EUROPEAN CENTRAL BANK

EUROSYSTEM

Economic Bulletin

Issue 5 / 2018

Contents

Update on economic and monetary developments

Summary

The information that has become available since the Governing Council's monetary policy meeting on 14 June indicates that the euro area economy is proceeding along a solid and broad-based growth path.[1] Uncertainties related to global factors, notably the threat of protectionism, remain prominent, and the risk of persistent heightened financial market volatility continues to warrant monitoring. However, the risks surrounding the euro area growth outlook can still be assessed as broadly balanced. The underlying strength of the economy has confirmed the Governing Council's confidence that the sustained convergence of inflation to its aim will continue in the period ahead and will be maintained even after a gradual winding-down of the net asset purchases. Nevertheless, significant monetary policy stimulus is still needed to support the further build-up of domestic price pressures and headline inflation developments over the medium term. This support will continue to be provided by the net asset purchases until the end of the year, by the sizeable stock of acquired assets and the associated reinvestments, and by the Governing Council's enhanced forward guidance on the key ECB interest rates. In any event, the Governing Council stands ready to adjust all of its instruments as appropriate to ensure that inflation continues to move towards its aim in a sustained manner.

The growth momentum of the global economy continued to be steady in the second quarter of 2018, but downside risks related to trade tariffs have remained prominent. In addition, global trade indicators recorded a loss in momentum. Financial conditions have tightened somewhat for emerging market economies, but overall remain supportive in advanced economies.

In the euro area, sovereign bond yields have declined since the 14 June meeting, on the back of receding volatility in sovereign debt markets and declining risk-free rates. Equity prices experienced a correction amid increasing trade tensions. In foreign exchange markets, the euro broadly appreciated in trade-weighted terms.

The latest economic indicators have stabilised and continue to point to ongoing solid and broad-based growth, albeit at a slower pace than in 2017. This easing reflects a pull-back from the very high levels of growth last year and is related mainly to weaker impetus from previously very strong external trade, compounded by an increase in uncertainty and some temporary and supply-side factors at both the domestic and the global level. Private consumption continues to be supported by ongoing employment gains, which, in turn, partly reflect past labour market reforms, and by growing household wealth. Business investment is fostered by the favourable financing conditions, rising corporate profitability and solid demand. Housing

[1] Taking into account information available at the time of the Governing Council meeting of 26 July 2018.

investment remains robust. In addition, the broad-based expansion in global demand is expected to continue, thus providing impetus to euro area exports.

Euro area annual HICP inflation increased to 2.0% in June, from 1.9% in May, reflecting mainly higher energy and food price inflation. On the basis of current futures prices for oil, annual rates of headline inflation are likely to hover around the current level for the remainder of the year. While measures of underlying inflation remain generally muted, they have been increasing from earlier lows. Domestic cost pressures are strengthening and broadening amid high levels of capacity utilisation and tightening labour markets. Uncertainty around the inflation outlook is receding. Looking ahead, underlying inflation is expected to pick up towards the end of the year and thereafter to increase gradually over the medium term, supported by the ECB's monetary policy measures, the continuing economic expansion, the corresponding absorption of economic slack and rising wage growth.

The monetary analysis indicates that broad money growth increased again in June 2018, having gradually decelerated since it last peaked in September 2017. The recovery in the growth of loans to the private sector is proceeding, driven mainly by loans to non-financial corporations (NFCs). The euro area bank lending survey for the second quarter of 2018 suggests that loan growth continued to be supported by easing credit standards and increasing demand across all loan categories. Net issuance of debt securities by euro area NFCs is estimated to have increased further, while financing costs for NFCs have remained favourable.

On the basis of the outcome of the economic analysis and the signals coming from the monetary analysis, the Governing Council confirmed that an ample degree of monetary accommodation is still necessary for the continued sustained convergence of inflation to levels that are below, but close to, 2% over the medium term.

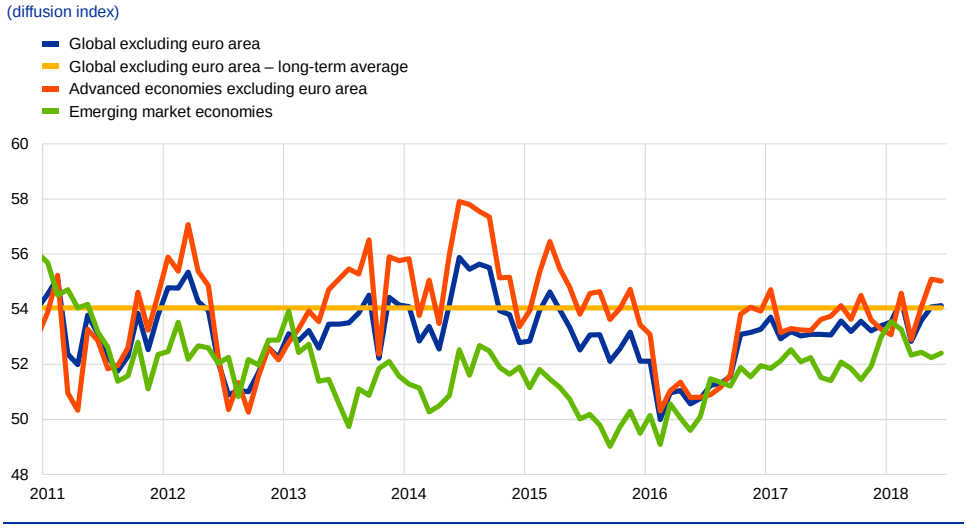
Accordingly, the Governing Council decided to keep the key ECB interest rates unchanged and continues to expect them to remain at their present levels at least through the summer of 2019, and in any case for as long as necessary to ensure the continued sustained convergence of inflation to levels that are below, but close to, 2% over the medium term. Regarding non-standard monetary policy measures, the Governing Council confirmed that the Eurosystem will continue to make net purchases under the asset purchase programme (APP) at the current monthly pace of €30 billion until the end of September 2018. The Governing Council anticipates that, after September, subject to incoming data confirming its medium-term inflation outlook, it will reduce the monthly pace of the net asset purchases to €15 billion until the end of December 2018 and then end net purchases. Furthermore, the Governing Council intends to reinvest the principal payments from maturing securities purchased under the APP for an extended period of time after the end of the net asset purchases, and in any case for as long as necessary to maintain favourable liquidity conditions and an ample degree of monetary accommodation.

1 External environment

Global survey indicators continue to signal a steady growth momentum for the second quarter of 2018. The global composite output Purchasing Managers' Index (PMI) excluding the euro area increased slightly further in June (see Chart 1), reaching a four-month high, as the continued pick-up in the services sector more than compensated for the moderate decline in manufacturing. In quarterly terms, the PMI in the second quarter of 2018 was slightly above the average in the previous quarter. The composite output PMI in June decreased moderately in the United States from May, while it strengthened in Japan and in the United Kingdom. In emerging market economies, the composite output PMI increased in June in China and bounced back considerably in India, while the rate of expansion slowed in Russia and Brazil.

Chart 1

Global composite output PMI



Sources: Haver Analytics, Markit and ECB calculations.
Notes: The latest observations are for June 2018. "Long-term average" refers to the period from January 1999 to June 2018.

At the same time downside risks to the global economy have intensified, amid actions and threats regarding trade tariff increases by the United States and possible retaliation by the affected countries. The first wave of US tariffs on Chinese imports took effect on 6 July and further US tariffs are planned. The Chinese authorities revealed their intention to introduce retaliatory measures. Simultaneously, retaliatory measures by the European Union and Canada against the tariffs previously imposed on steel and aluminium came into force. The US administration also initiated a new investigation into imports of cars and spare parts for cars, which, should it result in protectionist measures, could particularly affect Canada, Japan, Mexico and South Korea as well as key economies in the European Union. Complex supply chains could further amplify the adverse effects of protectionism on the world economy. Overall, if all the threatened measures were to be implemented, the average US tariff rate would rise to levels not seen in the last 50 years. These developments constitute a serious risk to the outlook for global trade and activity in the short to medium term.

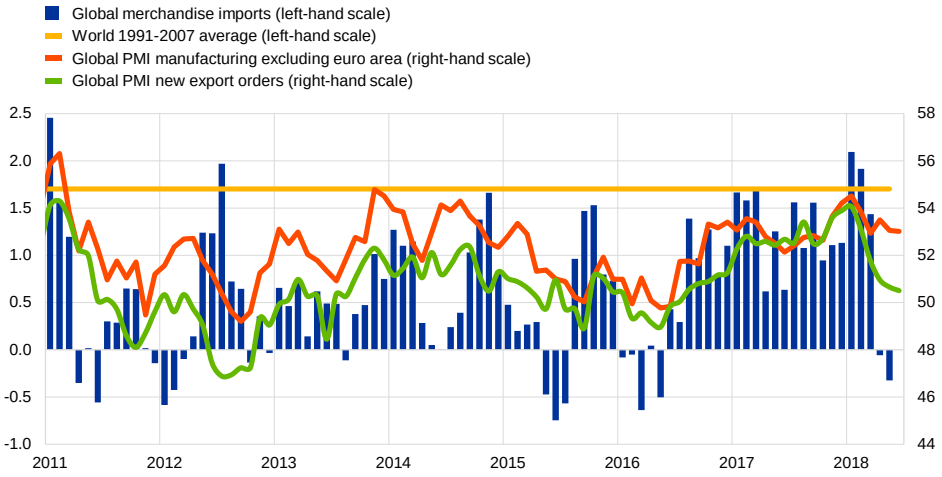
Global financial conditions remain supportive overall, but have tightened somewhat for emerging market economies. Overall, monetary policy in advanced economies remains accommodative. In the United States, the Federal Open Market Committee increased policy rates in line with expectations in June. Against the backdrop of increasing inflation and tighter labour market conditions, officials at the Federal Reserve System also revised up the path of the federal funds rate to four total hikes in 2018, from the three previously expected. Renewed global trade tensions and the appreciation in the US dollar resulted in somewhat tighter financing conditions for emerging market economies. In China, stock prices also declined and the renminbi faced some depreciation pressures. On the whole, volatility in global equity markets increased and stock prices of automotive and technological sectors came under downward pressures. Central bank interest rates have been maintained in the United Kingdom, and the Bank of Japan is holding ten-year yields close to zero in line with its yield curve control programme. Among emerging market economies, Russia and Brazil have kept rates unchanged in recent months, while Turkey and Argentina hiked rates substantially in May and June amid significant financial market tensions. China has continued to tighten domestic financial conditions to tackle risks in the financial system.

Global trade indicators recorded a loss in momentum. Monthly trade data decelerated significantly and broadly across countries. Global merchandise imports contracted in April and May 2018, reversing the strong growth recorded in the first quarter, and the global PMI for new export orders fell in the five months to June (see Chart 2). Other trade indicators have also weakened, including measures related to global value chains. Overall, these indicators point to a deceleration in trade in the second quarter of 2018.

Chart 2

Global trade and surveys

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



Sources: Markit, CPB Netherlands Bureau for Economic Policy Analysis and ECB calculations.
Note: The latest observations are for May 2018 for global merchandise imports and June 2018 for PMIs.

Global inflation edged up in May. Annual consumer price inflation in the countries of the Organisation for Economic Co-operation and Development (OECD) increased to 2.6% in May. The rise was driven by energy prices, while food prices slowed slightly. Excluding food and energy prices, OECD annual inflation increased marginally to 2%. Inflation is expected to continue rising in the near term following the pick-up in oil prices. Looking further ahead, the gradual decline in spare capacity is also expected to support underlying inflation.

Oil prices have remained broadly stable amid some volatility. Brent crude oil prices increased gradually from around USD 75 per barrel in mid-June to USD 78 per barrel on 10 July, before falling to USD 73 per barrel on 20 July. The effect on oil prices from the announcement by the Organization of the Petroleum Exporting Countries (OPEC) on 22 June of its intention to increase supply has been relatively muted to date. While markets had anticipated an output rise of one million barrels per day, capacity constraints in many OPEC countries suggest a smaller rise in oil supply in the near term. In addition, in July, oil prices were buoyed by strong global oil demand, ongoing geopolitical tensions involving Iran, and political turmoil in Venezuela and in Libya. More recently oil prices have decreased slightly. Non-oil commodity prices have decreased by around 8% since mid-June, with food prices falling by 8% and metal prices dropping by 9%. Food prices fell owing to ample supplies on the back of favourable weather conditions in North America and concerns about rising protectionist threats also affecting food commodities, particularly soybeans. The fall in metal prices can be partly explained by lower demand in China and concerns about a possible trade war.

The outlook for economic activity in the United States remains solid, but concerns about tariffs have arisen among firms. Real GDP expanded at an annualised rate of 2% in the first quarter of 2018. Despite the slight deceleration in activity, the near-term US outlook remains strong, supported by solid fundamentals as well as the large and procyclical fiscal expansion. In particular, consumer confidence is at cyclical highs, and tax cuts should further support domestic demand, even if the recent increase in petrol prices might mitigate somewhat the positive effects of the fiscal expansion. At the same time, anecdotal evidence from regional manufacturing surveys suggest that US businesses are concerned about the impact of a possible further escalation of trade tensions, which may affect their investment spending. The labour market continued to generate jobs at a solid pace and indicators continue to point to tightness, while wage growth remains moderate. Annual headline consumer price index (CPI) inflation reached its highest level since 2012, rising to 2.9% in June, while increasing to 2.3% when food and energy are excluded.

In Japan, the economy is expected to recover from a mild contraction in the first quarter of 2018, but the outlook is surrounded by growing uncertainty. Economic indicators suggest that positive growth in activity resumed in the second quarter, recovering from the first contraction of GDP in two years. However, the outlook is surrounded by growing uncertainty. The intense rainfall in western Japan in early July is expected to weigh on economic activity, as several large manufacturers had to shut down their plants amid the severely damaged

infrastructure in the region. In addition, a further escalation of trade tensions could significantly hit the Japanese economy, especially if tariffs are increased on imports of cars and their spare parts, which account for around a third of Japan's exports to the United States. A further tightening of the labour market seems to be inducing a transition to more secure jobs, amid gradually accelerating base wages and still subdued inflation. Annual headline CPI inflation remained stable at 0.7% in June, yet underlying inflation remained low, with CPI excluding food and energy at 0%.

In the United Kingdom, the weakening in GDP growth over the first quarter of 2018 is considered to be temporary. The third GDP growth release for the first quarter posted a 0.1 percentage point upward revision to 0.2%, mainly due to the upward revision of the net trade component, which also led to a further narrowing of the United Kingdom's trade deficit. The latest PMI and monthly GDP numbers suggest a rebound in UK GDP in the second quarter, but short-term indicators for the export-oriented manufacturing sector signal a less optimistic outlook. This is in line with an environment of heightened uncertainty, particularly regarding the outcome of the negotiations on the country's withdrawal from membership of the European Union in March 2019. Inflation stabilised at 2.4% in May, unchanged from April, as movements in the exchange rate have helped offset recent increases in oil prices.

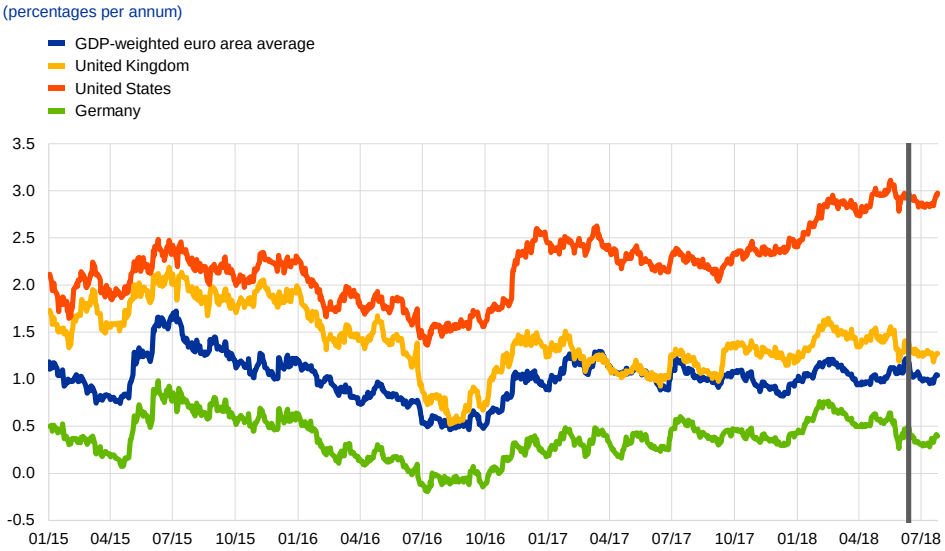
In China, GDP growth moderated slightly in the second quarter of 2018 while financial markets recorded downward pressures. Real GDP grew at 6.7% in year-on-year terms in the second quarter of 2018, in line with market expectations of a slowdown in economic activity. The ongoing structural deleveraging campaign has so far been focused on the banking sector, but it is starting to filter through to the broader economy and is affecting investment patterns. Infrastructure investment in particular fell as financing channels tightened, although investment in manufacturing and real estate rebounded (see the box entitled "Imbalances in China: is growth in peril from a housing market downturn?" in this issue of the Economic Bulletin). Chinese equities and foreign exchange markets have been under pressure recently, reflecting both fears of an escalation of trade tensions and a slowdown in growth. Price pressures picked up in June, with annual headline CPI inflation rising to 1.9%.

2 Financial developments

Euro area government bond yields have fallen since late June (see Chart 3). In the period under review (from 14 June to 25 July 2018), the GDP-weighted euro area ten-year sovereign bond yield decreased by 7 basis points to 1.04% amid receding tensions in the sovereign debt markets and declining risk-free rates. Vis-à-vis the yield on German ten-year government bonds, the spreads on Italian, Portuguese and French sovereign bonds declined. Long-term sovereign bond yields decreased to 1.27% in the United Kingdom and increased slightly to 2.98% in the United States.

Chart 3

Ten-year sovereign bond yields



Sources: Thomson Reuters and ECB calculations.
Notes: Daily data. The vertical grey line denotes the start of the review period (14 June 2018). The latest observation is for 25 July 2018.

Yield spreads on bonds issued by euro area non-financial corporations (NFCs) changed little over the review period. Compared with late June, the spread on investment-grade NFC bonds relative to the risk-free rate remained unchanged at 57 basis points. Spreads on financial sector debt with an investment-grade rating increased slightly by 4 basis points to levels around 84 basis points. Despite yield increases in the first half of 2018, corporate bond spreads remained significantly (50-60 basis points) below the levels observed in March 2016, prior to the announcement and subsequent launch of the corporate sector purchase programme.

Broad indices of euro area equity prices experienced a correction amid rising trade tensions. Equity prices of both euro area financials and NFCs decreased by around 2% over the review period on the back of increasing trade tensions. However, expectations of solid corporate profits continued to be supportive of euro area equity prices, reflecting the broad-based improvement in the euro area's macroeconomic environment. The equity prices of US NFCs and financial firms increased over the review period, by 1.9% and 2.3% respectively. Despite trade tensions, market expectations of future equity price volatility remained relatively low in both the euro area and the United States, where they still stood on an annualised

basis at levels (13.5% and 12.3% respectively) that are comparatively low from a historical perspective.

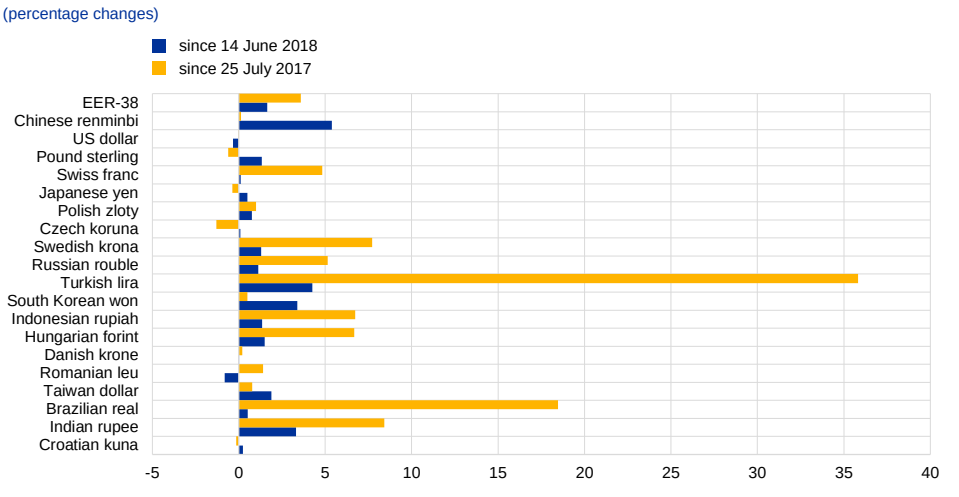
The euro overnight index average (EONIA) remained around -36 basis points over the period under review. Excess liquidity declined by around €70 billion to about €1,817 billion, as the liquidity-draining impact of an increase in net autonomous factors and the settlement of the voluntary repayments of funds borrowed under the targeted longer-term refinancing operations more than offset the provision of liquidity through ongoing purchases under the Eurosystem's asset purchase programme.[2]

The EONIA forward curve shifted downwards over the review period. Market participants revised down their interest rate expectations for longer horizons. The curve remains below zero for horizons prior to October 2020, reflecting market expectations of a prolonged period of negative interest rates.

In the foreign exchange markets, the euro broadly appreciated in trade-weighted terms (see Chart 4). Over the period under review, the effective exchange rate of the euro, measured against the currencies of 38 of the euro area's most important trading partners, strengthened by 1.6%. In bilateral terms, the euro remained broadly unchanged against the US dollar, while it appreciated vis-à-vis all other major currencies, including the Chinese renminbi (by 5.4%), the pound sterling (by 1.3%) and the Japanese yen (by 0.5%), amid the ongoing economic expansion in the euro area. Similarly, the euro strengthened vis-à-vis the currencies of the other non-euro area EU Member States, except the Romanian leu, as well as against the currencies of major emerging economies.

Chart 4

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



Source: ECB.
Notes: "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. All changes have been calculated using the foreign exchange rates prevailing on 25 July 2018.

[2] In June 2018 banks voluntarily repaid around €11 billion from the second series of targeted longer-term refinancing operations (TLTRO-II) and around €3.5 billion from the first series (TLTRO-I).

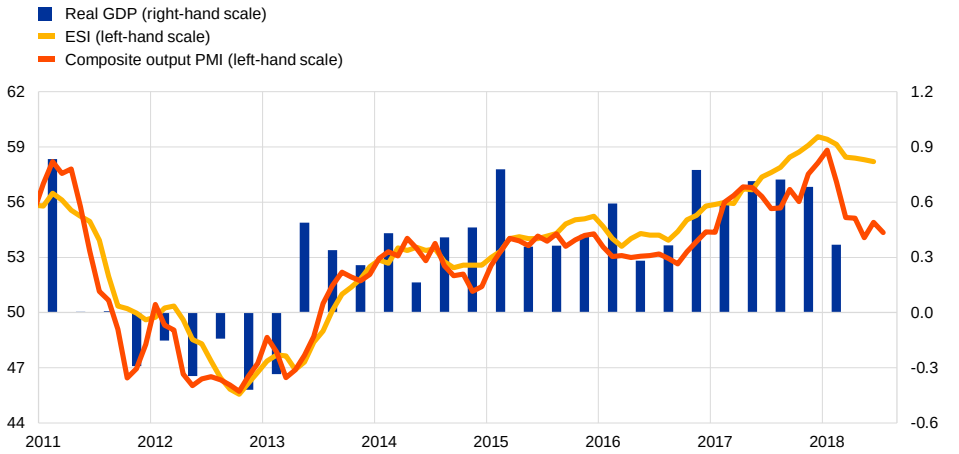
3 Economic activity

Although incoming data point to a loss in momentum following the very strong growth seen in 2017, the solid and broad-based growth pattern in the euro area is expected to continue. Real GDP increased by 0.4%, quarter on quarter, in the first quarter of 2018, following growth of 0.7% in the five previous quarters (see Chart 5). Domestic demand and changes in inventories made positive contributions to the outcome in the first quarter, whereas net trade had a small dampening effect on GDP growth. Although economic indicators during the first half of this year have softened, they – and particularly the survey results – still remain at very high levels. Overall, this suggests ongoing robust growth in the second and third quarters of the year. The recent strengthening of growth has coincided with a broad-based reduction in growth dispersion across euro area countries (see Box 3).

Chart 5

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

(left-hand scale: diffusion index; right-hand scale: quarter-on-quarter percentage growth)



Sources: Eurostat, European Commission, Markit and ECB.
Notes: The Economic Sentiment Indicator (ESI) is standardised and rescaled to have the same mean and standard deviation as the Purchasing Managers' Index (PMI). The latest observations are for the first quarter of 2018 for real GDP, June 2018 for the ESI and July 2018 for the PMI.

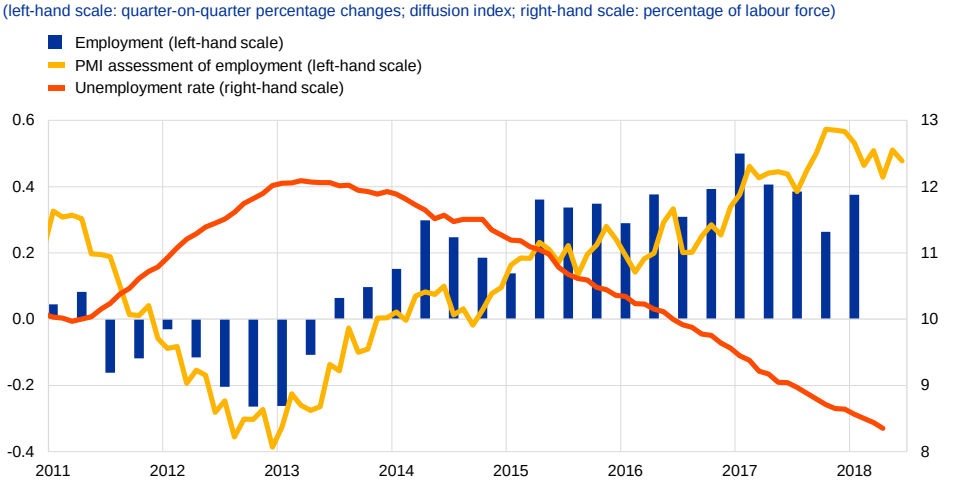
Employment growth remained robust in the first quarter of the year. Employment rose further, increasing by 0.4%, quarter on quarter, in the first quarter of 2018, and stands 1.9% above the pre-crisis peak recorded in the first quarter of 2008. Employment continues to increase in most euro area countries and the increase is broadly based across sectors. With the latest increase, cumulative employment growth in the euro area since the trough recorded in the second quarter of 2013 amounts to 8.4 million. The strong employment growth seen during the economic expansion was accompanied by broadly unchanged average hours worked, which primarily reflects the impact of several structural factors (for example, the large share of part-time workers in total employment). In the first quarter of 2018,

the average hours worked moderated somewhat, likely reflecting, at least partially, the impact of some temporary factors, such as sick leave and strikes.[3]

Looking ahead, short-term indicators point to continued strength in the labour market in the coming quarters. The euro area headline unemployment rate declined further to 8.4% in May (see Chart 6) – the lowest level seen since December 2008. At the same time, the broad measure of labour underutilisation has also continued to moderate.[4] Survey indicators have moderated somewhat from very high levels, but still point to continued employment growth in the second and third quarters of 2018. Signs of labour shortages have increased in some countries and sectors.

Chart 6

Euro area employment, Purchasing Managers' Index assessment of employment, and unemployment



Sources: Eurostat, Markit and ECB calculations.
Notes: The Purchasing Managers' Index (PMI) is expressed as a deviation from 50 divided by 10. The latest observations are for the first quarter of 2018 for employment, July 2018 for the PMI and May 2018 for the unemployment rate.

Rising household incomes supported growth in private consumption. Annual growth of households' real disposable income increased from 1.5% in the final quarter of 2017 to 1.8% in the first quarter of 2018. Private consumption rose by 0.5%, quarter on quarter, in the first quarter of 2018, following a slower rate of increase in the final quarter of 2017. This outcome seems to reflect strong consumption growth of services, whereas goods consumption appears to have risen at a slower rate than in the fourth quarter of last year. On an annual basis, consumption rose by 1.5% in the first quarter of 2018, which represents a small improvement from the fourth quarter of last year when consumption rose by 1.4%. The annual rate of change in savings increased between the fourth quarter of 2017 and the first quarter of 2018. However, the saving ratio (expressed as a four-quarter

[3] See Box 2 entitled "The recent slowdown in euro area output growth reflects both cyclical and temporary factors", *Economic Bulletin*, Issue 4, ECB, 2018.

[4] See Box 3 entitled "Measures of slack in the euro area", *Economic Bulletin*, Issue 3, ECB, 2018.

moving average) remained broadly unchanged at 12.0% in the first quarter, only slightly above the record low of 11.9% in the third quarter of 2017.

Gains in employment are expected to continue to support robust growth in private consumption. While recent data on retail trade and new passenger car registrations point to continued, albeit relatively slower, growth in consumer spending in the second quarter of this year, other indicators support the picture of continued robust consumption dynamics. The latest survey results signal ongoing labour market improvements, which should continue to support aggregate income and thus consumer spending. A lower unemployment rate increases not only the income of those who find a new job, but also the expected future income of those who are already employed and face lower unemployment risk. Moreover, households' net worth continued to increase at robust rates in the first quarter of 2018, thus lending further support to private consumption. Together, these factors explain why consumer confidence continues to stand at elevated levels close to the all-time high reached in May 2000. For a more comprehensive overview of recent consumption developments, see Article 3 in this issue of the Economic Bulletin.

While investment growth eased in the first quarter of 2018, short-term indicators continue to point to robust growth. The quarterly rise in investment in the first quarter of this year, of 0.3%, was brought about by an increase in construction investment of 1.3%, whereas non-construction investment declined by 0.5%. The decline in non-construction investment chiefly reflected the fall in investments in machinery and transport equipment. As regards the second quarter of 2018, short-term indicators point to continued, albeit slightly weakened, growth. For instance, monthly data on capital goods production stood on average in April and May 1.0% above the average level in the first quarter of 2018, when they declined by 2.1% on a quarterly basis. In addition, conditions in the capital goods sector, such as stabilising capacity utilisation and stable orders, as well as falling, but still strong, confidence and demand, signal continued growth in non-construction investment overall. With regard to construction investment, monthly construction production data until May point to continued – but moderating – growth in the second quarter of 2018. Survey data for the construction sector broadly support this picture.

Investment is expected to continue to grow at a robust pace. Investment continues to be supported by favourable earnings expectations, strong domestic and foreign demand, and accommodative financing conditions. According to the euro area sectoral accounts for the first quarter of 2018, business margins (measured as the ratio of net operating surplus to value added) remain close to the highest level since early 2009. Furthermore, earnings expectations for listed companies in the euro area, despite moderating somewhat, continue to support investment. At the same time, uncertainties surrounding the implementation of tariff increases may already be detrimental to investment decisions. As regards construction investment, the latest indicators point to a decelerating but still positive momentum in construction and housing investment. Households' rising disposable income and very favourable lending conditions are expected to continue to underpin demand in the construction sector.

Euro area trade growth remained moderate at the beginning of the second quarter of 2018. Euro area nominal goods exports in April and May confirm the weak growth pace observed in the first quarter, decreasing by 0.6%, month on month, in May. Extra euro area goods exports decreased across almost all destinations; this was observed most notably in exports to the United Kingdom. Euro area nominal imports were up by 1.5%, month on month, in April and were stable in May. Survey indicators for global and euro area new manufacturing orders remained broadly stable in June and point to a continuing moderation of euro area exports for the coming quarter, while hard data such as new manufacturing orders outside the euro area showed signs of improvement in April and May.

