EUROPEAN CENTRAL BANK

EUROSYSTEM

Economic Bulletin

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Overview

At its monetary policy meeting on 10 March 2016, based on the regular economic and monetary analyses, the Governing Council conducted a thorough review of the monetary policy stance, in which it also took into account the new macroeconomic projections by ECB staff extending into the year 2018. As a result, the Governing Council decided on a set of measures in the pursuit of its price stability objective. This comprehensive package will exploit the synergies between the different instruments and has been calibrated to further ease financing conditions, stimulate new credit provision and thereby reinforce the momentum of the euro area's economic recovery and accelerate the return of inflation to levels below, but close to, 2%.

Economic and monetary assessment at the time of the Governing Council meeting of 10 March 2016

Global activity moderated at the turn of the year, and is expected to continue expanding at a modest pace. Low interest rates, improving labour markets and rising confidence support the outlook for advanced economies. By contrast, the medium-term outlook for emerging market economies remains more uncertain. Economic activity in China is expected to continue decelerating, with negative spillovers to other emerging market economies, particularly in Asia, while commodity exporting countries need to adjust further to lower commodity prices. In this context, the effective exchange rate of the euro has appreciated significantly over recent months.

Financial markets have shown heightened volatility in recent months. Initially, global growth concerns contributed to a decline in the prices of riskier financial assets from the beginning of December 2015 to mid-February. However, more recently, these declines have been partly reversed, related to reduced investor concerns amid a rise in oil prices, better than expected economic data in the United States and expectations of further monetary policy stimulus in the euro area. Sovereign bond yields in higher-rated countries have declined further in the last three months.

The economic recovery in the euro area is continuing, albeit with lower than expected growth at the beginning of the year on the back of a weaker external environment. Real GDP rose by 0.3%, quarter on quarter, in the fourth quarter of 2015, supported by domestic demand, while being dampened by a negative contribution from net exports. The most recent survey data point to weaker than expected growth momentum at the beginning of this year.

Looking ahead, the economic recovery is expected to proceed at a moderate pace. Domestic demand should be further supported by the ECB's monetary policy measures and their favourable impact on financing conditions, as well as by continued employment gains from past structural reforms. Moreover, the low price of oil should provide additional support for households' real disposable income and private consumption, as well as for corporate profitability and investment. In addition, the fiscal stance in the euro area is slightly expansionary, partly reflecting measures in support of refugees. However, the economic recovery in the euro area continues to be dampened by subdued growth prospects in emerging markets, volatile financial markets, the necessary balance sheet adjustments in a number of sectors and the sluggish pace of implementation of structural reforms.

The March 2016 ECB staff macroeconomic projections for the euro area foresee annual real GDP increasing by 1.4% in 2016, 1.7% in 2017 and 1.8% in 2018. Compared with the December 2015 Eurosystem staff macroeconomic projections, the outlook for real GDP growth has been revised slightly down, mainly reflecting the weakened growth prospects for the global economy. In the Governing Council's assessment, risks to the euro area growth outlook remain tilted to the downside and relate in particular to the heightened uncertainties regarding developments in the global economy, as well as to broader geopolitical risks.

According to Eurostat's flash estimate, euro area annual HICP inflation was -0.2% in February 2016, compared with 0.3% in January. All main HICP components contributed to this decline. Inflation rates should recover later in 2016 and rise further thereafter, supported by the ECB's monetary policy measures and the expected economic recovery.

The March 2016 ECB staff macroeconomic projections for the euro area foresee annual HICP inflation at 0.1% in 2016, 1.3% in 2017 and 1.6% in 2018. In comparison with the December 2015 Eurosystem staff macroeconomic projections, the outlook for HICP inflation has been revised down, mainly reflecting the fall in oil prices over recent months. The Governing Council will closely monitor price-setting behaviour and wage developments in the euro area, paying particular attention to ensure that the current low inflation environment does not become entrenched in second-round effects on wage and price-setting.

The ECB's monetary policy measures continue to be transmitted to lending conditions and remain supportive of broad money and credit dynamics. Money growth has remained solid, while loan growth has continued on the path of gradual recovery observed since the beginning of 2014. Domestic sources of money creation continue to be the main driver of broad money growth. Low interest rates, as well as the effects of the ECB's targeted longer-term refinancing operations (TLTROs) and the expanded asset purchase programme (APP), have contributed to improvements in money and credit dynamics. Banks' funding costs have stabilised close to their historical lows. Despite considerable cross-country heterogeneity, banks have been passing on their favourable funding conditions in the form of lower lending rates. Improved lending conditions have continued to support a recovery in loan growth. The total annual flow of external financing to non-financial corporations is estimated to have increased further in the fourth quarter of 2015, after stabilising in the

previous two quarters. Overall, the monetary policy measures in place since June 2014 have improved borrowing conditions for firms and households substantially.

Monetary policy decisions

The Governing Council assessed that a cross-check of the outcome of the economic analysis with the signals coming from the monetary analysis confirmed the need for further monetary stimulus in order to secure a return of inflation rates towards levels below, but close to, 2% without undue delay. Economic and financial conditions had weakened further since the last meeting of the Governing Council in January and risks to the Governing Council's medium-term price stability objective had clearly increased, as also indicated by the downward revisions for inflation and growth in the March 2016 staff macroeconomic projections. As a result, the Governing Council decided on a set of measures in the pursuit of its price stability objective.

- First, as regards the key ECB interest rates, the Governing Council decided to lower the interest rate on the main refinancing operations of the Eurosystem by 5 basis points to 0.00% and the rate on the marginal lending facility by 5 basis points to 0.25%. The rate on the deposit facility was lowered by 10 basis points to -0.40%.

- Second, the Governing Council decided to expand the monthly purchases under the APP from €60 billion to €80 billion. They are intended to run until the end of March 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 aim of achieving inflation rates below, but close to, 2% over the medium term. To ensure the continued smooth implementation of the asset purchases, the Governing Council also decided to increase the issuer and issue share limits for the purchases of securities issued by eligible international organisations and multilateral development banks from 33% to 50%.

- Third, the Governing Council decided to include investment-grade euro-denominated bonds issued by non-bank corporations established in the euro area in the list of assets that are eligible for regular purchases under a new corporate sector purchase programme. This will further strengthen the pass-through of the Eurosystem's asset purchases to the financing conditions of the real economy. Purchases under the new programme will start towards the end of the second quarter of this year.

- Fourth, the Governing Council decided to launch a new series of four targeted longer-term refinancing operations (TLTRO II), starting in June 2016, each with a maturity of four years. These new operations will reinforce the ECB's accommodative monetary policy stance and will strengthen the transmission of monetary policy by further incentivising bank lending to the real economy. Counterparties will be entitled to borrow up to 30% of the stock of eligible loans as at 31 January 2016. The interest rate under TLTRO II will be fixed over the life

of each operation, at the rate on the Eurosystem's main refinancing operations prevailing at the time of take-up. For banks whose net lending exceeds a benchmark, the rate applied to the TLTRO II will be lower, and can be as low as the interest rate on the deposit facility prevailing at the time of take-up. There will be no requirement for mandatory early repayments under TLTRO II, and switches from TLTRO I will be allowed.

Looking ahead, taking into account the current outlook for price stability, the Governing Council expects 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. Adding to the measures taken since June 2014, the comprehensive package of monetary policy decisions taken in March 2016 provides substantial monetary stimulus to counteract heightened risks to the ECB's price stability objective. While very low or even negative inflation rates are unavoidable over the next few months, as a result of movements in oil prices, it is crucial to avoid second-round effects by securing the return of inflation to levels below, but close to, 2% without undue delay. The Governing Council will continue to monitor very closely the evolution of the outlook for price stability over the period ahead.

1 External environment

Global activity slowed at the turn of the year, but is expected to continue to expand at a gradual pace. Low interest rates, improving labour markets and growing confidence support the outlook for advanced economies. By contrast, the medium-term outlook for emerging market economies (EMEs) remains more uncertain. Growth in China continues to slow, with negative spillovers to other EMEs, particularly in emerging Asia, and commodity-exporting countries need to adjust further to lower commodity prices.

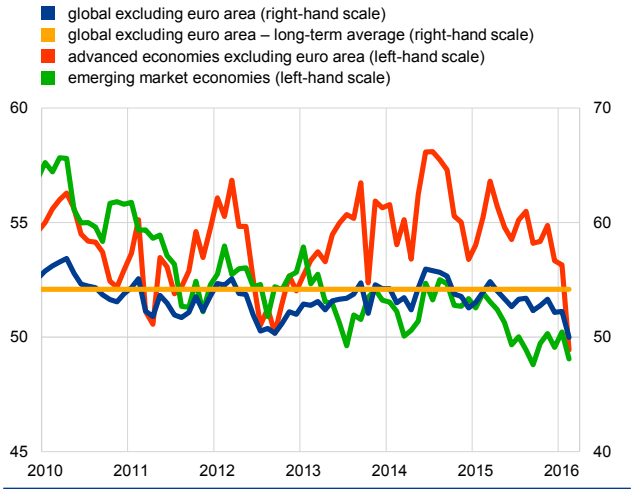
Global economic activity and trade

Developments in both advanced economies and EMEs at the end of 2015 turned out to be weaker than expected. The recovery is expected to be more gradual than anticipated, confirming that growth momentum remains fragile. Following robust growth in the third quarter, the US economy experienced a marked slowdown in the last quarter of 2015. The Japanese economy also lost momentum, contracting again in the fourth quarter. Among the major advanced countries, excluding the euro area, only the United Kingdom appears to have maintained sustained robust growth in the second half of last year. Growth momentum in EMEs also slowed in the last quarter of the year. Emerging Asia is one of the drivers of this slowdown, partly because of the ongoing rebalancing in China. Activity in Latin America slowed towards the end of 2015, mainly on account of the deep recession in Brazil and, more broadly, the adverse effects of low commodity prices on commodity-producing countries in the region.

Global activity indicators confirm that world growth moderated at the turn of the year. The global composite output PMI (excluding the euro area) fell rather sharply in February to levels just above the expansionary threshold (see Chart 1). The decline was broad based across advanced economies and EMEs. It was not only driven by continued subdued developments in global manufacturing, but also by a significant fall in services activity. This could indicate that the ongoing weakness in global manufacturing may be spilling over into the services sector, which until now has been more resilient. At the same time, the OECD's composite leading indicators point to signs that economic growth is slowing in the OECD area as a whole.

Chart 1
Global composite output PMI

(diffusion index)



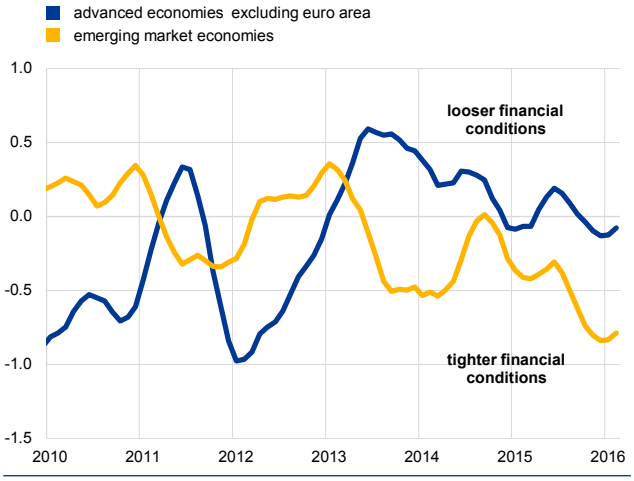
Sources: Markit and ECB calculations.
Note: The latest observation is for February 2016.

Three key factors have been shaping the global outlook, namely a tightening of financing conditions in EMEs, uncertainty regarding the outlook for China and the continued weakness in commodity prices. The tightening of financing conditions in EMEs (see Chart 2) is evident in the rise in government

Chart 2

Financial conditions indices

(standard deviation, zero mean; monthly data)



Sources: Haver Analytics and ECB staff calculations.
Notes: The latest observation is for February 2016. Emerging market economies is an aggregate of China, Russia, Brazil, India and Turkey. Advanced economies include the United States, the United Kingdom and Japan.

bond yields, substantial downward correction in equity prices and net capital outflows from these economies amid elevated levels of global market volatility. This volatility was partly associated with growing uncertainty around China's economic prospects. Finally, the continued weakness in commodity prices, particularly oil prices, has been increasingly interpreted as a sign of underlying weakness in the global economy.

In response to the increased signs of global weakness, markets have pushed back expectations of monetary policy normalisation in the United States and the United Kingdom. Since the policy rate increase in the United States in December 2015 the funds futures curve of the Federal Reserve System has significantly shifted downwards, suggesting expectations of a delay in further tightening of US monetary policy. Monetary policy tightened in some EMEs in response to the US hike, particularly in countries that have close trade links with the United States, such as those in Latin America, and in countries whose currencies are linked to the US dollar.

While declines in commodity prices in the course of 2015 were mostly attributed to a sharp rise in supply, greater importance has been attached to the role of demand factors in explaining the recent downward pressures on oil prices. The nature of an oil price shock can have very different implications for the global economy (see also Box 2). The largely supply-driven drop in oil prices in the second half of 2014 and early 2015 had a net positive impact on global GDP, mainly via two channels: (i) an income redistribution from oil-producing countries to oil-consuming countries, which then had a larger marginal propensity to spend; and (ii) profitability gains from lower energy-input costs, which stimulated investment and thus total supply in net oil-importing countries. However, the gradual shift towards a more demand-driven oil price fall in the second half of last year warrants a more cautious interpretation. Although low oil prices could still have a positive impact on commodity-importing countries as a result of rising real incomes, weaker external demand is expected to broadly offset the positive effects of falling oil prices on activity. Moreover, the negative impact of additional price declines on oil-exporting countries has been more severe than expected. For some countries, managing surging fiscal imbalances in order to cushion the impact of the oil price decline may be challenging and could result in a greater than expected reduction in domestic and foreign demand.

Looking ahead global economic activity should expand at a gradual pace, supported by ongoing resilient growth prospects in major advanced economies, and the expected progressive easing of the deep recessions in some large EMEs. Continued low interest rates, improving labour markets and rising consumer confidence support the outlook for advanced economies. By contrast, the medium-term outlook for EMEs remains more uncertain. The pace of

growth in the Chinese economy continues to slow with negative spillovers to other EMEs, particularly in emerging Asia, while commodity-exporting countries need to adjust further to lower commodity prices. Nevertheless, the gradual easing of the deep recessions in Russia and Brazil should support global growth.

Domestic fundamentals remain supportive in the United States. Growth is expected to accelerate as the recovery in the labour market gradually feeds through into gains in nominal wages, which, together with continued low oil prices, support real disposable income and consumption. A continuation of the housing market recovery and a slightly expansionary fiscal stance should also support domestic demand, which is expected to remain the main driver of US growth. At the same time, credit and financing conditions have become somewhat tighter despite low interest rates, while lower oil prices are taking away some momentum from private investment. Net exports are expected to remain a drag on activity on the back of the appreciation of the US dollar and weak growth in foreign demand. In this context, Box 1 reviews the factors behind the slowdown in US labour productivity growth and its economic implications.

Economic activity in the United Kingdom continues to grow at a moderate pace. Growth is largely consumption driven, as low energy prices continue to lift real disposable incomes. Investment growth remains positive, albeit slowing compared with previous years, supported by easing credit conditions. However, growth could potentially be restrained by the uncertainty surrounding the referendum on the United Kingdom's membership of the European Union in June 2016. Net exports exerted a drag on growth in the last two quarters of 2015.

The economic recovery in Japan has remained weak. Following a mild return to growth in the third quarter of 2015, the economy contracted again in the final quarter of the year amid slowing global demand and lacklustre private consumption. Looking ahead growth should return to positive territory in 2016, as private consumption is expected to recover amid higher real incomes stemming from wage increases and lower oil prices. Exports are also expected to pick up amid a gradual rebound in foreign demand.

The rebalancing of the Chinese economy is translating into a gradual slowdown, as declining investment has not been fully offset by stronger consumer spending. Low oil prices and robust consumption are expected to provide some support for the economy in the near term. While the recent unwinding of excessive stock market valuations has heightened uncertainty, this is not deemed to have had major direct repercussions on the outlook. Recent reductions in policy rates, modest fiscal stimulus from the central government and efforts to loosen constraints on local government finances should have a positive influence on demand going forward. In the medium term, however, increasing emphasis on reducing overcapacity in some heavy industries and dealing with the related non-performing loans could slow the pace of expansion, primarily through the investment channel.

Real economic activity in central and eastern Europe (CEE) – albeit uneven across countries – is projected to remain robust. The main drivers of growth in the region continue to be dynamic private consumption, which benefits from higher real disposable income amid the low inflation environment, and strong investment growth supported by EU structural funds.

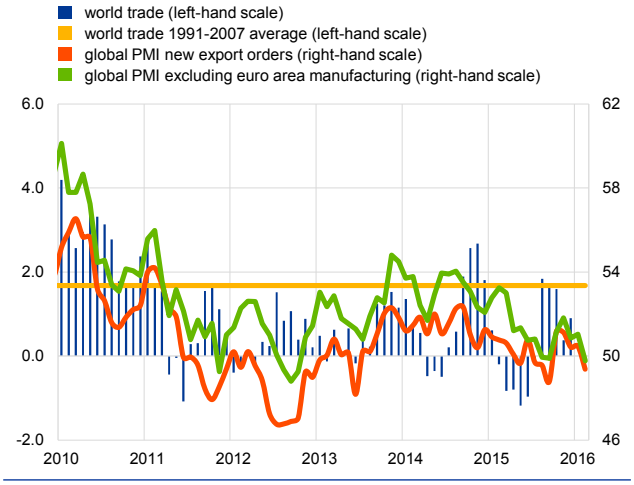
By contrast, commodity-exporting countries continue to face the consequences of the sustained decline in commodity prices. In Russia, which is still in the midst of a deep recession, funding costs remain elevated despite the easing of financial conditions that took place during 2015. The further fall in oil prices increased depreciation pressures on the Russian rouble, potentially resulting in higher inflation. Uncertainty remains high and business confidence weak, while lower oil revenue continues to restrain public expenditure. In Latin America, the economic downturn in Brazil has intensified sharply. Political uncertainty, deteriorating terms of trade amid falling commodity prices and tightening monetary policy and financing conditions are all weighing on economic activity. Looking forward, however, the deep recessions in Brazil and Russia are expected to ease amid stabilisation in their respective currencies and commodity prices.

Global trade seems to have lost momentum again at the turn of the year, after having returned to positive growth in the second half of 2015. Global imports of goods and services (excluding the euro area) increased by 0.7% quarter on quarter in the third quarter, following a decline of 0.9% in the second quarter (see Chart 3). The rebound partly reflects a correction of the low figures recorded in some advanced economies and EMEs, such as the United Kingdom, Japan and China, which was mainly associated with volatility in the data. At the same time, it accounts for slightly less pronounced declines in Brazil and Russia, countries in which the sharp fall of imports can be largely explained by the slump in domestic demand and the depreciation of the exchange rate. However, initial trade data and surveys for the fourth quarter suggest that the pace of global trade growth is slowing again. The growth in world imports of goods slowed to 0.7% (in three-month-on-three-month terms) in November, from 1.7% in October. Import growth momentum again turned negative in EMEs in the light of a sharp drop in emerging Asia (as well as in the Middle East and Africa). By contrast, import growth remained more robust in advanced economies, albeit also moderating somewhat from October. Moreover, global new export orders declined in February to 49.4, down from 50.4 in the previous month, indicating renewed weakness in world trade growth at the turn of the year.

Chart 3

World trade in goods

(left-hand scale: three-month-on-three-month percentage changes; right-hand scale: diffusion index)



Sources: Markit, CPB and ECB calculations.
Note: The latest observation is for February 2016 for PMIs and December 2015 for world trade.

Overall, the outlook for global growth remains one of a gradual and uneven recovery. According to the March 2016 ECB staff macroeconomic projections, world real GDP growth excluding the euro area is projected to accelerate only very gradually from 3.1% in 2015 to 3.2% in 2016, 3.8% in 2017 and 3.9% in 2018. Euro area foreign demand is expected to expand from 0.4% in 2015 to 2.2% in 2016, 3.8% in 2017 and 4.1% in 2018. Compared with the December 2015 projections, this constitutes a downward revision to world growth, reflecting the weaker than expected outlook in both advanced economies and EMEs. Revisions to euro area foreign demand are broadly in line with those to world growth.

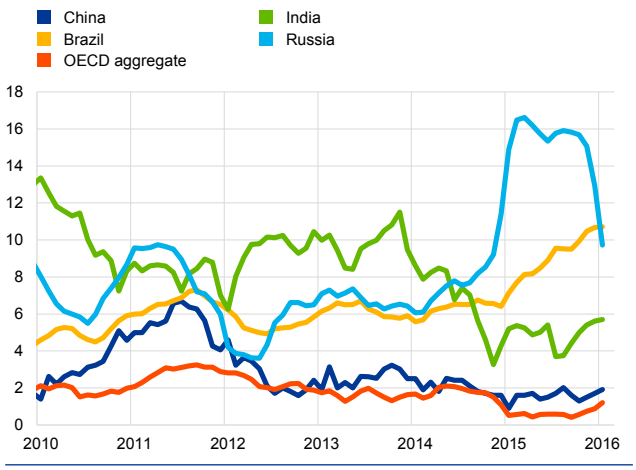
Risks to the outlook for global activity remain on the downside, most prominently for EMEs. A key downside risk is a stronger slowdown in EMEs, including China. Tightening financial conditions and heightened political uncertainty may exacerbate existing macroeconomic imbalances, denting confidence and slowing growth more than expected. Policy uncertainty about the economic transition in China may lead to an increase in global financial volatility. Geopolitical risks also continue to weigh on the outlook. Finally, persistently low oil prices are aggravating fiscal imbalances and raising financial stability issues in some major oil-exporting countries.

Global price developments

Global inflation has increased in recent months, but remains at rather low levels overall. Annual consumer price inflation in the OECD area increased further to 1.2% in January, from 0.9% in December, mainly because of a less negative contribution from energy prices (see Chart 4). Although remaining at low levels, this represents a significant increase relative to the last quarter of 2015 (when the average was 0.7%). Excluding food and energy, OECD annual inflation remained unchanged at 1.9% relative to the previous month, only marginally above the last quarter of 2015 (when it was 1.8% on average). Energy prices continued to fall for the seventeenth consecutive month in January (-5.3% year on year), but at a slower pace, while food price inflation remained broadly unchanged. Among individual countries, headline inflation increased in Canada, the United Kingdom and the United States, while it fell within negative territory in Japan. Among major non-OECD economies, headline inflation increased in China, but declined in India and Russia, while annual inflation remained unchanged at double-digit levels in Brazil.

Chart 4
Consumer price inflation

(year-on-year percentage changes)



Sources: National sources and OECD.
Note: The latest observation is for January 2016.

After falling to 12-year lows at the end of January, oil prices have since recovered somewhat. Oil prices experienced a renewed downturn between mid-October 2015 and the end of January 2016 against the background of an oversupplied oil market and weakening oil demand. On the supply side, OPEC's decision in December to maintain current production levels at record rates and resilient non-OPEC output fuelled downward dynamics. More recently, discussions about an OPEC and non-OPEC agreement on freezing output at January levels and supply disruptions in Iraq and Nigeria contributed to a slight recovery. In the face of heightened volatility, oil prices increased in February and early March. The global oil market continues to be oversupplied as a result of: (i) a low likelihood of a concerted output cut by OPEC and non-OPEC producers; (ii) the return of Iran to global oil markets; and (iii) weakening oil demand. OPEC members continue to produce at near record-high levels, and non-OPEC output also remains high, with Russia producing at record levels, although US shale oil production is

showing signs of a steep decline. OECD oil inventories increased further and were at record levels at the end of the fourth quarter of 2015. Non-oil commodity prices have increased somewhat since the end of January on the back of higher metal prices.

Global inflation is expected to remain subdued in the medium term. On the one hand, low oil and other commodity prices should dampen inflationary pressures further in the short term. At the same time, output gaps are closing slowly in advanced economies and are widening in several EMEs, pointing to continued abundant spare capacity at the global level, which is expected to further weigh on global underlying inflation over the medium term. On the other hand, the upward sloping oil futures curve implies significant increases in oil prices over the medium term.

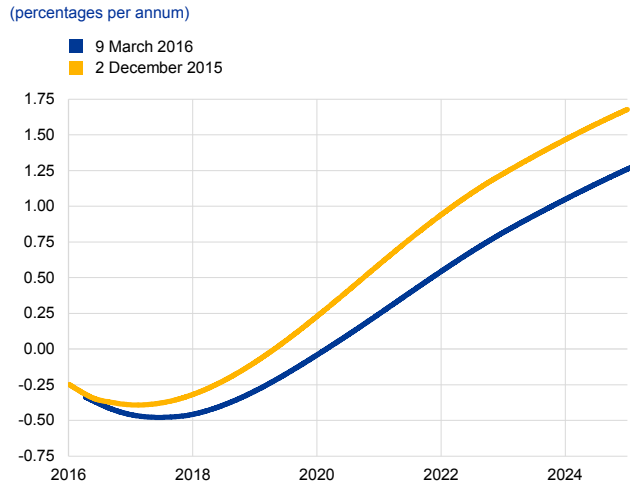
2 Financial developments

Recent months have been characterised by high financial market volatility. Global growth concerns and a further fall in oil prices contributed to a decline in the prices of riskier financial assets from the beginning of December 2015 to mid-February. Thereafter the declines were partly reversed as a rise in oil prices, better than expected economic data in the United States and expectations of further monetary policy stimulus in the euro area reduced investors' concerns. Euro area equity prices declined overall by around 12% over the review period – i.e. from 2 December 2015 to 9 March 2016 – having been temporarily down by more than 20% by mid-February. At the same time, yields of higher-rated sovereign bonds declined as investors sought safer assets.

From early December 2015 to mid-February 2016, global growth concerns and a further fall in oil prices contributed to a sharp decline in the prices of risky assets, which was partly reversed thereafter. Concerns about global growth intensified at the start of 2016 amid a sharp drop in Chinese equity prices and oil prices. These concerns were also fuelled by negative economic indicators in the euro area and the United States, which led to a downward re-pricing of financial assets. From mid-February to early March, a rise in oil prices, better than expected economic indicators in the United States and expectations of further monetary policy stimulus in the euro area contributed to a partial rebound in riskier asset prices. Large fluctuations were also visible in measures of equity market volatility, which increased significantly until mid-February before receding somewhat towards the end of the review period.

The EONIA declined over the review period following the Governing Council's decision to cut the deposit facility rate by 0.10% to -0.30% in December 2015. After ranging between -13 and -15 basis points during the week before the December 2015 rate cut took effect, the EONIA then remained in a range between -22 and -25 basis points, with the exception of a temporary increase at the end of 2015 owing to higher demand for liquidity. The decline in the EONIA occurred against the backdrop of rising excess liquidity in the context of purchases under the expanded asset purchase programme. Box 3 presents more detailed information on euro area liquidity conditions and monetary policy operations.

Chart 5
EONIA forward rates



Sources: Thomson Reuters and ECB calculations.

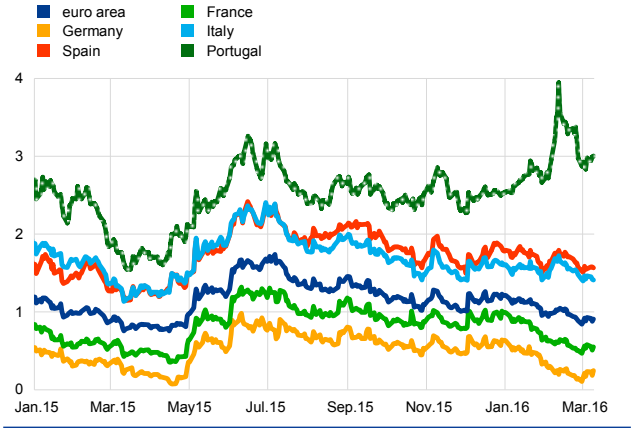
The EONIA forward curve flattened significantly as global uncertainty and expectations about monetary policy compressed yields across the curve. Longer-term EONIA forward rates declined by around 50 basis points during the review period, with somewhat smaller declines at the short end of the curve. This decline led to a further flattening of the curve (see Chart 5). On 9 March the lowest point of the curve stood at around -50 basis points, indicating market expectations of further reductions in the deposit facility rate prior to the Governing Council meeting

on 10 March. The large decline in EONIA forward rates can to some extent be explained by expectations of further monetary policy stimulus from the ECB, with the decline amplified by the increase in global uncertainty that led to shifts in demand for safer assets, including those closely linked to EONIA rates.

The GDP-weighted average of ten-year euro area sovereign bond yields declined by 11 basis points between early December and 9 March (see Chart 6). Euro area sovereign bond yields initially increased after the meeting of the ECB's Governing Council in early December. From the beginning of January 2016 the increase in global uncertainty and the build-up of market expectations of further monetary policy stimulus in the euro area exerted downward pressures on euro area sovereign bond yields, which more than reversed the increase observed in December. Overall, the GDP-weighted average of ten-year euro area sovereign bond yields declined by 11 basis points between early December 2015 and early March, standing at 0.9% on 9 March.

Chart 6
Ten-year sovereign bond yields in selected euro area countries

(percentages per annum)

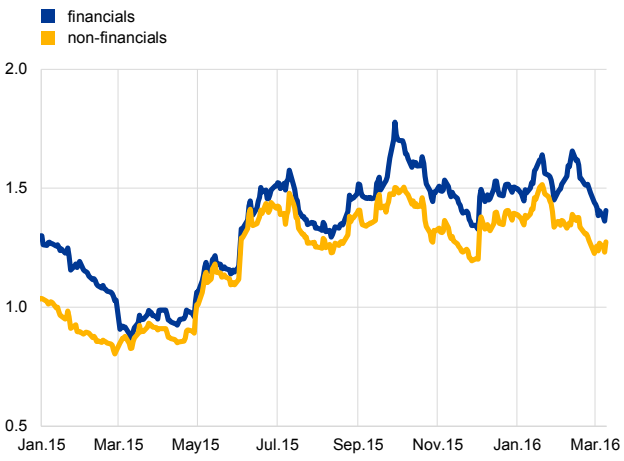


Sources: Thomson Reuters and ECB calculations.
Notes: The item "euro area" denotes the GDP-weighted average of ten-year sovereign bond yields. The latest observation is for 9 March 2016.

There was some divergence in sovereign bond yields across countries, with higher-rated countries recording larger declines. By contrast, yields in the majority of lower-rated countries were unchanged or increased slightly over the same period. In Portugal, sovereign bond yields fluctuated significantly, reflecting market concerns about the state budget and the reform agenda of the newly elected government.

Chart 7
Corporate bond yields in the euro area

(percentages per annum)



Sources: iBoxx and ECB.
Note: The latest observation is for 9 March 2016.

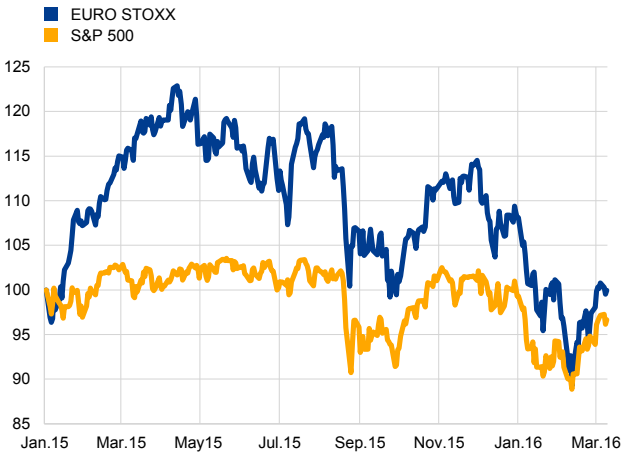
The global sell-off of risky assets also affected corporate bonds, with spreads of lower-rated bonds increasing more than higher-rated ones. While corporate bond spreads increased, corporate bond yields for both financials and non-financials were volatile, but remained overall more or less unchanged over the review period (see Chart 7) as the increase in credit spreads was, on average, offset by declining risk-free rates. Corporate bond yields for both financial and non-financial firms remain very low from a longer-term perspective.

Euro area equity markets strengthened towards the end of the review period, after having declined substiantially between early December and mid-February. Euro area equity prices, as measured by the broad EURO STOXX index, declined by around 21% between early December and 11 February (see Chart 8) as global uncertainty increased. Between 11 February and 9 March equity prices increased again, resulting

Chart 8

Euro area and US equity price indices

(1 January 2015 = 100)

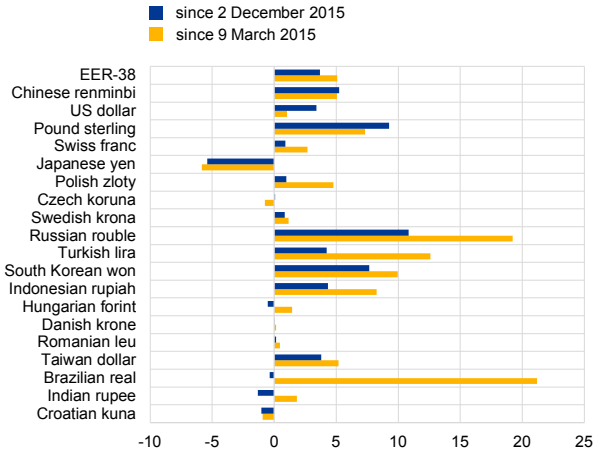


Sources: Thomson Reuters and ECB calculations.
Note: The latest observation is for 9 March 2016.

Chart 9

Changes in the exchange rate of the euro against selected currencies

(percentage changes)



Source: ECB.
Notes: Percentage changes relative to 9 March 2016. 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 an overall decline over the review period of 12%. Prior to the recovery in equity prices, bank equities across the euro area declined significantly more than the overall market as concerns emerged over general profitability in the banking sector, coupled with some country and bank-specific events. Specifically, the EURO STOXX bank equity price index declined by 35% between early December and mid-February. Thereafter, it increased somewhat towards the end of the review period, resulting in an overall decline of around 22%. Equity markets in the United States saw similar fluctuations, albeit smaller, with the S&P 500 index recording an overall decline of only 4%.

The effective exchange rate of the euro appreciated significantly over the three months under review.

The euro appreciated markedly in effective terms between early December 2015 and mid-February 2016 amid the increase in global uncertainty. Since then, the euro has slightly depreciated in effective terms and against the US dollar amid widening long-term bond yield spreads between the United States and the euro area and expectations of further monetary policy stimulus from the ECB. Overall, the euro strengthened by 3.7% in trade-weighted terms over the review period (see Chart 9). In bilateral terms, the euro appreciated by 3.4% against the US dollar over the same period. Heightened uncertainty surrounding the United Kingdom's referendum on EU membership weighed on the pound sterling, resulting in the euro appreciating by 9.3%. The euro also appreciated strongly against the Russian rouble, the Chinese renminbi and the currencies of emerging market economies and commodity-exporting countries. Higher volatility and the decline in risk appetite supported the Japanese yen, leading to a euro depreciation against the Japanese currency by 5.4%.

3 Economic activity

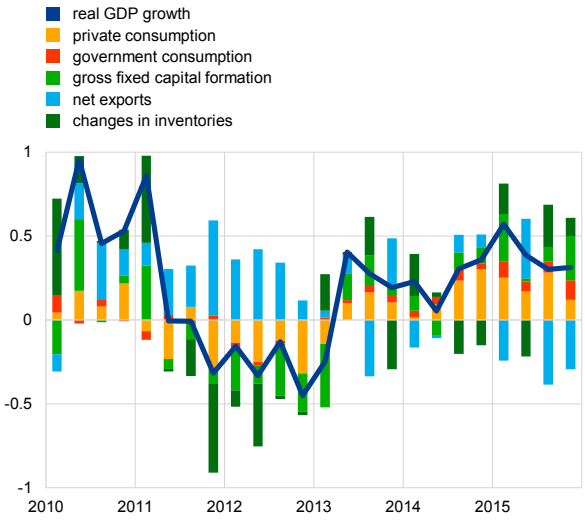
The economic recovery in the euro area is continuing, albeit with signs of a moderation in growth at the beginning of the year due to a weaker external environment. Real GDP growth was 0.3% quarter on quarter in the fourth quarter of 2015, unchanged from the previous quarter. The latest survey indicators point to weaker than expected growth momentum at the beginning of 2016. Looking ahead, the economic recovery is expected to proceed at a moderate pace. Domestic demand should be further supported by the ECB's monetary policy measures and their favourable impact on financial conditions, the slightly expansionary fiscal stance, and the favourable impact on employment of past structural reforms. The low price of oil should provide additional support for households' real disposable income and corporate profitability, and thus for private consumption and investment. However, the economic recovery continues to be dampened by subdued growth prospects in emerging markets, volatile financial markets, the necessary balance sheet adjustments in a number of sectors and the sluggish pace of implementation of structural reforms. The March 2016 ECB staff macroeconomic projections foresee somewhat lower euro area real GDP growth in 2016, at 1.4% (revised down from 1.7%), in 2017, at 1.7% (revised down from 1.9%) and in 2018, at 1.8%.

The economic recovery in the euro area is continuing but global developments are weighing on the short-term outlook. Real GDP grew by 0.3% quarter on quarter in the fourth quarter of 2015, unchanged from the previous quarter, with continued positive contributions from private consumption, albeit to a lesser extent than in the previous quarter, a pick-up in investment and a continued rise in government consumption (see Chart 10).[1] As a result, the level of output stood around 3% above its recent trough and only 0.2% below its pre-crisis peak in the first quarter of 2008. In 2015 as a whole, real GDP grew by 1.6%, its strongest increase since 2011.

Chart 10

Euro area real GDP and its composition

(quarter-on-quarter percentage changes and quarter-on-quarter percentage point contributions)



Source: Eurostat.
Note: The lastest observation is for the fourth quarter of 2015.

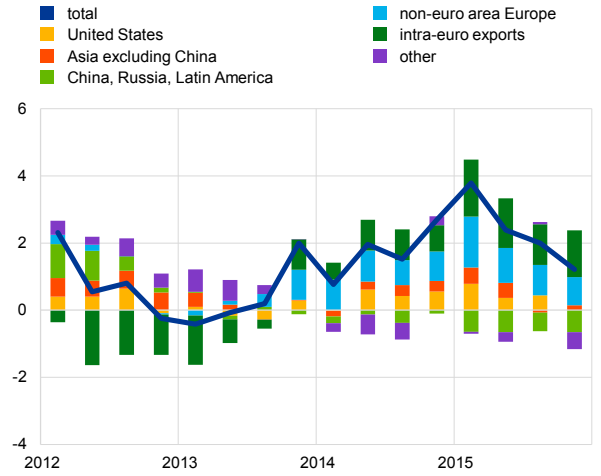
The slowdown in emerging market economies weighed on euro area export growth throughout 2015 and headwinds continued to strengthen in the last quarter. The slowdown in China, weak demand in Russia and the recession in Brazil remained a drag on euro area goods exports (see Chart 11). This led to a negative net export contribution of 0.3 percentage point to real GDP growth in the last quarter of 2015. While the slowing of demand in some large emerging market economies such as China had adverse effects on euro area activity, the impact through the trade

[1] Eurostat's second release of the euro area national accounts revised real GDP growth upwards by 0.1 percentage point for both the first and second quarters of 2015.

Chart 11

Total euro area exports of goods

(year-on-year percentage changes and year-on-year percentage point contributions)

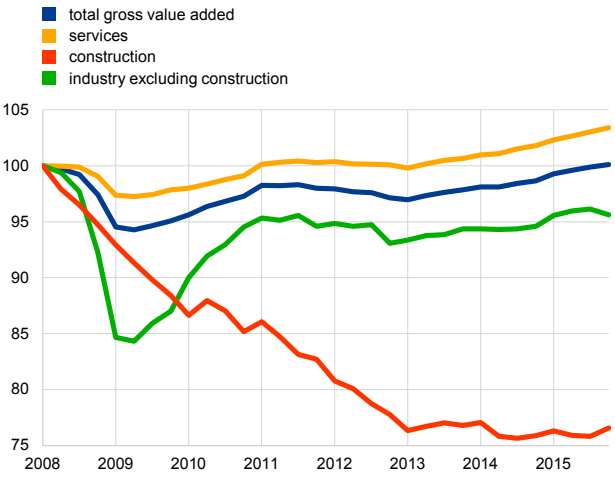


Source: Eurostat.
Notes: The latest observation is for the fourth quarter of 2015. For EU Countries, the fourth quarter is based on data for October and November.

Chart 12

Euro area real gross value added by economic activity

(index: Q1 2008 = 100)



Source: Eurostat.
Note: The latest observation is for the fourth quarter of 2015.

channel is not likely to be as great as traditional gross trade figures would normally imply.[2] The slowing of growth in emerging markets over the course of 2015 was partly offset by the strength of domestic demand in the euro area, which supported intra-euro area trade. In addition, demand from other advanced economies (particularly those within Europe) was also relatively strong. Combined with favourable euro exchange rate developments from mid-2014 onwards, this supported growth in euro area exports, leading to significant gains in export market shares for euro area exporters.

Both export orders and sentiment indicators point to rather subdued global trade developments in the near term. Moreover, the effective exchange rate of the euro appreciated in the first few months of 2016, which will diminish the favourable impact of the previous depreciation of the currency (2014-15) further ahead. However, as global activity gradually picks up, euro area export growth is expected to increase and gain more momentum in line with foreign demand.

At the sector level, services value added has exceeded its pre-crisis level, while industry and construction have not yet done so (see Chart 12). The ongoing economic recovery has largely been driven by private consumption and thus benefited the services sector, with value added in this sector now standing 3% above its pre-crisis peak.[3] For industry (excluding construction), value added growth in 2015 was hampered by the weak external environment and currently stands below its pre-crisis peak. Construction, which suffered a considerable decline due to large housing market corrections following the 2008-09 crisis in a number of countries, has stabilised at low levels. In the fourth quarter of 2015, value added growth continued to increase in the services sector and rebounded somewhat in the construction sector following the relatively mild weather conditions, which supported construction activity in some euro area countries. At the same time, value added in industry (excluding construction) declined.

Survey data available to February point to moderate growth at the beginning of the year. Both the European Commission's Economic Sentiment Indicator (ESI)

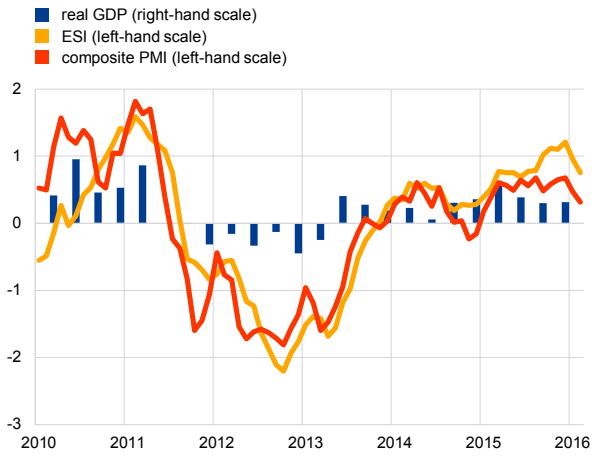
2 See the article entitled "Transmission of output shocks – the role of cross-border production chains" in this issue of the Economic Bulletin.

3 See also the box entitled "Factors behind the comparatively strong activity in euro area services" in this issue of the Economic Bulletin.

