points, respectively). Lending rates have thus become gradually less heterogeneous across the largest euro area countries since the introduction of the credit easing package in 2014. In fact, as seen in Chart 2b, the pass-through of changes in policy rates to bank lending rates since the intensification of the financial crisis (August 2008) has become quite similar across the large euro area countries.

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[36]   The market reference rate mainly reflects the rate at which banks can raise funds in the interbank money market.

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(basis points)

- ■ reference rates
- ■ cost of borrowing for NFCs

a) Rate reductions since the credit easing announcement   **b) Rate reductions since the intensification of the financial crisis**
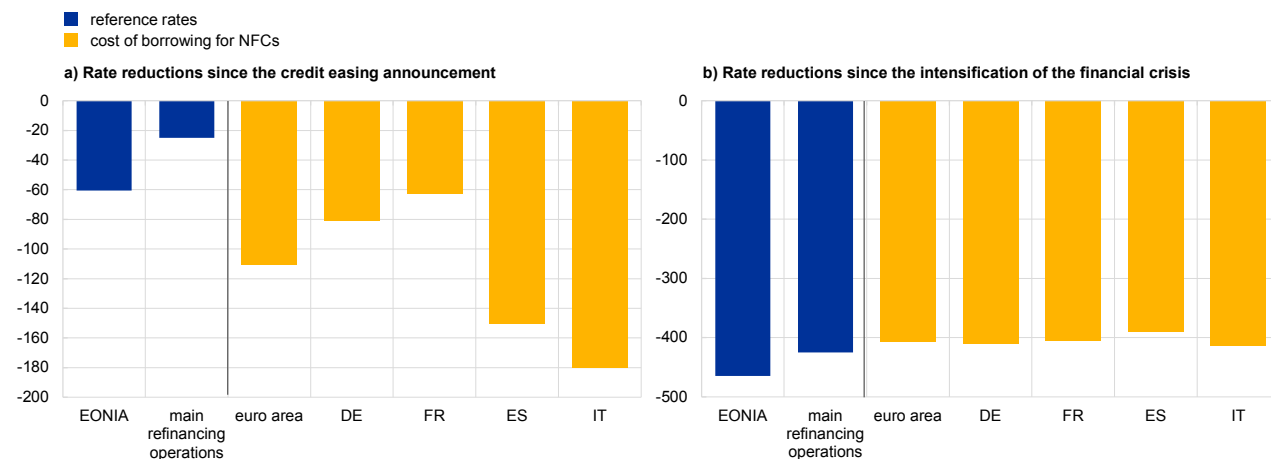
Source: ECB.
Notes: The date of May 2014 was selected as it immediately precedes the ECB's announcement, on 5 June 2014, of certain monetary policy measures taken to enhance the functioning of the monetary policy transmission mechanism (announcement of the modalities of TLTROs and intensification of preparatory work related to outright purchases of asset-backed securities). The date of August 2008 marks the intensification of the financial crisis, Reference rates are monthly averages. The latest observation is for November 2016.

A simplified accounting model of how banks price their loans can be used to illustrate the main factors influencing bank lending rates. Using this simplified approach the lending rate can be broken down into several components, covering banks' refinancing costs, risk spreads and capital charges (see Chart 3). This simplified model assumes that, when pricing a loan, the base rate used by banks is a market reference rate. In addition to this rate, banks pass on to the final borrower a number of spreads to recover the costs they incur in providing the loan. These spreads can be broken down into five main components:

(i)   deposit spreads, which are driven, for example, by a staggered adjustment to market rates;

(ii)   bank bond spreads, which are part of the wholesale bank funding cost;

(iii) bank capital charges since banks need to recoup their cost of equity, which is influenced by non-diversifiable micro risk on the loan book, limited liability, prudential regulation, agency costs in bank financing and bank portfolio rebalancing frictions;

(iv)   credit risk compensation, which arises due to risky debt contracts and expected losses;

(v)   the intermediation margin – obtained as the difference between the bank lending rate and the sum of factors (i) to (iv).

Chart 3

Breakdown of the composite cost of borrowing for NFCs

(percentages per annum)

- ▬ MFI lending rate to NFCs
- ▬ market rate
- ▬ deposit spreads
- ▬ expected losses
- ▬ bank bond spreads
- ▬ capital charges
- ▬ margin
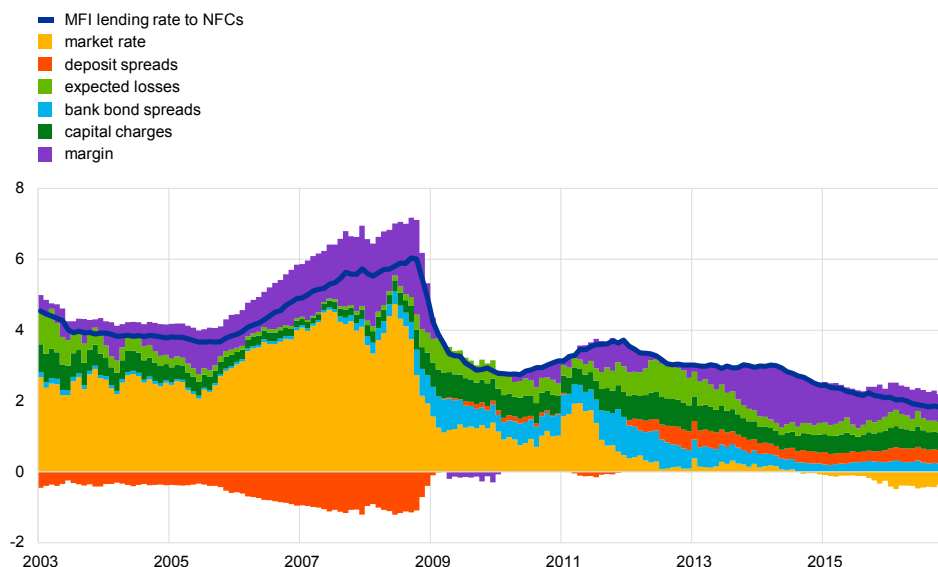
Sources: ECB, Moody's and Merrill Lynch Global Index.
Notes: The market rate is the two-year overnight indexed swap rate. Deposit rate spreads are computed as a weighted average of overnight deposits, deposits with agreed maturity and deposits redeemable at notice, with their corresponding new business volumes. The spreads are calculated vis-à-vis the EURIBOR of the closest maturity. Yields for bank bond spreads are taken from the Merrill Lynch Global Index and aggregated on the basis of their corresponding outstanding amounts. The spreads are then calculated vis-à-vis the swap rate of the closest maturity. Capital charges are the cost of the capital required by the Basel II regulations. Expected losses are loss given default (LGD) multiplied by probability of default (PD) where PD is the expected default frequency computed by Moody's, and LGD is fixed at 0.45. The margin is the residual between lending rates and all of the other components.

The margin, shown by the purple area in the chart, is influenced by the structure of the bank credit market, which affects the pricing of banks' retail products (e.g. changes in the demand for loans, banking sector competition and the opportunity costs of lending, which may also depend on incentives for holding sovereign debt).

The evolution of the euro area financial crisis can be described by the interplay of credit risk in the sovereign, banking and corporate sectors. The evolution of the euro area financial crisis can be broken down into three phases: (i) the sovereign market tensions in 2011-12, which saw a surge in sovereign spreads in Italy and Spain due to reappraisals of solvency risk resulting in balance sheet losses for banks in those countries and the incentive for them to reprice and cut down on loans; (ii) the adverse real-financial feedback loop between rising corporate default on the one hand and weak bank asset performance and bank credit supply constraints on the other; and (iii) the bank deleveraging process in times of unprecedented regulatory overhaul, which, in addition to the forces at work in the previous two phases, explains the pervasively high bank lending rates and lacklustre credit dynamics in some countries. As can be seen in Chart 3, in spite of the substantial reduction in market reference rates, reflecting the monetary policy accommodation, bank lending rates have remained elevated up to mid-2014. Based on the simplified accounting model, this can be explained by (i) an increase in deposit spreads, (ii) a higher wholesale bank funding cost wedge, (iii) an increase in bank capital charges due to higher costs of equity, regulatory measures and higher expected losses, and (iv) an increase in credit risk compensation margins due to the

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adverse real-financial feedback loop between rising corporate default and the pricing of loans.

Impact of non-standard measures on lending rates

A number of factors have played a significant role in reducing the financial fragmentation observed during the recent financial crisis and have led to the more recent steep decline in lending rates. While the non-standard measures introduced by the ECB since June 2014 are relatively diverse in nature, the broad transmission channels through which they affect the economy are similar and relate to the bank funding cost wedge and bank capital charges. There are three main, mutually-reinforcing bank credit channels through which non-standard measures are transmitted to lending rates.

First, via the direct pass-through channel, non-standard measures ease borrowing conditions in the private, non-financial sector by providing funding cost relief for banks. More specifically, the TLTROs provide banks with liquidity at the interest rate on the Eurosystem's deposit facility, on the condition that they show a sufficiently strong performance in loan origination. The TLTROs trigger more competition in the bank loan market, which, in turn, compresses unit lending margins and the level of borrowing costs for the real economy. Purchases of asset-backed securities and covered bonds under the APP also aim to foster loan creation, with banks given the incentive to re-package loans and sell them on at more favourable prices. Banks have been able to use the liquidity provided by the Eurosystem to substitute more expensive wholesale debt in a context of adverse market conditions, thereby allowing them to reduce lending rates to households and firms.

Second, non-standard measures are transmitted to lending rates via the portfolio rebalancing channel, which involves interventions in the sovereign bond segment under the APP. The compression of returns in the sovereign bond market prompts investments in assets with higher risk-adjusted returns. Banks play a key role in this transmission channel given that sovereign bond purchases under the APP lower term premia and, at the same time, induce a rebalancing of bank balance sheets, including the expansion of lending. Banks are also incentivised to offload the newly created cash reserves, leading to an expansion of asset holdings and lending. The negative interest rate policy has reinforced this incentive.

The third channel through which non-standard measures are transmitted to lending rates is signalling, which, together with forward guidance on future policy rates, is effective in steering expectations. The ECB's forward guidance has led to a downward revision of market expectations for future short-term interest rates and consequently to a compression in bank lending rates. Moreover, the credibility of forward guidance is supported by current asset purchases, as these purchases signal a desire to provide additional stimulus. On the other hand, the net stimulus following asset purchases is partly influenced by expectations regarding Eurosystem adjustments of future short-term interest rates in response to more resilient real activity and inflation sparked by lower term premia in the near term.

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In addition to the aforementioned bank credit channels, there are other factors that have helped to reduce financial fragmentation. In particular, the strengthening and harmonisation of the European supervisory, regulatory and resolution framework has led to a strengthening of bank balance sheets, a decline in stress in financial markets and a decrease in the dispersion of the perceived risk of euro area banks and in their wholesale market funding costs. This, in turn, has contributed to a decrease in the dispersion of lending rates.

Heterogeneity in the evolution of lending rates in the euro area

Cross-country divergences in lending rates can reflect cyclical and structural factors[37]**.** The latter include differences in bank lending rate setting behaviour and cross-country heterogeneity in bank products, as well as institutional differences, for example in fiscal and regulatory frameworks, enforcement procedures and collateral practices. The composite cost of borrowing indicators for NFCs and households comprise rates for loans with different durations, and the share of short-term versus long-term loans differs among countries (see Charts 7 and 8). In addition, lending rates for loans assigned to the same maturity bucket may differ significantly owing to heterogeneity in banking products, for example with regard to non-interest rate charges, collateral and contractual options embedded in the loans.[38] The factors that are likely to explain observed differences in cross-country lending rates can be classified into two groups: demand-side determinants, comprising factors related to the characteristics of the borrowers, and supply-side determinants, comprising factors related to the characteristics of the banking system.[39]

Although composite lending rates, aggregated from individual bank lending rates, reveal cross-country heterogeneity, they mask the micro-perspective of lending rate setting. The micro-perspective is manifested in pronounced intra-country heterogeneity among lending rates charged by individual banks (see Chart 4). Box 1 elaborates on the advantages of using micro data, which provide important insights, especially when the information on individual bank lending rates is combined with bank-specific balance sheet characteristics. The dispersion of granular lending rates remains wider in vulnerable countries, but the transmission of policy rates is becoming increasingly less asymmetric. The wider dispersion of lending rates in vulnerable countries may reflect greater differences in economic conditions at both the country and firm levels, as well as differences across banks

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[37] Structural differences in how lenders set rates have been analysed extensively in previous publications. See, among others, Kok Søerensen, C. and Lichtenberger, J.-D., "Mortgage interest rate dispersion in the euro area", *Working Paper Series*, No 733, ECB, February 2007.

[38] For example, non-interest rate charges (such as fees and commissions) will not be shown in the lending rate component of the overall costs paid by borrowers. Consumer credits comprise loans for car purchase with solid collateral and relatively low interest rates, and other consumer loans with high interest rates. Floating rate loans may give borrowers the opportunity to reset the loan, choosing to adjust either the amortisation or the term of the loan.

[39] Demand-side indicators cover, for example, the creditworthiness of borrowers, demand for credit, the availability of alternative market-based sources of financing for corporations, and the disposable income of households and residential property prices in the case of mortgage loans. Supply-side indicators cover bank balance sheet characteristics, other measures of bank soundness, prevailing bank business models, loan securitisation and the degree of bank competition.

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(e.g. solvency position, reliance on wholesale funding and degree of excess liquidity).

Chart 4

Changes in composite lending rates to NFCs across individual MFIs in vulnerable versus less vulnerable countries

(percentages per annum)

- September 2016 (median = 1.9)
- June 2014 (median = 3.5)
- September 2011 (median = 3.9)

a) Vulnerable countries

- September 2016 (median = 1.6)
- June 2014 (median = 2.3)
- September 2011 (median = 3.2)

b) Less vulnerable countries
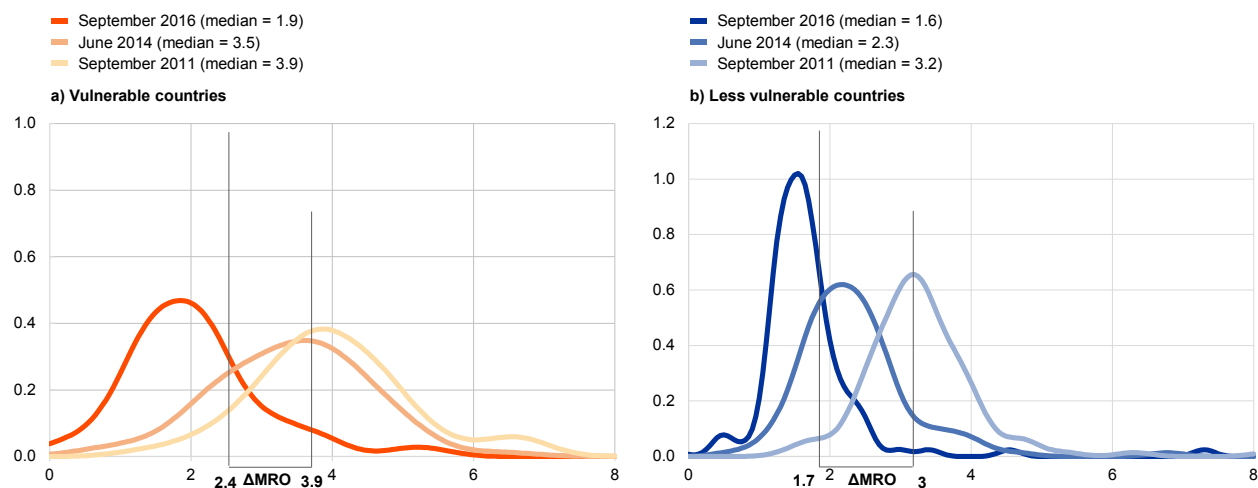
Source: ECB.
Notes: The charts report the density approximation of the lending rate distributions in three different periods (September 2011, June 2014 and September 2016). Chart 4a (vulnerable countries): 92 MFIs from Ireland, Spain, Italy and Portugal. Chart 4b (less vulnerable countries): 142 MFIs from Belgium, Germany, France, the Netherlands and Austria. The charts also show that if the reduction in the rate on the main refinancing operations since September 2011 (150 basis points) had been fully passed on to the median lending rates of the first period (Chart 4b, 3.2), the lending rate in September 2016 would have been 1.7% (Chart 4b).

Box 1

Lending rate setting using bank-level data

Micro data often complement macro data analysis, offering important insights for monetary policy. This box discusses a number of advantages of analysing bank-level data, with particular reference to the heterogeneity of the pass-through and the fragmentation witnessed during the financial crisis.

The crisis has revealed significant heterogeneity in the way that banks, firms and households react to economic shocks, both across euro area countries and within a given country. In the presence of such heterogeneity, micro data can help to shed light on issues that aggregate data analysis is likely to miss or mask. While high-quality granular data can be aggregated to produce useful aggregate information, the opposite does not generally hold true: using aggregate data to draw inferences at a more granular level may lead to conclusions that are seriously biased. For example, if the average interest rate across banks in a given country is higher than the average for euro area banks, it does not necessarily follow that a randomly chosen bank from this particular country is more likely to have interest rates that are higher than the euro area average.

At the same time, the use of micro data entails certain challenges. Reliable micro data analysis depends on harmonised data concepts across countries, high quality standards for data collection and measurement, confidentiality and the use of sound statistical and econometric methods.

Bank-level micro data in particular can be informative, given the significant heterogeneity in lending rates recorded across different jurisdictions during the financial crisis. Lending rates may also differ across banks within a given jurisdiction due to heterogeneity in bank funding costs.

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The granular information found in bank-level data can provide helpful insights for monetary policy. Such data enable analysis of heterogeneity in lending rates not only across countries, but also within a given country. They can thus be used to investigate the extent to which heterogeneity in lending rates is associated with bank-specific characteristics such as liquidity or capital. More generally, micro data supply empirical evidence that can be set against specific model-based predictions.[40]

Micro data also potentially enable bank-level information to be "matched" with borrower characteristics. Such combined information could be used to analyse the characteristics of the firms that take up loans and the concentration of these firms by region and/or industry sector, thus shedding light on the pass-through of interest rates to the real economy. Moreover, the risk characteristics of new borrowers could be traced across banks and across time, enabling investigation of whether or not banks adopt a risk-based pricing policy in the new loans they offer.

The "Anacredit" micro dataset is an important initiative to this end. Anacredit aims to provide combined information on both lenders and borrowers and is harmonised across euro area countries.

In sum, micro data can shed light on the forces behind the observed heterogeneity in interest rate pass-through across jurisdictions. Understanding the factors behind these discrepancies can be important for designing policy measures that aim to reduce fragmentation and contribute towards banking union.

The pace of the decline in lending rates also differs according to loan size. Since 2015 lending rates for very small loans have continued to decline at a faster pace than those for large loans, contributing to a further narrowing of the spread between very small and large loans (see Chart 5). At the same time, the lending rates for large loans in vulnerable and less vulnerable countries have reached broadly similar levels. For very small loans, the gap between the two country groups has further reduced owing to the strong decline recorded in vulnerable countries.

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[40] For instance, according to the model in Bluhm et al., banks with high levels of non-liquid assets should be more exposed to negative shocks in the value of these assets. See Bluhm, M., Faia, E. and Krahnen, J.P., "Monetary policy implementation in an interbank network: effects on systemic risk", *Working Paper Series*, No 46, Research Center SAFE – Sustainable Architecture for Finance in Europe, Goethe University Frankfurt, 2014.

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Chart 5

Lending rates for very small versus large loans to NFCs

(percentages per annum)

- euro area
- vulnerable countries
- non-vulnerable countries

a) Very small loans
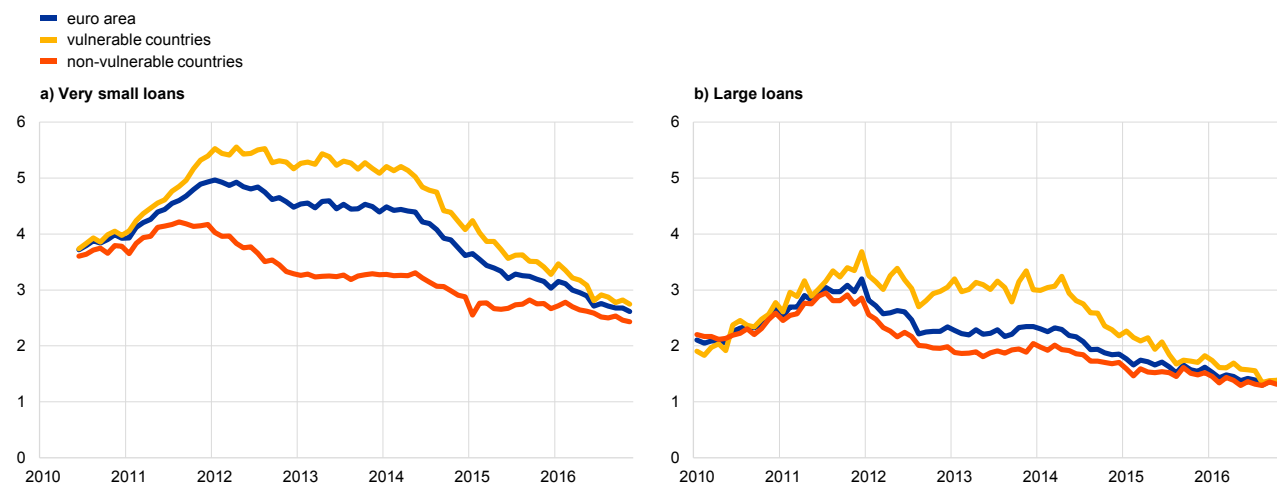
b) Large loans

Source: ECB.
Notes: The euro area series is calculated as a weighted average of country spreads. The "vulnerable" countries are Ireland, Greece, Spain, Italy, Cyprus, Portugal and Slovenia. Very small loans are loans of up to €0.25 million, while large loans are those above €1 million. Aggregation is based on new business volumes.

Another aspect of heterogeneity relates to the share of fixed versus variable rate loans. This aspect can be assessed on the basis of either outstanding amounts or new business volumes. Weights based on outstanding amounts more accurately capture the financing structure of the economy, as they reflect the economic importance of loans with different maturities in the financing structure of firms.[41] However, aggregating MFI interest rates on the basis of outstanding amounts provides only a rough estimate of the marginal cost of borrowing for economic agents. Aggregation based on new business volumes provides a better measure of the impact of the marginal cost of a new loan on the overall financing cost structure.[42] However, such aggregation overweighs short-term instruments, which are frequently renewed (e.g. overdrafts). Moreover, new business volumes are highly volatile on a monthly basis, as they react relatively quickly to present-day economic conditions, which may favour the issuance of short-term rather than long-term loans. In turn, this volatility might make it difficult to perceive the genuine underlying dynamics in retail lending rates. Chart 6 depicts lending rates based on outstanding amounts. These rates exhibit less volatility than cost of borrowing indicators compiled on the basis of new business volumes (see Chart 1), and a less pronounced pattern of market segmentation. A comparison of Charts 7 and 8 reveals that, despite the current practice of short-term lending for NFCs in Germany and France (where over 80% and about 70% respectively of new business lending is realised through loans with a short-term interest rate fixation or floating rate), the share of short-term lending in loans based on outstanding amounts remains below 40% and 50% respectively.

[41] However, outstanding amounts do not reflect the granular statistical breakdown available in MFI interest rate (MIR) statistics. Moreover, methodological differences affect the comparability between MFI balance sheet data and MIR statistics.

[42] It also helps to overcome issues concerning database mismatches and time series granularity.