Overall, the latest economic indicators suggest ongoing solid growth. Industrial production (excluding construction) displayed a relatively strong increase in May. Despite this, production stood on average in April and May 0.2% below the level seen in the first quarter of 2018, when it declined by 0.6% on a quarterly basis. More timely survey data signal ongoing robust growth, albeit at slower rates than in 2017. The composite output Purchasing Managers' Index (PMI) averaged 54.7 in the second quarter of 2018, compared with 57.0 in the first quarter, before declining slightly in July 2018 to 54.3. Meanwhile, the European Commission's Economic Sentiment Indicator (ESI) eased to 112.5 in the second quarter from 114.0 in the first quarter (see Chart 5). Both the ESI and the PMI continue to stand well above their respective long-term averages.

This easing reflects a pull-back from the high pace of growth observed last year and is related mainly to a weakening of external trade, compounded by an increase in uncertainty and some temporary and supply-side factors at both the domestic and the global level. Overall, however, growth is expected to remain solid and broad-based. The ECB's monetary policy measures, which have facilitated the deleveraging process, should continue to underpin domestic demand. Private consumption is supported by ongoing employment gains (which, in turn, partly reflect past labour market reforms) and by growing household wealth. Business investment continues to strengthen on the back of very favourable financing conditions, rising corporate profitability and solid demand. Housing investment continues to improve. In addition, the broad-based global expansion, which is expected to continue, is providing impetus to euro area exports. The results of the latest round of the ECB Survey of Professional Forecasters, conducted in early July, show that private sector GDP growth forecasts were revised downwards for 2018 and 2019 compared with the previous round conducted in early April. The figure for 2020 remained unchanged.

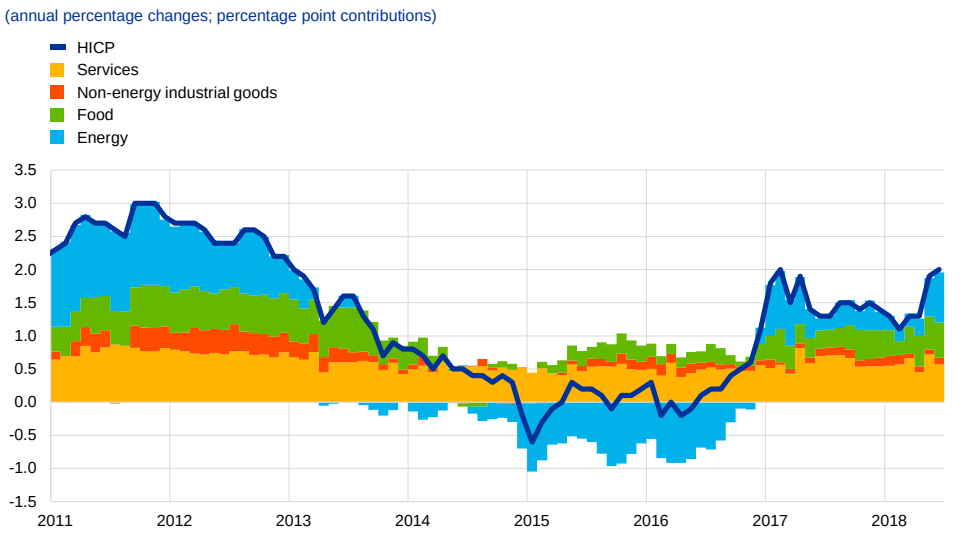
The risks surrounding the euro area growth outlook can still be assessed as broadly balanced. Uncertainties related to global factors, notably the threat of protectionism, remain prominent. Moreover, the risk of persistent heightened financial market volatility continues to warrant monitoring.

4 Prices and costs

Euro area annual HICP inflation rose to 2.0% in June, up from 1.9% in May (see Chart 7). This increase reflected higher contributions from energy, food and non-energy industrial goods price inflation, which offset a lower contribution from services price inflation.

Chart 7

Contributions of components to euro area headline HICP inflation



Sources: Eurostat and ECB calculations.
Note: The latest observations are for June 2018.

Measures of underlying inflation have remained generally muted but stand above earlier lows. HICP inflation excluding energy and food decreased to 0.9% in June from 1.1% in May. This was partly due to the lagged effects of the timing of Easter, which have contributed significantly to the volatile behaviour of this measure of inflation since March. Measures of underlying inflation that are more robust to Easter effects have remained broadly stable over recent months. For example, HICP inflation excluding energy, food and the volatile travel-related items and clothing was unchanged at 1.0% between March and May and down only slightly to 0.9% in June.

Price pressures for HICP non-energy industrial goods remained robust, with signs of more upward pressure visible in the early stages of the pricing chain. Producer price inflation for non-food consumer goods remained stable at 0.5% in May, unchanged since February 2018. Such resilience to downward pressure from the strong euro appreciation in 2017 may reflect the offsetting impact of strengthening domestic cost pressures, as well as stronger pricing power. There are also tentative signs of more upward pressures in the early stages of the pricing chain; for instance, growth in import prices for intermediate goods was 0.9% in May, up from -0.8% in April. Moreover, growth in the global Producer Price Index excluding energy has risen from its historical average in recent months. At the consumer level, HICP non-energy industrial goods inflation rose to 0.4% in June from 0.3% in May and April.

Recent wage growth data points to a continued upward shift from a trough in the second quarter of 2016. Growth in compensation per employee increased from 1.8% in the fourth quarter of 2017 to 2.0%[5] in the first quarter of 2018, confirming the recent upward trend. Growth in negotiated wages increased from 1.5% in the fourth quarter of 2017 to 1.8% in the first quarter of 2018 and replaced wage drift[6] as the main driver of the pick-up in actual wage growth. Looking ahead, recent wage agreements and the broadening of wage growth across sectors support the expectation of a further pick-up in wage growth. Overall, recent developments in wage growth follow the direction of improving labour market conditions, as other factors that have weighed on wage growth – including past low inflation and the ongoing impacts of labour market reforms implemented in some countries during the crisis – begin to fade. Rising wage growth is expected also to lead to upward pressures on prices (see the box entitled "The role of wages in the pick-up of inflation" in this issue of the Economic Bulletin).

Both market and survey-based measures of longer-term inflation expectations have remained broadly unchanged (see Chart 8). On 25 July the five-year forward inflation-linked swap rate five years ahead stood at 1.72%. The forward profile of market-based measures of inflation expectations continues to point to a gradual return to inflation levels below, but close to, 2%. These market-based measures continue to suggest that the risk of deflation remains well contained. The results of the ECB Survey of Professional Forecasters (SPF) for the third quarter of 2018 show average inflation expectations of 1.7% for each of 2018, 2019 and 2020. This represents upward revisions to 2018 and 2019, compared with the previous survey, attributable to oil price developments. According to the SPF, longer-term inflation expectations for the euro area remained stable at 1.9%.

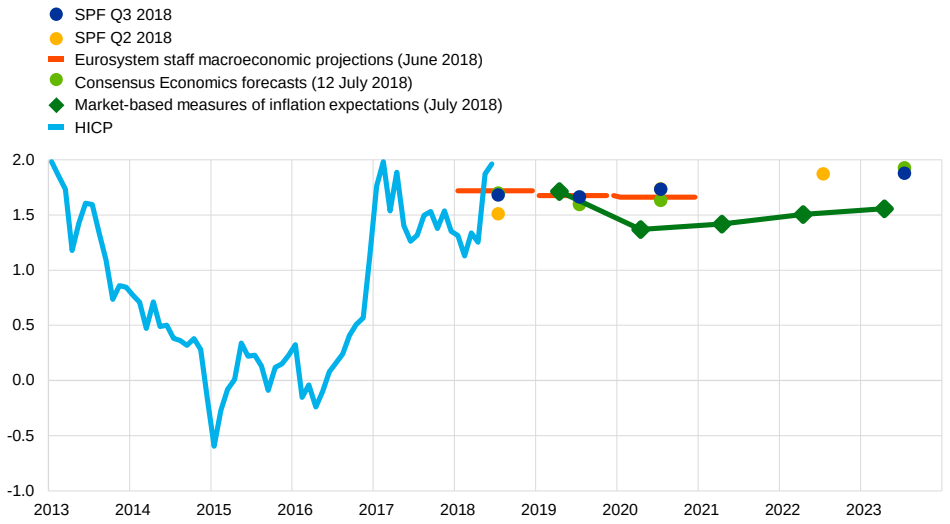
5 Data revised up from 1.9%.

6 Wage drift is the difference between the growth in the actual wages received by workers and the growth in negotiated wages.

Chart 8

Market and survey-based measures of inflation expectations

(annual percentage changes)



Sources: ECB Survey of Professional Forecasters (SPF), Eurosystem staff macroeconomic projections for the euro area and Consensus Economics.
Notes: The SPF for the second quarter of 2018 was conducted between 4 and 10 April 2018. The SPF for the third quarter of 2018 was conducted between 2 and 6 July 2018. The market-implied curve is based on the one-year spot inflation rate and the one-year forward rate one year ahead, the one-year forward rate two years ahead, the one-year forward rate three years ahead and the one-year forward rate four years ahead. For market-implied inflation the latest observations are for 25 July 2018. In the SPF for the second quarter of 2018 the longer-term expectation referred to 2022, whereas in the SPF for the third quarter of 2018 it referred to 2023.

Residential property prices in the euro area continued to accelerate further in the first quarter of 2018. According to the ECB's residential property price indicator, the prices of houses and flats in the euro area increased by 4.1% year on year in the first quarter of 2018, up from 3.9% in the previous quarter, confirming a further strengthening and broadening of the house price cycle.

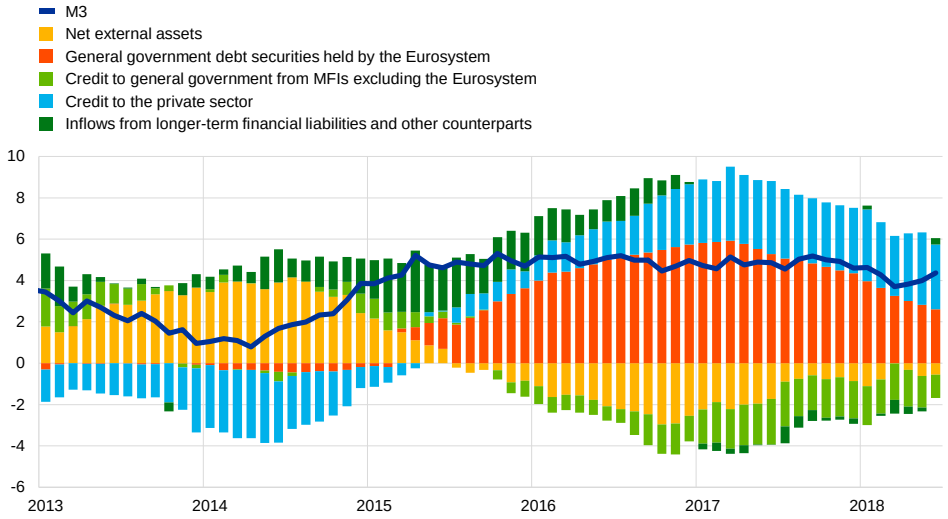
5 Money and credit

Broad money growth increased in June. The annual growth rate of M3 rose to 4.4%, from 4.0% in May, having gradually decelerated between its last peak (5.2%) in September 2017 and March 2018 (3.7%) (see Chart 9). The impact of the ECB's monetary policy measures, solid economic growth and the low opportunity cost of holding the most liquid deposits continued to support growth. Accordingly, M1 remained the main driver of the expansion of M3, with an annual growth rate of 7.4% in June, after a significant 0.5 percentage point increase to 7.5% in May.

Chart 9

M3 and its counterparts

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



Source: ECB.
Notes: Credit to the private sector includes monetary financial institution (MFI) loans to the private sector and MFI holdings of securities issued by the euro area private non-MFI sector. It thus includes the Eurosystem's holdings of debt securities in the context of the corporate sector purchase programme. The latest observation is for June 2018.

Broad money creation in the euro area appears to be gradually becoming more self-sustained. From a counterpart perspective, while the Eurosystem's purchases of government securities under the public sector purchase programme remained the largest contributor to annual M3 growth, the contribution has declined (see the red portion of the bars in Chart 9). This reflects the reduction, from €60 billion to €30 billion in January 2018, in the Eurosystem's net purchases under its asset purchase programme. The declining contribution to M3 growth from the Eurosystem's asset purchases was offset by a moderate increase in the contribution from credit to the private sector since late 2017 (see the blue portion of the bars in Chart 9). This counterpart includes both monetary financial institution (MFI) loans to the private sector and MFI holdings of securities issued by the euro area private non-MFI sector. As such, it also covers the Eurosystem's purchases of non-MFI debt securities under the corporate sector purchase programme. By contrast, government bond sales from euro area MFIs excluding the Eurosystem dampened M3 growth (see the light green portion of the bars in Chart 9). Finally, the annual contribution of the external sector remained marginally negative despite a monthly inflow in June,

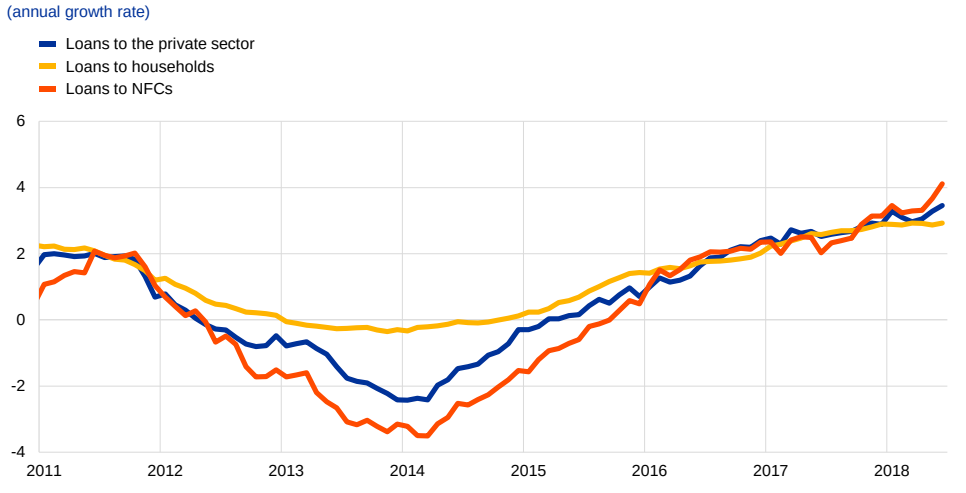
which likely reflected net purchases of euro area government bonds by non-euro area residents (see the yellow portion of the bars in Chart 9).

The recovery in loan growth is proceeding. The annual growth rate of MFI loans to the private sector (adjusted for loan sales, securitisation and notional cash pooling) rose to 3.5% in June, from 3.3% in May (see Chart 10). This was driven by loans to non-financial corporations (NFCs), the annual growth rate of which increased to 4.1%, from 3.7% in May. Meanwhile, the annual growth rate of loans to households was stable at 2.9%, where it has stood since December 2017. More specifically, the annual growth rate of loans to households for house purchase has remained moderate from a historical perspective. While growth in loans to households for house purchase, which is typically reported in net terms, has been dampened by loan repayments resulting from the boom period in mortgage markets before the financial crisis, the origination of new loans is stronger (see the box entitled "Developments in mortgage loan origination in the euro area" in this issue of the Economic Bulletin).

The recovery in loan growth has been supported by the significant decline in bank lending rates across the euro area since mid-2014 (notably owing to the ECB's non-standard monetary policy measures) and overall improvements in the supply of, and demand for, bank loans. In addition, banks have made progress in consolidating their balance sheets, although the level of non-performing loans (NPLs) remains high in some countries and may constrain financial intermediation.[7]

Chart 10

Loans to the private sector



Source: ECB.
Notes: Loans are adjusted for loan sales, securitisation and notional cash pooling. The latest observation is for June 2018.

The July 2018 euro area bank lending survey **suggests that loan growth continued to be supported by easing credit standards and increasing demand across all loan categories in the second quarter of 2018.** According to reporting banks, competitive pressure and reduced risk perceptions related to the ongoing

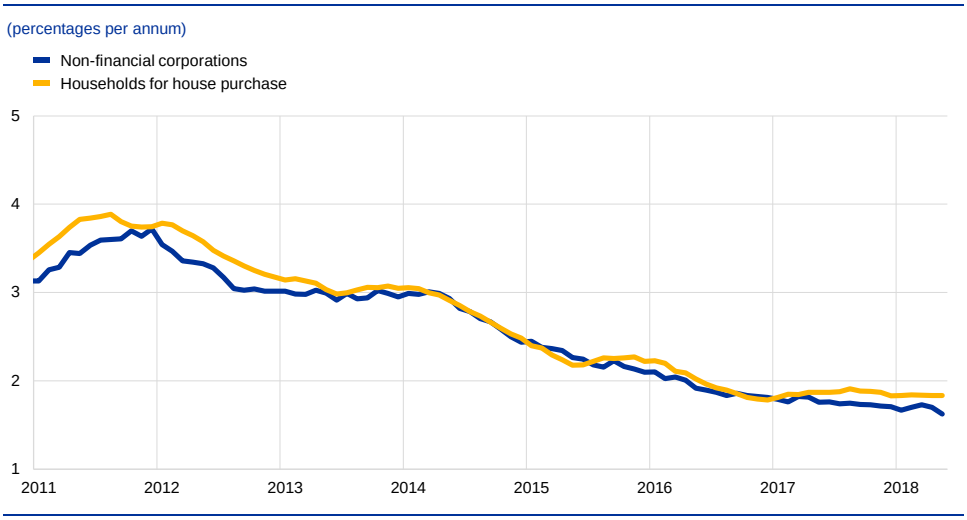
[7] See also Section 3 of the "Financial Stability Review", ECB, May 2018.

solid economic growth and borrowers' improved creditworthiness were important factors contributing to the net easing of credit standards. Banks also reported increasing net loan demand across all loan categories. The low general level of interest rates, inventories and working capital, merger and acquisition activity, favourable housing market prospects and consumer confidence were important drivers of loan demand. According to the results of a new question on the impact of NPL ratios on banks' lending policies, euro area banks reported that they had contributed to a tightening of their credit standards and terms and conditions across all categories of loans over the past six months. The tightening impact has, however, generally diminished in comparison with the impact between 2014 and 2017 – in line with developments in actual NPLs – and is expected to decrease further in the next six months. Over the past six months, banks' NPL ratios affected lending policies mainly through their impact on risk perceptions, risk tolerance and the cost of the balance sheet clean-up.

Bank lending rates for NFCs recorded a new historical low. In May 2018 the composite bank lending rate for loans to NFCs fell further to stand at a new historical low of 1.62%. In the same month, the composite bank lending rate for housing loans remained stable at 1.83%, slightly above its historical low of 1.78% recorded in December 2016 (see Chart 11). Composite bank lending rates for loans to NFCs and households have decreased significantly and by more than market reference rates since the ECB's credit easing measures were announced in June 2014. The reduction in bank lending rates on loans to NFCs, as well as on loans to small firms (assuming that very small loans of up to €0.25 million are mainly granted to small firms), was particularly significant in those euro area countries that were most exposed to the financial crisis. This indicates a more uniform transmission of monetary policy to bank lending rates across euro area countries and firm sizes.

Chart 11

Composite bank lending rates for NFCs and households

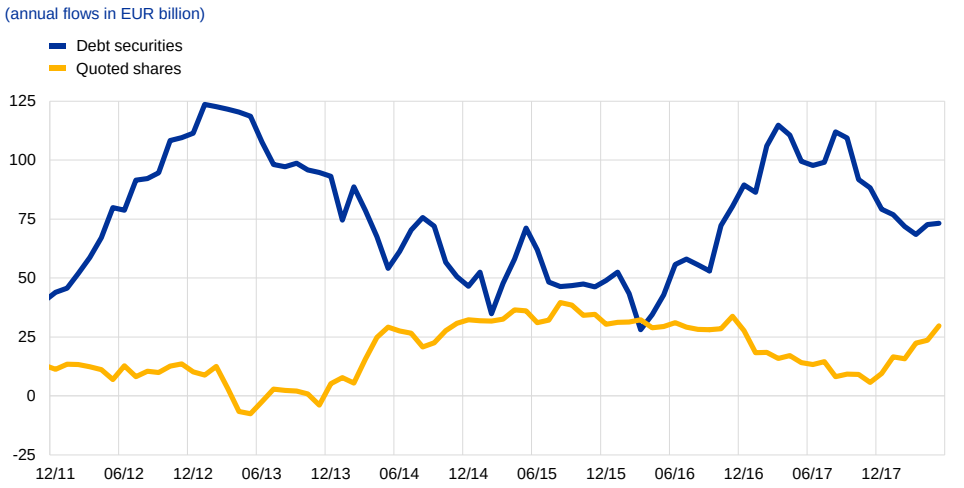


Source: ECB.
Notes: Composite bank lending rates are calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes. The latest observation is for May 2018.

Net issuance of debt securities by euro area NFCs is estimated to have increased further in the second quarter of 2018. The latest ECB data indicate that, on a net basis, the total flow of debt securities issued by NFCs in April and May 2018 remained high and in line with the monthly levels recorded, on average, in the first quarter of the year (see Chart 12). Market data suggest a further strengthening of debt securities issuance in June 2018. Net issuance of listed shares by NFCs in April and May was positive and as high as the total flow of shares listed in the first quarter of 2018.

Chart 12

Net issuance of debt securities and quoted shares by euro area NFCs



Source: ECB.
Notes: Monthly figures based on a 12-month rolling period. The latest observation is for May 2018.

Financing costs for euro area NFCs are estimated to have decreased marginally in the second quarter of 2018. The overall nominal cost of external financing for NFCs, comprising bank lending, debt issuance in the market and equity finance, is estimated to have declined slightly to around 4.5% by the end of the second quarter of 2018 and somewhat further in July. The cost of financing now stands some 46 basis points above the historical low of July 2016, but it is still considerably below the levels observed in summer 2014. In the second quarter of 2018, the components of the cost of financing showed a slight decline in the cost of equity and a broadly stable cost of debt, expressed as the weighted average of the cost of bank lending and the cost of market-based debt. More recently, the estimated slight decline in the cost of financing in July 2018 is considered to reflect some moderation in both the cost of equity and – to a lesser extent – the cost of market-based debt.

Boxes

1 Imbalances in China: is growth in peril from a housing market downturn?

Prepared by Thomas Nielsen

The Chinese economy has recently been playing a key role in the global economic recovery. Recording growth rates of more than 6.5% over the past five years, China has contributed on average one-third of total global growth. It has also become one of the euro area's largest trading partners, accounting for almost 7% of total extra-euro area exports. While the world economy has benefited from China's economic strength and growing importance, a downturn would also have large repercussions for global activity. In fact, imbalances in China have been identified as a key external downside risk to the euro area and world economy.[8] One catalyst for such a risk materialising could be the housing market.

An abrupt downturn in the Chinese housing market after a long period of expansion could have a significant adverse effect on the economy, as the real estate and construction sector accounts for approximately 15% of China's GDP. The real estate sector was a key driver of China's robust economic growth in 2017. Against this background, this box outlines the recent developments in China's housing market and presents an estimate of the impact that a housing market shock could have on the Chinese economy.

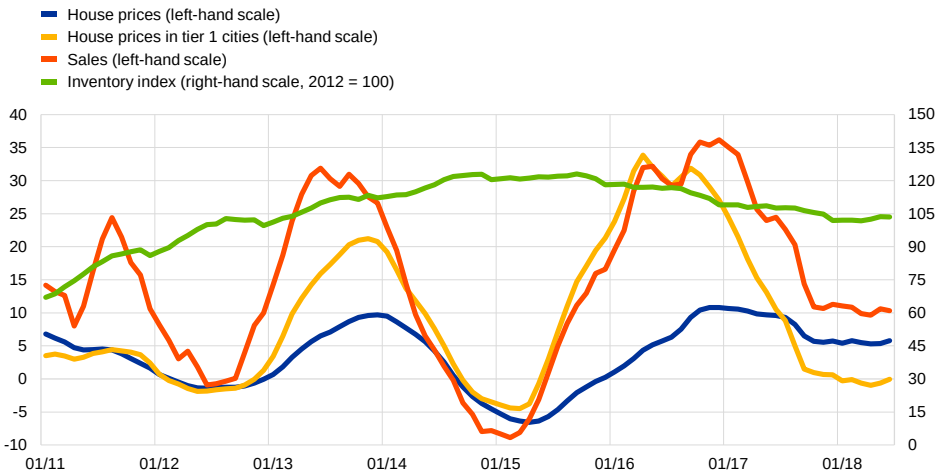
After a period of expansion lasting an unprecedented two years, China's housing market has cooled down. Overall house prices in China rose by 10% annually between late 2016 and late 2017, with some prime markets reaching annual growth rates of over 30%. This expansion cycle has contributed to strong domestic demand and the robust pick-up in producer and commodity prices. Average house price growth slowed down to about 5% year on year up until June 2018, while housing sales, which had also expanded rapidly since mid-2015, have also decelerated from their earlier peaks. However, compared with previous episodes of strong house price corrections, housing inventory levels are currently lower, thereby suggesting a less pressing need to absorb excess supply through price concessions. Accordingly, the slowdown in prices and sales thus far has been somewhat less pronounced than in previous downturns (see Chart A), possibly also reflecting a more nuanced approach to domestic policy.

8 See "China's economic growth and rebalancing and the implications for the global and euro area economies", *Economic Bulletin*, Issue 7, ECB, 2017.

Chart A

House prices, house sales and inventories in China

(left-hand scale: year-on-year percentages; right-hand scale: index)



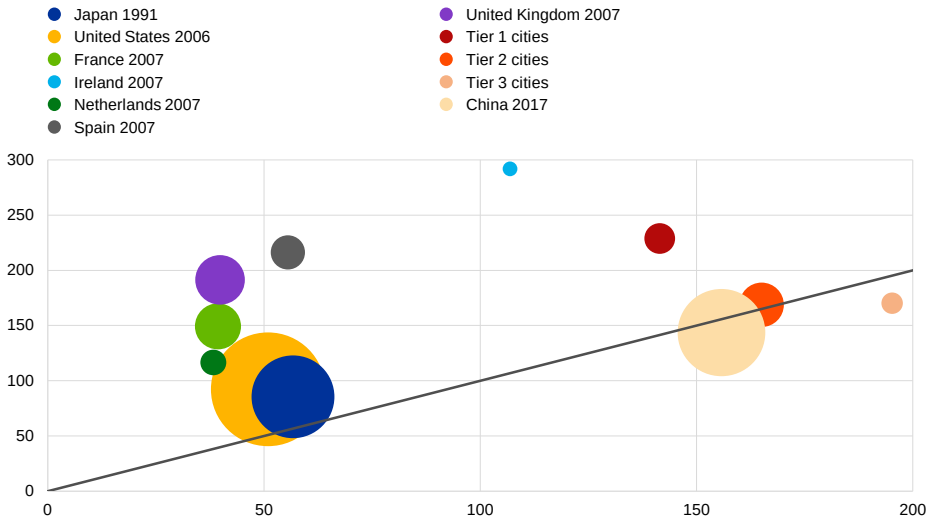
Sources: CEIC, Wind and ECB calculations.
Notes: Inventories are calculated by subtracting house sales from housing starts. Tier 1 cities are China's largest cities, namely Beijing, Guangzhou, Shanghai and Shenzhen. The latest observations are for June 2018.

While overall house prices in China have risen broadly in line with income growth, housing markets in the largest Chinese cities have decoupled and show signs of disproportionately high valuations. In China's so-called tier 1 cities – Beijing, Guangzhou, Shanghai and Shenzhen – house price growth has well exceeded income growth over the past ten years. As a result, the rise in house prices relative to income in these cities appears comparable to that observed in Japan in the early 1990s and in the United States and the European Union prior to the global financial crisis, which ultimately proved to be unsustainable (see Chart B). On the one hand, while real estate purchases in tier 1 cities are often seen as a low-risk financial investment, the divergence of house price and income growth could indicate that prices have indeed decoupled from fundamentals. On the other hand, house prices in the tier 1 cities – which are the political, financial and manufacturing centres of China – may be skewed upwards by housing demand from (high-income) individuals from across China, not just local inhabitants.

Chart B

House price growth relative to income growth in China's tier 1 cities

(change in percentages, ten years prior to peak or latest data point; x-axis: change in income; y-axis: change in house price)



Sources: CEIC, Haver Analytics and ECB calculations.
Notes: The ratios are calculated for a ten-year period prior to the indicated year. The size of the bubbles is relative to each country's or city tier's share of world GDP at the end of the ten-year period. Tier 1 cities are China's largest cities, namely Beijing, Guangzhou, Shanghai and Shenzhen. Tier 2 and tier 3 cities are smaller, provincial cities in China.

Some segments of the property sector could act as triggers for tightening financial conditions. The sharp increases in house prices of recent years were associated with significant property-related borrowing, including from abroad. In the near term, property developers are facing sizeable refinancing needs. Chinese household debt has risen to 48% of GDP, comparable with high-income countries, rendering them vulnerable to rising interest rates. As the Chinese authorities aim at deleveraging the economy, highly leveraged borrowers could face balance sheet pressures as financial conditions tighten. Moreover, local government budgets could be stretched by a pronounced slowdown in the housing sector, as land sales have been an important source of local government financing.

A severe housing market downturn could significantly affect the Chinese economy with possible global spillovers. A model simulation[9] assuming a fall in house prices of 6% and a decline in housing sales of 32% for four quarters (values similar to the 2008-09 downturn in housing activity) suggests that China's GDP would decrease by close to 2% cumulatively over five quarters compared with the baseline (see Chart C). If financial conditions are allowed to loosen, the cumulative

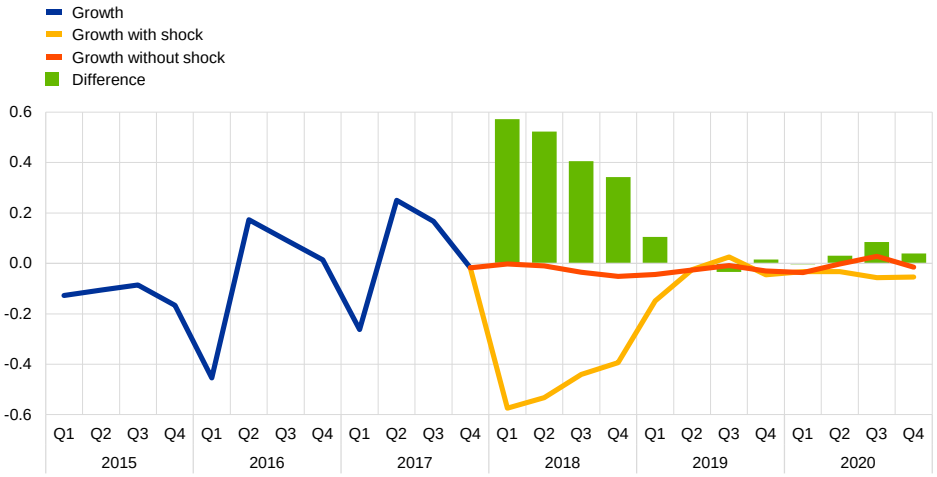
9 A Bayesian vector autoregressive model identified through sign restrictions is estimated based on quarterly data from the first quarter of 2001 to the fourth quarter of 2017 using the Bayesian Estimation, Analysis and Regression (BEAR) toolbox. Four shocks are identified: an aggregate demand shock, a monetary policy demand shock, a housing demand shock and a housing supply shock. The variables included in the model are GDP growth (expressed as a deviation from potential growth), the ratio of housing activity over overall activity (to differentiate between a housing demand shock and an aggregate demand shock), house price growth and growth of floor space sold. A financial conditions index is used to measure changes in financial conditions. Measures of global activity and commodity prices are included as exogenous variables to account for the potential influence of external developments. All variables are measured in quarter-on-quarter changes. The simulated shock could for instance be the result of a housing policy kept too tight for too long, adversely affecting both housing demand and supply.

GDP growth impact would be slightly lower at 1.6%. However, declining confidence could further amplify these effects. Spillovers to the global economy and the euro area from a slowdown in China's GDP could be non-negligible.[10]

Chart C

Impact of a temporary housing shock on GDP

(percentage deviation from potential output growth, quarter on quarter)



Source: ECB calculations.