Chart 13

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

(left-hand scale: diffusion index and percentage balances; right-hand scale: quarterly growth rates)

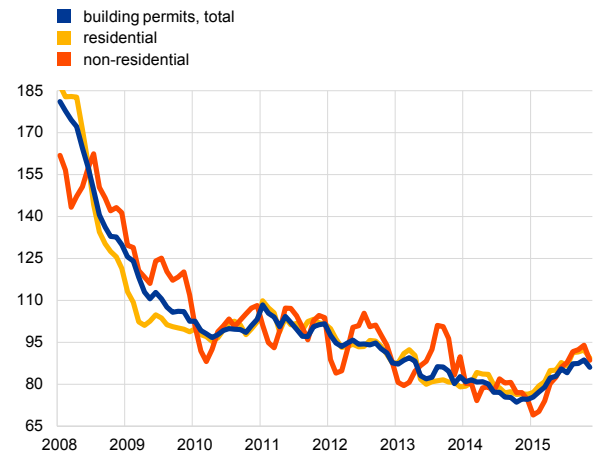


Sources: Markit, DG-ECFIN and Eurostat.
Notes: The latest observation is for the fourth quarter of 2015 for real GDP, January 2016 for the ESI and February 2016 for the PMI. The ESI and PMI are normalised.

Chart 14

Building permits

(index: 2010 = 100, three-month moving averages)



Sources: Eurostat and ECB staff calculations.
Note: The series are seasonally adjusted, with the exception of non-residential building permits, which are not seasonally adjusted.

and the composite output Purchasing Managers' Index (PMI) declined over the first two months of 2016 (see Chart 13) but remain above their respective long-term average levels. The declines in sentiment have been rather broad-based among business sectors and households and relate to expectations about demand and production, as well as to households' assessments of their current economic situation.

Investment growth gathered momentum in the fourth quarter, most likely due to investment in both construction and non-construction equipment. Following weak investment growth in the second and third quarters of 2015, the pick-up in investment growth in the fourth quarter was relatively broad-based across euro area countries. Looking forward, non-construction investment is expected to recover on the back of gradually strengthening demand, improving profit margins and further diminishing spare capacity. Financing conditions are also improving and ample supplies of cash among euro area firms should be available for investment. Likewise, highly favourable financing conditions and low mortgage rates, together with growth in households' disposable income, should bolster demand for residential property in the period ahead and support construction investment. Indeed, signs of strengthening housing markets and increases in applications for building permits in some countries tend to confirm this picture (see Chart 14). Moreover, construction-related survey indicators at the beginning of 2016 suggest a strengthening in the underlying growth momentum of construction investment. Nevertheless, the further need for corporate deleveraging in some countries, recent financial market volatility, weaker growth prospects in emerging market economies and investors' reduced long-term growth expectations may slow the recovery in investment.

Private consumption, which has been the main driver of the ongoing recovery, moderated at the end of 2015. This partly reflected a dampening impact on seasonal clothing sales and energy consumption due to the relatively mild weather conditions, as well as the November terrorist attacks in Paris. Data on retail trade and new passenger car registrations for January point to a rebound in consumer spending and tend to confirm that the slowing of private consumption growth in the last quarter of 2015 was temporary. From a broader perspective, consumer spending has benefitted from rising real disposable income among households, primarily reflecting rising employment, lower oil prices and a fairly stable saving ratio. Moreover, households'

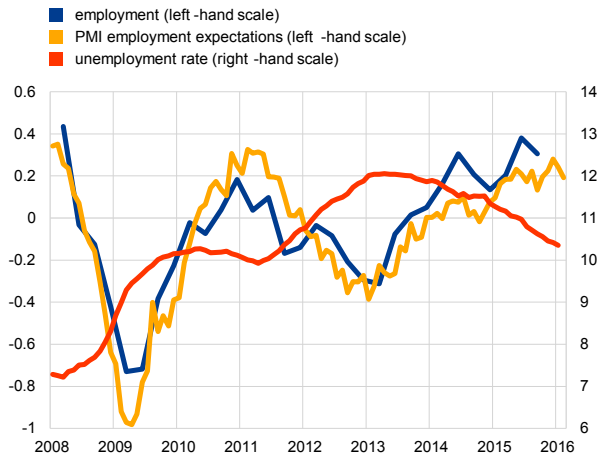
balance sheets have gradually become less constrained and consumer confidence has remained relatively strong due to declining unemployment rates.

The euro area unemployment rate has continued to decline but remains high. In January 2016, the unemployment rate stood at 10.3%, its lowest rate since mid-2011 (see Chart 15). Employment has been increasing steadily since 2013 and total euro area employment increased by over two million in the third quarter of 2015. However, since the crisis, there has been a divergence between headcount employment and total hours worked, primarily driven by a cyclical decline in the working hours of full-time workers and an increase in the use of part-time workers, mainly in the services sector. Wider measures of labour market slack – which also take into account sectors of the population that are involuntarily working part-time or that have withdrawn from the labour market – remain high. With roughly seven million people (5% of the labour force) currently involuntarily working part-time owing to a lack of full-time work and more than six million discouraged workers (those who have given up looking for work and have withdrawn from the labour market), the euro area labour market likely exhibits more slack than suggested by the unemployment rate alone.

Chart 15

Employment, employment expectations and unemployment rate

(quarter-on-quarter percentage changes; diffusion index; percentage of labour force)

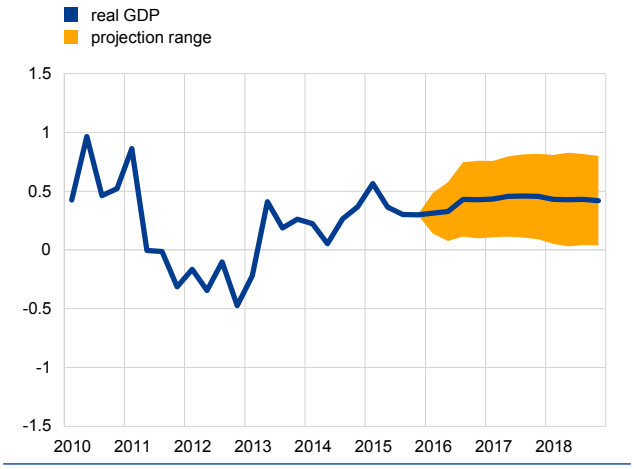


Sources: Eurostat, DG-ECFIN and ECB calculations.
Note: The latest observation is for the third quarter of 2015 for employment, January 2016 for the unemployment rate and February 2016 for the PMI employment expectations.

Chart 16

Euro area real GDP (including projections)

(quarter-on-quarter percentage changes)



Sources: Eurostat and the article entitled "March 2016 ECB staff macroeconomic projections for the euro area", published on the ECB's website on 10 March 2016.

The economic recovery is projected to strengthen, albeit dampened by weaker than expected foreign demand. Headwinds stemming from weaker growth in emerging market economies, a strengthening of the effective exchange rate of the euro, weakened sentiment and increased financial market volatility will weigh on euro area activity in the short term. Looking further ahead, the domestic demand-led recovery should continue to be supported by the effects of the ECB's monetary policy measures, which continue to be transmitted to the real economy as indicated by the further easing of credit conditions. Domestic demand should be further supported by improving labour markets, lower oil prices, the slightly expansionary fiscal stance and an eventual pick-up in euro area foreign demand. At the same time, the economic recovery in the euro area continues to be dampened by subdued growth prospects in emerging market economies and the sluggish pace of implementation of structural reforms.[4]

The March ECB staff projections foresee annual real GDP growth to be 1.4% in 2016, 1.7% in 2017 and 1.8% in 2018 (see Chart 16). The downward

[4] See the box entitled "The 2016 macroeconomic imbalance procedure and the implementation of the 2015 country-specific recommendations" in this issue of the Economic Bulletin.

revision of real GDP growth compared with the December projections mainly reflects the combined adverse impact of lower euro area foreign demand and the stronger effective exchange rate of the euro on export growth, as well as the negative impact of heightened financial market volatility and weaker sentiment indicators. The risks to the euro area growth outlook remain on the downside, reflecting in particular heightened uncertainties regarding developments in emerging market economies and broader geopolitical risks.

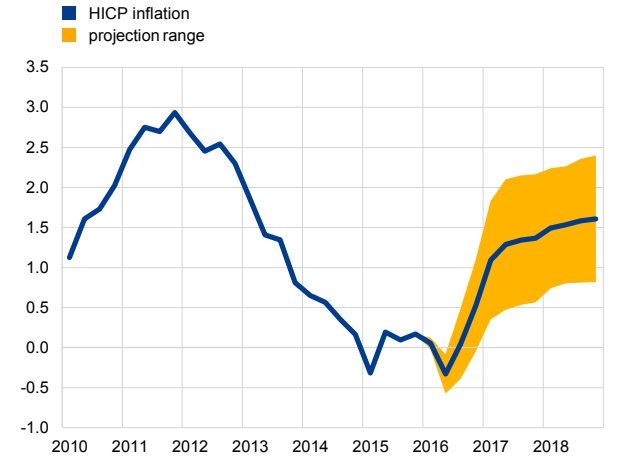
4 Prices and costs

According to Eurostat's flash estimate, euro area annual HICP inflation was -0.2% in February 2016, compared with 0.3% in January. All main HICP components contributed to this decline. Looking ahead, on the basis of current futures prices for energy, inflation rates are expected to remain at negative levels in the coming months and to pick up later in 2016. Thereafter, supported by the ECB's monetary policy measures and the expected economic recovery, inflation rates should recover further. This broad pattern is also reflected in the March 2016 ECB staff macroeconomic projections for the euro area, which foresee annual HICP inflation at 0.1% in 2016, 1.3% in 2017 and 1.6% in 2018. In comparison with the December 2015 Eurosystem staff macroeconomic projections for the euro area, the outlook for HICP inflation has been revised down, mainly reflecting the fall in oil prices over recent months.

Chart 17

Euro area HICP inflation (including projections)

(annual percentage changes)

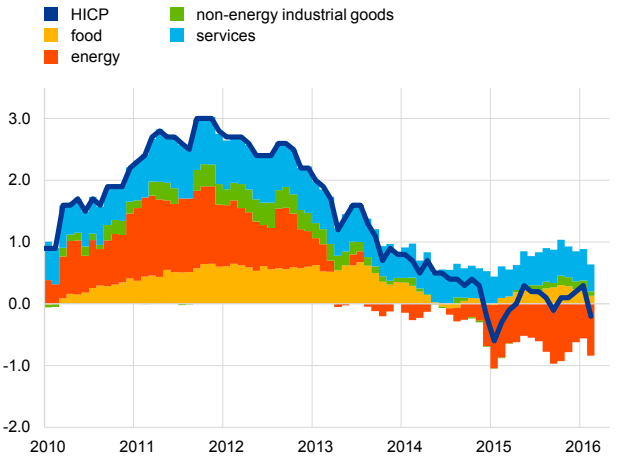


Sources: Eurostat, March 2016 ECB staff macroeconomic projections and ECB calculations.
Note: The latest observation is for the fourth quarter of 2015 (actual data) and the fourth quarter of 2018 (projections).

Chart 18

Contribution 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 February 2016 (flash estimates).

Headline inflation moved back into negative territory in February. According to Eurostat's flash estimate, headline inflation fell to -0.2%, down from 0.3% in January, with all main components of the HICP contributing to the decline (see Charts 17 and 18). The recent further drop in oil prices brought down the already negative annual rate of energy price inflation even further. At the same time, the moderate increases in food price inflation and in HICP inflation excluding food and energy also slowed.

The path of energy inflation continues to shape the profile of headline inflation. After a low of -8.9% in September 2015, the year-on-year HICP energy inflation rate recovered to -5.4% in January 2016, owing mainly to upward base effects. This development accounted for most of the recovery in the headline HICP inflation rate from -0.1% in September 2015 to 0.3% in January 2016. However, renewed oil price declines in December 2015 and January 2016 caused HICP energy inflation to fall again to a year-on-year rate of -8.0% in February, accounting for approximately half of the decline in headline HICP inflation (see Chart 18). The strongest impact of oil prices on energy inflation is visible in fuel prices (see Box 6).

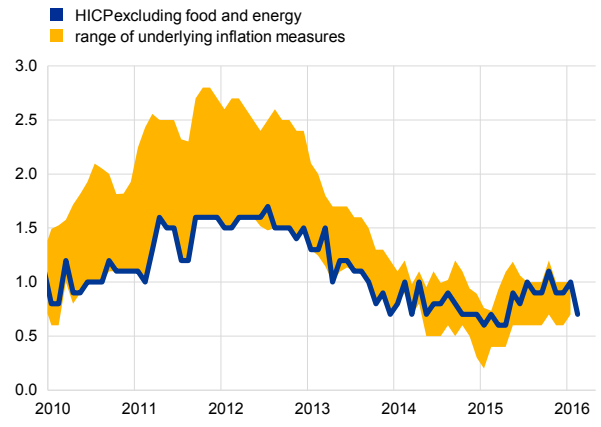
Increases in food price inflation have continued to unwind in recent months. Having followed an upward trend for most of 2015, food price inflation started to decline in the third quarter, falling from a year-on-year rate of 1.6% in October 2015 to 0.7% in February 2016, according to Eurostat's flash estimate. This decline was

driven almost entirely by unprocessed food prices, as a result of the unwinding of the upward effects of last summer's unusually hot weather on vegetable and food prices. By contrast, processed food price inflation continued to increase during that period. Overall, however, food price inflation remains at a relatively low level by historical standards.[1]

Chart 19

Measures of underlying inflation

(annual percentage changes)



Sources: Eurostat and ECB calculations.
Notes: In the range of underlying measures, the following have been considered: HICP excluding energy; HICP excluding unprocessed food and energy; HICP excluding food and energy; trimmed mean (10%); trimmed mean (30%); the median of the HICP; and a measure based on a dynamic factor model. The latest observations are for February 2016 (HICP excluding food and energy, flash estimate) and January 2016 (all other measures).

Measures of underlying inflation fail to show any clear upward trend. Following an upward movement in the first half of 2015, HICP inflation excluding food and energy hovered between year-on-year rates of 0.9% and 1.1% from July 2015 to January 2016 and has therefore been much more stable than headline inflation (see Box 7). Other measures of underlying inflation also remained relatively stable during the same period (see Chart 19). In February, the annual rate of HICP inflation excluding food and energy declined to 0.7% – its lowest level since April 2015. This decrease resulted from lower year-on-year rates of increase in both the prices of services (1.0%, following 1.2% in January) and of non-energy industrial goods (0.3%, following 0.7% in January). When interpreting the latest data for HICP inflation excluding food and energy, it should be borne in mind that annual rates of change in services prices and non-energy industrial goods prices can be highly volatile from one month to another. This volatility can stem, for example, from variations in the timing and extent of end-of-season sales of clothing and footwear, or from calendar effects for travel-related items. However, there may be other more fundamental factors affecting developments in underlying inflation, such as the indirect downward impact of recent further oil price declines (notably on some transport-related services prices). In addition, the recent appreciation of the effective exchange rate of the euro could mean that the anticipated upturn (particularly in durable goods prices) as a result of the earlier depreciation may not fully materialise.

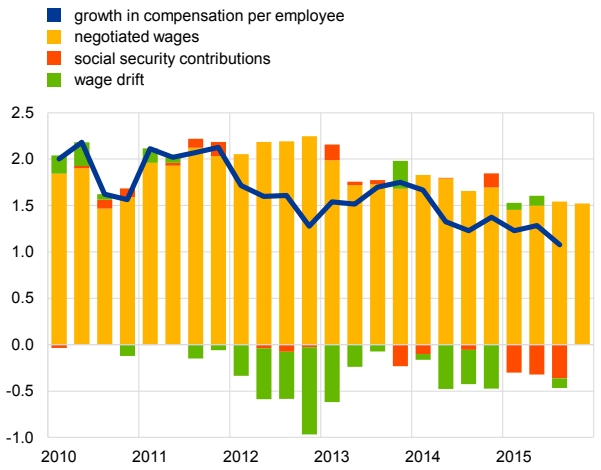
Import prices have grown less strongly recently, but remain the main source of upward pipeline pressures. In 2015 import price inflation in consumer goods excluding food and energy was buoyant, reaching a record high of 5.6% in April of that year. Owing to the recent appreciation of the effective exchange rate of the euro and also to the impact of global disinflationary pressures stemming from lower oil prices, import price inflation in consumer goods excluding food and energy has since fallen, reaching 1.6% in January 2016. However, it remained the principal source of inflationary pressures, given that pipeline pressures from domestic sources were generally more subdued. Notably, the inflation rate in domestic producer prices for non-food consumer goods remained stable at 0.2% for six consecutive months up to January 2016. Survey data on input and output prices for the period up to February 2016 also point to a continuation of subdued domestic price pressures at the producer level.

[1] For a more detailed discussion, see the box entitled "Recent developments in euro area food prices", *Economic Bulletin*, Issue 6, ECB, 2015.

Chart 20

Euro area wage developments

(annual percentage changes; percentage points)

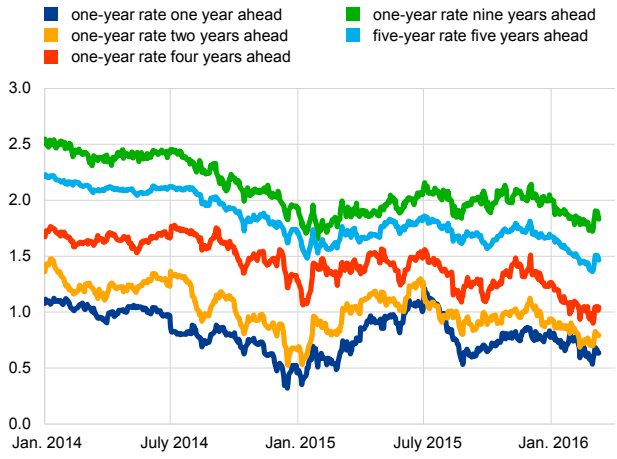


Sources: Eurostat and ECB calculations.
Note: The latest observations are for the fourth quarter of 2015 (negotiated wages) and the third quarter of 2015 (all other indicators).

Chart 21

Market-based measures of inflation expectations

(annual percentage changes)



Sources: Thomson Reuters and ECB calculations.
Note: The latest observations are for 9 March 2016.

Wage growth has remained subdued. At an annual average of 1.2%, growth in compensation per employee was lower in the first three quarters of 2015 than in 2014 (1.4%). This was due to weaker negotiated wage growth (1.5% in 2015, following 1.7% in 2014) and a decline in social security contributions primarily related to country-specific factors (see Chart 20). Wage growth is likely being held back by a range of factors, including continued elevated levels of slack in the labour market, low inflation and the ongoing effects of labour market reforms implemented in past years in a number of euro area countries. Weak growth in wages is also reflecting relatively weak productivity growth, which can partly be explained by the fact that much of the recent strong growth in employment has taken place in the services sector, where productivity and wage levels have been relatively low.

Market-based indicators of long-term inflation expectations have fallen since mid-January in a turbulent market environment, while survey-based measures have remained more stable. Short to long-term market-based indicators of inflation expectations continue to stand at very low levels, with the five-year forward inflation rate five years ahead reaching a new all-time low in February. These exceptionally low levels in part reflect relatively weak appetite in the market for holding financial instruments with inflation-linked cash flows. This indicates that market participants consider it very unlikely that inflation will pick up soon. At the same time, market-based measures of inflation expectations may currently be somewhat distorted amid renewed market turbulence and a flight to liquidity. More specifically, the five-year inflation-linked swap rate five years ahead declined from 1.58% to 1.46% between 18 January 2016 and 9 March 2016 (see Chart 21). Despite the low level of actual inflation and declining market-based inflation indicators, the deflation risk priced in by the market continues to be very limited. In contrast to market-based measures, survey-based measures of long-term inflation expectations, such as those included in the ECB Survey of Professional Forecasters (SPF) and in Consensus Economics surveys, have been more stable and resilient to the downward adjustment of shorter-term expectations. The results of the latest SPF showed the average point forecast for inflation five years ahead standing at 1.8%.

Looking forward, HICP inflation for the euro area is projected to remain low in 2016 but to pick up in 2017 and 2018. Based on the information available in mid-March, the March 2016 ECB staff macroeconomic projections for the euro area foresee that HICP inflation will remain very low at 0.1% in 2016, rising to 1.3%

in 2017 and 1.6% in 2018 (see Chart 17).[2] Over the projection horizon, developments in energy price inflation are expected to play a major role in shaping the profile of HICP inflation. The contribution of energy price inflation is forecast to be negative in 2016 but to turn positive in 2017 as a result of increases in oil prices (in line with oil futures prices) and strong upward base effects. Underlying inflation (as measured, for example, by HICP inflation excluding food and energy) is expected to increase gradually in the coming years as improving labour market conditions and declining economic slack translate into higher wages and profit margins. This increase will be supported by the effects of the ECB's monetary policy measures and the continuing pass-through of previous declines in the effective exchange rate of the euro. Compared with the December 2015 Eurosystem staff macroeconomic projections for the euro area, the outlook for HICP inflation has been revised downwards, mainly on the back of lower energy price inflation.

[2] See the article entitled "March 2016 ECB staff macroeconomic projections for the euro area", published on the ECB's website on 10 March 2016.

5 Money and credit

Money growth has remained solid, while loan growth is recovering only gradually. Domestic sources of money creation continue to be the main driver of broad money growth. Low interest rates, as well as the effects of the ECB's targeted longer-term refinancing operations (TLTROs) and the expanded asset purchase programme (APP), have contributed to improvements in money and credit dynamics. Banks' funding costs have stabilised close to their historical lows. Despite considerable cross-country heterogeneity, banks have been passing on their favourable funding conditions in the form of lower lending rates. Improved lending conditions have continued to support a recovery in loan growth. The total annual flow of external financing to non-financial corporations (NFCs) is estimated to have increased further in the fourth quarter of 2015, after stabilising in the previous two quarters.

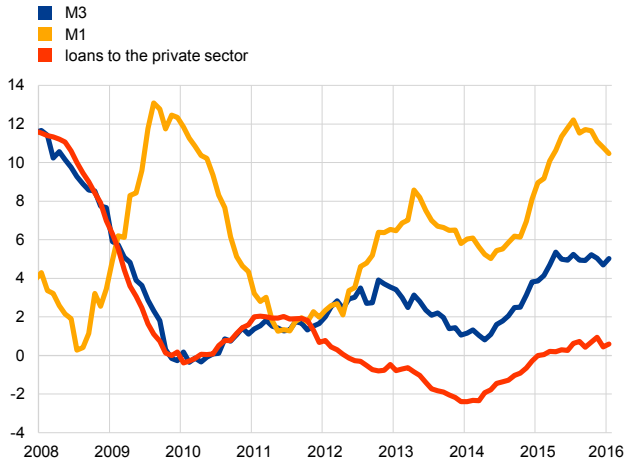
Broad money growth remained solid. The annual growth rate of M3 stayed strong at 5.0% in January 2016, unchanged from the fourth quarter of 2015 (see Chart 22). Money growth was once again supported by the most liquid components of the broad monetary aggregate M3. The annual growth rate of M1 decreased in January 2016, but maintained a high level. Overall, recent developments in narrow money suggest that the euro area remains on a path of economic recovery.

Overnight deposits, which account for a significant proportion of M1, continued to boost M3 growth (see Chart 23). The very low interest rate environment is providing incentives for holding the most liquid components of M3. This development also reflects inflows relating to the sale of public sector bonds, covered bonds and asset-backed securities by the money-holding sector in the context of the APP. By contrast, short-term deposits other than overnight deposits (i.e. M2 minus M1) contracted further, albeit to a lesser extent than in previous months. The growth rate of marketable instruments (i.e. M3 minus M2), a small

Chart 22

M3, M1 and loans to the private sector

(annual percentage changes; adjusted for seasonal and calendar effects)

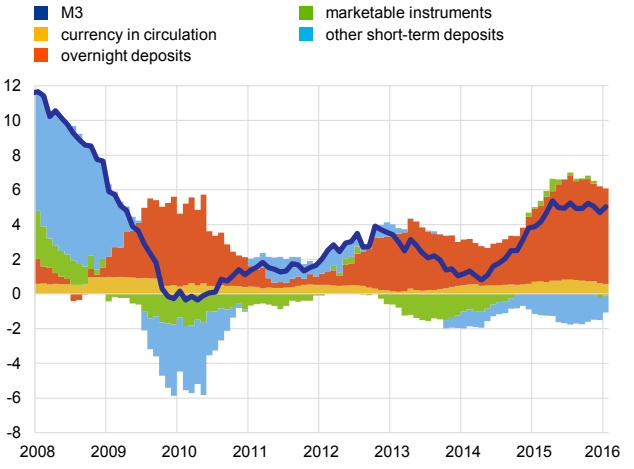


Source: ECB.
Note: The latest observation is for January 2016.

Chart 23

M3 and its components

(annual percentage changes; contributions in percentage points; adjusted for seasonal and calendar effects)



Source: ECB.
Note: The latest observation is for January 2016.

component of M3, was negative around the turn of the year, despite the recovery in money market fund shares/units observed since mid-2014.

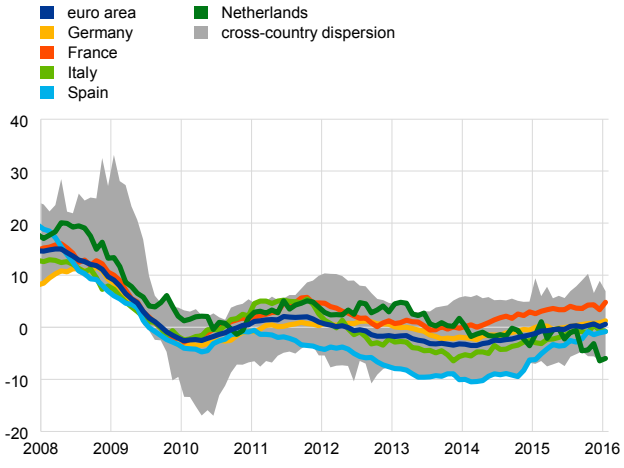
Domestic sources of money creation were again the main driver of broad money growth. This development is partly explained by the ECB's non-standard monetary policy measures. From a counterpart perspective, the largest sources of money creation in January 2016 were the bond purchases made by the Eurosystem in the context of the public sector purchase programme (PSPP) and shifts away from longer-term financial liabilities. A significant percentage of those assets were purchased from MFIs (excluding the Eurosystem). The annual rate of change of MFIs' longer-term financial liabilities (excluding capital and reserves) remained strongly negative at -6.9% in January 2016, broadly the same as in the fourth quarter of 2015. This reflects the flatness of the yield curve, linked to the ECB's non-standard monetary policy measures, which has reduced incentives for investors to hold longer-term bank assets. The attractiveness of the TLTROs as an alternative to longer-term market-based bank funding is a further explanatory factor. In addition, money creation continued to be supported by credit from MFIs to the euro area private sector. The MFI sector's net external asset position was again a drag on annual M3 growth. This development reflects capital outflows from the euro area and the ongoing portfolio rebalancing in favour of non-euro area instruments (more specifically, the euro area government bonds sold by non-residents under the PSPP).

Loan dynamics recovered gradually, but bank lending was still weak.[1] The annual growth rate of MFI loans to the private sector was broadly stable in the fourth quarter of 2015 and January 2016 (see Chart 22). While the annual growth rate

Chart 24

MFI loans to NFCs in selected euro area countries

(annual percentage changes)

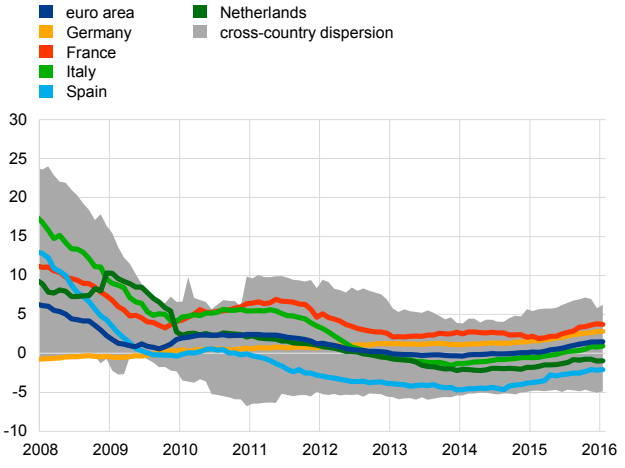


Source: ECB.
Notes: Adjusted for loan sales and securitisation. The cross-country dispersion is calculated on the basis of minimum and maximum values using a fixed sample of 12 euro area countries. The latest observation is for January 2016.

Chart 25

MFI loans to households in selected euro area countries

(annual percentage changes)



Source: ECB.
Notes: Adjusted for loan sales and securitisation. The cross-country dispersion is calculated on the basis of minimum and maximum values using a fixed sample of 12 euro area countries. The latest observation is for January 2016.

[1] On 21 September 2015, the ECB published new data on loans adjusted for sales and securitisation, based on an enhanced adjustment method. For more details, see the box entitled "New data on loans to the private sector adjusted for sales and securitisation" in Issue 7 / 2015 of the Economic Bulletin.

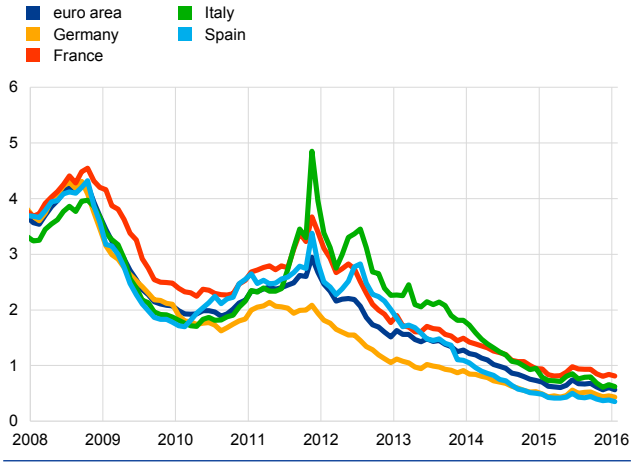
of loans to NFCs remained subdued (see Chart 24), it has recovered substantially from the trough of the first quarter of 2014. This improvement is broadly shared by the largest countries, though loan growth rates still remained negative in some jurisdictions. Similarly, the annual growth rate of loans to households (adjusted for sales and securitisation) picked up slightly in the fourth quarter of 2015 and January 2016 (see Chart 25). The significant reductions in bank lending rates seen across the euro area since summer 2014 (notably owing to the ECB's non-standard monetary policy measures) and improvements in the supply of and demand for bank loans have supported these developments. However, the ongoing consolidation of bank balance sheets and persistently high levels of non-performing loans in some countries continue to hamper loan growth.

Changes in both credit standards and loan demand continued to foster the advancement in loan growth. The January 2016 euro area bank lending survey identified the low general level of interest rates, increased financing needs for fixed investment and housing market prospects as important drivers of increasing loan demand (see survey at: https://www.ecb.europa.eu/stats/money/surveys/lend/html/index.en.html). In this context, the APP had a net easing impact on credit standards and particularly on credit terms and conditions. Banks also reported that the additional liquidity from the APP and the TLTROs was used to grant loans, as well as to replace funding from other sources. Despite these positive trends, loan dynamics remained weak and continued to reflect factors such as subdued economic conditions and the consolidation of bank balance sheets. Moreover, in some parts of the euro area, tight lending conditions are still weighing on loan supply.

Chart 26

Banks' composite cost of debt financing

(composite cost of deposit and unsecured market-based debt financing; percentages per annum)



Sources: ECB, Merrill Lynch Global Index and ECB calculations.
Notes: The composite cost of deposits is calculated as an average of new business rates on overnight deposits, deposits with an agreed maturity and deposits redeemable at notice, weighted by their corresponding outstanding amounts. The latest observation is for January 2016.

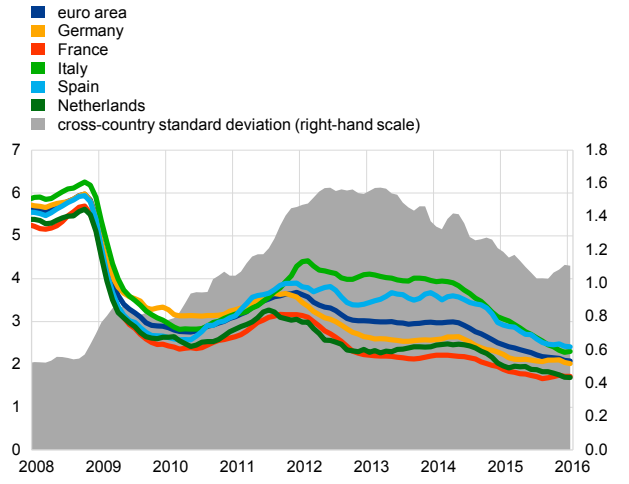
Banks' funding costs remained close to their historical lows, despite the repricing of bonds that occurred at the beginning of 2016. The composite cost of bank funding has been declining for a number of years (see Chart 26) against the backdrop of net redemption of MFIs' longer-term financial liabilities. In general, the ECB's accommodative monetary policy stance, a strengthening of balance sheets and receding fragmentation across financial markets have supported the decrease in banks' composite funding costs. Meanwhile, as regards banks' access to funding, the January 2016 euro area bank lending survey shows that, with the exception of securitisation, no further improvements were noticeable in the fourth quarter of 2015 for the other major funding instruments.

Bank lending rates for NFCs and households were stable in January 2016, but have declined significantly over the last four years (see charts 27 and 28). Notwithstanding recent signs of stabilisation, composite lending rates for NFCs and households have declined by significantly more than market reference rates since June 2014. This development is also related to receding fragmentation in euro area financial markets and the improvement in the pass-through of monetary policy

Chart 27

Composite lending rates for NFCs

(percentages per annum; three-month moving averages)

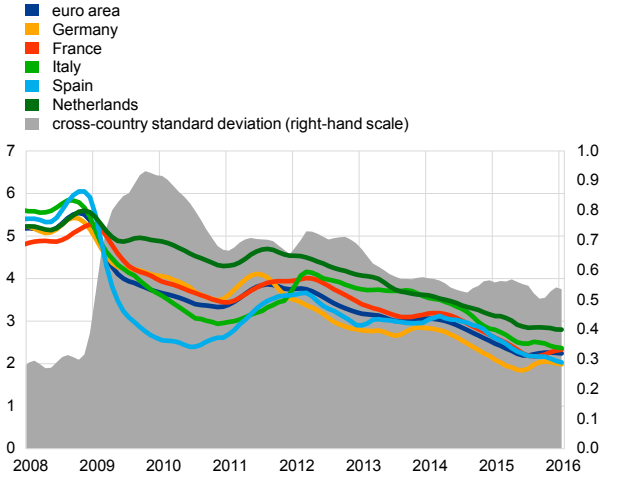


Source: ECB.
Notes: The indicator for the total cost of bank borrowing is calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes. The cross-country standard deviation is calculated using a fixed sample of 12 euro area countries. The latest observation is for January 2016.

Chart 28

Composite lending rates for house purchase

(percentages per annum; three-month moving averages)



Source: ECB.
Notes: The indicator for the total cost of bank borrowing is calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes. The cross-country standard deviation is calculated using a fixed sample of 12 euro area countries. The latest observation is for January 2016.

measures to bank lending rates. Furthermore, the decrease in banks' composite funding costs has supported the decline in composite lending rates. Since the ECB's credit easing package was announced in June 2014, banks have been passing on the decline in their funding costs in the form of lower lending rates. Between May 2014 and January 2016, the composite lending rate on loans to euro area NFCs fell by more than 80 basis points to 2.09%. Over the same period, the composite lending rate on loans to households for house purchase decreased by more than 60 basis points, reaching 2.23% in January 2016. Moreover, 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 has followed a downward path since the start of credit easing. Overall, this indicates that small and medium-sized enterprises are benefiting to a larger extent than large firms from the recent lending rate developments.

The APP and the aforementioned credit easing package have contributed to a significant decline in the cross-country dispersion of borrowing costs for NFCs (as measured by the standard deviation). Vulnerable euro area countries have seen particularly strong reductions in bank lending rates. However, despite some encouraging improvements in credit supply conditions at the level of the euro area as a whole, credit standards continue to vary across both countries and sectors.

The total annual flow of external financing to euro area NFCs is estimated to have increased again in the fourth quarter of 2015, after stabilising in the previous two quarters. NFCs' external financing now stands at levels similar to those witnessed in autumn 2011 (the post-crisis peak) and end-2004 (before the period of excessive credit growth started). The recovery in NFCs' external financing seen since early 2014 has been supported by the strengthening of economic activity, further declines in the cost of bank lending, the easing of bank lending conditions

and the still very low cost of market-based debt. Meanwhile, NFCs further increased their cash holdings in the fourth quarter of 2015, bringing these to a new historical high – a development linked to low opportunity costs and greater uncertainty within financial markets

NFCs' net issuance of debt securities turned negative in January 2016. This contraction was most likely driven by high market volatility and the postponement of planned issuance. Retained earnings registered a double-digit annual growth rate in the third quarter of last year. It is very likely that this ongoing strong growth in retained earnings has also weighed on net issuance in recent months. Since May 2015, debt securities issuance has been substantially weaker than in the first months of last year, when it was boosted by the announcement and implementation of the APP. The net issuance of quoted shares by NFCs has also remained subdued since mid-2015.

The total nominal cost of external financing for euro area NFCs has increased moderately since December 2015, after reaching a historical low last November. This trend mainly reflects the higher cost of equity financing resulting from the decline in stock prices related to a downward revision of the outlook for global economic growth and company profits. At the same time, the cost of market-based debt financing has increased only slightly.

6 Fiscal developments

The euro area budget deficit is projected to remain broadly unchanged over the projection horizon, as a slightly expansionary fiscal policy stance is expected to offset the deficit-reducing impact of improving cyclical conditions and decreasing interest payments. Although the current aggregate euro area fiscal stance can be considered as broadly appropriate, the fiscal stance in several Member States raises concerns in terms of risks of non-compliance with the Stability and Growth Pact (SGP). In particular in the countries with high debt levels, additional consolidation efforts are needed to set their public debt ratio firmly on a downward path, thereby increasing resilience to adverse shocks.

The euro area general government budget deficit is expected to remain broadly unchanged over the projection horizon, interrupting the downward trend that started in 2011. Based on the March 2016 ECB staff macroeconomic projections[1], the general government deficit ratio for the euro area is expected to remain at 2.1% of GDP until 2017, before marginally declining by 0.1 percentage point in 2018 (see Table 1). Compared with the December 2015 projections, the fiscal outlook has worsened slightly over the projection horizon, inter alia owing to carry-over effects following a downward revision of 2015 nominal GDP and slightly more expansionary fiscal policy measures.

Table 1

Fiscal developments in the euro area

(percentages of GDP)

	2013	2014	2015	2016	2017	2018
a. Total revenue	46.6	46.8	46.6	46.3	46.0	45.9
b. Total expenditure	49.6	49.4	48.7	48.5	48.1	47.9
of which:						
c. Interest expenditure	2.8	2.7	2.4	2.2	2.1	2.1
d. Primary expenditure (b - c)	46.8	46.7	46.3	46.2	46.0	45.8
Budget balance (a - b)	-3.0	-2.6	-2.1	-2.1	-2.1	-2.0
Primary budget balance (a - d)	-0.2	0.1	0.3	0.1	0.0	0.1
Cyclically adjusted budget balance	-2.3	-1.9	-1.8	-2.1	-2.2	-2.1
Structural balance	-2.2	-1.8	-1.7	-2.1	-2.2	-2.1
Gross debt	91.1	92.1	91.1	90.8	90.0	89.2
Memo item: real GDP (percentage changes)	-0.2	0.9	1.5	1.4	1.7	1.8

Sources: Eurostat, ECB and March 2016 ECB staff macroeconomic projections.
Notes: The data refer to the aggregate general government sector of the euro area. Owing to rounding, figures may not add up.

The euro area fiscal stance[2] is expected to be slightly expansionary over the projection horizon. The slight loosening of the aggregate fiscal stance can be viewed as broadly appropriate in light of the still fragile recovery. The loosening is largely the result of discretionary tax cuts as well as increases in government expenditure related to the inflow of refugees, which are projected to fully offset the favourable contribution of the cyclical component and the positive impact of lower interest payments on the nominal deficit. The loosening of the fiscal stance is

1 See the March 2016 ECB staff macroeconomic projections for the euro area (https://www.ecb.europa.eu/pub/pdf/other/ecbstaffprojections201603.en.pdf).

2 The fiscal stance is measured as the change in the structural balance, i.e. the cyclically adjusted balance net of temporary measures such as government support to the financial sector.

projected to be particularly sizeable in Germany, Italy and the Netherlands, whereas some further consolidation efforts are expected in Ireland and Cyprus.

Euro area government debt will decline only gradually from its elevated level. The euro area debt-to-GDP ratio is projected to decline slowly from its peak of 92.1% of GDP in 2014 to reach 89.2% of GDP by the end of 2018. The projected reduction in government debt, which is lower than expected in the December 2015 projections, is supported by favourable developments in the interest rate-growth differential, in light of the projected economic recovery and assumed low interest rates. In addition, small primary surpluses and negative deficit-debt adjustments, inter alia reflecting privatisation receipts, will also contribute to the better debt outlook. In a few countries, however, the debt-to-GDP ratio is expected to increase over the projection horizon. By 2018 a large majority of euro area countries will continue to have a debt-to-GDP ratio well above the 60% reference value.

Further consolidation efforts are needed to set the public debt ratio firmly on a downward path. Countries with high debt levels are particularly vulnerable in the event of renewed financial market instability, given the still strong fiscal-financial nexus. Moreover, their capacity to accommodate potential adverse shocks is rather limited. In its recently published Fiscal Sustainability Report 2015[3], the European Commission identified eight euro area countries, namely Belgium, Ireland, Spain, France, Italy, Portugal, Slovenia and Finland, as being exposed to high medium-term fiscal sustainability risks, mainly on account of their elevated government debt levels and/or high implicit liabilities. The report shows that addressing the identified risks requires full implementation of the adjustment requirements as prescribed by the SGP. Against this background, the ECOFIN Council conclusions adopted on 8 March 2016[4] underlined the need for Member States to ensure sustainable fiscal positions and to adhere to the EU fiscal rules. Moreover, countries are well advised to use the windfall profits resulting from the current low interest rate environment for building up buffers and resilience for future shocks.

For a more effective and lasting contribution to economic growth in the medium term, countries should direct their policy action towards well-tailored public investment spending, while keeping in mind the fiscal space available. Although the quantification of the macroeconomic effects is prone to high uncertainty, public investment can be expected to have positive demand effects and raise potential output by increasing the stock of public capital (see also the article on "Public investment in Europe" in this issue of the Economic Bulletin).

While the current aggregate euro area fiscal stance can be considered as appropriate, it hides large differences across individual Member States, with increasing risks of non-compliance with the SGP in some countries without fiscal space. Governments need to strike a balance in their fiscal policy stance between reducing high debt levels and not impairing the recovery, while fully meeting the SGP requirements. It is welcome that countries with fiscal space – such

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3 See *Fiscal Sustainability Report 2015*, European Commission (http://ec.europa.eu/economy_finance/publications/eeip/pdf/ip018_en.pdf).

4 See http://www.consilium.europa.eu/press-releases-pdf/2016/3/40802209647_en_635930313600000000.pdf

as Germany which needs to accommodate the sizeable budgetary impact of the refugee influx – use it. In turn, countries without fiscal space should continue to implement the measures necessary to ensure full compliance with the SGP, thereby addressing debt sustainability risks and increasing resilience to future shocks. In its statement on 7 March 2016[5] the Eurogroup reiterated that there were increased risks that the 2016 budgets in some countries did not comply with the obligations under the SGP and that previous commitments had yet to be translated into concrete action. Compared with the review of draft budgetary plans carried out in November 2015, the number of countries assessed to be at risk of non-compliance has further increased. Besides the four euro area countries which were already identified in November as being at risk of non-compliance (i.e. Italy, Spain, Austria and Lithuania), the Eurogroup now also sees risks of non-compliance for Portugal, based on its new draft budgetary plan, as well as for Belgium and Slovenia, following a worsened risk assessment for both countries compared with November. Moreover, for six countries (France, the Netherlands, Latvia, Malta, Finland and Ireland) at least some risks of deviation from SGP requirements have been identified. While France is expected to meet its headline deficit targets in 2015 and 2016, there are substantial shortfalls in the structural effort for the period up to the 2017 excessive deficit procedure (EDP) deadline, putting the timely correction of the excessive deficit at risk. While the Netherlands is assessed to be compliant with the expenditure benchmark, the structural deficit is expected to worsen considerably over the 2015-16 period, resulting in a deviation from the medium-term objective (MTO) by 1.1 percentage points.[6] Overall, it is essential that the early warning and corrective instruments introduced in the reinforced fiscal framework are fully and consistently implemented.