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Chart 6

Composite outstanding amount lending rates

(percentages per annum)

- euro area
- DE
- ES
- FR
- IT

a) Lending rates for NFCs

b) Lending rates for households for house purchase
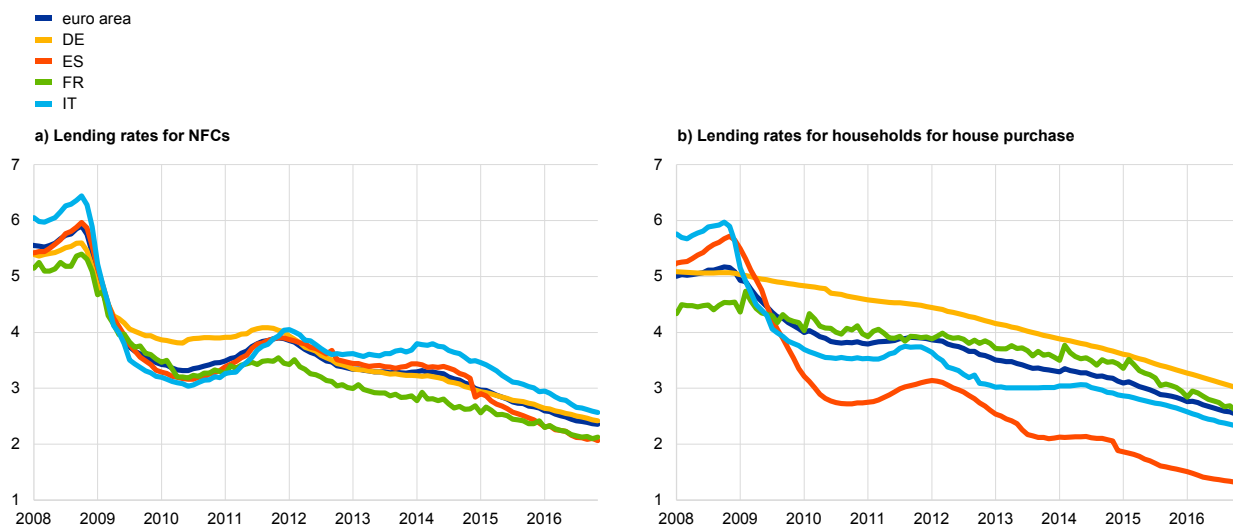
Sources: ECB and ECB calculations.
Note: The indicator for the total cost of lending is calculated by aggregating short and long-term rates.

Chart 7

Share of loans with short-term interest rate fixation based on outstanding amounts

- euro area
- DE
- ES
- FR
- IT

a) Loans for NFCs

b) Loans for households for house purchase
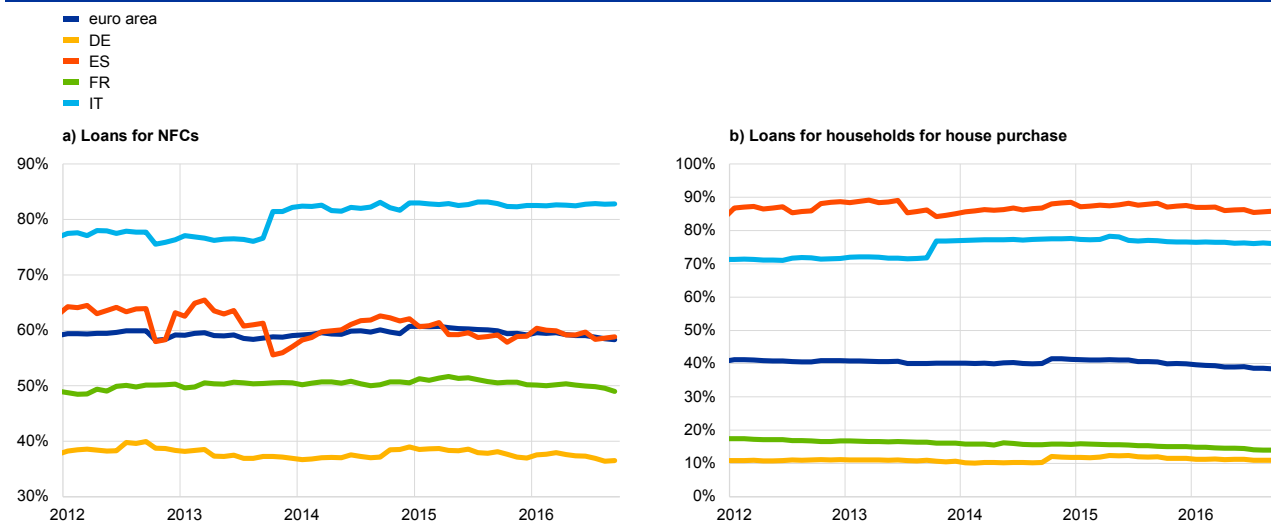
Sources: ECB and ECB calculations.
Notes: Short-term loans are those with a maturity of up to one year, plus overdrafts and the share of long-term loans issued at a floating rate. These shares are derived from outstanding amounts and are therefore subject to breaks related to reclassifications and/or revaluations. The indicators in the chart are derived from the fourth quarter of 2011 due to breaks in the early period of some of the underlying series, affecting in particular loans with over one year remaining to maturity and an interest rate reset scheduled for within the next year.

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Chart 8

Share of loans with short-term interest rate fixation based on new business volumes

- euro area
- DE
- ES
- FR
- IT

a) Loans for NFCs

b) Loans for households for house purchase
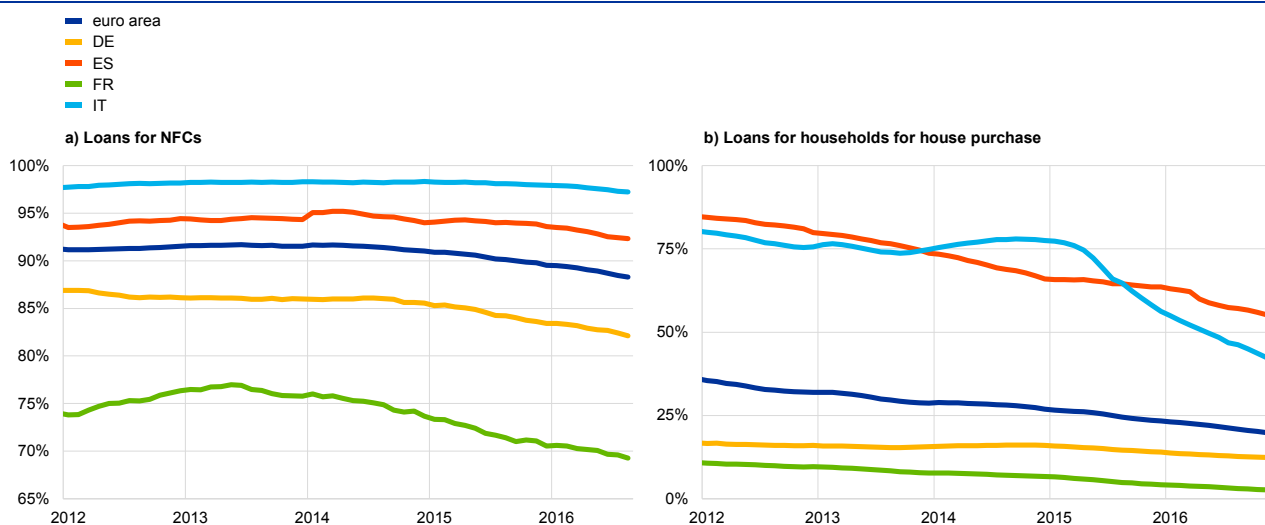
Sources: ECB and ECB calculations.
Note: Short-term loans are those with a maturity of up to one year, plus overdrafts and the share of long-term loans issued at a floating rate.

Bank retail lending rates cannot be considered separately from the structure of banks' liabilities. The importance of the cost of funding indicator for the setting of lending rates by banks was highlighted in the section entitled "Behaviour of and driving forces behind lending rate setting in the euro area".[43] Camba-Mendez et al. have argued that banks decide simultaneously on the remuneration of depositors and bond holders and on how much to charge borrowers, and show that the interest rate pass-through remained active even when interest rates were very low.[44] In addition, they have shown that an environment of excess liquidity creates a two-tier system for short-term refinancing, whereby some banks borrow at rates close to the deposit facility rate in the money markets while others borrow from the ECB at the main refinancing operations rate; this is subsequently reflected in the pass-through to bank lending rates. Furthermore, easy access to medium-term financing at a favourable cost fosters lower bank lending rates.

The pricing of banks' liabilities is important for retail lending rate setting. Given that financial intermediaries' decisions are not solely driven by the level of policy rates per se, but instead by the spread between the interest rate they pay and the interest rate they earn for a unit of funds they intermediate, it is important to consider the pricing of banks' liabilities. The present-day downward rigidity in the pricing of deposits is evident in the distribution of individual deposit rates, which are increasingly stacking up against the zero line. Limited scope for further deposit rate

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43   For example, one component of the overall cost of funding for banks, the cost of borrowing from capital markets (i.e. bank bond yields), has been higher in vulnerable rather than less vulnerable euro area countries, especially during the period 2011-12. This difference reflects the higher opportunity cost of investing in securities issued by banks operating in vulnerable countries, where sovereign yields are higher. Additionally, the deterioration in sovereign creditworthiness as a result of the sovereign debt crisis has had a significant effect on the credit risk of banks operating in vulnerable countries, where high exposure to domestic sovereign bonds has adversely influenced their funding costs.

44   See Camba-Mendez, G., Durré, A. and Mongelli, F.P., "Bank interest rate setting in the euro area during the Great Recession", *Working Paper Series*, No 1965, ECB, September 2016.

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reduction would imply mounting pressure on bank margins, as the pricing of the assets side has more downward flexibility. In October 2016 only 5.3% of the reported rates on new NFC deposits and 0.5% of those on new household deposits were below zero (see Chart 9). Negative rates on deposits thus remain a highly contained phenomenon, affecting NFC deposits mainly in Germany, with only very isolated instances in a small number of other countries as banks avoid charging negative rates on retail deposits. So far, the existence of a zero lower bound on deposit rates does not seem to have been excessively restrictive. Indeed, in the case of households, as of October 2016 only 40% of new deposits have been yielding a 0% return (compared with 53% in the case of NFCs), indicating that, in this segment, the scope for repricing may still not have been exhausted. At the same time, for households, there is a higher share of savings deposits for which a non-zero interest return is expected, owing to interest rate setting practices.

Chart 9

Distribution of deposit rates for households and NFCs across individual MFIs

(x-axis: deposit rates as percentages per annum; y-axis: frequencies as percentages)
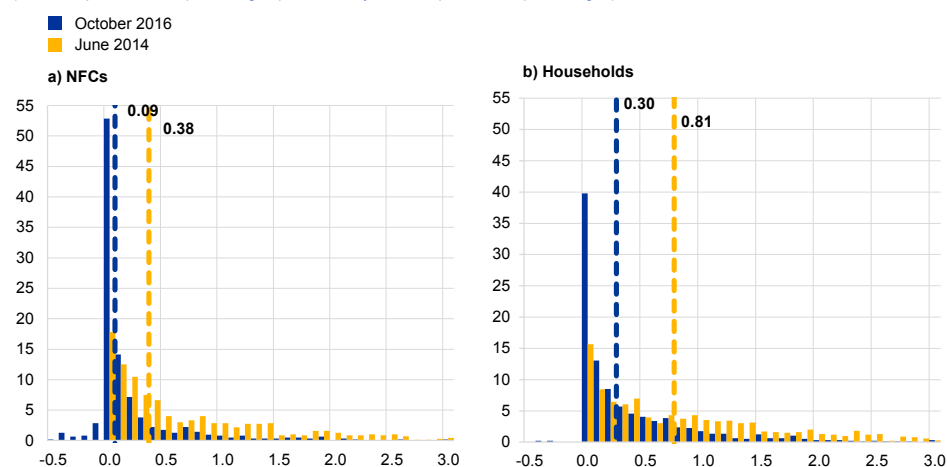
Source: ECB.
Notes: Deposit rates on new business are used as reported by individual banks for each of the available product categories. The dotted lines show the weighted average deposit rates in June 2014 and October 2016.

Recent evidence shows that the introduction of the negative interest rate policy has been translated into a compression of bank loan-deposit interest rate margins. From the introduction of the credit easing package in June 2014, when the negative interest rate policy was first adopted, the median spread between banks' composite lending and deposit rates has narrowed (see Chart 10). The reduction has been more pronounced in the case of banks in vulnerable countries, although the spread is still considerably wider in these countries, with the median standing at 2.3 percentage points as at October 2016, compared with 1.7 percentage points in less vulnerable countries. The margins are not unprecedentedly narrow, although they also incorporate a still elevated credit risk component, particularly in vulnerable countries.

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Chart 10

Spread between composite lending and deposit rates
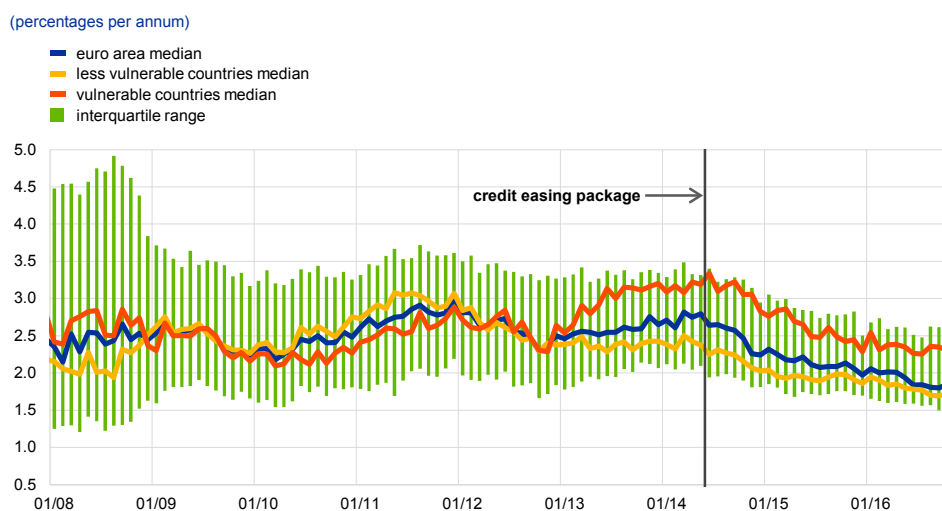
(percentages per annum)

- euro area median
- less vulnerable countries median
- vulnerable countries median
- interquartile range

Additional qualitative information on the impact of the crisis and sovereign debt tensions, as well as the ECB's non-standard measures and introduction of the negative deposit facility rate, on bank funding and bank lending conditions, has been gathered by an ad hoc question in the euro area bank lending survey.[45] Banks' responses to the survey indicate that the initial strong impact of the sovereign debt crisis on bank funding conditions and credit standards in the fourth quarter of 2011 subsided following the three-year longer-term refinancing operations and the announcement of the Outright Monetary Transactions, which began to have an easing impact in the second half of 2013. Responses to the ad hoc question on the impact of the negative deposit facility rate introduced in April 2016 highlighted a decline in banks' net interest income, a decrease in lending rates and a narrowing of loan margins. According to the respondents, the ECB's non-standard measures[46] had a positive impact on their liquidity position (in particular, the TLTROs had a predominantly positive impact) and a mixed impact on their profitability. Banks' assessment of the impact of the TLTROs on their profitability is more positive compared with the impact of the APP; this reflects the attractive TLTRO funding conditions, in particular those of TLTRO-II. The responses indicate that both the TLTROs and the APP have had an impact on banks' liquidity and funding conditions, which has allowed them to pass through eased monetary policy conditions to their customers. In this respect, the TLTROs and the APP have contributed to enhancing monetary policy transmission and repairing the bank lending channel.

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[45] See Köhler-Ulbrich, P., Hempell, H.S. and Scopel, S., "The euro area bank lending survey", *Occasional Paper Series*, No 179, ECB, September 2016.

[46] The TLTROs in June 2014, TLTRO-II in March 2016 and the announcement of the APP in January 2015. See, for example, "The transmission of the ECB's recent non-standard monetary policy measures", *Economic Bulletin*, Issue 7, ECB, 2015.

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Changes in pass-through regularities

The traditional monetary policy transmission mechanism assumes that policy rates – and therefore market reference rates – are the most direct determinants of retail bank lending rates. Yet, today, this framework is ill-equipped to explain two important phenomena: the increased heterogeneity in bank retail lending rates observed since the start of the financial crisis in 2008 (see Chart 1) and wide differences in the pass-through of recent ECB non-standard measures. Chart 11 displays the evidence from the standard pass-through models, which link developments in lending rates exclusively to the development of market reference rates.[47] The chart shows forecasted and actual changes in short-term lending rates for NFCs (Chart 11a) and households for house purchase (Chart 11b) for two periods: (i) between January 2011 (when the sovereign debt crisis intensified) and March 2014 (just before the introduction of the credit easing package), and (ii) between January 2011 and November 2016. The actual changes in lending rates are greater than the forecasted changes during the first period and not as great during the second period in the case of Italy and Spain, confirming that the standard pass-through models are ill-equipped to explain the high lending rates during the sovereign debt crisis and the impact of the current non-standard policy measures on lending rates.

Chart 11

Forecasted and actual changes in short-term lending rates between January 2011 and March 2014 and between January 2011 and November 2016

(changes in basis points)
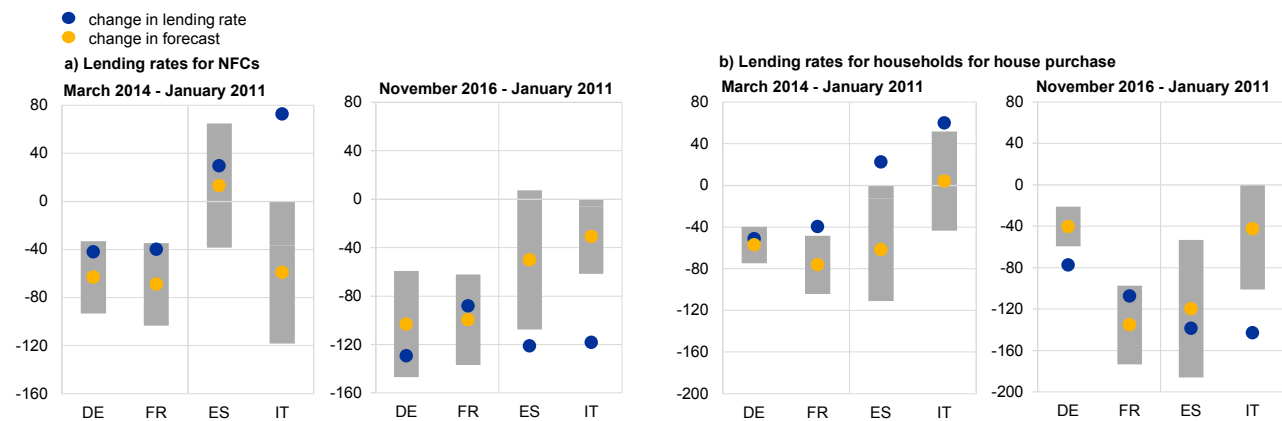
Sources: ECB and ECB calculations.
Notes: Forecasts are compiled on the basis of the standard pass-through models. Lag specifications for the country-specific error-correction equations are obtained by employing the general-to-specific approach. The rectangles show the average 95% confidence interval over the forecast period for a model estimated over the full sample.

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[47] This follows the methodology described in Darracq Pariès et al., with some modifications. See Darracq Pariès, M., Moccero, D., Krylova, E. and Marchini C., "The retail bank interest rate pass-through: the case of the euro area during the financial and sovereign debt crisis", *Occasional Paper Series*, No 155, ECB, August 2014. The standard simple single equation pass-through model assumes the absence of any explanatory variables in the lending rate adjustment mechanism, except the market reference rate, i.e. the rate at which banks can raise funds in the interbank money market. It is modelled by an error correction mechanism, which includes the long-term equilibrium pass-through and the short-term correction adjustment. This equation is estimated employing the general-to-specific approach. The general equation is estimated recursively. The most insignificant parameter, describing short-term adjustment, with the highest p-value, is eliminated from regressions at each step; the procedure is repeated until only significant lags are left in the obtained specific equation.

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A synthetic way to assess the changes in the pass-through mechanism is to consider the rolling empirical impulse response functions (IRFs) to an increase in policy rates. The breakdown of standard pass-through relationships[48] has previously been illustrated in the literature by (i) comparing cumulative changes in lending rates with cumulative changes in the ECB policy rate for different periods, (ii) comparing the forecasted changes with the actual changes in lending rates[49] or (iii) checking the stability of the common long-run pass-through coefficient in a panel model[50]. However, the lag structure influences and mitigates the overall pass-through; it is therefore not sufficient to focus only on the long-run pass-through coefficients. A synthetic way to assess the cumulative responses to a policy rate shock is to consider the rolling empirical IRFs to a 1% increase in market reference rates. This analysis shows that the pass-through is sluggish: the impulse from a policy rate shock is not immediately transferred to lending rates but takes approximately one year. In addition, as shown in previous studies, pass-through was stronger in 2007-10 and started to decline subsequently. Recent developments highlight the increase in impulse responses of both short and long-term corporate lending rates in the vulnerable countries in the sample (Italy and Spain).

Some research findings point to the necessity of using the marginal cost of funding for banks instead of policy or market reference rates in empirical models of the pass-through mechanism. As banks obtain funds from different sources, encompassing liabilities of different maturities and risk characteristics, the weighted average bank cost of funding may diverge significantly from policy rates. For example, von Borstel et al. decomposed the pass-through into its various elements, capturing the transmission from (i) policy rates to risk-free rates, (ii) risk-free rates to sovereign funding costs, (iii) sovereign funding costs to bank funding costs, and (iv) bank funding costs to retail lending rates.[51] Their framework uses a large number of variables to explain the pass-through, accounting for lending and deposit rates, and sovereign and CDS spreads, and includes weighted average bank funding costs. Illes et al. used a panel cointegration framework, where the long-run pass-through coefficients between lending rates and funding costs were common among countries but short-term adjustment was country-specific.[52] They documented a stable long-run relationship between lending rates and funding costs over the sample, which spanned both the pre- and post-crisis periods.[53] A similar

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[48] In contrast, von Borstel et al. used FAVAR models and found that, while the transmission of conventional monetary policy to bank lending rates has not changed with the financial crisis, the composition of the pass-through has changed. See von Borstel, J., Eickmeier, S. and Krippner, L., "The interest rate pass-through in the euro area during the sovereign debt crisis", *Discussion Paper*, No 10, Deutsche Bundesbank, 2015.

[49] As in Darracq Pariès et al. (see footnote 14).

[50] See Illes, A., Lombardi, M.J. and Mizen, P., "Why did bank lending rates diverge from policy rates after the financial crisis?", *BIS Working Papers*, No 486, February 2015.

[51] See reference in footnote 15.

[52] See footnote 17.

[53] In contrast, Harimohan et al. examined the pass-through of individual bank funding costs to retail loan and deposit rates in the United Kingdom and found that the common component of funding costs passes through quickly and completely, but that cost changes which are not homogeneous across banks exhibit slower pass-through and are affected by market competition. See Harimohan, R., McLeay, M. and Young, G., "Pass-through of bank funding costs to lending and deposit rates: lessons from the financial crisis", *Staff Working Paper*, No 590, Bank of England, April 2016.

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exercise, employing single-equation error-correction models instead of panel approaches, provides less stable empirical response functions compared with models which use market reference rates instead of funding costs[54].

Recent publications have highlighted a large number of additional factors[55] behind the changes in pass-through regularities. The small scale of error-correction models does not enable many explanatory variables to be inputted; therefore, these models concentrate solely on the most important ones. Non-standard ECB monetary policy measures aim to restore the bank lending channel and contribute to repairing the policy transmission mechanism; assessing their impact on the overall pass-through is a challenging task, however.

Chart 12

Contribution of explanatory factors to the changes in composite lending rates

(percentage per annum)

- change in lending rate
- market rate
- sovereign spreads
- residuals

a) Lending rates for NFCs

March 2014 - January 2010

November 2016 - March 2014

b) Lending rates for households for house purchase

March 2014 - January 2010

November 2016 - March 2014
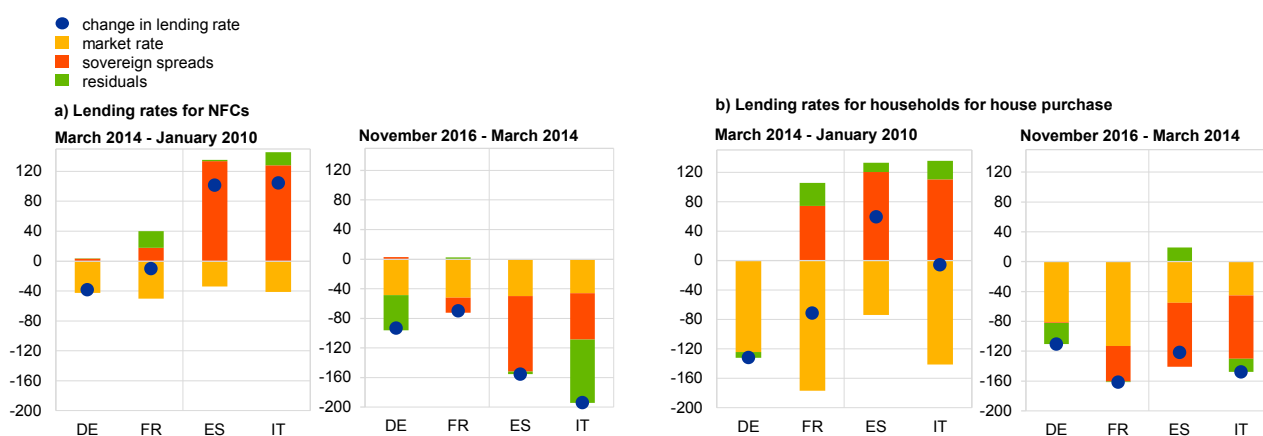
Sources: ECB and ECB calculations.
Notes: Lending rates are decomposed on the basis of pass-through models, including sovereign spreads as a risk factor. Contributions for composite lending rates are compiled from contributions for short and long-term lending rates using a weighting scheme based on smoothed new business volumes. EURIBOR three-month and two-year swap rates are used as market reference rates for short and long-term lending rates respectively. Lag specifications for the country-specific error-correction equations are obtained by employing the general-to-specific approach.