While the economic impact of a nationwide housing market correction would be sizeable, for the time being sharp house price corrections are more likely to be localised. The risk of a housing market correction may be most pronounced in the tier 1 cities, but they represent less than 10% of China's total housing market. Furthermore, robust income growth and ongoing urbanisation continue to support fundamental housing demand across China. Policymaking has also changed, taking local circumstances better into account when intervening in the housing market. However, some key risks prevail. A sharp correction in tier 1 cities could lead to tighter financing conditions more generally. Moreover, the current deleveraging campaign could put a number of highly leveraged firms under financial pressure, which could dampen construction activity. More importantly, a reassessment of China's future growth potential could have a negative effect on housing demand. This would further hamper local government revenues and debt servicing capacity.

[10] See "The transition of China to sustainable growth – implications for the global economy and the euro area", *Occasional Paper Series*, No 206, ECB, January 2018.

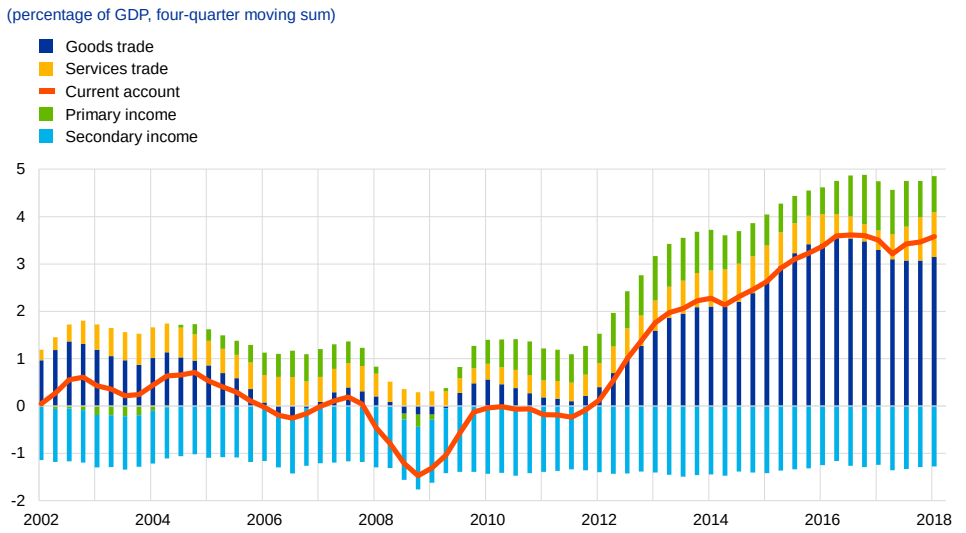
2 Cyclical developments in the euro area current account

Prepared by Michael Fidora

The euro area current account balance stood at the historically high level of 3.6% of GDP in the year up to the first quarter of 2018, slightly above the level of 3.5% of GDP recorded one year earlier (see Chart A). The slight increase in the current account surplus however masks significant decreases in the surplus on trade in goods (by 0.2 percentage point of GDP) as well as in the surplus on primary income (by 0.3 percentage point of GDP), which were slightly more than offset by an increase in the surplus on trade in services (by 0.5 percentage point of GDP).

Chart A

Main components of the euro area current account balance



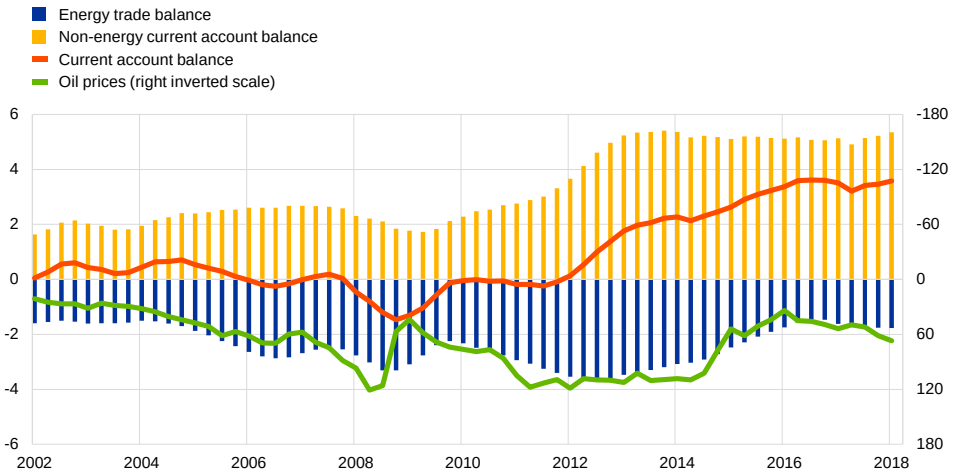
Source: ECB.
Note: The latest observation is for the first quarter of 2018.

There are, however, signs of a stabilisation of the current account balance, albeit at elevated levels, largely on account of developments in the oil price cycle (see Chart B). The current account surplus had reached a record high – slightly above its current level – in the third quarter of 2016. This peak coincided with an all-time low in the energy trade deficit at the end of 2016 due to the trough in oil prices a few months earlier. Since then, the energy trade balance has worsened by 0.3 percentage point of GDP. This, together with a slight decrease in the surpluses on non-energy trade in goods as well as on primary income, more than offset the increase in the surplus on trade in services over the same period. Looking at energy trade developments over a longer period, the stabilisation in oil prices after 2012 and their subsequent fall from 2014 to the end of 2015 had in fact reduced the energy trade deficit by about 2 percentage points of GDP and thus entirely accounted for the rise in the current account surplus over the same period. The current account balance of the euro area excluding energy trade, in turn, has remained remarkably stable since 2013.

Chart B

Energy trade balance, non-energy current account balance and oil prices

(percentage of GDP, four-quarter moving sum; USD per barrel)



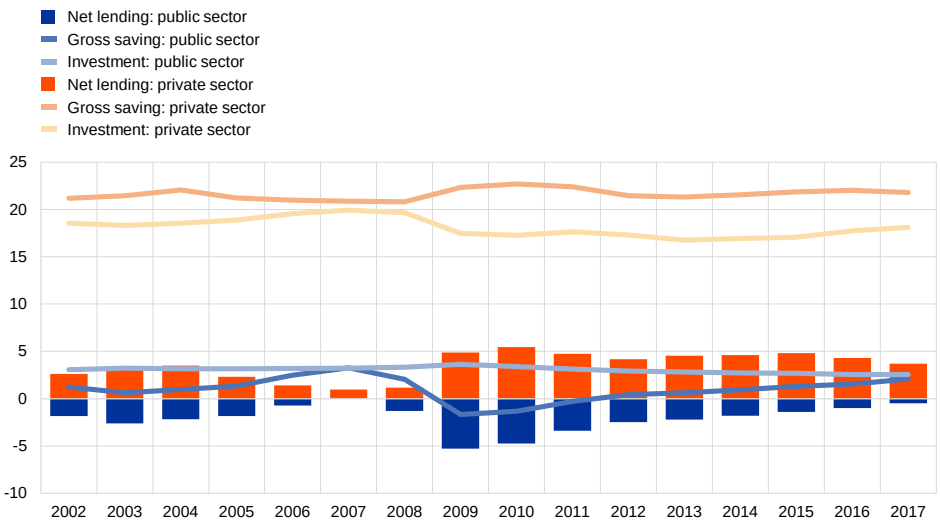
Sources: ECB and Eurostat.
Note: The latest observation is for the first quarter of 2018.

From a saving/investment perspective, the stabilisation of the current account surplus largely reflects a reduction in net lending by the private sector which is however offset by an increase in saving of the public sector (see Chart C). Since the start of the economic recovery in 2013, private sector investment has been steadily recuperating, albeit at a slow pace, while gross saving of the private sector only levelled off in 2016 and started to decline in 2017. As a result, net lending of the private sector declined in both 2016 and 2017. This development was however largely offset by a further reduction in net borrowing of the public sector due to the ongoing fiscal consolidation efforts in a number of countries.

Chart C

Euro area gross saving and investment

(percentage of GDP)



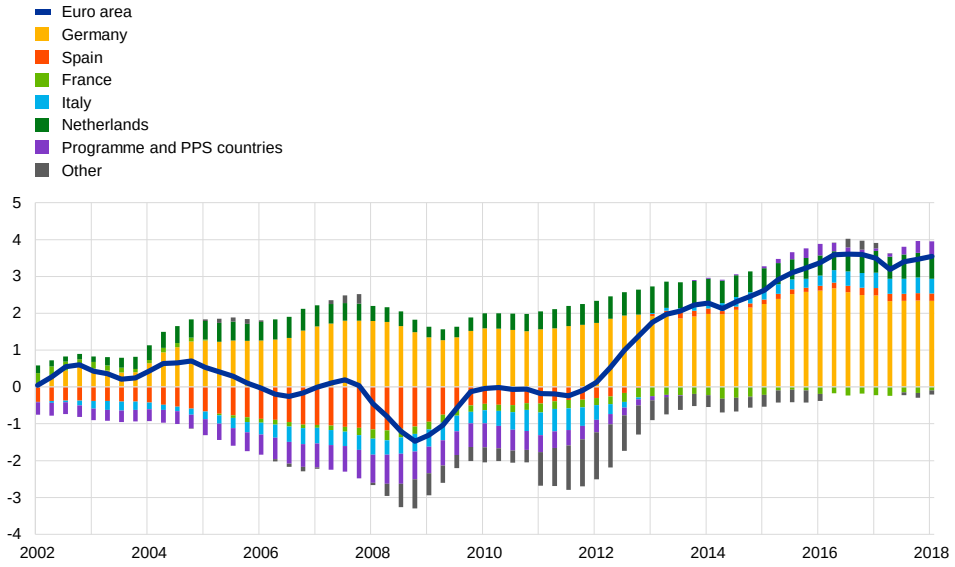
Source: European Commission.
Note: The latest observation is for 2017.

From the perspective of euro area imbalances, the stabilisation of the euro area current account surplus reflects to some extent current account adjustment in euro area countries (see Chart D). In fact, the contribution of Germany to the current account surplus of the euro area has shrunk by about 0.3 percentage point of euro area GDP since the beginning of 2016. This development has contrasted with a further rise in the current account surplus of the Netherlands, by about 0.2 percentage point of euro area GDP over the same period, which was however broadly offset by a narrowing of current account surpluses of other euro area economies. At the same time, programme and post-programme surveillance countries, on aggregate, continued to record further improvements in their current account balances of around 0.2 percentage point of GDP.

Chart D

Current account balance of the euro area and selected euro area countries

(percentage of GDP, four-quarter moving sum)



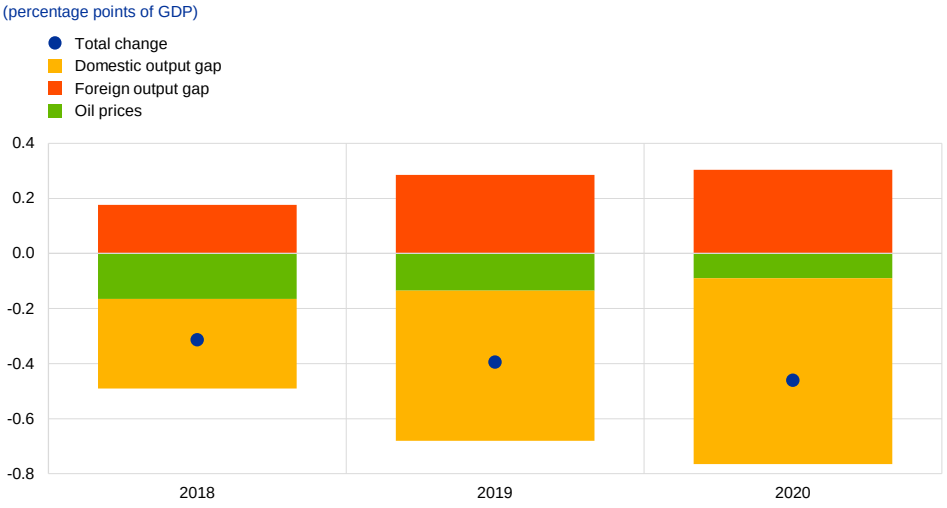
Source: ECB.
Notes: The latest observation is for the first quarter of 2018. PPS stands for post-programme surveillance.

At present, the position of the euro area in the business cycle, together with the recent increase in oil prices, should further support the stabilisation of the current account balance. A weaker cyclical position of the euro area compared with its main trading partners continues to weigh on euro area import demand, while supporting foreign demand for euro area exports. This leads to a temporary increase in the euro area's trade surplus and thereby its current account balance. In fact, a fraction of the current account surplus of about 0.1 percentage point of GDP is estimated to be due to the position of the euro area in the business cycle relative to that of its main trading partners, based on standard elasticities available in the empirical literature. This implies that the current account surplus of the euro area would decline by around 0.1 percentage point of GDP over the medium term if the output gaps of the euro area and its main trading partners were to converge. A similar fraction of about 0.1 percentage point of GDP of the current account surplus, in turn, can be attributed to the deviation of oil prices from their trend level. As a

result, the cyclically adjusted current account balance of the euro area is about 0.2 percentage point below its current level.[11]

Chart E

Simulated change in the current account balance due to projected output gap and oil price developments



Sources: ECB, IMF and ECB staff estimates.
Notes: Calculations are based on the June 2018 Eurosystem staff macroeconomic projections for the domestic output gap and the IMF's April 2018 World Economic Outlook for the foreign output gap.

Looking ahead, the ongoing euro area rebalancing, as well as developments in the euro area business cycle together with fluctuations in oil prices, should contribute to a narrowing of the current account surplus (see Chart E). Oil price projections – increasing markedly in 2018 and decreasing somewhat again over the remainder of the projection horizon to hover around their trend level – imply, based on standard elasticities, a narrowing of the euro area current account surplus by between 0.1 and 0.2 percentage point of GDP by the end of 2020. At the same time, the narrowing of the negative output gap in the euro area – turning positive in 2018 and projected to further increase over the coming years – should increase import demand and thereby reduce the euro area current account surplus. Based on standard elasticities, the impact would range between 0.3 percentage point of GDP in 2018 and 0.7 percentage point of GDP by the end of 2020. However, the effect of the increasingly positive output gap in the euro area is partly – although not fully – offset by a similar but less pronounced improvement in the global output gap, which is expected to add up to 0.3 percentage point of GDP to euro area foreign demand and thereby support the current account surplus. As a result of these two opposing forces, the combined effect of oil price and business cycle factors would amount to a reduction of the euro area current account surplus by between 0.3 percentage point of GDP in 2018 and 0.5 percentage point of GDP by the end of 2020. These effects

[11] These estimates are based on standard elasticities for the current account balance with respect to the output gap (expressed relative to that of the rest of the world) and the oil price (interacted with the energy trade balance), respectively. Estimates range between 0.4 and 0.5 for the former and between 0.5 and 0.6 for the latter, as for instance in Phillips et al., "The External Balance Assessment (EBA) Methodology", *IMF Working Paper 13/272*, 2013, and Zorell, N., "Large net foreign liabilities of euro area countries", *Occasional Paper Series*, No 198, ECB, 2017.

are consistent with the June 2018 Eurosystem staff macroeconomic projections, which include a decrease in the current account surplus by around one percentage point of GDP over the same horizon, implying that in addition to cyclical factors also structural factors are expected to contribute to a narrowing of the current account balance.

3 Growth synchronisation in euro area countries

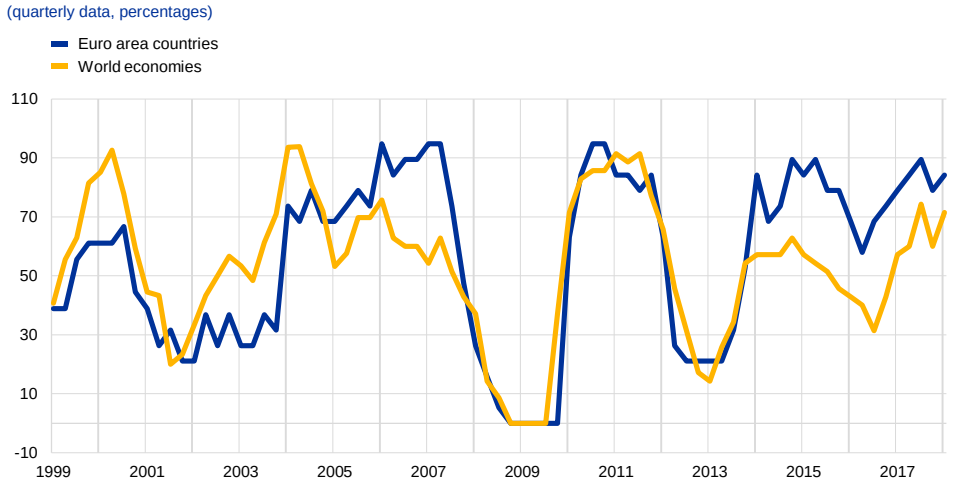
By Jaime Martinez-Martin, Lorena Saiz and Grigor Stoevsky

The degree of business cycle synchronisation, both across the euro area countries as well as between the euro area and the rest of the world, is a pertinent research question. Regarding the euro area, the endogenous optimal currency area (OCA) hypothesis[12] suggests that the degree of business cycle synchronisation among the participating countries should increase over time as a result of deepening financial and trade integration. Individual countries should thus become less exposed to idiosyncratic shocks, facilitating the effectiveness of the single monetary policy. Against this background, this box presents and analyses several measures of business cycle synchronisation both within the euro area as well as from a global perspective.

In an environment of stronger trade and financial linkages, the favourable growth dynamics of recent years are common to the majority of euro area countries and world economies (see Chart A). Between 2014 and 2016 the share of world countries with strengthening growth declined, partly reflecting the negative impact of low oil prices on oil-producing countries. However, the share of countries with improving growth dynamics has been rising since the second half of 2016, with more than half of euro area countries experiencing a strengthening of economic dynamics. This has coincided with the broadening of economic growth that began in 2013.[13]

Chart A

Share of countries with current GDP growth exceeding the past three-year average



Sources: OECD, Eurostat, Haver Analytics and ECB calculations.
Notes: The calculation is based on quarterly year-on-year real GDP growth rates. The euro area countries consist of the current 19 participating EU Member States (with data for Malta available as of 2001). The world economies consist of 34 countries and the euro area aggregate, accounting for more than 84% of global GDP in PPP. In particular, the group comprises the euro area, Argentina, Australia, Brazil, Bulgaria, Canada, Colombia, Croatia, Chile, China, the Czech Republic, Denmark, Hong Kong, Hungary, India, Indonesia, Israel, Japan, Malaysia, Mexico, New Zealand, Norway, Poland, Romania, Russia, Singapore, South Africa, South Korea, Sweden, Switzerland, Taiwan, Thailand, Turkey, the United Kingdom and the United States. The latest observation is for the first quarter of 2018.

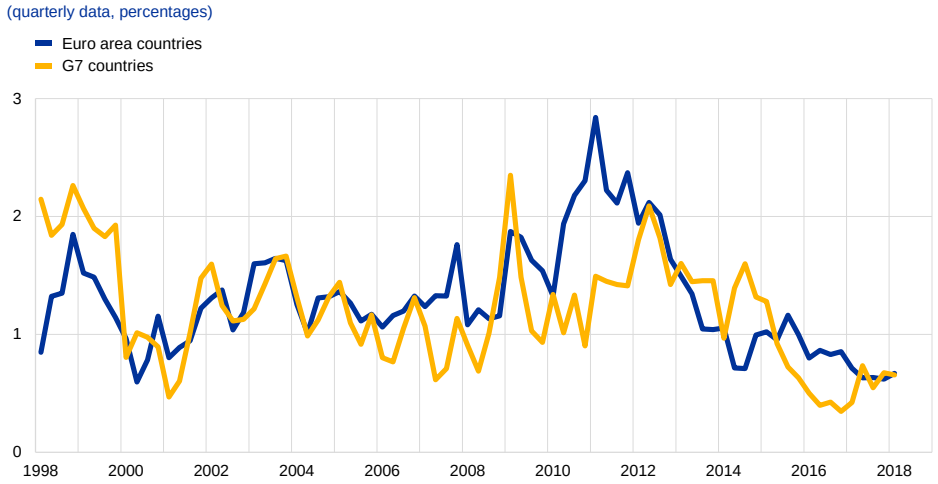
12 Frankel, J. A. and Rose, A. K., "The Endogeneity of the Optimum Currency Area Criteria", *The Economic Journal*, Vol.108, Issue 449, 1998, pp. 1009-1025.

13 See "Economic growth in the euro area is broadening", *Economic Bulletin*, Issue 1, ECB, 2017.

The recent strengthening of growth has coincided with a broad-based reduction in growth dispersion across the euro area countries and in advanced economies (G7) (see Chart B). Growth volatility across euro area countries was very high in the aftermath of the global financial crisis as well as during the sovereign debt crisis. This implied that the impact of the shocks was very diverse across countries. In contrast, the recent decline in growth dispersion across euro area countries has largely coincided with a reduction in fragmentation in financing conditions in the euro area, facilitated by the ECB's monetary policy measures.

Chart B

Dispersion of quarterly real GDP growth rates



Sources: OECD, Eurostat and ECB calculations.
Notes: The dispersion of growth in the euro area is measured as the weighted standard deviation of year-on-year growth in real GDP in the 19 euro area countries excluding Ireland to avoid distortions in the analysis caused by the high volatility of Irish GDP. The dispersion of growth in advanced economies, proxied by the G7 group (Canada, France, Germany, Italy, Japan, the United Kingdom and the United States) is the unweighted standard deviation of year-on-year growth in real GDP for those countries. The latest observation is for the first quarter of 2018.

A direct measure of correlation confirms that synchronicity increased among the euro area countries in 2016-17 (see Chart C). The correlation measure[14] for the euro area[15] suggests that the degree of business cycle synchronisation increased sharply around the time of the global financial crisis for all sets of countries considered. Among the euro area countries, and in general among the advanced economies, the correlations reached a peak during the financial crisis, and gradually declined over the recovery period. However, this measure shows that there was a renewed trend towards increased synchronisation across the euro area countries in the course of 2017. Over the last two decades, synchronisation has been higher among the largest five euro area economies relative to a broader group of 17 euro

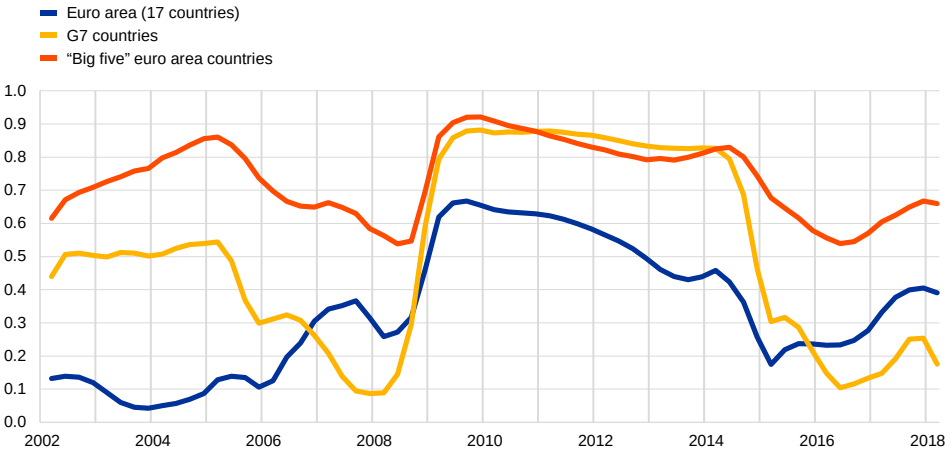
[14] See Stock, J. and Watson, M., "The Evolution of National and Regional Factors in U.S. Housing Construction", in *Volatility and Time Series Econometrics: Essays in Honour of Robert F. Engle*, eds. Bollerslev, T., Russell, J. and Watson, M., Oxford University Press, 2008.

[15] For reasons of data availability, the analysis focuses only on Belgium, Germany, Estonia, Greece, Spain, France, Italy, Cyprus, Latvia, Lithuania, Luxembourg, the Netherlands, Austria, Portugal, Slovenia, Slovakia and Finland.

area countries, although synchronisation among the latter increased sharply in the course of 2017.[16]

Chart C

Business cycle correlations across euro area and G7 countries



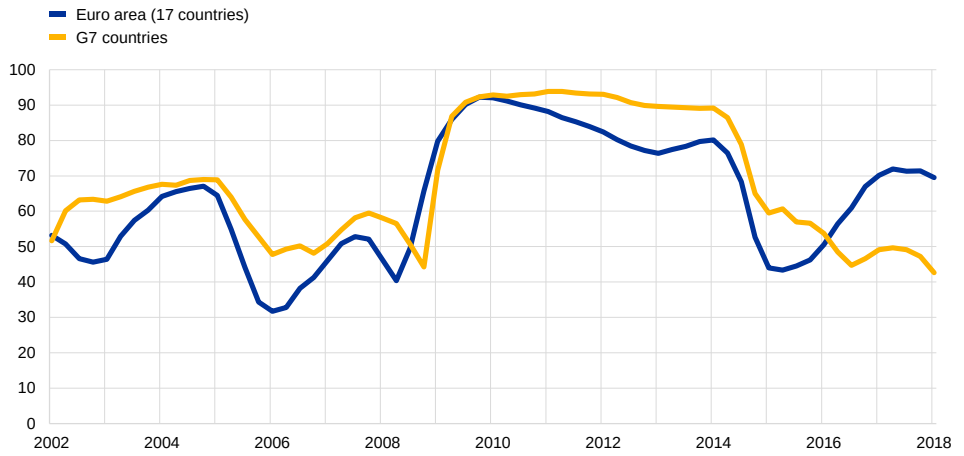
Sources: OECD, Eurostat and ECB calculations.
Notes: The measure of business cycle correlation is a weighted average of pairwise cross-country correlations of real GDP growth, following Stock and Watson (2008). The pairwise correlations have been computed over a five-year rolling window. For the euro area two different groupings are considered: the "euro area" (all euro area countries excluding Malta and Ireland owing to data availability) and the "big five" euro area countries (the five largest euro area economies). The latest observation is for the first quarter of 2018.

The increase in synchronisation is also evident in the fact that a substantial share of the variation in GDP growth across the euro area countries is explained by a common factor (see Chart D). The common component explains on average more than 65% of the GDP growth variance across euro area countries as well as across advanced world economies (G7). However, the share explained by the common factor increased sharply during the financial crisis owing to the synchronised downturn. It is notable that synchronisation in terms of this measure rose again in recent years in the euro area. This trend is in contrast to that observed in the G7 countries, where there is less evidence of a common factor explaining the recent cross-country variation in GDP growth.

16 One should bear in mind that these measures do not point to the underlying factors contributing to the currently high level of synchronicity among the euro area countries.

Chart D

Relative contribution of the common factor to real GDP growth variance



Sources: OECD, Eurostat and ECB calculations.
Notes: The chart shows the share of the variation in real GDP growth that is explained by a common factor estimated over a five-year rolling window. The common factor is proxied by the first principal component of quarterly year-on-year GDP growth rates. The euro area group includes all euro area countries except Malta and Ireland owing to data availability. The latest observation is for the first quarter of 2018.

All in all, the evidence points to a relatively high level of growth synchronisation across the euro area countries. While economic growth dynamics have strengthened recently in a larger share of euro area and global economies, this has coincided with a broad-based reduction in volatility across these major world economies. The recent increase in synchronisation across the euro area countries to relatively high levels is confirmed by both the calculated correlation index and the estimated high share of GDP growth variation explained by a common factor.

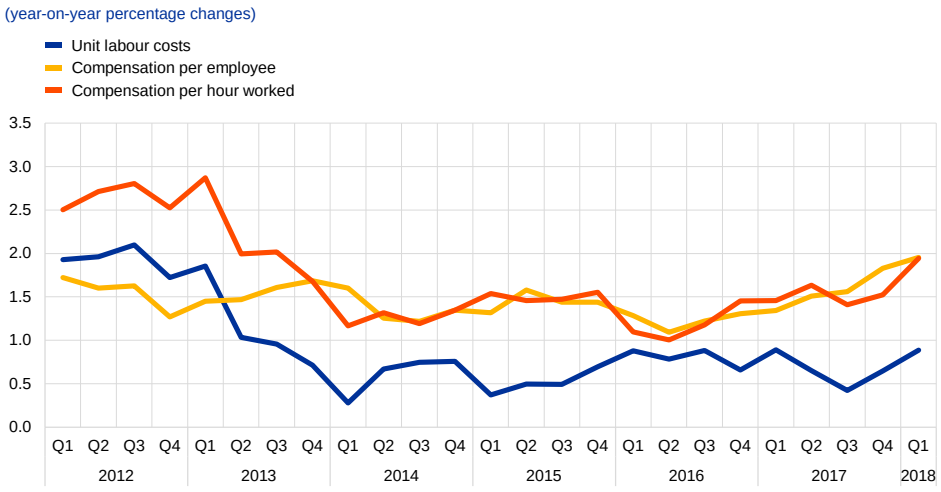
4 The role of wages in the pick-up of inflation

Prepared by José Emilio Gumiel and Elke Hahn

In current forecasts and projections, a pick-up in labour costs is considered an important precondition for a sustained increase in underlying inflation. However, the signals provided by different labour cost indicators have been mixed for some time. While wage growth as measured by compensation per employee or by compensation per hour worked has clearly strengthened over the past two years, unit labour cost growth, i.e. wage growth adjusted for productivity growth, has remained rather flat over the same period (see Chart A). This begs the question: which labour cost indicators provide the relevant signal for the pass-through to, and the outlook for, underlying inflation? This box tries to shed some light on this issue by analysing the transmission of two different types of macroeconomic impulse, namely certain kinds of supply and demand shock, in the context of the New Area-Wide Model, and by comparing the results with the patterns of development observed in the recent past.[17]

Chart A

Compensation per employee/hour worked and unit labour costs



Sources: Eurostat and ECB calculations.

A typical negative supply shock in the labour market lifts both wages and unit labour costs but dampens profit margins in the short run. Chart B shows the impact of a supply shock in the labour market[18] from the New Area-Wide Model on the GDP deflator, a measure of underlying inflation, and its components. The supply shock implies a pick-up in wages and thereby increases companies' costs and prices. This leads to a reduction of demand, output and employment. The decline in

17 For more information on the New Area-Wide Model, see Christoffel, K., Coenen, G. and Warne, A., "The New Area-Wide Model of the euro area: A micro-founded open-economy model for forecasting and policy analysis", *Working Paper Series*, No 944, ECB, October 2008. A similar analysis can be carried out with a wide range of other models.

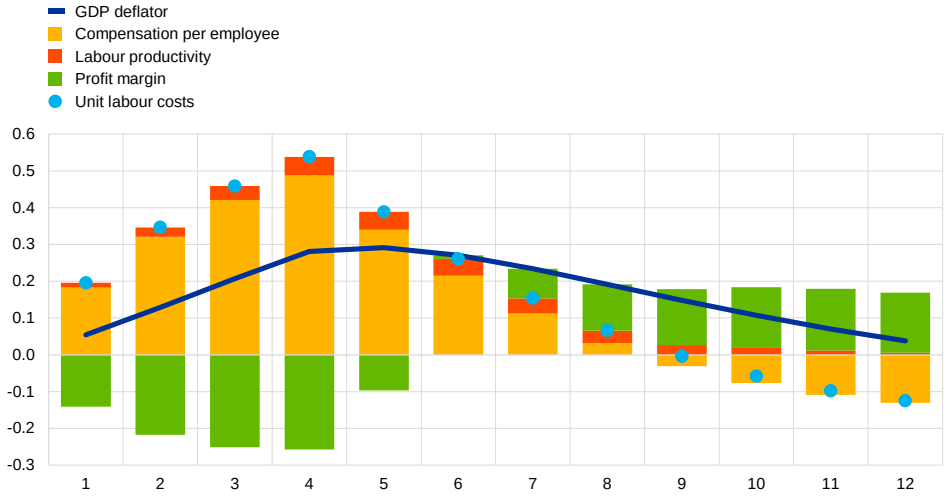
18 The supply shock more specifically refers to the wage mark-up shock in the New Area-Wide Model. This shock captures frictions in wage setting, e.g. the impact of structural reforms, or non-linearities such as downward wage rigidity.

employment is typically smaller than that in GDP, implying a decrease in labour productivity.[19] This decrease adds to the accumulating price pressures from wages and implies an increase in unit labour costs beyond that of wages. Companies facing a downward-sloping demand curve and price-setting rigidities will only partly and gradually pass the cost increases through to prices, with profit margins acting as a buffer. The observable patterns of responses to the supply shock hence show an increase in both wages and unit labour costs, whose impact on price pressures is partly buffered by decreasing profit margins.