A brief overview is given below for those seven euro area countries that have been assessed as being at risk of non-compliance with the SGP. The focus is on their expected fiscal position, follow-up actions taken since November 2015 and, where relevant, commitments made in March in the Eurogroup statement to reduce the consolidation shortfalls.

Starting with the countries under the corrective arm, the Eurogroup reiterated in March its call on Spain to implement additional measures to ensure the correction of its excessive deficit in 2016. This reflects the lack of any substantial action since November. According to the Commission's winter forecast, Spain would not fulfil its commitments under the EDP. The 2016 EDP headline deficit target is forecast to be missed by 0.8% of GDP and the structural effort is estimated to have fallen short of the required effort by a very large margin over the 2013-16 EDP period. In this context, the Commission issued an autonomous recommendation on 9 March 2016, indicating that it will reassess in the spring, based on data validated by Eurostat to be published in April, whether to step up the EDP.

Portugal is not projected to have corrected its excessive deficit by the 2015 deadline. According to the Commission's winter forecast, the headline deficit is forecast

5 See http://www.consilium.europa.eu/press-releases-pdf/2016/3/40802209632_en_635929785000000000.pdf

6 The Commission assessed the 2016 budgets of four countries to be fully compliant with the SGP (Germany, Estonia, Luxembourg and Slovakia).

to have reached 4.2% of GDP in 2015, including sizeable fiscal costs related to the resolution of a bank. Given large shortfalls in the structural effort, there is no evidence of effective action, which would be the prerequisite for extending the EDP deadline without stepping up the procedure. The Commission will reassess the situation with respect to the EDP in the spring, based on the Eurostat-validated budgetary outcomes for 2015. Moreover, the Commission in its opinion dated 5 February 2016 assessed the draft budgetary plan for 2016, which the Portuguese authorities submitted in January and amended on 5 February, as being at risk of non-compliance with the SGP. In its statements on 11 February and 7 March the Eurogroup called on the Portuguese authorities to prepare additional measures to be implemented when needed to ensure that the 2016 budget will be compliant with the SGP.

Turning to the countries under the preventive arm, for Italy the Commission's winter forecast points to a gap of 0.8 percentage point of GDP in 2016 vis-à-vis the required adjustment path towards the MTO. This gap is larger than projected in autumn 2015, reflecting additional spending in the 2016 Stability Law that increased the deficit target by 0.2 percentage point to 2.4% of GDP. On the basis of currently available information, there would be a risk of significant deviation from requirements under the preventive arm in 2016 even if Italy were to be granted additional flexibility in the spring. Italy is also projected to be non-compliant with the debt rule in 2015 and 2016. Against this background, the Eurogroup repeated its call to implement the necessary measures to ensure that the 2016 budget will be compliant with the rules of the SGP. On 9 March the Commission notified the Italian authorities of its concerns and indicated that it will assess in the spring whether there is a need to open a debt-based EDP.

Belgium is also projected to be non-compliant with the debt rule in 2015 and 2016 based on the Commission's winter forecast. In view of this, the Eurogroup urged the authorities in its March statement to adopt the necessary structural measures to ensure full compliance with the SGP, which the Commission reiterated in its letter of 9 March to the Belgian authorities. The Commission will assess in the spring whether there is a need to open a debt-based EDP.

The other three countries under the preventive arm, assessed by the Eurogroup in March as being at risk of non-compliance with the SGP, are Slovenia, Austria and Lithuania. For Slovenia, based on the Commission's winter forecast, the excessive deficit is projected to have been sustainably corrected by the 2015 deadline, while the structural effort projected for 2016 falls short of preventive arm requirements. For Austria the structural balance is projected to deviate by more than 0.5% of GDP from the MTO in 2016, although the deviation could be assessed as not being significant after accounting for refugee-related costs. Lithuania is projected to deviate significantly from the requirements of the preventive arm's expenditure benchmark.

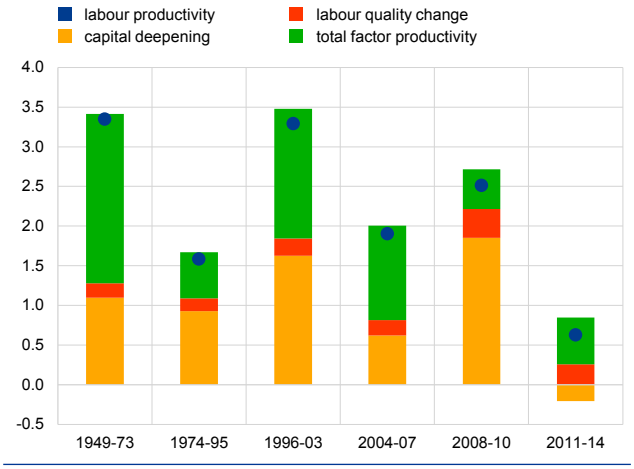
Box 1
The slowdown in US labour productivity growth – stylised facts and economic implications

The long-term growth prospects of the US economy are important from a euro area economic perspective as the United States is a major engine of global activity: US labour productivity growth – a key driver of long-term growth prospects – has been surprisingly weak in recent years. This development has also been observed in many advanced and emerging market economies.[1] Understanding the reasons for the recent slowdown is thus important for assessing the growth outlook for the United States and, in turn, the euro area economy.

Stylised facts and possible explanations

Chart A
Decomposition of labour productivity growth

(percentage point contributions to average annual percentage changes)



Source: US Bureau of Labor Statistics.
Note: Labour productivity is defined as output per hour worked.

Historically, US labour productivity growth (defined as output per hour worked) in the business sector has varied greatly (see Chart A). Strong growth rates (of 3.3%) in the period 1949-1973 were followed by a sharp slowdown (to 1.6%) in the two decades that followed. The information and communication technology (ICT) boom of the period 1996-2003 led to the "productivity miracle", when labour productivity growth doubled. As the gains from the ICT boom had largely been reaped, productivity growth slowed down to 1.9% in the pre-crisis years (2004-07). While the Great Recession led to a cyclical rebound in 2008-10, this was followed by disappointing labour productivity growth. Since 2011 US labour productivity has grown on average by only 0.5% per year, compared with a long-term growth rate of 2.5%.

A decomposition[2] of US labour productivity growth suggests that most of the slowdown can

1 See *The future of productivity*, OECD, 2015, and *Productivity Brief 2015*, The Conference Board, 2015.

2 According to neoclassical growth accounting, labour productivity growth can be decomposed into contributions of capital deepening, labour quality and TFP. Capital deepening is defined as capital services derived from the stock of physical assets and intellectual property assets, divided by hours worked. Labour quality (or composition) measures the effect of shifts in the age, education and gender composition of the workforce on the efficiency of hours worked. TFP growth is measured as a Solow residual and captures the increase in efficiency (in particular the increase in the efficiency and intensity of the inputs utilised in production) which is due to other factors such as new technologies, more efficient business processes and organisational improvements.

be explained by a decline in the contribution of capital deepening and, to a lesser extent, slower total factor productivity (TFP) growth. TFP growth was already slowing before the global financial crisis in 2008, in part due to the waning of the earlier ICT-induced TFP growth surge[3], but the slowdown was reinforced by the recession that followed. The contribution of capital deepening, by contrast, initially increased during the recession as the large drop in total hours worked led to a sharp rise in the amount of capital per hour. This was followed by a pronounced decline into negative territory over the period 2011-14. In recent years, the contribution of labour quality, the third component of labour productivity, has increased compared with past decades, perhaps as the recession hit low-skilled workers hardest, thus raising the aggregate efficiency of those that remained employed.

Capital deepening has been growing at its weakest rate in over 60 years, largely due to the combination of a sharp slowdown and subsequent weak recovery in business investment, and the cyclical recovery in hours worked. The decline in the rate of capital accumulation seems to be mostly explained by the subdued outlook for economic activity and by uncertainty about whether growth will make a sustained return to pre-recession levels. In addition, mismeasurement (mostly of ICT deflators) could also partly account for the weak investment performance during the recent expansion, leading to underestimates of real GDP and labour productivity growth.[4]

TFP growth is determined by a multitude of factors. These include the resources spent on innovation; how innovation is transmitted to and commercialised in the rest of the economy; the dynamism of firms and the labour market, which governs how quickly innovations are adopted, how long inefficient firms survive and how easily labour moves to its most productive use; and possible misallocations of resources via excessive asset and credit booms.

The slowdown in TFP growth could be linked to reduced business dynamism, which may have lowered the speed and extent of the transmission of innovation within the economy. As spending on research and development and the number of patent applications have held up well in recent years, a decline in the resources spent on innovation is unlikely to be one of the main explanations for the slowdown in TFP growth. This is corroborated by a growing number of technological advances in scientific fields such as robotics and 3D printing. By contrast, while the US economy is known for its dynamism – both in terms of how easily firms can start up and close down, and as regards labour market flexibility – there is some evidence that this dynamism has receded in recent years. In particular, the rate of new business creation declined sharply during the last recession and has not recovered

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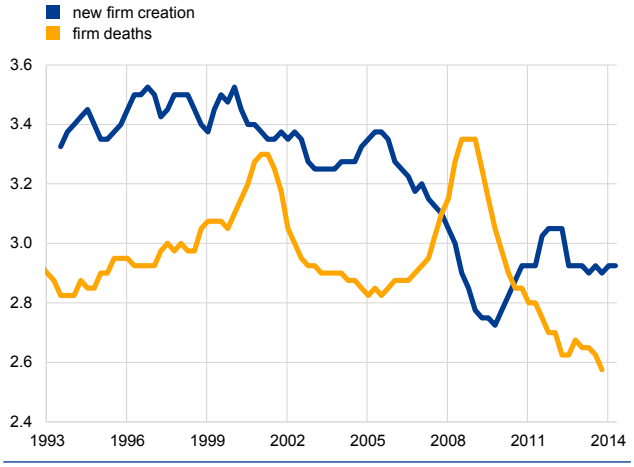
3 See Fernald, J., "Productivity and Potential Output before, during and after the Great Recession", Federal Reserve Bank of San Francisco, *Working Paper Series*, No 2012-18, 2012.

4 Key reasons for potential mismeasurement include a shift in computer investment from domestically produced goods to imported goods, together with less effective efforts to account for rising product quality in imports, as well as the effect of a change in the pricing strategy for microprocessor units by Intel, which led to biases in the matched model methodology. See Byrne, D. and Pinto, E., "The recent slowdown in high-tech equipment price declines and some implications for business investment and labor productivity", *FEDS Notes*, 2015 and Hatzius, J. and Dawsey, K., "Doing the Sums on Productivity Paradox 2.0." *Goldman Sachs US Economics Analyst*, Issue 15/30, 2015.

Chart B

Economic dynamism as measured by business birth and death rates

(percentages of the average number of establishments in the previous and current year; four-year moving average)



Source: US Bureau of Labor Statistics.

since (see Chart B), which could be linked in part to more restrictive credit conditions for small firms and less appetite for risk-taking. The rate of firm failures and bankruptcies has also declined. Lower rates of business creation and death may signal that resources are being hindered from moving to their most productive use.

In addition, the excessive build-up of household debt during the housing boom prior to the financial crisis may have weighed on TFP growth in the recovery owing to a misallocation of resources. Household debt was excessive in the United States for much of the period after 2003, leading to a prolonged period of household deleveraging.[5] During this time of excessive household debt, the housing sector may have drawn in excessive resources and lowered TFP growth.

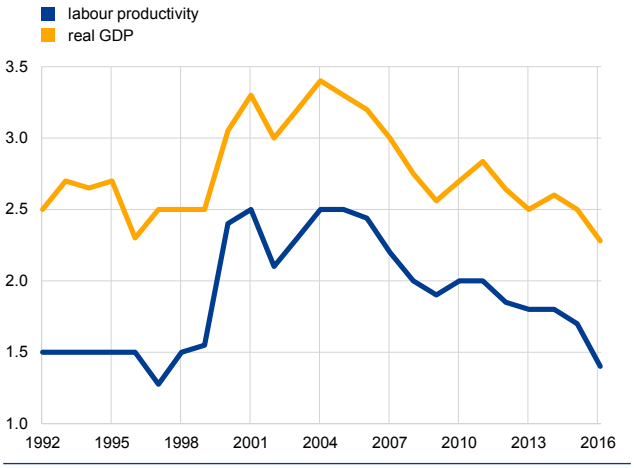
Implications for potential output and wage growth

Although forecasters have successively revised down their estimates of labour productivity growth ten years ahead, the estimates stand above the current very low levels, suggesting some rebound. The median long-term real GDP and labour productivity growth forecasts by the Survey of Professional Forecasters have been revised downwards since 2004, with the latest estimates standing at 2.3% and 1.4% respectively (see Chart C), compared with the 0.5% growth rate of actual labour productivity since 2011. This is consistent with the interpretation that, while some aspects of the productivity growth slowdown, such as firm dynamism, could prove somewhat persistent and recover only gradually, cyclical factors, particularly in relation to capital investment, are expected to unwind more quickly.

Chart C

Median forecasts of labour productivity growth and real GDP ten years ahead

(annual percentage changes)



Source: Survey of Professional Forecasters, Federal Reserve Bank of Philadelphia.

In line with the expected slower productivity growth compared with historical averages, real wages may also grow somewhat more slowly than in the past. Over the long term, if there are no shifts in the labour share, real wages are expected to grow broadly in line with labour productivity growth.[6] Across US industries,

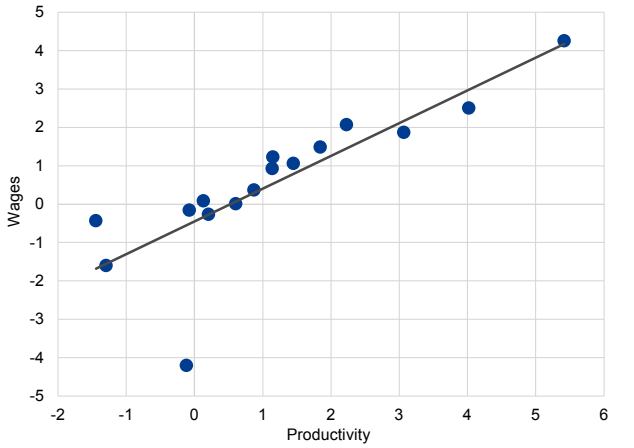
[5] See Albuquerque, B., Baumann, U. and Krustev, G., "US household deleveraging following the Great Recession – a model-based estimate of equilibrium debt", *The B.E. Journal of Macroeconomics* Vol. 15, Issue 1, 2014.

[6] See also Barro, L. and Faberman, J., "Wage Growth, Inflation and the Labor Share", Chicago Fed Letter, No 349, 2015.

Chart D

Real wage and productivity growth across industries

(annual percentage changes; period average: 1999-2014)



Sources: US Bureau of Economic Analysis and ECB calculations.
Notes: The chart covers 16 industries, based on NAICS classifications. Real wages are calculated using a value added deflator.

a positive correlation between the change in real wages per employee and average labour productivity growth is evident in the period 1999-2014 (see Chart D), with real wages growing in most industries at a slower or similar rate to that of labour productivity. In the most recent period (2011-14), both real wage and labour productivity growth have been subdued.

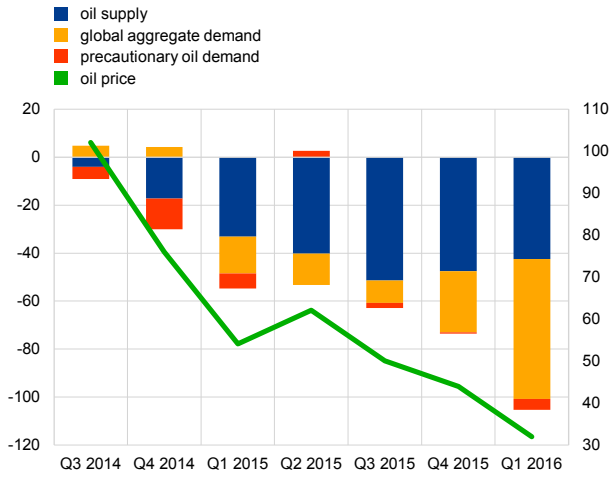
Box 2
Current oil price trends

Oil prices have fallen by 70% since July 2014. Taking a longer-term perspective, the oil price drop can be explained by previous large investments and technological innovations that caused oil production to surge at a time of weakening growth. Technological breakthroughs sparked the shale oil revolution in the United States, and several years of high oil prices, against a backdrop of strong growth in emerging market economies, encouraged large-scale investment in oil. Owing to a considerable lag between investment and production, the resulting supply entered the market when demand for oil was no longer increasing. Although shale oil supply started increasing and global demand growth started slowing as early as 2010 (e.g. in China), supply disruptions in major oil-producing countries (Libya, Iran, Russia and Iraq) linked to geopolitical tensions supported oil prices for several years before they fell abruptly in the summer of 2014. The strategic decision of the Organization of the Petroleum Exporting Countries (OPEC) not to offset the price decline with a cut in production, taken at its November 2014 meeting, caused prices to drop further.

Chart A

Model-based oil price breakdown

(left-hand scale: cumulated contributions of the different oil shocks in percentage points, July 2014 = 0; right-hand scale: nominal oil prices in USD per barrel)

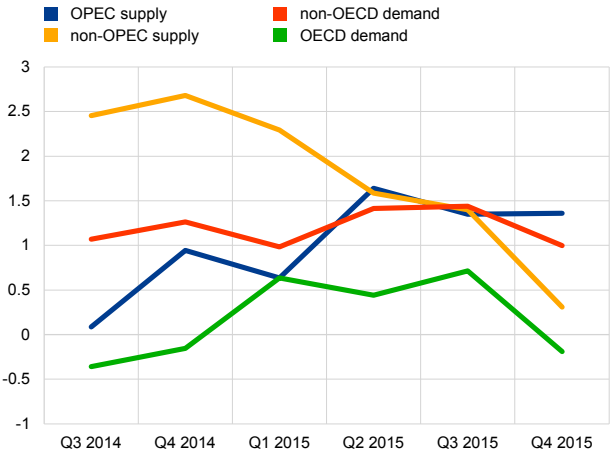


Source: ECB staff calculations.
Notes: The latest observation is for January 2016. The historical breakdowns have been normalised to start at zero in July 2014, when Brent crude oil prices started dropping. A declining contribution indicates that a specific "oil shock" contributed to lowering oil prices and vice versa. The "oil supply shock" captures exogenous changes in oil production, the "global aggregate demand shock" captures changes in oil prices that are endogenously caused by global economic growth developments and the "precautionary oil demand shock" captures changes in expectations about the oil demand/supply balance in the future as reflected in oil inventory holdings. The breakdown is based on Kilian, L. and Murphy, D.P., "The role of inventories and speculative trading in the global market for crude oil", *Journal of Applied Econometrics*, 29(3), 2004, pp. 454-78, using data on oil prices, global

Chart B

World oil supply and demand

(million barrels per day; year-on-year changes)



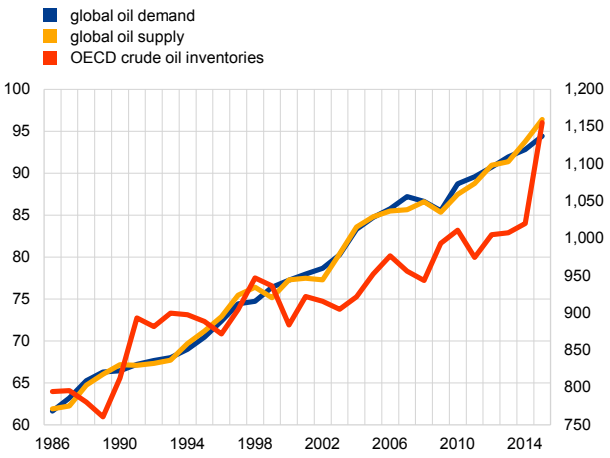
Source: International Energy Agency.

While both demand and supply factors have driven the fall in oil prices since 2014, model-based results show that the initial decline can mostly be explained by supply increases. More recently, however, demand has been the dominant factor (see Chart A). According to staff calculations, around 60% of the 2014 decline was driven by supply factors. After a rebound in the first two quarters of 2015, oil prices dropped again, with demand factors playing an increasing role. This is largely a reflection of the slowdown in aggregate demand, while lower price expectations linked to growth in emerging markets and OPEC's decision not to cut supply (as captured by the precautionary demand shock) also contributed to the recent decline. OPEC supply has trended upwards since mid-2014, while oil demand from non-OECD countries remained strong during 2015. Oil demand from OECD countries declined at the end of 2015, mainly owing to mild winter conditions in the United States and Europe as well as weaker economic sentiment in large emerging market economies (see Chart B).

Chart C

Demand, supply and oil inventories

(left-hand scale: global oil demand and supply in million barrels per day – flow variable; right-hand scale: OECD crude oil inventories in million barrels – stock variable)



Source: International Energy Agency.
Note: Annual data; the latest observation is for 2015.

It will take time before the current oversupply can be absorbed. The arrival of US shale oil and unconventional oil exploration more generally is a structural supply-side shift which might cause oil prices to stay lower for longer. An excess supply of almost 1.4 million barrels per day on average over 2014-15 has caused OECD crude oil inventories to reach historical highs (see Chart C).[1]

A rebalancing is nevertheless expected to occur over time. A theoretical lower bound for oil prices is linked to the level of the marginal cost of production of US shale oil, estimated at around USD 35 per barrel on average.[2]

However, several types of oil production, such as US shale oil, have continued to grow over the past year despite oil prices being below their respective estimated marginal costs. Indeed, several other factors besides these production-specific marginal costs play a role. First, marginal costs differ markedly depending on the type of oil and the specific oilfield, making these averages only a rough indicator of when production would be affected. Second, it is important to take into account cost deflation[3] and increased production efficiency, i.e. marginal costs may decline owing to productivity progress. However, there is already evidence that the number of oil rigs has declined in the United States, indicating lower supply over time.[4]

The current futures curve indicates that oil prices are expected to stay within a range of USD 30-45 per barrel over the next two years. Relative to that projection, the downside risks to oil prices on the supply side are related to further increases in global oil production owing to a stronger than expected return of Iranian oil and the continued resilience of non-OPEC production, in particular US shale oil. On the demand side, a stronger than expected slowdown in emerging economies might affect oil demand negatively. The main upside risks are stronger than expected cutbacks in oil production owing to geopolitical tensions and larger supply fall-backs if oil prices remain persistently low. From 2017 onwards, although the main downside risks still prevail, the risks are increasingly on the upside, as high capital expenditure cutbacks might result in a faster tightening of the supply/demand balance than currently reflected in the futures curve once global economic activity picks up.

1 Average global oil demand in 2014-15 was around 93.6 million barrels per day and average global oil supply 95 million barrels per day. Excess supply amounted to about 1.5% of daily global oil demand.

2 Little, Arthur D., *Where now for oil?*, Viewpoint, 2015.

3 Cost deflation is a general decline in the cost of oil production which, for example, can originate from production efficiency gains or lower service costs (e.g. reduced service fees for contractors to drill oil wells or for support activities such as surveying, cementing, casing and treating wells).

4 Baker Hughes, 2016 (http://phx.corporate-ir.net/phoenix.zhtml?c=79687&p=irol-rigcountsoverview).

Box 3
Liquidity conditions and monetary policy operations in the period from 28 October 2015 to 26 January 2016

This box describes the ECB's monetary policy operations during the seventh and eighth reserve maintenance periods in 2015, which ran from 28 October to 8 December 2015 and from 9 December 2015 to 26 January 2016 respectively. During this period the interest rates on the main refinancing operations (MROs) and the marginal lending facility were left unchanged at 0.05% and 0.30% respectively. Instead, the interest rate on the deposit facility was lowered by 10 basis points from -0.20% to -0.30% as of 9 December 2015.[1] On 16 December the sixth targeted longer-term refinancing operation (TLTRO) was settled for an amount of €18.3 billion, compared with €15.5 billion in the previous TLTRO in September. This brought the total allotted amount in the first six TLTROs to €417.9 billion.[2] In addition, the Eurosystem continued to buy public sector securities, covered bonds and asset-backed securities as part of its asset purchase programme (APP), with a targeted purchase amount of €60 billion per month. In December 2015 the Governing Council decided to extend the APP horizon: the monthly purchases are now intended to run until the end of March 2017 or until there is a sustained adjustment in the path of inflation towards the medium-term objective of inflation below, but close to, 2%. Furthermore, the Governing Council decided to reinvest for as long as is necessary the principal repayments of securities purchased within the APP.[3]

Liquidity needs

In the period under review, the average daily liquidity needs of the banking system, defined as the sum of autonomous factors and reserve requirements, stood at €706.5 billion, an increase of €60.1 billion compared with the previous review period (i.e. the fifth and sixth maintenance periods of the year). The greater liquidity need is almost exclusively attributable to an increase in average autonomous factors, which rose by €59.9 billion to stand at €593.3 billion (see the table).

1 MROs continued to be conducted as fixed-rate tender procedures with full allotment. The same procedure remained in use for the three-month longer-term refinancing operations (LTROs). The interest rate in each LTRO was fixed at the average of the rates on the MROs over the relevant LTRO's lifetime. TLTROs continued to be conducted as fixed-rate tender procedures, with an interest rate equal to the MRO rate.

2 For information on the amounts allotted in TLTROs, see similar boxes in previous issues of the Economic Bulletin, as well as on the ECB's website: www.ecb.europa.eu/mopo/implement/omo/html/index.en.html

3 Detailed information on the expanded APP is available on the ECB's website: www.ecb.europa.eu/mopo/implement/omt/html/index.en.html

The increase in average autonomous factors was mainly a result of increases in average liquidity-absorbing factors – banknotes in circulation, government deposits and other autonomous factors. Other autonomous factors averaged €563 billion, up €20.5 billion from the previous review period, mainly reflecting an increase in quarterly revaluation accounts. Banknotes in circulation rose over the winter holiday period in particular, thereby following their usual seasonal pattern. Banknotes averaged €1,065.3 billion, up €11.4 billion compared with the previous review period. In addition, average government deposits also contributed to the increase in liquidity needs, increasing on average by €8.3 billion to stand at €87.6 billion. The small increase in government deposits shows that, while some treasuries are prepared to accept lower rates in the market, most continue to have few alternatives when placing cash in the market. The further reduction in the deposit facility rate to -0.30% increased treasuries' cost of placing deposits with the Eurosystem. On the other hand, higher levels of excess liquidity tend to bring money market rates even closer to the rate of the deposit facility.

Liquidity-providing factors declined over the period on the back of lower net foreign assets and lower net assets denominated in euro. The decline in net foreign assets by €11.4 billion was chiefly a result of a quarter-end devaluation effect from the third and fourth quarters of 2015. This devaluation of net foreign assets was mainly driven by a decline in the US dollar value of gold which was only partially offset by a depreciation of the euro in the fourth quarter. In addition, net assets denominated in euro averaged €511.0 billion, down €8.3 billion from the previous review period. Net assets denominated in euro declined on account of a fall in financial assets held by the Eurosystem for purposes other than monetary policy, together with a small increase in liabilities held by foreign institutions with the national central banks. Foreign institutions increased their holdings, despite the further cut to the deposit facility rate, which increases the cost of depositing at national central banks. The increase may be due to there being fewer opportunities to find attractive alternatives in the market.

The volatility of autonomous factors remained elevated during the period under review. Such volatility primarily reflected strong fluctuations in government deposits and the quarterly revaluation of net foreign assets and net assets denominated in euro. The volatility remained broadly unchanged from the previous review period, while the level of autonomous factors continued its upward trend.

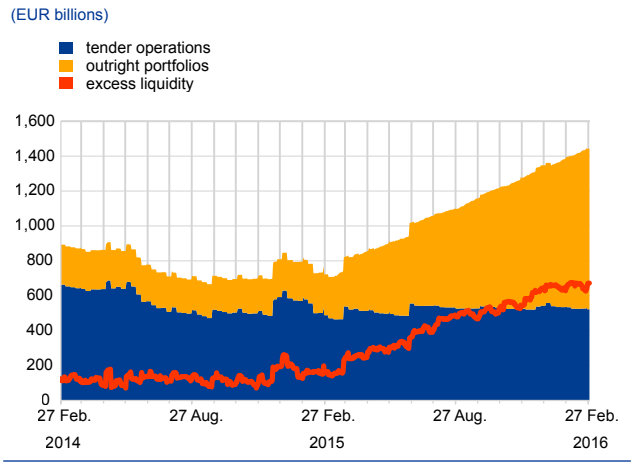
The average absolute error in weekly forecasts of autonomous factors increased by €0.8 billion to €7.2 billion in the period under review and was mainly due to forecasting errors for government deposits. With increasing levels of excess liquidity, and in the presence of increasingly negative short-term money market rates, it became more difficult to anticipate the investment activities of treasuries.

Liquidity provided through monetary policy instruments

The average amount of liquidity provided through open market operations – i.e. tender operations and outright asset purchases – increased by

Chart

Evolution of monetary policy instruments and excess liquidity



Source: ECB.

€176.5 billion to stand at €1,306.9 billion (see the chart). This increase was exclusively due to the outright monetary policy purchases, mainly from the public sector purchase programme, while tender operations remained broadly unchanged during the review period.

Average liquidity provided through tender operations declined by €0.9 billion during the period under review to stand at €532.5 billion. An increase of average liquidity provided by the TLTROs was more than offset by a decline in regular operations. More specifically, the MROs and the three-month LTROs decreased by €2.2 billion and €18.3 billion respectively. The outstanding amount of TLTROs increased by €19.6 billion over the review period, with the largest increase taking place in the eighth maintenance period, reflecting the TLTRO allotment in December 2015.

Average liquidity provided through outright portfolios increased by €177.4 billion to stand at €774.4 billion, mainly on account of the public sector purchase programme. The average liquidity provided by the public sector purchase programme, the third covered bond purchase programme and the asset-backed securities purchase programme rose by €156.5 billion, €25.2 billion and €3.3 billion respectively. The redemption of bonds held under the securities markets programme and the previous two covered bond purchase programmes amounted to €7.8 billion.

Excess liquidity

As a result of the aforementioned increase in liquidity, average excess liquidity rose by €116.4 billion to stand at €600.3 billion in the period under review (see the chart). Most of the liquidity increase was recorded in the eighth maintenance period, when average excess liquidity rose by €86.5 billion on account of continuous purchases and only slightly higher autonomous factors. In the seventh maintenance period, average excess liquidity rose less sharply, increasing by €49.0 billion. This relatively small increase was mainly driven by the rise in autonomous factors, which partially absorbed the increase in the APP.

The rise in excess liquidity was mostly reflected in higher average current account holdings, which increased by €81.0 billion to stand at €527.9 billion in the period under review. This increase was less pronounced for the seventh maintenance period, with an average of €28.5 billion compared with €63.3 billion in the eighth maintenance period. Average recourse to the deposit facility also increased, albeit to a lesser extent (by €35.3 billion), to stand at €185.7 billion.

Table
Eurosystem liquidity situation

	28 October 2015 to 26 January 2016		22 July to 27 October 2015	8th Maintenance Period		7th Maintenance Period	
Liabilities – liquidity needs (averages; EUR billions)							
Autonomous liquidity factors	**1,715.8**	**(+40.1)**	**1,675.7**	**1,720.1**	**(+9.3)**	**1,710.8**	**(+18.0)**
Banknotes in circulation	1,065.3	(+11.4)	1,053.9	1,072.8	(+16.3)	1,056.5	(+4.1)
Government deposits	87.6	(+8.3)	79.3	82.5	(-11.1)	93.5	(-1.6)
Other autonomous factors	563.0	(+20.5)	542.5	564.8	(+4.0)	560.8	(+15.6)
Monetary policy instruments							
Current accounts	527.9	(+81.0)	446.9	557.1	(+63.3)	493.8	(+28.5)
Minimum reserve requirements	113.2	(+0.2)	113.0	113.3	(+0.2)	113.1	(-0.2)
Deposit facility	185.7	(+35.3)	150.4	196.6	(+23.5)	173.1	(+20.3)
Liquidity-absorbing fine-tuning operations	0.0	(+0.0)	0.0	0.0	(+0.0)	0.0	(+0.0)
Assets – liquidity supply (averages; EUR billions)							
Autonomous liquidity factors	**1,122.9**	**(-19.6)**	**1,142.5**	**1,123.7**	**(+1.9)**	**1,121.9**	**(-13.9)**
Net foreign assets	611.9	(-11.4)	623.2	611.6	(-0.6)	612.2	(-6.9)
Net assets denominated in euro	511.0	(-8.3)	519.3	512.1	(+2.5)	509.7	(-7.0)
Monetary policy instruments							
Open market operations	1,306.9	(+176.5)	1,130.4	1,350.3	(+94.2)	1,256.1	(+80.6)
Tender operations	532.5	(-0.9)	533.4	538.5	(+13.1)	525.4	(-6.9)
MROs	69.1	(-2.2)	71.3	71.6	(+5.5)	66.1	(-4.1)
Three-month LTROs	55.3	(-18.3)	73.6	51.6	(-8.0)	59.7	(-9.5)
TLTROs	408.1	(+19.6)	388.5	415.3	(+15.7)	399.6	(+6.7)
Outright portfolios	774.4	(+177.4)	597.0	811.8	(+81.0)	730.7	(+87.6)
First covered bond purchase programme	20.6	(-1.6)	22.2	20.5	(-0.3)	20.8	(-1.1)
Second covered bond purchase programme	9.8	(-0.8)	10.5	9.6	(-0.3)	9.9	(-0.4)
Third covered bond purchase programme	140.2	(+25.2)	114.9	144.4	(+9.2)	135.2	(+12.9)
Securities markets programme	123.1	(-5.4)	128.5	122.9	(-0.5)	123.3	(-3.8)
Asset-backed securities purchase programme	15.2	(+3.3)	11.9	15.5	(+0.5)	15.0	(+1.8)
Public sector purchase programme	465.5	(+156.5)	308.9	498.8	(+72.3)	426.5	(+78.3)
Marginal lending facility	0.1	(-0.2)	0.4	0.2	(+0.1)	0.1	(-0.0)
Other liquidity-based information (averages; EUR billions)							
Aggregate liquidity needs	706.5	(+60.1)	646.5	710.1	(+7.7)	702.4	(+31.7)
Autonomous factors*	593.3	(+59.9)	533.5	596.8	(+7.5)	589.3	(+31.8)
Excess liquidity	600.3	(+116.4)	483.9	640.2	(+86.5)	553.7	(+49.0)
Interest rate developments (percentages)							
MROs	0.05	(+0.00)	0.05	0.05	(+0.00)	0.05	(+0.00)
Marginal lending facility	0.30	(+0.00)	0.30	0.30	(+0.00)	0.30	(+0.00)
Deposit facility	-0.25	(-0.05)	-0.20	-0.30	(-0.10)	-0.20	(+0.00)
EONIA average	-0.184	(-0.055)	-0.130	-0.227	(-0.091)	-0.135	(+0.003)

Source: ECB.
* The overall value of the autonomous factors also includes the "Items in course of settlement".
Note: Since all figures in the table are rounded, in some cases the figure indicated as the change relative to the previous period does not represent the difference between the rounded figures provided for these periods (differing by €0.1 billion).

Interest rate developments

In the review period, money market rates decreased further on the back of the cut in the deposit facility rate to -0.30%. In the unsecured market, EONIA averaged -0.184%, down from an average of -0.130% in the previous review period. While EONIA was almost flat in the seventh maintenance period, the cut in the deposit facility rate of 0.10 percentage point with effect from the eighth maintenance period fed through almost one to one into EONIA, which declined by 0.091 percentage point. In the context of the continued increase in excess liquidity, the pass-through to market rates was smooth. Furthermore, secured overnight rates declined in line with the deposit facility rate to levels even closer to the deposit facility

rate. Average overnight repo rates in the GC Pooling market[4] declined to -0.246% and -0.238% for the standard and extended collateral baskets respectively, down 0.059 percentage point and 0.055 percentage point compared with the previous review period.

[4] The GC Pooling market allows repurchase agreements to be traded on the Eurex platform against standardised baskets of collateral.

Box 4
Factors behind the comparatively strong activity in euro area services

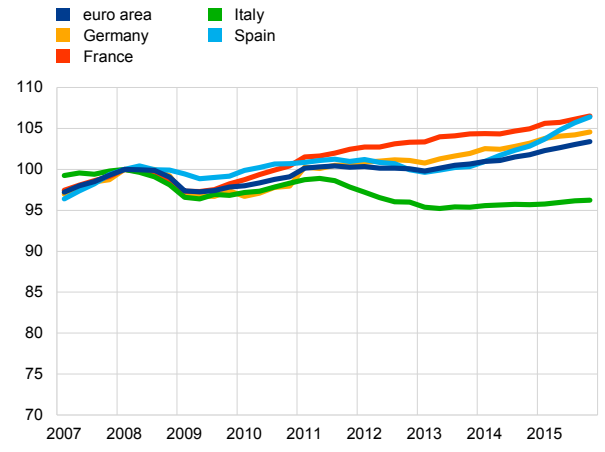
The services sector has been a driving force behind the ongoing recovery in the euro area since the first quarter of 2013, raising the question as to which factors in particular have been behind the comparatively strong activity in services.[1] The total services sector (market as well as non-market) accounts for about three-quarters of total value added in the euro area. Total services value added in volume terms has grown steadily since the trough in the first quarter of 2013 and has recorded all-time highs (see Chart A). Market services have accounted for almost 90% of the total growth in euro area services value added since the first quarter of 2013. In 2015, by contrast, euro area value added in industry (including construction) was still almost 10% below its peak at the beginning of 2008 (see Chart B). Looking at the largest euro area countries, a similar picture emerges, the main exceptions being comparatively weak total services value added in Italy and all-time highs for German industrial value added in recent quarters.

The European Commission's quarterly business survey of the euro area services sector gives an insight into the factors that are stimulating or hampering market services activity. The survey contains the question "What main factors are currently limiting your business?" and offers respondents the choice

Chart A

Total services value added in the euro area and the four largest euro area countries

(Q1 2008=100; calendar and seasonally adjusted chain-linked volumes)

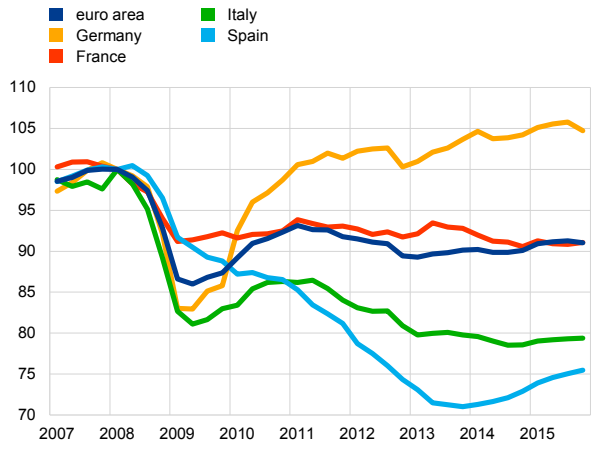


Source: Eurostat.

Chart B

Industry value added in the euro area and the four largest euro area countries

(Q1 2008=100; calendar and seasonally adjusted chain-linked volumes)



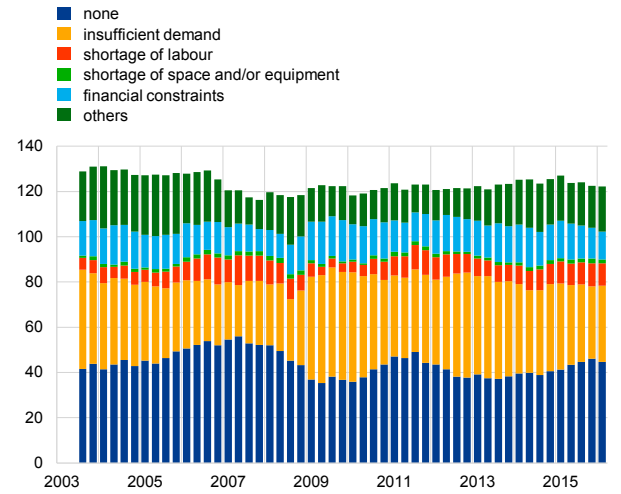
Source: Eurostat.

[1] For a more detailed description of euro area developments across sectors, see the article entitled "Euro area sectoral activity since 2008" in the May 2014 issue of the Monthly Bulletin.

Chart C

Factors limiting services business in the euro area

(percentages of total respondents)



Source: European Commission.
Note: Adds up to more than 100%, because firms can report more than one factor limiting business.

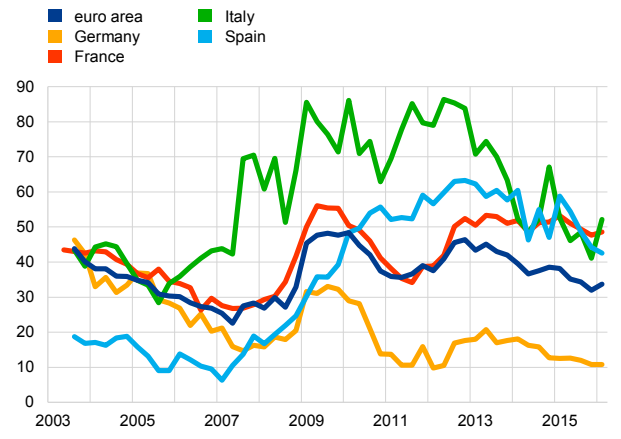
of "none", "insufficient demand", "shortage of labour force", "shortage of space and/or equipment", "financial constraints" and "other factors", with respondents being asked to select however many that apply to them. The factors are reported as a percentage of the total number of respondents.

Even though it has increased, demand remains the main factor reported by euro area market services firms as hampering business, while an easing in financial constraints is also apparent compared with the same time last year. In the ongoing recovery, almost half of all services firms report no constraints on business, as suggested by the indicator on the absence of factors that limit business, which stood at 45% in January 2016 (see Chart C). Even so, it has increased steadily since the fourth quarter of 2012. This finding mirrors developments in the capacity utilisation rate in the services industries, which has also increased steadily since the fourth quarter of 2012. In January 2016 the "insufficient demand" indicator was reported by a third of the companies that responded. A lack of demand thus remains the single most important impediment to market services business, although it has been declining in importance for the last year. The categories "none" and "insufficient demand" were by far the two most frequently reported by services companies (as is usually the case, and also holds for manufacturing and construction firms). The third largest response in January this year, with 20%, was for the category "other factors", which was reported more frequently than in the recession of 2011-13. Services firms have benefited from improving financial conditions, as 12% of services reported in January that "financial constraints" were a factor limiting their business, compared with 16% a year ago. This improvement of 4 percentage points was of a similar magnitude to the improvement in the demand indicator over the same period. To complete the picture, "shortage of labour" was mentioned by 10% of services firms, whereas the factor "shortage of space and/or equipment" was only reported by around 2%.

Chart D

Insufficient demand indicator for services in the euro area and the four largest euro area countries

(percentages of total respondents)



Source: European Commission.
Notes: The latest observations are for the first quarter of 2016.