The introduction of the sovereign spread as an additional explanatory variable in the pass-through process sheds light on how sovereign market tensions have influenced the transmission mechanism. Chart 12 displays a breakdown of lending rates by explanatory variables. The decline in market reference rates from the start of the sovereign debt crisis in 2010 until March 2014 put downward pressure on retail lending rates in all countries in the sample, but was offset by the sharp increase of sovereign spreads in Italy and Spain. This even led to an increase

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54 This involves the construction of the country-specific weighted average of banks' funding costs, aggregating traditional funding through retail deposits, issuances of bank bonds and net Eurosystem borrowing. Aggregation is based on outstanding amounts. Deposit rates are computed as a weighted average of overnight deposits, deposits with agreed maturity and deposits redeemable at notice, with their corresponding new business volumes. Lag specifications for the country-specific error-correction models are obtained by employing the general-to-specific approach.

55 For example, Blagov et al. employ a Markov-switching VAR with endogenous transition probabilities to show that (i) global risk factors have contributed to higher lending rates in Italy and Spain, (ii) problems in the banking sector help to explain the impairment in Spain, and (iii) fiscal problems and contagion effects have contributed to the interest rate pass-through impairment in Italy and Ireland. See Blagov, B., Funke, M. and Moessner, R., "Modelling the time-variation in euro area lending spreads", *BIS Working Papers*, No 526, November 2015.

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in corporate lending rates in Italy and Spain over this period. At the same time, the fall in German government bond yields, due to the flight-to-quality and liquidity effects during the crisis, put extra downward pressure on short-term lending rates in Germany, causing them to decline slightly more than foreseen by historical regularities. In contrast, the decline in sovereign bond yields from 2014 onwards led to a more pronounced reduction in lending rates in Italy and Spain compared with other countries, which resulted in a further contraction of the cross-country dispersion of lending rates.

The introduction of negative deposit facility rates embodies a special case of a conventional easing policy which, due to frictions or institutional arrangements, may lead to non-linearity in the pass-through mechanism. The existence of cash offers a zero-yielding alternative to deposits, introducing downward rigidity in the pricing of deposits (see Chart 9). Certain institutional features permeating the financial system contribute to additional frictions within the transmission mechanism (e.g. in some jurisdictions, legal restrictions on the application of negative rates, differing tax treatments of negative interest rate income and specifications of financial contracts, according to which payments from lenders to borrowers are not permitted). Theoretical and empirical literature covering this topic is in short supply. Brunnermeier and Koby have developed a theoretical model in which it is possible for accommodative monetary policy to reverse its effect and become contractionary; this occurs when an interest rate reaches the certain "reversal interest rate", which depends on several characteristics of the banking system and pass-through regularities.[56] Heider et al. have used granular data on the characteristics of lenders and their borrowers to show that the transmission of negative rates depends on banks' funding structure (high-deposit banks take on more risk and lend less than low-deposit banks; cautious borrowers switch from high-deposit to low-deposit banks).[57] Demiralp et al. have documented special bank balance sheet adjustments in the face of negative deposit facility rates.[58] Overall, negative deposit facility rates are accompanied by a compression of bank interest margins and a decline in bank profitability.

Box 2
Monetary policy pass-through and bank balance sheet characteristics

This box evaluates the pass-through of recent non-standard monetary policy announcements on bank lending rates.[59] More precisely, the box answers two questions. First, did the targeted

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[56]   Brunnermeier, M.K. and Koby, Y., "The reversal interest rate: an effective lower bound of monetary policy", *Working Paper*, Princeton University, 2016: presented at *Monetary policy pass-through and credit markets – ECB conference 27-28 October 2016*, Frankfurt am Main, 2016.

[57]   Heider, F., Saidi, F. and Schepens, G., "Life below zero: bank lending under negative policy rates", *Working Paper*, presented at *Monetary policy pass-through and credit markets – ECB conference 27-28 October 2016*, Frankfurt am Main, 2016.

[58]   Demiralp, S., Eisenschmidt, J. and Vlassopoulos, T., 2016, "The impact of negative interest rates on bank balance sheets: evidence from the euro area", paper presented at *Non-Standard Monetary Policy Measures – ECB workshop 18-19 April 2016*, Frankfurt am Main, 2016.

[59]   The methodology used in this box draws on Altavilla, C., Canova, F. and Ciccarelli, M., "Mending the broken link: heterogeneous bank lending and monetary policy pass-through", *Working Paper Series*, No 1978, ECB, November 2016.

longer-term refinancing operations (TLTROs), announced in June 2014, and the asset purchase programme (APP), announced in January 2015, help to change the dynamics of the distribution of lending rates and reduce the heterogeneity in lending prices across banks? Second, what are the characteristics of the banks most affected by Eurosystem non-standard policies?

According to the conventional view on the relationship between monetary policy transmission and bank balance sheet characteristics, in normal times, larger, better capitalised and more liquid banks are more resilient to monetary contractions. On average, these banks can more easily substitute sources of external financing, absorb expected future losses and divert liquidity to satisfy increases in loan demand.[60]

In periods of financial distress, however, economic and regulatory constraints might alter the effectiveness of monetary policy. This box re-examines the monetary pass-through to lending rates in the euro area during the turbulent period of 2007-15 using a monthly disaggregated dataset covering 260 banks. The dataset is sufficiently large and disaggregated to avoid cross-sectional and time series heterogeneity biases.

Analysis was conducted using a panel vector autoregressive (VAR) methodology, which accounts for dynamic interactions between bank lending, funding conditions and the macroeconomy.[61] In contrast to static pass-through equations, which are typically estimated with single-equation panel techniques, this approach has two main advantages. First, it allows for endogenous interaction between lending and funding conditions within a bank in response to monetary policy changes – interaction not covered by single equation methodologies. Second, it permits dynamic feedback between lending and funding conditions. These dynamic repercussions are disregarded in static models and improperly measured in single equation dynamic set-ups.

The impact of monetary policy on lending rates was computed in two steps. First, using a high-frequency event study methodology, the responses of asset prices to announcements of non-standard measures were calculated from May 2014 to December 2015.[62] A comparison was then made between (i) lending rate dynamics obtained by mapping the policy-induced component of these variables onto individual bank lending rates, and (ii) those obtained by assuming that these variables have evolved unconditionally since May 2014.

Such a two-step approach is appealing because it captures the instantaneous effects of non-standard measures on financial markets – effects which are likely to be washed out when monthly data are used.

The estimates suggest that the combined effects of the non-standard measures implemented since June 2014 have significantly lowered yields in a broad set of financial market segments. The results

[60] See Kashyap, A.K. and Stein, J.C., "What do a million observations on banks say about the transmission of monetary policy?", *American Economic Review*, Vol. 90, No 3, 2000, pp. 407-428; Peek, J. and Rosengren, E.S., "Bank lending and the transmission of monetary policy", in Peek, J. and Rosengren, E.S. (eds.), *Is Bank Lending Important for the Transmission of Monetary Policy?*, Federal Reserve Bank of Boston Conference Series, No 39, June 1995, pp. 47-68; and Kishan, R.P. and Opiela, T., "Bank size, bank capital, and the bank lending channel", *Journal of Money, Credit and Banking*, Vol. 32, No 1, February 2000, pp. 121-141.

[61] See footnote 26.

[62] See Krishnamurthy, A. and Vissing-Jorgensen, A., "The effects of quantitative easing on interest rates: channels and implications for policy", *Brookings Papers on Economic Activity*, Vol. 43, Issue 2, pp. 215-287; and Altavilla, C., Carboni, G. and Motto, R., "Asset purchase programmes and financial markets: lessons from the euro area", *Working Paper Series*, No 1864, ECB, November 2015.

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point to a sizeable impact for long-term sovereign bonds, with the median cumulative decline in ten-year yields amounting to about 100 basis points across euro area countries at the end of the sample period. The spillovers to yields of untargeted assets are significant in the case of euro area financial corporate bonds (see Chart A). The median reduction in bank bond yields across MFIs equals almost 40 basis points by the end of 2015.

Chart A

Changes in sovereign yields and bank bond yields due to non-standard measures

(percentages per annum)
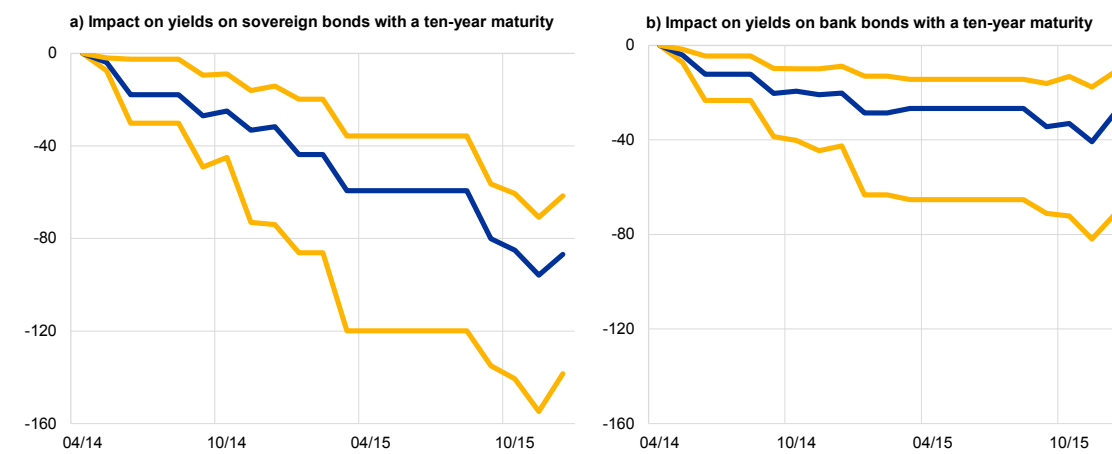
a) Impact on yields on sovereign bonds with a ten-year maturity

b) Impact on yields on bank bonds with a ten-year maturity

Source: Altavilla, C., Canova, F. and Ciccarelli, M., "Mending the broken link: heterogeneous bank lending and monetary policy pass-through", *Working Paper Series*, No 1978, ECB, November 2016.
Notes: The charts report the cumulated effects of non-standard measures on sovereign yields (equal for all banks operating in the same country) and on bank bond yields (different for each bank). The blue solid line is the median; red lines denote the 5th and 95th percentiles of the distribution.

Balance sheet characteristics matter for explaining the reduction in the spread of the lending rate response distribution. The effect on individual banks' lending rates was obtained by taking the difference between the policy-induced lending rates and the lending rates that, in the absence of the policy, would have prevailed since May 2014. The results suggest that non-standard measures were particularly effective in lowering lending rates for banks with a high share of non-performing loans and low capital. The median difference between the upper and lower quartiles of the distribution sorted by these characteristics is up to 40 basis points and differences become highly significant after about 18 months (see Chart B).

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Chart B

Lending rate differences by bank characteristics

(percentage points)
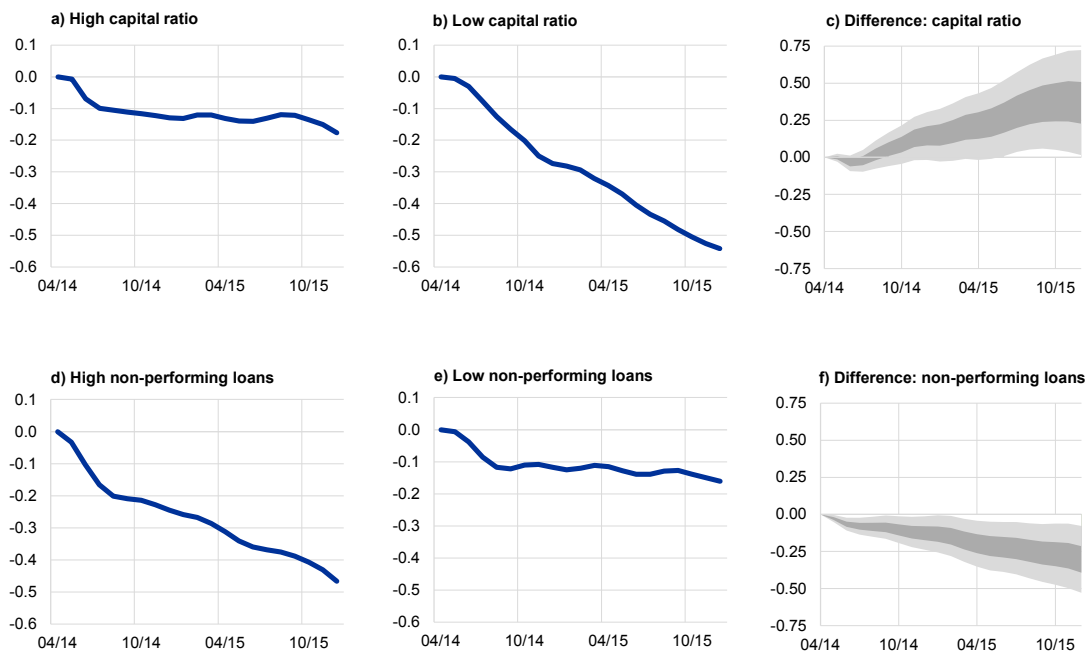
a) High capital ratio

b) Low capital ratio

c) Difference: capital ratio

d) High non-performing loans

e) Low non-performing loans

f) Difference: non-performing loans

Source: Altavilla, C., Canova, F. and Ciccarelli, M., "Mending the broken link: heterogeneous bank lending and monetary policy pass-through", *Working Paper Series*, No 1978, ECB, November 2016.
Notes: The charts show the average responses in the top and bottom quartiles of the lending rate distribution sorted by bank characteristics. Shaded areas in the third column are the interquartile (dark grey), and the 95% (light grey) ranges. Posterior distributions are obtained using a VAR for each bank with the bank bond yield variable.

The improved credit conditions in the euro area have aided in pushing the monetary policy accommodation through the intermediation chain to reach households and firms. Non-standard measures have helped to normalise lending conditions, reduce the cross-sectional dispersion of lending rates and produce a larger pass-through in the medium run. Better lending conditions for NFCs materialised because of an improvement in the instantaneous pass-through and because of dynamic funding cost relief and signalling effects. The positive impact on banks' funding costs has incentivised them to pass on the cost relief to final borrowers by granting more credit on better conditions.

Box 3

The propagation of bank lending rates to the broader economy: perspectives from a dynamic stochastic general equilibrium model

This box evaluates the pass-through to bank lending rates through the lens of the Darracq Pariès, Jacquinot and Papadopoulou macro-financial model[63] (hereinafter the DJP model) by simulating the effect on lending rates and output of the decrease in sovereign yields resulting from the combined impact of the non-standard measures implemented from June 2014 to June 2015. More precisely,

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[63] See Darracq Pariès M., Jacquinot, P. and Papadopoulou, N., "Parsing financial fragmentation in the euro area: a multi-country DSGE perspective", *Working Paper Series*, No 1891, ECB, April 2016.

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the box shows how the main factors influencing lending rates in the simple accounting model can be mapped and modelled in the DJP model.[64] As explained in Darracq Pariès, Jacquinot and Papadopoulou[65], the factors that lay in the interplay of credit risk in the sovereign, banking and corporate sectors during the crisis indeed result in a widening of lending rate spreads and increased fragmentation.[66] Through the lens of the same model, the box also tries to shed light on the macroeconomic transmission of unconventional monetary policy measures and their impact on lending rates following the full package of non-standard measures introduced by the ECB from June 2014 up to the June 2015 and the concomitant decrease in sovereign yields.[67] Simulation results can explain the narrowing of lending rate spreads, receding fragmentation and improvement of economic conditions.

The DJP model is a multi-country dynamic stochastic general equilibrium (DSGE) model for the euro area, which considers granular banking, sovereign and financial frictions, and wide cross-country heterogeneity through a six-region global model. It is calibrated for Germany, Spain, France, Italy, the rest of the euro area and the rest of the world. It features a reduced-form sovereign-banking nexus, risky banks acting in a monopolistic manner, financial frictions associated with corporate default, and cross-border lending. These features render the model suitable for analysing the heterogeneity in bank lending rates observed across euro area countries and the role of sovereign and financial spillovers in the international propagation of shocks.

In the model, impairments in the transmission mechanism of monetary policy are related to both the demand and supply of credit and can be identified by decomposing the final lending rate into a chain of four distinct segments of financing costs faced by different agents. This decomposition is consistent with, mirrors and can be linked to the simplified accounting model on lending rate determination exemplified in the section entitled "Behaviour of and driving forces behind lending rate setting in the euro area" in this article. It can represent the intermediation wedges which constitute specific typologies of financial frictions that can independently represent the epicentre of a specific financial disturbance that emerged during the euro area financial crisis and had a bearing on the pass-through to commercial lending rates. Furthermore, the intermediation wedges can also constitute the basic elements for analysing the recent unconventional monetary policy measures introduced by the ECB. The first financing segment relates to banks' funding costs, which correspond to the monetary policy rate augmented to compensate for sovereign risk, approximating the spillovers from domestic sovereign tensions to bank funding conditions. The second segment considers the banker's decision problem, which features financial frictions associated with bank-specific vulnerabilities in the form of weak capital positions and funding constraints. The third segment of the financial intermediation focuses on the monopolistic margins in lending rate setting by retail branches. The fourth segment relates to the final stage of the financial intermediation, involving the compensation of credit risk in the provision of loans to firms.

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[64]   See the section entitled "Behaviour of and driving forces behind lending rate setting in the euro area".

[65]   See footnote 30.

[66]   See the section entitled "Behaviour of and driving forces behind lending rate setting in the euro area".

[67]   As estimated in Altavilla, C., Canova, F. and Ciccarelli, M., "Mending the broken link: heterogeneous bank lending and monetary policy pass-through", *Working Paper Series*, No 1978, ECB, November 2016.

Chart A

Macroeconomic impact of APP subject to the zero lower bound

■ year 1
■ year 2
■ year 3

a) Output (annual percentage deviations from baseline)

b) Sovereign bond spreads (annual percentage point deviations from baseline)

c) Lending rates (annual percentage point deviations from baseline)
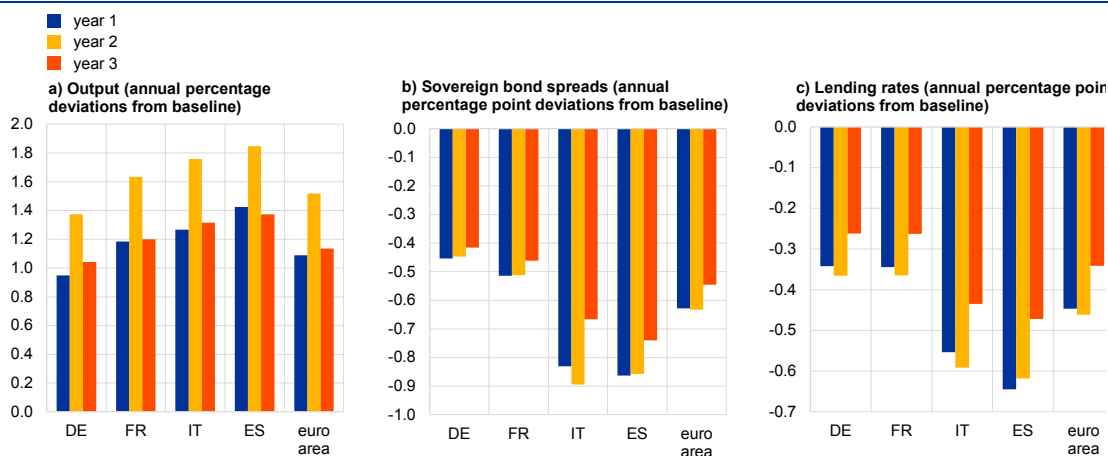
Source: ECB calculations based on Darracq Pariès, M., Jacquinot, P. and Papadopoulou, N., "Parsing financial fragmentation in the euro area: a multi-country DSGE perspective", *Working Paper Series*, No 1891, ECB, April 2016.
Note: Simulations are conducted based on an endogenous zero lower bound on interest rates, which binds for approximately two years.

In the aftermath of the financial crisis, the ECB embarked on a series of non-standard monetary policy measures in an attempt to mitigate the adverse consequences of the financial crisis. These measures have helped to narrow lending rate dispersion via the compression of sovereign yields and to improve economic activity in times when interest rates have reached the zero lower bound. The decrease in sovereign yields up to June 2015, resulting from the full package of non-standard measures, was simulated in an attempt to shed light on the aggregate impact on output and lending rates. As Chart A shows, the macroeconomic impact is stronger for vulnerable countries, such as Italy and Spain. The compression of sovereign yields is expected to spread through the economy, lowering lending rates and narrowing spreads via the indirect pass-through channel of non-standard measures, which ease borrowing conditions in the private non-financial sector by providing funding cost relief for banks.

Conclusions

This article has analysed lending rate pass-through in the time of non-standard measures. Empirical evidence shows that lending rate dispersion increased during the recent financial crisis, with a high degree of fragmentation, and reversed more recently, in particular since the introduction of the credit easing package in 2014. Many factors have played an important role in the transmission of conventional and unconventional monetary policy to lending rates.

Empirical evidence has shown that the simple pass-through models are ill-equipped to describe the behaviour of lending rates. This appears to be the case for both the euro area financial crisis and the periods in which non-standard measures have been in force. The introduction into the models of additional factors influencing pass-through regularities improves both the forecasting and the stability of the pass-through mechanism.

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The sovereign-banking nexus has been a key source of concern during the euro area sovereign debt crisis. This is due to the fact that banks' holdings of domestic sovereign debt increase the transmission of sovereign stress to bank lending and solvency risk in vulnerable countries. As argued above, the implementation of non-standard measures by the ECB significantly reduced the short and medium-run costs of the financial crisis.

Against this background, banking union is crucial in order to resolve remaining structural weaknesses and eliminate the sovereign-banking nexus, thereby leading to a more robust banking system in the euro area and a more uniform transmission of monetary policy. EU institutions took historic steps towards banking union by agreeing to establish a Single Supervisory Mechanism and a Single Resolution Mechanism for banks. In November 2015, as a further step towards fully operational banking union, the European Commission put forward a proposal for a European deposit insurance scheme (EDIS) to provide a more solid and harmonised form of insurance cover for all retail depositors.