Chart B

Stylised pass-through of a wage increase to the GDP deflator following a supply shock in the New Area-Wide Model

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



Sources: Eurostat, ECB and ECB calculations.
Notes: The x-axis indicates the quarters following the shock. The supply shock refers to a wage mark-up shock in the New Area-Wide Model. For more information on the model, see Christoffel, K., Coenen, G. and Warne, A., "The New Area-Wide Model of the euro area: A micro-founded open-economy model for forecasting and policy analysis", *Working Paper Series*, No 944, ECB, October 2008. The magnitude of the shock is normalised to a cumulated increase in compensation per employee of 1% over the first year following the shock. It is assumed that indirect taxes net of subsidies respond proportionally to real GDP in such a way that this component does not contribute to changes in the GDP deflator. In the New Area-Wide Model wages and productivity are defined in terms of persons.

The response pattern of wages and unit labour costs following a demand shock is qualitatively distinct from the case of a supply shock. Chart C shows the impact of a demand shock[20] in the New Area-Wide Model on the GDP deflator and its components. The demand shock leads to an increase in production and a higher demand for capital and labour inputs, increasing both wages and employment. Again, the impact on employment is smaller than that on GDP, leading in the case of a positive demand shock to a pick-up in labour productivity with a

19 This holds for employment measured both in terms of persons or hours worked, though for the latter the adjustment is generally stronger, given that it is easier, and therefore the drop in labour productivity smaller.

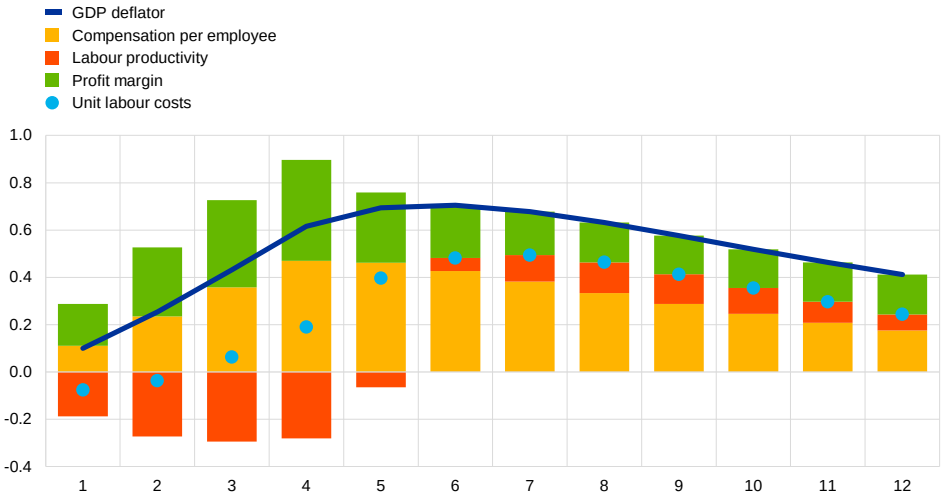
20 The demand shock corresponds to the domestic risk premium shock in the New Area-Wide Model. This shock reflects a wedge between the interest rate controlled by the monetary authority and the return required by households when taking their decisions, affecting both consumption and investment. An example of a risk premium shock is an increase in uncertainty in the economy.

dampening impact on unit labour costs.[21] Given the favourable demand prospects, companies can pass on the cost increase to prices so that the productivity gains and their downward impact on unit labour costs are absorbed by the companies via their profit margins. In the case of the demand shock therefore, wages pick up but unit labour costs are initially dampened and rise only with some delay. This is different to the responses in the case of a supply shock, where the wage increases amplified by the productivity losses lead to an immediate increase in unit labour costs (at the cost of profit margins). In essence, the analysis shows that the source of the shock matters for the transmission of wage developments to prices. In the case of a demand shock, the upward price pressures are initially only correctly signalled by compensation per employee, while unit labour cost developments in the first few quarters even provide contradictory signals.

Chart C

Stylised pass-through of a wage increase to the GDP deflator following a demand shock in the New Area-Wide Model

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



Sources: Eurostat, ECB and ECB calculations.
Notes: The x-axis indicates the quarters following the shock. The demand shock refers to a domestic risk premium shock in the New Area-Wide Model. For more information on this model, see Christoffel, K., Coenen, G. and Warne, A., "The New Area-Wide Model of the euro area: A micro-founded open-economy model for forecasting and policy analysis", *Working Paper Series*, No 944, ECB, October 2008. The magnitude of the shock is normalised to a cumulated increase in compensation per employee of 1% over the first year following the shock. It is assumed that indirect taxes net of subsidies respond proportionally to real GDP in such a way that this component does not contribute to the changes in the GDP deflator. In the New Area-Wide Model wages and productivity are defined in terms of persons.

The constellation of developments in the components of the GDP deflator over the past two years resembles that of a more demand-driven pick-up in wages and the GDP deflator. The pick-up in the growth rate of the GDP deflator over that period materialised in a context of rising wage growth and profit margins supported by a pick-up in labour productivity growth which held down and even led to a temporary decrease in unit labour cost growth (see Chart D). This pattern broadly resembles the situation following a demand shock, as shown above. The observed

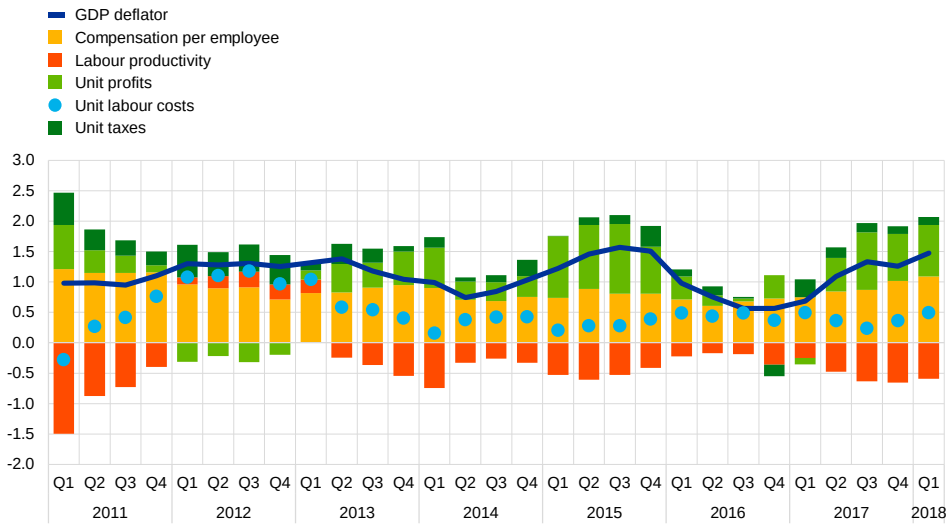
[21] As in the previous case, this holds for wages and employment measured both in terms of persons or hours worked. Again, the adjustment in terms of hours worked is typically more pronounced, leading to a lower response of wages and a higher response of employment with labour productivity measured in hours worked rising more slowly.

increases in compensation per employee should therefore be interpreted as signalling upward pressures on prices and the recent turnaround and pick-up in unit labour cost growth appears consistent with the situation of a more mature demand shock where unit labour cost growth follows the increase in compensation per employee growth with some lag.

Chart D

GDP deflator and contributions

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



Sources: Eurostat and ECB calculations.

To conclude, the analysis underpins the notion in current forecasts and projections that rising wage growth will lead to upward pressures on prices. The constellation of the components of the GDP deflator resembles that of a more demand-driven pick-up in wages. This is in line with the strong output and employment growth observed in recent quarters, and implies that the increase in wage growth (rather than the relatively flat unit labour cost growth) reflects the relevant signal concerning upward cost pressures on underlying inflation.[22] This underpins the recent policy focus on wage growth as a precondition for rising inflation and determines the importance of the increased confidence in the rise in wage growth as corroborated, for instance, by the latest negotiated wage data and by the broad-based nature of the pick-up in wage growth across sectors and countries.

[22] Note that, if we focus on wages and employment in terms of hours worked rather than persons, the wage response would be smaller, as mentioned before. Therefore the signalling message of rising wage growth is reinforced by the fact that not only compensation per employee has been increasing but also compensation per hour.

5 Developments in mortgage loan origination in the euro area

Prepared by Ramón Adalid and Matteo Falagiarda

Loans to households for house purchase appear to have grown at a moderate rate in recent years, despite very favourable financing conditions, the recovery in economic activity and dynamic housing markets.[23] The annual growth rate of adjusted loans to households for house purchase was 2.8% in the first quarter of 2018, having increased gradually from slightly above 0% in 2014 (red line in Chart Aa). However, when assessing loan developments, it should be noted that loan growth figures are usually reported in net terms, i.e. newly originated loans and the repayments of previously granted loans are considered together because statistics on balance sheet items are derived from stock figures. Given the long-term nature of mortgage contracts, loan repayments have a long-lasting impact on net figures, especially after a boom, and thus obfuscate the prevailing lending dynamics. Against this background, this box presents the results of a simulated portfolio approach which decomposes net lending flows into loan origination and the repayments of previously granted outstanding loans. Examining these two components separately provides a better view of current loan developments.[24]

Loan repayments have been increasingly dragging down net loan growth in recent years, concealing an increasing dynamism in loan origination. In the first quarter of 2018, loan repayments made a negative contribution to the annual growth rate of loans to households for house purchase of around -8 percentage points, compared with -6 percentage points just before the boom (blue shaded area in Chart Aa). In other words, had the contribution of repayments remained constant since that period, the annual growth rate of loans to households for house purchase would currently be 2 percentage points higher. This negative contribution is expected to grow further, likely peaking in 2022, dragging down net loan growth by around 3.5 percentage points more than before the boom (this estimate is made under the assumption that, in the coming years, the stock will continue to grow at the current pace). Loan origination is estimated to currently be contributing around 11 percentage points to the annual growth of loans to households for house purchase (yellow shaded area in Chart Aa). The estimated recent developments in loan origination are in line with the new data on “pure new loans” published by the ECB in the monetary financial institution interest rate (MIR) statistics (green line in Chart Aa). These are the closest available data to the concept of loan origination, as they report new business data net of statistical renegotiations. However, they still include some transactions that can be considered renegotiations from an economic

---

23 The term “loans to households for house purchase” denotes loans for the purpose of investing in houses for own use or rental, including building and refurbishments, or for the purchase of land. Loans included in this category may or may not be collateralised by various forms of security or guarantee. For reasons of concision, throughout this box, the terms “loans to households for house purchase” and “mortgage loans” are used interchangeably.

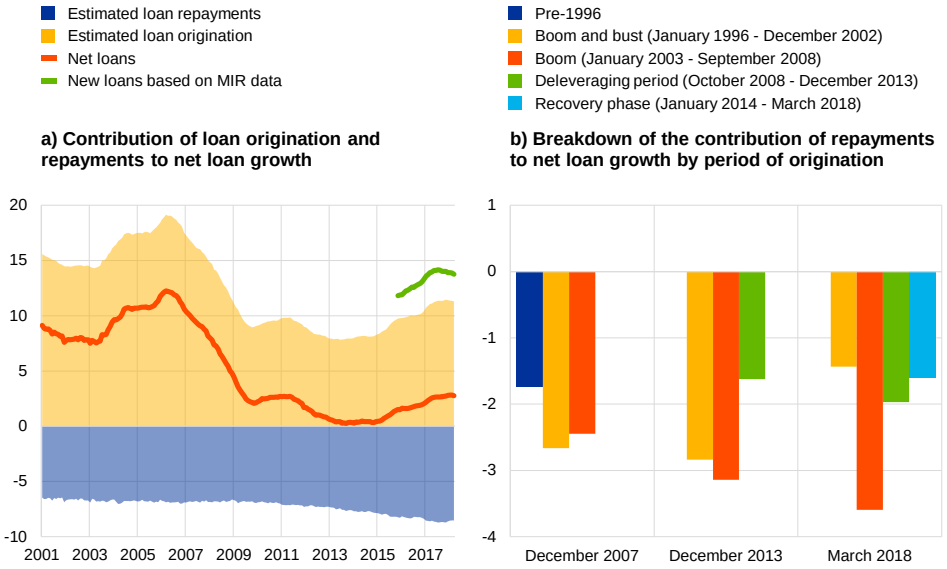
24 The technical details of the methodology are set out in Adalid, R. and Falagiarda, M., “How repayments manipulate our perceptions about loan dynamics after a boom”, *Working Paper Series*, ECB, forthcoming.

point of view (e.g. renegotiated loans resulting in a transfer to another bank and loan substitutions). This explains why the contribution of "pure new loans" is somewhat higher than the contribution of the estimated loan origination.[25]

Chart A

Net growth, origination and repayments of loans to households for house purchase

(a – annual growth rate and percentage point contributions to annual growth rate; b – percentage point contributions to annual growth rate)



Source: ECB and ECB calculations.
Notes: Loans to households for house purchase are adjusted for sales and securitisation. Adjusted loans before 2015 are constructed by allocating to loans to households for house purchase all securitisation and loan sales adjustments of loans to households. From 2015 onwards, internally available data on securitisation and sales of house purchase loans are used to adjust the series. "New loans based on MIR data" is the ratio of the accumulated 12-month flows of "pure new loans" from the MIR statistics to the stock of loans to households for house purchase. The latest observations are for March 2018.

The increasing contribution of repayments to the annual growth rate of loans to households for house purchase is a consequence of the large amount of mortgages granted in the boom period before the financial crisis. The predetermined nature of loan repayments allows them to be traced over the life of their respective loans and their contribution to net loan growth to be broken down by period of origination. The contribution of the repayments of loans granted in the boom period has been increasing in the last ten years, and in recent years they have become the loan group that is contributing the most to repayments (Chart Ab). The delayed impact of these mortgage loans reflects the fact that principal amounts are repaid over a long period.[26] This lagged effect is intensified by the fact that most euro area mortgage loans embed increasing repayments over the life of the loan.[27] After a boom, this lag mechanism, which operates through repayments, has a long-lasting

[25] MIR statistics on "pure new loans" have been publicly available since August 2017 and internally available since December 2014. The latest MIR data are available on the ECB's website.

[26] The average original maturity of the mortgages granted during the boom period is estimated at between 18 and 19 years (data derived from the Household and Finance Consumption Survey).

[27] The most prominent example is the "French" loan, characterised by a fixed monthly instalment with decreasing interest payments and increasing repayments over time. As the decomposition approach used in this box focuses on the repayments schedule of that type of loan, it also covers most variable rate contracts, as long as they share the amortisation schedule of an equivalent French loan.

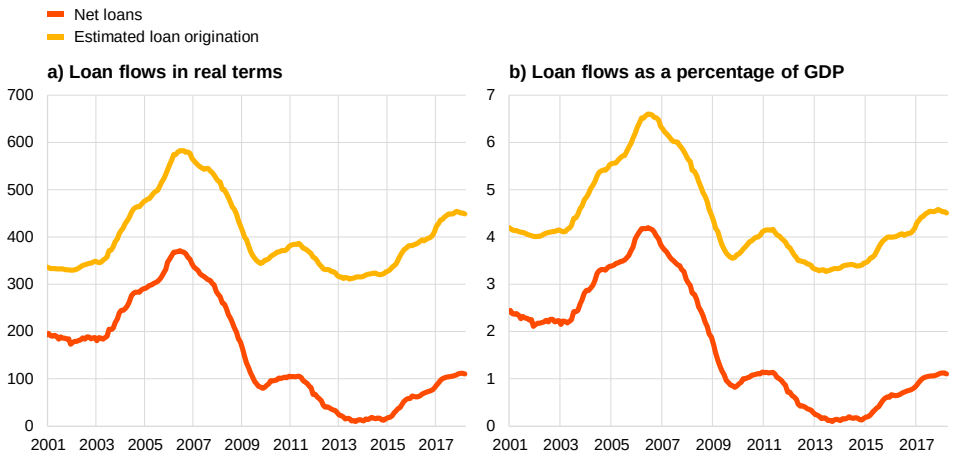
impact on the stock of loans, depressing its growth rate for many years ahead and thus blurring the picture of lending dynamics conveyed by net figures. For this reason, especially after large lending booms, it is worth looking at loan origination per se, or relative to alternative scale variables such as GDP.

While net loan flows suggest that mortgage lending remains subdued compared with the pre-boom period, loan origination is currently estimated to be around the average observed since 2001 (Chart B). This is valid both when annual loan flows are expressed in real terms (i.e. deflated by the GDP deflator) and when they are expressed as a percentage of GDP. In the 12 months up to March 2018, real loan origination amounted to around €450 billion (or 4.5% of GDP), compared with an average of €405 billion since 2001 (or an average ratio of loan origination to GDP of 4.4%). This is in contrast to the picture obtained by looking at net lending, which in March 2018 was at significantly lower levels than in the pre-boom years. The message from loan origination is consistent with the buoyant house price dynamics observed in recent years, as well as with banks' own perceptions of loan dynamics as reported in the bank lending survey (see Section 5 of this issue of the Economic Bulletin). According to this survey, both credit standards and loan demand have been supporting mortgage lending dynamics for a number of years, a situation not observed since the pre-crisis period.

Chart B

Flows of loans to households for house purchase

(a – accumulated 12-month flows in EUR billions, deflated by the GDP deflator; b – accumulated 12-month flows over nominal GDP)



Source: ECB and ECB calculations.
Notes: Loans to households for house purchase are adjusted for sales and securitisation. Adjusted loans before 2015 are constructed by allocating to loans to households for house purchase all securitisation and loan sales adjustments of loans to households. From 2015 onwards, internally available data on securitisation and sales of house purchase loans are used to adjust the series. The latest observations are for March 2018.

6 Country-specific recommendations for economic policies under the 2018 European Semester

Prepared by João Capella-Ramos

Within the EU governance framework for the coordination of economic policies, the country-specific recommendations (CSRs) represent an integral part of the annual European Semester process. They provide guidance to individual EU Member States on how to address structural reform needs and macroeconomic imbalances in the following 12-18 months. CSRs are the instrument through which EU national economic policies are treated as a matter of common concern and coordinated within the Council of the European Union in accordance with Article 121 of the Treaty on the Functioning of the European Union. They therefore constitute a cornerstone of the EU's macroeconomic imbalance procedure (MIP), whose aim is to prevent, detect and correct macroeconomic imbalances in individual countries, thereby containing risks to the smooth functioning of Economic and Monetary Union (EMU). Their timely and proper implementation is critical to reducing vulnerabilities and strengthening the economic resilience of the euro area and the EU as a whole, ultimately leading to higher growth potential in the long term.[28] Against the background of the 2018 CSRs received by 27 EU Member States (i.e. all excluding Greece[29]), this box examines the policy recommendations addressed to 18 euro area countries, with the exception of those that pertain strictly to the implementation of the EU's Stability and Growth Pact.[30]

CSRs are the culmination of a comprehensive process of economic monitoring and surveillance within the European Semester, starting in the autumn of the preceding year. First, on 22 November 2017, the European Commission released the Annual Growth Survey, the Alert Mechanism Report and proposed recommendations on the economic policy of the euro area. The Annual Growth Survey identifies the main economic policy priorities for the EU as a whole. The Alert Mechanism Report screens EU Member States for any build-up of or need to correct macroeconomic imbalances. The recommendations for the euro area set out the main areas for structural reforms for the euro area as a whole. On 7 March 2018, the Commission released the Country Reports for all EU Member States, which analyse progress made on implementing structural reforms and, for countries previously selected in the Alert Mechanism Report, identify the nature and severity of macroeconomic imbalances in the context of in-depth reviews under the MIP. Subsequently, on 23 May 2018, the Commission adopted its proposals for the 2018 CSRs. On 13 July 2018, following discussions in the relevant EU committees and

---

28 For an analysis of the importance of structural policies for the smooth functioning of EMU and the effectiveness of monetary policy, see Chapter 3 of Masuch, K., Anderton, R., Setzer, R. and Benalal, N., "Structural policies in the euro area", *Occasional Paper Series*, No 210, ECB, June 2018.

29 No CSRs were provided for Greece in order to avoid duplication with the policy conditions under the country's economic adjustment programme, as provided for by Article 12 of Regulation (EU) No 472/2013. The CSRs for Greece should be resumed soon after the country exits the programme.

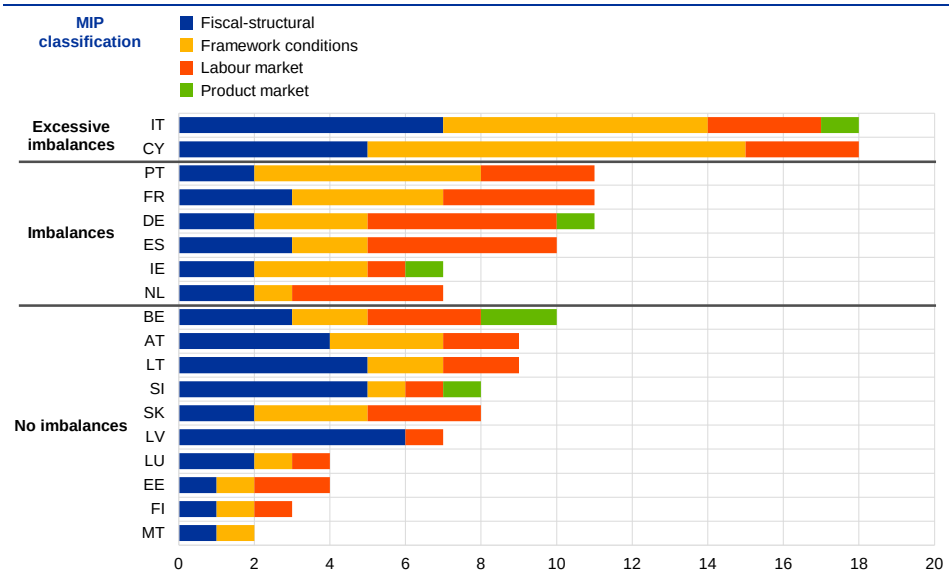
30 For details of the 2018 CSRs for implementation of the Stability and Growth Pact, see the box entitled "Country-specific recommendations for fiscal policies under the 2018 European Semester", *Economic Bulletin*, Issue 4, ECB, 2018.

endorsement by the European Council, the Economic and Financial Affairs (ECOFIN) Council issued the final 2018 CSRs.

The 2018 recommendations for the euro area as a whole call on Member States to take advantage of ongoing solid and broad-based economic growth, in a context of favourable financing conditions, to strengthen growth potential and economic resilience, and rebuild fiscal buffers. On 23 January 2018, the ECOFIN Council issued the 2018 recommendations on the economic policy of the euro area on the basis of the European Commission's proposal. The recommendations urge Member States, in parallel to widening thin fiscal buffers, to pursue policies that support sustainable and inclusive growth and improve economic resilience, rebalancing and convergence**.** To that end, Member States are invited to address structural challenges that continue to exert a drag on the economy, prioritising reforms that increase productivity and growth potential, improving the institutional and business environment, removing bottlenecks to investment, fostering innovation, supporting the creation of quality jobs and reducing inequality. They are also encouraged to make swift progress on completing EMU, and especially the banking union through enhanced risk reduction and risk sharing.

Chart A

The 2018 CSRs for euro area countries by policy area and MIP classification



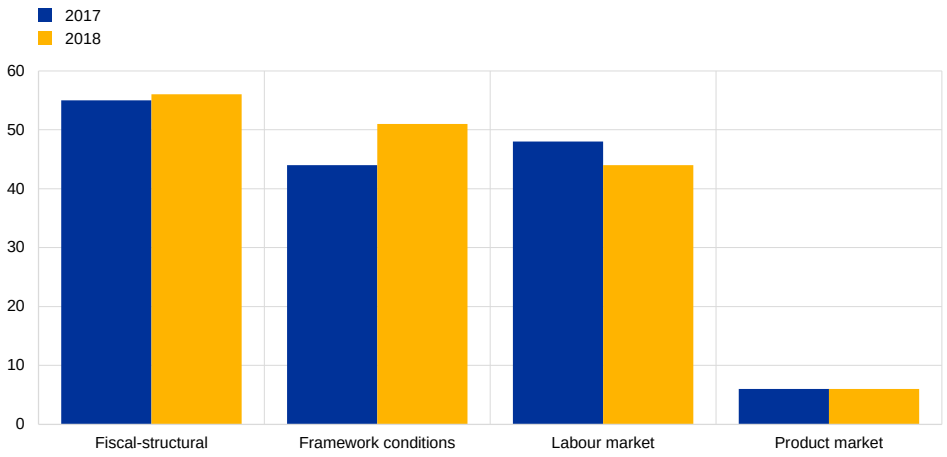
Source: ECB calculations based on 2018 CSRs.
Notes: The chart shows the number of 2018 CSRs for euro area countries broken down into broad policy areas. "Fiscal-structural" comprises mainly public administration, age-related public spending and taxation; "framework conditions" comprises mainly judicial systems, insolvency frameworks, housing, financial sector, and research and innovation; "labour market" comprises mainly wages and wage-setting, employment protection, education and active labour market policies; and "product market" comprises mainly sector-specific regulations and barriers to market entry. CSRs for implementation of the Stability and Growth Pact are not included.

The 2018 CSRs broadly echo the emphasis of the 2018 recommendations for the euro area as a whole. Chart A shows a breakdown of the 2018 CSRs by policy area, with a focus on fiscal-structural policies, framework conditions, and labour and product markets. The 2018 CSRs on fiscal-structural policies include ensuring the long-term sustainability of pension systems, increasing the efficiency of public spending, reducing the tax wedge and curbing tax fraud and evasion. The 2018 CSRs on policies to enhance framework conditions include improving the business

environment, strengthening the effectiveness of judicial systems and insolvency frameworks, streamlining bureaucratic processes and removing inefficient market regulations. Compared with last year, the 2018 CSRs place greater emphasis on forward-looking structural reforms that support research, innovation and education, which could help unleash and manage technological progress, as well as boost workers' market-relevant skills, thus helping countries to cope with the challenges from digital transformation.

Chart B

The 2017 and 2018 CSRs for euro area countries by policy area

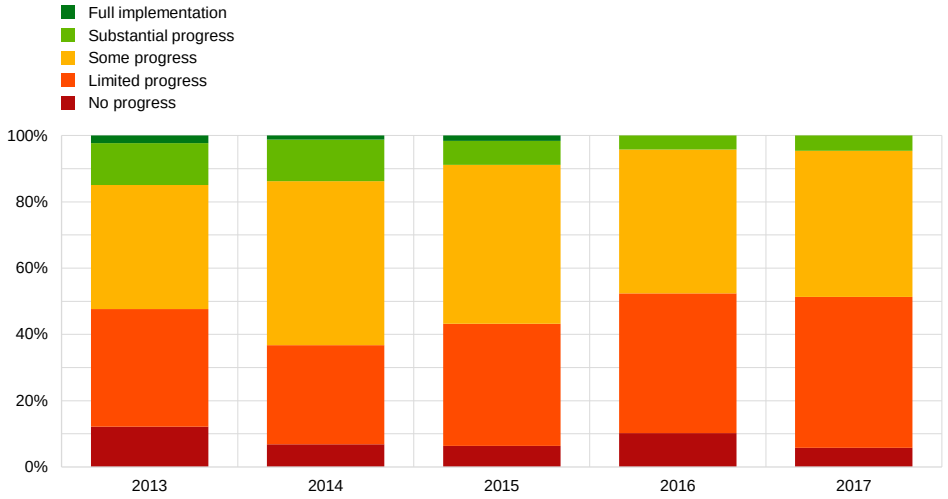


Source: ECB calculations based on 2018 CSRs.
Notes: The chart shows the number of 2017 and 2018 CSRs for euro area countries broken down into broad policy areas. "Fiscal-structural" comprises mainly public administration, age-related public spending and taxation; "framework conditions" comprises mainly judicial systems, insolvency frameworks, housing, financial sector, and research and innovation; "labour market" comprises mainly wages and wage-setting, employment protection, education and active labour market policies; and "product market" comprises mainly sector-specific regulations and barriers to market entry. CSRs for implementation of the Stability and Growth Pact are not included.

The 2018 CSRs give less priority to product market reforms and to labour market reforms aimed at ensuring the appropriateness of wages. Chart B shows that the number of CSRs on product market reforms remains limited and that of CSRs on labour market reforms, while remaining relatively sizeable, decreased compared with last year. However, both policy areas remain vital to promoting the reallocation of resources to their most productive uses and thereby reviving productivity growth and strengthening the economic resilience of EMU. Product and labour markets overall should be adaptable, open and competitive. In this regard, product market reforms, such as lifting barriers to market entry, would support the proliferation of innovative enterprises and dynamic entrepreneurs that are at the root of productivity gains. Labour market policies should be formulated in such a way as to ensure that wages appropriately reflect the underlying economic conditions, in line with productivity at the firm, sector and country level, and workers' qualifications. Indeed, while wage rigidities may be less visible in an economic upswing, their negative impact may be sizeable when the economic cycle turns.

Chart C

CSR implementation over the period 2013-17 in euro area countries



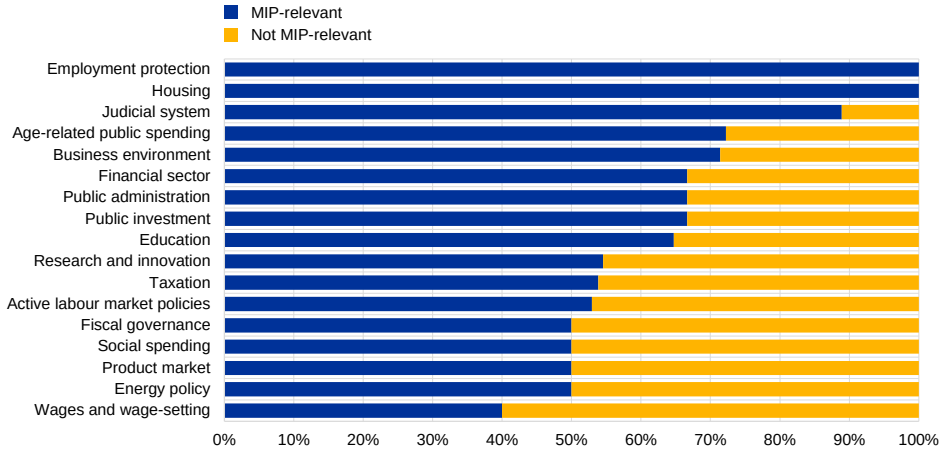
Source: ECB calculations based on the European Commission's Country Reports.
Notes: The chart shows the implementation of CSRs for the year given as assessed by the European Commission in the overview table of each Member State's Country Report published the following year. "Full implementation" signifies that the Member State has implemented all measures needed to address the CSR appropriately; "substantial progress" signifies that the Member State has adopted measures that go a long way in addressing the CSR, most of which have been implemented; "some progress" signifies that the Member State has adopted measures that partly address the CSR, and/or it has adopted measures that address the CSR but a fair amount of work is still needed to fully address it as only a few of the adopted measures have been implemented; "limited progress" signifies that the Member State has announced certain measures but these only address the CSR to a limited extent, and/or it has presented non-legislative acts, yet with no further follow-up in terms of implementation; and "no progress" signifies that the Member State has not credibly announced or adopted any measures to address the CSR. CSRs for implementation of the Stability and Growth Pact are not included.