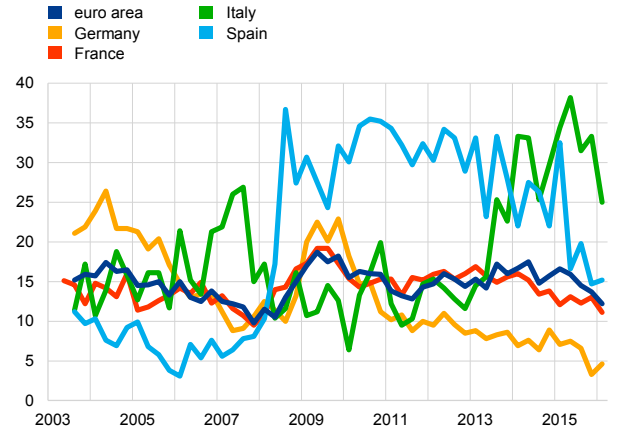
The limits to services business for the euro area as a whole that were reported mask marked differences at the country level. Among the four largest euro area countries, "insufficient demand" is playing a very limited role in Germany, but a more significant one in the other three countries, where around half of the services firms reported a lack of demand (see Chart D). "Financial constraints" was another factor that was more or less absent in Germany in January this year, whereas a quarter of Italian services firms reported that financial conditions were

continuing to hamper business (see Chart E). “Financial constraints” has diminished in importance in Spain since January 2015, when it stood at a similar level to that in Italy. In contrast, “shortage of labour force” was reported to be a factor limiting services business for one in five German services firms, whereas this indicator remains low in Italy and Spain (see Chart F).

Chart E

Financial constraints indicator for services in the euro area and the four largest euro area countries

(percentages of total respondents)

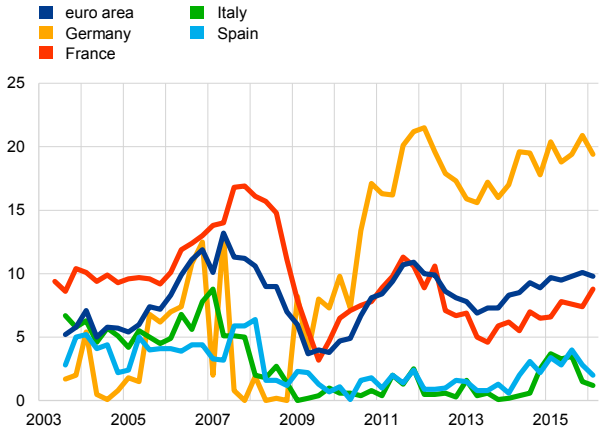


Source: European Commission.

Chart F

Shortage of labour force indicator for services in the euro area and the four largest euro area countries

(percentages of total respondents)



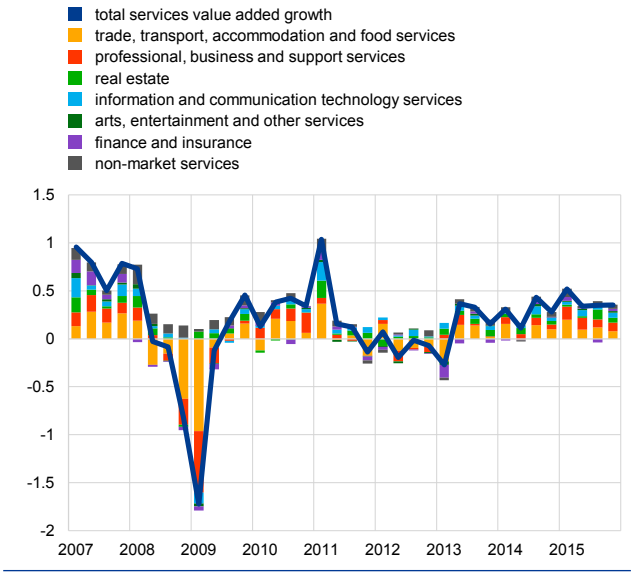
Source: European Commission.

There are also marked differences within the services sector at a more disaggregated level. In recent quarters, an absence of factors limiting services business was reported by about half of the firms active in warehousing and support activities for transportation, real estate activities, and computer programming, consultancy and related activities. This suggests that these market services industries in particular are driving the ongoing recovery. A third of total value added growth in euro area services since the first quarter of 2013 has indeed come from trade, transport, accommodation and food services, and almost a quarter from professional, business and support services (see Chart G). Real estate and information and communication technology services have each contributed in double-digit terms to total euro area services value added growth since the first quarter of 2013. In January financial constraints were reported to be a particular issue for telecommunication firms (one in five firms) and labour shortage for employment activities firms (a share of 40%, the highest since records began in the third quarter of 2003, with employment activities referring to the activities of employment placement firms and temporary employment agencies, as well as other human resources provision).

Chart G

Contributions to total services value added growth in the euro area

(quarter-on-quarter percentage growth; percentage point contributions)



Source: Eurostat.

Overall, insufficient demand remains the single most important factor holding back services business at the euro area level, but other factors play a role at country and sub-sectoral level. For example, factors limiting services business that are reported comparatively often by market services firms are financial constraints in Italy and shortage of labour in Germany.

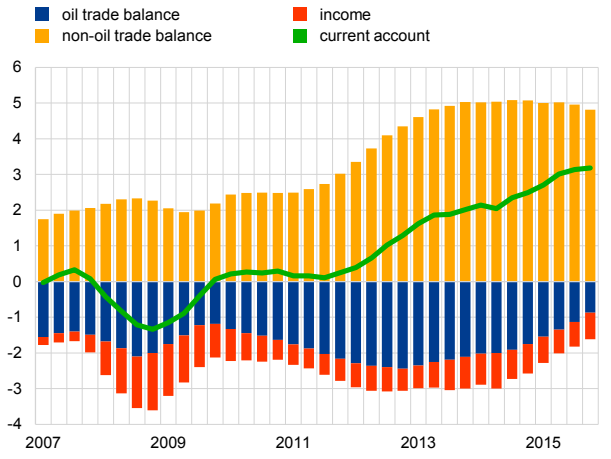
Box 5
The impact of the oil price decline on the current account surplus of the euro area

This box describes the impact of the recent decline in oil prices on the current account balances of the euro area and individual euro area countries.[1] The decline in oil prices started gradually in 2012, before accelerating sharply in the second half of 2014. Between mid-2014 and the end of 2015 the oil price decreased by around 55% in US dollar terms and 45% in euro terms. Since the euro area is a net importer of oil, a drop in oil prices amounts to an improvement in the terms of trade. Moreover, owing to the relatively price-inelastic nature of oil demand, a decline in oil prices is typically associated with improvements in the oil trade balance and the current account balance of the euro area. The same applies for the individual euro area countries, all of which are currently net importers of oil.[2] The direct effect of a fall in oil prices on the current account is usually only partly offset by indirect effects, such as higher demand for non-oil imports on account of stronger domestic economic activity and lower exports of euro area goods and services to oil-exporting countries.

Chart A

Breakdown of euro area current account balance

(percentages of GDP, four-quarter averages, not seasonally-adjusted)



Sources: Eurostat and ECB.
Notes: The decomposition of exports and imports into oil and non-oil components is based on Eurostat's external trade statistics. Non-oil trade includes services. The latest observation is for the fourth quarter of 2015.

The oil trade balance of the euro area has improved by almost 1% of GDP since mid-2014. This explains the widening of the current account surplus from around 2% to just above 3% of GDP (see Chart A). The reduction in the oil bill is broadly in line with the mechanical effect of a decline in oil prices of the observed magnitude at unchanged net import volumes. Among the other components of the current account, the combined income balance improved only slightly over this period, while the trade balance excluding oil was relatively stable.[3] By contrast, the current account improvements recorded in previous years mainly reflected improvements in the non-oil trade balance resulting from the external rebalancing in the euro area. Indeed, from a longer-term perspective, the bulk of the current account adjustment of around 4.5% of GDP since 2008 is explained by increases in euro area exports on account of stronger global demand and competitiveness gains, as well as – during the initial stages – a compression of imports.

1 For the impact of the oil price decline on inflation and economic activity, see the box entitled "The recent oil price decline and the euro area economic outlook", *Economic Bulletin*, Issue 1, ECB, 2015.

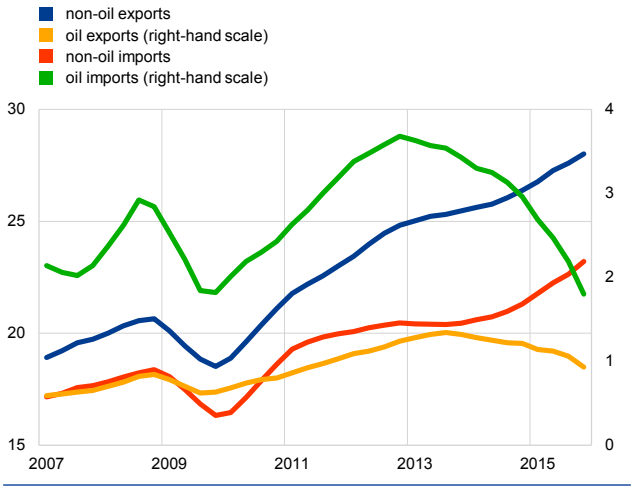
2 In this box, the oil trade balance corresponds to net trade under Category 33 of the Standard International Trade Classification (SITC), i.e. "petroleum, petroleum products and related materials". Some countries with oil-refining industries, such as Greece and the Netherlands, simultaneously record sizeable gross imports and exports under this category.

3 The combined income balance includes primary income (mainly net investment income) and secondary income (net transfer payments).

Chart B

Breakdown of euro area imports and exports

(percentages of GDP, four-quarter averages, not seasonally-adjusted)



Sources: Eurostat and ECB.
Notes: The decomposition of exports and imports into oil and non-oil components is based on Eurostat's external trade statistics. Non-oil trade includes services. The latest observation is for the fourth quarter of 2015.

Over the past year euro area non-oil imports picked up and grew slightly faster than non-oil exports (see Chart B). The value of euro area goods and services imports excluding oil was boosted by the ongoing recovery in domestic demand in the euro area.

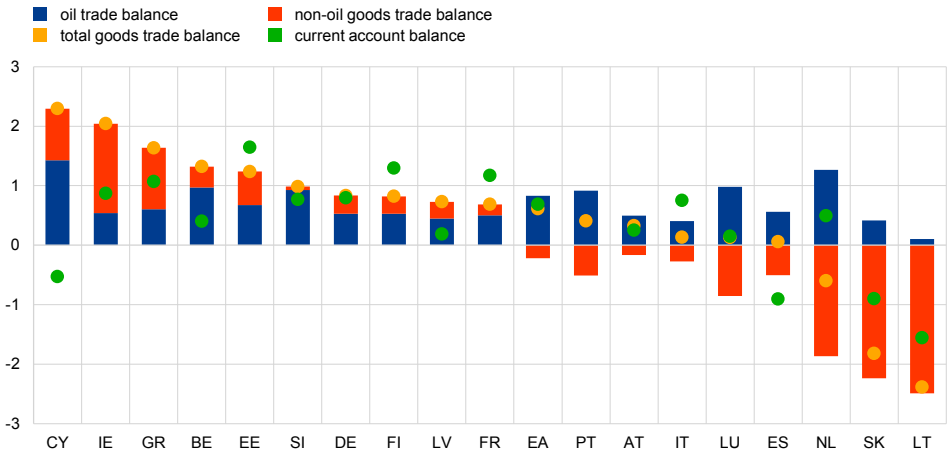
The recent decline in oil prices also resulted in significant current account improvements in many individual euro area countries (see Chart C). Between 2014 and 2015 the oil trade deficits shrank for all euro area countries in a range between 1.4% of GDP in the case of Cyprus and 0.1% of GDP for Lithuania. For many euro area countries, the improvement in the net oil trade balance was the most important factor behind the developments in the current account in 2015. Notably, the widening of Germany's current account surplus over this period is also predominantly explained by the shrinking of the oil trade deficit.

To sum up, the recent oil price decline raised the current account surplus of the euro area by almost 1% of GDP. The path implied by futures markets currently points to a gradual increase in oil prices over the coming years.[4] If this materialises, the oil-related current account improvements in the euro area could be partly reversed in the medium term (see Box 2).

Chart C

Breakdown of changes in goods trade balance and changes in current account balance between 2014 and 2015

(percentages of GDP)



Sources: Eurostat and ECB.
Notes: The goods trade balance is retrieved from Eurostat's external trade statistics. For euro area countries, the change measured is between the four-quarter average up to the third quarter of 2015 and the 2014 annual figure. The latest observation is for the third quarter of 2015 for euro area countries and the fourth quarter of 2015 for the euro area.

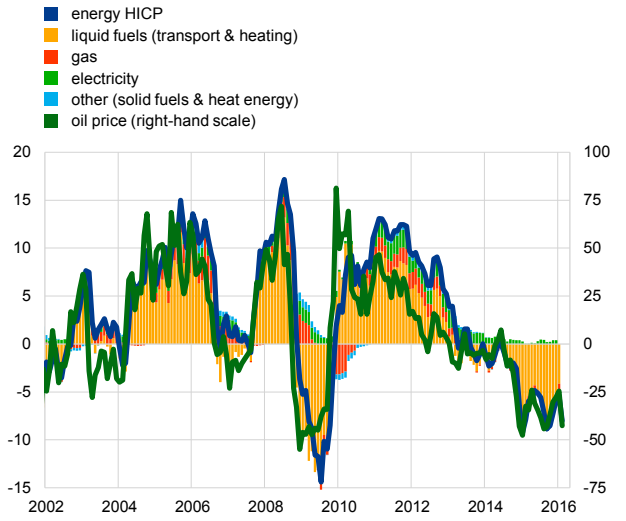
[4] See the "March 2016 ECB staff macroeconomic projections for the euro area", available at http://www.ecb.europa.eu/pub/projections/html/index.en.html

Box 6
Oil prices and euro area consumer energy prices

The major negative impact that energy prices are currently having on headline HICP inflation primarily reflects the effect of changes in the price of oil in euro (see Chart A). However, while fairly close, there is no strict one-to-one relationship between movements in the price of crude oil and overall consumer energy prices. In particular, the co-movement varies in terms of intensity and timing across the main energy components.[1] Against the backdrop of the recent sharp falls in oil prices, this box reviews some pertinent factors that can influence the co-movement in terms of the degree of automaticity, magnitude and timing between oil prices and euro area consumer energy prices. Given that these factors can be different across energy price sub-components, they are assessed separately for liquid fuels, gas and electricity.

Chart A
Oil prices and HICP energy components

(annual percentage changes; percentage point contributions)



Sources: Eurostat, Bloomberg, BIS and ECB calculations.
Note: Latest observations refer to February 2016 (flash estimate for HICP; no breakdown available).

Movements in consumer prices for liquid fuels reflect a direct, complete and quick pass-through of crude oil prices. This pass-through can typically be measured in terms of a few weeks.[2] In the very short term, refining and distribution costs and margins tend to slightly buffer movements in crude oil prices, but evolve in a more stable and independent fashion over longer horizons. For example, petrol, refining and distribution costs and margins have increased slightly since the second half of 2015, but these movements have been swamped by the very large movements in crude oil prices (see Chart B). Indirect taxes account for a significant portion of the final consumer price of liquid fuels. Excise taxes are fixed in terms of euro cent per litre and have no co-movement with oil prices. Value added taxes are levied as a percentage of the price, including excise taxes, and thus co-move with crude oil prices. All in all, the decline in euro area consumer liquid fuel prices by approximately 25% since July 2014 reflects the more or less complete pass-through of the large (more than 60%) decline in crude oil prices in euro terms.[3]

1 See the 2010 Structural Issues Report entitled "Energy markets and the euro area macroeconomy" (also published as *ECB Occasional Paper Series*, No 113). See in particular Section 3.2, entitled "Direct first-round effects".

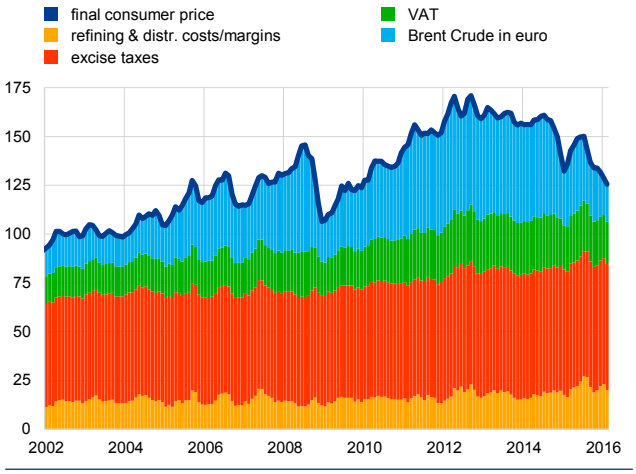
2 On average across the euro area, approximately 75% is passed through within three weeks and more than 90% within five weeks. See Meyler, A., "The pass through of oil prices into euro area consumer liquid fuel prices in an environment of high and volatile oil prices", *Energy Economics*, Vol. 31, Issue 6, November 2009, pp. 867-881.

3 The large share of excise taxes implies that the elasticity of consumer prices with respect to oil prices (i.e. the percentage change in the consumer price in response to a given percentage change in the oil price) is relatively low/high at low/high levels of oil prices.

Chart B

Breakdown of consumer petrol prices

(euro cents per litre)

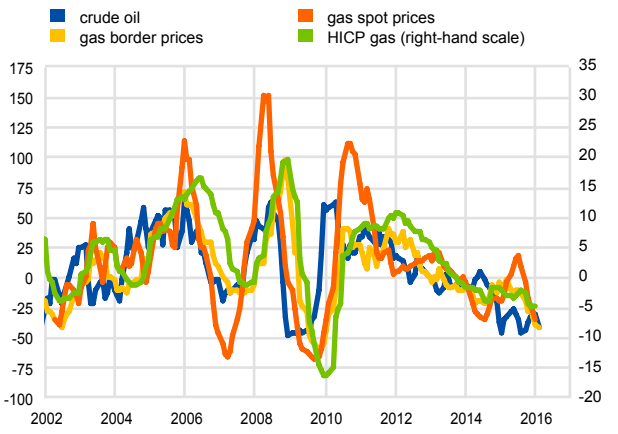


Sources: BIS, Bloomberg, European Commission Oil Bulletin and ECB calculations.

Chart C

Crude oil, wholesale gas and consumer gas prices

(annual percentage changes)



Sources: Eurostat, Bloomberg, BIS, Haver Analytics and ECB calculations.

Consumer gas prices are largely driven by wholesale gas prices, which do not necessarily co-move with oil prices. Traditionally in Europe, wholesale gas prices, in particular contracted gas border prices, were linked by long-term contracts to oil prices with a lag of approximately three to six months. However, as spot markets have developed in Europe, this link has become less prevalent, implying a potential weakening of the link between developments in consumer gas prices and crude oil prices. The share of oil-linked wholesale gas pricing decreased from 80% to 30% between 2005 and 2014.[4] Despite this de-linking, wholesale gas prices have fallen in tandem with crude oil prices in recent years (see Chart C). However, this is more a reflection of the supply-demand balance for gas in Europe than an automatic link with oil price movements.[5] Gas network and distribution costs and margins, as well as taxes, drive a wedge between the wholesale and consumer prices for gas, as is the case with liquid fuel prices.[6] Movements in wholesale gas prices are generally passed through with a short lag of three to six months. The lag in pass-through also means that the distribution costs and margins initially tend to fall when wholesale prices are rising and vice versa, but to revert thereafter. Since July 2014 euro area wholesale gas prices have declined by 33% and consumer gas prices by approximately 5%.[7]

Consumer electricity prices have little direct linkage to developments in oil prices, reflecting the many different ways that electricity is produced. The main methods for generating electricity in the euro area are the use of fossil fuels, such as gas or coal/lignite; the exploitation of renewable energy sources, such as hydro, solar or wind; and nuclear fission. Oil is rarely used to generate electricity; however, owing to the co-movement of gas with oil, there has been some correlation with electricity prices, but this is much weaker and with a longer lag than for liquid fuels or for gas – see Chart D. Furthermore, it is primarily seen in countries where gas accounts for a relatively large

4 See the International Gas Union's *Wholesale Gas Price Survey* – 2015 Edition. See also European Commission, *Quarterly Report on European Gas Markets*, Volume 8, Issue 3; third quarter of 2015.

5 Owing to the costs of shipping gas (requiring liquefaction and regasification facilities), opportunities for international arbitrage (e.g. with US gas) are relatively limited and only profitable when price differentials are quite large.

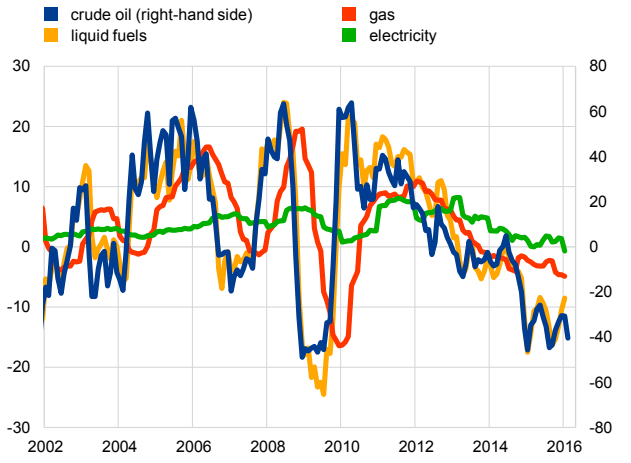
6 On average in 2014 and 2015, wholesale gas prices accounted for approximately 40% of the consumer gas prices, distribution costs and margins made up around 33%, and taxes and levies just over 25%, according to ECB staff calculations derived from Eurostat and Haver Analytics data.

7 Consumer gas prices have declined across all euro area countries, albeit with some differences in magnitude, in part reflecting country-specific regulatory changes.

Chart D

Crude oil prices and consumer energy price components

(annual percentage changes)



Sources: Eurostat, Bloomberg, BIS and ECB calculations.
Note: Latest observations refer to February 2016 (crude oil) and January 2016 (HICP energy components).

portion of the electricity generated. Across the euro area on average, in 2014 (the latest year for which data are available from Eurostat), almost 40% of the electricity price for consumers was accounted for by energy and supply costs, around 25% by network costs and the remainder – approximately 33% – by taxes and levies. Since July 2014 consumer electricity prices in the euro area have increased (by approximately 1%), but decreased marginally in annual terms at the beginning of 2016.

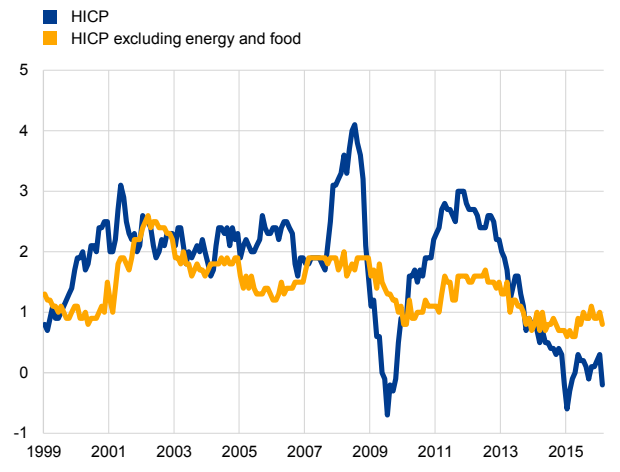
Overall, the current negative inflation in consumer energy prices reflects the impact of oil price declines, primarily via consumer liquid fuel prices. Consumer prices for liquid (transport and heating) fuels – which comprise approximately half of the energy component – have the most direct, strongest and quickest link with oil prices. Consumer prices for gas and, in particular, for electricity tend to have a less direct and weaker link, and respond with a longer lag. Based on oil, gas and electricity prices, as well as on market futures, consumer energy prices – not only for liquid fuels but also for gas – are likely to continue to have a negative impact on inflation in 2016, whilst consumer electricity prices are likely to remain subdued.

Box 7
The relationship between HICP inflation and HICP inflation excluding energy and food

Chart A

Euro area HICP inflation and HICP inflation excluding energy and food

(annual percentage changes)

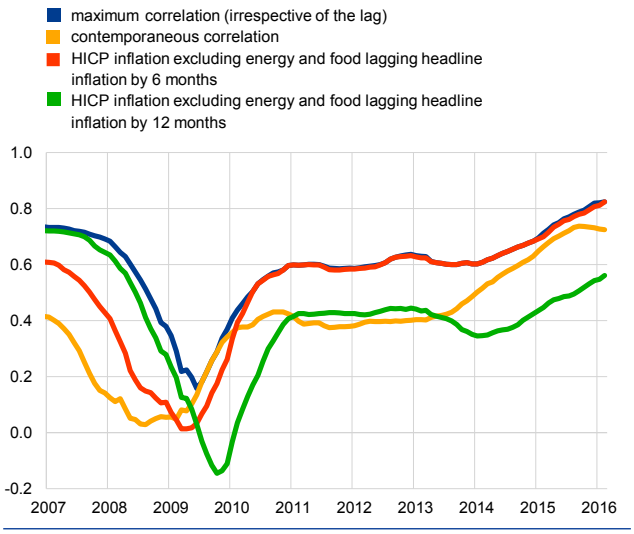


Source: Eurostat.
Note: The latest observations are for February 2016.

Chart B

Correlations and lag structure between headline inflation and HICP inflation excluding energy and food

(coefficient of correlation)



Sources: Eurostat and ECB calculations.
Note: The correlations are computed over an eight-year rolling window; results are qualitatively similar when looking at other horizons, such as a five-year rolling window.

While euro area HICP inflation has been very low or even negative since the end of 2014, HICP inflation excluding energy and food has hovered at levels close to 1% over the same period (see Chart A). The presence of a large difference between headline inflation and HICP inflation excluding energy and food is not unprecedented, although in the past the opposite pattern (with headline inflation being higher) has been observed more often. With headline inflation dipping below HICP inflation excluding energy and food since 2014, interest in the relationship between the two inflation measures and in the role of the latter measure in the economic analysis of the ECB's monetary policy strategy has reignited.

HICP inflation excluding energy and food and headline inflation typically co-move quite closely, with the former lagging the latter. The lag with which HICP inflation excluding energy and food is most closely correlated with headline inflation has become shorter since the financial crisis. To illustrate this, Chart B shows that after the crisis the co-movement with a six-month lag (red line) became stronger than the co-movement with a 12-month lag (green line). The fact that HICP inflation excluding energy and food lags headline inflation in the short run is mainly related to differences in the speed of transmission of commodity price shocks to the various HICP components. For instance, an oil price shock is passed through almost immediately to the HICP energy component, and thus to headline HICP inflation, but there is a lag in its pass-through to other HICP components, via indirect and, possibly, second-round effects. The shorter lag with which the maximum correlation has occurred in recent years may point to a somewhat faster pass-through, but could also simply capture simultaneity in the timing and direction of oil price shocks and other shocks that affect non-energy HICP components.

HICP inflation excluding energy and food is a poor predictor of developments in headline inflation over short horizons, but it can be more informative than headline inflation itself for medium-term inflationary trends. This poorer performance of HICP inflation excluding energy and food as a predictor in the short term is due to the fact that it lags headline inflation. The table shows the root mean squared error (RMSE) for predictions of headline inflation 3, 6, 12 and 24 months ahead for both headline inflation and HICP inflation excluding energy and food. At shorter horizons, such as 3 and 6 months, current headline inflation provides more accurate forecasts than current HICP inflation excluding energy and food, whereas the latter performs better at predicting headline inflation 12 and 24 months ahead. This is consistent with a situation in which one-off shocks to the price level stemming from a change in commodity prices affect the headline inflation rate only for the next 12 months, but not over a longer horizon. The statistical finding that HICP inflation excluding energy and food has better predictive power for medium-term inflationary pressures derives from the fact that it is less "noisy" than headline inflation, as borne out by all the measures of volatility presented in the table. HICP inflation excluding energy and food is thus useful for looking beyond short-term shocks.

Table

Mean, volatility and predictive power for headline inflation, January 1999-February 2016

	Average inflation rate	Volatility			Predictive power for headline inflation at various horizons			
	Mean	Standard deviation	Coefficient of variation	Mean absolute change	RMSE 3 months	RMSE 6 months	RMSE 12 months	RMSE 24 months
Headline inflation	1.79	0.95	0.53	0.18	0.50	0.75	1.18	1.36
HICP inflation excluding energy and food	1.43	0.46	0.32	0.11	0.91	0.95	1.02	1.14

Sources: Eurostat and ECB calculations.
Notes: The coefficient of variation is the standard deviation divided by the mean. The mean absolute change is the average of the absolute value of the monthly first difference of each inflation measure. The RMSE is the square root of the average squared difference vis-a-vis the future headline inflation rate 3, 6, 12 and 24 months ahead. The statistics are computed based on annual growth rates.

HICP inflation excluding energy and food is not an "ideal" measure of underlying inflation.[1] There is no widely accepted definition of underlying inflation, but in practice any such measure should capture the more persistent components of inflation and should thus track inflation trends. However, the HICP excluding energy and food may at any point in time be affected by temporary factors that have no implication for the medium term (e.g. indirect effects of commodity price changes, changes in administered prices, indirect taxes or calendar effects). Moreover, the excluded energy and food components can themselves have more persistent dynamics, for example owing to trends in commodity prices, as was observed in the early 2000s. These dynamics could have implications for inflation in the medium term and should therefore be captured by a measure of underlying inflation. The fact that food and energy prices can have a persistent component is reflected in HICP inflation excluding energy and food being a biased indicator of headline inflation over the medium term, as its long-term average has been below that of headline inflation. Energy prices have increased by an annual average rate slightly below 4% since 1999, driving a gap between average headline inflation and average HICP inflation excluding energy and food.

[1] For a more in-depth discussion on this topic, see the box entitled "Are sub-indices of the HICP measures of underlying inflation?", *Monthly Bulletin*, ECB, December 2013.

The ECB has formulated its price stability objective in terms of headline inflation mainly on account of its relevance for measuring citizens' purchasing power. The preservation of the purchasing power of the currency, as measured by the most representative price index, including energy and food (which account for about 30% of the consumption basket), is what matters for consumers. In addition, any measure of inflation that excludes some of the items in the consumption basket suffers from a certain degree of arbitrariness, which could undermine the credibility of the policy objective.

The medium-term orientation of the ECB's monetary policy ensures that there is no undue emphasis on short-term inflation developments. The very imperfect degree of control that central banks can exert over any measure of inflation in the near term is a key reason why the ECB's monetary policy strategy has been articulated in terms of medium-term inflation stabilisation. The medium-term orientation of monetary policy makes it possible to look through transitory developments and focus on underlying inflation trends. While, under some circumstances, the central bank can extend the length of the medium-term horizon over which it is committed to bringing inflation back into line with its aim, this horizon cannot be stretched to such a length that citizens can no longer verify in any meaningful way whether the central bank's objective has been achieved or not.

In line with these considerations, all central banks in the major industrialised economies focus on headline inflation when formulating their price stability objectives. However, many central banks, including the ECB, monitor a wide range of underlying inflation measures, which abstract from short-term volatility, to gauge inflationary trends. In addition to HICP inflation excluding energy and food, the ECB monitors various exclusion-based measures and model-based measures of inflation, as well as developments in long-term inflation expectations.[2]

[2] See the box entitled "Has underlying inflation reached a turning point?", *Economic Bulletin*, ECB, July 2015; and the article entitled "Inflation expectations in the euro area: a review of recent developments", *Monthly Bulletin*, ECB, February 2011.

Box 8
The 2016 macroeconomic imbalance procedure and the implementation of the 2015 country-specific recommendations

The 2016 macroeconomic imbalance procedure (MIP) represents the fifth time that this macroeconomic surveillance tool has been applied, following its establishment in November 2011. This procedure seeks to prevent the emergence of harmful macroeconomic imbalances in EU countries and correct them where they are excessive. Following the initial screening on the basis of a set of indicators in autumn, the European Commission conducts in-depth reviews of selected countries (as part of its annual country reports) to assess the severity of any imbalances. If imbalances are found to be present, the Member State concerned receives policy recommendations from the Council of the European Union (which are based on recommendations by the Commission) under the preventive arm of the procedure. However, if imbalances are found to be excessive, the excessive imbalance procedure (EIP) is supposed to be initiated following a recommendation by the Commission.[1] Under this corrective arm of the procedure, a corrective action plan needs to be provided in order to explain how these excessive imbalances will be addressed. In the event of a repeated failure to provide an adequate plan or a failure to comply with an approved plan, the Council may impose financial sanctions on the euro area country in question.

Outcome of the European Commission's 2016 MIP assessment

On 8 March the European Commission identified five countries as having excessive imbalances (Bulgaria, France, Croatia, Italy and Portugal; see Table A). Excessive imbalances had already been identified in all five countries last year. For Germany, Ireland, Spain, Netherlands, Slovenia, Finland and Sweden, the Commission identified imbalances. For these countries, a direct comparison with the Commission's 2015 assessments is not possible, given that three of the assessment categories used last year have been merged this year.[2] This new category covers all imbalances that are not severe enough to be labelled "excessive". Another new development this year concerns the Commission's decision to conduct "specific monitoring" for all countries in this new category.

1 See recital 22 of Regulation (EU) No 1176/2011 of the European Parliament and of the Council of 16 November 2011 on the prevention and correction of macroeconomic imbalances.

2 Three old categories ("imbalances which require policy action and monitoring", "imbalances which require decisive policy action and monitoring" and "imbalances which require decisive policy action and specific monitoring") have now been merged to form one category – "imbalances".

Table A

European Commission's conclusions on the 2016 macroeconomic imbalance procedure

(1) No imbalances		(2) Imbalances				(3) Excessive imbalances		(4) Excessive imbalances and application of the corrective arm (EIP)	
2015	2016	2015			2016	2015	2016	2015	2016
		(i) policy actions	*(ii) decisive policy actions*	*(iii) decisive policy actions and specific monitoring*	*varying degrees of specific monitoring*	*specific monitoring*			
CZ	BE*	BE	DE	IE	DE	BG	BG		
DK	CZ	NL	HU	ES	IE	FR**	FR		
EE	DK	RO		SI	ES	HR**	HR**		
LV	EE*	FI			NL	IT	IT		
LT	LV	SE			SI	PT	PT**		
LU	LT	UK			FI				
MT	LU				SE				
AT	HU*								
PL	MT								
SK	AT*								
	PL								
	RO*								
	SK								
	UK*								

Source: European Commission.
Notes: In 2015, countries with imbalances were divided into three categories: (i) imbalances which require policy action and monitoring; (ii) imbalances which require decisive policy action and monitoring; and (iii) imbalances which require decisive policy action and specific monitoring. In 2016, those three categories have been merged into one. The European Commission now intends to conduct specific monitoring (to varying extents) for all countries with imbalances and excessive imbalances. * Countries were the subject of an in-depth review in 2016. The remaining countries in this column were, as early as at the first stage of the MIP – the alert mechanism report – assessed as having no imbalances. ** For Croatia and Portugal, the Commission will specifically review whether their National Reform Programmes will contain sufficiently ambitious policy measures. Only if this is the case will it not invoke the corrective arm. The same has been applied to France and Croatia in 2015.

However, this monitoring process, which last year was applied only to countries with more severe imbalances, will vary across countries depending on the severity of the situation. In addition, the Commission closed the procedures applied to Belgium, Hungary, Romania and the United Kingdom after finding that the imbalances identified last year were no longer present. Estonia and Austria, which were also selected for an in-depth review this year, were also found to have no imbalances. Overall, therefore, the number of countries with no imbalances has increased since last year. However, this seems to stem more from a stronger focus on countries with more severe imbalances, rather than resulting from the adoption of successful policy measures, as the implementation of reforms has been fairly limited overall (see Table B).

Despite having identified excessive imbalances in five countries, the European Commission is not proposing to activate the excessive imbalance procedure (i.e. the corrective arm of the procedure). Thus, it has again decided against making full use of all available measures. The countries with excessive imbalances have, however, been asked to propose ambitious policy measures in their National Reform Programmes (which are to be submitted by April). In the case of Croatia and Portugal, the Commission has specifically indicated that it will scrutinise those programmes, and if they do not contain the necessary policy measures, it will consider opening the excessive imbalance procedure for those two countries in May 2016.

In order to ensure the credibility and effectiveness of the MIP, it is essential to verify ex post that national authorities actually implement the reforms that they have committed themselves to. Against this background, the Commission conducts an annual assessment looking at the extent to which countries are complying with the country-specific recommendations (CSRs) addressed to them.

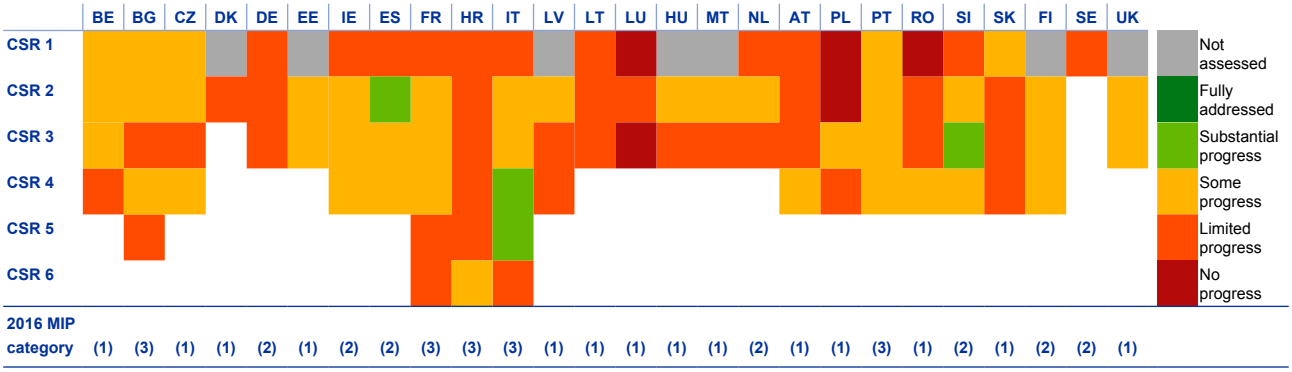
In the case of the 2015 CSRs, the analysis is contained in the country reports published by the Commission on 26 February 2016.

Assessment of the implementation of the 2015 country-specific recommendations

Overall, EU Member States have not yet done enough to implement reforms in response to the 2015 CSRs (see Table B)**.** The Commission finds that, for the overwhelming majority of reform recommendations (more than 90%), there has been only "some" or "limited" progress with implementation, while just a few have been "substantially" or "fully" implemented. This weak reform momentum stands in stark contrast to last year's finding that an increasing number of countries had excessive imbalances. Despite their greater vulnerability, the five countries identified last year as having excessive imbalances did not, on average, achieve significantly higher implementation rates than the average EU Member State. As noted above, this is worrying given that those countries committed themselves to an ambitious reform agenda in 2015, thereby convincing the Commission not to apply the EIP. This casts doubt on the reliability of ex ante reform announcements when deciding whether or not to apply the excessive imbalance procedure.

Table B

European Commission's assessment of the implementation of the 2015 country-specific recommendations



Source: European Commission.
Notes: "No progress" means that the Member State has neither announced nor adopted any measures to address the CSRs. This also applies if a Member State has commissioned a study group to evaluate possible measures. "Limited progress" means that the Member State has announced some measures to address the CSRs, but these measures appear insufficient and/or their adoption/implementation is at risk. "Some progress" means that the Member State has announced or adopted measures to address the CSRs. These measures appear promising, but not all of them have been implemented and implementation is not guaranteed in all cases. "Substantial progress" means that the Member State has adopted measures, most of which have been implemented, which go a long way towards addressing the CSRs. "Fully addressed" means that the Member State has adopted and implemented appropriate measures that address the CSR. "Not assessed" applies to cases in which CSR 1 pertains mostly or exclusively to the Stability and Growth Pact, compliance with which will be assessed by the European Commission in spring 2016.
For 2016 MIP category labels, see Table A.

In fact, reform efforts have deteriorated even further, in spite of a lower number of CSRs. Last year, the Commission concluded that most countries had made only "some" or "limited" progress with the implementation of the 2014 CSRs. This year, the number of cases where "substantial progress" has been made or CSRs have been "fully addressed" is even lower (4%, compared with 7% in 2014). This further loss of reform momentum is made all the more worrying by the fact that the Commission has significantly reduced the number of CSRs (cutting them by a

third, from 157 in 2014 to 102 in 2015) in order to allow Member States to focus on key priority issues of macroeconomic and social relevance.

Overall, Member States have implemented proportionally fewer recommendations on product market than labour market policies. According to the Commission's assessment, "no" or "limited" progress has been made, with around 70% of CSRs calling for product market reforms. The implementation rate for labour market reforms is significantly better, with around 50% of CSRs falling into that category. Examples of product market-related CSRs include calls for Member States to (i) reduce barriers preventing new firms from entering network industries (energy, transport, communication, etc.), (ii) open up closed professions, and (iii) improve their regulatory frameworks in order to foster competition and encourage business-friendly conditions more generally. Improving all of these areas is key to achieving stronger productivity growth.

Neither has there been a particular focus on policies fostering investment. Reforms with the potential to encourage investment growth in Europe span a wide range of policy areas. Besides sector-specific regulation and regulatory quality (in the area of product market reforms), important roles are also played by labour and education, taxation, research and innovation, public administration, insolvency frameworks and the business environment more generally. Given the specific emphasis placed on this issue by the Member States,[3] as well as the Commission's investment plan on reviving investment, one might have expected a higher implementation rate for such reforms. According to the Commission, Member States have made only "some" or "limited" progress with almost all investment-related CSRs.

Full and effective use of all instruments available under the MIP – including its corrective arm – could help to increase the momentum of reform. The further slowdown observed in the implementation of reforms stands in stark contrast to the need to address the major vulnerabilities that remain in many euro area countries and the need to increase resilience. Countries' poor track records in this regard suggest that policy commitments made by Member States in their National Reform Programmes and repeated calls for decisive action on the part of the Commission represent insufficient enforcement mechanisms. The tools available under the corrective arm could improve reform efforts, thereby increasing countries' resilience and improving the functioning of EMU.

[3] As expressed, for example, by the first of the Broad Economic Policy Guidelines approved by the Council on 18-19 June 2015, which focuses on "promoting investment".

Articles
Transmission of output shocks – the role of cross-border production chains

Globalisation has led to a rapid increase in euro area trade and facilitated the build-up of global production chains. Although these developments boost welfare as they increase the international division of labour (which drives growth and productivity), they also pose some challenges. Depending on the position of the euro area and its trading partners in these chains, economic disturbances from other parts of the world can be transmitted to the euro area in a more complex manner than traditional trade statistics can capture. This article describes global value chains in which the euro area participates and explores their role in the transmission of economic output shocks. If the final destination of euro area exports is considered, value added produced in the euro area (including that which is further processed and re-exported by large trading partners) is largely absorbed by advanced economies, notably the United States. Thus the euro area is likely to be relatively strongly affected by demand developments in the United States but less affected by developments in China, for example, which re-exports a proportion of euro area exports.

1 Introduction

The world has become increasingly interconnected following several decades of rapid globalisation, which has facilitated the development of international production chains. This has made it possible for firms to specialise their production in several stages across different countries and benefit from an increase in the international division of labour. While increasing links across the global economy is a positive development – as it improves growth by reducing production costs and transmitting know-how across countries and regions – it may also change the way foreign shocks are transmitted to the euro area.

Gross trade figures in part double-count trade flows, as a portion of exports consists of imported inputs and a part of exported output is later imported back into the country of origin.[1] This implies that any analysis based on gross trade data may overestimate the importance of some trading partners and underestimate the importance of others. This article uses data from the World

[1] See Koopman, R., Wang, Z. and Wei, S.J., "Tracing Value-Added and Double Counting in Gross Exports", *American Economic Review*, Vol. 104, No 2, 2014, pp. 459-94, and Johnson, R. C. and Noguera, G., "Accounting for Intermediates: Production Sharing and Trade in Value Added", *Journal of International Economics*, Vol. 86, No 2, 2012, pp. 224-36.