Statistics

Contents

Further information

ECB statistics can be accessed from the Statistical Data Warehouse (SDW):	http://sdw.ecb.europa.eu/
Data from the statistics section of the Economic Bulletin are available from the SDW:	http://sdw.ecb.europa.eu/reports.do?node=1000004813
A comprehensive Statistics Bulletin can be found in the SDW:	http://sdw.ecb.europa.eu/reports.do?node=1000004045
Methodological definitions can be found in the General Notes to the Statistics Bulletin:	http://sdw.ecb.europa.eu/reports.do?node=10000023
Details on calculations can be found in the Technical Notes to the Statistics Bulletin:	http://sdw.ecb.europa.eu/reports.do?node=10000022
Explanations of terms and abbreviations can be found in the ECB's statistics glossary:	http://www.ecb.europa.eu/home/glossary/html/glossa.en.html

Conventions used in the tables

-	data do not exist/data are not applicable
.	data are not yet available
...	nil or negligible
(p)	provisional
s.a.	seasonally adjusted
n.s.a.	non-seasonally adjusted

1 External environment

1.1 Main trading partners, GDP and CPI

	GDP [1] (period-on-period percentage changes)						CPI (annual percentage changes)						
	G20 [2]	United States	United Kingdom	Japan	China	Memo item: euro area	OECD countries		United States	United Kingdom (HICP)	Japan	China	Memo item: euro area [3] (HICP)
							Total	excluding food and energy					
	1	2	3	4	5	6	7	8	9	10	11	12	13
2014	3.4	2.4	3.1	0.2	7.3	1.2	1.7	1.8	1.6	1.5	2.7	2.0	0.4
2015	3.3	2.6	2.2	1.2	6.9	2.0	0.6	1.7	0.1	0.0	0.8	1.4	0.0
2016	.	.	.	.	.	.	.	.	1.3	0.7	.	2.0	0.2
2016 Q1	0.7	0.2	0.3	0.7	1.2	0.5	1.0	1.9	1.1	0.3	0.0	2.1	0.0
Q2	0.7	0.4	0.6	0.5	1.9	0.3	0.8	1.8	1.0	0.4	-0.4	2.1	-0.1
Q3	0.8	0.9	0.6	0.3	1.8	0.3	1.0	1.8	1.1	0.7	-0.5	1.7	0.3
Q4	.	.	.	.	.	.	.	.	1.8	1.2	.	2.2	0.7
2016 July	-	-	-	-	-	-	0.8	1.8	0.8	0.6	-0.4	1.8	0.2
Aug.	-	-	-	-	-	-	0.9	1.8	1.1	0.6	-0.5	1.3	0.2
Sep.	-	-	-	-	-	-	1.2	1.8	1.5	1.0	-0.5	1.9	0.4
Oct.	-	-	-	-	-	-	1.3	1.7	1.6	0.9	0.1	2.1	0.5
Nov.	-	-	-	-	-	-	1.4	1.7	1.7	1.2	0.5	2.3	0.6
Dec.	-	-	-	-	-	-	.	.	2.1	1.6	.	2.1	1.1

Sources: Eurostat (col. 3, 6, 10, 13); BIS (col. 2, 4, 9, 11, 12); OECD (col. 1, 5, 7, 8).
1) Quarterly data seasonally adjusted; annual data unadjusted.
2) Data for Argentina are currently not available owing to the state of emergency in the national statistical system declared by the government of Argentina on 7 January 2016. As a consequence, Argentina is not included in the calculation of the G20 aggregate. The policy regarding the inclusion of Argentina will be reconsidered in the future depending on further developments.
3) Data refer to the changing composition of the euro area.

1.2 Main trading partners, Purchasing Managers' Index and world trade

	Purchasing Managers' Surveys (diffusion indices; s.a.)									Merchandise imports [1]		
	Composite Purchasing Managers' Index						Global Purchasing Managers' Index [2]					
	Global [2]	United States	United Kingdom	Japan	China	Memo item: euro area	Manufacturing	Services	New export orders	Global	Advanced economies	Emerging market economies
	1	2	3	4	5	6	7	8	9	10	11	12
2014	54.2	57.3	57.9	50.9	51.1	52.7	53.2	54.1	51.4	2.6	3.8	1.8
2015	53.3	55.8	56.2	51.4	50.4	53.8	51.8	53.9	50.3	1.3	3.8	-0.3
2016	51.6	52.4	53.5	50.5	51.4	53.3	51.7	52.0	50.2	.	.	.
2016 Q1	51.2	51.5	54.1	51.2	50.3	53.2	50.7	51.3	49.4	-1.1	0.5	-2.2
Q2	50.8	51.5	52.6	49.0	50.5	53.1	49.7	51.1	48.8	-0.5	0.1	-1.0
Q3	51.2	51.9	51.6	49.6	51.7	52.9	51.6	51.1	50.1	0.8	0.9	0.8
Q4	53.3	54.6	55.6	52.0	53.1	53.8	53.4	53.2	50.7	.	.	.
2016 July	51.2	51.8	47.4	50.1	51.9	53.2	51.6	51.0	49.7	0.3	0.3	0.4
Aug.	51.1	51.5	53.5	49.8	51.8	52.9	51.8	50.8	50.4	1.2	1.6	0.9
Sep.	51.5	52.3	53.9	48.9	51.4	52.6	51.6	51.4	50.2	0.8	0.9	0.8
Oct.	53.3	54.9	54.8	51.3	52.9	53.3	53.4	53.3	50.5	0.9	0.1	1.5
Nov.	53.2	54.9	55.3	52.0	52.9	53.9	53.3	53.2	50.7	.	.	.
Dec.	53.2	54.1	56.7	52.8	53.5	54.4	53.4	53.2	50.7	.	.	.

Sources: Markit (col. 1-9); CPB Netherlands Bureau for Economic Policy Analysis and ECB calculations (col. 10-12).
1) Global and advanced economies exclude the euro area. Annual and quarterly data are period-on-period percentages; monthly data are 3-month-on-3-month percentages. All data are seasonally adjusted.
2) Excluding the euro area.

2 Financial developments

2.1 Money market interest rates
(percentages per annum; period averages)

	Euro area [1]					United States	Japan
	Overnight deposits (EONIA)	1-month deposits (EURIBOR)	3-month deposits (EURIBOR)	6-month deposits (EURIBOR)	12-month deposits (EURIBOR)	3-month deposits (LIBOR)	3-month deposits (LIBOR)
	1	2	3	4	5	6	7
2014	0.09	0.13	0.21	0.31	0.48	0.23	0.13
2015	-0.11	-0.07	-0.02	0.05	0.17	0.32	0.09
2016	-0.32	-0.34	-0.26	-0.17	-0.03	0.74	-0.02
2016 June	-0.33	-0.36	-0.27	-0.16	-0.03	0.65	-0.03
July	-0.33	-0.37	-0.29	-0.19	-0.06	0.70	-0.03
Aug.	-0.34	-0.37	-0.30	-0.19	-0.05	0.81	-0.02
Sep.	-0.34	-0.37	-0.30	-0.20	-0.06	0.85	-0.03
Oct.	-0.35	-0.37	-0.31	-0.21	-0.07	0.88	-0.02
Nov.	-0.35	-0.37	-0.31	-0.21	-0.07	0.91	-0.06
Dec.	-0.35	-0.37	-0.32	-0.22	-0.08	0.98	-0.04

Source: ECB.
1) Data refer to the changing composition of the euro area, see the General Notes.

2.2 Yield curves
(End of period; rates in percentages per annum; spreads in percentage points)

	Spot rates					Spreads			Instantaneous forward rates			
	Euro area [1], [2]					Euro area [1], [2]	United States	United Kingdom	Euro area [1], [2]			
	3 months	1 year	2 years	5 years	10 years	10 years - 1 year	10 years - 1 year	10 years - 1 year	1 year	2 years	5 years	10 years
	1	2	3	4	5	6	7	8	9	10	11	12
2014	-0.02	-0.09	-0.12	0.07	0.65	0.74	1.95	1.45	-0.15	-0.11	0.58	1.77
2015	-0.45	-0.40	-0.35	0.02	0.77	1.17	1.66	1.68	-0.35	-0.22	0.82	1.98
2016	-0.93	-0.82	-0.80	-0.47	0.26	1.08	1.63	1.17	-0.78	-0.75	0.35	1.35
2016 June	-0.65	-0.65	-0.66	-0.52	-0.10	0.54	1.03	0.72	-0.66	-0.66	-0.12	0.60
July	-0.65	-0.64	-0.65	-0.55	-0.15	0.49	0.96	0.56	-0.65	-0.67	-0.19	0.55
Aug.	-0.65	-0.64	-0.65	-0.54	-0.12	0.53	0.98	0.48	-0.65	-0.66	-0.16	0.64
Sep.	-0.74	-0.72	-0.72	-0.59	-0.16	0.56	1.00	0.60	-0.71	-0.71	-0.22	0.64
Oct.	-0.82	-0.74	-0.66	-0.38	0.14	0.88	1.18	1.03	-0.65	-0.51	0.17	1.03
Nov.	-0.80	-0.80	-0.78	-0.42	0.27	1.07	1.60	1.30	-0.80	-0.69	0.39	1.29
Dec.	-0.93	-0.82	-0.80	-0.47	0.26	1.08	1.63	1.17	-0.78	-0.75	0.35	1.35

Source: ECB.
1) Data refer to the changing composition of the euro area, see the General Notes.
2) ECB calculations based on underlying data provided by EuroMTS and ratings provided by Fitch Ratings.

2.3 Stock market indices
(index levels in points; period averages)

	Dow Jones EURO STOXX indices												United States	Japan
	Benchmark		Main industry indices											
	Broad index	50	Basic materials	Consumer services	Consumer goods	Oil and gas	Financials	Industrials	Technology	Utilities	Telecoms	Health care	Standard & Poor's 500	Nikkei 225
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2014	318.7	3,145.3	644.3	216.6	510.6	335.5	180.0	452.9	310.8	279.2	306.7	668.1	1,931.4	15,460.4
2015	356.2	3,444.1	717.4	261.9	628.2	299.9	189.8	500.6	373.2	278.0	377.7	821.3	2,061.1	19,203.8
2016	321.6	3,003.7	620.7	250.9	600.1	278.9	148.7	496.0	375.8	248.6	326.9	770.9	2,094.7	16,920.5
2016 June	312.2	2,910.8	591.8	243.6	588.2	276.9	141.7	481.3	359.9	249.8	320.4	761.3	2,083.9	16,068.8
July	312.8	2,919.1	604.5	247.1	599.9	285.0	132.8	481.1	372.6	258.5	317.8	801.0	2,148.9	16,168.3
Aug.	323.2	2,992.9	637.9	253.0	621.1	284.0	138.3	510.9	391.9	255.4	320.0	785.4	2,177.5	16,586.1
Sep.	325.5	3,012.1	635.6	255.4	617.6	281.3	142.8	518.7	396.1	251.6	321.0	780.1	2,157.7	16,737.0
Oct.	327.9	3,042.3	649.8	253.5	620.8	291.0	146.7	519.1	393.0	247.2	318.4	768.8	2,143.0	17,044.5
Nov.	324.5	3,026.4	654.4	247.7	594.1	286.0	152.5	515.1	378.7	231.5	306.9	778.3	2,165.0	17,689.5
Dec.	342.6	3,207.3	698.1	253.7	619.1	313.6	165.7	541.6	396.0	237.1	320.9	797.3	2,246.6	19,066.0

Source: ECB.

2 Financial developments

2.4 MFI interest rates on loans to and deposits from households (new business) [1], [2]
(Percentages per annum; period average, unless otherwise indicated)

	Deposits				Revolving loans and overdrafts	Extended credit card credit	Loans for consumption		APRC [3]	Loans to sole proprietors and unincorporated partnerships	Loans for house purchase				APRC [3]	Composite cost-of-borrowing indicator
	Over-night	Redeemable at notice of up to 3 months	With an agreed maturity of:				By initial period of rate fixation				By initial period of rate fixation					
			Up to 2 years	Over 2 years			Floating rate and up to 1 year	Over 1 year			Floating rate and up to 1 year	Over 1 and up to 5 years	Over 5 and up to 10 years	Over 10 years		
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2015 Dec.	0.13	0.64	0.63	0.98	6.60	16.95	4.84	5.94	6.25	2.53	2.00	2.27	2.27	2.41	2.55	2.22
2016 Jan.	0.12	0.62	0.63	1.25	6.65	16.88	5.31	6.29	6.65	2.53	1.99	2.23	2.30	2.40	2.53	2.23
Feb.	0.12	0.60	0.60	0.89	6.66	16.89	5.01	6.13	6.46	2.62	2.00	2.20	2.23	2.33	2.49	2.19
Mar.	0.11	0.58	0.59	0.88	6.63	16.88	5.14	5.97	6.34	2.53	1.90	2.10	2.10	2.24	2.38	2.11
Apr.	0.11	0.57	0.58	0.85	6.54	16.82	5.19	5.99	6.33	2.56	1.86	2.09	2.17	2.23	2.41	2.09
May	0.10	0.56	0.54	0.87	6.56	16.75	5.21	6.09	6.46	2.56	1.85	2.03	2.06	2.12	2.37	2.02
June	0.09	0.54	0.56	0.85	6.54	16.80	4.96	5.87	6.18	2.44	1.81	2.00	1.97	2.01	2.32	1.97
July	0.09	0.52	0.50	0.92	6.46	16.80	5.14	5.96	6.29	2.39	1.82	1.96	1.96	1.96	2.33	1.92
Aug.	0.08	0.51	0.52	0.84	6.48	16.78	5.44	6.01	6.37	2.40	1.87	1.96	1.86	1.88	2.31	1.90
Sep.	0.08	0.50	0.50	0.79	6.50	16.78	5.17	5.75	6.14	2.34	1.80	1.98	1.85	1.85	2.28	1.86
Oct.	0.08	0.49	0.44	0.76	6.43	16.78	5.17	5.69	6.11	2.43	1.78	1.90	1.80	1.81	2.25	1.81
Nov. (p)	0.08	0.49	0.43	0.78	6.40	16.71	4.91	5.73	6.11	2.43	1.76	1.91	1.76	1.79	2.24	1.79

Source: ECB.
1) Data refer to the changing composition of the euro area.
2) Including non-profit institutions serving households.
3) Annual percentage rate of charge (APRC).

2.5 MFI interest rates on loans to and deposits from non-financial corporations (new business) [1], [2]
(Percentages per annum; period average, unless otherwise indicated)

	Deposits			Revolving loans and overdrafts	Other loans by size and initial period of rate fixation									Composite cost-of-borrowing indicator
	Over-night	With an agreed maturity of:			up to EUR 0.25 million			over EUR 0.25 and up to 1 million			over EUR 1 million			
		Up to 2 years	Over 2 years		Floating rate and up to 3 months	Over 3 months and up to 1 year	Over 1 year	Floating rate and up to 3 months	Over 3 months and up to 1 year	Over 1 year	Floating rate and up to 3 months	Over 3 months and up to 1 year	Over 1 year	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2015 Dec.	0.14	0.23	0.85	3.01	3.07	3.18	2.77	2.01	2.13	2.17	1.51	1.77	1.92	2.09
2016 Jan.	0.13	0.27	0.77	2.96	3.23	3.25	2.78	2.00	2.22	2.17	1.43	1.67	2.07	2.10
Feb.	0.13	0.24	0.70	2.93	3.16	3.28	2.76	1.97	2.11	2.09	1.37	1.48	1.74	2.03
Mar.	0.13	0.16	0.87	2.89	3.03	3.20	2.68	1.92	2.03	2.02	1.38	1.74	1.77	2.04
Apr.	0.12	0.19	0.64	2.80	2.99	3.12	2.66	1.93	1.96	1.98	1.38	1.59	1.81	2.01
May	0.11	0.13	0.63	2.76	2.91	3.10	2.61	1.91	1.94	1.92	1.27	1.67	1.74	1.92
June	0.11	0.15	0.64	2.75	2.66	3.00	2.52	1.85	1.90	1.85	1.34	1.60	1.64	1.89
July	0.09	0.16	0.42	2.70	2.73	3.07	2.47	1.86	1.91	1.80	1.28	1.56	1.69	1.87
Aug.	0.09	0.16	0.47	2.74	2.68	3.01	2.46	1.86	1.94	1.79	1.22	1.48	1.54	1.83
Sep.	0.09	0.12	0.47	2.72	2.65	2.95	2.42	1.82	1.85	1.73	1.28	1.61	1.63	1.86
Oct.	0.08	0.15	0.49	2.68	2.63	3.04	2.37	1.81	1.83	1.72	1.28	1.40	1.63	1.83
Nov. (p)	0.07	0.12	0.42	2.65	2.60	2.89	2.38	1.82	1.82	1.68	1.29	1.43	1.51	1.82

Source: ECB.
1) Data refer to the changing composition of the euro area.
2) In accordance with the ESA 2010, in December 2014 holding companies of non-financial groups were reclassified from the non-financial corporations sector to the financial corporations sector.

2 Financial developments

2.6 Debt securities issued by euro area residents, by sector of the issuer and initial maturity
(EUR billions; transactions during the month and end-of-period outstanding amounts; nominal values)

	Outstanding amounts							Gross issues [1]						
	Total	MFIs (including Euro-system)	Non-MFI corporations			General government		Total	MFIs (including Euro-system)	Non-MFI corporations			General government	
			Financial corporations other than MFIs	FVCs	Non-financial corporations	Central govern-ment	Other general govern-ment			Financial corporations other than MFIs	FVCs	Non-financial corporations	Central govern-ment	Other general govern-ment
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
					Short-term									
2013	1,255	483	124	.	67	529	53	508	314	31	.	44	99	21
2014	1,321	544	131	.	59	538	50	410	219	34	.	38	93	25
2015	1,278	517	156	.	61	478	65	337	153	37	.	32	82	34
2016 June	1,295	525	140	.	68	493	69	313	141	38	.	27	80	27
July	1,285	524	137	.	72	486	66	354	160	43	.	36	78	38
Aug.	1,301	526	151	.	70	484	70	321	142	51	.	24	77	26
Sep.	1,315	541	149	.	69	492	65	354	159	44	.	30	86	36
Oct.	1,291	531	139	.	71	484	67	341	156	43	.	35	69	37
Nov.	1,300	537	142	.	70	487	65	333	139	48	.	32	88	26
					Long-term									
2013	15,114	4,403	3,095	.	919	6,069	628	223	70	39	.	16	90	9
2014	15,140	4,055	3,165	.	992	6,285	642	221	66	43	.	16	85	10
2015	15,244	3,784	3,284	.	1,058	6,481	637	215	67	45	.	13	81	9
2016 June	15,235	3,739	3,117	.	1,078	6,663	638	222	78	42	.	13	79	10
July	15,187	3,706	3,129	.	1,082	6,630	641	208	58	47	.	10	84	9
Aug.	15,173	3,700	3,124	.	1,081	6,628	640	99	32	17	.	3	42	5
Sep.	15,194	3,685	3,141	.	1,099	6,630	638	219	53	46	.	29	84	7
Oct.	15,222	3,676	3,172	.	1,106	6,618	651	241	56	62	.	22	82	18
Nov.	15,305	3,668	3,204	.	1,129	6,653	652	213	43	62	.	26	76	7

Source: ECB.
1) For the purpose of comparison, annual data refer to the average monthly figure over the year.

2.7 Growth rates and outstanding amounts of debt securities and listed shares
(EUR billions; percentage changes)

	Debt securities							Listed shares			
	Total	MFIs (including Eurosystem)	Non-MFI corporations			General government		Total	MFIs	Financial corporations other than MFIs	Non-financial corporations
			Financial corporations other than MFIs	FVCs	Non-financial corporations	Central government	Other general government				
	1	2	3	4	5	6	7	8	9	10	11
					Oustanding amount						
2013	16,369.4	4,886.1	3,219.3	.	985.8	6,598.1	680.0	5,649.0	569.1	742.5	4,337.4
2014	16,460.9	4,598.5	3,295.8	.	1,050.7	6,823.2	692.7	5,958.0	591.1	780.6	4,586.3
2015	16,521.8	4,301.4	3,440.0	.	1,118.7	6,959.7	701.9	6,744.7	586.1	911.6	5,247.0
2016 June	16,530.3	4,263.6	3,257.0	.	1,146.0	7,156.3	707.4	6,210.2	395.0	862.0	4,953.2
July	16,471.6	4,230.0	3,265.4	.	1,153.6	7,115.9	706.7	6,494.8	427.0	874.1	5,193.7
Aug.	16,474.3	4,226.2	3,275.3	.	1,151.1	7,112.3	709.5	6,535.7	444.7	881.4	5,209.6
Sep.	16,509.3	4,225.7	3,289.7	.	1,168.2	7,122.0	703.7	6,593.0	427.5	878.0	5,287.5
Oct.	16,513.5	4,207.3	3,310.4	.	1,176.8	7,101.3	717.6	6,665.7	479.2	912.9	5,273.7
Nov.	16,605.6	4,205.6	3,345.4	.	1,198.8	7,139.7	716.4	6,644.4	480.5	957.4	5,206.6
					Growth rate						
2013	-1.4	-8.9	-3.3	.	8.0	4.5	-1.1	0.8	7.2	-0.1	0.2
2014	-0.7	-7.8	0.4	.	5.0	3.1	1.1	1.6	7.2	2.0	0.7
2015	0.2	-7.1	5.7	.	4.7	1.8	0.6	1.1	4.5	1.5	0.6
2016 June	-0.2	-4.6	-1.6	.	4.8	2.1	2.7	0.9	2.7	1.6	0.6
July	-0.1	-4.7	-1.0	.	4.4	2.2	2.8	0.9	2.8	1.6	0.6
Aug.	0.1	-4.5	0.2	.	4.0	2.1	2.1	0.9	2.8	1.6	0.6
Sep.	0.0	-3.6	-0.8	.	5.6	1.6	1.9	0.9	2.8	1.7	0.6
Oct.	-0.3	-3.9	-1.6	.	6.3	1.3	3.2	0.9	2.8	1.4	0.6
Nov.	-0.1	-4.2	-0.6	.	7.2	1.5	1.0	0.9	2.8	1.0	0.7

Source: ECB.

2 Financial developments

2.8 Effective exchange rates [1]
(period averages; index: 1999 Q1=100)

	EER-19						EER-38	
	Nominal	Real CPI	Real PPI	Real GDP deflator	Real ULCM [2]	Real ULCT	Nominal	Real CPI
	1	2	3	4	5	6	7	8
2014	101.8	97.8	96.8	91.9	98.5	100.0	114.7	96.0
2015	92.4	88.4	89.1	83.7	85.0	90.9	106.5	87.8
2016	94.8	90.1	91.2	.	.	.	110.4	90.0
2016 Q1	94.1	89.5	90.8	85.6	85.4	91.9	110.4	90.1
Q2	94.9	90.3	91.5	86.1	85.5	92.2	110.8	90.4
Q3	95.2	90.5	91.5	86.2	86.1	92.2	110.6	90.1
Q4	94.9	90.1	91.1	.	.	.	110.0	89.5
2016 July	94.9	90.4	91.4	-	-	-	110.2	89.9
Aug.	95.2	90.6	91.6	-	-	-	110.6	90.2
Sep.	95.4	90.6	91.6	-	-	-	110.9	90.3
Oct.	95.5	90.8	91.7	-	-	-	110.6	90.1
Nov.	95.0	90.1	91.2	-	-	-	110.3	89.6
Dec.	94.2	89.3	90.4	-	-	-	109.2	88.7
	Percentage change versus previous month							
2016 Dec.	-0.8	-0.9	-0.9	-	-	-	-1.0	-1.1
	Percentage change versus previous year							
2016 Dec.	1.8	1.2	1.2	-	-	-	1.1	0.4

Source: ECB.
1) For a definition of the trading partner groups and other information see the General Notes to the Statistics Bulletin.
2) ULCM-deflated series are available only for the EER-18 trading partner group.

2.9 Bilateral exchange rates
(period averages; units of national currency per euro)

	Chinese renminbi	Croatian kuna	Czech koruna	Danish krone	Hungarian forint	Japanese yen	Polish zloty	Pound sterling	Romanian leu	Swedish krona	Swiss franc	US Dollar
	1	2	3	4	5	6	7	8	9	10	11	12
2014	8.186	7.634	27.536	7.455	308.706	140.306	4.184	0.806	4.4437	9.099	1.215	1.329
2015	6.973	7.614	27.279	7.459	309.996	134.314	4.184	0.726	4.4454	9.353	1.068	1.110
2016	7.352	7.533	27.034	7.445	311.438	120.197	4.363	0.819	4.4904	9.469	1.090	1.107
2016 Q1	7.210	7.617	27.040	7.461	312.024	126.997	4.365	0.770	4.4924	9.327	1.096	1.102
Q2	7.379	7.504	27.040	7.439	313.371	121.949	4.372	0.787	4.4986	9.278	1.096	1.129
Q3	7.443	7.493	27.029	7.442	311.016	114.292	4.338	0.850	4.4646	9.511	1.089	1.117
Q4	7.369	7.523	27.029	7.439	309.342	117.918	4.378	0.869	4.5069	9.757	1.080	1.079
2016 July	7.391	7.493	27.042	7.439	314.353	115.250	4.396	0.841	4.4856	9.474	1.087	1.107
Aug.	7.454	7.487	27.025	7.441	310.205	113.487	4.300	0.855	4.4591	9.491	1.088	1.121
Sep.	7.482	7.500	27.022	7.447	308.678	114.218	4.321	0.852	4.4502	9.565	1.092	1.121
Oct.	7.420	7.507	27.022	7.440	307.000	114.473	4.308	0.894	4.4942	9.707	1.089	1.103
Nov.	7.388	7.521	27.033	7.441	308.816	116.933	4.391	0.869	4.5100	9.851	1.076	1.080
Dec.	7.298	7.540	27.031	7.436	312.235	122.395	4.436	0.844	4.5164	9.709	1.075	1.054
	Percentage change versus previous month											
2016 Dec.	-1.2	0.3	0.0	-0.1	1.1	4.7	1.0	-2.8	0.1	-1.4	-0.1	-2.4
	Percentage change versus previous year											
2016 Dec.	4.0	-1.3	0.0	-0.3	-0.7	-7.5	3.4	16.3	0.3	5.0	-0.7	-3.1

Source: ECB.