Continued weak CSR implementation over recent years remains a challenge in view of still outstanding stock imbalances of a long-lasting nature.[31] Chart C shows that most CSRs were, at best, only partly addressed by Member States over the period 2013-17. The disappointing track record on implementing structural reforms may be seen in the light of the cyclical upswing and the fact that the perception of policy challenges may have moderated in the favourable economic and financial environment. Similarly to the previous year, the European Commission concluded in February 2018 that the overwhelming majority (i.e. more than 90%) of the 2017 CSRs had been implemented to only "some" or a "limited" extent. Only one of close to 80 CSRs had been "substantially" implemented and none had been "fully" implemented. Moreover, countries with "excessive" macroeconomic imbalances do not seem to have taken decisive policy action to step up the implementation of their 2017 CSRs, even though this would have been commensurate with the rigidities and vulnerabilities remaining in those countries. Furthermore, some of the 2017 CSRs were not repeated this year, despite the fact that only "some" or even "limited" progress had been made on them, and their continued macro-critical relevance (i.e. their importance to the reduction of macroeconomic imbalances). This may risk sending unwarranted signals; efforts made in recent years to contain the number of CSRs, which have streamlined the process, are by no means a reflection of improved or strong structural reform momentum.

31 For more details, see the box entitled "The European Commission's 2018 assessment of macroeconomic imbalances and progress on reforms", *Economic Bulletin*, Issue 2, ECB, 2018.

Chart D

Share of MIP-relevant 2018 CSRs for euro area countries by policy area



Source: ECB calculations based on 2018 CSRs.
Notes: The chart shows the share of MIP-relevant 2018 CSRs for euro area countries broken down into policy areas. CSRs for implementation of the Stability and Growth Pact are not included.

Refocusing the CSRs on macro-critical policies that facilitate a timely wind-down of macroeconomic imbalances could encourage compliance with the MIP. Chart D shows that most 2018 CSRs are deemed significant for compliance with the MIP; these are referred to as "MIP-relevant". However, some have been made MIP-relevant even though they pertain to the realm of broad economic coordination and only indirectly address macroeconomic imbalances.[32] Where the presence of excessive macroeconomic imbalances implies greater urgency, recommendations for a wide array of structural reforms may blur the focus and thus ultimately fail to induce effective policy action in the short term. Better prioritisation of CSRs according to their macro-critical relevance could encourage compliance with the MIP and also help incentivise countries to take firmer ownership of structural reforms.

The full and effective use of all instruments available under the MIP, including the excessive imbalance procedure (EIP), as its corrective arm, could help buttress recent cyclical improvements by means of structural measures that strengthen economic resilience and growth potential over the medium term.[33] The EIP, which so far is yet to be activated, is in essence aimed at ensuring greater traction for the implementation of macro-critical policies in the most vulnerable countries. Since it has proven difficult to reinvigorate the pace of structural reform under the preventive arm of the MIP, there seems to be a strong case for applying the EIP for all countries with excessive macroeconomic imbalances. The application of the EIP would ensure the credibility and ultimate effectiveness of the MIP. In addition, if appropriately designed and implemented, other instruments and measures being considered with a view to creating the right incentives for structural

[32] For more details, see "Audit of the Macroeconomic Imbalance Procedure (MIP)", Special Report No 3, European Court of Auditors, 2018, and Efstathiou, K. and Wolff, G.B., "Is the European Semester effective and useful?", *Policy Contribution*, Issue No 9, Bruegel, June 2018.

[33] For more details, see "Audit of the Macroeconomic Imbalance Procedure (MIP)", Special Report No 3, European Court of Auditors, 2018.

reform implementation and national ownership could help improve the current lacklustre prospects for CSR implementation in the EU.

CSRs should serve as the key benchmark for sound economic policies at the country level, thereby ensuring consistency over time. The European Commission has gradually excluded from the CSRs certain policy areas which are covered by other monitoring mechanisms. These include economic aspects of the energy sector, moved to the Energy Union governance arrangements, and the monitoring and enforcement mechanisms related to the Single Market. Insofar as they matter for the overall economic performance of the Member States, the continued monitoring of these policy areas remains essential, not least to ensure that the economic policies implemented by individual Member States are assessed in an even more comprehensive and consistent manner across time and policy areas.

Articles

1 The evolution of the ECB's accountability practices during the crisis

Prepared by Nicolò Fraccaroli, Alessandro Giovannini and Jean-François Jamet

This article examines the evolution of the ECB's accountability practices during the financial crisis. After describing the challenges stemming from the crisis and changes resulting from the conferral of new supervisory tasks on the ECB, it provides evidence on how the strengthening of the ECB's accountability has taken shape in the context of its relationship with the European Parliament in line with the latter's key role as provided for in the Treaties. The ECB and the European Parliament, building on the accountability framework enshrined in primary law, have increased the frequency of their interactions, made innovations regarding the format and sharpened the focus of their exchanges, allowing increased scrutiny of the ECB's policies. This has provided the ECB with more opportunities to explain its decisions and demonstrate that it is acting in accordance with its democratic mandate, which is a fundamental pillar of its legitimacy.

1 Introduction

The financial crisis that emerged in 2007/2008 raised a number of challenges for central banks in all advanced economies. In order to fulfil their mandates during the crisis, central banks adopted a number of monetary policy measures taken both from within and outside their standard toolkits. In some cases they also took on new responsibilities. As a result, they have been subject to close attention and scrutiny, in line with the necessity for independent authorities to be held accountable by democratically elected bodies. However, the variety and novelty of central bank measures tested existing accountability frameworks, as they made it more complicated to track and scrutinise monetary policy.

The ECB was no exception, and the evolution of its role during the crisis was accompanied by a commensurate evolution in its accountability practices. Like other central banks, the ECB adopted a number of monetary policy measures to preserve price stability, which supported the euro area's economic recovery.[34] The ECB, however, had to operate in the unique institutional environment of the euro area, where, during the crisis, the integrity of the monetary union was questioned

[34] For an overview of the use of the Eurosystem's monetary policy instruments and operational framework since the crisis, see Alvarez, I. et al., "The use of the Eurosystem's monetary policy instruments and operational framework since 2012", *Occasional Paper Series*, No 188, ECB, May 2017; and Task Force on the use of monetary policy instruments, "The use of the Eurosystem's monetary policy instruments and its monetary policy implementation framework Q2 2016 – Q4 2017", *Occasional Paper Series*, No 209, ECB, April 2018.

and financial fragmentation hampered the transmission of monetary policy. It is against this background that in July 2012 the President of the ECB, Mario Draghi, said "Within our mandate, the ECB is ready to do whatever it takes to preserve the euro".[35] The ECB also took on new tasks as a micro- and macroprudential supervisor, and was called upon to provide its expertise in financial assistance programmes alongside the International Monetary Fund and the European Commission. Despite the creation of specific accountability arrangements for its new tasks as a banking supervisor, the unchanged Treaty framework governing accountability led to a perception in some quarters that the ECB's accountability had not adjusted to the new policy environment.[36] This article argues that such a focus on the accountability *framework* overlooks the evolution in the ECB's accountability *practices* during the crisis.

The strengthening of the ECB's accountability has been particularly visible in the context of its relationship with the European Parliament, in line with the latter's key role as provided for in the Treaties. The ECB is subject to the scrutiny of the European public at large, and, as emphasised in an ECB Monthly Bulletin article in 2002,[37] the Treaties entrust the European Parliament – as the representative of EU citizens – with a central role in holding the ECB accountable. Building on the provisions laid down in primary law, detailed accountability practices had already been developed before the crisis. It should therefore come as no surprise that the European Parliament was the main and natural forum via which the demand for stronger ECB accountability was channelled during the crisis. Although other EU institutions, actors and communication channels also play an important role, this article focuses on the ECB's active relationship with the European Parliament.

The ECB's accountability practices have evolved to respond to the new demand for accountability. After explaining the concept of accountability and the framework set out in the Treaties to hold the ECB accountable (Section 2), this article looks at the increased challenges and public awareness that resulted from the crisis (Section 3). While the focus of the article is on accountability for central banking tasks, Box 1 in Section 3 discusses the specific accountability framework set up for the task of banking supervision. Section 4 provides new quantitative and qualitative evidence on how the ECB's interactions with the European Parliament intensified and evolved during the crisis in terms of frequency, format and content. The analysis is combined with further insights on the evolution and intensity of hearings of the Committee on Economic and Monetary Affairs of the European Parliament (ECON) through text analysis in Box 2. Section 5 summarises the main

35 See Draghi, M., "Verbatim of the remarks made by Mario Draghi", speech at the Global Investment Conference, London, 26 July 2012.

36 It should be noted, however, that the accountability mechanisms surrounding the architecture of Economic and Monetary Union (EMU) had already been subject to critical analysis in the academic community before the crisis. See, for example, Amtenbrink, F., "On the Legitimacy and Democratic Accountability of the European Central Bank: Legal Arrangements and Practical Experience", in Arnull, A. and Wincott, D. (eds.), *Accountability and Legitimacy in the European Union*, Oxford University Press, 2002, pp. 147-163.

37 See the article entitled "The accountability of the ECB", Monthly Bulletin, ECB, November 2002.

themes of the article and concludes with perspectives on the future of the ECB's accountability practices.

2 ECB accountability and its relevance

Central bank accountability should be understood as the legal and political obligation of an independent central bank to explain and justify its decisions to citizens and their elected representatives. In the case of the ECB, accountability is understood as an obligation vis-à-vis the representatives of European citizens and is a crucial cornerstone of the legitimacy of the ECB and its policies.[38]

Primary EU law sets out explicit accountability obligations for the ECB. Article 284(3) of the Treaty on the Functioning of European Union (TFEU) and Article 15.3 of the Statute of the European System of Central Banks and of the European Central Bank provide that the ECB is primarily accountable to the European Parliament, as the representative of EU citizens.[39]

The ECB's decision-making bodies are held collectively accountable at EU level for the decisions they take in the pursuit of the ECB's mandate. Specifically, it falls to the President of the ECB and other members of the Executive Board to explain and justify their collective decisions at EU level. This reflects the core provision of the Treaties, which establishes that the ECB's monetary policy mandate concerns the euro area as a whole and that governors of national central banks (NCBs) do not represent their respective countries but the interests of the euro area when they attend Governing Council meetings.[40] Thus, according to the Treaties, ECB accountability is discharged at EU level. In other words, a single monetary policy requires single accountability.[41]

Accountability is a fundamental aspect of delegation to independent bodies in democratic societies. The rationale for accountability can be envisaged in a principal-agent framework; as powers are delegated to an agent (the ECB) to be

---

38 ibid.

39 Article 284(3) TFEU reads: "*The European Central Bank shall address an annual report on the activities of the ESCB and on the monetary policy of both the previous and current year to the European Parliament, the Council and the Commission, and also to the European Council. The President of the European Central Bank shall present this report to the Council and to the European Parliament, which may hold a general debate on that basis.*
The President of the European Central Bank and the other members of the Executive Board may, at the request of the European Parliament or on their own initiative, be heard by the competent committees of the European Parliament."

40 See Mersch, Y., "Aligning accountability with sovereignty in the European Union: the ECB's experience", speech at the ECB Legal Conference, Frankfurt am Main, 4 September 2017. NCBs are, nonetheless, well-placed to explain monetary policy decisions at national level through interactions and communication with national audiences, especially considering the multinational setting of the euro area. Moreover, in recent years, some NCB governors have participated in exchanges of views before the ECON committee, where they were invited to discuss the economic situation and EMU governance issues.

See also Praet, P., "Communicating the complexity of unconventional monetary policy in EMU", speech at the 2017 ECB Central Bank Communications Conference, Frankfurt am Main, 15 November 2017.

41 See Mersch, Y., op. cit.

exercised independently of its principal (the European Parliament and, ultimately, EU citizens), there must be some provisions in place to ensure that the agent respects its mandate.[42] The ECB is granted a high degree of independence in order to be protected from any temptation by governments to seek changes in monetary policy.[43] Independence also protects the principal from the risk that the agent will be diverted from its mandate as a result of short-sighted motivations. However, independence does not mean that central banks can act in a completely unfettered way. In modern democratic societies, independent institutions are accountable.[44] In fact, for the delegation of powers to an independent, unelected agent to be democratically legitimate, it is crucial that the agent can be held accountable by directly elected bodies. The literature emphasises that, for the accountability obligation in a principal-agent relationship to be effective, a clear contract detailing the mandate conferred upon the agent is needed in order to allow adequate scrutiny of the agent by the principal.[45] In the case of the ECB, such a contract is represented by the Treaty, which enshrines the ECB's mandate of price stability in primary law.

The legitimacy of the ECB's independence therefore relies on its accountability. Accountability ensures that independence does not lead to arbitrariness and that the mandate is fulfilled. From this perspective, proper accountability arrangements strengthen the case for independence.[46] Independence and accountability are therefore two inseparable sides of the same coin and reinforce each other.[47] Only through a strong and well-defined governance framework is it possible for central banks to be "very powerful and independent yet unelected".[48]

Even before the crisis, accountability practices had already been developed that not only reflected Treaty requirements but also went beyond them. In line with the Treaty requirements, every year the ECB submits to the European Parliament, the Council, the Commission and the European Council an annual report on its tasks, the activities of the European System of Central Banks (ESCB) and the

---

42 For a comparative discussion on the design of accountability arrangements in samples numbering 38, 46 and 36 central banks in 1990, 1998 and 2006, respectively, see the report by the Central Bank Governance Group of the Bank for International Settlements on "Accountability, transparency and oversight", in *Issues in the Governance of Central Banks*, BIS, 18 May 2009.

43 See Cœuré, B., "Independence and accountability in a changing world", speech at the Transparency International EU event "Two sides of the same coin? Independence and accountability of the European Central Bank", Brussels, 28 March 2017.

44 See Praet, P., "Have unconventional policies overstretched central bank independence? Challenges for accountability and transparency in the wake of the crisis", speech at the "Symposium on Building the Financial System of the 21st Century: An Agenda for Europe and the United States", Frankfurt am Main, 29 March 2017.

45 See, for example, Fratianni, M., Von Hagen, J. and Waller, C., "Central banking as a political principal-agent problem", *Economic Inquiry*, Vol. 35(2), 1997, pp. 378-393; Dyson, K., "The age of the euro: a structural break? Europeanization, convergence and power in central banking", in Dyson, K. and Marcussen, M. (eds.), *Central Banks in the age of the euro*, Oxford University Press, 2009, pp. 1-52; and Eggertson, M.G.B. and Le Borgne, M.E., "A political agency theory of central bank independence", *Journal of Money, Credit and Banking*, Vol. 42(4), 2010, pp. 647-677.

46 See Mersch, Y., op. cit.

47 The need to interpret accountability not just as a "justification exercise" but as an essential activity for the fulfilment of the ECB's tasks, for its credibility, and thus for the effectiveness of monetary policy was also highlighted by Otmar Issing in the early 2000s. See Issing, O., "The Euro Area and the Single Monetary Policy", OeNB Working Papers, No 44, Oesterreichische Nationalbank, 2001.

48 See Draghi, M., "Central bank communication", opinion piece in Handelsblatt, 4 August 2014.

Eurosystem's monetary policy. In addition, the Vice-President of the ECB presents the report to the European Parliament's ECON committee in a dedicated session. The report is also presented by the President on the occasion of a plenary debate on the European Parliament resolution summarising the European Parliament's view on the ECB's policies and practices.[49] A cornerstone of the accountability framework is the "Monetary Dialogue", i.e. the ECB President's participation in the regular public quarterly hearings before the ECON committee, where he delivers a statement on the ECB's actions and answers questions from Members of the European Parliament (MEPs) attending the hearing.[50] The importance of this practice, which is provided for by Rule 126 of the Rules of Procedure of the European Parliament (RoP)[51] and has taken place since January 1999,[52] was underlined by ECB President Mario Draghi at an ECON hearing in September 2016.[53] A study published in 2004 found that the frequency of the ECB's appearances before the European Parliament exceeds the average of appearances by other central banks before their respective parliaments.[54] In addition, ECB Executive Board members have participated on numerous occasions in hearings of the ECON committee to explain the ECB's reasoning and decisions on specific topics, as also provided for by Rule 126(4) of the RoP. Moreover, all MEPs (not just ECON members) are able to address written questions to the ECB, with the aim of clarifying the central bank's motives and reasoning underlying a certain policy decision. The answers to these questions are signed by the ECB President and published on the ECB's and the European Parliament's websites. This arrangement was set up in the early 2000s by mutual agreement between the ECB and the European Parliament and is currently formalised in Rule 131 of the RoP. Table 1 summarises the ECB's main accountability channels vis-à-vis the European Parliament.

49 Own-initiative reports are provided for by Rule 52 of the Rules of Procedure of the European Parliament, 8th parliamentary term – January 2017.

50 The hearing is livestreamed and the text of the introductory remarks and the transcript of the Q&A sessions are published on the ECB's and the European Parliament's websites.

51 See Rule 126 of the Rules of Procedure of the European Parliament, 8th parliamentary term – January 2017.

52 The European Parliament resolution of 2 April 1998 on "democratic accountability in the third phase of EMU" already contained a call to set up a dialogue between the European Parliament and the ECB on monetary and economic affairs, the framework for which was to be confirmed by mutual agreement. In particular, in addition to the presentation of the ECB Annual Report provided for in the Treaty, it asked for quarterly meetings on recent monetary and economic developments to be convened with the President and/or other members of the Executive Board.

53 See the transcript of the hearing of the ECB President in the ECON committee on 26 September 2016.

54 See Eijffinger, S.C.W. and Mujagic, E., "An Assessment of the Effectiveness of the Monetary Dialogue on the ECB's Accountability and Transparency: A Qualitative Approach", *Intereconomics*, Vol. 39, No 4, 2004, pp. 190-203.

Table 1

The ECB's main accountability channels vis-à-vis the European Parliament

Accountability channel	Description
Annual Report	The ECB submits an annual report on its tasks, the activities of the ESCB and the Eurosystem's monetary policy to the European Parliament, the Council and the Commission. The report is presented each year in the European Parliament by the Vice-President of the ECB in a dedicated session of the ECON committee and by the President on the occasion of a plenary debate.
Hearings and exchanges of views	The ECB's President participates in quarterly hearings before the ECON committee. Other Executive Board members also participate in ECON committee hearings to explain the ECB's reasoning and decisions on specific topics.
Written questions	Members of the European Parliament can address written questions to the ECB.

The ECB has also developed further channels of communication over the years to make its decisions more transparent to the general public so that EU citizens are better able to understand and judge them. Communication and transparency are crucial aspects of the ECB's accountability.[55] Through various channels, the ECB provides the general public and markets with all relevant information on its strategy, assessments and policy decisions. Among other things, the ECB holds press conferences immediately after the Governing Council's monetary policy meetings. In addition, building on Article 284(3) TFEU and Article 15.1 of the Statute of the ESCB, eight times a year the ECB publishes its Economic Bulletin, which covers the main economic, financial and monetary developments that formed the basis for the Governing Council's policy decision, and each week it publishes the consolidated financial statement of the Eurosystem, which provides information on monetary policy operations, foreign exchange operations and investment activity. Furthermore, the ECB recently increased the transparency of the Governing Council monetary policy meetings, which are held every six weeks, by publishing the accounts of the discussions. Notably, the ECB was the first major central bank to organise regular press conferences after each monetary policy meeting.[56] In addition, the members of the Executive Board are regularly in contact with the public through articles, interviews and speeches at public events. All these measures (summarised in Table 2) help to clarify the ECB's policy decisions and the reasons underlying them, providing additional tools for scrutiny to other EU institutions, including the European Parliament, and to EU citizens, beyond traditional accountability channels.

55 The two dimensions of transparency are relevant in this respect. On the one hand, transparency is considered as a tool aimed at enhancing the effectiveness of the ECB's policy. As explained on the ECB's website, transparency helps the public to understand the ECB's monetary policy, and better public understanding makes the policy more credible and effective. On the other hand, transparency is considered as an essential governance tool for securing public trust in the institution. See Cœuré, B., op. cit. The ECB's transparency has recently been the subject of debate in the literature in relation to ECB accountability and independence. See, for example, Curtin, D., "'Accountable Independence' of the European Central Bank: Seeing the Logics of Transparency", European Law Journal, Vol. 23(1-2), August 2017, pp. 28-44.

56 See Liikanen, E., "Introductory Remarks at the Panel Discussion 'Is More Always Better? Transparency, Accountability and the Clarity of Message'", ECB Central Bank Communication Conference, Frankfurt, 14 November 2017.

Table 2

Additional information channels relevant for the ECB's accountability

Accountability channel	Description
Press conferences	The ECB holds press conferences after each Governing Council monetary policy meeting, i.e. every six weeks.
Economic Bulletin	The Economic Bulletin (formerly the Monthly Bulletin) presents the economic and monetary information which formed the basis for the Governing Council's policy decisions. It is published eight times a year, two weeks after each monetary policy meeting.
Weekly financial statements	The consolidated financial statement of the Eurosystem, which is published weekly, provides information on monetary policy operations, foreign exchange operations and investment activities.
Accounts of monetary policy meetings	The accounts of the Governing Council's discussions are published four weeks after each monetary policy meeting.
Articles, interviews and speeches	The members of the Executive Board regularly communicate with the public by way of articles, interviews and speeches. These are published on the ECB's website.

3 The challenge posed to the ECB's accountability by the crisis

The crisis challenged the ECB's accountability on two main fronts. The first affected all major central banks; with the crisis, the scrutiny of monetary policy became more complicated owing to the exceptional economic circumstances and the recourse to non-standard measures. The second uniquely affected the ECB, as it stemmed from the evolution of the institutional framework of Economic and Monetary Union (EMU) in response to the crisis.

The crisis and the adoption of non-standard measures challenged central banks' accountability by making the scrutiny of monetary policy more complicated. The adoption of a variety of measures – standard and non-standard – and the implications of the crisis for the transmission of monetary policy in the euro area meant, for instance, that, in crisis times, it turned out to be nearly impossible to track the monetary policy stance using simple tools.[57] On the one hand, the realisation of the key role of monetary policy during the crisis led to increased attention being paid to its design and implications, including operational aspects of asset purchases and their distributional consequences. On the other hand, the general public had to confront the growing complexity, both in terms of the variety of instruments being used simultaneously and in terms of each individual instrument being more complex in its implementation and its effect on the economy.[58] In this context, it should also be noted that the ECB is the central bank for 19 countries, and, as an EU institution, it has to be understood in an even larger number of languages. In all these countries – as President Draghi has pointed out – citizens'

57 See Praet, P., "Have unconventional policies overstretched central bank independence? Challenges for accountability and transparency in the wake of the crisis", speech at the "Symposium on Building the Financial System of the 21st Century: An Agenda for Europe and the United States", Frankfurt am Main, 29 March 2017.

58 See Cœuré, B., "Central banking in times of complexity", remarks at a conference on the occasion of Sveriges Riksbank's 350th anniversary, Stockholm, 25 May 2018.

expectations are different, thus creating a continuous challenge.[59] The growing complexity posed a serious challenge in terms of accountability, not only to the ECB but also to other central banks in advanced economies, where some people have openly questioned the balance between independence and accountability.[60]

The second challenge is specific to the European institutional context and is related to the new tasks assigned to the ECB. As part of the reform of the governance of EMU during the crisis, the ECB was entrusted with a number of new functions that go beyond its traditional role as a central bank. Among other things, the ECB was given responsibility for the microprudential supervision of the euro area banking system with the creation of the Single Supervisory Mechanism (SSM) in 2014. With the entry into force of the SSM Regulation, the ECB was also given macroprudential tools to tackle the emergence of possible systemic risks in the financial system.[61] In addition, since 2010 the ECB has had an advisory role in EU financial assistance programmes, acting in liaison with the European Commission; this role was subsequently codified in the "two-pack" regulation.[62] This expansion of the ECB's role and tasks led commentators to wonder whether the ECB could remain accountable, given the need for the "principal" to monitor a wider range of instruments and objectives simultaneously.[63] Finally, a specific feature of EMU is the interaction of the ECB's policies with other policies in a multi-level governance context; while EU policies have assumed a greater role during the crisis (e.g. through the creation of the banking union), in some instances they still overlap with national policies, possibly contributing to confusion among the general public over the assignment of responsibilities and accountability arrangements.[64]

As a result of these challenges, the ECB's monetary policy has been subject to increased attention and public scrutiny. Hard evidence of this growing public interest in the ECB's actions can be seen in the media coverage. From an accountability perspective, it is notable that the sharp rise in the number of ECB-related newspaper articles after the start of the sovereign debt crisis in 2010 (Chart 1) was accompanied by a similar rise in the number of articles citing the ECB and the European Parliament together. This might suggest more extensive media reporting on ECB-European Parliament accountability channels. Such attention was not limited to the media, but extended to the wider public, which became more aware of the ECB; according to the Eurobarometer survey, the percentage of EU citizens who had heard of the ECB increased significantly during the crisis (Chart 2). Finally, market participants also paid more attention to the ECB's accountability channels.

---

59 See Draghi, M., "Central bank communication", op. cit.

60 On the challenges to central bank independence posed by non-standard monetary policies, see Goodhart, C and Lastra, R., "Populism and Central Bank Independence", *Open Economies Review*, Vol. 29(1), 2017, pp. 49-68.

61 In the field of financial stability, the ECB also provides analytical support to the European Systemic Risk Board.

62 See Regulation (EU) No 472/2013 of the European Parliament and of the Council of 21 May 2013 on the strengthening of economic and budgetary surveillance of Member States in the euro area experiencing or threatened with serious difficulties with respect to their financial stability, OJ L 140, 27.5.2013, p. 1.

63 See Pisani-Ferry, J. and von Weizsäcker, J., "Can a less boring ECB remain accountable?", Bruegel Policy Contribution, Issue 2009/11, September 2009.

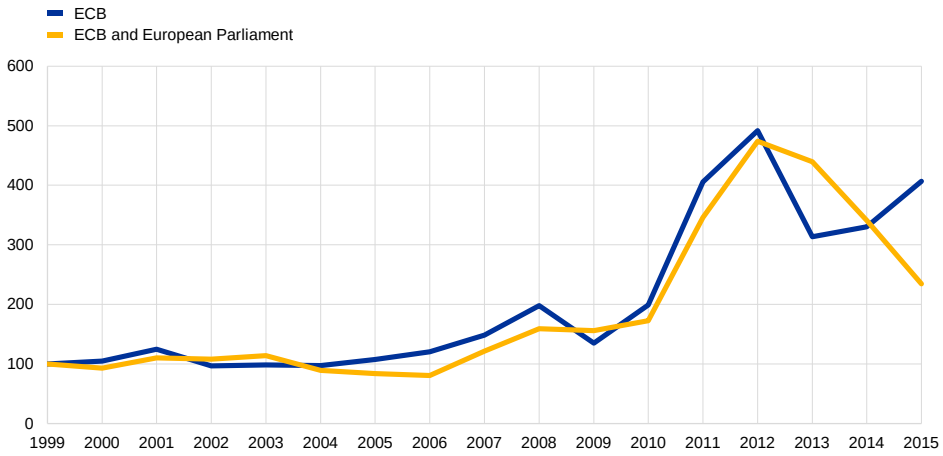
64 See Mersch, Y., op. cit.

While the regular press conference after the Governing Council meeting remained their primary focus for understanding the ECB's monetary policy, the appearances of the ECB President before the European Parliament also captured the attention of market participants on some occasions, as they were looking for possible signs of changes in the future monetary policy stance. While the analysis of high frequency data changes in financial market asset prices tentatively shows that these hearings have generally had no significant market impact, on a few occasions (e.g. the regular hearing of November 2015) there was some relatively minor and mostly short-lived market reaction. However, the ECB has treated such appearances primarily as an accountability tool to provide MEPs with the justifications for its policy choices, rather than as an alternative channel to communicate with the markets, as is also apparent from the data.

Chart 1

Media attention on the ECB and the European Parliament

(number of newspaper articles citing the ECB or the ECB together with the European Parliament; index: 1999 = 100)

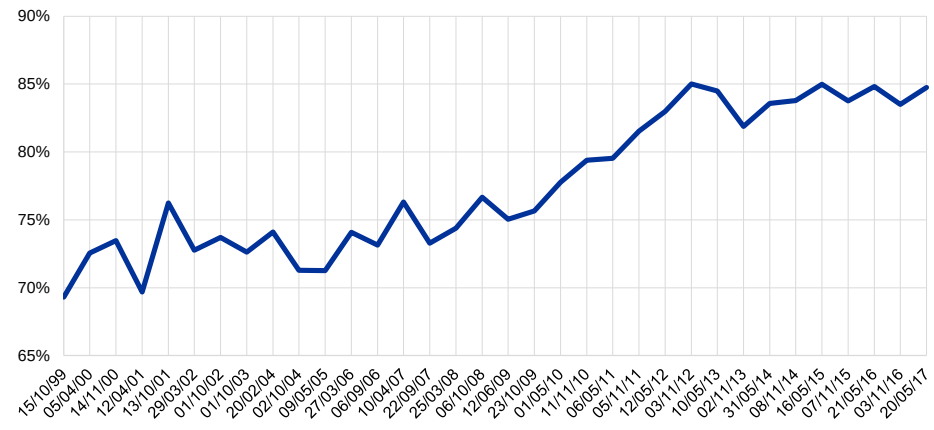


Sources: Dow Jones Factiva and ECB calculations.

Chart 2

Public awareness of the ECB

(positive responses to the question "Have you heard of the European Central Bank?"; percentages)



Sources: Eurobarometer and ECB calculations.

It was important from the ECB's perspective to make sure that its accountability evolved to address developments brought about by the crisis in a manner consistent with its independence. After the establishment of the SSM, specific accountability arrangements were developed and put in place, to hold the supervisory arm of the ECB accountable. Such a regime, developed within the existing accountability framework, was laid down in the SSM Regulation[65] and is described in Box 1. For existing central banking tasks subject to increased scrutiny, Treaty provisions and the overall framework did not need to be amended; the extended use of their scope allowed the ECB's accountability practices to evolve.[66]

Box 1

Accountability provisions for the new task of supervision

Prepared by Joachim Eule and Nicolò Fraccaroli

The creation of the SSM in 2014 and the consequent conferral of supervisory responsibilities on the ECB led to one of the significant changes to the accountability framework brought about by the crisis. As part of the SSM Regulation, a specific regime was laid down regarding the ECB's accountability for this new task. The practical fulfilment of supervisory accountability requirements was further clarified in an Interinstitutional Agreement between the European Parliament and the ECB[67] and a Memorandum of Understanding between the Council and the ECB.[68] In line with these, the three "traditional" channels of the ECB accountability framework have been extended to ECB Banking Supervision. First, the Chair of the Supervisory Board attends regular hearings and exchanges of views in the European Parliament.[69] Second, MEPs can address written questions related to supervision to the Chair of the Supervisory Board. In the course of 2017, the ECB published 39 replies to MEPs' questions on supervisory matters (Chart A). Third, since 2014 the ECB has published an annual report on its supervisory activities, which is presented by the Chair of the Supervisory Board to the European Parliament at a public hearing. The report is also submitted to the Council, the Eurogroup, the Commission and the national parliaments of participating Member States. As a result of this framework, between February 2014 and March 2018 Danièle Nouy, Chair of the Supervisory Board, appeared 20 times before the European Parliament for ordinary hearings and ad hoc exchanges of views with MEPs and to present the annual reports. In addition to the hearings and exchanges of views provided for in the Interinstitutional Agreement, the Chair and Vice-Chair of the Supervisory Board also participated in hearings with MEPs on revisions of EU banking legislation and the European Court of Auditors' report on ECB Banking Supervision.

65 Council Regulation (EU) No 1024/2013 of 15 October 2013 conferring specific tasks on the European Central Bank concerning policies relating to the prudential supervision of credit institutions, OJ L 287, 29.10.2013, p. 63.

66 See Giovannini, A. and Jamet, J., "Matching accountability with independence: the ECB's experience", in Ziller, J. (ed.), *The Communication of the European Central Bank: an Interdisciplinary Analysis*, Giappichelli, Torino, 2018 (forthcoming).

67 Interinstitutional Agreement between the European Parliament and the European Central Bank on the practical modalities of the exercise of democratic accountability and oversight over the exercise of the tasks conferred on the ECB within the framework of the Single Supervisory Mechanism (2013/694/EU), OJ L 320, 30.11.2013, p. 1.