Input-Output Database[2] to calculate several measures of trade links identified by the literature on global value chains and value added in trade, and examines role of global production chains in transmitting foreign output shocks to the euro area. To streamline the analysis, the focus is on trade with four major trading partners of the euro area, namely the United States, China, the United Kingdom and Russia, which are also interesting cases to consider because they are important for different types of trade. Section 1 provides an overview of trends in euro area trade, focusing on the participation of the euro area in global value chains and outlining different trade measures used in the subsequent analysis. Section 2 discusses the increased importance of external developments for the euro area by tracing euro area value added through the global value chains to its final destination. Section 3 estimates the implications for the transmission of output shocks on the basis of the different trade measures, and Section 4 provides concluding remarks.

2 Characteristics of euro area trade and global value chain participation

The past few decades have seen global trade boosted by technological and policy developments, with intra-euro area trade benefiting from the advent of Economic and Monetary Union. Global trade has expanded substantially over the past few decades as a result of technological advances lowering transportation and communication costs. Furthermore, economic policy in many countries has been directed broadly towards removing trade barriers and reaching trade agreements. Large and previously relatively closed countries such as China have opened up their economies and become important players in international trade. The further integration of the European Union with the establishment of Economic and Monetary Union in 1999 has strengthened the Internal Market for euro area exporters and facilitated cross-border transactions.

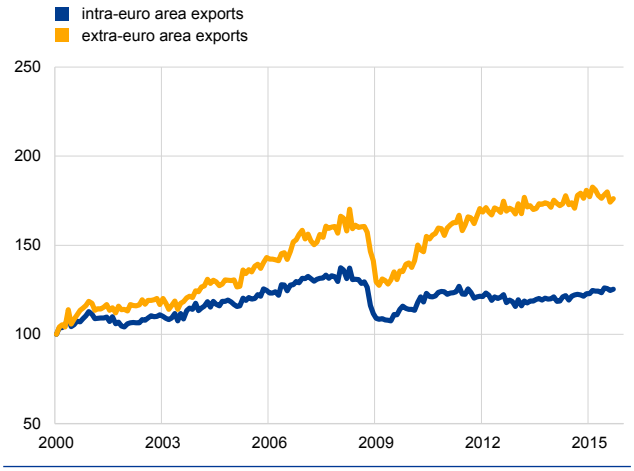
Trade within the euro area and the euro area's external trade have both expanded, and the euro area has consequently become increasingly reliant on foreign economic developments. From 2000 to the end of 2015, intra-euro area goods exports increased by around 25%, while extra-euro area goods exports increased by almost 75% (see Chart 1). During this period, the euro area also became increasingly reliant on foreign economic developments, which reflects stronger growth in world imports of goods than in euro area domestic demand (see Chart 2).

Technological advancements and policy agreements have also stimulated the build-up of international production chains. The emergence of global value chains as an important way of organising production is one of the most prominent

[2] The World Input-Output Database is a result of a project funded by the European Commission and carried out by a large number of research institutions. For more detailed information on the database, see Timmer, M.P., Dietzenbacher, E., Los, B., Stehrer, R. and de Vries, G.J., "An Illustrated User Guide to the World Input-Output Database: the Case of Global Automotive Production", *Review of International Economics*, Vol. 23, 2015, pp. 575-605.

Chart 1

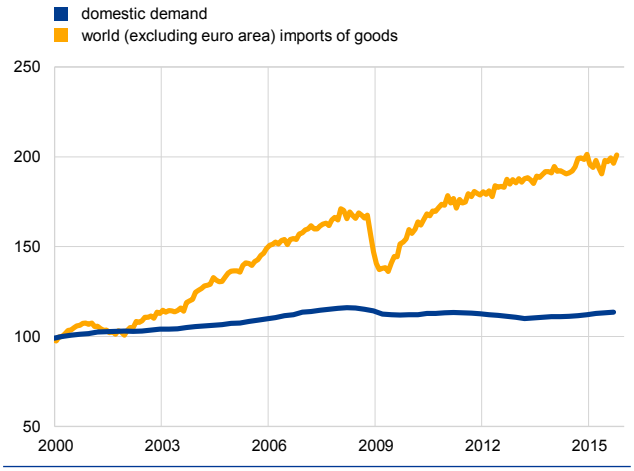
Euro area goods exports



Sources: Eurostat and ECB calculations.
Note: Exports are in volumes.

Chart 2

World imports and euro area domestic demand



Sources: Eurostat, CPB Netherlands Bureau for Economic Policy Analysis and ECB calculations.
Note: Domestic demand comprises total investment, private consumption and government consumption.

features of globalisation.[3] While global production has always been a part of international trade, the rapid integration of firms in global value chains seen during the past few decades is something entirely new. Previously, global trade usually implied simply that production was located away from consumption of the final product. In global value chains, the various parts of a production process can also be divided among different regions of the world, making it possible to take advantage of the gains from increased specialisation in individual tasks.

In the euro area, global value chain participation has increased for most countries since the mid-1990s. This mainly reflects the increasing vertical specialisation of euro area countries, i.e. the increasing import content of their exports (see Box 1). While the participation of euro area countries in global value chains has generally increased, larger euro area countries usually have less foreign value added in their exports. This can partly be explained by the scale of their domestic markets, which enables them to source more intermediary products internally.[4]

Box 1

Different measures of bilateral trade

This box reviews different measures of bilateral trade that can provide a clearer picture of trade relations than offered by gross export figures alone. The literature on global value chains and value added in trade shows that compiling gross trade data entails a partial double counting

[3] See for example Amador, J. and Cabral, S., "Global value chains: surveying drivers and measures", *Working Paper Series*, No 1739, ECB, 2014, or Elms, D.K. and Low, P. (eds.), *Global value chains in a changing world*, World Trade Organization, Geneva, 2013.

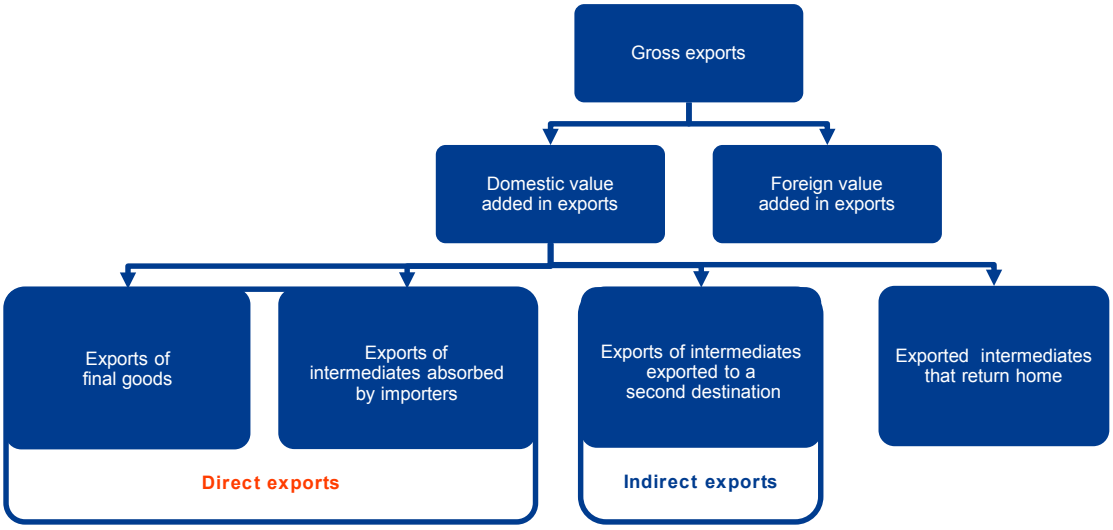
[4] It is important to note that a number of factors explain the extent of a country's participation in global value chains. In addition to market size, factors include the country's level of economic development, industrial structure, trade policies and quality of infrastructure.

of trade flows. Exports consist in part of imported foreign value added and domestic value added that is later imported back into the country of origin or exported further by a trading partner. These components mean that gross export figures overstate the implications of bilateral trade links and do not necessarily capture the importance of final exports to one country for another country. Lately, efforts have been made to construct a practical framework for decomposing gross exports into its value added components, notably by Koopman et al. (see footnote 1).

Chart A presents a simplified illustration of gross exports and its decomposition, based on Koopman et al. In Chart A gross exports consists of domestic value added and foreign value added, which is roughly the import content of exports and reflects how a country uses foreign inputs in its exports. Domestic value added in exports represents the contribution of domestic factors of production such as labour (compensation of employees) and capital (gross operating surplus) to exports. It consists of i) direct exports, i.e. final goods exports and intermediate exports that are consumed at the receiving destination; ii) indirect exports, i.e. value added that is exported to one destination (where further value is added) and later sent on to a second (final) destination; and iii) value added that is later returned to the country of origin as imports.

Chart A

Schematic view of gross exports and its decomposition into value added



Source: Based on Koopman, Wang and Wei, "Tracing Value-Added and Double Counting in Gross Exports" (see footnote 1).

From this decomposition, it is possible to construct indicators of global value chain participation and highlight different kinds of trade. For example, direct and indirect exports reflect different relations between two economies. Direct exports captures the direct importance of one trade partner for another, as all finished and intermediate products that are exported are absorbed and therefore directly linked to domestic demand in the importing country. Indirect exports, meanwhile, is connected not directly to the domestic economy of the importing country but to final demand elsewhere. The two concepts thus capture different trade links, depending on the role of the partner country in the global value chain (direct importer versus re-exporter).

While the concepts in Chart A are important to a better understanding of trade links, corresponding data are rarely available through traditional sources and the different concepts often require large amounts of data to construct. To address this issue, several

research initiatives have been dedicated to constructing global input-output tables.[5] In this article, the concepts in Chart A are derived from the publically available World Input-Output Tables.[6]

National input-output tables show transactions between sectors in an economy, while the World Input-Output Tables connect national tables with international trade flows. Through national input-output tables, it is possible to assess the importance of one sector as a supplier for another sector's final output. Building on national input-output tables, the World Input-Output Tables connect countries and sectors together through international trade flows, making it possible to trace the importance of a supplying industry in one country for an industry in another country. The tables cover 40 countries and 35 sectors from 1995 to 2011 and cover around 85% of world GDP, making them an indispensable tool for bilateral trade analysis.

Chart B

Decomposition of gross exports in the euro area into value added components

Sources: World Input-Output Tables and Stehrer, R., "Accounting Relations in Bilateral Value Added Trade", wiiw Working Paper, No 101, Vienna Institute for International Economic Studies (wiiw), May 2013.
Notes: The chart includes intra-euro area trade flows. Latest available data: 2011.

5 For example, the World Input-Output Database, the WTO-OECD Trade in Value Added (TiVA) database or the Global Trade Analysis Project (GTAP) Database.

6 See www.wiod.org

Foreign value added in exports and indirect exports have grown in importance for most large euro area economies. The development of the components of gross exports illustrated in Chart A is shown in Chart B, where they are calculated using the World Input-Output Tables up to 2011. Since 1995 foreign value added has increased as a share of gross exports in the four largest euro area countries, reflecting the growing vertical specialisation of euro area exporters vis-à-vis both other euro area countries and countries outside the euro area.[7] The share of direct exports has decreased over time. Indirect exports increased in the 2000s as a share of exports, although they were slightly lower in 2011 for the largest euro area countries. Exports of intermediate inputs that return to the euro area, which represent a relatively small share of gross exports in most countries (with the notable exception of Germany), have declined since 1995 in Germany and France while, they increased in Spain and Italy until 2005 before falling again up to 2011.

3 Direct trade links and trade through global value chains – tracing euro area value added

Participation in global value chains affects how output shocks are transmitted to the euro area. Since, in global production chains, cross-border signals regarding supply and demand might be transmitted faster, the production system as a whole may be more susceptible to the transmission of external shocks, which can be amplified as they pass through the system. A supply shock would normally propagate downstream in a production network, whereas a demand shock is transmitted up the supply chain.[8] For example, if an industry supplying intermediate products is hit by a supply shock (a production plant is destroyed by a natural disaster), the effect would affect the downstream industries, as they are dependent on inputs from the first industry hit by the shock, as was the case after the tsunami that hit Japan in 2011.[9] How the effect builds up along the supply chain depends in part on the substitutability of the inputs for the purchasing industries. In the case of a demand shock, amplification up the supply chain could be due to a "bullwhip" effect", which induces firms to adjust their inventories to new expected levels of demand along the supply chain.[10] While the length of the value chain matters for how a shock might be amplified, the focus here is on the position in a global value chain. Whether or not the euro area is more susceptible or more resilient to output shocks affecting a trading partner would depend on its role in the global value chains and the type of shock hitting the economy.

7 See for example Amador, J., Cappariello, R. and Stehrer, R., "Global value chains: a view from the euro area," *Working Paper Series*, No 1761, ECB, 2015.

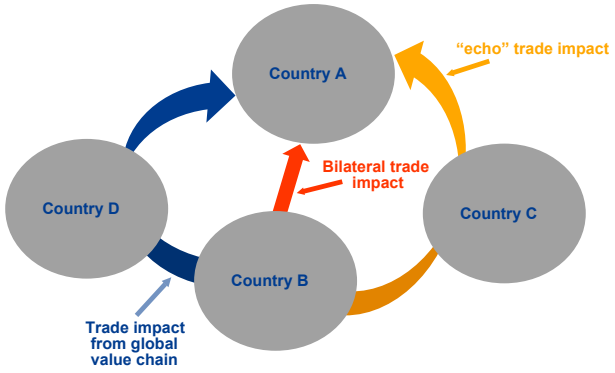
8 See Acemoglu, D., Akcigit, U. and Kerr, W., "Networks and the Macroeconomy: An Empirical Exploration", *NBER Working Paper Series*, No 21344, 2015.

9 See, for example, *Interconnected Economies: Benefiting from Global Value Chains*, OECD, 2013.

10 The "bullwhip" is, in short, an effect where a final demand shock causes large changes in demand for parts and components and firms adjust their inventories along the supply chain to new expected levels of demand. For empirical evidence of this effect, see, for example, Alessandria., G., Kaboski, J.P. and Midrigan, V., "US Trade and Inventory Dynamics", *American Economic Review*, Vol. 101(3), or Altomonte, C., Di Mauro, F., Ottaviano, G., Rungi, A. and Vicard, V., "Global value chains during the great trade collapse: a bullwhip effect?", *Working Paper Series*, No 1412, ECB, 2012.

Chart 3

An illustration of the transmission of demand shocks through trade



Source: ECB.
Note: The chart illustrates a demand shock that originates in country B and its impact through the various trade channels on country A.

Foreign demand shocks are transmitted via different trade channels depending on the nature of the trade links. In Chart 3, this is illustrated using a four country example, which, for the purpose of simplification, considers only partial, first-round trade effects of a demand shock; possible general equilibrium effects are not considered. In this stylised example, countries A and C have direct exports to B and country A has direct exports to C. Country A also exports indirectly to B via country D.

The impact of a demand shock in country B on country A would be transmitted through several channels. First, the bilateral trade impact would be through a change in demand for country A's exports to country B (orange arrow). Second, country A would be impacted by an "echo" effect (yellow arrow) from a change in exports to country C, as country C's demand for country A's exports changed following the shock in country B.[11] Third, country A would be further affected (blue arrow) by the shock in country B through its participation in global value chains with country D, which processes value added from country A and exports it onward to B. This example shows that there are a number of trade links that need consideration when assessing the possible impact of a foreign demand shock on euro area activity. The following paragraphs describe euro area trade links in more detail, elaborating on the nature of trade and identifying some of the most important trading partners.[12] In addition, euro area value added is traced through the exports of its major trading partners to its final destination.

The euro area has substantial direct exports to the United States, while China and the United Kingdom are more important for indirect exports that are re-exported to other destinations. Charts 4 and 5 compare euro area exports to four major trading partners, the United States, China, the United Kingdom and Russia, on the basis of their respective shares in direct exports and indirect exports. For direct exports, the United States is the most important destination, whereas China and the United Kingdom account for a larger share of indirect exports. This suggests that the euro area is relatively closely linked to domestic developments in the United States, while China and the United Kingdom act to a larger extent as intermediaries for euro area exports that are destined for other countries. As regards Russia, direct exports are more important than indirect exports.

China and the United Kingdom source more than a fifth of their gross exports from outside the respective country. In China, the import content of exports increased from an average 14% in the second half of the 1990s to 22% in the period

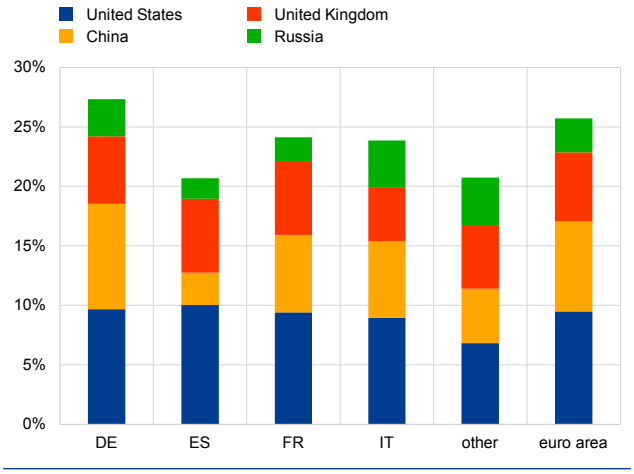
11 An "echo effect" is the spillover effect on the impacted country via other trade partners which are also affected by the shock. See Dées S. and Vansteenkiste I., "The transmission of US cyclical developments to the rest of the world", Working Paper Series, No 798, ECB, 2007.

12 The four trading partners (the United States, the United Kingdom, China and Russia) are among the most important for the euro area and also relevant for different types of trade (i.e. exports of final products, exports of intermediate inputs that are re-exported to other destinations or exports that are processed and later sent back to the euro area).

Chart 4

Direct exports of the euro area

(percentages of direct exports)

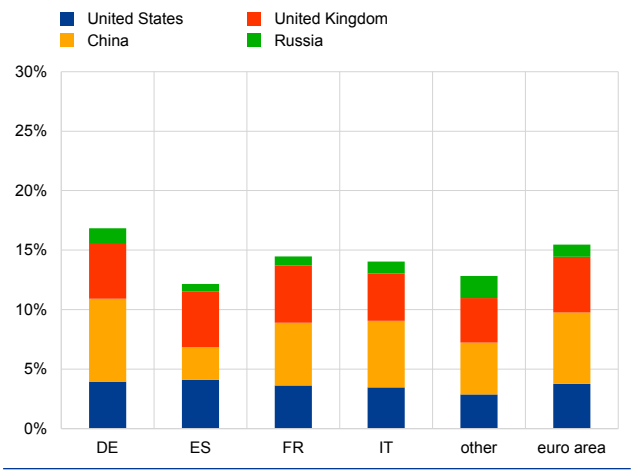


Sources: World Input-Output Tables and ECB calculations.
Note: "Other" is an average of the shares of the remaining euro area countries. Latest available data: 2011.

Chart 5

Indirect exports of the euro area

(percentages of indirect exports)



Sources: World Input-Output Tables and ECB calculations.
Note: "Other" is an average of the shares of the remaining euro area countries. Latest available data: 2011.

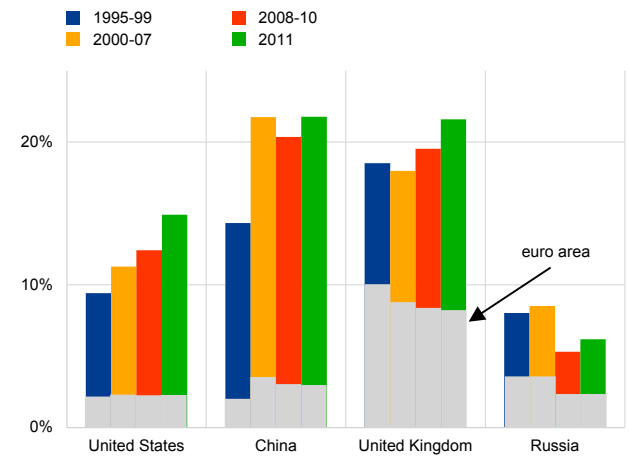
leading up to the 2008-09 recession (Chart 6). While declining somewhat during the crisis years, foreign value added in exports rebounded in 2011. For both the United Kingdom and the United States, the import content of exports increased during the crisis years and also in 2011 compared with the pre-crisis period. In Russia, by contrast, foreign value added in exports declined throughout the 2000s and stood at 6% in 2011.

Value added sourced from the euro area accounts for a relatively large share of the gross exports of the United Kingdom, but a smaller share for China, Russia and the United States. The United Kingdom sources a relatively large share of its exports from the euro area (see the grey bars in Chart 6). However, this share has become smaller over time and does not follow the general trend of increasing foreign value added in exports. In China, by contrast, euro area value added increased during the pre-crisis period compared with the mid-1990s and has been broadly stable in the post-crisis period at around 3% of gross exports. In the United States, the share of euro area value added in exports has been stable at around 2% throughout the period covered in the World Input-Output Tables. For Russia, the share declined from almost 4% in the 1990s and the pre-crisis period to 2% thereafter.

Chart 6

Foreign value added in exports of large trading partners of the euro area

(percentage of total gross exports)



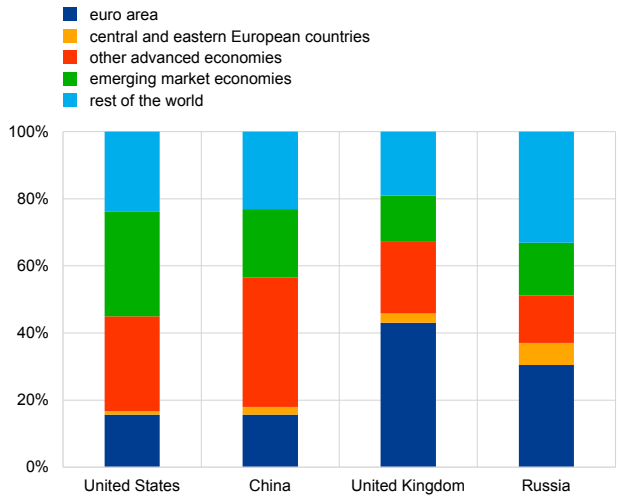
Sources: World Input-Output Tables and ECB calculations.
Note: The grey bars refer to the respective shares of foreign value added sourced from the euro area. Latest available data: 2011.

To properly account for all trade links of the euro area, it is necessary to also consider the final destination of the euro area's indirect exports via its large trading partners. For China, which is a relatively important intermediary for such exports, the largest portion of value added originating in the

Chart 7

Final destination of value added originating in the euro area and further exported by large trading partners

(percentages of total foreign value added in exports)

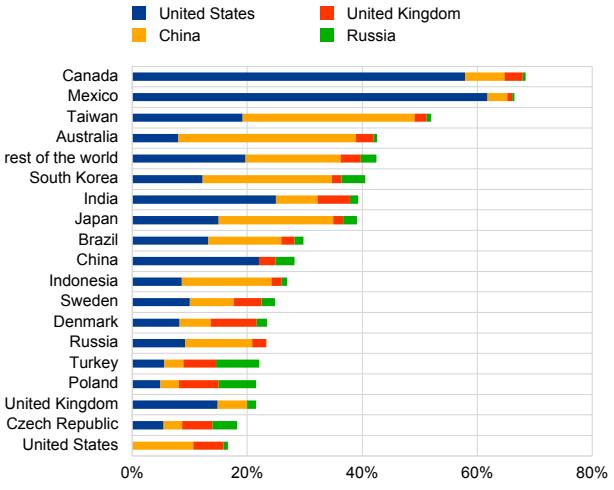


Sources: World Input-Output Tables and ECB calculations.
Note: The "rest of the world" is a grouping of all countries not explicitly identified in the World Input-Output Tables.
Latest available data: 2011.

Chart 8

The relevance of large trading partners for non-euro area countries

(percentages of direct exports)



Sources: World Input-Output Tables and ECB calculations.
Notes: Percentages indicate the share of the respective country's total direct exports to the United States, the United Kingdom, China and Russia, which are large trading partners of the euro area. The "rest of the world" is a grouping of all countries not explicitly identified in the World Input-Output Tables.
Latest available data: 2011.

euro area is destined for other advanced economies (see orange bars in Chart 7) such as the United States and Japan. For the United Kingdom, around 43% of the value added originating in the euro area is exported back for final use (dark blue bars in Chart 7) and hence dependent on domestic demand in the euro area. In addition, 22% is exported to other advanced economies, of which the United States accounts for the largest share. The final destinations of euro area value added that is exported further by the United States are relatively evenly spread between advanced economies and emerging market economies on the American continent (such as Canada, Mexico and Brazil). In Russia, the value added originating in the euro area is predominantly exported back to the euro area or exported further to the "rest of the world" (dark blue and light blue bars, respectively, in Chart 7), while re-exports to other advanced economies and emerging market economies account for a smaller share.

The trade impact on the euro area from a demand disturbance in the United States is likely to be substantial through both bilateral trade effects and echo effects, while a similar shock in China would have less impact on euro area activity. Demand from the United States represents a substantial driver of many countries' direct exports (Chart 8). Many of these economies (China, the United Kingdom and the "rest of the world") are also important destinations for euro area direct exports. Hence, the trade impact on the euro area from a demand disturbance in the United States is likely to be substantial, through both bilateral trade effects and echo effects. Moreover, the final demand for euro area indirect exports via other countries would also be affected. Demand disturbances in China, on the other hand, would likely have a smaller impact on euro area activity, since China is an important destination for euro area indirect exports. A large portion of these exports are subsequently re-exported to the United States and are hence affected by demand developments there. While other Asian countries (and Australia) have large direct exports to China, they account only for a small share of euro area direct exports.

4 Measuring global value chains – implications for the transmission of output shocks

Taking into account the final destination of euro area exports provides a more detailed picture of global shock transmission. By taking into account the different types of trade link and by identifying the final destination of euro area exports, it is possible to assess and quantify each of the different trade channels and their potential for shock transmission (as illustrated in Chart 3).

Using trade elasticities and the different trade measures captures cross-country linkages via the bilateral trade impact, the impact via global value chains and echo effects via other trading partners. In Box 2 the total trade impact from an (unidentified) output shock emanating from one of the largest trading partners is first quantified using traditional gross trade flows. Thereafter, only the relevant channels are considered, namely, the bilateral trade impact, the impact through global value chains and the echo effects via other trading partners. The results suggest that the total impact from each of the four trading partners considered is somewhat smaller than suggested by traditional gross trade flows, which is consistent with the view that gross exports represents some double counting.

The type of output disturbance also affects the way shocks are propagated. For example, a demand shock (such as changed consumer preferences or increased government spending) in the United States would probably have a large impact on the euro area. A supply shock (such as a natural disaster disrupting production) would have smaller ramifications, as the United States is less significant as a destination for indirect exports of the euro area. For China, the relationship is the reverse. A demand shock would probably have a smaller impact, while a supply shock would be of greater importance for the euro area.

Box 2
Output shock transmission to the euro area via bilateral trade, global value chains and echo effects

The aim of this box is to quantify the effect of a foreign output shock on the euro area by differentiating between the bilateral trade impact, the impact via global value chains and the echo effect through other trading partners. The three effects presented in Chart 3 are considered, namely: 1) the bilateral trade impact of a shock from changed consumption of direct exports; 2) the impact via indirect exports (through another trading partner) to the country in which the shock originates; and 3) the echo effect via other trading partners.

This approach focuses on euro area value added finally consumed in the trading partner country in question. Unlike gross trade figures, this approach does not consider value added which originated in other countries (foreign value added) and the exports that ultimately return to the euro area but does take into account indirect exports that are finally absorbed by the partner country.

The impact is computed for each of the three channels. On the one hand, the trade effect of a shock in a partner country depends on the elasticity of euro area GDP to imports. On the other hand, the impact varies with exposure of the euro area to that country and the elasticity of euro area imports to the country's GDP. Furthermore, the effect stemming from the bilateral trade links is accompanied by an echo effect, which is the spillover effect on the euro area via other trade partners which are also affected by the shock. The shares of gross, direct and indirect imports and exports in GDP are computed as the respective measure divided by GDP. The demand elasticity to GDP is assumed to be 0.6 for all countries and the country-specific import elasticities are assigned the values used in Dées and Vansteenkiste (see footnote 11).[13]

The impact of a GDP shock differs when direct and indirect trade are considered instead of gross trade. The table compares the total contemporaneous impact of a 1% GDP shock in each of the four major trading partners on the euro area on the basis of gross trade with the combined impact of direct and indirect trade.[14] The difference between the two impacts depends on the contribution of the individual trade components. For instance, in the case of China and the United Kingdom, using gross trade as a measure of trade links would overstate the effect of a GDP shock as compared with the sum of direct and indirect trade. This can be explained by the fact that a large share of euro area exports to these countries represents indirect exports that are re-exported to other destinations and hence not absorbed in China and the United Kingdom. The United States, on the other hand, is a major final destination for euro area indirect exports that are re-exported by other trading partners. Therefore, the overall impact of a GDP shock in China, the United Kingdom and Russia on the euro area declines when direct and indirect trade are considered instead of gross trade. For the United States, the decline is much smaller (and the impact even increases for Germany).

Table

Comparison of trade impacts – gross trade versus direct and indirect trade

(percentage responses to a 1% GDP shock)

	United States		China		United Kingdom		Russia	
	Gross trade	Direct and indirect trade	Gross trade	Direct and indirect trade	Gross trade	Direct and indirect trade	Gross trade	Direct and indirect trade
Germany	0.34	0.36	0.15	0.12	0.12	0.10	0.04	0.04
France	0.24	0.22	0.09	0.06	0.09	0.07	0.03	0.02
Italy	0.23	0.22	0.10	0.06	0.08	0.06	0.04	0.03
Spain	0.22	0.19	0.07	0.04	0.08	0.06	0.02	0.02
Euro area	0.28	0.28	0.11	0.08	0.10	0.08	0.04	0.03

Source: ECB calculations.
Notes: Data are the overall impact of a 1% shock in the country shown in the respective column heading. Euro area impacts are weighted averages of the impacts on member countries, weighted by GDP at purchasing power parity.

The chart shows the decomposed trade impact of a 1% GDP shock in the four major euro area trading partners. A shock originating in the United States affects the euro area mainly via other trading partners (the echo impact, yellow bars) and through bilateral trade (orange bars). This shows the importance of the United States as an export destination for the euro area but

[13] The import elasticities of the few economies not included in the sample analysed in Dées and Vansteenkiste (see footnote 11) are approximated by the values for countries of similar size in the same region included in their sample.

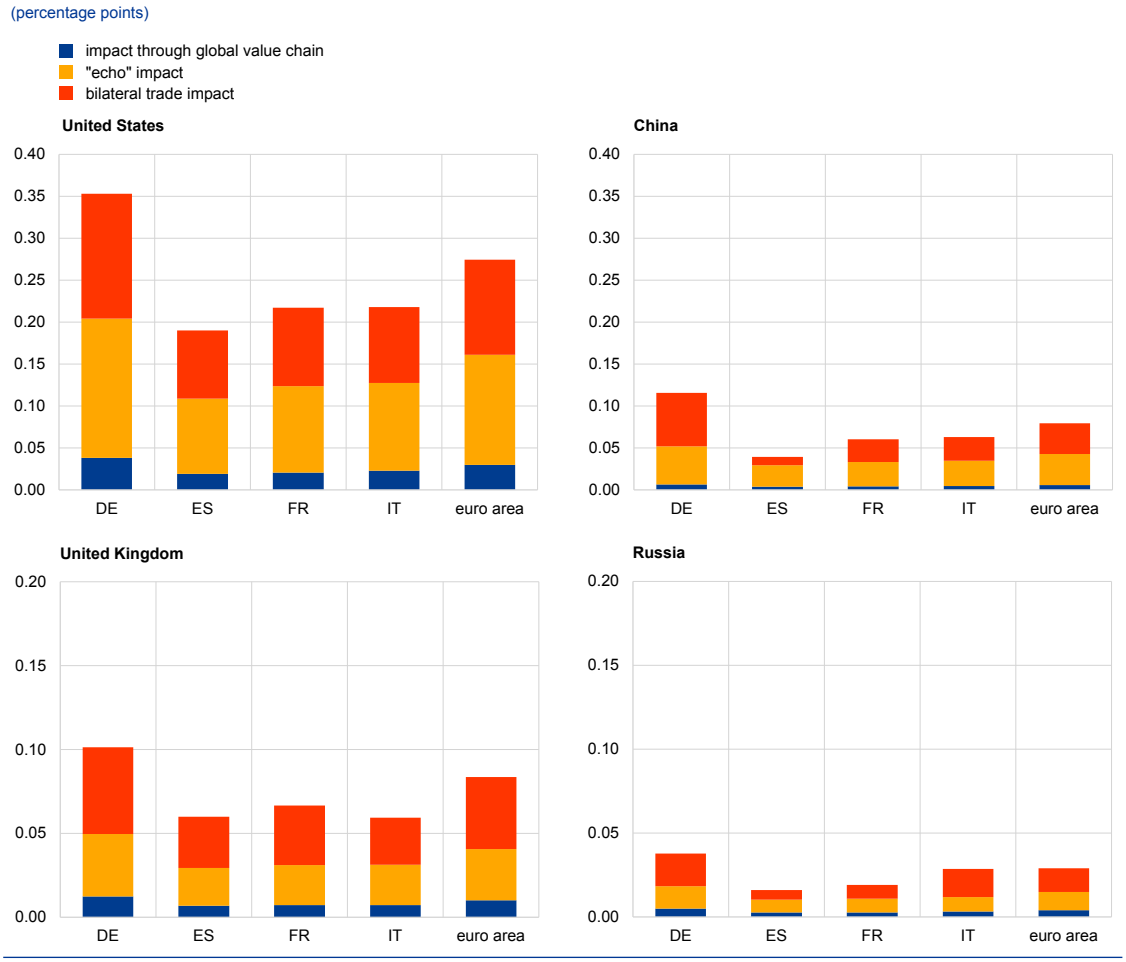
[14] These estimates are based on the contemporaneous impact. The overall estimated impact could be larger when dynamic effects are also considered.

also for many of the latter's trading partners. Moreover, the euro area would also be impacted by the change in demand for its indirect exports that are passed on to the United States via trading partners (blue bars). In China, the bilateral and echo impacts are fairly equal in size, with an additional small impact through global value chains that accounts for less than a tenth of the total impact. For a shock originating in the United Kingdom or Russia, slightly more than half of the effect stems from the bilateral trade impact and more than a third from echo effects, with the rest stemming from global value chains.

Among the four largest euro area economies, Germany faces the largest impact from a GDP shock in any of the four major trading partners. This may be explained by Germany's greater trade openness compared with other European countries. Shocks transmitted via both direct and indirect trade effects are bigger for Germany than for the euro area as a whole.

Chart

Trade impact of a 1% real GDP shock in major trading partners



Source: ECB calculations.
Notes: The country from which the real GDP shock originates is indicated in the title of each panel. Data for the euro area are averages of the impacts on member countries, weighted by GDP at purchasing power parity.

While this exercise outlines the importance of taking into account different trade links and the final destination of euro area exports, some caveats should be highlighted. First, the size of the impact is dependent on the underlying country-specific trade to GDP elasticities.

Recently, aggregate global trade elasticities have been on a declining path.[15] If this is a result of declining elasticities in the various trading partners and not of a changing composition of trade within the global economy, it would reduce the estimated impact of an output shock on the euro area. Second, it is possible that different kinds of trade have different trade elasticities, depending on the sectoral composition and the degree of substitutability of the products being imported. In this example, the same trade elasticities are used for all kinds of trade. Third, the data underlying this analysis is only available up to 2011, and it is possible that the nature of trade has changed since then, which would affect the relationships captured in the chart.[16] Moreover, the analysis only considers shocks via trade and does not take into account other transmission channels, such as the financial channel or confidence effects among firms and households. Notwithstanding these caveats, the exercise in this box serves to show how gross trade may provide a misleading picture of the importance of trading partners and the importance of different trade channels.

5 Concluding remarks

The euro area has become increasingly integrated in global trade and cross-border production chains. The nature of these trade links varies across its main trading partners. For example, the euro area has very strong direct trade links with the United States, while China and the United Kingdom are more important as intermediaries of euro area exports. This suggests that euro area activity is relatively strongly affected via trade by domestic demand developments in the United States, while less so by developments in China and the United Kingdom. In the case of China, euro area value added is mostly re-exported to the United States, but also to Japan and South Korea. As regards the United Kingdom and Russia, their role as intermediaries mainly reflects their role in processing euro area value added which is later exported back to the euro area, to other advanced economies or the "rest of the world" (see Chart 7).

The role of the euro area's trading partners in global value chains affects the way output shocks are transmitted to the euro area. First, the bilateral trade impact on the euro area following a foreign output shock would be through direct exports to the trading partner. Second, there would be an echo trade impact, which would depend on how other trading partners are impacted and change their demand for euro area exports. Third, there would be an additional impact via trade in global value chains, as a share of euro area exports is indirect exports through a trading partner to the final destination. The final impact on the euro area following an output shock would depend on the combined effect of these different trade channels.

Quantifying these different impacts suggests a somewhat smaller effect than indicated by gross trade figures for some trading partners. This is because

15 See the article entitled "Understanding the weakness in world trade", *Economic Bulletin*, Issue 3, ECB, 2015.

16 For example, trade in intermediate goods, which can be closely linked to increases in vertical specialisation, seems to have slowed in 2012 and 2013. See the article cited in footnote 15.

value added which originated in other countries and the exports that return to the euro area are excluded. Moreover, bilateral trade seems to account for slightly less than half of the total impact from most countries, while the echo effect is of a similar magnitude (i.e. around half). Effects through global value chains seem to account for around a tenth of the overall impact, depending on the trading partner.

Given the continual change in cross-border production structures, it is necessary to monitor these developments on an ongoing basis. The World Input-Output Tables are an indispensable tool for analysing global value chain developments in a very granular manner. As time passes, however, data beyond 2011 will be needed to correctly assess the implications of global value chains (and their development) for the euro area economy. Therefore, initiatives encouraging the expansion or regular updates of databases such as the World Input-Output Database (or, alternatively, reliance on survey or firm-level data) will be increasingly required in the future.

Public investment in Europe

Since the crisis, public investment has fallen in a number of European countries, particularly those that came under market pressure.[1] Low levels of public investment, if maintained over a prolonged period, may lead to a deterioration of public capital and diminish longer-term output. The fall in public investment and the current low interest rate environment have prompted calls to stimulate public investment spending as a way to increase short-term demand and raise potential output. In the European Union (EU), this has led to the adoption of the Investment Plan for Europe (2015). The fiscal positions of many EU countries remain precarious, however, and the provisions of the Stability and Growth Pact call for further fiscal consolidation in many of them. Using a model-based analysis, this article considers the circumstances under which additional public investment might best stimulate economic growth and what the impact on public finances would be.

1 Introduction

Public investment in Europe has fallen in recent years, which has led to calls to stimulate public investment in the current low interest rate environment. While, for the EU as a whole, the public investment-to-GDP ratio remains at the same level as before the crisis, in the euro area the ratio is somewhat lower. In particular, recent years have seen the ratio decline in countries that had to undergo sizeable fiscal adjustment owing to market pressure. The fall in public investment and persistently weak growth following the crisis have led to a debate on the desirability of increasing investment in public infrastructure. In this debate it is argued that public investment would be particularly effective in an environment of low borrowing costs for governments, in which monetary policy interest rates stand at around zero.[2] This has resulted in initiatives to stimulate public investment at both the national and international levels (see Box 1 on the Investment Plan for Europe).

The article assesses the impact of further public investment in terms of economic efficiency, longer-term growth and public finances. Section 2 provides an overview of recent developments in public investment in Europe and offers a comparison with the United States and Japan. Section 3 provides a brief overview of different strands of the literature on the contribution of public investment to output growth. Section 4 is dedicated to model simulations and examines the effect of additional public investment in the euro area. Section 5 concludes.

1 In this article, public investment is measured using the gross fixed capital formation of the general government, which enables the use of comparable data available for a large number of countries. See Box 2 for more information on the limitations of these data and on measurement issues.

2 See, for example, “Is it time for an infrastructure push? The macroeconomic effects of public investment”, *World Economic Outlook*, IMF, 2014.

Box 1
The Investment Plan for Europe – "the Juncker plan"

The Investment Plan for Europe – also known as the Juncker Plan, after the current President of the European Commission – is a package of measures presented by the Commission in late 2014, aimed at unlocking public and private investment in the real economy amounting to at least €315 billion (around 2% of EU GDP in 2015) over the period 2015-17.[3] The Plan has three pillars: (i) setting up a European Fund for Strategic Investment (EFSI) to mobilise private investment; (ii) helping investors to find and launch new investment projects by creating a European Investment Advisory Hub and a European Investment Project Portal; and (iii) improving framework conditions for investment through structural reforms at the European and national levels.

With regard to the first pillar, the EFSI Regulation was approved in June 2015 – less than five months after the Commission presented the legislative proposal – and the Fund started its preliminary operations in October of the same year. Operationally, a guarantee of €16 billion has been created under the EU budget, which will be used to build EFSI public guarantees. The European Investment Bank (EIB) has committed an additional €5 billion. This initial sum of public money will give the EFSI a risk-absorbing capacity of €21 billion, which is expected to be leveraged by €294 billion of private funding – i.e. by a factor of 15 (which is based on historical experience). These funds will be used through two "windows": the Infrastructure and Innovation Window (to be deployed by the EIB and expected to finance around 75% of the final €315 billion target) and the SME Window (to be deployed by the European Investment Fund (EIF)).

The EFSI lending operations are designed to go beyond the standard EIB and EIF activities. EFSI operations should be designed to finance, at "sustainable" rates, those projects that cannot be funded either by the market or by the standard EIB/EIF instruments because of the company's size, the high risk involved in new technologies or the deadlines required. In this respect, the EFSI is expected to generate "additional" investment projects alongside the ongoing EIB/EIF investment pipeline.[4]

So far, nine Member States (Bulgaria, Germany, Spain, France, Italy, Luxembourg, Poland, Slovakia and the United Kingdom) have pledged around €43 billion to co-finance EFSI projects, but none have contributed directly to EFSI capital. Despite the favourable treatment, provided under the Stability and Growth Pact, of contributions to the EFSI in the form of guarantees or cash, the contributions announced by the above-mentioned Member States will be only at the level of individual projects and national investment platforms.[5] Hence, these Member States will only be participating in investment projects in their own country. This signals the difficulty involved

3 See the European Commission's Communication entitled "An investment Plan for Europe", available at http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2014:903:FIN.

4 For the full description of this requirement, see Annex II which provides the relevant extract of Regulation (EU) 2015/1017 of the European Parliament and of the Council of 25 June 2015 on the European Fund for Strategic Investments.

5 The Commission clarified in January 2015 that cash contributions used to set up the EFSI will not be counted when defining the fiscal adjustment under either the preventive or corrective arm of the Stability and Growth Pact. If a country's budget deficit exceeds 3% of GDP, the Commission will not launch an excessive deficit procedure if the excess is due to a contribution to the EFSI, provided that the deviation is small and expected to be temporary. Even when assessing the fulfilment of the debt criterion, contributions to the EFSI will not be taken into account.

in overcoming the "juste retour" principle often mentioned in discussions on the EU budget, namely each Member State's primary concern for ensuring that its contribution to the EU's financial resources flows back into the national economy. EFSI-financed projects will not be allocated on the basis of national keys but only on their merits.