2 Financial developments

2.10 Euro area balance of payments, financial account
(EUR billions, unless otherwise indicated; outstanding amounts at end of period; transactions during period)

	Total [1]			Direct investment		Portfolio investment		Net financial derivatives	Other investment		Reserve assets	Memo: Gross external debt
	Assets	Liabilities	Net	Assets	Liabilities	Assets	Liabilities		Assets	Liabilities		
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts (international investment position)												
2015 Q4	22,234.9	23,309.5	-1,074.5	9,813.6	8,082.4	7,175.8	10,301.2	-44.6	4,645.8	4,925.9	644.2	13,003.5
2016 Q1	22,100.4	23,177.4	-1,077.0	9,675.5	7,997.6	7,111.3	10,108.7	-21.8	4,660.0	5,071.1	675.3	13,236.7
Q2	22,655.4	23,592.2	-936.9	9,808.6	8,199.1	7,428.4	10,144.1	-54.0	4,750.5	5,249.0	721.8	13,379.8
Q3	22,850.8	23,717.5	-866.6	9,746.7	8,053.4	7,689.8	10,288.3	-49.2	4,736.5	5,375.8	727.0	13,362.6
Outstanding amounts as a percentage of GDP												
2016 Q3	214.2	222.3	-8.1	91.3	75.5	72.1	96.4	-0.5	44.4	50.4	6.8	125.2
Transactions												
2015 Q4	153.3	-3.1	156.4	227.7	207.2	111.6	-11.2	55.7	-246.3	-199.1	4.6	-
2016 Q1	385.6	381.0	4.6	113.8	74.8	134.1	40.6	27.3	109.3	265.6	1.0	-
Q2	205.9	143.7	62.3	-13.5	24.6	122.3	-34.2	-44.6	139.5	153.3	2.2	-
Q3	205.0	39.3	165.7	37.5	-87.8	138.2	-29.6	26.0	-4.4	156.7	7.7	-
2016 June	-56.1	-85.9	29.8	-56.1	-4.7	42.8	15.2	-10.3	-33.2	-96.4	0.7	-
July	135.6	111.2	24.4	5.1	-26.7	53.6	-5.2	14.7	63.0	143.2	-0.9	-
Aug.	126.1	74.2	51.9	44.5	2.3	54.2	-16.2	6.7	18.8	88.1	1.8	-
Sep.	-56.7	-146.1	89.5	-12.2	-63.4	30.4	-8.2	4.6	-86.3	-74.6	6.8	-
Oct.	244.2	253.3	-9.1	95.9	24.6	-12.0	-8.7	8.8	155.6	237.4	-4.1	-
Nov.	43.4	10.9	32.5	52.3	20.2	-22.4	16.0	2.4	8.8	-25.3	2.2	-
12-month cumulated transactions												
2016 Nov.	1,028.2	694.0	334.2	427.4	142.5	389.9	-53.4	41.6	152.2	604.9	17.2	-
12-month cumulated transactions as a percentage of GDP												
2016 Nov.	9.6	6.5	3.1	4.0	1.3	3.7	-0.5	0.4	1.4	5.7	0.2	-

Source: ECB.
1) Net financial derivatives are included in total assets.

3 Economic activity

3.1 GDP and expenditure components
(quarterly data seasonally adjusted; annual data unadjusted)

		GDP								External balance [1]		
	Total	Domestic demand										
		Total	Private consumption	Government consumption	Gross fixed capital formation				Changes in inventories [2]	Total	Exports [1]	Imports [1]
						Total construction	Total machinery	Intellectual property products				
	1	2	3	4	5	6	7	8	9	10	11	12
Current prices (EUR billions)												
2013	9,932.1	9,602.3	5,561.2	2,094.5	1,947.0	1,000.7	572.3	369.0	-0.4	329.9	4,370.2	4,040.3
2014	10,133.2	9,775.3	5,633.7	2,125.1	1,986.4	1,000.5	598.7	382.2	30.2	357.9	4,532.8	4,174.9
2015	10,455.8	9,981.2	5,744.1	2,163.9	2,063.1	1,018.5	631.8	407.6	10.1	474.6	4,831.6	4,357.1
2015 Q4	2,642.9	2,523.7	1,446.8	546.7	525.4	258.5	162.8	102.8	4.8	119.2	1,215.0	1,095.8
2016 Q1	2,659.3	2,533.0	1,454.2	551.2	526.1	259.7	163.0	102.1	1.5	126.3	1,199.4	1,073.1
Q2	2,671.6	2,547.1	1,461.1	554.1	533.5	260.4	164.3	107.4	-1.5	124.5	1,212.8	1,088.3
Q3	2,683.0	2,561.6	1,467.4	558.2	536.0	262.7	163.7	108.2	0.0	121.3	1,216.4	1,095.0
as a percentage of GDP												
2015	100.0	95.5	54.9	20.7	19.7	9.7	6.0	3.9	0.1	4.5	-	-
Chain-linked volumes (prices for the previous year)												
quarter-on-quarter percentage changes												
2015 Q4	0.5	0.8	0.4	0.6	1.3	1.3	3.0	-1.3	-	-	0.8	1.5
2016 Q1	0.5	0.4	0.7	0.6	0.4	1.0	0.1	-0.8	-	-	0.2	-0.1
Q2	0.3	0.3	0.2	0.4	1.2	-0.4	1.0	5.5	-	-	1.2	1.2
Q3	0.3	0.4	0.3	0.5	0.2	0.7	-1.1	0.7	-	-	0.1	0.2
annual percentage changes												
2013	-0.3	-0.6	-0.6	0.3	-2.5	-3.5	-2.7	0.7	-	-	2.1	1.4
2014	1.2	1.2	0.8	0.6	1.4	-0.9	4.4	3.1	-	-	4.5	4.9
2015	2.0	1.8	1.8	1.4	3.2	1.3	4.6	5.6	-	-	6.5	6.4
2015 Q4	2.0	2.3	1.7	1.8	3.9	2.6	5.4	4.8	-	-	5.0	5.9
2016 Q1	1.7	2.1	1.9	2.0	2.4	2.1	4.1	0.7	-	-	2.4	3.4
Q2	1.7	2.2	1.7	2.0	3.6	2.2	5.1	4.9	-	-	2.5	3.8
Q3	1.7	1.9	1.6	2.0	3.0	2.7	2.9	4.1	-	-	2.2	2.9
contributions to quarter-on-quarter percentage changes in GDP; percentage points												
2015 Q4	0.5	0.8	0.2	0.1	0.3	0.1	0.2	-0.1	0.2	-0.3	-	-
2016 Q1	0.5	0.4	0.4	0.1	0.1	0.1	0.0	0.0	-0.2	0.1	-	-
Q2	0.3	0.3	0.1	0.1	0.2	0.0	0.1	0.2	-0.2	0.0	-	-
Q3	0.3	0.4	0.2	0.1	0.0	0.1	-0.1	0.0	0.1	-0.1	-	-
contributions to annual percentage changes in GDP; percentage points												
2013	-0.3	-0.6	-0.3	0.1	-0.5	-0.4	-0.2	0.0	0.2	0.4	-	-
2014	1.2	1.2	0.5	0.1	0.3	-0.1	0.3	0.1	0.3	0.0	-	-
2015	2.0	1.8	1.0	0.3	0.6	0.1	0.3	0.2	-0.1	0.3	-	-
2015 Q4	2.0	2.2	1.0	0.4	0.8	0.3	0.3	0.2	0.1	-0.2	-	-
2016 Q1	1.7	2.0	1.1	0.4	0.5	0.2	0.2	0.0	0.0	-0.3	-	-
Q2	1.7	2.1	0.9	0.4	0.7	0.2	0.3	0.2	0.0	-0.4	-	-
Q3	1.7	1.8	0.9	0.4	0.6	0.3	0.2	0.2	-0.1	-0.2	-	-

Sources: Eurostat and ECB calculations.
1) Exports and imports cover goods and services and include cross-border intra-euro area trade.
2) Including acquisitions less disposals of valuables.

3 Economic activity

3.2 Value added by economic activity
(quarterly data seasonally adjusted; annual data unadjusted)

		Gross value added (basic prices)										Taxes less subsidies on products
	Total	Agriculture, forestry and fishing	Manufacturing energy and utilities	Const-ruction	Trade, transport, accom-modation and food services	Infor-mation and com-munica-tion	Finance and insurance	Real estate	Professional, business and support services	Public ad-ministration, education, health and social work	Arts, enter-tainment and other services	
	1	2	3	4	5	6	7	8	9	10	11	12
						Current prices (EUR billions)						
2013	8,926.8	155.4	1,740.0	460.5	1,671.6	409.6	445.7	1,035.2	945.2	1,747.8	315.8	1,005.4
2014	9,099.0	149.9	1,777.1	460.8	1,711.5	415.2	461.0	1,044.8	978.6	1,778.6	321.4	1,034.3
2015	9,383.5	150.5	1,883.4	465.9	1,766.3	428.2	460.0	1,062.9	1,022.5	1,816.7	327.1	1,072.3
2015 Q4	2,369.7	38.6	474.3	117.9	446.1	108.8	113.4	268.3	260.7	458.8	82.7	273.2
2016 Q1	2,386.0	36.3	478.7	119.9	449.3	109.5	113.9	269.8	262.2	462.3	84.1	273.3
Q2	2,394.9	36.1	477.3	120.4	451.6	110.3	113.2	271.7	265.5	464.7	84.3	276.7
Q3	2,404.7	36.1	479.1	121.1	453.2	110.7	113.0	272.7	266.8	467.5	84.4	278.2
						as a percentage of value added						
2015	100.0	1.6	20.1	5.0	18.8	4.6	4.9	11.3	10.9	19.4	3.5	-
					Chain-linked volumes (prices for the previous year)							
						quarter-on-quarter percentage changes						
2015 Q4	0.4	1.2	0.2	1.0	0.5	0.1	0.1	0.3	0.7	0.3	0.5	1.5
2016 Q1	0.5	-0.6	0.2	0.9	0.9	0.9	1.0	0.1	0.7	0.5	0.9	0.1
Q2	0.3	0.0	0.1	-0.1	0.4	0.9	-0.4	0.2	1.0	0.2	0.1	0.5
Q3	0.3	-0.6	0.4	0.5	0.4	0.6	0.1	0.1	0.3	0.3	0.3	0.5
						annual percentage changes						
2013	-0.1	2.4	-0.7	-3.6	-0.9	1.9	0.4	1.4	0.3	0.2	-0.9	-1.2
2014	1.2	1.2	2.3	-1.1	1.3	3.3	-1.4	0.6	2.3	0.5	0.2	1.2
2015	1.9	-0.7	4.1	-0.2	2.1	2.8	-0.4	0.8	3.0	1.0	0.0	3.3
2015 Q4	1.8	0.7	3.8	1.0	1.7	2.0	-0.6	0.9	3.0	0.9	0.4	3.6
2016 Q1	1.5	-0.4	1.6	1.2	2.0	2.5	0.3	0.8	2.7	1.0	1.4	3.3
Q2	1.6	0.5	1.2	1.4	2.1	2.7	-0.1	1.0	3.2	1.2	1.8	2.4
Q3	1.6	0.0	0.9	2.4	2.2	2.4	0.8	0.8	2.8	1.3	1.7	2.6
				contributions to quarter-on-quarter percentage changes in value added; percentage points								
2015 Q4	0.4	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	-
2016 Q1	0.5	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.1	0.0	-
Q2	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	-
Q3	0.3	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	-
				contributions to annual percentage changes in value added; percentage points								
2013	-0.1	0.0	-0.1	-0.2	-0.2	0.1	0.0	0.2	0.0	0.0	0.0	-
2014	1.2	0.0	0.4	-0.1	0.2	0.2	-0.1	0.1	0.2	0.1	0.0	-
2015	1.9	0.0	0.8	0.0	0.4	0.1	0.0	0.1	0.3	0.2	0.0	-
2015 Q4	1.8	0.0	0.7	0.1	0.3	0.1	0.0	0.1	0.3	0.2	0.0	-
2016 Q1	1.5	0.0	0.3	0.1	0.4	0.1	0.0	0.1	0.3	0.2	0.0	-
Q2	1.6	0.0	0.2	0.1	0.4	0.1	0.0	0.1	0.3	0.2	0.1	-
Q3	1.6	0.0	0.2	0.1	0.4	0.1	0.0	0.1	0.3	0.3	0.1	-

Sources: Eurostat and ECB calculations.

3 Economic activity

3.3 Employment [1]
(quarterly data seasonally adjusted; annual data unadjusted)

	Total	By employment status		By economic activity									
		Employees	Self-employed	Agriculture, forestry and fishing	Manufacturing, energy and utilities	Construction	Trade, transport, accommodation and food services	Information and communication	Finance and insurance	Real estate	Professional, business and support services	Public administration, education, health and social work	Arts, entertainment and other services
	1	2	3	4	5	6	7	8	9	10	11	12	13
Persons employed													
as a percentage of total persons employed													
2013	100.0	85.0	15.0	3.4	15.2	6.2	24.7	2.7	2.7	1.0	12.9	24.1	7.1
2014	100.0	85.0	15.0	3.4	15.1	6.1	24.8	2.7	2.7	1.0	13.1	24.2	7.1
2015	100.0	85.2	14.8	3.3	14.9	6.0	24.8	2.7	2.6	1.0	13.3	24.1	7.1
annual percentage changes													
2013	-0.6	-0.6	-0.8	-1.8	-1.3	-3.6	-0.9	0.4	-1.3	-1.4	0.4	0.3	0.4
2014	0.6	0.6	0.1	0.0	-0.4	-1.7	0.7	0.6	-0.8	0.8	2.1	1.0	0.5
2015	1.0	1.2	0.0	-0.9	0.1	0.0	1.1	1.2	-0.5	0.8	3.0	0.9	1.1
2015 Q4	1.2	1.5	-0.3	-1.0	0.3	0.0	1.5	1.7	-0.7	0.2	3.2	1.0	1.6
2016 Q1	1.4	1.7	-0.5	-0.9	0.7	-0.1	1.7	2.4	-0.4	1.1	3.3	1.0	1.9
Q2	1.4	1.6	-0.1	-0.4	0.6	-0.2	1.9	2.0	-0.4	0.3	3.0	1.1	1.6
Q3	1.2	1.4	-0.1	0.3	0.6	-0.1	1.7	1.8	-0.3	1.4	2.6	1.0	1.2
Hours worked													
as a percentage of total hours worked													
2013	100.0	80.1	19.9	4.4	15.7	6.9	25.7	2.8	2.7	1.0	12.5	21.8	6.3
2014	100.0	80.3	19.7	4.4	15.6	6.8	25.7	2.9	2.7	1.0	12.8	22.0	6.3
2015	100.0	80.5	19.5	4.3	15.5	6.8	25.6	2.9	2.7	1.0	13.0	22.0	6.3
annual percentage changes													
2013	-1.4	-1.3	-1.7	-1.5	-1.5	-5.0	-1.7	0.1	-1.9	-2.7	-0.6	-0.2	-1.0
2014	0.5	0.8	-0.5	-0.5	0.0	-1.4	0.4	0.6	-0.9	0.6	2.2	1.1	0.2
2015	1.1	1.4	0.2	0.2	0.5	0.6	0.9	2.1	-0.5	1.1	3.2	1.1	1.1
2015 Q4	1.2	1.4	0.2	0.1	0.1	0.7	1.3	2.2	-0.4	-0.6	3.2	1.1	1.6
2016 Q1	1.5	1.8	0.2	0.7	0.9	0.4	1.7	3.0	0.0	1.0	3.9	1.0	1.1
Q2	1.5	1.7	1.0	0.5	1.0	0.0	2.0	2.5	0.4	0.4	3.6	0.9	1.8
Q3	1.1	1.3	-0.1	0.5	0.6	-0.2	1.7	1.7	-0.2	0.1	2.2	0.7	0.7
Hours worked per person employed													
annual percentage changes													
2013	-0.8	-0.7	-0.9	0.2	-0.2	-1.5	-0.8	-0.2	-0.7	-1.4	-1.1	-0.5	-1.4
2014	0.0	0.1	-0.6	-0.6	0.4	0.3	-0.3	0.0	-0.1	-0.2	0.1	0.1	-0.3
2015	0.1	0.2	0.2	1.2	0.4	0.5	-0.2	0.9	0.0	0.2	0.2	0.2	0.0
2015 Q4	0.0	-0.1	0.6	1.1	-0.2	0.7	-0.3	0.4	0.3	-0.8	0.0	0.0	0.0
2016 Q1	0.2	0.1	0.7	1.6	0.3	0.5	0.0	0.6	0.3	-0.1	0.6	-0.1	-0.8
Q2	0.2	0.0	1.1	0.8	0.4	0.2	0.0	0.4	0.8	0.2	0.6	-0.2	0.2
Q3	-0.2	-0.1	0.0	0.2	0.0	-0.1	0.0	-0.1	0.1	-1.3	-0.4	-0.3	-0.4

Sources: Eurostat and ECB calculations.
1) Data for employment are based on the ESA 2010.

3 Economic activity

3.4 Labour force, unemployment and job vacancies
(seasonally adjusted, unless otherwise indicated)

	Labour force, millions [1]	Under-employ-ment, % of labour force [1]	Unemployment											Job vacancy rate [2]
			Total		Long-term unemploy-ment, % of labour force [1]	By age				By gender				
			Millions	% of labour force		Adult		Youth		Male		Female		% of total posts
						Millions	% of labour force	Millions	% of labour force	Millions	% of labour force	Millions	% of labour force	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
% of total in 2015			100.0			81.3		18.7		53.6		46.4		
2013	159.359	4.6	19.226	12.0	5.9	15.627	10.7	3.599	24.4	10.305	11.9	8.921	12.1	1.4
2014	160.334	4.6	18.634	11.6	6.1	15.213	10.4	3.421	23.7	9.931	11.5	8.702	11.8	1.5
2015	160.600	4.6	17.443	10.9	5.6	14.295	9.8	3.148	22.3	9.253	10.7	8.190	11.0	1.5
2015 Q4	161.147	4.5	16.907	10.5	5.4	13.840	9.4	3.068	21.9	8.936	10.3	7.972	10.7	1.6
2016 Q1	161.013	4.5	16.639	10.3	5.2	13.630	9.3	3.009	21.5	8.724	10.0	7.915	10.6	1.7
Q2	161.849	4.5	16.384	10.1	5.1	13.398	9.1	2.986	21.1	8.513	9.8	7.871	10.5	1.7
Q3	162.465	.	16.157	10.0	.	13.193	8.9	2.964	20.9	8.412	9.6	7.745	10.3	1.6
2016 June	-	-	16.344	10.1	-	13.364	9.0	2.980	21.0	8.498	9.7	7.846	10.5	-
July	-	-	16.220	10.0	-	13.249	8.9	2.971	20.9	8.438	9.7	7.782	10.4	-
Aug.	-	-	16.181	10.0	-	13.212	8.9	2.969	20.9	8.413	9.6	7.768	10.4	-
Sep.	-	-	16.069	9.9	-	13.117	8.8	2.952	20.8	8.386	9.6	7.684	10.2	-
Oct.	-	-	15.913	9.8	-	12.954	8.7	2.959	20.9	8.350	9.5	7.563	10.1	-
Nov.	-	-	15.898	9.8	-	12.890	8.7	3.007	21.2	8.355	9.5	7.543	10.1	-

Sources: Eurostat and ECB calculations.
1) Not seasonally adjusted.
2) The job vacancy rate is equal to the number of job vacancies divided by the sum of the number of occupied posts and the number of job vacancies, expressed as a percentage.

3.5 Short-term business statistics

	Industrial production						Con-struction produc-tion	ECB indicator on industrial new orders	Retail sales				New passenger car regis-trations
	Total (excluding construction)		Main Industrial Groupings						Total	Food, beverages, tobacco	Non-food	Fuel	
		Manu-facturing	Inter-mediate goods	Capital goods	Consumer goods	Energy							
	1	2	3	4	5	6	7	8	9	10	11	12	13
% of total in 2010	100.0	86.0	33.6	29.2	22.5	14.7	100.0	100.0	100.0	39.3	51.5	9.1	100.0
						annual percentage changes							
2014	0.9	1.8	1.3	1.7	2.6	-5.3	2.0	3.1	1.4	0.7	2.4	-0.1	3.8
2015	2.0	2.3	1.0	3.6	2.3	0.8	-0.8	3.6	2.7	1.7	3.5	2.4	8.8
2016	.	.	.	.	.	.	.	.	.	.	.	.	7.2
2016 Q1	1.3	1.9	1.9	2.9	1.0	-3.7	2.6	0.6	2.2	1.6	2.8	1.4	9.5
Q2	1.1	1.1	1.2	1.4	1.0	-1.0	-0.1	-2.2	1.7	0.6	2.7	2.2	8.5
Q3	1.1	1.3	1.5	1.0	1.3	-0.6	3.0	0.1	1.3	1.2	1.4	2.2	6.5
Q4	.	.	.	.	.	.	.	.	.	.	.	.	4.0
2016 July	-0.3	0.2	0.7	-1.2	1.9	-4.7	3.9	-3.3	1.9	1.4	2.3	2.9	5.8
Aug.	2.4	2.6	2.7	3.5	0.6	1.9	1.9	2.1	1.2	0.5	1.8	1.6	3.9
Sep.	1.4	1.4	1.5	1.2	1.3	1.4	1.8	1.7	1.0	1.8	0.1	2.1	9.4
Oct.	0.8	0.5	1.0	1.3	-0.8	2.3	1.8	2.6	3.0	2.3	3.9	1.2	4.2
Nov.	3.2	2.7	2.5	3.1	3.1	5.9	0.0	.	2.3	1.8	2.9	1.9	4.5
Dec.	.	.	.	.	.	.	.	.	.	.	.	.	3.1
						month-on-month percentage changes (s.a.)							
2016 July	-0.6	-0.7	-0.3	-1.9	0.4	0.7	1.3	-1.5	0.3	0.8	-0.3	2.0	-0.3
Aug.	1.9	2.1	1.8	4.2	0.0	3.4	0.1	2.5	-0.1	-0.2	0.0	0.1	-0.3
Sep.	-0.8	-1.0	-0.6	-2.0	-0.8	0.1	-0.8	-1.1	-0.3	0.5	-1.1	0.2	4.3
Oct.	0.1	-0.1	-0.2	1.2	-1.0	1.1	0.4	2.2	1.4	0.2	2.8	-1.3	-4.0
Nov.	1.5	1.5	1.6	0.1	2.5	1.2	0.4	.	-0.4	-0.4	-0.9	1.0	2.4
Dec.	.	.	.	.	.	.	.	.	.	.	.	.	2.5

Sources: Eurostat, ECB calculations, ECB experimental statistics (col. 8) and European Automobile Manufacturers Association (col. 13).