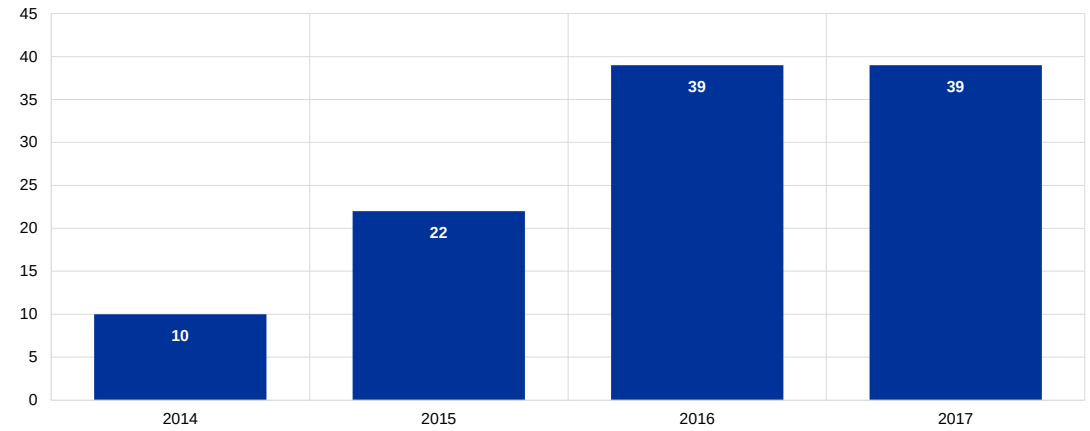
68 Memorandum of Understanding between the Council of the European Union and the European Central Bank on the cooperation on procedures related to the Single Supervisory Mechanism (SSM).

69 The Chair of the Supervisory Board also attends exchanges of views with the Eurogroup. In addition, the Eurogroup can address written questions to the Chair of the Supervisory Board.

Chart A

Replies to questions from MEPs on supervisory matters

(number of replies to questions from MEPs on supervisory matters, 2014-17)



Sources: ECB and ECB calculations.

In addition, the SSM Regulation and the Interinstitutional Agreement provide for some accountability channels which are specific to the ECB's supervisory function. Among other things, as agreed in the Interinstitutional Agreement, the ECB provides the European Parliament with a comprehensive and meaningful record of the proceedings of the Supervisory Board which is accessible to MEPs in a secure reading room. The SSM Regulation also establishes the format for confidential oral discussions to ensure full confidentiality of exchanges with the European Parliament where needed. These channels allow comprehensive and thorough interaction between the ECB and the European Parliament on supervisory issues and thus a high degree of accountability.

To assess the evolution of accountability practices, it is necessary to go beyond the indexes economists use to measure the degree of central bank independence and accountability. As the criteria on which accountability indexes are built only refer to statutory provisions, they are unable to account for all relevant aspects of central banks' democratic accountability. The indexes tend not to evolve significantly over time,[70] giving rise to the impression that changes in the frameworks do not adequately match changing accountability demands (Chart 3). However, this

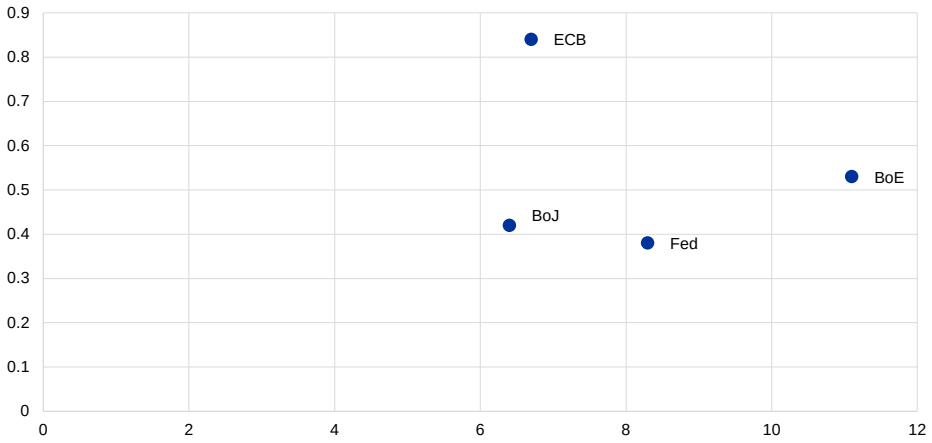
[70] See Garriga, A.C., "Central Bank Independence in the World: A New Dataset", International Interactions, Vol. 42(5), 2016, pp. 849-868, which updated the independence index for the period 1970-2012; and Bodea, C. and Hicks, R., "Price Stability and Central Bank Independence: Discipline, Credibility and Democratic Institutions", International Organization, Vol. 69(1), 2015, pp. 35-61, which did the same for the period 1973-2015. The accountability index was also computed by De Grauwe, P. and Gros, D., "Accountability and Transparency in Central Banking", study for the European Parliament's Committee on Economic and Monetary Affairs, 2009. Notably, De Grauwe and Gros point out that by comparing their update with the estimates proposed in the literature, "it emerges that the [accountability] indexes do not show any significant change in accountability" (p. 20). Looking at the results from the five different studies, they found that the ECB performed similarly to the Federal Reserve System and the Bank of Japan in terms of accountability, but not as well as the Bank of England. In particular, the low score of the ECB is driven by institutional factors, such as the impossibility for the European Parliament to veto the appointment of ECB Executive Board members. On the other hand, the ECB has the same score as other central banks in terms of parliamentary exchanges.

mismatch can largely be explained by the *de jure* nature of such indexes; they are estimated on the basis of legal provisions designed to ensure that the central bank remains accountable (for accountability indexes) and to shield it from political pressures (for independence indexes). As pointed out in the literature, however, it is important to look at *de facto* accountability, which depends not only on the legal provisions, but also on the intensity of interactions between the parliament and the central bank.[71] In the case of the ECB, its accountability practices evolved during the crisis to allow enhanced scrutiny, as discussed in the next section.

Chart 3

Accountability and independence of the ECB, the Federal Reserve System, the Bank of England and the Bank of Japan

(central bank accountability and independence indexes; x-axis: accountability; y-axis: independence)



Sources: De Grauwe and Gros (2009), Garriga (2016), Bodea and Hicks (2015), Dincer and Eichengreen (2014) and ECB calculations.
Notes: The higher the value, the higher the degree of accountability and independence respectively. The index used to calculate accountability was computed as an average of five different indexes of accountability developed in the literature and updated in 2009 by De Grauwe and Gros. The independence index was calculated as an average of the updates by Dincer and Eichengreen in 2014, Bodea and Hicks in 2015 and Garriga in 2016, who found no change in the index for the four central banks since the 1990s. These three works updated the independence indexes using the methodology developed by Cukierman, Webb and Neyapti in 1992. See Dincer N. and Eichengreen, B., "Central Bank Transparency and Independence: Updates and New Measures," *International Journal of Central Banking*, Vol. 10, No 1, 2014, pp. 189-259; and Cukierman, A., Webb, S.B. and Neyapti, B., "Measuring the Independence of Central Banks and Its Effect on Policy Outcomes", *The World Bank Economic Review*, Vol. 6, No 3, 1992, pp. 353-398.

4 The evolution of the ECB's accountability practices

Building on Treaty provisions, the ECB reacted to the challenges of the crisis by enhancing its accountability practices in terms of frequency, format and content, as well as in terms of interactions with other stakeholders. The legal framework was flexible enough to accommodate the increased need for the ECB to explain and justify its policies before the European Parliament. This was not only driven by external demands, as it was in the ECB's own interest to provide the public and the markets with a comprehensive analysis of the economic situation and monetary policy decisions to enhance the predictability and credibility of the ECB's monetary policy.[72]

71 See De Grauwe, P. and Gros, D., op. cit.

72 See Mersch, Y., op. cit.

4.1 Frequency and format

The frequency of the exchanges between the ECB and the European Parliament increased substantially during the crisis, as regular hearings before the European Parliament were complemented by additional ad hoc hearings. The quarterly ECON hearings remained the cornerstone of the relationship between the ECB and the European Parliament. Nevertheless, as the parliamentary rules regulate the number and timing of MEPs' oral questions to the ECB President, other instruments were used to intensify the frequency of ECB-European Parliament interactions. Building on Article 284(3) TFEU, ECB representatives were invited to numerous additional exchanges during the crisis (18 exchanges between 2008 and 2017). These included an extraordinary ECON hearing of the ECB President on the crisis in August 2011, as well as an in camera exchange of views with the ECB President on the report "Toward a genuine Economic and Monetary Union" in 2012. Furthermore, there were three additional ECON hearings with ECB representatives on matters related to EU financial assistance programmes,[73] one exchange of views on the crisis in general,[74] two on economic governance, four on payment and settlement system issues, and one on statistical issues.[75] Moreover, Executive Board members participated in a series of meetings organised by the European Parliament which also involved members of national parliaments (such as in the European Parliamentary Week[76]) and in exchanges of views with national parliaments.[77]

Furthermore, the number of written questions addressed to the ECB from MEPs has increased substantially over the past two legislative terms. Chart 4 shows that the crisis was a prominent determinant of this upward trend, leading to a substantial increase in written questions between the 6th and 7th parliamentary terms, and a particularly sharp rise in the 8th term. In the 7th parliamentary term, MEPs sent more than twice as many written questions than their peers had done in

73 In the context of the enquiry on the role and operations of the Troika (ECB, Commission and IMF) with regard to the euro area programme countries, the ECB also provided written replies to the questionnaire submitted by the European Parliament which are available on the ECB's website.

74 In 2009 José Manuel González-Páramo participated in a hearing organised by the European Parliament's Special Committee on the Financial, Economic and Social Crisis (see ECB Annual Report 2009, p. 170).

75 Though not to be counted as part of the ECB's accountability obligations, there were also a number of staff-level exchanges on topical issues. See, for example, ECB Annual Report 2012, p. 148, and ECB Annual Report 2013, p. 164. The exchange of views on statistical issues mentioned in the text was in relation to AnaCredit, a statistical project aimed at setting up a dataset containing detailed information on individual bank loans in the euro area, harmonised across all member countries. The project attracted the attention of a number of MEPs who also addressed written questions to the ECB on the topic. The meeting with Executive Board member Sabine Lautenschläger provided, inter alia, an opportunity to explain in detail the procedure followed by the ECB in preparing the AnaCredit Regulation, in setting out the costs linked to it and in ensuring stakeholders' involvement.

76 Since February 2012, at the beginning of every year the European Parliament has organised an interparliamentary event on the European Semester for Economic Policy Coordination called the European Parliamentary Week which gathers together parliamentarians from all over the EU to discuss economic, budgetary and social matters. The European Parliamentary Week aims to provide a framework for debate and exchange of information between national parliaments and the European Parliament in order to ensure democratic accountability in the area of economic governance in the EU.

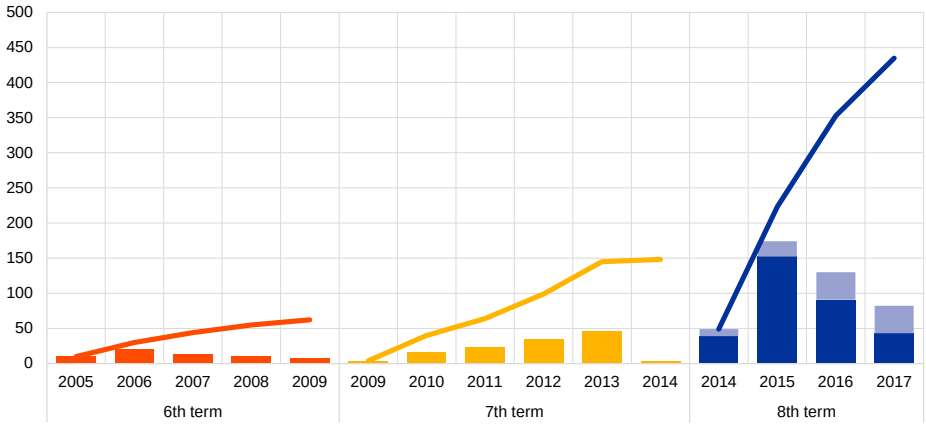
77 While the ECB's interaction with national parliaments is not part of its accountability activities, it is worth noting that since 2012 the ECB President has spoken before six national parliaments: in Germany (in 2012 and 2016), in Spain and France (2013), in Finland (2014), in Italy (2015) and in the Netherlands (2017). In addition, other members of the Executive Board have also participated in meetings in national parliaments.

the 6th term (128 written questions against 62). While only 11 written questions were sent to the ECB in 2008, in 2013 the number reached 46. The current parliamentary term (2014-19) is, however, the most active so far, with the number of letters peaking at 152 in 2015, and already 325 letters have been sent to the ECB – more than in the 6th and 7th terms combined. Finally, it should be noted that a large number of the written questions since the beginning of the 8th parliamentary term were sent by smaller political groups, which partly compensates for the limited number of oral questions they can ask during the regular hearings.[78] This suggests that the sending of written questions has a complementary role to the regular hearings, thereby enhancing the channels for the realisation of the ECB's accountability obligations.

Chart 4

Number of replies to MEPs' written questions

(number per year and cumulative totals, by parliamentary term)



Sources: ECB and ECB calculations.
Note: The shaded areas represent written questions on supervisory matters.

The European Parliament resolution on the ECB Annual Report is also increasingly used to channel remarks to the ECB. While the European Parliament's own-initiative report on the ECB's activities has existed as a parliamentary tool since 1999, the increase in the number of amendments proposed by MEPs suggests that it has become increasingly important from their perspective. In 2017 the number of amendments tabled to the own-initiative report on the ECB's Annual Report for 2016 was 568, compared with 269 the previous year. The difference is even starker when comparing the number of amendments prior to the sovereign debt crisis of 2010 with the number tabled during and after it. The sum of all the amendments tabled to the own-initiative reports from 2005 to 2009 is lower than the sum of the amendments tabled to the reports for 2010 and 2011 alone (375 against 468). Although these data may be the result of a higher degree of polarisation between political groups,[79] they also confirm that the ECB's annual

78 Under the internal rules of the European Parliament, the slots for questions and answers during hearings are allocated according to the size of the political group, thus reducing the opportunity for smaller groups and non-aligned MEPs to put oral questions to the ECB President.

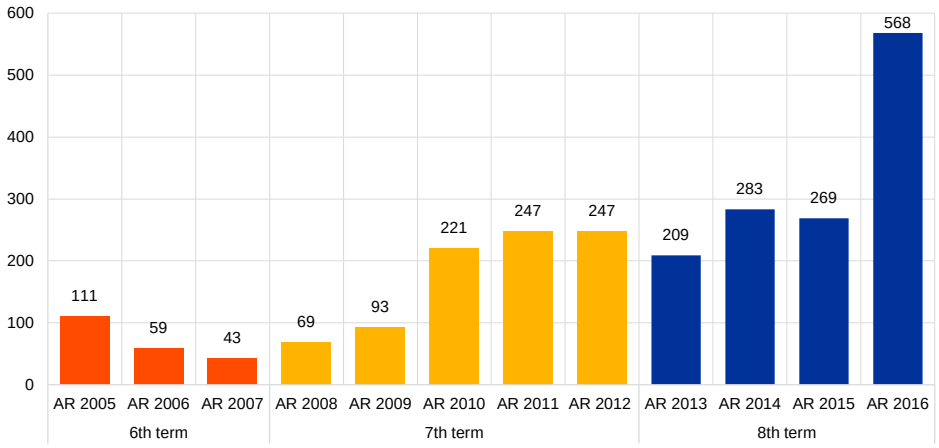
79 See Whitaker, R., Hix, S. and Dreyer, P., "MEPs' attitudes in the 2014-19 European Parliament: Key Findings from the European Parliament Research Group's Survey", MEP Survey Data, 22 February 2017.

report has increasingly acquired relevance among MEPs as a useful accountability channel.

Chart 5

MEPs' involvement in the own-initiative reports on ECB annual reports before, during and since the crisis

(number of amendments tabled by MEPs in the ECON committee, by legislative term)



Sources: ECB calculations based on European Parliament information.

In 2016 the ECB began to publish its feedback on the European Parliament resolution on the ECB Annual Report.[80] Each year, the European Parliament holds a plenary session in which it debates and votes on a resolution on the ECB Annual Report of the previous year. In response to an explicit request from the European Parliament,[81] the ECB has started to make public its feedback on such resolutions. This practice provides an additional channel – beyond the requirements of the Treaty – for the European Parliament to hold the ECB accountable. In fact, the feedback allows MEPs to gain additional insights on the ECB's stance on a number of policy matters, further improving the quality of the exchange between the two institutions. For instance, in the feedback on the input provided by the European Parliament as part of its resolution on the ECB Annual Report for 2015,[82] the ECB announced that the concerns expressed by the European Parliament in relation to transparency in the development of ECB regulations on European statistics had been addressed. It stated that the Governing Council had approved new principles, taking into account the transparency practices of the European Parliament, the Council and the Commission. As a result, the European Parliament is now informed

80 See Feedback on the input provided by the European Parliament as part of its resolution on the ECB Annual Report 2014, 7 April 2016.

81 In its Resolution on the ECB Annual Report for 2014, presented on 25 February 2016, the European Parliament requested that "the annual ECB report should include feedback on the inputs provided in the annual report of Parliament".

82 See Feedback on the input provided by the European Parliament as part of its resolution on the ECB Annual Report for 2015, 10 April 2017.

of and invited to participate in public consultations on ECB regulations concerning European statistics.[83]

4.2 Content

The intensification of the interactions between the ECB and the European Parliament has been accompanied by a change in the content of the exchanges. Looking at the evolution of topics over time, it can be observed that MEPs have focused their questions on issues that are topical at the time of the regular hearings. The regular Monetary Dialogue thus provided a primary accountability forum to explain the ECB's position on matters related to the policy and political agenda of the day. The opportunity to discuss topical issues is certainly an important factor when determining the effectiveness of an accountability tool. In line with this, the results of a recent survey[84] showed that 50% of MEPs always found the exchanges with the ECB President useful, and none of them found them useless.

Box 2

The evolution of the topics and tone of the ECB parliamentary hearings

Prepared by Nicolò Fraccaroli

Text analysis techniques provide additional insights on the evolution of the content and tone of ECON hearings over time. On the basis of the ECON hearing transcripts, it is possible to identify the words used most frequently during these exchanges between 1999 and 2018 and their evolution.[85] The "word cloud" of the hearings provides a visual overview of the most frequent words in the exchanges (Chart A), showing that *euro*, *monetary policy*, *inflation* and *growth* were the most prominent terms that emerged during the debates. At the same time, the focus of attention evolved with the crisis. Understandably, the crisis itself became a prominent topic of the Monetary Dialogue, especially at the peak of the crisis in the euro area (Chart B).

83 See "Transparency in developing new ECB regulations on European statistics", available on the ECB's website.

84 See Collignon, S. and Diessner, S., "The ECB's Monetary Dialogue with the European Parliament: Efficiency and Accountability during the Euro Crisis?", *Journal of Common Market Studies*, Vol. 54, No 6, 2016, pp. 1296-1312.

85 The data used for this analysis consist of the transcripts of the hearings published by the European Parliament. A small number of transcripts (ten out of 75) were excluded from the analysis, as they are not provided fully in English.

Chart A

What were the words used most frequently during the hearings?

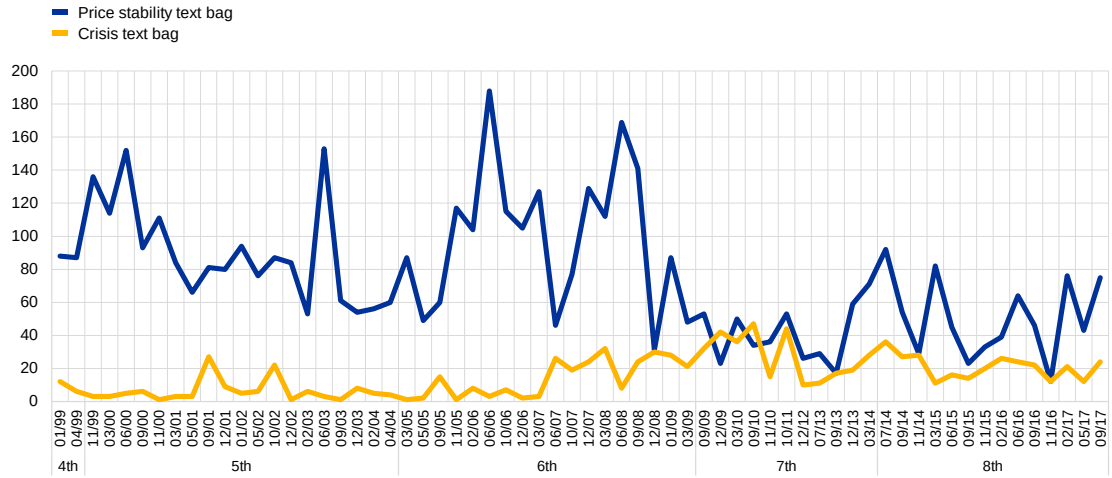
Word cloud of the ECON hearings (1999-2018)

Sources: ECB calculations based on European Parliament information.
Notes: The word cloud displays the 200 most frequently used words (the larger the size of the word, the more frequent its occurrence), setting a minimum threshold of at least 50 occurrences in the text. The text was first cleaned of commonly used words, punctuation and numbers. "Euro" was the most frequently used word with 4,024 co-occurrences, whereas "ECB" was used 3,267 times. The word "growth" occurred 2,404 times, while "stability" and "inflation" presented similar frequencies (2,217 and 2,076, respectively).

Chart B

When did the crisis enter the ECB-European Parliament dialogue and how did it affect discussions on price stability?

(occurrence of terms related to price stability and to the crisis from 1999 to 2018, by year and parliamentary term)



Sources: ECB calculations based on European Parliament information.
Notes: The terms related to price stability matched with the text of the hearings are: price(s), inflate, inflation, inflationary, HICP, CPI, deflation, deflator, deflationary, deflate, hyperinflation, hyperinflationary. The terms related to crises are: crisis, crises, recession(s), recessionary, bust(s), stagnate, stagnation(s), stagnating, bubble(s), crash(es), slump(s), downturn(s), default(s), defaulting, turmoil(s).

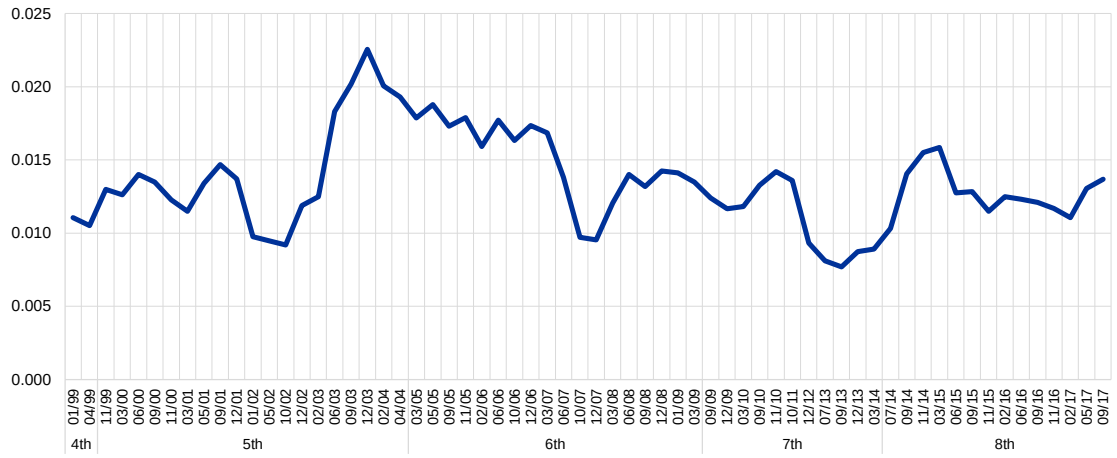
Another interesting related aspect concerns the tone of the Monetary Dialogue, which appears to have evolved over the past years. A number of commentators have argued that the

rise of populism in the aftermath of the crisis put the independence of central banks at risk.[86] However, these opinions have often relied on anecdotal evidence, owing to the failure of the measures commonly used in the literature to account for such changes, as explained in the previous section. Text analysis allows this gap to be filled and provides empirical evidence. Following the literature on sentiment analysis applied to texts,[87] it is possible to calculate the degree of positive and negative sentiment populating the Monetary Dialogue, to proxy the negative tone used during hearings both by the ECB and by MEPs, and thus to measure how the tone of the parliamentary debates has changed over time (see Chart C).

Chart C

ECON hearings sentiment ratio, 1999-2018

(sentiment ratio for transcripts of ECON hearings, by year and by parliamentary term)



Sources: European Parliament and ECB calculations.
Notes: The lists of positive and negative terms were taken from a pre-constructed text bag used in the literature developed by Bing Liu and collaborators for the tidytext R package. The text bag includes 2,006 positive terms and 4,782 negative ones. Sentiment is calculated using a common dictionary technique, which consists in matching each term of the transcripts with the ones contained in two lists of positive and negative words to obtain a sentiment ratio, calculated as follows:

$$SentimentRatio_t = \frac{(|Positive_t| - |Negative_t|)}{(N_t)},$$

Where t is a Monetary Dialogue transcript, N_t is the number of terms contained in transcript t, and $Positive_t$ and $Negative_t$ are, respectively, the number of positive and negative terms matched in each transcript. Ten Monetary Dialogue transcripts out of 75 are missing from the analysis, as they have not been fully translated into English.

In spite of the crisis, the overall tone of the debate remained positive. After reaching a peak in February 2004, sentiment fell to its worst level in December 2007, at the beginning of the recession. Nevertheless, it is worth noting that this negative level did not differ significantly from the low point reached in October 2002. Furthermore, sentiment had already started to decline, albeit more moderately, in 2005, two years before the crisis occurred. However, the tone of the dialogue swiftly recovered after 2008 and, despite being characterised by some ups and downs, remained quite stable over the crisis period, with some positive peaks. This seems to suggest that the ECON hearings between the ECB President and MEPs serve as a useful platform for constructive dialogue, even in times of crisis. This analysis has, however, some methodological limits. For

86 For a review of the debate, see Merler, S. "Central banks in the age of populism", *Bruegel blog*, March 2018.

87 See Nyman, R., Kapadia, S., Tuckett, D., Gregory, D., Ormerod P. and Smith, R., "News and narratives in financial systems: exploiting big data for systemic risk assessment", *Staff Working Paper*, No 704, Bank of England, January 2018. See also Liu, B., *Sentiment Analysis and Opinion Mining*, Morgan & Claypool Publishers, 2012.

example, low sentiment ratios during the crisis may stem from the negative economic outlooks discussed in the hearings and commented on by MEPs. Nonetheless, the stability of sentiment throughout the crisis suggests that the relationship between the two institutions did not crumble, and that the accountability framework supporting it proved resilient to the challenge of an economic downturn.

The European Parliament improved its use of expert advice in preparation for the hearings with the President. The MEPs' lack of expertise in technical economic and financial issues was identified as a possible factor weakening the scrutiny efforts of the European Parliament.[88] Since 1999, before each Monetary Dialogue meeting, the ECON committee commissions briefing papers from a panel of experts, who provide MEPs with technical insights on current topics. It has been argued that MEPs proved more successful in influencing monetary policy when they were in line with the experts.[89] While some critics have noted in the past that the requests for advice from experts by the European Parliament did not focus enough on technical aspects related to monetary policy,[90] Chart 6 shows that over the last parliamentary term the European Parliament has reduced the number of topics and focused more on monetary policy aspects.[91] This suggests that MEPs are increasingly relying on expert input in this area, as is also evidenced by a recent survey among MEPs.[92]

88 See Wyplosz, C., "The Panel of Monetary Experts and the Policy Dialogue", *Briefing Notes to the Committee for Economic and Monetary Affairs of the European Parliament*, October 2005.

89 See Sibert, A., "The European Parliament's Monetary Dialogue with the ECB and its Panel of Experts", European Parliament, 2005.

90 See Wyplosz, C., "The Monetary Dialogue", and Sibert, A., "Monetary Dialogue 2009-2014: Looking Backward, Looking Forward", both in Monetary Dialogue 2009-2014: Looking Backward, Looking Forward – Compilation of Notes, European Parliament, March 2014.

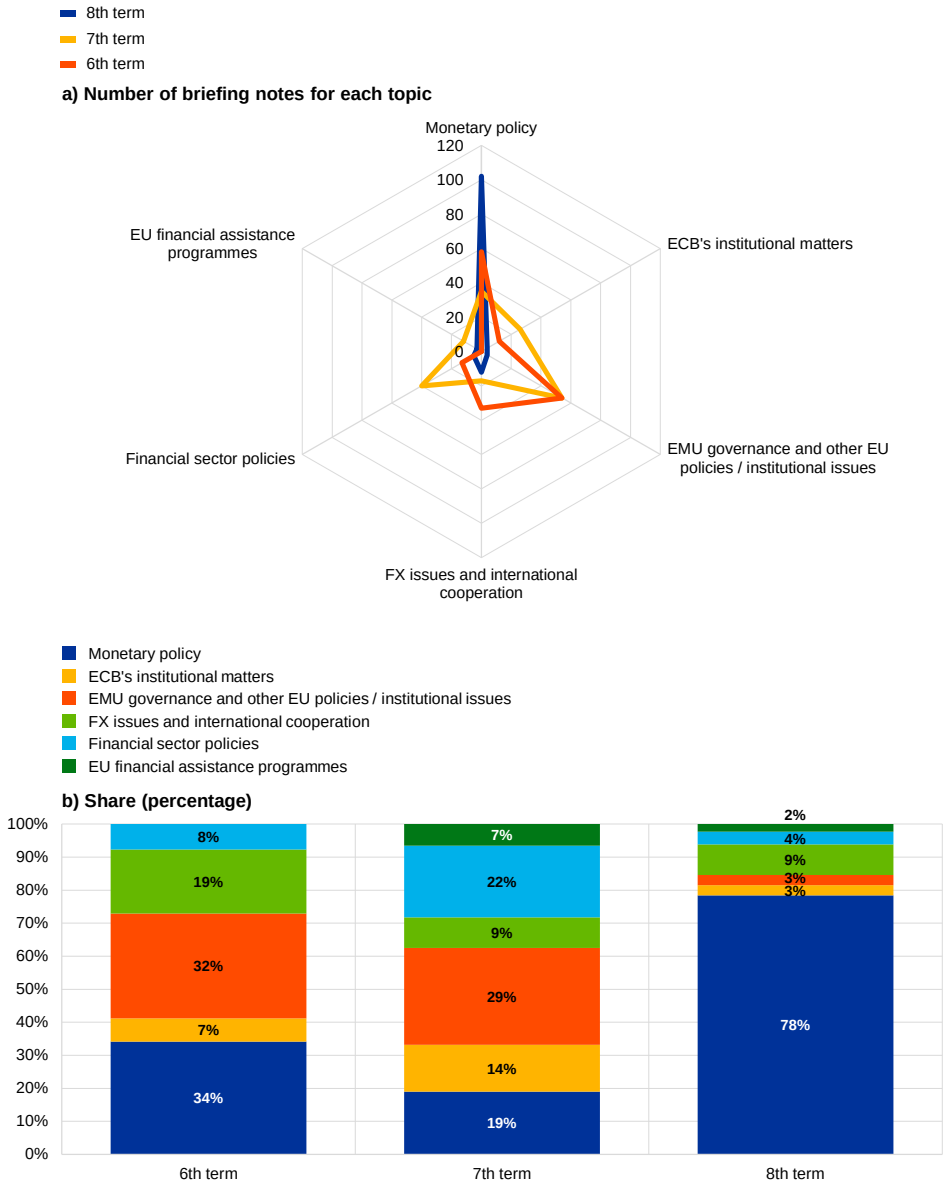
91 The reduction in the topic "financial stability and supervision" is also partly explained by the establishment of dedicated hearings on European banking supervision-related matters – see Box 1.

92 According to a recent survey, 74% of the sample of MEPs found the papers from the expert panel useful. The survey was published in Collignon, S. and Diessner, S., op. cit.