The second pillar of the Investment Plan is crucial for eliminating a number of procedural and information-related inefficiencies in terms of matching investment projects with private and public financing. The European Investment Advisory Hub, established within the EIB and financed by both the EIB and the Commission, is expected to: (i) offer investment guidance and expertise; (ii) provide a platform for the exchange of know-how; and (iii) coordinate existing technical assistance. The European Investment Project Portal, on the other hand, will help investors to find investment opportunities by listing investment projects which support EU objectives and are expected to start within three years, with or without EFSI funding.

To strengthen the work under the third pillar of the Investment Plan, improving the investment climate at the Member State level has been made an integral part of the 2016 European Semester process. To this end, the 2016 Annual Growth Survey (AGS) has been accompanied by a staff working document on challenges to Member States' investment environments.[6] The document summarises each country's investment profile and identifies key challenges to investment at the national level in the following fields: (i) public administration/business environment; (ii) labour market/education; (iii) financial sector/taxation; (iv) research, development and innovation; and (v) sector-specific regulation. The main challenges identified at this stage are expected to be analysed further within the framework of the European Semester process, particularly in the country reports, and through thematic discussions within the Council and its Committees. These challenges could also lead to country-specific recommendations being addressed to individual Member States.

An EU agenda will complement Member States' actions in removing barriers to investment. With regard to the actions to be taken at the European level, the Commission has specified that progress towards a "Digital Single Market", "Energy Union" and "Capital Markets Union" is key to improving the business environment and financing conditions in the EU. The 16 targeted actions under the Digital Single Market strategy are expected to be delivered by the end of 2016, while the 15 actions announced for the Energy Union will be implemented in 2016-17. The action plan for the Capital Markets Union was published by the Commission on 30 September 2015.[7] The document discusses the EFSI and other pillars of the Investment Plan, and announces the Commission's intention to present revised calibrations in EU prudential legislation for the insurance sector (the Solvency II Directive) to ensure that insurance companies are subject to regulatory treatment that could further stimulate long-term investment.

Further progress under the third pillar of the Investment Plan is crucial for its success. Triggering investments through the use of public funds requires careful examination of how to employ these resources most effectively; at the same time, it requires effective implementation of

6 See the European Commission's staff working document entitled "Challenges to Member States' Investment Environments", available at http://ec.europa.eu/europe2020/pdf/2016/ags2016_challenges_ms_investment_environments_en.pdf.

7 See the European Commission's Communication entitled "Action Plan on Building a Capital Markets Union", available at http://ec.europa.eu/finance/capital-markets-union/docs/building-cmu-action-plan_en.pdf.

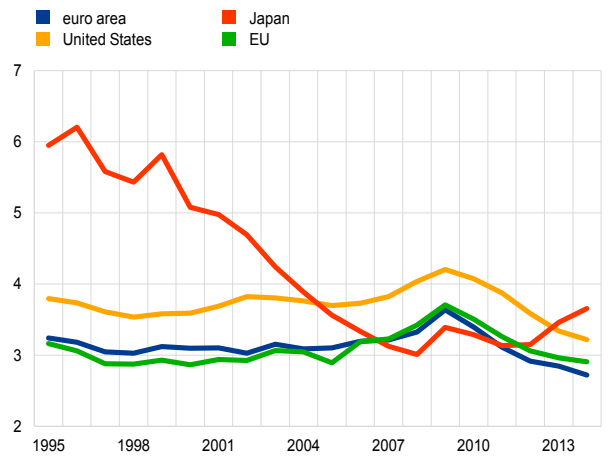
specific public policies, notably structural reforms, in order to improve the investment climate. For this reason, the Plan includes a comprehensive set of measures across different policy areas. 2015 was marked by swift progress under the first pillar: the 2016 AGS reports that, by the end of 2015, the EFSI was expected to have mobilised around €50 billion for investment in Europe. This represents around 15% of the overall target agreed for the period 2015-17. In the remaining two years, concrete and effective policy measures under the other two pillars will be essential to complement EFSI funding and to ensure that these additional funds can be effectively deployed and channelled into the European economy. More specifically, under the third pillar, the implementation of reforms targeted at frictions that hold back investment demand (such as reducing the administrative burden on young firms or speeding up insolvency proceedings) has the potential to raise the opportunity cost of investment now and allow finance to flow quickly to the new investment opportunities that these reforms create.[8]

2 Recent developments in public investment

Both public and private investment have fallen in the years following the financial and sovereign debt crisis. After being stable at around 3% of GDP for more than a decade, public investment in the euro area started to increase in 2005, reaching 3.6% of GDP in 2009 (see Chart 1). In the years following the crisis, public investment reverted to a ratio below the pre-crisis average of 3% of GDP. For the EU as a whole, the public investment ratio follows a similar pattern, with a less pronounced post-crisis retrenchment. Developments in public investment in Europe mirror developments in the United States, albeit at a lower level. By contrast, the public investment-to-GDP ratio in Japan went into long-term decline following

Chart 1
Public investment

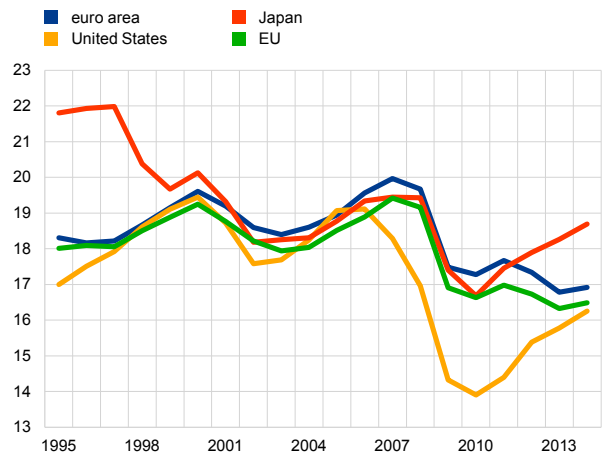
(as a percentage of GDP)



Source: European Commission.

Chart 2
Private investment

(as a percentage of GDP)



Source: European Commission.

[8] See the introductory speech by the President of the ECB at the ECB Forum on Central Banking, Sintra, 22 May 2015, available at https://www.ecb.europa.eu/press/key/date/2015/html/sp150522.en.html

the high levels observed in the mid-1990s, although more recently it has started to pick up. Private sector investment in Europe declined during and after the crisis, and has not yet recovered, by contrast with developments in the United States and Japan (see Chart 2). While public investment data are subject to various limitations, in particular measurement issues (see Box 2), the recent developments observed in public investment are difficult to attribute to those limitations. For example, although the increased use of public-private partnerships (PPPs) and privatisations has been shifting parts of previously public investment to private investment since the 1970s, the decline in post-crisis public investment in the EU has been accompanied by a fall, not an increase, in private investment (see Charts 1 and 2).

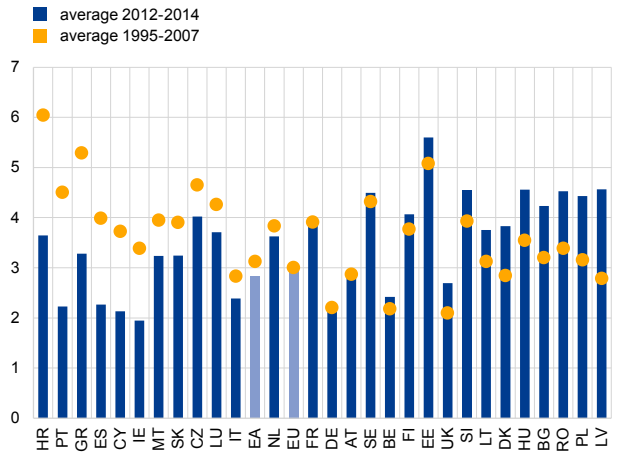
Developments in public investment are very heterogeneous across countries in the EU. When comparing pre-crisis public investment, as a percentage of GDP, with the average over the past three years, three distinct groups of countries can be identified (see Chart 3). First, there have been large investment cuts in countries with substantial fiscal consolidation needs. The largest declines in public investment ratios took place in countries with initially high general government investment rates, which were in some cases related to pre-crisis booms, and in countries under market pressure. Most notably, public investment-to-GDP ratios fell in Croatia, Portugal, Greece, Spain, Cyprus and Ireland. Second, in countries with relatively low levels of general government investment in the years leading up to the crisis, public investment has neither declined much nor increased (Belgium, Germany and Austria). Third, public investment has increased in a number of eastern EU countries, in particular those that have benefited from the increasing use of cohesion funds after joining the EU (Latvia, Poland, Romania and Bulgaria).

As a ratio of government expenditure, developments in public investment have been even more heterogeneous across EU countries. When measured as a percentage of GDP (see Chart 3), the investment ratio is influenced by the

Chart 3

Public investment-to-GDP ratio

(as a percentage of GDP)

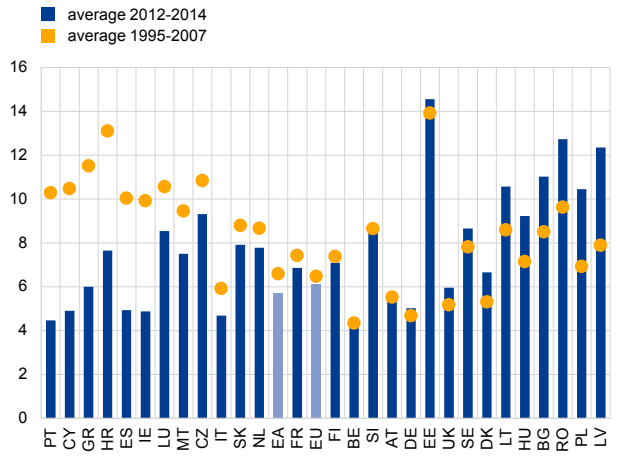


Source: European Commission.
Note: Countries ordered by change in average public investment 2012-14 versus 1995-2007.

Chart 4

Public investment-to-government expenditure ratio

(as a percentage of government expenditure)



Source: European Commission.
Note: Countries ordered by change in average public investment 2012-14 versus 1995-2007.

negative effect of the crisis on output growth. As a share of total public expenditure (see Chart 4), the decline in investment in countries under market pressure reflects the fact that government investment was used more intensively than other expenditure items as a consolidation instrument.

Box 2
Public investment and capital: data and measurement issues

This box discusses the limitations of the data on public investment and capital, which should be taken into account when interpreting comparisons across countries and over time. At least four specific points may be mentioned. First, the distinction between investment and other government expenditure is not always clear with respect to their effect on the productive capacity of the economy. In the national accounts, gross fixed capital formation consists of resident producers' acquisitions minus disposals of fixed tangible or intangible assets, in particular machinery and equipment, vehicles, dwellings and other buildings. However, while education and health care expenditure contributes to reinforcing (private) human capital stock, thus also enhancing the supply side of the economy and contributing to growth, it is mostly considered to be current expenditure rather than investment. Moreover, public investment also includes expenditure on sports stadiums and military equipment, which have debatable effects on the productive capacity of the economy. The distinction between capital and consumption spending has also changed over time. For example, under the current statistical standard, ESA 2010, expenditure on Research and Development and purely military equipment (i.e. without possible civilian use) is treated as capital expenditure, whereas it was considered to be consumption under the previous statistical standard (ESA 95).[9] Second, the distinction between public and private investment is not always clear in practice, for example when private parties participate in infrastructure projects through PPPs with budgetary risks for the government posed by (explicit or implicit) guarantees. Third, the delineation between the public and private sectors also differs between countries, which partly explains the differences observed across Member States. Last, public capital stock data are not observed but are rather constructed, based on investment flow data, depreciation rates and an estimate of the initial public capital stocks.

Alternative measures of (public) investment, e.g. physical measures, such as broadband penetration, the length of roads and railways or the number of fixed telephone lines, can only partly circumvent some of the limitations of investment (or capital stock) data. Significant limitations include the facts that the quality of infrastructure is often not correctly measured, including the question of valuations, and that comparable cross-country data are scarce and heterogeneous.

With these caveats in mind, this article, as in most of the literature, uses the conventional measure of government investment as defined in national accounts.

[9] For further information, see "New international standards in statistics – enhancements to methodology and data availability", *Monthly Bulletin*, ECB, August 2014.

3 The contribution of public investment to growth

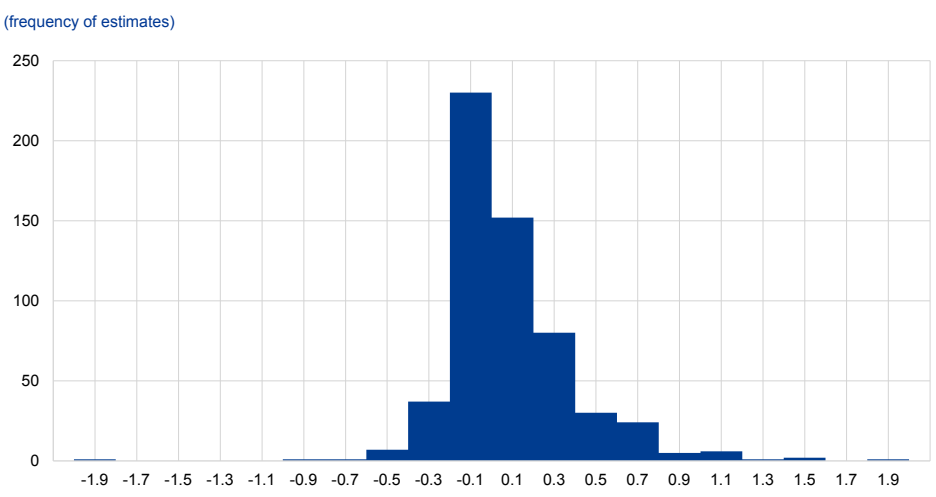
An increase in public investment can positively affect economic growth in two ways. First, an increase in public investment has positive effects on aggregate demand. In addition, efficient public investment can contribute to the economy's productive capacity by increasing the stock of public capital. However, it is important to consider the cost and benefit of additional public capital carefully, taking into account the financing alternatives and their effects on output and public finances.

There is considerable uncertainty surrounding the size of short-term fiscal multipliers. Public investment is usually found to be an expenditure category with a relatively high short-term fiscal multiplier, but there is considerable uncertainty surrounding the size of the multipliers that are found to be country, time and episode-specific.[10] They are, for example, larger during recessions, but found to be smaller in the presence of weak public finances, particularly when debt sustainability is at risk. In addition, multipliers depend on how the expenditure is financed, whether through debt, increases in revenues or cuts in other expenditure categories.

Empirical estimates of the effect of public capital increases on output tend to be positive but heterogeneous. Estimates based on production or cost functions typically find a (small) positive effect, but with considerable variation according to the time period, country, measure of capital and estimation method (see Chart 5). Estimates of the output elasticity of public capital taken from 68 papers published between 1983 and 2008 find an average output elasticity of 0.106, after correcting for a possible publication bias.[11] The general conclusion from this strand of the literature

Chart 5

Production function estimates of the output elasticity of public capital



Source: Bom, P.R.D. and Ligthart, J.E., "What have we learned from three decades of research on the productivity of public capital?", *Journal of Economic Surveys*, Vol. 28, No 5, 2014, pp. 889-916.

[10] For an overview, see "Fiscal multipliers and the timing of consolidation", *Monthly Bulletin*, ECB, April 2014, pp. 75-89.

[11] See, for example, Bom, P.R.D. and Ligthart, J.E., "What have we learned from three decades of research on the productivity of public capital?", *Journal of Economic Surveys*, Vol. 28, No 5, 2014, pp. 889-916.

is that public capital supports the potential output level, in particular investment in core infrastructure, e.g. roads, railways and telecommunications. The positive contribution of public capital increases to growth shows a decline over time. This might be related to a downward trend in the marginal productivity of public capital in most developed countries, owing to the completion of infrastructure networks, such as roads or railways, rendering gains from additional investment smaller than in the past.[12]

Estimates of the impact of public investment that also consider the impact on public finances yield less positive results. The production and cost function approaches mentioned above highlight only the benefits of public investment or public capital. However, a government facing the decision of whether or not to invest more has to trade this additional investment off against lower public consumption expenditure, higher taxes or an increase in the debt level. Research based on VAR models, which take the trade-off between additional investment and its financing into account, often finds public capital to have a less positive effect on output growth than estimates based on production functions, and, in some cases, a neutral or even negative effect.[13]

Structural models can provide more insight into the determinants of the effectiveness of additional investment and the conditions under which investment is more or less productive. For example, in a period of fiscal expansion, the output effect will be greater if the monetary policy authority does not respond by increasing its policy rate. Furthermore, studies that take into account implementation delays in investment find only slightly positive or potentially even negative responses in output and employment in the short run.[14] However, rich structural models come at the price of imposing restrictions on the data, with public investment often assumed to be productive (and possible changes in productivity over time not accounted for). For example, model simulations are often conditional on choosing a positive output elasticity of public capital; by assumption, the output effect of public investment then outperforms that of public consumption.[15]

4 Model simulations: what determines the effectiveness of public investment?

Given the considerable uncertainty surrounding past estimates of the growth impact of public investment, a comprehensive approach is called for when evaluating the macroeconomic and fiscal implications of an increase in public investment. To this end, this article utilises the Euro Area and Global

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12 See, for example, Pereira, A.M. and Andraz, J.M., "On the economic effects of public infrastructure investment: a survey of the international evidence", *Journal of Economic Development*, Vol. 38, No 4, 2013, pp. 1-37.

13 See, for example, Kamps, C., "The Dynamic Effects of Public Capital: VAR Evidence for 22 OECD Countries", *International Tax and Public Finance*, Vol. 12, Issue 4, 2005, pp. 533-558.

14 Leeper, E.M., Walker, T.B. and Yang, S-C.S., "Government investment and fiscal stimulus", *Journal of Monetary Economics*, Vol. 57, Issue 8, 2010, pp. 1000-1012.

15 A rare example of unrestricted estimation in a general equilibrium model, using a real business cycle model with US data, can be found in Ercolani, V. and Valle e Azevdo, J., "The effects of public spending externalities", *Journal of Economic Dynamics and Control*, Vol. 46, Issue C, 2014, pp. 173-199, which finds that public investment is unproductive.

Economy (EAGLE) model[16], calibrated for Germany, the rest of the euro area, the United States and the rest of the world (see Box 3 for a short description of the fiscal block of the model). For illustrative purposes, this section considers a temporary increase in public investment in a large euro area country (Germany).[17] More specifically, public investment is increased by 1% of the initial GDP over 20 quarters, and thereafter gradually returns to the baseline level[18]. The additional investment is debt-financed, and the fiscal rule, based on the adjustment of non-distortionary taxes, remains inactive during the first ten years of the simulation period. Since the government, by assumption, finances its debt at a risk-free rate, the possible credit risk premium effects of a deteriorating public debt outlook are ignored in these simulations. Moreover, the potential risk associated with higher public debt is not fed back to the balance sheets of those economic sectors that hold the debt. This is an important caveat when interpreting the results, particularly for countries in which sovereign debt sustainability cannot be taken for granted and where domestic financial institutions have large government bond holdings. In the benchmark simulation, the single monetary policy interest rate does not increase in response to the implied changes in the euro area macroeconomic developments (up to eight quarters following the shock). Importantly, the monetary policy stance is fully anticipated by households and firms.

Box 3
The fiscal block of the EAGLE model

With a few exceptions, the government sector representation in the EAGLE model is fairly standard in the context of general equilibrium macroeconomic models. Fiscal policy in the EAGLE model, unlike private sector behaviour, is not based on any explicit optimal decisions. Fiscal authorities set public expenditure proportional to nominal output, in line with the relevant long-term GDP ratios observed in the data. Similarly, on the revenue side, taxes are tied to the relevant tax bases via exogenous tax rates. The government may have a non-zero debt in equilibrium. The stability of government debt is ensured through an endogenous reaction in the non-distortionary taxes to deviations of the government debt-to-GDP ratio from its targeted value (the fiscal rule). Recent enhancement of the fiscal block, in line with Leeper et al. (2010),[19] enables public consumption and investment to play a greater role in affecting the optimal decision-making of the private sector.

More specifically, the public capital stock is assumed to be an important factor of production; therefore, variation in public investment may have strong and persistent supply-side effects. Intermediate-good production technology is formally specified as follows:

$$Y_t = z_t (K_{P,t})^{\alpha} (K_{G,t})^{\beta} (N_t)^{(1-\alpha-\beta)},$$

[16] Gomes, S., Jacquinot, P. and Pisani, M., "The EAGLE. A model for policy analysis of macroeconomic interdependence in the euro area", *Working Paper Series*, ECB, No 1195, 2010.

[17] While the model is calibrated for Germany, the simulations should be considered illustrative of the economic channels involved, rather than country-specific.

[18] The baseline levels are characterised by the steady state (long-term equilibrium) of the model.

[19] Leeper, E.M., Walker, T.B. and Yang, S-C.S., "Government investment and fiscal stimulus", *Journal of Monetary Economics*, Vol. 57, Issue 8, 2010, pp. 1000-1012.

where Y_t is the output, z_t is the total factor productivity, $K_{P,t}$ and $K_{G,t}$ are the private and public capital stock respectively, N_t is the number of hours worked, and α and β are the output elasticity parameters of the private and public capital stock respectively. The public capital evolves by accumulating public investment net of depreciation:

$$K_{G,t} = (1 - \delta_G)K_{G,t-1} + I_{G,t}\varepsilon_t,$$

where δ_G is the public capital stock depreciation rate and ε_t is the public investment efficiency shock. The value of the output elasticity of the public capital stock determines the productivity of public capital (when $\beta = 0$, public investment does not feature any direct supply-side effects as the entire public capital stock is not productive). The variation in the investment efficiency shock controls the extent to which new investment expenditure contributes to the productive public infrastructure. The specific values of the parameters used in the baseline model simulations are similar to those used in Leeper et al. (2010): $\alpha = 0.30$, $\beta = 0.10$, $\delta_G = 0.025$.

Furthermore, private and public consumption goods are assumed to be complements, hence changes to public consumption may have persistent effects on private consumption. Households are assumed to derive utility from the consumption of a composite good consisting of private and public consumption goods:

$$CC_t = \left(v^{\frac{1}{\mu}} C_{P,t}^{\frac{\mu-1}{\mu}} + (1-v)^{\frac{1}{\mu}} C_{G,t}^{\frac{\mu-1}{\mu}}\right)^{\frac{\mu}{\mu-1}},$$

where CC_t is a composite consumption good, $C_{P,t}$ and $C_{G,t}$ are the private and public consumption goods respectively, v is the share of private goods in the consumption basket (when v =1, public consumption yields no utility to households) and μ is the elasticity of substitution between government and private consumption ($\mu \to 0$ implies the government and private goods are perfect complements; $\mu \to \infty$ implies the government and private goods are perfect substitutes). The specific values of the parameters used in the baseline model simulations are in line with the euro area estimates reported in Coenen et al. (2013)[20]: $v = 0.75$ and $\mu = 0.50$.

The investment increase has a positive short and longer-term impact on the domestic economy, but it is not self-financing, as it results in an increase in the public debt-to-GDP ratio over the longer term. The investment shock implies a large positive impact on domestic GDP, even in the short run (see Chart 6). Domestic inflation initially increases, in line with stronger demand and an unresponsive monetary policy. The implied real interest rate declines temporarily, thereby providing a further boost to private demand in the short run. Over the medium term, the positive production capacity effects of the shock strengthen and output expands further to around 1.8% above its baseline value. On the fiscal side, short-run inflationary pressure and an expansion of domestic demand result in a cyclical increase in tax revenues. This partially offsets the deterioration in the

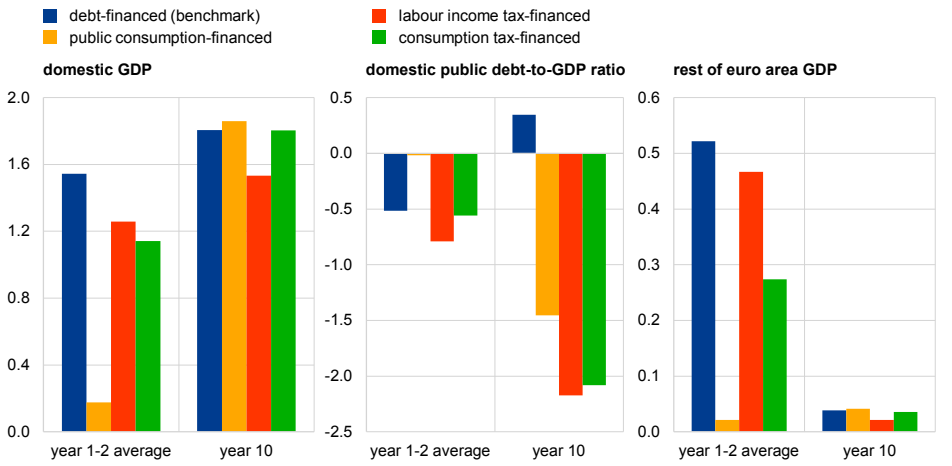
[20] Coenen, G., Straub, R. and Trabandt, M., "Gauging the effects of a fiscal stimulus package in the euro area", *Journal of Economic Dynamics and Control*, Vol. 37, Issue 2, 2013, pp. 367-386.

government deficit implied by a higher level of investment expenditure. As a result, the government debt-to-GDP ratio falls in the short run. However, because the deficit remains higher as long as the extra public investment is sustained, without additional fiscal adjustments the government debt ratio increases, albeit moderately, in the medium run.

Chart 6

Model simulations with various financing options to increase public investment

(deviation from baseline; percentages)



Source: ECB staff calculations.

The simulations indicate a positive short-term output stimulus for the rest of the euro area. The public investment shock in the domestic economy has a positive spillover effect on the rest of the euro area economy, primarily owing to trade linkages. Higher import demand by the private sector and an increase in the relative price of domestic goods in the domestic economy contribute to stronger exports in the rest of the euro area.

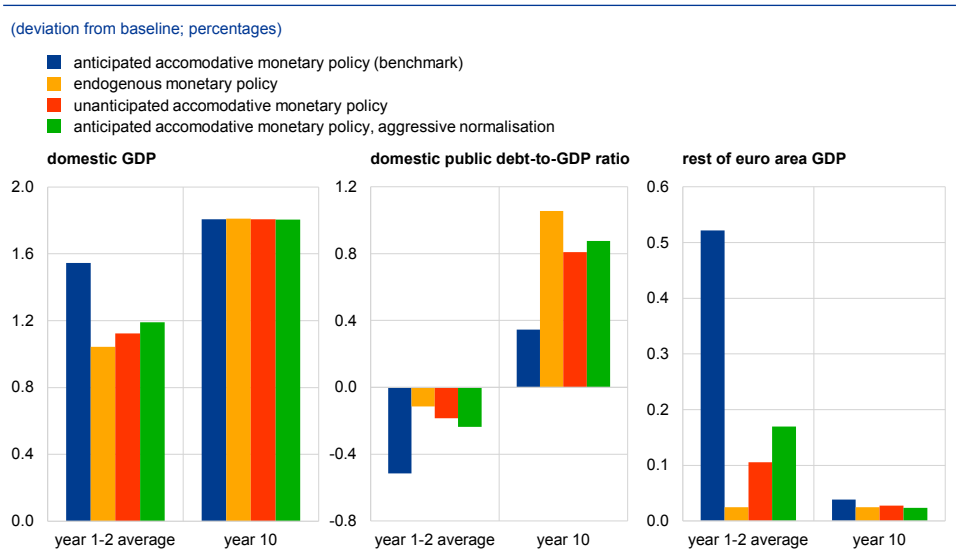
Financing investment with tax increases or expenditure cuts reduces the short-term output effect but improves the sustainability of public finances. If the increase in public investment is financed by an equivalent (ex ante) reduction in public consumption (1% of GDP), the positive demand effects of the public investment shock are largely neutralised in the short run. When the increase in public investment is matched by an equivalent (ex ante) increase in labour income taxes or consumption taxes, the positive demand effects of the public investment shock are estimated to be somewhat weaker in comparison with the benchmark results under debt financing. Higher labour income taxes harm domestic exports via the deterioration of international price competitiveness. The consumption tax increase negatively affects primarily private consumption via the reduced disposable real income channel. In addition, the distortionary impact of the labour income tax increase on labour utilisation has substantial negative output implications in the long run. As regards public finances, the use of tax instruments for financing higher public investment expenditure results in more favourable government deficit dynamics in the short run and implies a diminishing longer-term path of government debt. These results are based on the assumption that the government keeps expenditure,

other than public investment, in line with the initial baseline level, and that revenues increase with the additional GDP growth. In other words, the additional tax revenues associated with the increase in economic activity from the investment shock are not used for additional expenditure but for public debt reduction.

The monetary policy response plays a crucial role in the macroeconomic effects of a public investment increase, in particular the spillover to the rest of the euro area. If, unlike in the benchmark simulation, the monetary policy does not accommodate the shock but, instead, raises interest rates in response to the higher inflation risks posed by the short-term increase in demand, the pick-up in both private consumption and investment becomes more muted and this, in turn, limits output gains in the short run (see Chart 7). Under this scenario, there will be a less favourable public debt development over the entire simulation horizon. Moreover, an endogenous monetary policy reaction essentially neutralises the positive spillover effects of the shock on the rest of the euro area, since positive foreign trade effects are offset by higher real interest rates. Similarly, when the constant interest rate policy is not anticipated by the private sector (unanticipated accommodative monetary policy), the macroeconomic response is likely to be more gradual than under the benchmark scenario. Furthermore, when the monetary policy response places less emphasis on smoothing interest rates and greater emphasis on stabilising inflation and output, i.e. when there is a quicker return from a fixed interest rate policy to a normal monetary policy setting ("aggressive normalisation"), the domestic effects and the spillover to the rest of the euro area are estimated to be considerably smaller.

Chart 7

Model simulations with different monetary policy responses



Source: ECB staff calculations.

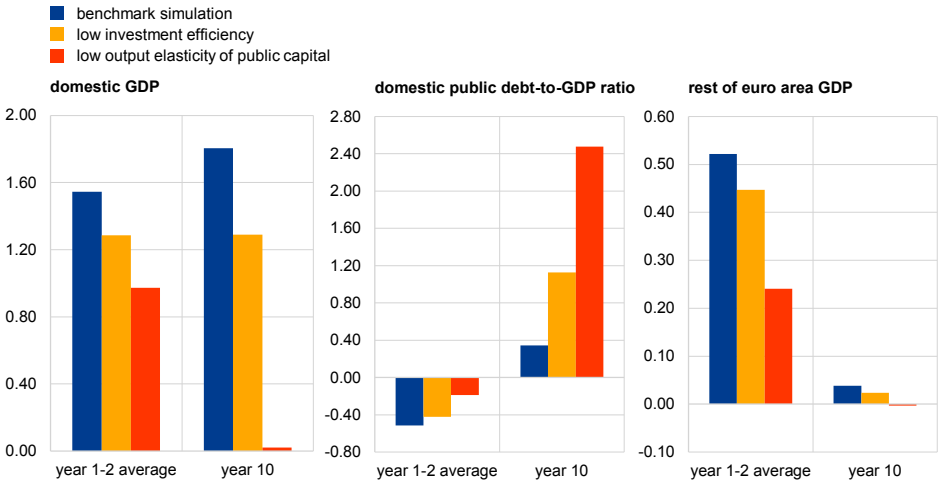
Lower investment efficiency and lower productivity of public capital reduce the positive impact of additional public investment. In the benchmark simulation, all new public investment is initially assumed to be added to the productive capital stock and the output elasticity of the public capital stock is assumed to be positive and

calibrated to 0.1. An alternative scenario of low investment efficiency, in which only half of the new public investment contributes to the reinforcement of the productive public infrastructure, results in a weaker stimulus for the domestic economy and the rest of the euro area (see Chart 8). A simulation of efficient investment with a zero output elasticity of public capital (which essentially implies that the public capital has no productive use) gives rise to an even stronger dampening effect. In this case, higher public investment would have only demand-side direct effects. There is still a positive, but lower, impact on output in the short run. However, it gradually diminishes in the medium run, as private consumption and investment are no longer growth-supportive. Hence, the cyclical upswing in tax revenues is limited and fiscal balances deteriorate significantly. The spillovers to the rest of the euro area are also considerably smaller. The positive effect from investment thus hinges on investment efficiency and the productivity of public capital.

Chart 8

Model simulations with different degrees of investment efficiency and effectiveness of public capital

(deviation from baseline; percentages)



Source: ECB staff calculations.

5 Conclusions

Public investment in Europe has significantly declined since the crisis, although developments are heterogeneous across countries. This has led to calls to stimulate public investment in an environment of low borrowing costs for governments, weak economic growth and monetary policy at the lower bound.

An increase in public investment has positive demand effects and can contribute to the economy's potential output by increasing the stock of public capital. While the empirical literature on the effect of public capital on output typically finds a positive effect, estimates vary considerably according to the time period, country, measure of capital and estimation method. Similarly, the productivity of public capital increases may vary over time and could decline. Any increase in public

investment needs to be assessed in the light of its productivity, its financing and the relative costs and benefits of the financing options.

Model simulations of an increase in public investment in a large euro area economy illustrate the sensitivity of the implied output and budget implications to alternative policy implementation strategies. First, an increase in public investment will have the strongest short-term demand effects, including in terms of spillovers to other countries, with an anticipated accommodative monetary policy. This finding strengthens the case for increasing public investment in the current low-inflation environment. Second, a debt or revenue-financed increase in productive public investment implies significantly larger short-term output gains compared with an increase in investment financed by cutting other public expenditure. However, when distortionary taxes, e.g. labour income taxes, are used to finance public investment, the short-term output gains of additional public investment have to be traded off against tax-induced output losses over the longer term, whereas any increase in public investment financed by higher public debt must be weighed up against possible fiscal sustainability concerns. Last, the longer-term positive effects on the economy's potential output and the impact on public finances crucially depend on the effectiveness of investment and the productivity of public capital. If these are low, an increase in public investment is associated with a greater deterioration of the debt outlook and less persistent output gains. These findings underline the fact that economic considerations are important for ensuring a rigorous selection of productive investment projects.

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	United States	United Kingdom	Japan	China	Memo item: euro area	OECD countries		United States	United Kingdom (HICP)	Japan	China	Memo item: euro area [2] (HICP)
							Total	excluding food and energy					
	1	2	3	4	5	6	7	8	9	10	11	12	13
2013	3.1	1.5	2.2	1.4	7.7	-0.3	1.6	1.6	1.5	2.6	0.4	2.6	1.4
2014	3.3	2.4	2.9	-0.1	7.3	0.9	1.7	1.8	1.6	1.5	2.7	2.0	0.4
2015	.	2.4	2.2	0.5	6.9	1.6	0.6	1.7	0.1	0.0	0.8	1.4	0.0
2015 Q1	0.8	0.2	0.4	1.1	1.3	0.6	0.6	1.7	-0.1	0.1	2.3	1.2	-0.3
Q2	0.8	1.0	0.6	-0.4	1.9	0.4	0.5	1.6	0.0	0.0	0.5	1.4	0.2
Q3	.	0.5	0.4	0.3	1.8	0.3	0.5	1.7	0.1	0.0	0.2	1.7	0.1
Q4	.	0.3	0.5	-0.3	1.6	0.3	0.7	1.8	0.5	0.1	0.3	1.5	0.2
2015 Sep.	-	-	-	-	-	-	0.4	1.8	0.0	-0.1	0.0	1.6	-0.1
Oct.	-	-	-	-	-	-	0.6	1.8	0.2	-0.1	0.3	1.3	0.1
Nov.	-	-	-	-	-	-	0.7	1.8	0.5	0.1	0.3	1.5	0.1
Dec.	-	-	-	-	-	-	0.9	1.9	0.7	0.2	0.2	1.6	0.2
2016 Jan.	-	-	-	-	-	-	1.2	1.9	1.4	0.3	0.0	1.8	0.3
Feb. [3]	-	-	-	-	-	-	.	.	.	.	.	.	-0.2

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 refer to the changing composition of the euro area.
3) The figure for the euro area is an estimate based on provisional national data, which usually cover around 95% of the euro area, as well as on early information on energy prices.

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
2013	53.4	54.8	56.8	52.6	51.5	49.7	52.2	52.7	50.6	3.1	-0.1	5.4
2014	54.2	57.3	57.9	50.9	51.1	52.7	53.1	54.1	51.5	3.2	3.6	2.8
2015	53.3	55.8	56.3	51.4	50.4	53.8	51.7	53.9	50.3	1.1	3.8	-0.9
2015 Q1	53.9	56.9	57.3	50.4	51.5	53.3	53.0	54.3	50.6	-1.9	1.5	-4.2
Q2	53.3	55.9	57.2	51.3	51.1	53.9	51.1	54.1	49.6	-0.9	-0.9	-0.9
Q3	53.0	55.4	55.1	51.9	49.0	53.9	50.2	54.0	48.8	1.8	1.1	2.4
Q4	52.7	55.0	55.4	52.3	49.9	54.1	51.3	53.2	50.5	0.7	0.3	1.0
2015 Sep.	52.3	55.0	53.3	51.2	48.0	53.6	49.9	53.2	48.1	1.8	1.1	2.4
Oct.	52.7	55.0	55.3	52.3	49.9	53.9	51.2	53.3	50.9	1.8	2.3	1.4
Nov.	53.3	56.1	55.7	52.3	50.5	54.2	51.8	53.8	50.7	0.1	1.1	-0.7
Dec.	52.2	54.0	55.3	52.2	49.4	54.3	50.9	52.6	49.8	0.7	0.3	1.0
2016 Jan.	52.2	53.2	56.2	52.6	50.1	53.6	51.0	52.7	50.1	.	.	.
Feb.	50.0	50.0	52.8	51.0	49.4	53.0	49.8	50.0	48.9	.	.	.