3 Economic activity

3.6 Opinion surveys
(seasonally adjusted)

	European Commission Business and Consumer Surveys (percentage balances, unless otherwise indicated)								Purchasing Managers' Surveys (diffusion indices)			
	Economic sentiment indicator (long-term average = 100)	Manufacturing industry		Consumer confidence indicator	Construction confidence indicator	Retail trade confid-ence indicator	Service industries		Purchasing Managers' Index (PMI) for manu-facturing	Manu-facturing output	Business activity for services	Composite output
		Industrial confidence indicator	Capacity utilisation (%)				Services confidence indicator	Capacity utilisation (%)				
	1	2	3	4	5	6	7	8	9	10	11	12
1999-13	100.0	-6.1	80.7	-12.8	-13.6	-8.7	6.9	-	51.0	52.4	52.9	52.7
2014	101.5	-3.8	80.5	-10.2	-26.4	-3.1	4.9	87.7	51.8	53.3	52.5	52.7
2015	104.2	-3.1	81.4	-6.2	-22.5	1.6	9.3	88.4	52.2	53.4	54.0	53.8
2016	104.9	-2.6	.	-7.7	-16.6	1.4	11.2	.	52.5	53.6	53.1	53.3
2016 Q1	104.0	-3.8	81.7	-8.3	-18.9	1.9	10.8	88.8	51.7	52.9	53.3	53.2
Q2	104.3	-3.4	81.5	-7.8	-18.4	1.8	11.3	89.0	52.0	53.0	53.1	53.1
Q3	104.3	-2.9	82.0	-8.2	-15.9	0.3	10.4	89.2	52.1	53.7	52.6	52.9
Q4	106.9	-0.5	.	-6.4	-13.0	1.7	12.4	.	54.0	54.9	53.5	53.8
2016 July	104.5	-2.6	81.6	-7.9	-16.3	1.7	11.2	89.0	52.0	53.9	52.9	53.2
Aug.	103.5	-4.3	-	-8.5	-15.8	-1.1	9.9	-	51.7	53.3	52.8	52.9
Sep.	104.9	-1.8	-	-8.2	-15.6	0.4	10.0	-	52.6	53.8	52.2	52.6
Oct.	106.4	-0.6	82.3	-8.0	-14.2	0.4	12.1	89.4	53.5	54.6	52.8	53.3
Nov.	106.6	-1.1	-	-6.2	-12.8	1.5	12.2	-	53.7	54.1	53.8	53.9
Dec.	107.8	0.1	-	-5.1	-12.0	3.2	12.9	-	54.9	56.1	53.7	54.4

Sources: European Commission (Directorate-General for Economic and Financial Affairs) (col. 1-8) and Markit (col. 9-12).

3.7 Summary accounts for households and non-financial corporations
(current prices, unless otherwise indicated; not seasonally adjusted)

	Households							Non-financial corporations					
	Saving ratio (gross) [1]	Debt ratio	Real gross disposable income	Financial investment	Non-financial investment (gross)	Net worth [2]	Hous-ing wealth	Profit share [3]	Saving ratio (net)	Debt ratio [4]	Financial investment	Non-financial investment (gross)	Finan-cing
	Percentage of gross disposable income (adjusted)		Annual percentage changes					Percentage of net value added		Percent-age of GDP	Annual percentage changes		
	1	2	3	4	5	6	7	8	9	10	11	12	13
2013	12.5	95.5	-0.5	1.2	-4.9	0.9	-1.4	32.5	4.2	129.5	2.0	-0.1	0.7
2014	12.5	94.7	0.8	1.8	0.6	2.6	1.0	33.0	4.8	130.9	2.4	6.5	1.3
2015	12.3	94.1	1.8	2.0	2.4	3.4	2.7	34.2	6.1	133.3	3.8	2.5	2.1
2015 Q4	12.3	94.1	1.8	2.0	5.4	3.4	2.7	34.2	6.1	133.3	3.8	4.6	2.1
2016 Q1	12.4	93.6	2.4	1.9	3.7	2.1	3.4	33.5	5.8	132.8	3.7	4.8	2.1
Q2	12.5	93.6	2.5	2.3	5.6	3.2	3.8	33.7	6.1	133.3	3.9	4.5	2.2
Q3	.	.	1.7	2.2	5.3	4.4	4.3	33.5	6.1	131.8	3.5	3.0	1.9

Sources: ECB and Eurostat.
1) Based on four-quarter cumulated sums of both saving and gross disposable income (adjusted for the change in the net equity of households in pension fund reserves).
2) Financial assets (net of financial liabilities) and non-financial assets. Non-financial assets consist mainly of housing wealth (residential structures and land). They also include non-financial assets of unincorporated enterprises classified within the household sector.
3) The profit share uses net entrepreneurial income, which is broadly equivalent to current profits in business accounting.
4) Based on the outstanding amount of loans, debt securities, trade credits and pension scheme liabilities.

3 Economic activity

3.8 Euro area balance of payments, current and capital accounts
(EUR billions; seasonally adjusted unless otherwise indicated; transactions)

	Current account											Capital account [1]	
	Total			Goods		Services		Primary income		Secondary income			
	Credit	Debit	Net	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit
	1	2	3	4	5	6	7	8	9	10	11	12	13
2015 Q4	899.1	824.8	74.3	524.3	434.4	195.2	182.2	153.6	149.8	26.1	58.4	18.4	9.4
2016 Q1	878.7	793.7	84.9	515.4	426.1	194.6	177.5	143.6	135.6	25.1	54.6	9.8	11.1
Q2	887.3	792.2	95.1	518.8	421.3	191.0	178.0	152.1	140.4	25.4	52.6	7.3	6.9
Q3	896.4	807.5	88.8	524.4	427.6	196.0	175.8	150.5	141.7	25.5	62.4	6.5	5.7
2016 June	295.5	265.5	30.0	174.1	141.1	63.5	59.0	49.7	47.3	8.2	18.2	2.6	2.5
July	294.6	264.5	30.1	171.8	142.2	63.2	57.2	50.7	46.4	8.9	18.6	2.6	2.0
Aug.	300.7	271.2	29.5	176.4	143.7	65.5	58.7	50.5	47.6	8.4	21.1	1.7	1.7
Sep.	301.1	271.8	29.3	176.3	141.7	67.3	59.8	49.3	47.7	8.2	22.6	2.2	2.0
Oct.	296.8	268.6	28.3	174.8	148.9	66.3	57.4	48.4	42.0	7.4	20.3	3.1	2.0
Nov.	310.5	274.4	36.1	182.7	151.8	65.3	60.6	54.9	42.7	7.6	19.3	3.7	2.0
12-month cumulated transactions													
2016 Nov.	3,565.8	3,207.7	358.1	2,089.6	1,719.3	778.2	709.9	598.6	551.5	99.4	227.0	38.2	33.3
12-month cumulated transactions as a percentage of GDP													
2016 Nov.	33.5	30.1	3.4	19.6	16.1	7.3	6.7	5.6	5.2	0.9	2.1	0.4	0.3

1) The capital account is not seasonally adjusted.

3.9 Euro area external trade in goods [1] , values and volumes by product group [2]
(seasonally adjusted, unless otherwise indicated)

	Total (n.s.a.)		Exports (f.o.b.)					Imports (c.i.f.)					
			Total				Memo item:	Total				Memo items:	
	Exports	Imports		Intermediate goods	Capital goods	Consumption goods	Manufacturing		Intermediate goods	Capital goods	Consumption goods	Manufacturing	Oil
	1	2	3	4	5	6	7	8	9	10	11	12	13
Values (EUR billions; annual percentage changes for columns 1 and 2)													
2015 Q4	3.4	2.8	507.9	236.4	105.8	153.4	426.9	444.5	248.1	73.5	114.8	325.9	45.1
2016 Q1	-0.9	-2.5	502.6	233.3	104.3	151.2	422.2	438.6	241.0	72.3	116.8	326.8	37.4
Q2	-0.1	-4.0	502.3	230.9	106.0	153.3	432.3	430.9	236.3	71.5	115.0	324.7	42.3
Q3	-0.3	-2.4	505.9	235.6	102.4	153.6	426.1	439.4	242.1	70.8	116.1	325.4	43.6
2016 June	-1.6	-4.6	167.6	77.2	35.0	51.6	145.5	144.5	79.5	24.2	38.1	109.0	14.6
July	-9.5	-8.3	166.1	77.3	33.4	50.4	134.7	146.1	80.5	23.3	38.7	104.3	15.0
Aug.	8.4	3.8	170.2	78.8	34.8	52.0	146.6	147.4	81.0	24.0	39.1	111.8	14.3
Sep.	2.2	-2.0	169.5	79.5	34.2	51.3	144.8	145.8	80.5	23.5	38.3	109.3	14.3
Oct.	-4.5	-3.2	169.3	78.6	34.5	51.2	136.5	149.4	82.2	24.8	39.1	106.5	15.6
Nov.	6.0	4.9	174.8	.	.	.	147.2	152.1	.	.	.	110.8	.
Volume indices (2000 = 100; annual percentage changes for columns 1 and 2)													
2015 Q4	0.8	5.7	118.1	115.0	119.3	122.4	117.6	107.8	108.1	107.7	108.1	110.6	103.4
2016 Q1	-0.8	2.5	118.4	116.0	117.6	121.8	117.1	110.0	110.9	106.8	110.0	111.4	110.8
Q2	2.2	4.2	118.1	114.0	119.6	123.8	119.9	107.5	106.7	105.4	110.4	112.2	101.2
Q3	0.4	0.8	118.1	115.4	114.5	123.6	117.5	108.0	107.2	104.4	110.2	111.4	99.9
2016 May	5.1	7.5	117.3	113.1	118.6	122.8	117.5	107.0	106.6	103.0	110.8	110.6	102.0
June	-0.1	2.2	117.4	113.3	117.9	124.3	120.6	107.2	106.3	105.8	110.1	113.0	96.5
July	-8.5	-4.0	116.6	113.6	112.9	121.7	111.7	108.2	107.3	103.8	110.4	107.5	102.4
Aug.	9.1	7.0	118.9	115.7	116.0	124.9	120.8	108.8	107.9	106.3	111.3	114.5	99.4
Sep.	2.5	0.1	118.8	116.9	114.7	124.2	120.1	107.1	106.4	103.1	108.9	112.1	98.1
Oct.	-4.8	-2.8	118.1	114.5	115.3	123.9	113.0	108.5	107.0	108.2	111.0	108.5	100.3

Sources: ECB and Eurostat.
1) Differences between ECB's b.o.p. goods (Table 3.8) and Eurostat's trade in goods (Table 3.9) are mainly due to different definitions.
2) Product groups as classified in the Broad Economic Categories.

4 Prices and costs

4.1 Harmonised Index of Consumer Prices [1]
(annual percentage changes, unless otherwise indicated)

	Total					Total (s.a.; percentage change vis-à-vis previous period) [2]						Memo item: Administered prices	
	Index: 2015 = 100	Total	Total excluding food and energy	Goods	Services	Total	Processed food	Unpro- cessed food	Non-energy industrial goods	Energy (n.s.a.)	Services	Total HICP excluding administered prices	Adminis- tered prices
	1	2	3	4	5	6	7	8	9	10	11	12	13
% of total in 2016	100.0	100.0	70.7	55.8	44.2	100.0	12.1	7.4	26.5	9.7	44.2	86.5	13.5
2014	100.0	0.4	0.8	-0.2	1.2	-	-	-	-	-	-	0.2	1.9
2015	100.0	0.0	0.8	-0.8	1.2	-	-	-	-	-	-	-0.1	0.9
2016	100.2	0.2	0.9	-0.4	1.1	-	-	-	-	-	-	0.2	0.3
2016 Q1	99.2	0.0	1.0	-0.8	1.1	-0.4	0.1	-0.9	0.1	-4.4	0.2	0.0	0.3
Q2	100.4	-0.1	0.8	-0.9	1.0	0.4	0.2	0.8	0.0	2.0	0.3	-0.1	0.1
Q3	100.3	0.3	0.8	-0.4	1.1	0.3	0.1	1.1	0.0	0.3	0.4	0.3	0.3
Q4	101.0	0.7	0.8	0.4	1.1	0.4	0.3	0.0	0.1	2.4	0.2	0.8	0.3
2016 July	100.1	0.2	0.9	-0.6	1.2	0.0	0.0	0.9	0.0	-1.0	0.2	0.1	0.3
Aug.	100.2	0.2	0.8	-0.5	1.1	0.0	0.0	0.8	0.0	-1.0	0.0	0.2	0.2
Sep.	100.6	0.4	0.8	-0.2	1.1	0.1	0.0	-0.8	0.0	1.0	0.1	0.4	0.4
Oct.	100.9	0.5	0.8	0.1	1.1	0.2	0.1	0.0	0.0	1.6	0.1	0.6	0.2
Nov.	100.8	0.6	0.8	0.2	1.1	0.0	0.2	0.1	0.0	-0.2	0.0	0.6	0.3
Dec.	101.3	1.1	0.9	1.0	1.3	0.4	0.1	0.7	0.1	1.8	0.3	1.2	0.4

	Goods						Services					
	Food (including alcoholic beverages and tobacco)			Industrial goods			Housing		Transport	Communi- cation	Recreation and personal	Miscel- laneous
	Total	Processed food	Unpro- cessed food	Total	Non-energy industrial goods	Energy		Rents				
	14	15	16	17	18	19	20	21	22	23	24	25
% of total in 2016	19.5	12.1	7.4	36.3	26.5	9.7	10.7	6.4	7.1	3.2	15.2	8.0
2014	0.5	1.2	-0.8	-0.5	0.1	-1.9	1.7	1.4	1.7	-2.8	1.5	1.3
2015	1.0	0.6	1.6	-1.8	0.3	-6.8	1.2	1.1	1.3	-0.8	1.5	1.2
2016	0.9	0.6	1.4	-1.1	0.4	-5.1	1.1	1.1	0.8	0.0	1.4	1.2
2016 Q1	0.8	0.6	1.1	-1.7	0.6	-7.4	1.1	1.0	0.6	0.0	1.6	1.2
Q2	0.9	0.5	1.4	-1.9	0.5	-7.7	1.1	1.0	0.6	0.0	1.3	1.2
Q3	1.1	0.5	2.1	-1.3	0.3	-5.1	1.1	1.0	0.9	0.0	1.5	1.3
Q4	0.8	0.6	1.0	0.2	0.3	0.2	1.2	1.2	1.2	-0.1	1.3	1.2
2016 July	1.4	0.5	2.9	-1.7	0.4	-6.7	1.0	1.0	1.0	0.0	1.5	1.4
Aug.	1.3	0.5	2.5	-1.4	0.3	-5.6	1.0	1.0	0.8	0.0	1.5	1.3
Sep.	0.7	0.5	1.1	-0.6	0.3	-3.0	1.1	1.1	0.9	0.0	1.5	1.3
Oct.	0.4	0.5	0.2	-0.1	0.3	-0.9	1.1	1.2	1.0	0.0	1.2	1.1
Nov.	0.7	0.7	0.7	-0.1	0.3	-1.1	1.2	1.2	1.1	-0.1	1.1	1.2
Dec.	1.2	0.7	2.1	0.9	0.3	2.6	1.2	1.3	1.4	-0.3	1.6	1.2

Sources: Eurostat and ECB calculations.
1) Data refer to the changing composition of the euro area.
2) In May 2016 the ECB started publishing enhanced seasonally adjusted HICP series for the euro area, following a review of the seasonal adjustment approach as described in Box 1, *Economic Bulletin*, Issue 3, ECB, 2016 (https://www.ecb.europa.eu/pub/pdf/ecbu/eb201603.en.pdf).

4 Prices and costs

4.2 Industry, construction and property prices
(annual percentage changes, unless otherwise indicated)

	Industrial producer prices excluding construction										Con-struction	Residential property prices [1]	Experimental indicator of commercial property prices [1]
	Total (index: 2010 = 100)	Total		Industry excluding construction and energy					Energy			
			Manu-facturing	Total	Intermediate goods	Capital goods	Consumer goods						
							Total	Food, beverages and tobacco	Non-food				
	1	2	3	4	5	6	7	8	9	10	11	12	13
% of total in 2010	100.0	100.0	78.1	72.1	29.4	20.1	22.6	13.8	8.9	27.9			
2013	108.5	-0.2	-0.1	0.4	-0.6	0.6	1.7	2.6	0.2	-1.6	0.3	-1.8	-1.0
2014	106.9	-1.5	-0.9	-0.3	-1.1	0.4	0.1	-0.2	0.3	-4.3	0.3	0.4	1.3
2015	104.0	-2.7	-2.4	-0.5	-1.3	0.7	-0.6	-1.0	0.2	-8.2	0.2	1.6	4.5
2015 Q4	102.7	-3.1	-2.5	-0.7	-1.9	0.6	-0.2	-0.3	0.3	-9.4	-0.1	2.2	5.9
2016 Q1	100.6	-3.7	-2.7	-0.9	-2.2	0.4	-0.4	-0.5	0.0	-11.1	-0.3	2.8	5.8
Q2	100.9	-3.8	-2.8	-1.1	-2.7	0.4	-0.5	-0.8	0.1	-10.7	0.2	3.0	3.5
Q3	101.9	-2.0	-1.3	-0.6	-1.8	0.4	0.0	-0.1	0.1	-5.9	0.5	3.5	.
2016 June	101.6	-3.1	-2.3	-1.0	-2.5	0.5	-0.4	-0.5	0.0	-8.7	-	-	-
July	102.0	-2.6	-2.0	-0.9	-2.2	0.5	-0.1	-0.3	0.1	-7.5	-	-	-
Aug.	101.8	-1.9	-1.3	-0.6	-1.8	0.5	0.0	-0.1	0.1	-5.7	-	-	-
Sep.	101.9	-1.5	-0.7	-0.3	-1.4	0.4	0.1	0.2	0.1	-4.5	-	-	-
Oct.	102.7	-0.4	0.3	0.0	-0.8	0.5	0.6	0.6	0.2	-1.5	-	-	-
Nov.	103.0	0.1	0.5	0.4	0.1	0.5	0.7	1.1	0.2	-0.5	-	-	-

Sources: Eurostat, ECB calculations, and ECB calculations based on MSCI data and national sources (col. 13).
1) Experimental data based on non-harmonised sources (see http://www.ecb.europa.eu/stats/html/experiment.en.html for further details).

4.3 Commodity prices and GDP deflators
(annual percentage changes, unless otherwise indicated)

	GDP deflators								Oil prices (EUR per barrel)	Non-energy commodity prices (EUR)					
	Total (s.a.; index: 2010 = 100)	Total	Domestic demand				Exports [1]	Imports [1]		Import-weighted [2]			Use-weighted [2]		
			Total	Private consump-tion	Govern-ment consump-tion	Gross fixed capital formation				Total	Food	Non-food	Total	Food	Non-food
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
% of total										100.0	45.4	54.6	100.0	50.4	49.6
2014	104.6	0.9	0.6	0.5	0.9	0.6	-0.7	-1.5	74.1	-3.4	2.0	-8.5	-0.4	4.6	-6.5
2015	105.7	1.1	0.3	0.1	0.4	0.7	0.1	-1.9	47.1	0.0	4.2	-4.5	2.9	7.0	-2.7
2016	.	.	.	.	.	.	.	.	39.9	-3.6	-3.9	-3.2	-7.3	-10.3	-2.8
2016 Q1	106.4	1.1	0.4	0.3	0.9	0.8	-1.5	-3.3	31.2	-12.2	-8.4	-16.4	-12.9	-11.1	-15.4
Q2	106.6	1.0	0.3	0.1	0.8	0.8	-2.4	-4.1	40.8	-8.9	-5.7	-12.5	-12.5	-12.6	-12.3
Q3	106.6	0.8	0.6	0.3	0.9	0.9	-1.6	-2.4	41.0	-0.5	-2.0	1.4	-5.8	-10.5	1.3
Q4	.	.	.	.	.	.	.	.	46.5	9.0	1.0	18.6	3.2	-6.8	18.5
2016 July	-	-	-	-	-	-	-	-	40.7	-2.9	-4.8	-0.7	-7.8	-12.3	-0.9
Aug.	-	-	-	-	-	-	-	-	41.2	0.5	-1.7	3.2	-4.9	-10.3	3.1
Sep.	-	-	-	-	-	-	-	-	41.2	1.2	0.7	1.7	-4.5	-8.9	1.9
Oct.	-	-	-	-	-	-	-	-	45.1	3.1	-0.4	7.1	-2.9	-10.4	8.3
Nov.	-	-	-	-	-	-	-	-	43.1	8.4	-0.2	19.0	2.4	-8.2	18.7
Dec.	-	-	-	-	-	-	-	-	51.3	15.6	3.7	30.3	10.5	-1.6	28.8

Sources: Eurostat, ECB calculations and Bloomberg (col. 9).
1) Deflators for exports and imports refer to goods and services and include cross-border trade within the euro area.
2) Import-weighted: weighted according to 2009-11 average import structure; use-weighted: weighted according to 2009-11 average domestic demand structure.

4 Prices and costs

4.4 Price-related opinion surveys
(seasonally adjusted)

	European Commission Business and Consumer Surveys (percentage balances)					Purchasing Managers' Surveys (diffusion indices)			
	Selling price expectations (for next three months)				Consumer price trends over past	Input prices		Prices charged	
	Manu-facturing	Retail trade	Services	Construction	12 months	Manu-facturing	Services	Manu-facturing	Services
	1	2	3	4	5	6	7	8	9
1999-13	4.8	-	-	-2.0	34.0	57.7	56.7	-	49.9
2014	-0.9	-1.5	0.9	-17.2	14.2	49.6	53.5	49.7	48.2
2015	-2.7	1.3	2.7	-13.3	-1.1	48.9	53.5	49.6	49.0
2016	-0.4	1.7	4.5	-7.5	-0.6	49.8	53.9	49.3	49.6
2016 Q1	-4.8	0.7	3.7	-9.3	-1.7	41.5	52.5	47.7	49.0
Q2	-1.0	1.9	4.7	-8.2	-2.2	47.5	54.4	48.5	49.0
Q3	-0.2	1.0	4.5	-6.7	-0.3	51.4	54.0	49.6	49.8
Q4	4.4	3.2	4.9	-5.8	1.6	58.6	54.9	51.6	50.5
2016 July	0.2	0.7	4.8	-5.2	-0.5	51.0	54.7	49.9	49.8
Aug.	-0.8	1.3	4.3	-7.4	-0.8	51.0	53.2	48.9	49.5
Sep.	0.0	0.9	4.5	-7.6	0.5	52.4	54.0	49.9	50.0
Oct.	3.5	2.6	4.5	-5.1	0.1	53.9	54.3	50.8	49.7
Nov.	4.9	2.8	5.3	-6.1	1.8	58.8	54.4	51.4	50.3
Dec.	4.9	4.1	4.9	-6.3	2.9	63.2	56.0	52.5	51.4

Sources: European Commission (Directorate-General for Economic and Financial Affairs) and Markit.

4.5 Labour cost indices
(annual percentage changes, unless otherwise indicated)

	Total (index: 2012 = 100)	Total	By component		For selected economic activities		Memo item: Indicator of
			Wages and salaries	Employers' social contributions	Business economy	Mainly non-business economy	negotiated wages [1]
	1	2	3	4	5	6	7
% of total in 2012	100.0	100.0	74.6	25.4	69.3	30.7	
2013	101.4	1.4	1.5	1.2	1.2	1.9	1.8
2014	102.7	1.3	1.3	1.1	1.3	1.2	1.8
2015	104.3	1.6	2.0	0.6	1.6	1.6	1.5
2015 Q4	110.5	1.6	1.9	0.8	1.6	1.7	1.5
2016 Q1	99.0	1.5	1.6	1.4	1.6	1.6	1.4
Q2	109.3	1.0	0.8	1.4	0.9	1.2	1.5
Q3	102.6	1.6	1.7	1.2	1.4	1.7	1.4

Sources: Eurostat and ECB calculations.
1) Experimental data based on non-harmonised sources (see http://www.ecb.europa.eu/stats/intro/html/experiment.en.html for further details).