Chart 6

On which subjects did MEPs seek expert advice before and after the crisis?

(topics of the monetary experts' briefing notes, by legislative term (Q3 2004 to Q1 2018))



Sources: European Parliament and ECB calculations.
Notes: The years corresponding to each parliamentary term are: 6th term, from 2004 to 2009; 7th term, from 2009 to 2014; 8th term, from 2014 to present. Owing to rounding, percentages may not add up to 100%.

Looking at the quarterly ECON hearings, monetary policy was the main policy area raised by MEPs in the 8th term (Chart 7). This is in contrast to earlier parliamentary terms when observers remarked that MEPs' questions were often unrelated to monetary policy.[93] However, as the ECB's tasks expanded throughout the crisis, discussions also covered a broader range of topics. For instance, questions on EU financial assistance programmes were more prominent than monetary policy in 2010-11, around the time when the first programmes were

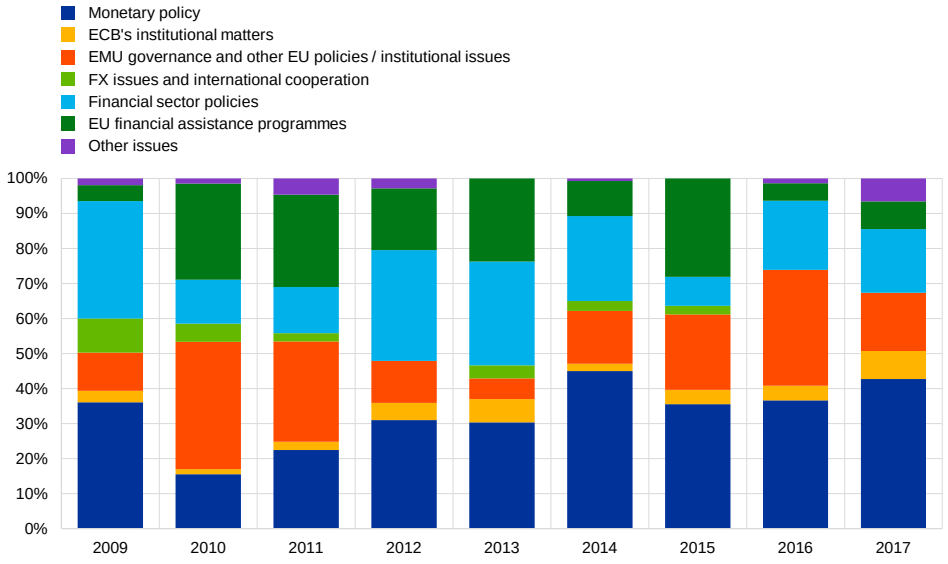
93 See Wyplosz, C., "The Panel of Monetary Experts and the Policy Dialogue", op. cit.

activated.[94] Their frequency decreased in 2012-14, as the focus shifted to financial sector policies, mainly led by the imminent reform of the European financial architecture and the creation of the banking union. In 2015 the debate turned back to EU financial assistance programmes, mainly led by events in Greece, and touched on broader issues concerning the future of EMU, including following the publication of the Five Presidents' Report.[95] Furthermore, with respect to the most recent years, the fact that MEPs have tended to focus on new topics and topical issues is evidenced, inter alia, by the number of questions related to Brexit (17% of questions in 2016-17) and to fintech and cybersecurity issues (4% in 2017).[96]

Chart 7

The ECB President has been asked his view on a broad range of issues during ECON hearings

(questions asked by MEPs during quarterly ECON hearings, by topic, percentages)



Sources: European Parliament and ECB calculations.

The breakdown of topics in the written questions MEPs sent to the ECB suggests that this accountability tool plays a complementary role. Monetary policy has also been the most frequent topic in written questions during the last two parliamentary terms (Chart 8). Questions on financial sector policies shrank from 19% in the 7th term to 5% in the 8th term (partly because, since 2014, it has been possible to address written questions to the Chair of the Supervisory Board), while questions on the EU financial assistance programmes increased. It is worth noting

94 In this respect, the response of former ECB President Jean-Claude Trichet at an ECON hearing on 30 June 2011 is quite telling: "*I would have expected a lot of questions on our monetary policy, on the level of inflation, on what inflation will be in two years' time, on whether our projections are right or wrong, and on whether we are right or wrong to have the present level of interest rates, taking into account other decisions taken elsewhere in the world. However, I see that you have such a confidence in my institution that these are not a problem or an issue at all! I have also had a lot of questions on issues for which we are not responsible. We are responsible for the euro area as a whole and for price stability.*" See the transcript on the European Parliament's website.

95 See Juncker, J.-C., Tusk, D., Dijsselbloem, J., Draghi, M. and Schulz, M., "Completing Europe's Economic and Monetary Union", European Commission, 22 June 2015.

96 Both topics are included in the "other issues" category.

that, unlike at regular hearings, the largest share of written questions in 2014 and 2015 concerned events in Greece. Written questions gave smaller political groups (with only limited speaking time in hearings) and national constituencies the opportunity to ask questions on the matter and gave the ECB the opportunity to present its views on several aspects of the Greek adjustment programme.[97] The higher share of written questions on institutional matters also points to the complementary role they play, suggesting that MEPs use them to ask more detailed questions on issues not usually addressed during hearings owing to, for instance, time constraints. This gave the ECB the opportunity to explain in greater detail the functioning of its decision-making process[98] and to provide more information on its activities.[99]

97 For instance, between March 2015 and October 2015, the ECB President answered 15 written questions on the Greek adjustment programme, explaining, inter alia, the precise functioning and rationale for the eligibility rules applied to Greek bonds used as collateral in Eurosystem monetary policy operations.

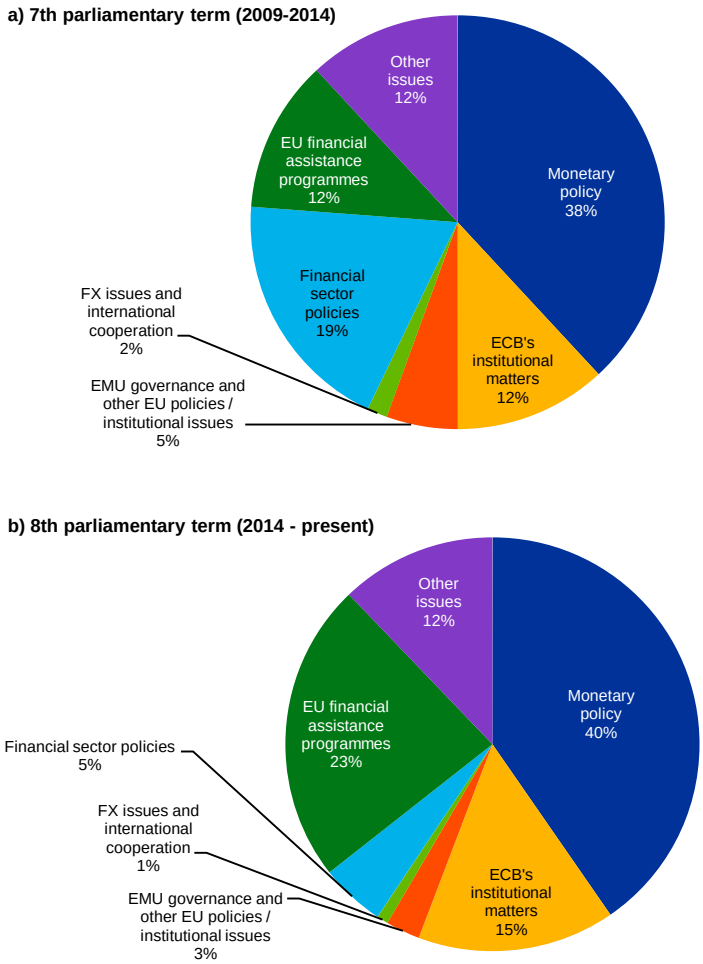
98 For instance, in an answer to a written question from several MEPs, the ECB President provided a full description of the methodology for computing the total seigniorage income earned by the ECB and provided all the requested background information (e.g. yearly data on the retention/distribution of this income, weightings of distribution among NCBs, etc.).

99 For instance, in an answer to a written question from an MEP, the ECB President provided an exhaustive list of the international fora and institutions at which members of the ECB's Executive Board and Supervisory Board represent the institution.

Chart 8

Topics of MEPs' written questions to the ECB from 2009 to the present

(percentages)



Sources: European Parliament and ECB calculations.
Notes: Written questions addressed to the Chair of the Supervisory Board are not included. Owing to rounding, percentages may not add up to 100%.

4.3 Interaction with other stakeholders

The increased interest in holding the ECB accountable has primarily affected the ECB's interaction with the European Parliament, but other EU institutions and actors have also played an important role in providing checks and balances. The ECB's accountability is embedded in a network of interactions with other institutions, which are intensified at times of crisis.[100] For example, the Court of Justice of the European Union has become more involved in the judicial review of the ECB's actions in recent years.[101] The Court's decisions have far-reaching

100 See Giovannini, A. and Jamet, J., op. cit.

101 See, for example, the Court's judgment on the ECB's Outright Monetary Transactions (OMT) programme in *Peter Gauweiler and Others* v *Deutscher Bundestag*, C–62/14, ECLI:EU:C:2015:400, paras. 49-51.

implications, since individuals can challenge the ECB's conduct by seeking damages as well as by asking the Court to annul ECB decisions on grounds of illegality.[102] The European Ombudsman is another institution which plays a role, as it can be involved in matters regarding transparency and good governance. The operational efficiency of the ECB's management is examined by the European Court of Auditors (ECA) in accordance with Article 27 of the Statute of the ESCB. Other relevant institutions include the European Anti-Fraud Office (OLAF), which has the power to conduct administrative investigations within the ECB for the purposes of fighting fraud, corruption and other illegal activities, and the European Data Protection Supervisor, which monitors and ensures compliance with data protection legislation in the ECB's data-processing operations. Moreover, other civil society organisations have contributed to the debate on accountability. For instance, the debate spurred by the publication of the Transparency International report on the ECB's accountability and transparency was welcomed by the ECB,[103] as it provided an opportunity for open and balanced dialogue with non-governmental organisations (NGOs).

None of these institutions and bodies act in isolation, and their actions have a bearing on the ECB's accountability to the European Parliament. For instance, judgments of the Court have been referred to by both the ECB and MEPs during their regular exchanges. Similarly, reports by the ECA, the European Ombudsman, NGOs and academics have been discussed with MEPs, both in the context of the regular hearings and in written answers.[104]

5 Conclusions

This article has provided both quantitative and qualitative evidence of the evolution of the ECB's accountability practices in response to the quest for scrutiny that emerged from the crisis. While the Treaty provisions on accountability have remained unchanged, a new accountability framework has been created in order to cater for the new supervisory tasks entrusted to the ECB. Moreover, within the existing framework, the ECB and the European Parliament have increased the frequency of their interactions, innovated on format and increased the focus of exchanges in response to the demand for greater scrutiny of the ECB's actions. On the one hand, this has resulted in an enhanced use by the European Parliament of the accountability instruments at its disposal. On the other hand, the ECB also has an interest in strengthening its accountability practices vis-à-vis the

102 See Mersch, Y., op. cit.

103 See "Two sides of the same coin? Independence and accountability of the European Central Bank", Transparency International EU, March 2017; and "ECB welcomes dialogue with NGOs on transparency", press release, ECB, 28 March 2017. The ECB facilitated the Transparency International EU project by inviting researchers to a series of meetings with senior staff.

104 See, for instance, the ECB President's letter to Ms Kostadinka Kuneva (MEP), which discusses the ECA's special report on "The Commission's intervention in the Greek financial crisis". Studies by NGOs have also been discussed in answers to written questions by MEPs. See, for instance, the ECB President's letter to various MEPs concerning the ECB's interactions with external parties, which answers questions relating to the Corporate Europe Observatory's report entitled "Open door for forces of finance at the ECB".

European Parliament as part of an effort to explain its policies in a more complex environment.

The joint effort by the two institutions allowed a high degree of central bank accountability to be ensured throughout the crisis. The pre-existing accountability framework allowed increased scrutiny and thus proved its robustness. The ECB was able to explain and demonstrate that it was acting in accordance with its democratic mandate, which is a fundamental pillar of its legitimacy.

Despite the evolution of the ECB's accountability practices, public demand for increased scrutiny remains high. The increase in public awareness of the ECB persists, while trust in the ECB has been recovering gradually since 2014, as reported by the Eurobarometer.[105] While enhancing the general public's understanding of financial and economic interrelations helps them better understand the ECB's policies,[106] accountability is still indispensable to the ECB as a channel to explain its actions to citizens and thereby contribute to public trust, which is itself an essential foundation of central bank independence.

[105] The latest Eurobarometer survey (November 2017) found that 39% of euro area respondents tended to trust the ECB (the highest level since autumn 2011) and 47% tended not to trust it (others did not know).

[106] See Cœuré, B., "Independence and accountability in a changing world", op. cit.

2 Measuring fragmentation in the euro area unsecured overnight interbank money market: a monetary policy transmission approach

Prepared by Jens Eisenschmidt, Danielle Kedan and Robin Tietz

The overnight money market plays an important role in the implementation and transmission of monetary policy in the euro area. Money market fragmentation is a sign of impairment in the transmission mechanism which merits the close monitoring of a set of suitable indicators. This article discusses concepts and measurement of fragmentation and proposes a new measure of fragmentation from a monetary policy transmission perspective.

1 Introduction

The overnight money market is the starting point of the monetary policy transmission mechanism. Expectations about the path of the ECB's key policy rates underpin the expected path of overnight rates. Overnight rates, in turn, anchor the entire yield curve, as long-term rates that matter most for economic activity are a function of expectations of future overnight rates plus risk premia. Hence, a well-functioning overnight money market without fragmentation is important for the transmission of monetary policy.

The unsecured overnight interbank segment is especially relevant, because price formation in this market has arguably the closest link to monetary policy. The unsecured segment remains highly relevant for the implementation and transmission of monetary policy, notwithstanding the secular shift in euro area money market activity towards secured transactions.[107] Prices in this segment reflect supply and demand dynamics for central bank reserves. As such, price formation is predominantly liquidity-driven and depends on factors under the direct control of the central bank: (i) the key policy rates and (ii) the quantity of reserves provided by the central bank. By contrast, the demand for central bank reserves is not necessarily the driving factor behind price formation in the secured money market. For the majority of repo transactions, it is the supply of and demand for collateral that drives prices. Although monetary policy can impact the market for collateral,[108] exogenous factors such as regulation[109] are also important.

Fragmentation is a sign of impairment in the initial transmission of monetary policy, which can undermine its effectiveness in steering broad credit

---

107 For further discussion of the decline in unsecured money market activity, see "Euro money market study 2014", ECB, April 2014 and "Financial integration in Europe", ECB, May 2018, p. 135.

108 This can happen both indirectly (e.g. via the central bank's collateral framework) and directly (e.g. via central bank asset purchase programmes).

109 For further discussion of the potential effects of regulation on secured money markets, see Grill, M., Jakovicka, J., Lambert, C., Nicoloso, P., Steininger, L. and Wedow, M., "Recent developments in euro repo markets, regulatory reforms and their impact on repo market functioning", *Financial Stability Review*, ECB, November 2017, pp. 158-171.

conditions for households and firms. The first signs of market stress during the financial crisis became evident in the unsecured interbank segment. The ECB – as well as other central banks – therefore closely monitored developments in interbank funding markets over the course of the crisis, as evidenced in official publications, speeches and summaries of policy meetings.[110] To address impairments in the interbank market, the ECB introduced a variety of measures, such as fixed rate tender procedures with full allotment, additional longer-term refinancing operations and reciprocal liquidity swap lines with several other central banks.

The financial crisis led to an increase in academic research on interbank markets to improve understanding of their structure and functioning, as well as the sources and degree of stress and fragmentation in these markets. For example, Heider et al. develop a model of interbank lending and borrowing with counterparty risk and analyse how banks' private information about risks affects the trading and pricing of liquidity in this market segment.[111] Eisenschmidt and Tapking show that concerns about market access in the future can lead banks to either increase their short-term lending rates or withdraw entirely from interbank lending.[112] Cocco et al. and Bräuning and Fecht find that lending relationships are an important determinant of the availability of funding and the interest rate at which banks can borrow in the interbank market.[113] Frutos et al. examine stress in the European interbank market using payments systems data; they find that increased counterparty risk of borrowers in non-core euro area countries resulted in less lending by banks in core countries.[114] Garcia-de-Andoain et al. and Mayordomo et al. develop indicators of fragmentation for the interbank market based on interest rate differentials.[115]

This article adds to the literature on the measurement of fragmentation by taking a monetary policy transmission perspective. Section 2 discusses concepts of fragmentation and outlines some of the existing measures. Section 3 explains how it is possible to build an indicator of fragmentation based on unsecured

---

110 See, for example, "The implications of the money market tensions for the pass-through of MFI interest rates", *Monthly Bulletin*, Box 5, ECB, December 2008, pp. 47-62; "Restarting a Market: The Case of the Interbank Market", speech by Lorenzo Bini Smaghi, 1 December 2008; Jackson, C. and Sim, M., "Recent Developments in the Sterling Overnight Money Market", *Quarterly Bulletin*, Bank of England, 2013 Q3, pp. 223-232; "Stress in Bank Funding Markets and Implications for Monetary Policy", *Global Financial Stability Report*, Chapter 2, IMF, October 2008.

111 Heider, F., Hoerova, M. and Holthausen, C., "Liquidity hoarding and interbank market rates: The role of counterparty risk", *Journal of Financial Economics*, Vol. 118, Issue 2, 2015, pp. 336-354.

112 Eisenschmidt, J. and Tapking, J., "Liquidity risk premia in unsecured interbank money markets", *Working Paper Series*, No 1025, ECB, March 2009.

113 Cocco, J.F., Gomes, F.J. and Martins, N.C., "Lending relationships in the interbank market", *Journal of Financial Intermediation*, Vol. 18, Issue 1, 2009, pp. 24-48 and Bräuning, F. and Fecht, F., "Relationship Lending in the Interbank Market and the Price of Liquidity", *Review of Finance*, Vol. 21, Issue 1, 2017, pp. 33-75.

114 Frutos, J.C., Garcia-de-Andoain, C., Heider, F. and Papsdorf, P., "Stressed interbank markets: evidence from the European financial and sovereign debt crisis", *Working Paper Series*, No 1925, ECB, June 2016.

115 Garcia-de-Andoain, C., Hoffman, P. and Manganelli, S., "Fragmentation in the euro overnight unsecured money market", *Economic Letters*, Vol. 125, Issue 2, 2014, pp. 298-302 and Mayordomo, S., Abascal, M., Alonso, T. and Rodriguez-Moreno, M., "Fragmentation in the European interbank market: Measures, determinants, and policy solutions", *Journal of Financial Stability*, Vol. 16, 2015, pp. 1-12.

overnight money market transactions. Section 4 discusses the properties of the new indicator compared with existing indicators.

2 Defining and measuring fragmentation

From a monetary policy transmission perspective, fragmentation can be viewed as the lack of full tradability of central bank reserves across borders which cannot be explained by technical or fundamental factors. In the context of a monetary union, a well-functioning money market without fragmentation implies that reserves flow freely between banks. As a result, interest rates should satisfy the law of one price, meaning that they should be homogenous across banks after controlling for technical (e.g. access to the central banks' standing facilities)[116] and fundamental factors (e.g. counterparty credit risk) that would justify rate differentials. Although there might be idiosyncratic factors affecting cross-border trading, there should be no systematic impediments to cross-border borrowing and lending in a non-fragmented market.[117]

Conceptually, fragmentation in the euro area is often viewed through the lens of financial integration, while data availability has led to indicators deviating from this concept being used to assess the state of fragmentation. Seen from the financial integration perspective, impairment in cross-border market activity – in terms of either interest rate differentials across countries or the lack of cross-border funding – can indicate fragmentation. Measuring fragmentation in terms of risk-adjusted rates and cross-border activity requires transaction data which are not publicly available. In practice, therefore, fragmentation has often been assessed using timely and readily available indicators of money market activity (e.g. money market interest rate spreads, which are not necessarily indicative of cross-border fragmentation). Other measures used to gauge fragmentation include indicators of interest rate dispersion (which is linked to the law of one price),[118] network dynamics[119] and recourse to the Eurosystem's balance sheet.[120]

---

116 Counterparty access to the Eurosystem's balance sheet is one technical factor that can affect pricing in the money market. Only banks located in the euro area are eligible to participate in Eurosystem refinancing operations and have access to the standing facilities. As a result, the ECB's key interest rates are not the relevant opportunity costs for all participants in the interbank market. Banks without access to the standing facilities must deposit euro reserves with another bank that does have access. The ensuing asymmetry in bargaining power can exert downward pressure on interbank rates when there is high excess liquidity. In the current environment, the rates at which non-euro area banks lend to (or place deposits with) euro area banks are below the deposit facility rate. Hence, market rates can deviate more from key policy rates when non-euro area banks account for a larger share of activity in the interbank money market. Such deviations arise from the technical issue of counterparty access to the Eurosystem's balance sheet, however, and do not necessarily signal impairment in the monetary policy transmission mechanism.

117 In the German banking system, for example, there are institutional lending relationships between savings banks and Landesbanks, which can reduce the need to participate in the interbank market. See Bräuning, F. and Fecht, F., "Relationship Lending in the Interbank Market and the Price of Liquidity", *Review of Finance*, Vol. 21, Issue 1, 2017, pp. 33-75.

118 See, for example, the annual ECB reports entitled "Financial integration in Europe" and Frutos, J.C., Garcia-de-Andoain, C., Heider, F. and Papsdorf, P., "Stressed interbank markets: evidence from the European financial and sovereign debt crisis", *Working Paper Series*, No 1925, ECB, June 2016.

119 See, for example, Rünstler, G., "Network Dependence in the Euro Area Money Market", *Working Paper Series*, No 1887, ECB, 2016.

Different measures reflect different aspects of fragmentation and can be affected by non-standard monetary policies. Prior to the financial crisis, the three-month EURIBOR-OIS spread was small (see Chart 1).[121] As money market tensions increased in 2007, 2008 and 2011, this commonly used metric widened sharply, before narrowing again in response to the non-standard monetary policy measures introduced over the past decade. The figure has been very stable since 2013 and is currently below its pre-crisis level.[122] Like many other indicators, the EURIBOR-OIS spread is affected by central bank interventions, making it difficult to distinguish the underlying degree of fragmentation from the mitigating impact of central bank policies. Similarly, cross-border trading volumes – another common measure of fragmentation – are affected by excess liquidity, which can significantly change supply and demand dynamics in the market for central bank reserves, thereby distorting their signalling effect. Between 2014 and 2016, for example, the rise in excess liquidity was accompanied by a decline in the share of cross-border trading in the unsecured interbank money market (see Chart 2).[123] Seen in isolation, this could be (mis)interpreted as an increase in fragmentation, which conflicts with the signal emanating from the EURIBOR-OIS spread.

120 See, for example, the annual ECB reports entitled "Financial integration in Europe"; Holló, D., Kremer, M. and Lo Duca, M., "CISS – A composite indicator of systemic stress in the financial system", *Working Paper Series*, No 1426, ECB, 2012; Frutos, J.C., Garcia-de-Andoain, C., Heider, F. and Papsdorf, P., "Stressed interbank markets: evidence from the European financial and sovereign debt crisis", *Working Paper Series*, No 1925, ECB, June 2016.

121 The spread between the euro interbank offered rate (EURIBOR) and the overnight indexed swap (OIS) rate of the same maturity is an example of a measure widely used to gauge fragmentation in the unsecured interbank market. EURIBOR is a quoted rate for unsecured interbank term deposits, involving term, liquidity and credit risk premia. OIS rates are a proxy for risk-free rates, reflecting the expected path of monetary policy rates. The spread between these rates therefore measures various risk premia and is considered a proxy indicator for risk in the banking sector.

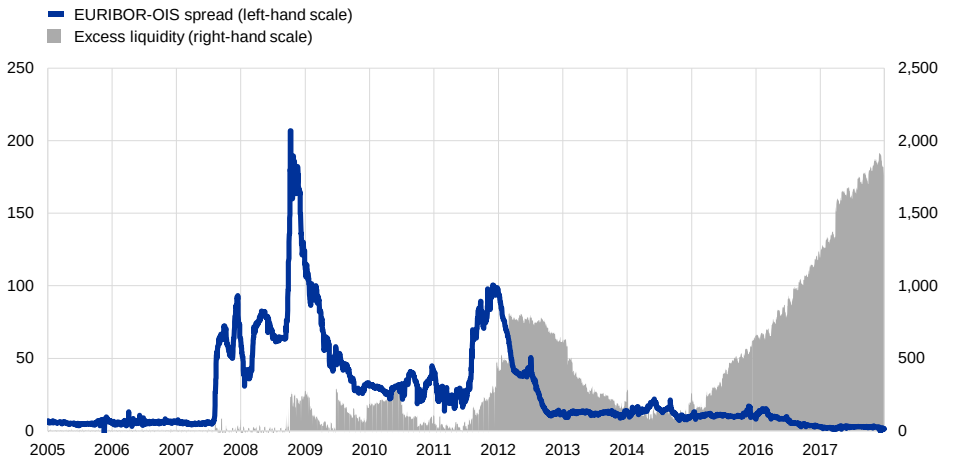
122 The EURIBOR-OIS spread reflects the perceived credit risk of prime banks. Hence, it may only signal stress when tensions in the money market are severe enough to affect prime banks as well.

123 Increasing levels of excess liquidity reduce banks' funding needs and dampen trading volumes generally. Cross-border trading volumes in particular may decline as such transactions entail greater monitoring costs. At the same time, however, with substantial amounts of excess liquidity distributed to entities without access to the ECB's deposit facility, the share of cross-border volumes can increase (e.g. in 2017) as these entities deposit euro reserves with banks located in the euro area.

Chart 1

Three-month EURIBOR-OIS spread and excess liquidity

(left-hand scale: basis points; right-hand scale: EUR billions; daily data)

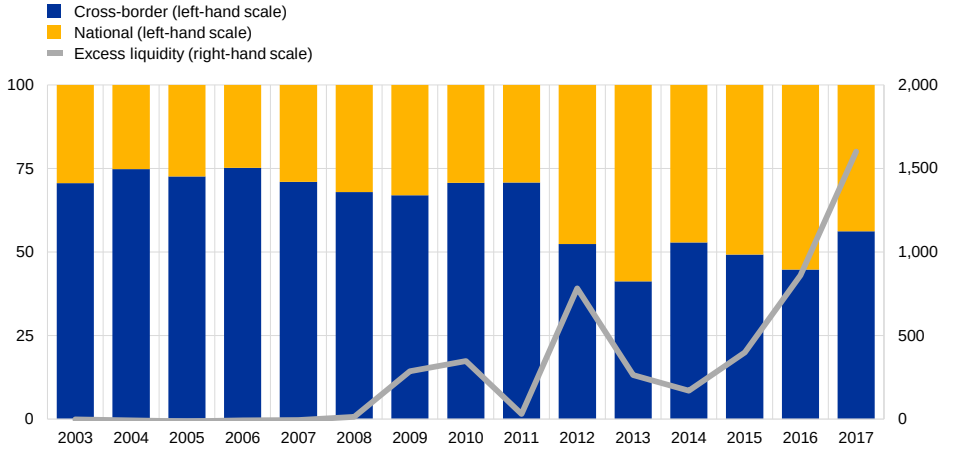


Sources: Bloomberg and ECB calculations.
Note: The latest observations are for 31 December 2017.

Chart 2

Geographical distribution of money market transactions

(left-hand scale: percentages of total volume; right-hand scale: EUR billions; annual data)



Sources: ECB "Financial integration in Europe" report 2018, ECB's Euro Money Market Survey, ECB money market statistical reporting (MMSR) and ECB calculations.
Notes: Data refer to the second quarter of each year. Data for 2016 (third quarter) and 2017 are taken from the MMSR dataset. All data pertain to those reporting banks that were part of both the Money Market Survey panel and the MMSR database. These data are still subject to potential revision. The excess liquidity series shows levels at the end of the second quarter of each year.

Existing fragmentation indicators could be improved by both taking into account a broader set of transactions and controlling for the prevailing level of policy support. Considering indicators based on all money market transactions rather than a subset of trades or quotes (e.g. EURIBOR) can provide insight into smaller pockets of stress that may not be visible otherwise. In addition, given the endogeneity between fragmentation and monetary policy support, indicators that aim to control for the impact of monetary policy can shed light on underlying fragmentation. The next section proposes a new indicator of fragmentation for the unsecured overnight interbank market that takes these factors into account.

3 Fragmentation from a monetary policy transmission perspective: a new indicator based on unsecured overnight interbank transactions

This section details the construction of a new indicator of money market fragmentation. It starts with an overview of the theoretical underpinnings of the indicator, in particular the question of how unsecured short-term rates are determined in a corridor system under different liquidity conditions. It then explains the steps needed to build the indicator.

3.1 Rate formation in a corridor system and the impact of excess liquidity on market rates and volumes

Rate formation in the unsecured overnight interbank money market is a function of the ECB's key policy rates and the quantity of reserves provided by the central bank. Under balanced liquidity conditions, whereby central bank liquidity provision is calibrated to fulfil the liquidity needs of the banking sector arising from reserve requirements and autonomous factors, overnight rates in the unsecured interbank money market are anchored to the main refinancing operations (MRO) rate. The rates on the standing facilities – the marginal lending facility and the deposit facility – provide a corridor around the MRO rate and serve as a ceiling and a floor for rates in the unsecured overnight interbank money market (assuming both counterparties in the trade have access to these facilities).

The position of rates within the corridor, as well as transaction volumes, depends on the level of reserves in the banking system. When liquidity conditions are neutral, the central bank provides just enough reserves to meet the needs of the banking sector at a rate linked to the MRO rate.[124] Hence, the end-of-day marginal value of reserves is equal to the MRO rate (assuming no fragmentation in the market). In general, the end-of-day marginal value is a weighted average of the rates on the marginal lending and deposit facilities, whereby the weights are a function of the probability of taking recourse to either facility (see Chart 3). In the context of full allotment tender procedures and the asset purchase programme (APP), the level of reserves provided by the Eurosystem has greatly exceeded the liquidity needs of the banking system over recent years. This has resulted in high levels of excess liquidity, which has reduced trading volumes and made the deposit facility rate (DFR) the effective anchor for market rates (as the probability of end-of-day recourse to the deposit facility has effectively increased to one).[125]

---

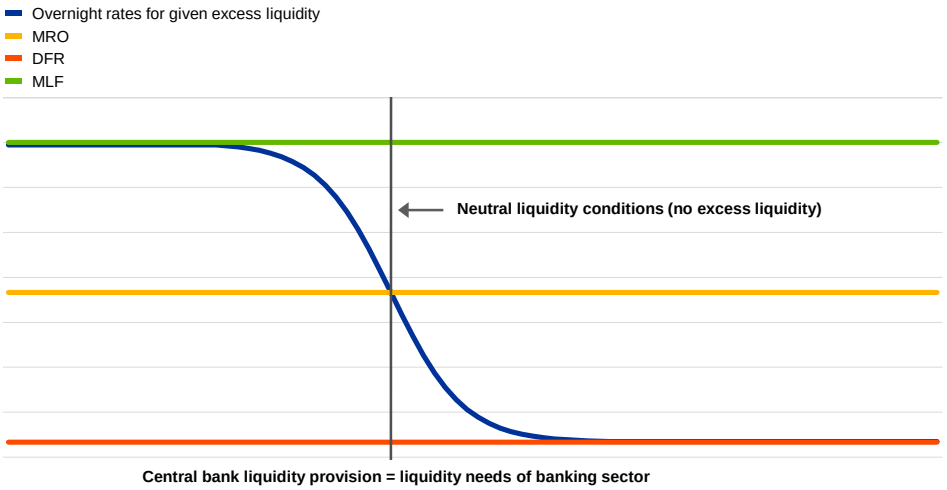
[124] Under variable rate tender procedures, the MRO rate is a minimum bid rate for participation in Eurosystem liquidity-providing repurchase operations. Under fixed rate tender procedures with full allotment, the MRO rate is the actual rate at which banks participate in these operations.