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
2013	0.09	0.13	0.22	0.34	0.54	0.27	0.15
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	0.31	0.09
2015 Aug.	-0.12	-0.09	-0.03	0.04	0.16	0.32	0.09
Sep.	-0.14	-0.11	-0.04	0.04	0.15	0.33	0.08
Oct.	-0.14	-0.12	-0.05	0.02	0.13	0.32	0.08
Nov.	-0.13	-0.14	-0.09	-0.02	0.08	0.37	0.08
Dec.	-0.20	-0.19	-0.13	-0.04	0.06	0.53	0.08
2016 Jan.	-0.24	-0.22	-0.15	-0.06	0.04	0.62	0.08
Feb.	-0.24	-0.25	-0.18	-0.12	-0.01	0.62	0.01

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
2013	0.08	0.09	0.25	1.07	2.24	2.15	2.91	2.66	0.18	0.67	2.53	3.88
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
2015 Aug.	-0.25	-0.27	-0.22	0.14	0.82	1.09	1.84	1.46	-0.25	-0.07	0.86	1.97
Sep.	-0.36	-0.27	-0.24	0.04	0.70	0.97	1.73	1.24	-0.22	-0.17	0.73	1.76
Oct.	-0.35	-0.33	-0.31	-0.03	0.63	0.96	1.82	1.40	-0.32	-0.25	0.66	1.69
Nov.	-0.41	-0.40	-0.40	-0.13	0.58	0.98	1.73	1.34	-0.41	-0.36	0.58	1.77
Dec.	-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 Jan.	-0.45	-0.45	-0.47	-0.23	0.44	0.89	1.47	1.18	-0.47	-0.46	0.43	1.55
Feb.	-0.50	-0.51	-0.54	-0.36	0.22	0.73	1.14	1.01	-0.54	-0.56	0.18	1.23

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
2013	281.9	2,794.0	586.3	195.0	468.2	312.8	151.5	402.7	274.1	230.6	253.4	629.4	1,643.8	13,577.9
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
2015 Aug.	356.7	3,444.4	711.9	261.9	615.0	287.7	193.9	504.6	359.9	274.9	390.0	856.9	2,039.9	19,919.1
Sep.	330.9	3,165.5	649.6	250.9	566.4	267.2	178.5	469.7	339.5	250.8	362.6	817.4	1,944.4	17,944.2
Oct.	342.2	3,275.5	658.6	261.3	598.9	290.0	183.4	478.7	360.4	263.5	362.3	823.9	2,024.8	18,374.1
Nov.	358.2	3,439.6	703.0	269.0	640.1	297.3	187.0	507.4	394.1	270.3	385.3	850.1	2,080.6	19,581.8
Dec.	346.0	3,288.6	652.5	262.8	630.2	278.1	180.2	494.9	391.7	263.6	363.3	811.0	2,054.1	19,202.6
2016 Jan.	320.8	3,030.5	589.3	250.1	584.0	252.6	161.6	463.6	379.6	254.3	345.1	769.6	1,918.6	17,302.3
Feb.	304.3	2,862.6	559.2	245.9	569.1	250.5	144.0	449.9	352.5	245.7	332.8	732.6	1,904.4	16,347.0

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			Loans to sole proprietors and unincorporated partnerships	Loans for house purchase					
	Overnight	Redeemable at notice of up to 3 months	With an agreed maturity of:				By initial period of rate fixation		APRC [3)]		By initial period of rate fixation				APRC [3)]	Composite cost-of-borrowing indicator
			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 Feb.	0.18	0.85	0.97	1.53	7.13	17.05	5.18	6.47	6.82	2.79	2.09	2.51	2.35	2.48	2.58	2.37
Mar.	0.17	0.83	0.89	1.24	7.13	17.05	5.16	6.17	6.50	2.72	2.10	2.45	2.24	2.39	2.53	2.29
Apr.	0.16	0.79	0.87	1.19	7.03	17.01	4.89	6.13	6.42	2.66	2.01	2.38	2.17	2.36	2.49	2.23
May	0.16	0.82	0.84	1.13	6.98	17.08	5.04	6.29	6.60	2.67	2.05	2.33	2.10	2.29	2.45	2.17
June	0.15	0.78	0.77	1.11	6.97	17.02	4.88	6.15	6.47	2.59	2.03	2.27	2.12	2.31	2.48	2.18
July	0.15	0.74	0.67	1.14	6.83	17.08	5.10	6.20	6.53	2.61	2.05	2.25	2.21	2.36	2.56	2.22
Aug.	0.14	0.67	0.67	1.00	6.83	17.03	5.30	6.28	6.62	2.60	2.12	2.35	2.30	2.33	2.60	2.26
Sep.	0.14	0.67	0.67	1.08	6.85	17.06	5.21	6.18	6.55	2.68	2.07	2.36	2.29	2.38	2.61	2.25
Oct.	0.14	0.66	0.65	0.99	6.71	16.98	5.22	6.03	6.43	2.64	2.06	2.32	2.30	2.41	2.58	2.26
Nov.	0.14	0.65	0.64	0.96	6.68	16.91	5.23	6.22	6.60	2.68	2.04	2.31	2.32	2.45	2.62	2.27
Dec.	0.13	0.64	0.64	0.98	6.61	16.95	4.84	5.94	6.25	2.53	1.99	2.27	2.27	2.42	2.55	2.22
2016 Jan. [(p)]	0.12	0.62	0.63	1.25	6.65	16.87	5.31	6.30	6.65	2.53	1.98	2.23	2.30	2.41	2.52	2.23

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
	Overnight	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 Feb.	0.21	0.35	1.04	3.43	3.60	3.72	3.13	2.23	2.71	2.39	1.51	1.99	2.14	2.36
Mar.	0.21	0.32	0.97	3.39	3.46	3.65	3.10	2.16	2.65	2.32	1.61	2.12	2.00	2.35
Apr.	0.19	0.30	0.90	3.34	3.46	3.58	2.97	2.18	2.60	2.26	1.61	1.93	2.02	2.32
May	0.18	0.30	0.91	3.28	3.37	3.50	2.97	2.15	2.46	2.23	1.56	1.85	2.04	2.25
June	0.18	0.31	1.09	3.25	3.19	3.47	2.87	2.09	2.33	2.23	1.59	1.91	2.03	2.24
July	0.17	0.32	0.86	3.19	3.27	3.60	2.87	2.07	2.36	2.20	1.50	1.73	2.04	2.17
Aug.	0.17	0.24	0.92	3.16	3.25	3.57	2.91	2.07	2.32	2.23	1.39	1.53	2.03	2.13
Sep.	0.17	0.26	0.98	3.20	3.23	3.51	2.89	2.03	2.25	2.21	1.49	1.87	2.17	2.20
Oct.	0.16	0.26	0.80	3.09	3.18	3.42	2.89	2.04	2.28	2.20	1.43	1.69	2.02	2.14
Nov.	0.16	0.23	0.84	3.05	3.14	3.39	2.88	2.02	2.16	2.20	1.37	1.62	1.98	2.09
Dec.	0.14	0.23	0.85	3.01	3.07	3.18	2.77	2.01	2.13	2.17	1.43	1.77	1.92	2.06
2016 Jan. [(p)]	0.13	0.26	0.78	2.97	3.22	3.25	2.78	2.00	2.22	2.18	1.39	1.68	2.07	2.09

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 Eurosystem)	Non-MFI corporations			General government		Total	MFIs (including Eurosystem)	Non-MFI corporations			General government	
			Financial corporations other than MFIs	FVCs	Non-financial corporations	Central government	Other general government			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	12	13	14
						Short-term								
2013	1,253	483	122	.	67	529	53	508	314	30	.	44	99	21
2014	1,320	544	129	.	59	538	50	409	219	34	.	38	93	25
2015	1,260	521	135	.	61	478	65	334	151	36	.	32	82	34
2015 Aug.	1,341	558	130	.	79	515	59	291	132	28	.	22	79	29
Sep.	1,327	545	127	.	75	520	59	345	162	31	.	29	93	30
Oct.	1,339	552	144	.	74	509	60	363	172	31	.	32	86	42
Nov.	1,351	559	144	.	73	509	66	311	140	39	.	30	75	26
Dec.	1,260	521	135	.	61	478	65	294	133	50	.	27	57	26
2016 Jan.	1,283	527	137	.	68	483	67	325	141	31	.	33	87	33
						Long-term								
2013	15,107	4,404	3,087	.	921	6,069	627	222	70	39	.	16	89	9
2014	15,127	4,047	3,158	.	994	6,285	643	221	66	43	.	16	85	10
2015	15,171	3,783	3,207	.	1,065	6,480	637	213	66	44	.	13	81	8
2015 Aug.	15,243	3,892	3,232	.	1,035	6,447	636	112	42	19	.	4	44	4
Sep.	15,259	3,864	3,236	.	1,042	6,485	632	257	64	82	.	14	93	4
Oct.	15,331	3,859	3,290	.	1,048	6,498	636	232	78	44	.	12	89	10
Nov.	15,376	3,869	3,277	.	1,061	6,525	644	196	67	34	.	16	67	11
Dec.	15,171	3,783	3,207	.	1,065	6,480	637	153	49	60	.	16	23	4
2016 Jan.	15,140	3,749	3,186	.	1,052	6,520	634	202	75	21	.	6	93	8

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	16,360.7	4,886.5	3,209.1	.	987.4	6,598.1	679.6	5,649.0	569.1	747.3	4,332.7
2014	16,446.4	4,590.6	3,287.3	.	1,052.4	6,823.2	692.9	5,958.0	591.1	784.6	4,582.3
2015	16,430.8	4,303.8	3,341.6	.	1,126.1	6,957.8	701.5	6,720.7	586.1	891.5	5,243.1
2015 Aug.	16,584.4	4,450.1	3,362.1	.	1,114.3	6,962.5	695.3	6,576.6	630.6	848.4	5,097.6
Sep.	16,585.9	4,409.6	3,363.2	.	1,116.9	7,004.9	691.3	6,273.7	582.5	804.8	4,886.4
Oct.	16,670.5	4,410.5	3,434.5	.	1,122.3	7,007.0	696.3	6,812.7	612.1	873.0	5,327.6
Nov.	16,727.2	4,428.1	3,420.5	.	1,134.4	7,034.0	710.2	7,006.2	613.9	922.6	5,469.8
Dec.	16,430.8	4,303.8	3,341.6	.	1,126.1	6,957.8	701.5	6,720.7	586.1	891.5	5,243.1
2016 Jan.	16,422.9	4,276.0	3,322.9	.	1,119.5	7,003.4	701.1	6,313.9	490.7	832.3	4,990.9
						Growth rate					
2013	-1.4	-8.9	-3.4	.	8.0	4.5	-1.1	0.7	7.2	-0.4	0.2
2014	-0.6	-7.8	0.4	.	5.1	3.1	1.2	1.4	7.2	1.0	0.7
2015	-0.2	-7.0	3.0	.	5.3	1.8	0.5	1.1	4.5	1.5	0.6
2015 Aug.	-1.0	-7.3	0.4	.	4.1	1.9	-0.2	1.0	3.3	0.4	0.8
Sep.	-0.5	-7.5	2.1	.	4.4	2.4	-1.9	1.0	3.3	0.5	0.7
Oct.	0.1	-6.0	2.4	.	4.3	2.4	0.1	1.0	3.3	0.9	0.7
Nov.	0.0	-5.6	1.5	.	4.5	2.2	1.2	1.0	3.0	1.5	0.6
Dec.	-0.2	-7.0	3.0	.	5.3	1.8	0.5	1.1	4.5	1.5	0.6
2016 Jan.	-0.8	-7.9	1.4	.	4.4	2.0	0.6	1.0	3.3	1.8	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
2013	101.2	98.2	96.7	91.1	102.0	98.8	111.9	95.6
2014	101.8	97.9	96.7	91.3	102.2	100.4	114.7	96.1
2015	92.4	88.4	89.1	.	.	.	106.5	87.9
2015 Q1	93.0	89.2	89.4	83.9	91.3	92.2	106.4	88.3
Q2	91.2	87.5	88.2	82.3	90.0	90.1	104.4	86.4
Q3	92.7	88.7	89.6	84.0	91.6	91.4	107.6	88.7
Q4	92.4	88.4	89.3	.	.	.	107.7	88.4
2015 Sep.	93.8	89.7	90.7	-	-	-	109.6	90.3
Oct.	93.6	89.6	90.5	-	-	-	109.0	89.7
Nov.	91.1	87.1	88.1	-	-	-	106.0	87.0
Dec.	92.5	88.3	89.2	-	-	-	108.0	88.5
2016 Jan.	93.6	89.1	90.2	-	-	-	109.9	89.7
Feb.	94.7	90.0	91.2	-	-	-	111.3	91.0
	Percentage change versus previous month							
2016 Feb.	1.2	1.0	1.2	-	-	-	1.3	1.4
	Percentage change versus previous year							
2016 Feb.	1.5	0.6	1.6	-	-	-	4.0	2.5

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
2013	8.165	7.579	25.980	7.458	296.873	129.663	4.197	0.849	4.4190	8.652	1.231	1.328
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
2015 Q1	7.023	7.681	27.624	7.450	308.889	134.121	4.193	0.743	4.4516	9.380	1.072	1.126
Q2	6.857	7.574	27.379	7.462	306.100	134.289	4.088	0.721	4.4442	9.300	1.041	1.105
Q3	7.008	7.578	27.075	7.462	312.095	135.863	4.188	0.717	4.4290	9.429	1.072	1.112
Q4	7.000	7.623	27.057	7.460	312.652	132.952	4.264	0.722	4.4573	9.302	1.085	1.095
2015 Sep.	7.146	7.589	27.089	7.461	313.145	134.851	4.218	0.731	4.4236	9.392	1.091	1.122
Oct.	7.135	7.621	27.105	7.460	311.272	134.839	4.251	0.733	4.4227	9.349	1.088	1.124
Nov.	6.840	7.607	27.039	7.460	312.269	131.597	4.249	0.707	4.4453	9.313	1.083	1.074
Dec.	7.019	7.640	27.027	7.461	314.398	132.358	4.290	0.726	4.5033	9.245	1.083	1.088
2016 Jan.	7.139	7.658	27.027	7.462	314.679	128.324	4.407	0.755	4.5311	9.283	1.094	1.086
Feb.	7.266	7.636	27.040	7.463	310.365	127.346	4.397	0.776	4.4814	9.410	1.102	1.109
	Percentage change versus previous month											
2016 Feb.	1.8	-0.3	0.1	0.0	-1.4	-0.8	-0.2	2.8	-1.1	1.4	0.7	2.1
	Percentage change versus previous year											
2016 Feb.	2.4	-1.0	-2.1	0.2	1.1	-5.4	5.3	4.7	1.1	-0.8	3.8	-2.3

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)												
2014 Q4	19,874.6	20,995.4	-1,120.7	8,247.8	6,403.1	6,467.3	9,829.8	-43.1	4,590.4	4,762.5	612.3	12,048.4
2015 Q1	21,841.7	22,847.8	-1,006.0	8,952.8	6,632.8	7,225.2	11,059.5	-69.3	5,042.7	5,155.5	690.4	13,008.1
Q2	21,447.0	22,295.7	-848.7	8,871.7	6,704.2	7,105.7	10,628.1	-24.8	4,835.9	4,963.4	658.5	12,653.2
Q3	21,347.0	22,222.1	-875.1	9,177.3	7,153.7	6,781.0	10,124.9	-36.7	4,781.1	4,943.4	644.2	12,668.6
Outstanding amounts as a percentage of GDP												
2015 Q3	206.9	215.3	-8.5	88.9	69.3	65.7	98.1	-0.4	46.3	47.9	6.2	122.8
Transactions												
2015 Q1	547.1	511.7	35.5	193.7	89.2	137.1	249.9	22.6	187.9	172.5	5.8	-
Q2	60.9	23.0	37.9	97.0	139.7	128.2	1.5	1.3	-163.3	-118.3	-2.4	-
Q3	59.0	13.9	45.1	106.4	137.8	14.2	-106.9	-1.7	-62.6	-16.9	2.7	-
Q4	-117.8	-215.2	97.4	42.6	40.2	102.9	-31.5	16.4	-284.3	-224.0	4.6	-
2015 July	120.0	130.9	-10.8	82.7	95.4	14.9	-63.6	9.9	19.5	99.1	-7.0	-
Aug.	-18.4	-25.3	6.9	-10.0	4.3	-12.1	-34.3	-7.8	10.1	4.7	1.4	-
Sep.	-42.6	-91.6	49.0	33.8	38.1	11.4	-9.0	-3.8	-92.2	-120.7	8.3	-
Oct.	121.9	84.4	37.5	39.9	43.9	56.0	30.0	-0.7	32.7	10.5	-6.0	-
Nov.	-32.2	-51.1	18.9	-4.9	-4.5	27.0	-3.2	9.8	-66.5	-43.4	2.5	-
Dec.	-207.5	-248.5	40.9	7.6	0.9	19.9	-58.3	7.3	-250.5	-191.0	8.1	-
12-month cumulated transactions												
2015 Dec.	549.3	333.4	215.9	439.8	407.0	382.5	113.1	38.6	-322.3	-186.7	10.7	-
12-month cumulated transactions as a percentage of GDP												
2015 Dec.	5.3	3.2	2.1	4.2	3.9	3.7	1.1	0.4	-3.1	-1.8	0.1	-

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											
	Total	Domestic demand								External balance [1]		
		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	9,931.8	9,595.2	5,558.5	2,094.5	1,949.0	1,005.5	573.7	365.7	-6.8	336.6	4,373.4	4,036.7
2014	10,106.4	9,732.9	5,631.1	2,128.5	1,984.6	1,008.1	596.2	375.3	-11.3	373.6	4,521.3	4,147.8
2015	10,400.2	9,940.4	5,738.0	2,169.1	2,054.2	.	.	.	-20.8	459.7	4,751.0	4,291.3
2015 Q1	2,573.8	2,462.9	1,421.0	538.3	509.0	256.0	154.5	96.7	-5.4	110.9	1,167.6	1,056.8
Q2	2,591.7	2,473.5	1,433.0	540.4	510.1	253.8	155.1	99.5	-10.0	118.2	1,196.8	1,078.7
Q3	2,606.9	2,490.4	1,439.4	543.0	513.6	253.6	154.7	101.2	-5.6	116.5	1,195.2	1,078.7
Q4	2,624.0	2,510.0	1,444.1	546.4	521.6	.	.	.	-2.1	114.0	1,192.5	1,078.4
	as a percentage of GDP											
2015	100.0	95.6	55.2	20.9	19.8	.	.	.	-0.2	4.4	-	-
	Chain-linked volumes (prices for the previous year)											
	quarter-on-quarter percentage changes											
2015 Q1	0.6	0.8	0.5	0.5	1.4	1.3	1.9	1.4	-	-	1.4	2.1
Q2	0.4	0.0	0.3	0.3	0.1	-0.9	0.1	2.6	-	-	1.7	1.0
Q3	0.3	0.7	0.5	0.3	0.4	-0.2	-0.5	1.2	-	-	0.2	1.2
Q4	0.3	0.6	0.2	0.6	1.3	.	.	.	-	-	0.2	0.9
	annual percentage changes											
2013	-0.3	-0.7	-0.6	0.2	-2.6	-3.5	-2.4	-0.4	-	-	2.1	1.3
2014	0.9	0.9	0.8	0.8	1.3	-0.5	4.1	2.1	-	-	4.1	4.5
2015	1.6	1.8	1.7	1.3	2.7	.	.	.	-	-	5.0	5.7
2015 Q1	1.3	1.4	1.6	1.1	2.0	0.1	4.8	2.6	-	-	5.3	6.0
Q2	1.6	1.4	1.7	1.2	2.6	0.6	4.4	5.0	-	-	6.0	5.8
Q3	1.6	1.9	1.8	1.2	2.5	0.5	2.2	6.8	-	-	4.6	5.5
Q4	1.6	2.2	1.5	1.6	3.4	.	.	.	-	-	3.6	5.3
	contributions to quarter-on-quarter percentage changes in GDP; percentage points											
2015 Q1	0.6	0.8	0.3	0.1	0.3	0.1	0.1	0.1	0.2	-0.2	-	-
Q2	0.4	0.0	0.2	0.1	0.0	-0.1	0.0	0.1	-0.2	0.4	-	-
Q3	0.3	0.7	0.3	0.1	0.1	0.0	0.0	0.0	0.3	-0.4	-	-
Q4	0.3	0.6	0.1	0.1	0.3	.	.	.	0.1	-0.3	-	-
	contributions to annual percentage changes in GDP; percentage points											
2013	-0.3	-0.7	-0.4	0.0	-0.5	-0.4	-0.1	0.0	0.2	0.4	-	-
2014	0.9	0.9	0.4	0.2	0.3	-0.1	0.2	0.1	0.0	0.0	-	-
2015	1.6	1.7	0.9	0.3	0.5	.	.	.	0.0	-0.1	-	-
2015 Q1	1.3	1.4	0.9	0.2	0.4	0.0	0.3	0.1	-0.2	-0.1	-	-
Q2	1.6	1.3	1.0	0.3	0.5	0.1	0.3	0.2	-0.4	0.3	-	-
Q3	1.6	1.8	1.0	0.3	0.5	0.0	0.1	0.3	0.1	-0.2	-	-
Q4	1.6	2.2	0.8	0.3	0.7	.	.	.	0.3	-0.6	-	-

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	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
	Current prices (EUR billions)											
2013	8,927.3	152.3	1,737.0	458.1	1,680.2	412.6	442.3	1,030.6	945.2	1,751.4	317.6	1,004.5
2014	9,073.5	146.7	1,756.9	461.6	1,711.1	417.6	453.9	1,051.0	968.0	1,781.8	324.8	1,033.0
2015	9,329.3	146.4	1,815.9	469.8	1,771.3	431.1	456.4	1,075.8	1,008.2	1,821.1	333.4	1,070.9
2015 Q1	2,312.6	36.1	451.1	117.1	438.5	106.3	114.9	265.7	247.8	452.5	82.5	261.2
Q2	2,324.2	36.2	453.6	116.4	441.1	107.4	114.5	267.6	250.9	453.5	83.0	267.4
Q3	2,337.7	36.7	454.3	117.0	444.4	108.3	113.7	270.5	253.3	456.0	83.6	269.2
Q4	2,351.7	37.4	454.4	118.7	447.3	109.2	113.1	271.9	256.3	459.2	84.2	272.3
	as a percentage of value added											
2015	100.0	1.6	19.5	5.0	19.0	4.6	4.9	11.5	10.8	19.5	3.6	-
	Chain-linked volumes (prices for the previous year)											
	quarter-on-quarter percentage changes											
2015 Q1	0.6	0.8	1.0	0.6	0.8	0.5	0.6	0.1	1.0	0.3	0.2	0.1
Q2	0.3	0.3	0.4	-0.5	0.4	0.9	0.1	0.1	0.9	0.1	0.3	1.0
Q3	0.3	0.6	0.2	-0.1	0.5	0.5	-0.6	0.7	0.6	0.1	0.4	0.3
Q4	0.2	0.5	-0.5	1.0	0.3	0.8	0.3	0.3	0.6	0.2	0.4	1.2
	annual percentage changes											
2013	-0.2	3.2	-0.6	-3.3	-0.8	2.5	-2.5	1.1	0.3	0.4	-0.5	-1.1
2014	0.9	3.1	0.6	-0.9	1.4	2.0	-0.6	1.3	1.4	0.5	1.2	0.8
2015	1.5	0.8	1.8	0.3	2.0	2.7	0.8	1.1	2.7	0.8	1.1	2.6
2015 Q1	1.2	0.6	1.2	-1.0	1.7	2.5	1.1	1.0	2.2	0.6	0.8	2.2
Q2	1.5	0.6	1.8	0.1	2.1	3.1	1.3	0.7	2.7	0.8	1.0	2.6
Q3	1.5	0.2	1.9	0.2	2.0	2.4	0.2	1.1	2.8	0.7	0.9	2.9
Q4	1.5	2.2	1.1	0.9	1.9	2.7	0.4	1.2	3.1	0.7	1.3	2.7
	contributions to quarter-on-quarter percentage changes in value added; percentage points											
2015 Q1	0.6	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.0	-
Q2	0.3	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	-
Q3	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	-
Q4	0.2	0.0	-0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	-
	contributions to annual percentage changes in value added; percentage points											
2013	-0.2	0.1	-0.1	-0.2	-0.2	0.1	-0.1	0.1	0.0	0.1	0.0	-
2014	0.9	0.1	0.1	0.0	0.3	0.1	0.0	0.1	0.1	0.1	0.0	-
2015	1.5	0.0	0.3	0.0	0.4	0.1	0.0	0.1	0.3	0.1	0.0	-
2015 Q1	1.2	0.0	0.2	0.0	0.3	0.1	0.1	0.1	0.2	0.1	0.0	-
Q2	1.5	0.0	0.3	0.0	0.4	0.1	0.1	0.1	0.3	0.2	0.0	-
Q3	1.5	0.0	0.4	0.0	0.4	0.1	0.0	0.1	0.3	0.1	0.0	-
Q4	1.5	0.0	0.2	0.0	0.4	0.1	0.0	0.1	0.3	0.1	0.0	-

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													
2012	100.0	84.9	15.1	3.4	15.4	6.4	24.8	2.7	2.7	1.0	12.7	23.8	7.0
2013	100.0	85.0	15.0	3.4	15.3	6.2	24.8	2.7	2.7	1.0	12.9	24.0	7.0
2014	100.0	85.1	14.9	3.4	15.2	6.0	24.8	2.7	2.7	1.0	13.0	24.1	7.1
annual percentage changes													
2012	-0.4	-0.5	0.0	-1.1	-0.7	-4.4	-0.6	1.1	-0.4	0.2	0.8	0.0	0.4
2013	-0.7	-0.6	-1.0	-1.6	-1.3	-4.2	-0.8	0.3	-1.0	-1.9	0.3	0.2	-0.2
2014	0.6	0.7	-0.3	0.6	-0.1	-1.8	0.7	0.8	-0.9	1.0	1.9	0.8	0.7
2014 Q4	0.8	1.0	-0.2	0.2	0.3	-1.4	0.9	0.6	-0.5	1.6	2.4	0.8	1.8
2015 Q1	0.9	1.1	-0.1	-0.3	0.3	-0.1	1.2	0.5	-0.3	1.5	2.7	0.6	0.7
Q2	1.0	1.1	0.2	0.3	0.2	0.9	1.0	1.0	0.4	2.5	2.8	0.6	1.0
Q3	1.1	1.3	-0.2	0.1	0.4	-0.3	1.2	1.5	0.0	2.4	3.0	0.8	1.0
Hours worked													
as a percentage of total hours worked													
2012	100.0	80.0	20.0	4.4	15.7	7.2	25.8	2.8	2.8	1.0	12.4	21.6	6.3
2013	100.0	80.1	19.9	4.4	15.7	6.9	25.8	2.9	2.8	1.0	12.5	21.8	6.3
2014	100.0	80.3	19.7	4.4	15.7	6.7	25.8	2.9	2.7	1.0	12.7	21.9	6.3
annual percentage changes													
2012	-1.6	-1.6	-1.5	-2.3	-2.2	-6.8	-1.7	0.7	-1.0	-0.8	-0.3	-0.5	-0.8
2013	-1.4	-1.4	-1.8	-1.4	-1.5	-5.5	-1.6	-0.1	-1.6	-3.1	-0.8	-0.4	-1.4
2014	0.6	0.8	-0.4	0.1	0.4	-1.7	0.6	1.2	-1.0	0.7	2.0	1.0	0.0
2014 Q4	1.0	1.2	0.1	0.7	1.0	-1.1	0.8	1.4	-0.8	1.6	2.9	0.9	1.2
2015 Q1	0.8	1.0	-0.1	0.8	0.5	-0.3	0.7	0.6	-0.6	2.4	2.5	0.6	1.2
Q2	1.1	1.3	0.3	1.0	0.9	1.2	0.7	1.5	0.4	3.3	3.3	0.6	1.2
Q3	1.3	1.6	0.2	0.7	1.0	0.4	1.0	2.6	-0.2	3.7	3.7	0.9	1.2
Hours worked per person employed													
annual percentage changes													
2012	-1.2	-1.1	-1.6	-1.2	-1.5	-2.5	-1.1	-0.4	-0.6	-1.0	-1.1	-0.5	-1.2
2013	-0.8	-0.7	-0.8	0.2	-0.2	-1.4	-0.8	-0.4	-0.6	-1.3	-1.0	-0.5	-1.2
2014	0.0	0.1	-0.1	-0.5	0.5	0.1	-0.1	0.3	0.0	-0.3	0.1	0.2	-0.6
2014 Q4	0.1	0.1	0.4	0.5	0.7	0.4	-0.1	0.8	-0.3	0.0	0.4	0.1	-0.6
2015 Q1	-0.1	0.0	0.0	1.1	0.2	-0.3	-0.5	0.2	-0.3	0.9	-0.2	0.0	0.4
Q2	0.1	0.2	0.1	0.7	0.6	0.3	-0.3	0.5	0.0	0.8	0.4	-0.1	0.2
Q3	0.3	0.3	0.4	0.5	0.5	0.7	-0.1	1.0	-0.2	1.3	0.7	0.1	0.2

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				
						Adult		Youth		Male		Female		
			Millions	% of labour force		Millions	% of labour force	Millions	% of labour force	Millions	% of labour force	Millions	% of labour force	% of total posts
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
% of total in 2013			100.0			81.3		18.7		53.6		46.4		
2013	159.334	4.6	19.212	12.0	5.9	15.621	10.7	3.592	24.3	10.299	11.9	8.913	12.1	1.5
2014	160.308	4.6	18.624	11.6	6.1	15.213	10.4	3.412	23.7	9.929	11.5	8.695	11.8	1.7
2015	.	.	17.430	10.9	.	14.275	9.7	3.155	22.4	9.254	10.7	8.176	11.0	.
2015 Q1	160.090	4.7	17.994	11.2	5.9	14.757	10.1	3.237	22.7	9.560	11.1	8.434	11.4	1.7
Q2	160.461	4.6	17.685	11.0	5.7	14.507	9.9	3.178	22.5	9.397	10.9	8.288	11.2	1.7
Q3	160.554	4.4	17.202	10.7	5.3	14.081	9.6	3.120	22.3	9.121	10.5	8.081	10.9	1.6
Q4	.	.	16.838	10.5	.	13.754	9.4	3.085	22.2	8.936	10.3	7.902	10.7	.
2015 Aug.	-	-	17.211	10.7	-	14.077	9.6	3.134	22.4	9.120	10.5	8.092	10.9	-
Sep.	-	-	17.058	10.6	-	13.940	9.5	3.118	22.3	9.041	10.4	8.017	10.8	-
Oct.	-	-	16.959	10.6	-	13.838	9.4	3.121	22.3	9.002	10.4	7.956	10.7	-
Nov.	-	-	16.803	10.5	-	13.733	9.4	3.070	22.1	8.902	10.3	7.901	10.7	-
Dec.	-	-	16.752	10.4	-	13.690	9.3	3.063	22.1	8.904	10.3	7.849	10.6	-
2016 Jan.	-	-	16.647	10.3	-	13.609	9.3	3.037	22.0	8.800	10.2	7.847	10.6	-

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												
2013	-0.7	-0.7	-1.0	-0.6	-0.4	-0.8	-2.3	-0.1	-0.8	-0.9	-0.6	-1.0	-4.4
2014	0.8	1.7	1.2	1.8	2.6	-5.5	1.7	3.3	1.2	0.3	2.2	0.0	3.8
2015	1.4	1.5	0.8	1.8	1.8	0.2	-0.9	2.5	2.5	1.4	3.4	2.4	8.9
2015 Q1	1.6	1.1	-0.1	1.1	2.4	4.6	-1.7	1.1	2.4	1.1	3.4	2.2	9.0
Q2	1.3	1.7	0.9	2.7	0.9	-1.1	-0.8	5.4	2.5	1.3	3.5	2.7	6.9
Q3	1.8	2.1	0.9	2.5	2.7	0.0	-1.2	2.2	3.2	2.2	3.9	3.1	9.4
Q4	0.8	1.3	1.4	0.9	1.3	-3.2	0.1	1.3	2.0	1.1	2.7	1.8	10.4
2015 Aug.	2.3	2.9	1.2	4.1	3.2	-2.3	-2.1	3.5	2.7	2.7	2.6	4.1	8.3
Sep.	1.4	1.9	1.4	2.0	1.9	-1.4	-0.5	0.0	3.3	1.6	4.8	2.1	9.8
Oct.	2.1	2.3	1.5	3.6	1.3	1.1	0.1	0.7	2.3	1.1	3.2	1.7	5.8
Nov.	1.4	1.8	2.2	1.7	1.5	-2.7	0.3	3.3	1.7	0.8	2.4	2.2	10.9
Dec.	-1.3	-0.4	0.4	-2.6	1.3	-7.3	-0.4	0.0	2.1	1.4	2.7	1.6	15.1
2016 Jan.	.	.	.	.	.	.	.	.	2.0	1.4	3.0	0.3	10.8
	month-on-month percentage changes (s.a.)												
2015 Aug.	-0.5	-0.1	0.4	-0.9	0.3	-3.6	0.5	-1.6	0.1	0.6	-0.2	1.6	-0.5
Sep.	-0.2	-0.4	0.0	-0.3	-1.4	1.7	-0.8	-2.0	-0.1	-0.5	0.1	-1.0	0.9
Oct.	0.9	0.6	0.1	1.4	0.7	1.8	0.5	1.6	-0.2	-0.4	-0.1	-0.1	-1.1
Nov.	-0.5	-0.2	0.7	-1.5	0.0	-4.3	0.9	0.9	0.1	-0.1	-0.1	0.4	2.4
Dec.	-1.0	-0.8	-0.3	-1.9	-0.1	-2.4	-0.6	-0.2	0.6	0.6	0.5	0.8	5.0
2016 Jan.	.	.	.	.	.	.	.	.	0.4	0.5	0.7	0.1	1.5

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 confidence indicator	Service industries		Purchasing Managers' Index (PMI) for manufacturing	Manufacturing 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	80.8	-12.8	-13.6	-8.6	6.7	-	51.0	52.4	52.9	52.7
2013	93.5	-9.0	78.6	-18.8	-27.9	-12.2	-5.4	87.1	49.6	50.6	49.3	49.7
2014	101.5	-3.8	80.4	-10.2	-26.4	-3.1	4.9	87.6	51.8	53.3	52.5	52.7
2015	104.2	-3.1	81.3	-6.2	-22.5	1.6	9.1	88.4	52.2	53.4	54.0	53.8
2015 Q1	102.6	-3.9	81.1	-6.2	-24.8	-1.5	5.7	88.2	51.4	52.6	53.6	53.3
Q2	103.7	-3.2	81.1	-5.2	-24.4	0.0	7.7	88.3	52.3	53.4	54.1	53.9
Q3	104.5	-2.9	81.3	-7.0	-22.5	3.0	10.4	88.4	52.3	53.6	54.0	53.9
Q4	106.3	-2.4	81.7	-6.4	-18.4	5.1	12.6	88.6	52.8	54.0	54.2	54.1
2015 Sep.	105.5	-2.3	-	-7.0	-22.2	4.3	12.4	-	52.0	53.4	53.7	53.6
Oct.	106.1	-1.9	81.5	-7.5	-20.1	6.5	12.3	88.7	52.3	53.6	54.1	53.9
Nov.	106.0	-3.3	-	-5.9	-17.5	5.8	12.7	-	52.8	54.0	54.2	54.2
Dec.	106.7	-2.0	-	-5.7	-17.6	2.9	12.8	-	53.2	54.5	54.2	54.3
2016 Jan.	105.1	-3.1	81.9	-6.3	-19.0	2.7	11.5	88.5	52.3	53.4	53.6	53.6
Feb.	103.8	-4.4	-	-8.8	-17.5	1.6	10.6	-	51.2	52.3	53.3	53.0

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]	Housing wealth	Profit share [3]	Saving ratio (net)	Debt ratio [4]	Financial investment	Non-financial investment (gross)	Financing
	Percentage of gross disposable income (adjusted)		Annual percentage changes					Percentage of net value added		Percentage of GDP	Annual percentage changes		
	1	2	3	4	5	6	7	8	9	10	11	12	13
2012	12.4	98.8	-1.8	1.7	-5.3	-0.1	-3.0	31.0	1.7	133.4	1.6	-6.6	1.1
2013	12.7	97.3	-0.4	1.2	-4.0	0.5	-1.8	31.9	3.1	131.2	2.3	-1.0	1.0
2014	12.7	96.6	0.7	1.8	0.8	2.7	1.1	31.7	3.3	131.9	1.6	3.2	1.0
2014 Q4	12.7	96.6	1.0	1.8	0.9	2.7	1.1	31.7	3.3	131.9	1.6	1.3	1.0
2015 Q1	12.7	96.0	2.0	1.8	-0.5	3.8	1.4	31.9	3.6	133.9	2.4	2.2	1.4
Q2	12.8	95.7	2.2	1.8	-0.5	2.6	1.5	32.6	4.1	133.2	2.9	3.1	1.6
Q3	12.7	95.6	1.7	1.8	1.0	2.4	2.0	33.0	4.8	132.6	3.4	2.8	1.8

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 Q1	876.7	796.8	79.9	512.8	437.5	184.3	169.4	154.1	130.4	25.5	59.5	8.7	7.5
Q2	896.6	817.1	79.5	525.4	444.8	188.0	171.8	156.8	141.6	26.4	58.9	9.6	37.3
Q3	886.8	810.3	76.5	516.2	434.1	189.6	174.0	156.0	144.0	25.0	58.2	9.6	3.9
Q4	882.1	804.1	78.0	514.2	432.1	192.1	176.2	150.0	136.4	25.9	59.3	14.0	7.1
2015 July	297.4	271.7	25.8	174.4	145.7	62.8	58.1	52.1	48.5	8.1	19.4	3.3	1.4
Aug.	293.6	270.5	23.1	170.2	144.9	63.4	58.0	51.2	48.2	8.8	19.4	3.4	1.0
Sep.	295.8	268.1	27.7	171.6	143.5	63.4	57.9	52.7	47.3	8.1	19.4	3.0	1.5
Oct.	297.6	271.9	25.7	172.5	144.5	64.0	58.8	52.2	48.7	8.8	20.0	4.5	2.0
Nov.	298.0	271.0	26.9	172.7	145.2	64.6	58.6	51.8	47.3	8.9	19.9	3.9	1.8
Dec.	286.6	261.1	25.5	169.0	142.4	63.4	58.8	46.0	40.4	8.2	19.5	5.6	3.3
12-month cumulated transactions													
2015 Dec.	3,542.3	3,228.3	314.0	2,068.5	1,748.4	754.0	691.5	616.9	552.5	102.8	235.9	41.9	55.7
12-month cumulated transactions as a percentage of GDP													
2015 Dec.	34.1	31.1	3.0	19.9	16.8	7.3	6.7	5.9	5.3	1.0	2.3	0.4	0.5

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 Q1	5.6	1.9	509.1	241.6	105.3	149.4	422.0	447.9	260.2	70.2	109.7	315.2	55.4
Q2	8.2	4.2	513.4	242.5	105.4	153.5	428.6	453.3	265.4	70.4	110.8	317.3	60.0
Q3	4.4	0.8	507.0	234.8	104.7	153.8	422.3	445.5	254.6	69.8	113.1	316.5	51.0
Q4	3.1	2.2	508.5	.	.	.	424.2	445.2	.	.	.	322.3	.
2015 July	7.0	0.9	172.8	79.6	35.4	52.5	143.6	150.3	86.5	23.5	37.7	106.4	18.2
Aug.	5.5	2.7	166.5	77.7	34.4	50.7	137.9	147.2	83.9	23.0	37.7	103.9	17.0
Sep.	0.8	-0.8	167.8	77.5	34.8	50.6	140.8	148.0	84.2	23.3	37.7	106.2	15.8
Oct.	0.4	-0.6	168.1	79.8	34.9	50.8	142.6	148.3	84.4	24.5	37.5	107.1	16.1
Nov.	5.8	4.1	170.4	78.8	34.9	51.6	140.5	147.9	82.2	23.7	38.1	107.3	14.4
Dec.	3.4	3.4	170.0	.	.	.	141.1	149.0	.	.	.	108.0	.
Volume indices (2000 = 100; annual percentage changes for columns 1 and 2)													
2015 Q1	2.6	5.2	118.9	115.2	120.7	123.2	118.9	106.6	106.6	107.0	105.9	108.6	105.9
Q2	2.9	2.7	117.1	113.6	118.9	121.6	118.0	104.2	104.2	103.6	104.8	107.1	99.5
Q3	1.1	3.2	116.6	111.8	117.9	122.6	116.7	105.8	105.6	104.8	106.6	107.3	99.4
Q4	.	.	.	.	.	.	.	.	.	.	.	.	.
2015 June	7.9	6.7	117.7	113.8	120.5	122.4	118.6	105.6	105.4	103.9	107.3	109.1	97.3
July	3.1	1.9	118.8	112.8	119.6	125.5	119.0	106.1	105.0	107.0	108.0	108.9	97.0
Aug.	2.0	5.5	114.9	111.2	115.5	121.4	113.9	105.1	105.3	103.5	105.7	105.1	100.5
Sep.	-1.7	2.4	116.2	111.3	118.7	121.1	117.2	106.2	106.6	103.8	106.1	108.0	100.9
Oct.	-1.7	3.7	117.1	115.3	118.7	122.1	118.8	107.3	108.1	110.3	105.9	109.7	103.7
Nov.	3.3	7.5	118.3	114.4	117.9	122.2	116.4	107.3	106.5	105.4	107.7	109.7	95.5

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)						Memo item: Administered prices	
	Index: 2015 = 100	Total		Goods	Services	Total	Processed food	Unprocessed food	Non-energy industrial goods	Energy (n.s.a.)	Services	Total HICP excluding administered prices	Administered prices
			Total excluding food and energy										
	1	2	3	4	5	6	7	8	9	10	11	12	13
% of total in 2015	100.0	100.0	69.7	56.6	43.5	100.0	12.2	7.5	26.3	10.6	43.5	87.1	12.9
2013	99.5	1.4	1.1	1.3	1.4	-	-	-	-	-	-	1.2	2.1
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
2015 Q1	99.2	-0.3	0.7	-1.4	1.1	-0.2	0.2	0.7	0.1	-4.2	0.3	-0.5	1.2
Q2	100.5	0.2	0.8	-0.5	1.1	0.5	0.2	0.7	0.2	2.4	0.3	0.1	0.9
Q3	100.0	0.1	0.9	-0.8	1.2	0.0	0.1	0.4	0.1	-2.5	0.4	0.0	0.8
Q4	100.2	0.2	1.0	-0.6	1.2	-0.1	0.2	0.9	0.1	-3.0	0.2	0.1	0.6
2015 Sep.	100.2	-0.1	0.9	-1.1	1.2	-0.1	0.0	0.6	0.0	-1.7	0.0	-0.2	0.7
Oct.	100.3	0.1	1.1	-0.8	1.3	0.1	0.1	0.6	0.1	-0.5	0.1	0.0	0.7
Nov.	100.2	0.1	0.9	-0.6	1.2	0.0	0.1	-0.4	0.0	0.0	0.0	0.1	0.6
Dec.	100.2	0.2	0.9	-0.5	1.1	-0.2	0.1	-0.7	0.0	-1.8	0.0	0.2	0.6
2016 Jan.	98.7	0.3	1.0	-0.3	1.2	-0.2	0.1	-0.4	0.1	-2.7	0.0	0.4	0.3
Feb. [2)]	98.8	-0.2	0.7	.	1.0	-0.1	0.3	-0.4	-0.1	-1.3	0.1	.	.

	Goods						Services					
	Food (including alcoholic beverages and tobacco)			Industrial goods			Housing		Transport	Communication	Recreation and personal	Miscellaneous
	Total	Processed food	Unprocessed food	Total	Non-energy industrial goods	Energy		Rents				
	14	15	16	17	18	19	20	21	22	23	24	25
% of total in 2015	19.7	12.2	7.5	36.9	26.3	10.6	10.6	6.3	7.4	3.1	14.9	7.5
2013	2.7	2.2	3.5	0.6	0.6	0.6	1.7	1.4	2.4	-4.2	2.3	0.7
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
2015 Q1	0.3	0.5	0.1	-2.3	-0.1	-7.7	1.3	1.3	1.4	-1.9	1.3	1.2
Q2	1.1	0.7	1.8	-1.3	0.2	-5.3	1.2	1.2	1.2	-0.9	1.4	1.2
Q3	1.2	0.6	2.1	-1.8	0.4	-7.2	1.1	0.9	1.4	-0.4	1.7	1.0
Q4	1.4	0.7	2.6	-1.7	0.5	-7.2	1.2	1.0	1.1	-0.1	1.5	1.2
2015 Sep.	1.4	0.6	2.7	-2.4	0.3	-8.9	1.2	1.0	1.4	-0.1	1.6	1.1
Oct.	1.6	0.6	3.2	-2.1	0.6	-8.5	1.2	1.1	1.4	-0.1	1.8	1.2
Nov.	1.5	0.7	2.7	-1.7	0.6	-7.3	1.2	1.0	1.2	-0.2	1.3	1.2
Dec.	1.2	0.7	2.0	-1.3	0.5	-5.8	1.2	1.0	0.7	-0.1	1.5	1.2
2016 Jan.	1.0	0.8	1.4	-1.0	0.7	-5.4	1.1	1.0	0.8	0.0	1.6	1.2
Feb. [2)]	0.7	0.9	0.3	.	0.3	-8.0	.	.	.	.	.	.

Sources: Eurostat and ECB calculations.

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

2) Estimate based on provisional national data, which usually cover around 95% of the euro area, as well as on early information on energy prices.