4 Prices and costs

4.6 Unit labour costs, compensation per labour input and labour productivity
(annual percentage changes, unless otherwise indicated; quarterly data seasonally adjusted; annual data unadjusted)

| | Total (index: 2010 =100) | Total | By economic activity | | | | | | | | | |
			Agriculture, forestry and fishing	Manu-facturing, energy and utilities	Con-struction	Trade, transport, accom-modation and food services	Information and commu-nication	Finance and insurance	Real estate	Professional, business and support services	Public ad-ministration, education, health and social work	Arts, enter-tainment and other services
	1	2	3	4	5	6	7	8	9	10	11	12
Unit labour costs												
2013	103.8	1.2	-1.6	2.0	1.4	1.0	-0.8	-0.2	-2.7	1.4	1.6	2.1
2014	104.6	0.7	-1.0	-0.7	1.1	0.5	-0.5	2.2	1.7	1.4	1.6	1.3
2015	104.8	0.3	1.5	-2.2	1.1	0.5	0.8	0.3	2.6	1.7	1.1	2.2
2015 Q4	105.3	0.5	0.4	-2.0	-0.2	1.5	1.7	0.4	2.6	1.8	1.3	2.3
2016 Q1	105.4	1.0	1.2	0.5	0.1	0.9	1.1	1.2	4.0	2.1	1.3	2.0
Q2	105.6	0.8	1.6	0.4	-0.2	1.0	0.4	1.1	2.2	1.0	1.2	0.8
Q3	105.9	0.8	1.5	1.1	-0.7	0.6	0.4	0.7	2.9	0.8	1.1	1.0
Compensation per employee												
2013	105.1	1.5	2.6	2.7	1.3	1.0	0.8	1.6	0.1	1.3	1.5	0.8
2014	106.5	1.3	0.1	2.0	1.8	1.1	2.2	1.7	1.5	1.6	1.1	1.1
2015	107.9	1.3	1.8	1.7	0.9	1.4	2.4	0.4	2.6	1.6	1.1	1.1
2015 Q4	108.5	1.3	2.0	1.5	0.8	1.7	1.9	0.4	3.4	1.6	1.2	1.1
2016 Q1	108.9	1.3	1.8	1.4	1.4	1.2	1.2	1.9	3.7	1.5	1.3	1.5
Q2	109.0	1.1	2.4	1.0	1.4	1.2	1.1	1.4	3.0	1.2	1.2	0.9
Q3	109.4	1.3	1.2	1.4	1.7	1.2	0.9	1.8	2.3	0.9	1.5	1.5
Labour productivity per person employed												
2013	101.3	0.3	4.3	0.6	-0.1	0.0	1.5	1.8	2.8	-0.1	-0.1	-1.3
2014	101.9	0.6	1.2	2.7	0.6	0.6	2.7	-0.6	-0.2	0.2	-0.5	-0.3
2015	102.9	1.0	0.3	4.0	-0.3	0.9	1.6	0.1	0.0	0.0	0.0	-1.1
2015 Q4	103.1	0.8	1.7	3.5	1.0	0.2	0.2	0.0	0.7	-0.2	-0.1	-1.2
2016 Q1	103.3	0.3	0.5	1.0	1.3	0.4	0.1	0.7	-0.2	-0.6	0.0	-0.5
Q2	103.2	0.3	0.8	0.6	1.6	0.2	0.6	0.3	0.7	0.2	0.0	0.1
Q3	103.4	0.4	-0.3	0.3	2.4	0.5	0.6	1.1	-0.6	0.2	0.3	0.5
Compensation per hour worked												
2013	107.2	2.3	2.4	2.8	2.8	1.9	0.7	2.1	1.5	2.4	1.9	2.3
2014	108.5	1.2	1.1	1.5	1.3	1.2	2.0	1.6	1.3	1.2	0.9	1.2
2015	109.7	1.1	1.2	1.3	0.3	1.5	1.4	0.5	2.2	1.2	1.0	1.2
2015 Q4	110.2	1.3	1.5	1.6	0.5	2.0	1.3	0.2	3.4	1.3	1.3	1.2
2016 Q1	110.5	1.1	0.2	1.1	1.2	1.2	0.8	1.5	3.3	0.8	1.4	2.4
Q2	110.5	1.1	1.9	0.7	1.4	1.3	0.6	0.9	2.7	0.8	1.5	0.8
Q3	111.1	1.4	1.2	1.4	2.0	1.1	0.9	1.7	3.5	1.0	1.7	2.0
Hourly labour productivity												
2013	103.4	1.1	4.0	0.8	1.4	0.9	1.8	2.4	4.2	1.0	0.4	0.1
2014	104.1	0.7	1.8	2.3	0.3	0.9	2.7	-0.5	0.0	0.1	-0.6	0.0
2015	105.0	0.9	-0.9	3.6	-0.8	1.2	0.7	0.1	-0.2	-0.2	-0.1	-1.0
2015 Q4	105.0	0.8	0.6	3.7	0.3	0.5	-0.2	-0.3	1.5	-0.2	-0.1	-1.2
2016 Q1	105.2	0.2	-1.1	0.7	0.8	0.3	-0.5	0.3	-0.1	-1.2	0.1	0.3
Q2	105.0	0.1	0.0	0.2	1.4	0.1	0.2	-0.5	0.6	-0.4	0.2	-0.1
Q3	105.4	0.6	-0.5	0.3	2.5	0.5	0.7	1.0	0.7	0.6	0.6	1.0

Sources: Eurostat and ECB calculations.

5 Money and credit

5.1 Monetary aggregates [1]

(EUR billions and annual growth rates; seasonally adjusted; outstanding amounts and growth rates at end of period; transactions during period)

								M3			
			M2						M3-M2		
	M1			M2-M1							
	Currency in circulation	Overnight deposits		Deposits with an agreed maturity of up to 2 years	Deposits redeemable at notice of up to 3 months			Repos	Money market fund shares	Debt securities with a maturity of up to 2 years		
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts												
2013	909.8	4,473.4	5,383.3	1,681.2	2,143.2	3,824.4	9,207.7	122.4	416.8	86.8	626.0	9,833.7
2014	969.5	4,977.5	5,947.0	1,581.0	2,149.8	3,730.8	9,677.8	121.5	422.2	107.0	650.7	10,328.4
2015	1,036.5	5,577.9	6,614.4	1,439.2	2,161.8	3,601.0	10,215.5	74.6	478.8	73.6	627.1	10,842.5
2015 Q4	1,036.5	5,577.9	6,614.4	1,439.2	2,161.8	3,601.0	10,215.5	74.6	478.8	73.6	627.1	10,842.5
2016 Q1	1,049.6	5,712.6	6,762.2	1,421.0	2,164.8	3,585.8	10,348.0	85.3	465.6	94.9	645.8	10,993.8
Q2	1,054.6	5,820.2	6,874.8	1,411.0	2,171.9	3,582.9	10,457.6	84.2	481.7	94.8	660.8	11,118.4
Q3	1,066.6	5,938.9	7,005.5	1,393.3	2,174.5	3,567.8	10,573.3	80.5	495.1	93.8	669.4	11,242.7
2016 June	1,054.6	5,820.2	6,874.8	1,411.0	2,171.9	3,582.9	10,457.6	84.2	481.7	94.8	660.8	11,118.4
July	1,058.2	5,876.2	6,934.4	1,404.8	2,172.8	3,577.6	10,512.1	82.4	485.2	97.6	665.2	11,177.2
Aug.	1,061.5	5,919.6	6,981.1	1,393.0	2,173.9	3,566.9	10,548.0	82.3	479.8	98.8	661.0	11,209.0
Sep.	1,066.6	5,938.9	7,005.5	1,393.3	2,174.5	3,567.8	10,573.3	80.5	495.1	93.8	669.4	11,242.7
Oct.	1,072.4	5,976.6	7,049.0	1,357.7	2,175.0	3,532.8	10,581.8	74.5	501.5	91.1	667.1	11,248.9
Nov. (p)	1,075.2	6,081.3	7,156.5	1,347.9	2,172.0	3,519.9	10,676.4	72.6	506.4	94.0	673.0	11,349.4
Transactions												
2013	45.7	245.1	290.7	-115.7	45.8	-69.9	220.8	-11.1	-48.8	-63.5	-123.5	97.3
2014	59.0	378.5	437.5	-91.8	3.7	-88.1	349.4	3.6	10.4	13.3	27.3	376.7
2015	65.9	567.2	633.1	-135.4	12.2	-123.2	510.0	-47.9	51.1	-26.3	-23.1	486.9
2015 Q4	8.1	134.5	142.5	-5.3	-0.9	-6.2	136.3	-18.0	21.3	-4.7	-1.3	135.0
2016 Q1	13.3	145.2	158.4	-14.0	3.1	-10.9	147.6	11.2	-13.4	19.2	17.1	164.6
Q2	5.0	102.6	107.6	-12.7	7.2	-5.5	102.1	-1.4	15.5	-1.4	12.7	114.8
Q3	12.0	121.3	133.3	-15.7	2.3	-13.4	119.9	-3.7	13.8	-2.4	7.8	127.7
2016 June	3.5	30.3	33.8	6.0	1.3	7.3	41.2	-3.4	6.1	5.6	8.3	49.5
July	3.6	56.8	60.5	-4.4	0.9	-3.5	57.0	-1.8	4.0	2.3	4.5	61.5
Aug.	3.3	44.0	47.3	-11.8	1.0	-10.8	36.5	-0.1	-5.5	1.0	-4.5	32.0
Sep.	5.0	20.5	25.5	0.6	0.3	0.9	26.4	-1.8	15.3	-5.7	7.8	34.2
Oct.	5.9	30.1	36.0	-29.5	0.7	-28.8	7.2	-6.1	6.4	-4.1	-3.8	3.4
Nov. (p)	2.7	97.8	100.5	-12.0	-1.2	-13.2	87.3	-2.1	4.9	3.7	6.5	93.8
Growth rates												
2013	5.3	5.8	5.7	-6.4	2.2	-1.8	2.5	-8.9	-10.4	-38.0	-16.1	1.0
2014	6.5	8.4	8.1	-5.5	0.2	-2.3	3.8	2.9	2.5	19.9	4.4	3.8
2015	6.8	11.3	10.6	-8.6	0.6	-3.3	5.3	-39.1	11.9	-25.3	-3.5	4.7
2015 Q4	6.8	11.3	10.6	-8.6	0.6	-3.3	5.3	-39.1	11.9	-25.3	-3.5	4.7
2016 Q1	6.0	11.1	10.2	-6.2	0.6	-2.2	5.6	-25.9	6.6	-1.1	-0.4	5.2
Q2	4.0	9.7	8.8	-4.2	0.6	-1.3	5.1	1.2	9.1	-3.0	6.0	5.1
Q3	3.7	9.3	8.4	-3.3	0.5	-1.0	5.0	-12.8	8.1	13.7	5.7	5.1
2016 June	4.0	9.7	8.8	-4.2	0.6	-1.3	5.1	1.2	9.1	-3.0	6.0	5.1
July	3.7	9.6	8.6	-3.9	0.5	-1.2	5.1	-6.8	6.8	17.1	6.2	5.1
Aug.	3.6	9.6	8.7	-4.1	0.5	-1.3	5.1	-7.9	4.7	19.0	4.7	5.1
Sep.	3.7	9.3	8.4	-3.3	0.5	-1.0	5.0	-12.8	8.1	13.7	5.7	5.1
Oct.	4.0	8.7	8.0	-5.0	0.6	-1.7	4.6	-27.1	6.3	13.2	1.8	4.4
Nov. (p)	3.8	9.6	8.7	-5.8	0.6	-2.0	4.9	-15.7	4.9	6.8	2.4	4.8

Source: ECB.
1) Data refer to the changing composition of the euro area.

5 Money and credit

5.2 Deposits in M3 [1])
(EUR billions and annual growth rates; seasonally adjusted; outstanding amounts and growth rates at end of period; transactions during period)

	Non-financial corporations [2])					Households [3])					Financial corporations other than MFIs and ICPFs [2])	Insurance corporations and pension funds	Other general government [4])
	Total	Overnight	With an agreed maturity of up to 2 years	Redeemable at notice of up to 3 months	Repos	Total	Overnight	With an agreed maturity of up to 2 years	Redeemable at notice of up to 3 months	Repos			
	1	2	3	4	5	6	7	8	9	10	11	12	13
Outstanding amounts													
2013	1,713.6	1,188.9	398.1	109.8	16.8	5,414.7	2,539.0	876.5	1,994.6	4.6	796.9	194.6	300.5
2014	1,845.1	1,349.1	365.1	111.6	19.4	5,557.7	2,749.5	812.1	1,993.2	2.8	871.9	222.2	332.9
2015	1,930.5	1,483.9	321.7	116.4	8.4	5,750.9	3,059.7	695.1	1,993.7	2.4	981.7	225.8	364.7
2015 Q4	1,930.5	1,483.9	321.7	116.4	8.4	5,750.9	3,059.7	695.1	1,993.7	2.4	981.7	225.8	364.7
2016 Q1	1,984.8	1,536.6	322.7	116.0	9.4	5,829.7	3,137.1	693.6	1,996.3	2.7	974.4	218.9	375.9
Q2	2,013.7	1,574.3	314.0	117.1	8.4	5,906.0	3,214.2	688.8	2,000.0	3.0	976.9	210.7	379.9
Q3	2,047.5	1,602.5	317.8	118.1	9.1	5,979.5	3,301.8	672.0	2,003.1	2.6	967.6	206.2	386.3
2016 June	2,013.7	1,574.3	314.0	117.1	8.4	5,906.0	3,214.2	688.8	2,000.0	3.0	976.9	210.7	379.9
July	2,029.9	1,591.1	313.9	116.5	8.4	5,932.8	3,245.2	684.0	2,000.7	2.9	973.2	214.6	385.7
Aug.	2,032.2	1,596.3	310.1	117.0	8.7	5,960.7	3,277.2	677.6	2,003.2	2.8	976.4	213.4	386.0
Sep.	2,047.5	1,602.5	317.8	118.1	9.1	5,979.5	3,301.8	672.0	2,003.1	2.6	967.6	206.2	386.3
Oct.	2,037.3	1,604.6	307.5	118.1	7.0	6,001.8	3,337.8	656.6	2,004.6	2.8	945.1	206.5	393.2
Nov. (p)	2,065.5	1,634.2	305.5	117.1	8.7	6,029.7	3,375.1	649.2	2,002.9	2.5	989.7	206.6	382.3
Transactions													
2013	100.5	91.5	-6.3	9.0	6.3	107.8	181.1	-99.2	32.0	-6.1	-22.0	-13.9	-8.4
2014	68.7	91.1	-26.7	1.5	2.8	140.7	208.8	-65.0	-1.4	-1.7	56.3	7.3	21.0
2015	81.7	121.6	-33.5	4.9	-11.2	193.5	303.1	-109.9	0.8	-0.4	90.7	-0.1	30.3
2015 Q4	18.7	21.4	-1.8	0.7	-1.6	60.0	74.4	-12.0	-1.6	-0.7	19.2	6.6	5.8
2016 Q1	61.2	57.8	2.7	-0.4	1.1	80.9	78.5	-0.6	2.8	0.3	-2.2	-6.5	12.1
Q2	27.3	36.3	-8.9	1.0	-1.1	75.4	76.2	-5.1	4.0	0.4	-2.2	-8.5	3.7
Q3	34.8	29.5	4.0	0.6	0.7	73.9	87.9	-16.6	3.1	-0.5	-6.4	-4.2	6.2
2016 June	6.3	9.6	-4.4	0.7	0.4	29.4	29.7	-1.8	1.9	-0.5	2.2	-4.0	0.5
July	16.7	17.3	0.0	-0.6	0.0	26.9	31.0	-4.7	0.6	-0.1	-1.8	4.0	5.8
Aug.	2.4	5.4	-3.9	0.5	0.3	28.2	32.1	-6.4	2.6	-0.1	3.6	-1.2	0.2
Sep.	15.7	6.8	7.8	0.7	0.4	18.9	24.7	-5.5	-0.1	-0.2	-8.2	-7.0	0.2
Oct.	-9.4	0.6	-7.8	-0.1	-2.1	21.3	31.5	-11.7	1.4	0.2	-24.4	0.2	7.5
Nov. (p)	24.4	26.6	-2.9	-1.1	1.7	28.4	36.3	-7.8	0.2	-0.3	40.8	-0.2	-11.0
Growth rates													
2013	6.2	8.3	-1.6	8.9	58.6	2.0	7.7	-10.2	1.6	-57.3	-2.7	-6.7	-2.7
2014	4.0	7.6	-6.7	1.3	15.9	2.6	8.2	-7.4	-0.1	-37.8	6.9	3.9	7.0
2015	4.4	8.9	-9.4	4.4	-57.4	3.5	11.0	-13.6	0.0	-15.1	10.2	0.0	9.1
2015 Q4	4.4	8.9	-9.4	4.4	-57.4	3.5	11.0	-13.6	0.0	-15.1	10.2	0.0	9.1
2016 Q1	7.4	11.0	-4.5	3.8	-31.3	4.2	10.7	-8.8	0.2	-30.6	6.2	-3.3	10.3
Q2	8.0	11.1	-2.9	3.9	-27.8	4.6	10.4	-5.9	0.1	0.3	4.1	-8.5	10.3
Q3	7.4	9.9	-1.3	1.7	-8.5	5.1	10.6	-4.9	0.4	-18.2	0.9	-5.7	7.7
2016 June	8.0	11.1	-2.9	3.9	-27.8	4.6	10.4	-5.9	0.1	0.3	4.1	-8.5	10.3
July	7.2	10.2	-3.1	2.5	-29.8	4.9	10.4	-4.9	0.3	-10.6	3.2	-7.4	10.9
Aug.	7.3	10.2	-4.1	2.2	11.9	5.2	10.8	-4.8	0.4	-12.1	1.7	-6.2	8.9
Sep.	7.4	9.9	-1.3	1.7	-8.5	5.1	10.6	-4.9	0.4	-18.2	0.9	-5.7	7.7
Oct.	5.5	7.9	-2.8	0.9	-29.6	5.1	10.8	-6.1	0.6	-20.0	-1.5	-9.4	7.8
Nov. (p)	7.1	10.1	-3.7	-0.1	-2.6	5.3	11.2	-6.5	0.7	-32.9	1.1	-7.9	2.9

Source: ECB.
1) Data refer to the changing composition of the euro area.
2) In accordance with the ESA 2010, in December 2014 holding companies of non-financial groups were reclassified from the non-financial corporations sector to the financial corporations sector. These entities are included in MFI balance sheet statistics with financial corporations other than MFIs and insurance corporations and pension funds (ICPFs).
3) Including non-profit institutions serving households.
4) Refers to the general government sector excluding central government.

5 Money and credit

5.3 Credit to euro area residents [1]
(EUR billions and annual growth rates; seasonally adjusted; outstanding amounts and growth rates at end of period; transactions during period)

	Credit to general government			Credit to other euro area residents								
	Total	Loans	Debt securities	Total	Loans						Debt securities	Equity and non-money market fund investment fund shares
					Total		To non-financial corporations [3]	To households [4]	To financial corporations other than MFIs and ICPFs [3]	To insurance corporations and pension funds		
						Adjusted loans [2]						
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts												
2013	3,410.3	1,098.8	2,311.5	12,708.2	10,544.5	10,973.3	4,353.0	5,222.9	869.8	98.8	1,367.2	796.5
2014	3,615.6	1,135.0	2,478.5	12,504.2	10,453.9	10,726.1	4,299.6	5,200.7	824.6	129.0	1,280.0	770.3
2015	3,904.2	1,112.3	2,789.5	12,599.4	10,512.0	10,807.4	4,274.5	5,307.6	806.3	123.5	1,305.1	782.4
2015 Q4	3,904.2	1,112.3	2,789.5	12,599.4	10,512.0	10,807.4	4,274.5	5,307.6	806.3	123.5	1,305.1	782.4
2016 Q1	4,053.6	1,115.9	2,924.6	12,629.6	10,561.2	10,824.5	4,288.8	5,338.9	824.8	108.8	1,312.2	756.2
Q2	4,191.8	1,112.5	3,066.2	12,663.7	10,565.8	10,870.1	4,296.7	5,348.3	816.8	103.9	1,342.5	755.4
Q3	4,272.2	1,105.2	3,153.6	12,768.1	10,622.5	10,926.5	4,288.5	5,379.3	845.5	109.1	1,365.2	780.5
2016 June	4,191.8	1,112.5	3,066.2	12,663.7	10,565.8	10,870.1	4,296.7	5,348.3	816.8	103.9	1,342.5	755.4
July	4,247.1	1,109.2	3,124.6	12,710.6	10,592.0	10,892.4	4,299.8	5,355.5	826.3	110.4	1,359.4	759.1
Aug.	4,255.8	1,107.7	3,134.8	12,743.2	10,601.0	10,907.2	4,295.1	5,366.0	829.4	110.5	1,364.5	777.7
Sep.	4,272.2	1,105.2	3,153.6	12,768.1	10,622.5	10,926.5	4,288.5	5,379.3	845.5	109.1	1,365.2	780.5
Oct.	4,290.1	1,099.7	3,177.0	12,809.9	10,655.6	10,956.0	4,301.8	5,388.4	850.8	114.5	1,373.6	780.8
Nov. (p)	4,320.4	1,092.3	3,214.7	12,846.9	10,698.9	10,981.9	4,322.0	5,407.4	853.4	116.1	1,375.2	772.8
Transactions												
2013	-24.5	-73.5	48.9	-306.8	-248.0	-271.8	-132.8	-3.6	-121.3	9.7	-72.5	13.8
2014	73.8	16.4	57.4	-102.2	-47.4	-33.6	-61.3	-14.9	17.2	11.7	-89.8	35.0
2015	284.9	-21.1	305.7	86.0	57.3	72.5	-13.8	98.2	-21.4	-5.7	25.1	3.5
2015 Q4	81.1	-14.0	95.0	14.2	26.9	36.0	1.7	24.3	-0.4	1.4	-16.5	3.7
2016 Q1	120.0	1.5	118.5	69.3	79.3	52.2	35.9	36.2	21.8	-14.6	11.0	-21.0
Q2	116.4	-8.9	125.2	54.3	21.8	64.3	19.2	14.5	-6.9	-5.0	31.1	1.4
Q3	69.2	-7.3	76.3	112.6	69.6	71.5	5.8	33.8	24.9	5.2	20.9	22.1
2016 June	34.1	-14.0	48.0	6.7	-6.6	36.2	-1.3	5.2	-3.6	-6.9	14.7	-1.4
July	48.0	-3.2	51.0	53.0	35.8	31.3	11.3	7.6	10.4	6.5	15.1	2.1
Aug.	9.0	-1.5	10.5	35.5	13.2	18.0	-4.1	11.5	5.7	0.1	4.7	17.7
Sep.	12.2	-2.6	14.8	24.1	20.6	22.1	-1.4	14.7	8.8	-1.4	1.2	2.3
Oct.	37.8	-5.5	43.2	44.0	33.2	29.5	15.6	7.3	4.7	5.5	8.2	2.6
Nov. (p)	45.6	-7.4	53.0	32.0	38.3	21.7	18.3	19.1	-0.6	1.5	1.1	-7.4
Growth rates												
2013	-0.7	-6.3	2.2	-2.4	-2.3	-2.4	-2.9	-0.1	-12.3	10.9	-5.0	1.8
2014	2.1	1.5	2.4	-0.8	-0.4	-0.3	-1.4	-0.3	1.8	11.9	-6.6	4.4
2015	7.9	-1.9	12.3	0.7	0.5	0.7	-0.3	1.9	-2.6	-4.4	2.0	0.4
2015 Q4	7.9	-1.9	12.3	0.7	0.5	0.7	-0.3	1.9	-2.6	-4.4	2.0	0.4
2016 Q1	10.2	-2.8	16.1	1.2	1.2	1.1	0.8	2.2	0.1	-19.2	3.1	-2.3
Q2	11.7	-2.8	18.1	1.5	1.2	1.6	1.3	1.9	0.3	-23.6	7.2	-3.0
Q3	10.1	-2.5	15.3	2.0	1.9	2.1	1.5	2.1	4.9	-10.7	3.5	0.8
2016 June	11.7	-2.8	18.1	1.5	1.2	1.6	1.3	1.9	0.3	-23.6	7.2	-3.0
July	12.2	-2.7	18.6	1.4	1.4	1.9	1.3	2.0	1.5	-16.1	4.5	-3.6
Aug.	10.9	-2.8	16.7	1.6	1.4	1.9	1.2	2.0	1.7	-14.0	4.1	-0.5
Sep.	10.1	-2.5	15.3	2.0	1.9	2.1	1.5	2.1	4.9	-10.7	3.5	0.8
Oct.	10.6	-2.6	16.0	2.3	2.0	2.2	1.7	1.9	5.6	-7.8	5.5	0.4
Nov. (p)	10.7	-3.0	16.3	2.4	2.1	2.2	1.8	2.1	4.0	-6.6	7.1	-0.8

Source: ECB.
1) Data refer to the changing composition of the euro area.
2) Adjusted for loan sales and securitisation (resulting in derecognition from the MFI statistical balance sheet) as well as for positions arising from notional cash pooling services provided by MFIs.
3) In accordance with the ESA 2010, in December 2014 holding companies of non-financial groups were reclassified from the non-financial corporations sector to the financial corporations sector. These entities are included in MFI balance sheet statistics with financial corporations other than MFIs and insurance corporations and pension funds (ICPFs).
4) Including non-profit institutions serving households.