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	78.0	72.1	29.3	20.0	22.7	13.8	8.9	27.9			
2013	108.5	-0.2	-0.1	0.4	-0.6	0.6	1.7	2.6	0.3	-1.6	0.3	-1.9	-1.1
2014	106.9	-1.5	-0.9	-0.3	-1.1	0.4	0.1	-0.2	0.3	-4.4	0.3	0.2	1.1
2015	104.0	-2.7	-2.3	-0.5	-1.3	0.7	-0.6	-1.0	0.2	-8.1	0.2	.	.
2015 Q1	104.5	-2.9	-2.6	-0.6	-1.5	0.7	-0.7	-1.3	0.2	-8.5	0.2	1.1	2.5
Q2	104.9	-2.1	-1.6	-0.3	-0.7	0.7	-0.8	-1.4	0.1	-6.5	0.4	1.1	3.6
Q3	104.0	-2.6	-2.6	-0.5	-1.1	0.6	-0.6	-1.1	0.1	-8.3	0.2	1.5	5.1
Q4	102.7	-3.1	-2.5	-0.7	-2.0	0.6	-0.2	-0.4	0.2	-9.4	0.0	.	.
2015 Aug.	103.8	-2.6	-2.7	-0.5	-1.1	0.6	-0.7	-1.2	0.2	-8.2	-	-	-
Sep.	103.5	-3.2	-3.0	-0.6	-1.6	0.6	-0.4	-0.7	0.2	-10.0	-	-	-
Oct.	103.1	-3.2	-2.8	-0.7	-1.9	0.6	-0.1	-0.3	0.2	-9.8	-	-	-
Nov.	102.9	-3.2	-2.5	-0.7	-2.1	0.6	-0.2	-0.4	0.2	-9.3	-	-	-
Dec.	102.1	-3.0	-2.1	-0.7	-1.9	0.6	-0.3	-0.4	0.2	-8.9	-	-	-
2016 Jan.	101.0	-2.9	-1.9	-0.6	-1.6	0.4	-0.1	-0.2	0.2	-8.6	-	-	-

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	35.0	65.0	100.0	45.0	55.0
2013	103.7	1.3	0.9	1.1	1.2	0.4	-0.4	-1.3	81.7	-9.0	-13.3	-6.9	-8.2	-9.9	-6.9
2014	104.5	0.9	0.5	0.5	0.8	0.5	-0.7	-1.7	74.5	-8.8	-1.8	-12.1	-4.7	0.4	-8.7
2015	105.8	1.2	0.3	0.2	0.6	0.7	0.1	-2.1	48.3	-4.1	5.2	-9.0	-0.8	4.8	-5.6
2015 Q1	105.4	1.1	0.1	-0.1	0.6	0.7	-0.2	-2.6	49.0	-0.4	8.7	-4.9	5.6	11.6	0.7
Q2	105.7	1.3	0.4	0.3	0.6	0.9	0.9	-1.1	57.4	-0.6	2.0	-2.0	3.9	5.4	2.6
Q3	106.0	1.3	0.3	0.3	0.5	0.7	0.1	-2.3	46.1	-6.5	6.4	-13.1	-3.3	5.7	-10.6
Q4	106.4	1.3	0.4	0.3	0.6	0.7	-0.3	-2.4	40.7	-9.1	3.9	-16.2	-9.3	-3.0	-14.8
2015 Sep.	-	-	-	-	-	-	-	-	43.3	-7.9	3.8	-13.8	-6.0	2.3	-12.6
Oct.	-	-	-	-	-	-	-	-	43.9	-8.3	3.7	-14.6	-6.9	0.8	-13.3
Nov.	-	-	-	-	-	-	-	-	42.8	-8.0	6.2	-15.6	-8.5	-1.4	-14.7
Dec.	-	-	-	-	-	-	-	-	35.7	-11.1	1.8	-18.5	-12.5	-8.0	-16.5
2016 Jan.	-	-	-	-	-	-	-	-	29.7	-14.9	-3.8	-21.2	-14.7	-9.7	-19.3
Feb.	-	-	-	-	-	-	-	-	31.0	-14.3	-5.4	-19.5	-14.1	-9.4	-18.3

Sources: Eurostat, ECB calculations and Thomson Reuters (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 2004-06 average import structure; use-weighted: weighted according to 2004-06 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 12 months	Input prices		Prices charged	
	Manu-facturing	Retail trade	Services	Construction		Manu-facturing	Services	Manu-facturing	Services
	1	2	3	4	5	6	7	8	9
1999-13	4.7	-	-	-2.1	34.0	57.7	56.7	-	49.9
2014	-0.9	-1.5	1.0	-17.2	14.2	49.6	53.5	49.7	48.2
2015	-2.8	1.4	2.5	-13.3	-1.1	48.9	53.5	49.6	49.0
2016	.	.	.	.	.	.	.	.	.
2015 Q1	-5.6	-0.7	1.2	-16.9	-2.5	45.8	52.5	48.8	47.6
Q2	-1.3	3.2	2.9	-15.0	-0.9	54.7	54.4	50.4	49.0
Q3	-2.0	1.1	2.2	-12.5	-0.2	49.5	53.6	49.9	49.9
Q4	-2.1	1.9	3.7	-8.6	-0.8	45.6	53.6	49.2	49.6
2015 Sep.	-3.5	-0.6	2.7	-11.9	-1.6	44.6	53.5	48.7	50.4
Oct.	-2.4	2.0	4.6	-10.1	-2.3	44.3	54.0	48.6	49.9
Nov.	-0.8	2.4	4.1	-8.7	-0.5	45.6	53.3	49.3	49.6
Dec.	-3.2	1.3	2.3	-7.1	0.3	47.0	53.5	49.8	49.4
2016 Jan.	-4.1	0.3	3.2	-8.0	-0.9	42.1	52.7	48.3	49.1
Feb.	-5.5	1.7	3.2	-10.5	-1.4	40.8	52.4	47.6	48.9

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 negotiated wages [1]
			Wages and salaries	Employers' social contributions	Business economy	Mainly non-business economy	
	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	1.5	1.5	1.1	1.2	1.9	1.8
2014	102.7	1.3	1.3	1.3	1.3	1.3	1.7
2015	.	.	.	.	.	.	1.5
2015 Q1	97.6	1.9	2.1	1.1	2.0	1.5	1.5
Q2	108.2	1.6	2.0	0.3	1.6	1.4	1.5
Q3	101.6	1.1	1.4	0.1	1.2	0.8	1.5
Q4	.	.	.	.	.	.	1.5

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												
2012	102.5	1.9	2.6	2.1	4.0	1.7	0.4	1.2	0.9	3.3	0.8	2.8
2013	103.7	1.2	-1.1	2.1	0.4	0.9	-1.4	3.6	-2.8	1.0	1.4	2.0
2014	104.8	1.1	-3.8	1.5	0.7	0.7	1.0	1.0	1.2	2.3	1.2	0.6
2014 Q4	105.2	1.3	-1.1	2.2	1.1	0.7	1.2	1.4	2.0	2.4	1.4	1.0
2015 Q1	105.2	0.8	0.1	0.9	1.8	0.6	-0.2	0.1	3.5	2.3	1.0	0.4
Q2	105.4	0.6	1.0	0.4	1.4	0.3	0.2	0.6	3.3	1.3	1.0	0.6
Q3	105.6	0.5	1.4	-0.1	0.6	0.4	0.9	1.7	3.2	1.3	1.0	0.2
Compensation per employee												
2012	103.6	1.5	0.2	1.9	2.4	1.7	1.4	0.9	0.9	1.9	0.8	1.6
2013	105.2	1.6	3.8	2.8	1.2	0.9	0.8	2.0	0.2	1.0	1.7	1.7
2014	106.7	1.4	-1.4	2.2	1.7	1.4	2.1	1.4	1.5	1.7	0.9	1.1
2014 Q4	107.3	1.4	-1.2	2.1	1.3	1.3	2.7	2.1	1.5	1.7	1.1	0.3
2015 Q1	107.7	1.2	0.9	1.9	0.9	1.0	1.8	1.5	3.0	1.8	1.0	0.5
Q2	107.9	1.3	1.3	1.9	0.6	1.4	2.4	1.4	1.5	1.2	1.1	0.6
Q3	108.1	1.1	1.5	1.4	1.2	1.2	1.7	1.8	2.0	1.1	0.9	0.1
Labour productivity per person employed												
2012	101.0	-0.4	-2.3	-0.3	-1.5	0.0	1.1	-0.3	0.0	-1.4	0.0	-1.2
2013	101.4	0.4	4.9	0.7	0.8	-0.1	2.2	-1.5	3.0	0.1	0.2	-0.3
2014	101.7	0.3	2.5	0.6	1.0	0.7	1.1	0.4	0.3	-0.5	-0.3	0.5
2014 Q4	102.0	0.1	-0.1	-0.1	0.2	0.6	1.5	0.7	-0.5	-0.7	-0.3	-0.7
2015 Q1	102.4	0.4	0.9	1.0	-0.9	0.5	2.1	1.4	-0.5	-0.5	0.0	0.1
Q2	102.4	0.6	0.3	1.5	-0.7	1.1	2.1	0.9	-1.7	-0.1	0.1	0.0
Q3	102.4	0.6	0.1	1.4	0.6	0.8	0.9	0.1	-1.2	-0.2	-0.1	-0.1
Compensation per hour worked												
2012	104.8	2.6	2.2	3.3	5.0	2.9	1.7	1.2	1.4	2.9	1.3	2.8
2013	107.2	2.3	3.7	2.9	2.6	1.8	0.9	2.6	1.6	2.2	2.1	2.9
2014	108.6	1.3	-0.7	1.7	1.5	1.5	1.7	1.3	1.3	1.3	0.7	1.8
2014 Q4	109.1	1.2	-1.0	1.5	0.9	1.4	1.8	2.2	1.3	1.2	1.0	1.0
2015 Q1	109.4	1.3	0.9	1.7	0.5	1.5	1.0	2.0	2.6	2.0	1.0	-0.3
Q2	109.5	1.1	0.4	1.4	-0.1	1.5	1.4	1.6	0.4	0.8	1.2	0.4
Q3	109.6	0.8	1.0	0.8	0.0	1.1	0.7	2.2	1.5	0.6	0.9	-0.3
Hourly labour productivity												
2012	102.3	0.8	-1.1	1.2	1.0	1.2	1.5	0.3	1.0	-0.2	0.5	0.0
2013	103.5	1.2	4.7	0.9	2.3	0.7	2.6	-1.0	4.4	1.1	0.7	0.9
2014	103.8	0.3	3.0	0.2	0.9	0.8	0.8	0.4	0.6	-0.6	-0.5	1.2
2014 Q4	103.8	0.0	-0.6	-0.7	-0.1	0.7	0.8	1.0	-0.5	-1.1	-0.4	-0.1
2015 Q1	104.2	0.5	-0.2	0.8	-0.6	1.0	1.9	1.7	-1.4	-0.3	0.0	-0.3
Q2	104.2	0.5	-0.4	0.9	-1.1	1.4	1.6	0.9	-2.5	-0.5	0.2	-0.2
Q3	104.1	0.3	-0.4	0.9	-0.1	1.0	-0.2	0.3	-2.5	-0.9	-0.2	-0.3

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	909.7	4,476.3	5,386.1	1,683.3	2,142.8	3,826.1	9,212.1	121.4	418.1	86.5	626.0	9,838.1
2014	968.5	4,952.3	5,920.8	1,598.5	2,148.8	3,747.2	9,668.1	123.9	427.7	104.7	656.3	10,324.3
2015	1,034.5	5,569.8	6,604.3	1,447.5	2,160.6	3,608.1	10,212.4	77.1	479.2	71.0	627.4	10,839.8
2015 Q1	993.5	5,154.9	6,148.4	1,529.1	2,149.9	3,679.1	9,827.5	125.8	437.5	96.6	659.9	10,487.4
Q2	1,014.0	5,298.7	6,312.6	1,480.1	2,160.5	3,640.7	9,953.3	90.3	441.1	98.6	629.9	10,583.2
Q3	1,028.2	5,425.1	6,453.3	1,449.3	2,164.4	3,613.7	10,067.0	98.4	457.6	73.3	629.2	10,696.2
Q4	1,034.5	5,569.8	6,604.3	1,447.5	2,160.6	3,608.1	10,212.4	77.1	479.2	71.0	627.4	10,839.8
2015 Aug.	1,025.0	5,383.6	6,408.6	1,460.5	2,163.9	3,624.3	10,032.9	102.4	446.2	80.4	629.0	10,661.9
Sep.	1,028.2	5,425.1	6,453.3	1,449.3	2,164.4	3,613.7	10,067.0	98.4	457.6	73.3	629.2	10,696.2
Oct.	1,029.9	5,487.7	6,517.6	1,438.5	2,164.3	3,602.8	10,120.4	106.8	473.5	76.9	657.1	10,777.5
Nov.	1,037.4	5,544.3	6,581.8	1,448.3	2,162.6	3,610.8	10,192.6	91.5	485.2	82.0	658.7	10,851.3
Dec.	1,034.5	5,569.8	6,604.3	1,447.5	2,160.6	3,608.1	10,212.4	77.1	479.2	71.0	627.4	10,839.8
2016 Jan. [p]	1,044.5	5,622.7	6,667.2	1,448.6	2,156.8	3,605.4	10,272.6	87.6	471.1	78.2	636.8	10,909.4
	Transactions											
2013	45.6	250.4	295.9	-114.4	45.5	-68.9	227.0	-11.6	-48.7	-63.3	-123.6	103.4
2014	58.2	379.3	437.5	-90.9	3.2	-87.7	349.8	1.0	10.8	12.7	24.6	374.4
2015	64.8	576.6	641.4	-143.3	12.0	-131.3	510.1	-47.8	49.6	-26.4	-24.7	485.4
2015 Q1	23.8	166.6	190.4	-56.9	2.0	-54.8	135.6	0.6	5.6	-9.3	-3.0	132.6
Q2	20.5	151.9	172.3	-47.6	10.9	-36.7	135.6	-35.2	3.6	3.9	-27.6	108.0
Q3	14.3	129.0	143.3	-35.3	3.1	-32.3	111.0	8.2	18.7	-18.4	8.4	119.4
Q4	6.3	129.1	135.4	-3.5	-4.0	-7.5	127.9	-21.5	21.7	-2.6	-2.4	125.5
2015 Aug.	4.7	24.5	29.2	-9.4	2.3	-7.1	22.1	-2.3	2.2	-2.6	-2.6	19.5
Sep.	3.2	42.6	45.9	-12.2	-0.4	-12.6	33.3	-4.1	1.3	-3.9	-6.6	26.7
Oct.	1.7	49.4	51.1	-12.1	-0.2	-12.3	38.7	8.2	16.0	4.4	28.6	67.4
Nov.	7.6	48.3	55.8	7.4	-1.9	5.5	61.3	-15.7	11.8	5.2	1.3	62.6
Dec.	-3.0	31.4	28.5	1.2	-1.9	-0.6	27.8	-14.0	-6.1	-12.2	-32.3	-4.5
2016 Jan. [p]	10.1	54.9	65.0	1.4	-3.7	-2.3	62.7	10.5	-2.8	4.6	12.4	75.1
	Growth rates											
2013	5.3	5.9	5.8	-6.4	2.2	-1.8	2.5	-9.2	-10.4	-38.0	-16.1	1.0
2014	6.4	8.4	8.1	-5.4	0.1	-2.3	3.8	0.8	2.6	18.7	4.0	3.8
2015	6.7	11.6	10.8	-9.0	0.6	-3.5	5.3	-38.2	11.5	-26.2	-3.8	4.7
2015 Q1	7.3	10.6	10.1	-7.6	0.1	-3.3	4.6	5.1	5.3	11.7	5.6	4.7
Q2	8.8	12.4	11.8	-10.7	0.5	-4.4	5.2	-30.9	6.9	23.7	0.6	4.9
Q3	8.3	12.4	11.7	-11.4	0.5	-4.7	5.2	-23.0	9.0	-1.5	0.7	4.9
Q4	6.7	11.6	10.8	-9.0	0.6	-3.5	5.3	-38.2	11.5	-26.2	-3.8	4.7
2015 Aug.	8.6	12.1	11.5	-11.2	0.6	-4.6	5.1	-21.1	9.5	8.2	2.4	4.9
Sep.	8.3	12.4	11.7	-11.4	0.5	-4.7	5.2	-23.0	9.0	-1.5	0.7	4.9
Oct.	8.1	12.3	11.6	-10.9	0.6	-4.3	5.4	-18.8	10.1	6.6	3.2	5.2
Nov.	8.0	11.7	11.1	-9.9	0.3	-4.0	5.2	-29.6	12.3	7.3	2.7	5.0
Dec.	6.7	11.6	10.8	-9.0	0.6	-3.5	5.3	-38.2	11.5	-26.2	-3.8	4.7
2016 Jan. [p]	6.1	11.3	10.5	-7.5	0.7	-2.7	5.4	-28.0	9.4	-16.2	-1.3	5.0

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	1,710.5	1,186.7	397.8	109.8	16.2	5,413.6	2,539.7	874.7	1,994.5	4.7	804.8	194.9	300.1
2014	1,815.2	1,318.7	365.8	111.6	19.2	5,556.6	2,751.2	809.6	1,992.8	3.0	895.8	222.7	333.1
2015	1,927.6	1,480.9	322.0	116.5	8.2	5,751.1	3,061.0	694.3	1,993.1	2.6	989.2	224.6	362.5
2015 Q1	1,848.5	1,381.7	340.2	111.8	14.9	5,597.8	2,839.3	762.8	1,991.9	3.8	947.6	225.7	340.2
Q2	1,858.2	1,410.7	322.6	112.8	12.2	5,646.7	2,910.7	735.1	1,998.1	2.8	955.7	228.1	340.9
Q3	1,901.0	1,451.1	324.0	115.8	10.1	5,695.4	2,987.9	707.4	1,997.0	3.0	966.6	218.0	356.2
Q4	1,927.6	1,480.9	322.0	116.5	8.2	5,751.1	3,061.0	694.3	1,993.1	2.6	989.2	224.6	362.5
2015 Aug.	1,889.4	1,441.7	325.0	114.5	8.2	5,674.0	2,960.0	714.8	1,996.2	3.1	968.1	224.7	354.2
Sep.	1,901.0	1,451.1	324.0	115.8	10.1	5,695.4	2,987.9	707.4	1,997.0	3.0	966.6	218.0	356.2
Oct.	1,937.3	1,493.6	316.7	116.9	10.1	5,706.8	3,003.6	705.6	1,994.2	3.5	964.5	222.4	366.1
Nov.	1,934.2	1,486.9	321.4	116.8	9.1	5,728.0	3,033.3	698.5	1,992.2	3.9	990.4	222.4	371.7
Dec.	1,927.6	1,480.9	322.0	116.5	8.2	5,751.1	3,061.0	694.3	1,993.1	2.6	989.2	224.6	362.5
2016 Jan. [p]	1,966.4	1,520.9	320.1	115.6	9.8	5,763.9	3,077.2	693.9	1,989.2	3.6	983.3	224.2	378.1
Transactions													
2013	98.2	90.1	-6.9	9.1	5.9	107.9	182.4	-100.1	31.9	-6.2	-15.1	-13.3	-7.8
2014	69.5	91.2	-25.5	1.5	2.4	140.5	209.8	-65.7	-1.8	-1.7	53.4	7.5	21.7
2015	100.0	140.2	-33.9	4.9	-11.2	194.8	302.8	-108.2	0.7	-0.4	76.5	-1.7	27.9
2015 Q1	29.5	48.9	-14.9	0.1	-4.6	39.0	79.1	-41.1	0.2	0.8	35.0	1.5	7.5
Q2	13.3	31.7	-16.8	1.0	-2.6	50.7	73.3	-28.0	6.4	-1.0	12.3	2.8	0.9
Q3	42.5	41.0	0.4	3.1	-2.1	48.9	78.3	-27.7	-1.9	0.2	10.3	-10.2	13.4
Q4	14.7	18.6	-2.6	0.7	-2.0	56.2	72.1	-11.4	-4.0	-0.5	18.9	4.2	6.1
2015 Aug.	2.8	5.8	0.7	0.7	-4.4	11.0	18.3	-7.4	0.1	-0.1	2.3	-7.2	6.2
Sep.	12.4	9.5	-0.4	1.4	2.0	21.3	28.9	-7.3	-0.2	-0.1	-3.0	-6.6	1.9
Oct.	25.2	31.9	-7.8	1.1	0.0	10.6	15.0	-2.0	-2.9	0.5	-4.5	4.5	9.5
Nov.	-7.6	-10.0	3.8	-0.1	-1.2	21.4	28.6	-5.5	-2.1	0.4	21.1	-2.4	5.5
Dec.	-2.9	-3.3	1.5	-0.3	-0.8	24.1	28.4	-3.9	1.0	-1.3	2.3	2.1	-8.8
2016 Jan. [p]	40.3	41.1	-1.5	-0.9	1.6	13.1	16.3	-0.1	-4.0	1.0	-5.3	-0.5	15.4
Growth rates													
2013	6.1	8.2	-1.7	8.9	56.4	2.0	7.7	-10.3	1.6	-56.7	-1.9	-6.4	-2.5
2014	4.0	7.6	-6.4	1.3	14.4	2.6	8.3	-7.5	-0.1	-36.9	6.3	4.0	7.3
2015	5.5	10.6	-9.5	4.4	-57.9	3.5	11.0	-13.4	0.0	-14.2	8.4	-0.8	8.3
2015 Q1	4.7	9.9	-9.8	0.8	-5.4	2.8	9.7	-11.2	0.0	-31.2	14.6	-0.5	5.2
Q2	4.3	10.6	-13.9	1.3	-23.5	3.0	10.8	-13.9	0.1	-37.8	13.7	-1.1	5.3
Q3	5.1	10.8	-12.3	2.3	-32.3	3.0	11.1	-15.5	0.0	-37.7	14.2	-4.9	5.8
Q4	5.5	10.6	-9.5	4.4	-57.9	3.5	11.0	-13.4	0.0	-14.2	8.4	-0.8	8.3
2015 Aug.	4.8	11.2	-13.3	1.6	-48.2	2.9	10.9	-15.3	0.1	-36.9	14.5	-5.6	6.1
Sep.	5.1	10.8	-12.3	2.3	-32.3	3.0	11.1	-15.5	0.0	-37.7	14.2	-4.9	5.8
Oct.	6.6	12.2	-11.5	2.4	-26.4	3.1	11.0	-14.8	0.0	-25.6	10.8	-3.7	9.8
Nov.	5.0	10.0	-11.0	1.9	-31.7	3.3	10.9	-14.5	0.1	-18.1	9.7	-4.7	10.9
Dec.	5.5	10.6	-9.5	4.4	-57.9	3.5	11.0	-13.4	0.0	-14.2	8.4	-0.8	8.3
2016 Jan. [p]	6.5	10.8	-9.0	4.4	-17.4	3.7	10.5	-11.4	0.2	-12.4	9.2	-3.2	9.9

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								
					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		
	Total	Loans	Debt securities	Total		Adjusted for loan sales and securitisation [2)]						
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts												
2013	3,404.9	1,096.7	2,308.2	12,709.1	10,544.4	10,929.5	4,353.6	5,222.8	869.2	98.7	1,364.7	800.0
2014	3,605.5	1,131.8	2,473.7	12,562.3	10,510.7	10,920.7	4,271.7	5,200.4	909.8	128.9	1,276.9	774.7
2015	3,893.3	1,109.5	2,783.9	12,679.6	10,591.7	10,989.3	4,273.4	5,307.5	887.3	123.6	1,301.1	786.8
2015 Q1	3,671.7	1,148.5	2,523.2	12,674.1	10,611.8	11,008.5	4,301.5	5,234.0	941.6	134.7	1,274.1	788.2
Q2	3,680.4	1,137.4	2,543.0	12,636.4	10,592.2	10,986.5	4,291.3	5,258.5	906.8	135.5	1,254.8	789.4
Q3	3,815.9	1,127.1	2,688.8	12,652.5	10,564.8	10,963.1	4,274.9	5,277.6	891.1	121.2	1,310.4	777.3
Q4	3,893.3	1,109.5	2,783.9	12,679.6	10,591.7	10,989.3	4,273.4	5,307.5	887.3	123.6	1,301.1	786.8
2015 Aug.	3,766.9	1,132.3	2,634.6	12,697.1	10,599.3	11,000.9	4,291.1	5,268.8	910.8	128.6	1,306.1	791.7
Sep.	3,815.9	1,127.1	2,688.8	12,652.5	10,564.8	10,963.1	4,274.9	5,277.6	891.1	121.2	1,310.4	777.3
Oct.	3,835.6	1,119.8	2,715.8	12,695.5	10,607.1	11,003.3	4,290.2	5,301.9	890.6	124.3	1,296.6	791.8
Nov.	3,877.8	1,118.4	2,759.4	12,736.0	10,650.2	11,046.6	4,307.5	5,310.0	908.3	124.4	1,287.6	798.2
Dec.	3,893.3	1,109.5	2,783.9	12,679.6	10,591.7	10,989.3	4,273.4	5,307.5	887.3	123.6	1,301.1	786.8
2016 Jan. [(p)]	3,963.7	1,117.3	2,846.4	12,687.9	10,617.1	11,013.2	4,289.1	5,311.7	890.6	125.6	1,306.0	764.9
Transactions												
2013	-25.0	-73.5	48.5	-305.7	-248.1	-268.7	-132.9	-4.0	-120.9	9.7	-72.7	15.1
2014	72.0	16.0	56.1	-104.0	-50.3	-32.1	-60.9	-15.4	14.3	11.7	-90.0	36.2
2015	283.8	-20.7	304.6	97.6	68.8	49.0	0.6	98.0	-24.3	-5.5	24.2	4.5
2015 Q1	40.3	16.5	23.8	34.1	45.2	31.7	8.3	19.2	12.4	5.3	-3.5	-7.5
Q2	58.0	-10.7	68.6	0.2	7.6	1.6	-0.3	30.7	-23.8	1.0	-14.1	6.7
Q3	112.2	-10.2	122.3	54.8	-7.9	-2.8	-6.0	24.7	-12.3	-14.4	64.3	-1.6
Q4	73.4	-16.4	89.8	8.4	23.9	18.5	-1.4	23.4	-0.7	2.6	-22.4	7.0
2015 Aug.	47.1	-0.1	47.1	15.2	3.8	4.5	-0.8	9.1	-1.5	-3.0	12.1	-0.7
Sep.	35.0	-6.1	41.1	-29.7	-26.0	-27.4	-10.4	11.4	-19.6	-7.4	5.6	-9.3
Oct.	10.1	-7.7	17.8	16.6	27.7	25.7	7.0	15.0	2.6	3.1	-19.1	8.0
Nov.	36.6	-1.5	38.1	18.7	35.4	31.3	12.4	8.3	14.6	0.0	-20.4	3.7
Dec.	26.7	-7.1	33.9	-26.8	-39.1	-38.5	-20.9	0.1	-17.9	-0.5	17.1	-4.7
2016 Jan. [(p)]	60.3	5.2	55.0	24.0	34.1	31.4	21.0	6.4	4.6	2.1	6.9	-17.0
Growth rates												
2013	-0.7	-6.3	2.2	-2.3	-2.3	-2.4	-2.9	-0.1	-12.3	10.9	-5.1	1.9
2014	2.1	1.5	2.4	-0.8	-0.5	-0.3	-1.4	-0.3	1.5	11.9	-6.6	4.5
2015	7.9	-1.8	12.3	0.8	0.7	0.4	0.0	1.9	-2.6	-4.2	1.9	0.6
2015 Q1	2.8	1.9	3.1	-0.2	0.1	0.2	-0.6	0.0	2.4	14.1	-4.9	3.2
Q2	5.1	1.6	6.7	0.2	0.6	0.3	-0.2	1.2	-1.0	17.8	-5.2	3.0
Q3	7.2	0.5	10.2	0.7	0.6	0.4	0.1	1.6	-2.0	-1.4	1.0	1.9
Q4	7.9	-1.8	12.3	0.8	0.7	0.4	0.0	1.9	-2.6	-4.2	1.9	0.6
2015 Aug.	6.3	1.0	8.8	1.0	1.0	0.7	0.2	1.4	0.5	12.4	-0.3	3.2
Sep.	7.2	0.5	10.2	0.7	0.6	0.4	0.1	1.6	-2.0	-1.4	1.0	1.9
Oct.	6.9	0.2	9.9	0.9	0.9	0.7	0.3	1.8	-1.5	2.0	0.0	2.5
Nov.	7.8	-0.7	11.7	1.1	1.2	0.9	0.7	1.9	-0.1	-1.4	-0.7	3.4
Dec.	7.9	-1.8	12.3	0.8	0.7	0.4	0.0	1.9	-2.6	-4.2	1.9	0.6
2016 Jan. [(p)]	8.6	-2.4	13.7	0.9	0.8	0.6	0.4	1.9	-2.5	-9.5	2.3	-0.4

Source: ECB.

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

2) Adjusted for the derecognition of loans on the MFI balance sheet on account of their sale or securitisation.

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 for loan sales and securitisation [4)]					Adjusted for loan sales and securitisation [4)]			
	1	2	3	4	5	6	7	8	9	10
	Outstanding amounts									
2013	4,353.6	4,407.7	1,065.7	740.9	2,547.0	5,222.8	5,546.6	573.6	3,853.7	795.5
2014	4,271.7	4,329.7	1,080.7	720.5	2,470.4	5,200.4	5,545.3	563.4	3,861.0	776.0
2015	4,273.4	4,333.7	1,038.2	758.5	2,476.7	5,307.5	5,638.7	595.6	3,948.3	763.6
2015 Q1	4,301.5	4,357.4	1,089.2	734.6	2,477.8	5,234.0	5,570.3	567.8	3,890.9	775.3
Q2	4,291.3	4,347.6	1,080.8	743.1	2,467.3	5,258.5	5,589.2	578.7	3,908.9	771.0
Q3	4,274.9	4,333.8	1,058.3	745.9	2,470.6	5,277.6	5,611.4	582.4	3,926.5	768.7
Q4	4,273.4	4,333.7	1,038.2	758.5	2,476.7	5,307.5	5,638.7	595.6	3,948.3	763.6
2015 Aug.	4,291.1	4,350.1	1,083.9	743.0	2,464.2	5,268.8	5,605.3	581.6	3,917.2	770.0
Sep.	4,274.9	4,333.8	1,058.3	745.9	2,470.6	5,277.6	5,611.4	582.4	3,926.5	768.7
Oct.	4,290.2	4,350.6	1,062.6	755.6	2,472.1	5,301.9	5,630.1	594.9	3,940.6	766.5
Nov.	4,307.5	4,365.8	1,076.6	755.5	2,475.3	5,310.0	5,638.7	596.8	3,944.8	768.3
Dec.	4,273.4	4,333.7	1,038.2	758.5	2,476.7	5,307.5	5,638.7	595.6	3,948.3	763.6
2016 Jan. [p)]	4,289.1	4,352.3	1,048.5	765.3	2,475.2	5,311.7	5,642.9	596.3	3,952.0	763.4
	Transactions									
2013	-132.9	-145.1	-44.3	-44.6	-44.0	-4.0	-15.0	-18.2	27.4	-13.2
2014	-60.9	-64.0	-14.2	2.3	-48.9	-15.4	5.9	-2.9	-3.4	-9.1
2015	0.6	6.3	-45.8	32.3	14.1	98.0	77.1	21.6	80.1	-3.6
2015 Q1	8.3	5.7	-1.0	7.5	1.8	19.2	11.1	2.0	17.4	-0.2
Q2	-0.3	0.9	-3.0	7.3	-4.5	30.7	20.8	9.4	22.5	-1.2
Q3	-6.0	-0.7	-19.1	4.0	9.2	24.7	26.5	5.2	19.8	-0.3
Q4	-1.4	0.4	-22.6	13.5	7.6	23.4	18.6	5.0	20.3	-1.9
2015 Aug.	-0.8	0.3	4.1	-0.1	-4.9	9.1	8.0	2.4	6.4	0.3
Sep.	-10.4	-9.8	-24.0	3.6	10.0	11.4	9.7	1.3	10.2	-0.1
Oct.	7.0	10.2	-5.6	10.1	2.5	15.0	7.5	3.0	12.5	-0.6
Nov.	12.4	9.4	15.5	-2.4	-0.7	8.3	8.7	2.6	3.6	2.1
Dec.	-20.9	-19.1	-32.5	5.9	5.7	0.1	2.4	-0.6	4.2	-3.4
2016 Jan. [p)]	21.0	22.9	13.2	5.4	2.4	6.4	6.0	1.1	4.8	0.4
	Growth rates									
2013	-2.9	-3.2	-4.0	-5.6	-1.7	-0.1	-0.3	-3.0	0.7	-1.6
2014	-1.4	-1.4	-1.3	0.3	-1.9	-0.3	0.1	-0.5	-0.1	-1.1
2015	0.0	0.1	-4.2	4.4	0.6	1.9	1.4	3.8	2.1	-0.5
2015 Q1	-0.6	-0.7	-0.8	2.0	-1.3	0.0	0.3	-0.1	0.1	-0.8
Q2	-0.2	-0.4	-1.1	2.2	-0.5	1.2	0.6	1.8	1.6	-0.9
Q3	0.1	0.1	-2.7	3.6	0.2	1.6	1.1	2.6	1.8	-0.5
Q4	0.0	0.1	-4.2	4.4	0.6	1.9	1.4	3.8	2.1	-0.5
2015 Aug.	0.2	0.2	0.1	2.6	-0.4	1.4	1.0	2.7	1.6	-0.5
Sep.	0.1	0.1	-2.7	3.6	0.2	1.6	1.1	2.6	1.8	-0.5
Oct.	0.3	0.4	-3.1	5.0	0.4	1.8	1.2	2.9	2.0	-0.4
Nov.	0.7	0.7	-0.9	3.5	0.5	1.9	1.4	3.6	2.1	-0.2
Dec.	0.0	0.1	-4.2	4.4	0.6	1.9	1.4	3.8	2.1	-0.5
2016 Jan. [p)]	0.4	0.6	-3.1	4.6	0.7	1.9	1.4	4.0	2.0	-0.3

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 the derecognition of loans on the MFI balance sheet on account of their sale or securitisation.

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	261.7	7,311.0	2,371.2	91.5	2,507.2	2,341.1	1,146.5	150.2	183.8	121.9
2014	264.6	7,188.6	2,248.9	92.2	2,381.7	2,465.8	1,383.3	226.5	184.5	139.7
2015	278.3	7,069.6	2,184.2	79.8	2,254.1	2,551.5	1,331.3	283.4	205.9	135.6
2015 Q1	283.2	7,320.9	2,258.5	90.6	2,395.7	2,576.1	1,505.6	240.1	236.3	160.6
Q2	265.2	7,169.4	2,223.1	86.7	2,330.6	2,529.0	1,459.0	242.1	224.6	147.1
Q3	287.6	7,101.6	2,223.8	83.7	2,264.4	2,529.7	1,361.8	255.2	213.6	140.0
Q4	278.3	7,069.6	2,184.2	79.8	2,254.1	2,551.5	1,331.3	283.4	205.9	135.6
2015 Aug.	274.5	7,127.1	2,225.0	84.3	2,289.8	2,528.0	1,355.3	244.1	207.0	128.4
Sep.	287.6	7,101.6	2,223.8	83.7	2,264.4	2,529.7	1,361.8	255.2	213.6	140.0
Oct.	347.8	7,107.3	2,207.4	82.2	2,257.1	2,560.5	1,396.2	305.3	196.4	144.9
Nov.	296.0	7,123.8	2,189.4	80.3	2,284.3	2,569.9	1,385.8	271.5	217.7	146.0
Dec.	278.3	7,069.6	2,184.2	79.8	2,254.1	2,551.5	1,331.3	283.4	205.9	135.6
2016 Jan. [p]	306.0	7,054.7	2,174.5	78.6	2,224.5	2,577.1	1,309.8	308.8	213.8	141.7
Transactions										
2013	-44.9	-89.7	-19.0	-14.3	-137.3	80.9	362.0	-62.5	32.2	43.7
2014	-5.7	-162.5	-122.3	2.0	-151.4	109.1	238.4	-0.2	0.7	17.8
2015	7.5	-219.2	-104.0	-13.5	-203.8	102.0	-97.4	-10.2	21.4	-4.0
2015 Q1	15.5	-36.8	-27.8	-2.6	-52.3	45.9	3.4	33.3	51.7	21.0
Q2	-18.0	-87.4	-34.7	-3.9	-50.5	1.8	-0.3	-55.3	-11.8	-13.6
Q3	22.0	-37.6	6.1	-3.1	-58.5	17.9	-64.1	0.9	-11.0	-7.1
Q4	-11.9	-57.4	-47.5	-3.9	-42.4	36.4	-36.5	10.8	-7.7	-4.3
2015 Aug.	20.8	-14.4	-2.7	-1.4	-13.3	3.0	-19.5	-17.0	-0.3	-13.9
Sep.	12.8	-19.9	-1.1	-0.6	-25.1	6.9	7.4	6.9	6.6	11.6
Oct.	58.0	-33.9	-23.4	-1.5	-17.5	8.6	10.5	54.3	-17.2	5.0
Nov.	-51.8	-11.2	-21.1	-1.9	-6.2	18.0	-15.3	-40.3	21.3	1.1
Dec.	-18.1	-12.3	-3.0	-0.5	-18.6	9.8	-31.7	-3.2	-11.7	-10.4
2016 Jan. [p]	27.7	-31.3	-9.1	-1.2	-24.6	3.5	-28.2	15.4	7.9	6.9
Growth rates										
2013	-14.7	-1.2	-0.8	-13.5	-5.1	3.4	-	-	10.3	23.3
2014	-2.2	-2.2	-5.2	2.2	-6.0	4.6	-	-	0.4	14.6
2015	3.1	-3.0	-4.6	-14.4	-8.4	4.1	-	-	11.6	-2.9
2015 Q1	5.5	-2.7	-5.9	-0.1	-6.8	4.6	-	-	33.4	37.6
Q2	-6.0	-3.0	-5.3	-3.4	-8.1	4.3	-	-	31.0	23.5
Q3	11.8	-3.4	-3.7	-9.1	-9.3	3.0	-	-	30.5	15.0
Q4	3.1	-3.0	-4.6	-14.4	-8.4	4.1	-	-	11.6	-2.9
2015 Aug.	-1.4	-3.2	-4.3	-7.9	-8.7	3.6	-	-	20.3	9.8
Sep.	11.8	-3.4	-3.7	-9.1	-9.3	3.0	-	-	30.5	15.0
Oct.	29.6	-3.5	-4.2	-10.1	-9.0	3.0	-	-	7.2	19.6
Nov.	10.3	-3.4	-4.9	-11.4	-8.8	3.6	-	-	18.0	11.7
Dec.	3.1	-3.0	-4.6	-14.4	-8.4	4.1	-	-	11.6	-2.9
2016 Jan. [p]	3.4	-3.3	-4.4	-15.4	-8.9	3.5	-	-	5.1	7.0

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
2011	-4.2	-3.3	-0.7	-0.2	0.0	-1.2
2012	-3.7	-3.4	-0.3	0.0	0.0	-0.6
2013	-3.0	-2.6	-0.2	0.0	-0.1	-0.2
2014	-2.6	-2.2	-0.2	0.0	-0.1	0.1
2014 Q4	-2.6	.	.	.	.	0.1
2015 Q1	-2.5	.	.	.	.	0.1
Q2	-2.4	.	.	.	.	0.1
Q3	-2.1	.	.	.	.	0.3

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
2011	44.9	44.5	11.6	12.6	15.1	0.4	49.1	44.8	10.4	5.3	3.0	22.2	4.3
2012	46.1	45.6	12.2	12.9	15.3	0.4	49.7	45.2	10.4	5.4	3.0	22.6	4.5
2013	46.6	46.1	12.5	12.9	15.5	0.5	49.6	45.5	10.4	5.4	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	23.1	3.9
2014 Q4	46.8	46.3	12.5	13.1	15.5	0.5	49.4	45.4	10.3	5.3	2.7	23.1	3.9
2015 Q1	46.7	46.2	12.5	13.1	15.5	0.5	49.2	45.3	10.3	5.3	2.6	23.1	3.9
Q2	46.6	46.2	12.6	13.1	15.5	0.5	49.0	45.2	10.3	5.3	2.5	23.1	3.8
Q3	46.6	46.1	12.6	13.1	15.4	0.5	48.7	45.0	10.2	5.3	2.5	23.1	3.7

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
2011	86.0	2.9	15.5	67.5	42.9	24.4	43.1	12.2	73.8	20.4	30.0	35.6	84.2	1.8
2012	89.3	3.0	17.4	68.9	45.5	26.2	43.8	11.4	78.0	19.7	31.7	37.9	87.2	2.2
2013	91.1	2.7	17.2	71.2	46.0	26.2	45.1	10.4	80.7	19.4	32.2	39.4	89.1	2.0
2014	92.1	2.7	17.0	72.4	45.3	26.0	46.8	10.1	82.0	19.0	32.1	41.0	90.1	2.0
2014 Q4	92.1	2.7	17.0	72.4	.	.	.	.	.	.	.	.	.	.
2015 Q1	92.9	2.7	16.8	73.4	.	.	.	.	.	.	.	.	.	.
Q2	92.3	2.8	16.2	73.3	.	.	.	.	.	.	.	.	.	.
Q3	91.6	2.7	16.1	72.8	.	.	.	.	.	.	.	.	.	.

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
2011	2.1	1.2	0.2	-0.4	0.2	-0.2	-0.2	-0.1	0.4	0.2	0.8	3.9
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	1.7	0.2	-0.3	-0.6	-0.5	-0.4	-0.1	0.3	-0.1	0.4	1.9	2.7
2014	1.0	-0.1	0.0	-0.1	0.3	-0.2	-0.3	0.0	0.0	0.1	1.1	2.6
2014 Q4	1.0	-0.1	0.0	-0.1	0.3	-0.1	-0.3	0.1	-0.1	0.2	1.1	2.7
2015 Q1	0.8	-0.1	0.0	0.0	0.3	-0.1	-0.2	0.0	-0.1	0.1	0.9	2.6
Q2	-0.6	-0.1	-0.9	-0.9	-0.3	-0.3	-0.2	-0.2	0.0	0.0	0.5	1.5
Q3	-0.6	-0.3	-0.5	-0.3	0.2	-0.3	-0.2	-0.1	0.0	-0.1	0.1	1.7

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	Maturities of up to 1 year	Issuance	Redemption
	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	13.9	5.1	2.0	0.5	6.4	3.1	1.5	0.5	3.5	2.7	0.8	1.6
2015	15.3	13.3	4.4	2.0	0.5	6.6	2.9	1.2	0.1	3.3	3.0	0.4	1.2
2014 Q4	15.9	13.9	5.1	2.0	0.5	6.4	3.1	1.5	0.5	3.5	2.7	0.8	1.6
2015 Q1	15.5	13.4	4.6	2.0	0.5	6.5	3.1	1.3	0.3	3.5	2.9	0.6	1.7
Q2	15.4	13.4	4.9	2.0	0.5	6.6	3.0	1.3	0.2	3.4	2.9	0.5	1.5
Q3	15.5	13.5	4.4	2.0	0.5	6.6	2.9	1.2	0.1	3.3	3.0	0.4	1.4
2015 Aug.	15.3	13.4	4.4	2.0	0.5	6.6	2.9	1.2	0.1	3.4	2.9	0.4	1.5
Sep.	15.5	13.5	4.4	2.0	0.5	6.6	2.9	1.2	0.1	3.3	3.0	0.4	1.4
Oct.	15.9	13.9	4.3	2.0	0.5	6.6	2.9	1.2	0.1	3.3	3.0	0.4	1.4
Nov.	16.0	14.0	4.7	2.0	0.5	6.5	2.9	1.2	0.1	3.3	3.0	0.4	1.4
Dec.	15.3	13.3	4.4	2.0	0.5	6.6	2.9	1.2	0.1	3.3	3.0	0.4	1.2
2016 Jan.	15.4	13.4	5.4	2.0	0.5	6.6	2.8	1.2	0.1	3.3	3.0	0.4	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 (+)								
2011	-4.1	-1.0	1.2	-12.5	-10.2	-9.5	-5.1	-3.5	-5.7
2012	-4.1	-0.1	-0.3	-8.0	-8.8	-10.4	-4.8	-3.0	-5.8
2013	-2.9	-0.1	-0.1	-5.7	-12.4	-6.9	-4.1	-2.9	-4.9
2014	-3.1	0.3	0.7	-3.9	-3.6	-5.9	-3.9	-3.0	-8.9
2014 Q4	-3.1	0.3	0.7	-3.9	-3.6	-5.9	-3.9	-3.0	-8.9
2015 Q1	-3.3	0.4	0.5	-3.6	-4.7	-5.9	-3.9	-3.0	-0.2
Q2	-3.1	0.4	0.6	-3.0	-5.3	-5.5	-3.9	-2.9	-0.4
Q3	-3.0	0.8	0.7	-2.5	-5.4	-5.3	-3.7	-2.8	-0.9
	Government debt								
2011	102.2	78.4	5.9	109.3	172.0	69.5	85.2	116.4	65.8
2012	104.1	79.7	9.5	120.2	159.4	85.4	89.6	123.2	79.3
2013	105.1	77.4	9.9	120.0	177.0	93.7	92.3	128.8	102.5
2014	106.7	74.9	10.4	107.5	178.6	99.3	95.6	132.3	108.2
2014 Q4	106.7	74.9	10.4	107.5	178.6	99.3	95.6	132.3	108.2
2015 Q1	110.9	74.3	10.0	104.7	169.9	99.7	97.5	135.3	107.5
Q2	109.3	72.5	9.9	102.1	168.9	99.3	97.7	136.0	110.4
Q3	108.7	71.9	9.8	99.4	171.0	99.3	97.0	134.6	109.6

	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Austria	Portugal	Slovenia	Slovakia	Finland
	10	11	12	13	14	15	16	17	18	19
	Government deficit (-)/surplus (+)									
2011	-3.4	-8.9	0.5	-2.6	-4.3	-2.6	-7.4	-6.6	-4.1	-1.0
2012	-0.8	-3.1	0.2	-3.6	-3.9	-2.2	-5.7	-4.1	-4.2	-2.1
2013	-0.9	-2.6	0.7	-2.6	-2.4	-1.3	-4.8	-15.0	-2.6	-2.5
2014	-1.5	-0.7	1.4	-2.1	-2.4	-2.7	-7.2	-5.0	-2.8	-3.3
2014 Q4	-1.6	-0.7	1.4	-2.1	-2.4	-2.7	-7.2	-5.0	-2.8	-3.3
2015 Q1	-1.9	-0.8	0.7	-2.5	-2.0	-2.2	-7.2	-4.7	-2.8	-3.3
Q2	-2.0	0.3	0.5	-2.2	-1.9	-2.2	-6.4	-4.6	-2.8	-2.8
Q3	-2.0	0.0	0.2	-1.7	-1.7	-2.4	-3.2	-4.1	-2.6	-2.9
	Government debt									
2011	42.8	37.2	19.2	69.8	61.7	82.2	111.4	46.4	43.3	48.5
2012	41.4	39.8	22.1	67.6	66.4	81.6	126.2	53.7	51.9	52.9
2013	39.1	38.8	23.4	69.6	67.9	80.8	129.0	70.8	54.6	55.6
2014	40.6	40.7	23.0	68.3	68.2	84.2	130.2	80.8	53.5	59.3
2014 Q4	40.8	40.7	22.9	66.9	68.2	84.2	130.2	80.8	53.5	59.3
2015 Q1	35.6	38.0	22.2	68.5	69.2	84.9	130.3	81.8	53.9	60.6
Q2	35.3	37.6	21.6	67.4	67.1	86.3	128.6	80.8	54.3	62.4
Q3	36.4	38.1	21.3	66.3	66.3	85.3	130.5	84.1	53.5	61.2

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