5 Money and credit

5.4 MFI loans to euro area non-financial corporations and households [1]
(EUR billions and annual growth rates; seasonally adjusted; outstanding amounts and growth rates at end of period; transactions during period)

	Non-financial corporations [2]					Households [3]				
	Total		Up to 1 year	Over 1 and up to 5 years	Over 5 years	Total		Loans for consumption	Loans for house purchase	Other loans
		Adjusted loans [4]					Adjusted loans [4]			
	1	2	3	4	5	6	7	8	9	10
Outstanding amounts										
2013	4,353.0	4,450.6	1,065.6	741.0	2,546.4	5,222.9	5,547.7	573.8	3,853.3	795.8
2014	4,299.6	4,253.9	1,109.8	720.7	2,469.1	5,200.7	5,546.1	563.5	3,860.9	776.4
2015	4,274.5	4,257.7	1,038.4	758.5	2,477.6	5,307.6	5,640.6	595.9	3,948.4	763.3
2015 Q4	4,274.5	4,257.7	1,038.4	758.5	2,477.6	5,307.6	5,640.6	595.9	3,948.4	763.3
2016 Q1	4,288.8	4,261.6	1,048.5	768.6	2,471.6	5,338.9	5,659.1	602.6	3,974.9	761.4
Q2	4,296.7	4,278.2	1,040.0	774.9	2,481.8	5,348.3	5,683.5	604.1	3,986.3	757.9
Q3	4,288.5	4,278.7	1,008.4	786.9	2,493.3	5,379.3	5,701.1	608.5	4,018.3	752.6
2016 June	4,296.7	4,278.2	1,040.0	774.9	2,481.8	5,348.3	5,683.5	604.1	3,986.3	757.9
July	4,299.8	4,277.5	1,029.0	780.3	2,490.5	5,355.5	5,692.2	604.7	3,994.6	756.1
Aug.	4,295.1	4,279.1	1,022.0	782.4	2,490.8	5,366.0	5,700.1	607.8	4,003.4	754.7
Sep.	4,288.5	4,278.7	1,008.4	786.9	2,493.3	5,379.3	5,701.1	608.5	4,018.3	752.6
Oct.	4,301.8	4,287.5	1,022.0	787.2	2,492.7	5,388.4	5,712.6	612.8	4,019.5	756.1
Nov. (p)	4,322.0	4,299.5	1,032.6	794.5	2,494.9	5,407.4	5,723.4	615.0	4,037.0	755.4
Transactions										
2013	-132.8	-145.3	-44.3	-44.6	-43.9	-3.6	-16.9	-18.2	27.7	-13.2
2014	-61.3	-68.6	-14.2	2.3	-49.4	-14.9	5.6	-3.0	-3.2	-8.7
2015	-13.8	20.4	-64.3	32.4	18.2	98.2	76.1	21.9	79.9	-3.6
2015 Q4	1.7	19.8	-22.7	13.1	11.3	24.3	19.8	5.5	20.9	-2.1
2016 Q1	35.9	28.1	19.2	13.2	3.5	36.2	24.7	8.0	28.6	-0.4
Q2	19.2	28.1	-4.5	8.6	15.0	14.5	29.5	1.6	13.4	-0.6
Q3	5.8	10.0	-23.9	14.9	14.8	33.8	27.4	5.1	32.5	-3.9
2016 June	-1.3	11.6	-5.4	4.6	-0.5	5.2	13.0	2.7	1.4	1.2
July	11.3	7.0	-5.9	6.9	10.3	7.6	9.1	0.5	8.4	-1.3
Aug.	-4.1	1.2	-6.1	2.2	-0.2	11.5	8.4	3.3	9.3	-1.1
Sep.	-1.4	1.8	-11.9	5.8	4.7	14.7	9.9	1.3	14.8	-1.5
Oct.	15.6	11.1	13.3	0.5	1.8	7.3	9.8	4.4	4.4	-1.5
Nov. (p)	18.3	11.1	9.4	6.6	2.3	19.1	10.9	2.3	17.2	-0.4
Growth rates										
2013	-2.9	-3.1	-4.0	-5.6	-1.7	-0.1	-0.3	-3.0	0.7	-1.6
2014	-1.4	-1.5	-1.3	0.3	-1.9	-0.3	0.1	-0.5	-0.1	-1.1
2015	-0.3	0.5	-5.8	4.5	0.7	1.9	1.4	3.9	2.1	-0.5
2015 Q4	-0.3	0.5	-5.8	4.5	0.7	1.9	1.4	3.9	2.1	-0.5
2016 Q1	0.8	1.2	-2.1	5.2	0.8	2.2	1.6	5.0	2.3	-0.4
Q2	1.3	1.9	-2.1	5.3	1.6	1.9	1.8	3.5	2.1	-0.4
Q3	1.5	2.0	-3.0	6.7	1.8	2.1	1.8	3.4	2.4	-0.9
2016 June	1.3	1.9	-2.1	5.3	1.6	1.9	1.8	3.5	2.1	-0.4
July	1.3	2.0	-2.8	6.2	1.7	2.0	1.8	3.3	2.2	-0.5
Aug.	1.2	2.0	-4.0	6.4	1.9	2.0	1.8	3.5	2.3	-0.7
Sep.	1.5	2.0	-3.0	6.7	1.8	2.1	1.8	3.4	2.4	-0.9
Oct.	1.7	2.1	-1.2	5.6	1.7	1.9	1.8	3.7	2.2	-1.0
Nov. (p)	1.8	2.2	-1.6	6.5	1.9	2.1	1.9	3.7	2.6	-1.3

Source: ECB.
1) Data refer to the changing composition of the euro area.
2) In accordance with the ESA 2010, in December 2014 holding companies of non-financial groups were reclassified from the non-financial corporations sector to the financial corporations sector. These entities are included in MFI balance sheet statistics with financial corporations other than MFIs and insurance corporations and pension funds (ICPFs).
3) Including non-profit institutions serving households.
4) Adjusted for loan sales and securitisation (resulting in derecognition from the MFI statistical balance sheet) as well as for positions arising from notional cash pooling services provided by MFIs.

5 Money and credit

5.5 Counterparts to M3 other than credit to euro area residents [1]
(EUR billions and annual growth rates; seasonally adjusted; outstanding amounts and growth rates at end of period; transactions during period)

	MFI liabilities						MFI assets			
	Central government holdings [2]	Longer-term financial liabilities vis-à-vis other euro area residents					Net external assets	Other		
		Total	Deposits with an agreed maturity of over 2 years	Deposits redeemable at notice of over 3 months	Debt securities with a maturity of over 2 years	Capital and reserves		Total		
									Repos with central counter-parties [3]	Reverse repos to central counter-parties [3]
	1	2	3	4	5	6	7	8	9	10
Outstanding amounts										
2013	264.6	7,312.7	2,374.8	91.6	2,507.4	2,338.9	1,146.3	146.2	183.8	121.9
2014	269.4	7,127.9	2,186.6	92.2	2,388.2	2,461.0	1,381.0	225.0	184.5	139.7
2015	285.0	6,997.0	2,119.7	79.8	2,254.2	2,543.2	1,331.6	289.3	205.9	135.6
2015 Q4	285.0	6,997.0	2,119.7	79.8	2,254.2	2,543.2	1,331.6	289.3	205.9	135.6
2016 Q1	314.6	6,962.8	2,113.6	76.9	2,179.8	2,592.6	1,282.1	306.0	247.1	152.1
Q2	319.2	7,006.8	2,094.1	74.6	2,176.1	2,662.1	1,275.4	313.6	238.0	144.0
Q3	309.7	6,961.1	2,068.5	72.4	2,125.4	2,694.8	1,170.0	303.2	209.2	129.1
2016 June	319.2	7,006.8	2,094.1	74.6	2,176.1	2,662.1	1,275.4	313.6	238.0	144.0
July	326.3	6,985.9	2,084.7	73.9	2,152.1	2,675.2	1,221.9	309.8	212.9	128.2
Aug.	318.7	6,967.8	2,077.7	73.2	2,142.4	2,674.5	1,181.7	314.6	215.4	134.6
Sep.	309.7	6,961.1	2,068.5	72.4	2,125.4	2,694.8	1,170.0	303.2	209.2	129.1
Oct.	324.1	6,952.4	2,071.1	72.4	2,123.8	2,685.0	1,112.2	313.2	192.8	133.7
Nov. (p)	295.2	6,943.5	2,070.7	71.9	2,136.5	2,664.4	1,083.1	337.6	194.5	121.3
Transactions										
2013	-43.7	-81.6	-18.4	-14.3	-137.5	88.6	362.3	-59.0	32.2	43.7
2014	-4.0	-165.8	-120.8	2.0	-154.5	107.6	237.7	-2.3	0.7	17.8
2015	9.5	-222.4	-106.2	-13.5	-209.3	106.6	-98.6	1.7	21.4	-4.0
2015 Q4	-8.8	-56.6	-41.1	-3.6	-41.8	29.8	-37.2	11.5	-9.6	-7.2
2016 Q1	29.4	-56.6	-3.5	-2.8	-45.9	-4.4	-75.1	23.2	41.3	17.3
Q2	4.2	-13.2	-22.3	-1.8	-15.9	26.9	-71.6	6.8	-9.2	-8.1
Q3	-9.6	-53.9	-25.8	-2.1	-41.5	15.6	-101.4	-16.2	-19.2	-13.7
2016 June	22.0	-16.1	-17.6	-0.6	-8.1	10.2	-20.1	34.7	11.1	5.4
July	7.1	-24.8	-9.3	-0.7	-18.5	3.7	-56.1	-1.1	-25.1	-15.8
Aug.	-7.7	-7.6	-7.1	-0.7	-7.2	7.4	-32.6	4.8	2.5	6.4
Sep.	-9.0	-21.5	-9.4	-0.7	-15.8	4.4	-12.7	-20.0	3.4	-4.3
Oct.	13.4	3.3	1.2	-0.8	-8.6	11.5	-61.4	-0.4	-13.2	4.7
Nov. (p)	-28.9	-2.7	-2.6	-0.5	-5.3	5.7	-9.4	-6.0	1.7	-12.4
Growth rates										
2013	-14.2	-1.1	-0.8	-13.5	-5.1	3.8	-	-	10.3	23.3
2014	-1.6	-2.2	-5.1	2.2	-6.1	4.5	-	-	0.4	14.6
2015	3.7	-3.1	-4.8	-14.5	-8.6	4.3	-	-	11.6	-2.9
2015 Q4	3.7	-3.1	-4.8	-14.5	-8.6	4.3	-	-	11.6	-2.9
2016 Q1	11.1	-3.3	-3.5	-15.2	-8.4	2.0	-	-	3.7	-5.9
Q2	20.2	-2.3	-2.9	-13.3	-6.8	2.8	-	-	3.5	-2.9
Q3	5.3	-2.5	-4.3	-12.4	-6.4	2.6	-	-	1.5	-8.2
2016 June	20.2	-2.3	-2.9	-13.3	-6.8	2.8	-	-	3.5	-2.9
July	29.3	-2.6	-3.8	-13.0	-6.9	2.7	-	-	1.8	-10.6
Aug.	15.5	-2.5	-3.9	-12.3	-6.6	2.8	-	-	1.4	1.1
Sep.	5.3	-2.5	-4.3	-12.4	-6.4	2.6	-	-	1.5	-8.2
Oct.	-7.1	-2.1	-3.3	-12.0	-6.0	2.8	-	-	4.4	-6.3
Nov. (p)	-0.3	-1.9	-2.6	-10.9	-5.9	2.4	-	-	-5.0	-15.6

Source: ECB.
1) Data refer to the changing composition of the euro area.
2) Comprises central government holdings of deposits with the MFI sector and of securities issued by the MFI sector.
3) Not adjusted for seasonal effects.

6 Fiscal developments

6.1 Deficit/surplus
(as a percentage of GDP; flows during one-year period)

| | Deficit (-)/surplus (+) | | | | | Memo item: Primary deficit (-)/ surplus (+) |
	Total	Central government	State government	Local government	Socual security funds	
	1	2	3	4	5	6
2012	-3.6	-3.4	-0.3	0.0	0.0	-0.6
2013	-3.0	-2.6	-0.2	-0.1	-0.1	-0.2
2014	-2.6	-2.2	-0.2	0.0	-0.2	0.1
2015	-2.1	-1.9	-0.2	0.1	-0.1	0.3
2015 Q3	-2.1	.	.	.	.	0.3
Q4	-2.1	.	.	.	.	0.3
2016 Q1	-1.9	.	.	.	.	0.4
Q2	-1.8	.	.	.	.	0.5

Sources: ECB for annual data; Eurostat for quarterly data.

6.2 Revenue and expenditure
(as a percentage of GDP; flows during one-year period)

| | Revenue | | | | | | Expenditure | | | | | | |
| | Total | Current revenue | | | | Capital revenue | Total | Current expenditure | | | | | Capital expenditure |
			Direct taxes	Indirect taxes	Net social contributions				Compen-sation of employees	Intermediate consumption	Interest	Social benefits	
	1	2	3	4	5	6	7	8	9	10	11	12	13
2012	46.1	45.6	12.2	12.9	15.4	0.4	49.7	45.2	10.4	5.3	3.0	22.6	4.5
2013	46.7	46.2	12.6	13.0	15.5	0.5	49.7	45.6	10.4	5.3	2.8	23.0	4.1
2014	46.8	46.3	12.5	13.1	15.5	0.5	49.4	45.4	10.3	5.3	2.7	23.0	4.0
2015	46.5	46.0	12.6	13.1	15.3	0.5	48.5	44.7	10.1	5.2	2.4	22.9	3.9
2015 Q3	46.5	46.0	12.6	13.1	15.3	0.5	48.6	44.9	10.2	5.2	2.5	23.0	3.8
Q4	46.5	46.0	12.6	13.1	15.3	0.5	48.5	44.7	10.1	5.2	2.4	22.9	3.9
2016 Q1	46.4	45.9	12.6	13.1	15.3	0.5	48.3	44.5	10.1	5.2	2.3	22.9	3.8
Q2	46.3	45.8	12.5	13.1	15.3	0.5	48.1	44.2	10.0	5.2	2.3	22.9	3.8

Sources: ECB for annual data; Eurostat for quarterly data.

6.3 Government debt-to-GDP ratio
(as a percentage of GDP; outstanding amounts at end of period)

| | Total | Financial instrument | | | Holder | | | Original maturity | | Residual maturity | | | Currency | |
		Currency and deposits	Loans	Debt securities	Resident creditors	MFIs	Non-resident creditors	Up to 1 year	Over 1 year	Up to 1 year	Over 1 and up to 5 years	Over 5 years	Euro or participating currencies	Other curren-cies
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2012	89.5	3.0	17.6	68.9	45.6	26.3	43.9	11.3	78.1	19.6	31.4	38.4	87.3	2.2
2013	91.3	2.6	17.5	71.2	46.2	26.3	45.1	10.4	80.9	19.5	32.0	39.8	89.3	2.1
2014	92.0	2.7	17.1	72.2	45.1	26.0	46.9	10.0	82.0	18.9	31.9	41.2	89.9	2.1
2015	90.4	2.8	16.2	71.4	45.6	27.5	44.8	9.3	81.1	17.7	31.4	41.3	88.3	2.1
2015 Q3	91.5	2.7	16.3	72.5	.	.	.	.	.	.	.	.	.	.
Q4	90.4	2.8	16.2	71.4	.	.	.	.	.	.	.	.	.	.
2016 Q1	91.3	2.7	16.2	72.4	.	.	.	.	.	.	.	.	.	.
Q2	91.2	2.7	16.0	72.6	.	.	.	.	.	.	.	.	.	.

Sources: ECB for annual data; Eurostat for quarterly data.

6 Fiscal developments

6.4 Annual change in the government debt-to-GDP ratio and underlying factors [1]
(as a percentage of GDP; flows during one-year period)

	Change in debt-to-GDP ratio [2]	Primary deficit (+)/ surplus (-)	Deficit-debt adjustment								Interest-growth differential	Memo item: Borrowing requirement
			Total	Transactions in main financial assets					Revaluation effects and other changes in volume	Other		
				Total	Currency and deposits	Loans	Debt securities	Equity and investment fund shares				
	1	2	3	4	5	6	7	8	9	10	11	12
2012	3.4	0.6	0.0	1.0	0.3	0.3	-0.1	0.5	-1.3	0.3	2.7	5.0
2013	1.9	0.2	-0.2	-0.8	-0.5	-0.4	-0.2	0.4	0.2	0.4	1.9	2.6
2014	0.7	-0.1	-0.1	-0.3	0.2	-0.2	-0.3	0.0	0.1	0.2	0.8	2.5
2015	-1.6	-0.3	-0.9	-0.5	0.1	-0.2	-0.3	-0.2	-0.1	-0.3	-0.5	1.3
2015 Q3	-0.9	-0.3	-0.5	-0.4	0.2	-0.3	-0.2	-0.2	0.1	-0.2	-0.1	1.6
Q4	-1.7	-0.3	-0.9	-0.6	0.1	-0.3	-0.3	-0.2	-0.1	-0.2	-0.5	1.2
2016 Q1	-1.5	-0.4	-0.6	-0.2	0.3	-0.3	-0.2	0.0	-0.1	-0.3	-0.5	1.4
Q2	-0.9	-0.5	0.2	0.4	0.8	-0.2	-0.2	0.0	-0.1	-0.2	-0.6	2.0

Sources: ECB for annual data; Eurostat for quarterly data.
1) Intergovernmental lending in the context of the financial crisis is consolidated except in quarterly data on the deficit-debt adjustment.
2) Calculated as the difference between the government debt-to-GDP ratios at the end of the reference period and a year earlier.

6.5 Government debt securities [1]
(debt service as a percentage of GDP; flows during debt service period; average nominal yields in percentages per annum)

	Debt service due within 1 year [2]					Average residual maturity in years [3]	Average nominal yields [4]						
	Total	Principal		Interest			Outstanding amounts					Transactions	
			Maturities of up to 3 months		Maturities of up to 3 months		Total	Floating rate	Zero coupon	Fixed rate		Issuance	Redemption
											Maturities of up to 1 year		
	1	2	3	4	5	6	7	8	9	10	11	12	13
2013	16.5	14.4	5.0	2.1	0.5	6.3	3.5	1.7	1.3	3.7	2.8	1.2	1.8
2014	15.9	13.8	5.1	2.0	0.5	6.4	3.1	1.5	0.5	3.5	2.7	0.8	1.6
2015	14.8	12.9	4.3	2.0	0.5	6.6	2.9	1.2	0.1	3.3	3.0	0.4	1.2
2015 Q3	15.1	13.1	4.3	2.0	0.5	6.6	2.9	1.2	0.1	3.3	3.0	0.4	1.4
Q4	14.8	12.9	4.3	2.0	0.5	6.6	2.9	1.2	0.1	3.3	3.0	0.4	1.2
2016 Q1	15.5	13.6	4.8	1.9	0.5	6.6	2.8	1.2	0.0	3.2	2.8	0.3	1.1
Q2	15.3	13.5	5.0	1.8	0.5	6.7	2.7	1.1	-0.1	3.1	2.9	0.3	1.1
2016 July	15.1	13.3	4.6	1.8	0.5	6.8	2.7	1.1	-0.1	3.1	3.0	0.3	1.2
Aug.	15.0	13.2	4.7	1.8	0.5	6.8	2.7	1.1	-0.1	3.1	2.9	0.3	1.1
Sep.	14.9	13.1	4.1	1.8	0.5	6.8	2.6	1.2	-0.1	3.1	2.8	0.2	1.2
Oct.	14.9	13.1	3.9	1.8	0.5	6.9	2.6	1.1	-0.1	3.0	2.9	0.2	1.3
Nov.	14.9	13.1	4.5	1.8	0.5	6.9	2.6	1.1	-0.1	3.0	2.9	0.2	1.3
Dec.	14.5	12.7	4.6	1.8	0.5	6.9	2.6	1.1	-0.1	3.0	2.9	0.2	1.2

Source: ECB.
1) At face value and not consolidated within the general government sector.
2) Excludes future payments on debt securities not yet outstanding and early redemptions.
3) Residual maturity at the end of the period.
4) Outstanding amounts at the end of the period; transactions as 12-month average.

6 Fiscal developments

6.6 Fiscal developments in euro area countries
(as a percentage of GDP; flows during one-year period and outstanding amounts at end of period)

	Belgium	Germany	Estonia	Ireland	Greece	Spain	France	Italy	Cyprus
	1	2	3	4	5	6	7	8	9
Government deficit (-)/surplus (+)									
2012	-4.2	0.0	-0.3	-8.0	-8.8	-10.5	-4.8	-2.9	-5.8
2013	-3.0	-0.2	-0.2	-5.7	-13.2	-7.0	-4.0	-2.7	-4.9
2014	-3.1	0.3	0.7	-3.7	-3.6	-6.0	-4.0	-3.0	-8.8
2015	-2.5	0.7	0.1	-1.9	-7.5	-5.1	-3.5	-2.6	-1.1
2015 Q3	-2.9	0.8	0.6	-1.7	-4.4	-5.3	-3.9	-2.6	-0.9
Q4	-2.5	0.7	0.1	-1.9	-7.5	-5.1	-3.5	-2.6	-1.1
2016 Q1	-2.7	0.8	0.7	-1.5	-6.1	-5.1	-3.3	-2.5	-0.2
Q2	-2.9	0.8	0.8	-1.5	-5.0	-5.3	-3.1	-2.3	-1.2
Government debt									
2012	104.1	79.9	9.7	119.5	159.6	85.7	89.5	123.3	79.3
2013	105.4	77.5	10.2	119.5	177.4	95.4	92.3	129.0	102.2
2014	106.5	74.9	10.7	105.2	179.7	100.4	95.3	131.9	107.1
2015	105.8	71.2	10.1	78.6	177.4	99.8	96.2	132.3	107.5
2015 Q3	109.0	72.0	10.1	85.6	171.8	99.7	97.0	134.0	110.2
Q4	106.0	71.2	10.1	78.6	177.1	99.3	96.2	132.3	108.9
2016 Q1	109.2	70.9	9.9	80.5	176.1	100.6	97.5	135.0	109.3
Q2	109.7	70.1	9.7	77.8	179.2	100.5	98.2	135.5	109.0

	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Austria	Portugal	Slovenia	Slovakia	Finland
	10	11	12	13	14	15	16	17	18	19
Government deficit (-)/surplus (+)										
2012	-0.8	-3.1	0.3	-3.6	-3.9	-2.2	-5.7	-4.1	-4.3	-2.2
2013	-0.9	-2.6	1.0	-2.6	-2.4	-1.4	-4.8	-15.0	-2.7	-2.6
2014	-1.6	-0.7	1.5	-2.1	-2.3	-2.7	-7.2	-5.0	-2.7	-3.2
2015	-1.3	-0.2	1.6	-1.4	-1.9	-1.0	-4.4	-2.7	-2.7	-2.8
2015 Q3	-2.2	0.0	1.6	-1.7	-2.1	-2.5	-3.2	-4.4	-2.6	-2.9
Q4	-1.3	-0.2	1.6	-1.4	-1.9	-1.0	-4.4	-2.7	-2.7	-2.8
2016 Q1	-0.9	-0.1	1.7	-0.2	-1.6	-0.8	-3.7	-2.5	-2.6	-2.3
Q2	-0.6	0.4	1.6	0.3	-0.8	-1.1	-3.4	-1.6	-2.4	-2.3
Government debt										
2012	41.3	39.8	21.8	67.6	66.4	82.0	126.2	53.9	52.2	53.9
2013	39.0	38.7	23.5	68.4	67.7	81.3	129.0	71.0	54.7	56.5
2014	40.7	40.5	22.7	67.0	67.9	84.4	130.6	80.9	53.6	60.2
2015	36.3	42.7	22.1	64.0	65.1	85.5	129.0	83.1	52.5	63.6
2015 Q3	36.4	38.2	22.1	66.1	66.2	86.4	130.4	84.3	53.9	61.4
Q4	36.3	42.7	22.1	64.0	65.1	85.5	129.0	83.1	52.9	63.6
2016 Q1	36.3	40.0	22.4	65.4	64.8	86.5	128.9	83.5	52.2	64.2
Q2	38.9	40.1	22.0	64.8	63.7	86.7	131.7	82.3	53.3	61.6

Source: Eurostat.