[125] The standing facilities corridor can reduce transaction volumes by curtailing the range of rates that can prevail in the market. If credit risk premia rise substantially so as to push market rates outside of the corridor, banks will use the standing facilities rather than trade in the interbank market (assuming they have sufficient collateral and are not concerned about possible stigma effects of using central bank facilities). For further discussion of rate formation in a corridor system, see Bindseil, U., *Monetary Policy Operations and the Financial System*, Oxford University Press, Oxford, 2014.

Chart 3

Stylised relationship between unsecured overnight interbank rates and the ECB's key policy rates in the absence of fragmentation

(x-axis: central bank liquidity provision; y-axis: unsecured overnight interbank rate)



Notes: This is a stylised chart illustrating a symmetrical standing facilities corridor. The same broad concepts apply to an asymmetrical corridor. MLF, MRO and DFR stand for the rates that apply to the marginal lending facility, the main refinancing operations and the deposit facility, respectively. To the left of the grey line, there is a shortage of reserves in the banking sector; to the right of the grey line, there is excess liquidity (i.e. a surplus of reserves).

The distribution of central bank reserves in itself is not an indicator of fragmentation. As discussed in Eisenschmidt et al., the financial structure of the euro area has led to excess liquidity accumulating in particular locations during the period of the APP.[126] This concentration of excess liquidity is not necessarily indicative of fragmentation. Assuming risk neutrality, arbitrage ensures that rates in the unsecured overnight interbank market are equilibrated across banks, and thereby across countries, within the euro area. The extent to which arbitrage opportunities exist and are not exploited, however, does convey information on fragmentation. This concept is the basis for the discussion in Section 3.2.

3.2 Construction of the new indicator

Full fungibility of central bank reserves across borders implies that the rate paid by any bank to borrow reserves in the unsecured overnight market should be a function of the aggregate, rather than domestic, level of excess liquidity.[127] The blue line in Chart 4 presents a stylised illustration of the relationship between the weighted average euro area overnight rate in the unsecured interbank

[126] See Eisenschmidt, J., Kedan, D., Schmitz, M., Adalid, R. and Papsdorf, P., "The Eurosystem's asset purchase programme and TARGET balances", *Occasional Paper Series*, No 196, ECB, 2017.

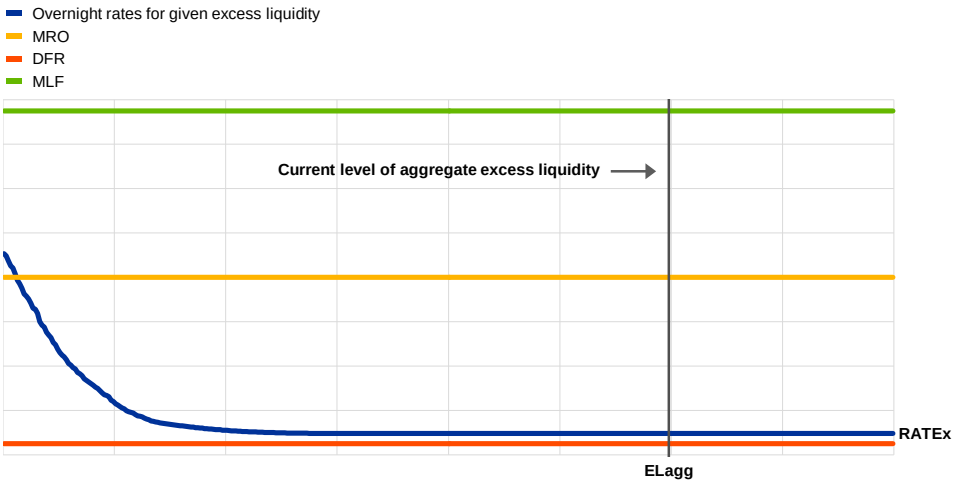
[127] The implication of full fungibility does not stop at borders. In principle, full fungibility (or no fragmentation) implies that interbank rates should be correlated with aggregate excess liquidity levels and not with excess liquidity levels pertaining to smaller subsets of banks, like those located in the same country. Data availability and the nature of fragmentation, which often affects cross-border trades, have driven the focus of this analysis on the country dimension of fragmentation by comparing rates implied by country-level excess liquidity with rates implied by aggregate excess liquidity.

money market ($RATE_x$) and aggregate excess liquidity (EL_{agg}).[128] With an aggregate level of excess liquidity denoted by the grey line, the unsecured overnight interbank rate equals $RATE_x$. Abstracting from technical or fundamental factors that may impact rates, it follows from the monetary policy transmission-based definition of fragmentation presented in Section 2 that rates should equal $RATE_x$ across banks regardless of the levels of excess liquidity banks are exposed to in their domestic markets. Charts 5 and 6 show stylised examples of a fragmented and a non-fragmented market under conditions of aggregate excess liquidity given by EL_{agg} in Chart 4. In the fragmented market, there is a clear correlation between rates and the country level of excess liquidity: the country-level rates rise higher above $RATE_x$ as the level of domestic excess liquidity falls (yellow region of the chart). In the non-fragmented market, rates are equal to $RATE_x$ regardless of the domestic level of excess liquidity.

Chart 4

Stylised relationship between aggregate excess liquidity and the unsecured overnight interbank rate in the euro area

(x-axis: aggregate excess liquidity; y-axis: unsecured overnight interbank rate)



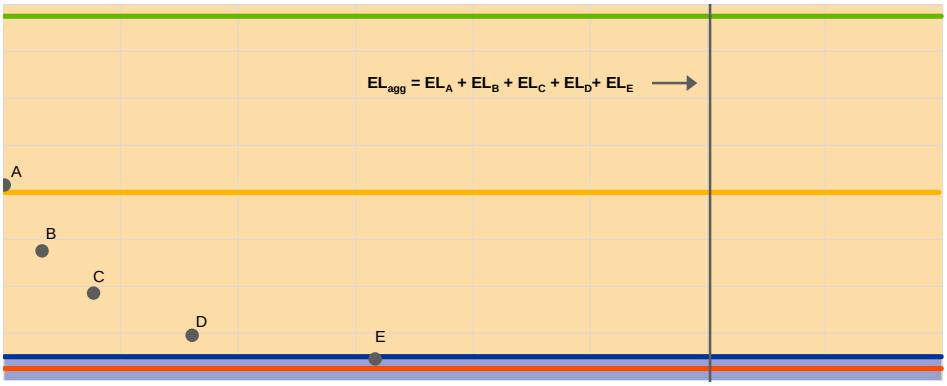
Notes: This is a stylised chart illustrating a symmetrical standing facilities corridor. The same broad concepts apply to an asymmetrical corridor. MLF, MRO and DFR stand for the rates that apply to the marginal lending facility, the main refinancing operations and the deposit facility, respectively.

[128] As explained in Section 3.1 and shown in Chart 3, the shape of the blue line reflects the probability of having to take recourse to one of the standing facilities, which in turn is related to the amount of excess liquidity in the system.

Chart 5

Stylised example of a fragmented market

(x-axis: country-level excess liquidity; y-axis: country-level unsecured overnight interbank rate)

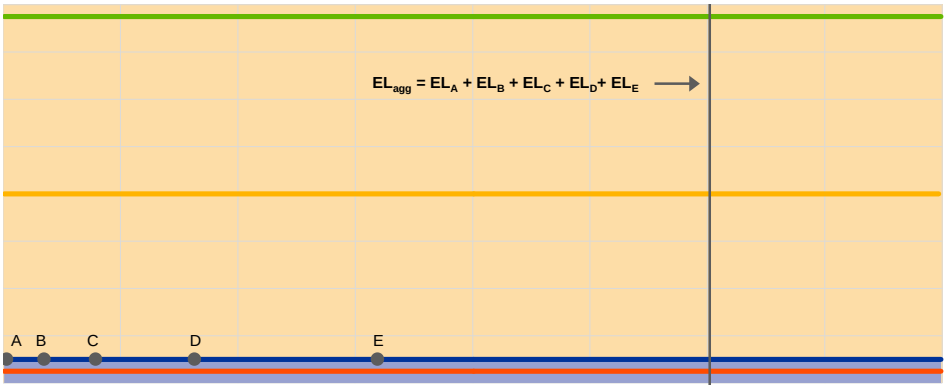


Notes: This is a stylised chart illustrating a symmetrical standing facilities corridor. The same broad concepts apply to an asymmetrical corridor. MLF, MRO and DFR stand for the rates that apply to the marginal lending facility, the main refinancing operations and the deposit facility, respectively. $RATE_x$ is the aggregate unsecured overnight interbank rate in the euro area for the level of aggregate excess liquidity denoted by EL_{agg}, as shown in Chart 4. EL_{agg} is the sum of excess liquidity across all countries. EL_A, EL_B, EL_C, EL_D and EL_E denote the levels of excess liquidity in countries A, B, C, D and E.

Chart 6

Stylised example of a non-fragmented market

(x-axis: country-level excess liquidity; y-axis: country-level unsecured overnight interbank rate)



Notes: See Chart 5.

In order to translate the monetary policy transmission-based definition of fragmentation into an indicator, it is necessary to establish the aggregate interest rate spreads against the DFR that would be expected to prevail in a non-fragmented market for every level of aggregate excess liquidity (i.e. threshold spreads). This exercise should be based on transactions of entities that have access to the Eurosystem's standing facilities (i.e. euro area banks) and on rates that are adjusted for counterparty credit risk in order to isolate rate differentials attributable to fragmentation from those owing to technical and fundamental factors. The relationship between excess liquidity and money market rates is in itself a function of the state of fragmentation.[129] Therefore, the thresholds should ideally be derived from pre-crisis data, when money markets were perceived as being completely non-fragmented. This is not possible for two reasons: first, transaction-level data for the interbank overnight money market are not available for the period prior to the go-live date of TARGET2 in May 2008; and second, levels of excess liquidity were minimal prior to the crisis.[130]

Historical risk-adjusted unsecured overnight interbank transaction data for euro area banks during periods of relatively low market stress since 2008 are used to derive threshold spreads against which the current level of fragmentation can be benchmarked. First, unsecured overnight interbank borrowing rates derived from TARGET2 payment system data[131] are adjusted for counterparty credit risk.[132] Second, the sampling period is chosen by finding a compromise between having sufficient variation in the level of excess liquidity on the one hand and ensuring that the period represents relatively benign money market conditions on the other.[133] Third, a regression spline is fitted to the relationship between aggregate risk-adjusted rate spreads against the DFR and aggregate excess liquidity over these time periods. Finally, the threshold spreads are obtained by using the 95% tolerance interval corresponding to the estimated regression spline (see Chart 7).

---

129 See "Recent developments in excess liquidity and money market rates", *Monthly Bulletin*, ECB, January 2014, pp. 69-82.

130 Excess reserves, which are the part of banks' current accounts not needed to fulfil reserve requirements, averaged €1.2 billion between 2004 and July 2007, while recourse to the deposit facility averaged around €190 million over the same period.

131 These rates are identified from TARGET2 transaction data using the method described by Frutos, J.C., Garcia-de-Andoain, C., Heider, F. and Papsdorf, P. in "Stressed interbank markets: evidence from the European financial and sovereign debt crisis", *Working Paper Series*, No 1925, ECB, 2016.

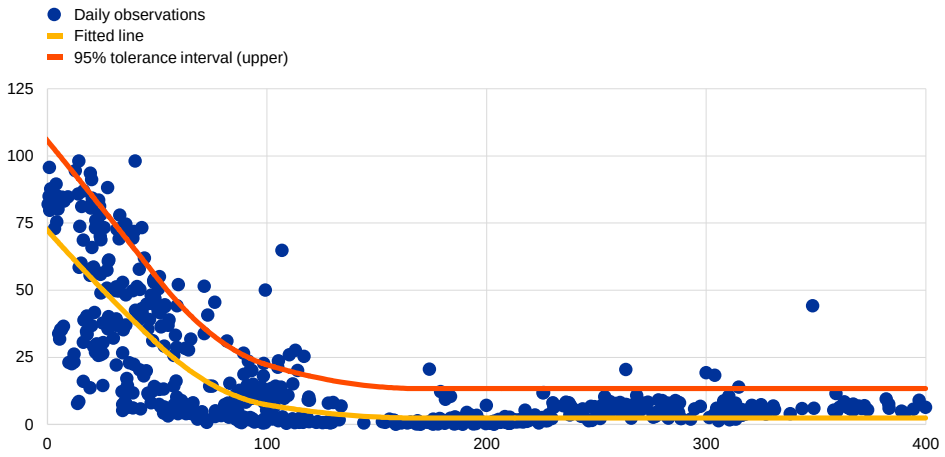
132 Risk-adjusted rates are calculated by regressing the volume-weighted average TARGET2 borrowing rates for each country on the median CDS spread across banks located in the respective country. Pooled OLS is used to estimate the risk-adjusted rates for vulnerable countries and other countries. The regressions are based on daily data from June 2008 to September 2017. The risk-adjusted rate is computed as the difference between the actual rate on day *t* and the coefficient estimate multiplied by the country's median bank-level CDS spread on day *t*.

133 A variety of indicators are used to identify periods of varying length between June 2008 and August 2013 during which money market conditions were relatively calm. In order to assess the state of market fragmentation since the June 2014 package of policy measures was announced, August 2013 is used as a cut-off point for the identification of relatively benign money market conditions. The periods of relatively low overall stress are 1 June-27 August 2008, 1 July 2009-30 June 2011 and 1 January-30 August 2013.

Chart 7

Euro area volume-weighted risk-adjusted average borrowing rate spreads against the DFR and aggregate excess liquidity during periods of relatively low financial market stress since 2008

(x-axis: aggregate excess liquidity in EUR billions; y-axis: spread between euro area volume-weighted risk-adjusted average borrowing rate and the DFR in basis points)

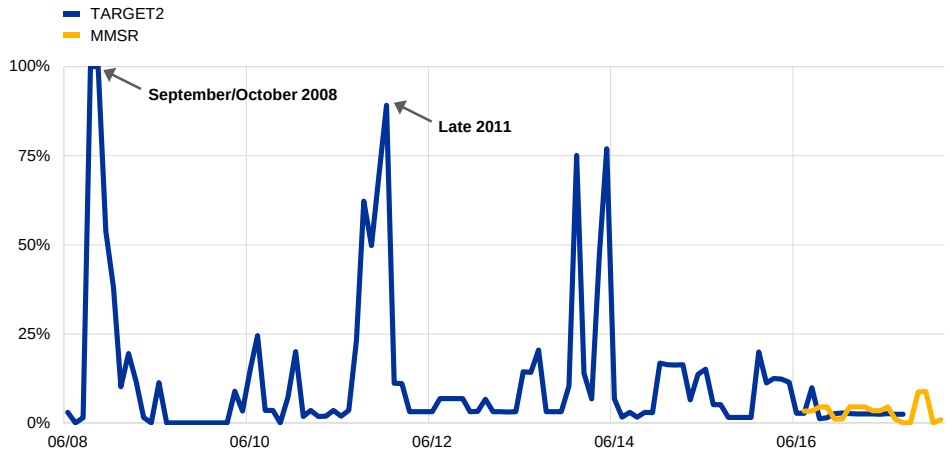


Sources: TARGET2, ECB and ECB calculations.
Notes: The scatter plot shows the spread of euro area volume-weighted average unsecured overnight borrowing rates corrected for risk to the DFR. Risk-adjusted rates are calculated by regressing the volume-weighted average TARGET2 borrowing rates for each country on the median CDS spread across banks located in the respective country. Pooled OLS is used to estimate the risk-adjusted rates for vulnerable countries and other countries. The regressions are based on daily data from June 2008 to September 2017. The risk-adjusted rate is computed as the difference between the actual rate on day *t* and the coefficient estimate multiplied by the country's median bank-level CDS spread on day *t*. The scatter plot shows daily rates during the following periods: 1 June-27 August 2008; 1 July 2009-30 June 2011; 1 January-30 August 2013. The fitted line is derived from a B-spline regression.

A fragmentation indicator is constructed by comparing rates observed at the country level with the estimated threshold rates. Country-level monthly averages of volume-weighted unsecured overnight interbank rates adjusted for counterparty risk are compared with the estimated threshold levels. From July 2016 onwards, data collected under the Money Market and Statistical Reporting (MMSR) regulation can be used to complement the rates derived from TARGET2 payment system data. If a country's volume-weighted risk-adjusted average rate exceeds the threshold level corresponding to the aggregate level of excess liquidity prevailing in a given month, the country's banking sector is classified as having impaired market access in that month. Countries are then weighted by their share of the sum of banking sector assets across the sample of countries. Hence, countries with larger banking sectors are given more weight. The resulting fragmentation indicator estimates the share of euro area banking sectors with impaired access to the unsecured overnight interbank market at country level (see Chart 8).

Chart 8

Share of euro area banking sectors with impaired access to the unsecured overnight interbank money market at country level



Sources: TARGET2, MMSR, ECB and ECB calculations.
Notes: Impaired access is determined by comparing risk-adjusted rate spreads against the DFR at country level with a threshold spread level implied by the historical relationship between aggregate excess liquidity and risk-adjusted rates during low stress periods. The sample of banks is adjusted so that both series cover the same range of countries. The latest observations are for August 2017 for TARGET2 data and December 2017 for MMSR data.

4 Development and properties of the new indicator

Compared to the periods of relatively low financial market stress from mid-2008 to mid-2013, fragmentation seen through the lens of reserve tradability is estimated to also have been low at the end of 2017. Fragmentation peaked in late 2008 following the bankruptcy of Lehman Brothers, when banks in all euro area countries were estimated to have had impaired market access (see Chart 8). By around mid-2009, however, banks in all those countries appeared to have regained full access to market funding based on the interest rates prevailing in domestic money markets at that time. Fragmentation rose again in the spring of 2010 as the sovereign debt crisis began, and increased sharply by late 2011 as the crisis intensified. As aggregate excess liquidity increased following the allotment of the three-year longer-term refinancing operations (LTROs) in December 2011 and February 2012, unsecured overnight interbank rates across countries declined. However, the fragmentation measure increased through mid-2014 due to a reduction in excess liquidity and growing uncertainty about its path from late 2013 onwards owing to early repayments in the three-year LTROs, as well as some repricing in the money market against the background of the comprehensive assessment. It also remained somewhat elevated in the months following the introduction of negative rates on the DFR, as banks were initially reluctant to trade at negative interest rates, resulting in higher money market rates; the full pass-through of negative policy rates only materialised in early 2015. A decline in the level of fragmentation followed the cessation in June 2014 of the liquidity-absorbing fine-tuning operations related to the Securities Markets Programme and the announcement of the package of measures

aimed at expanding the Eurosystem balance sheet. Some fragmentation remained in 2017, albeit at relatively low levels.

The new fragmentation indicator complements existing measures by better controlling for the degree of prevailing monetary policy support and generally offering a more nuanced view of fragmentation. The indicator is benchmarked against the observed relationship between unsecured overnight rates and excess liquidity during periods of low money market stress. This exercise helps to control for the endogeneity between the level of fragmentation and monetary policy accommodation as higher fragmentation has typically coincided with higher levels of excess liquidity, but also with a change in the relationship between overnight rates and excess liquidity. Furthermore, the indicator is based on all money market transactions in a given period rather than on market quotes or a subset of trades. It is also constructed from data on rates and volumes, thus reflecting price and quantity dimensions of fragmentation.

As with any other indicator, however, the new fragmentation measure has its limitations and should be considered alongside a range of fragmentation measures. Ideally, the indicator would control for the width of the interest rate corridor as, all else being equal, rate spreads against the DFR should be lower for a given level of fragmentation the narrower the corridor. However, there is not enough variation over time in the width of the corridor at different levels of excess liquidity to reliably estimate adjustment coefficients. In any case, with high levels of excess liquidity, the analysis indicates that the elasticity of market rates to changes in the corridor width is minimal. Hence, it is only necessary to take into account the corridor width when interpreting the indicator when the aggregate level of excess liquidity is much lower than at the end of 2017.

Another caveat of the indicator is that it is based on a panel of banks that changes over time and cannot capture trades that did not take place because of fragmentation. The changing panel implies that an observed increase in measured fragmentation could be caused by (a) deteriorated trading conditions for the same banks or (b) changes in the composition of the panel. Furthermore, changes in the composition of the panel could be due to new banks joining the panel or existing banks leaving the panel, or both. The potentially changing composition of the panel highlights the risk of a sampling bias because the indicator does not take into account money market trading that is not observed. At the extreme, the indicator will substantially underestimate the true level of fragmentation when the panel of trading banks is exclusively made up of banks with good market access because the stressed banks, with counterfactually impaired market access, are not active any more. When banks regain market access, probably at higher rates, the indicator will overestimate fragmentation. If, intentionally or not, certain monetary policy measures work through disintermediation, this problem could become larger. To overcome this

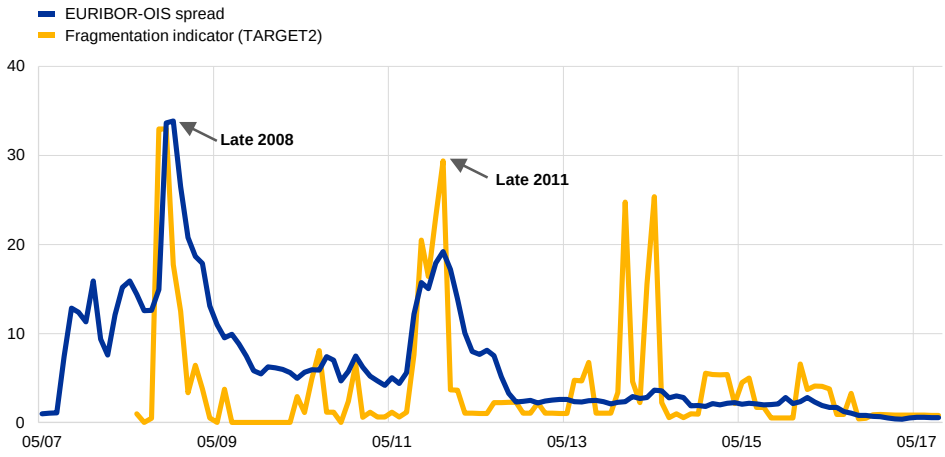
limitation, it is necessary to model banks' participation in the market. This would facilitate an adjustment in the indicator based exclusively on observed rates.[134]

The new indicator sends a message that is broadly comparable to the EURIBOR-OIS spread but is more precise in tracking times of market adjustment, like the period leading up to the comprehensive assessment of euro area banks (see Chart 9). The indicator does a good job of tracking the periods of high stress during the Lehman Brothers episode and the euro area sovereign debt crisis. Remarkably, in contrast to the EURIBOR-OIS spread, it puts the stress levels at the end of 2011 on a par with those experienced after the collapse of Lehman Brothers. This difference could be attributable to the prevailing degree of policy support that arguably affects the EURIBOR-OIS spread more than the new indicator. The episode around the comprehensive assessment (late 2013 to late 2014) is signalled as a period of money market fragmentation, which is a plausible finding although the underlying reason for the fragmentation is largely unrelated to financial market stress. Finally, the indicator points to low levels of fragmentation in 2017, in line with the signal given by the EURIBOR-OIS spread.

Chart 9

Fragmentation indicator based on TARGET2 data and three-month EURIBOR-OIS spread

(the start of each series is indexed to a value of 1.0)



Sources: Bloomberg, TARGET2, ECB and ECB calculations.
Notes: The EURIBOR-OIS spread starts in May 2007 while the fragmentation indicator (based on TARGET2 data) starts in June 2008. The latest observations are for August 2017.

134 Looking at interbank volumes would be a simple way to check the driving forces of "renewed" fragmentation due to banks joining the market at higher rates that had previously been excluded due to their risk profile. If the indicator increases because of banks joining, overall volumes should increase and central bank intermediation should decrease.

3 Private consumption and its drivers in the current economic expansion

Prepared by Maarten Dossche, Magnus Forsells, Luca Rossi and Grigor Stoevsky

This article documents the key role that private consumption has played in recent output growth (2013-18), and asks how long the current growth in consumption can continue and whether it is self-sustaining. To that end, this article tries to identify the relative importance of different factors driving consumption, such as the recovery in the labour market, accommodative monetary policy, the 2014-15 drop in oil prices, the increase in asset prices, the easing of credit conditions and deleveraging. As the fall in consumption from 2008 to 2013 was very heterogeneous across countries, this article also sheds light on the extent to which the current expansion has actually led to a net increase in consumption over the past decade. This is relevant because private consumption is also a prime indicator of the economic well-being of households.

While the growth of consumption has been low compared with previous expansions, since 2013 it has exceeded initial expectations. It has been driven mainly by the recovery in the labour market, even though unemployment in some countries and for some groups of workers remains higher than before 2008. Looking forward, as labour markets continue to improve, private consumption should expand further in all countries and for all groups of workers. Through its impact on the labour market, the ECB's accommodative monetary policy is not only contributing to the expansion of private consumption, but also to a decrease in inequality. At the same time, there is little evidence that low interest rates have led to generalised increases in household indebtedness, supporting the sustainability of the overall economic expansion.

1 Introduction

Euro area private consumption has played a significant role in the current economic expansion since its start in 2013. In some euro area countries the initial increase in private consumption was even stronger than the increase in investment, although that is typically the fastest-growing demand component during an economic expansion. Five years into the current expansion, the question is how long the current pace of consumption growth can continue. For an assessment of the current euro area economic outlook it is therefore essential to uncover the drivers of the recent expansion in private consumption.

The analytical approach in this article has been influenced by the lessons from the financial crisis. It has long been recognised that certain aspects of the data are at odds with the standard life-cycle/permanent income hypothesis, which suggests

that private consumption should not react to transitory income changes.[135] This has led to several extensions of the theory of consumption (including income uncertainty and liquidity constraints) stressing the importance of individual household characteristics.[136] The importance of this was further demonstrated by economic developments during and after the Great Recession. This article therefore presents evidence on the drivers of private consumption both from an aggregate and a disaggregate perspective, including the interaction with income and wealth inequality. In addition, the country-specific macroeconomic environment, in particular through conditions in labour and housing markets, has greatly affected private consumption dynamics across countries in the euro area. The country dimension is therefore explored in more depth where relevant.

This article is structured as follows. Section 2 assesses the strength of consumption growth in the ongoing expansion, both from a historical perspective and across different countries and consumption categories. Section 3 reviews the drivers of real household income. Section 4 reviews developments in household wealth and indebtedness. Section 5 concludes and assesses the outlook for consumption growth. Box 1 provides more detailed evidence on the importance of income and wealth effects for euro area private consumption. Box 2 analyses the interaction between monetary policy, household inequality and private consumption.

2 Consumption in the ongoing economic expansion

2.1 A consumption-led economic expansion?

Since the beginning of the current economic expansion in 2013, growth has been driven mainly by private consumption. As private consumption is the biggest expenditure component, this may be considered normal; in 2017 private consumption accounted for about 55% of gross domestic product (GDP). However, it stands in stark contrast to the 2009-11 recovery, where on average only about 10% of euro area GDP growth was driven by private consumption (see Chart 1).[137] This observation is not confined to the euro area only. In the recent economic expansion many industrialised countries have witnessed strong consumption dynamics, often with consumption growth exceeding that of investment.[138]

---

135 See Friedman, M., "A Theory of the Consumption Function", Oxford Publishing Company, 1957; and Hall, R., "Stochastic Implications of the Life Cycle-Permanent Income Hypothesis: Theory and Evidence", *Journal of Political Economy*, Vol. 86, 1978, pp. 971-987.

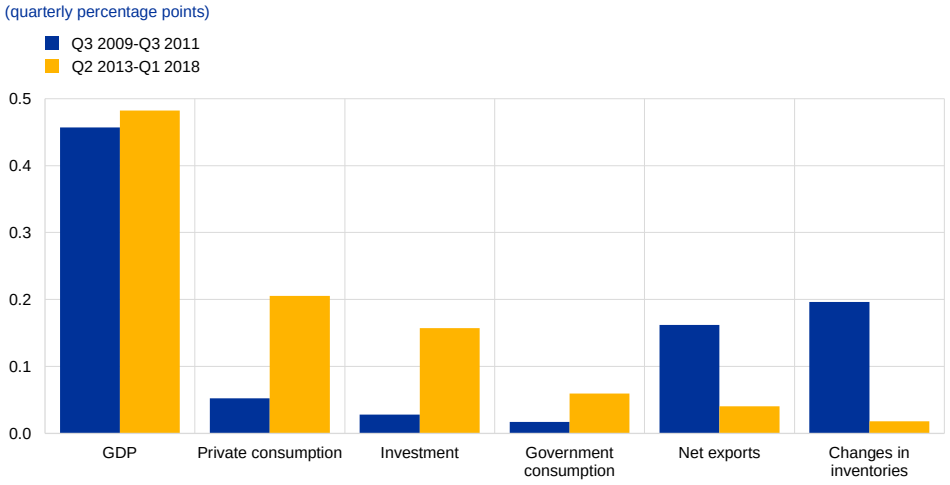
136 See for instance Deaton, A., "Saving and liquidity constraints", *Econometrica*, Vol. 59, 1991, pp. 1221-1248; Stein, J., "Prices and trading volume in the housing market: a model with down-payment effects", *Quarterly Journal of Economics*, Vol. 110, 1995, pp. 379-406; and Ahn, S., Kaplan, G., Moll, B., Winberry, T. and Wolf, C., "When Inequality Matters for Macro and Macro Matters for Inequality", *NBER Macroeconomics Annual*, Vol. 32, 2017.

137 See also the box entitled "Factors sustaining the ongoing recovery", *Annual Report*, ECB, 2016.

138 See Kharroubi, E. and Kohlscheen, E., "Consumption-led expansions", *BIS Quarterly Review*, Bank for International Settlements, March 2017.

Chart 1

Average contributions to GDP growth

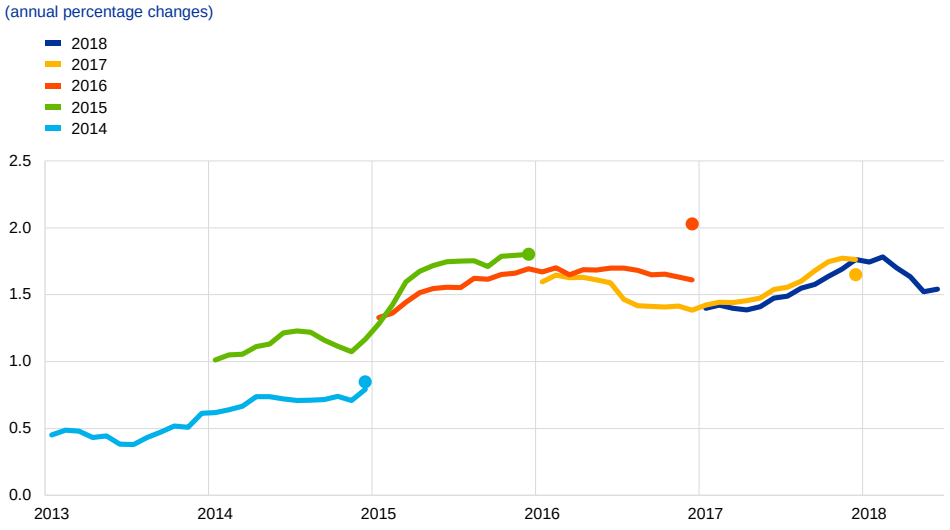


Sources: Eurostat and ECB calculations.

Private consumption growth has systematically exceeded professional forecasters' initial expectations. Chart 2 shows how, for every year since the start of the current economic expansion, actual annual consumption growth has exceeded the initial forecasts for private consumption. This is particularly evident in 2014-15, when the initial consumption growth forecasts considerably underestimated the final momentum of this expenditure component. This period coincided with an unexpected drop in oil prices, which gave a considerable boost to euro area households' purchasing power. Since then, consumption growth has hovered around 1.7% per annum.

Chart 2

Monthly forecast vintages of euro area private consumption

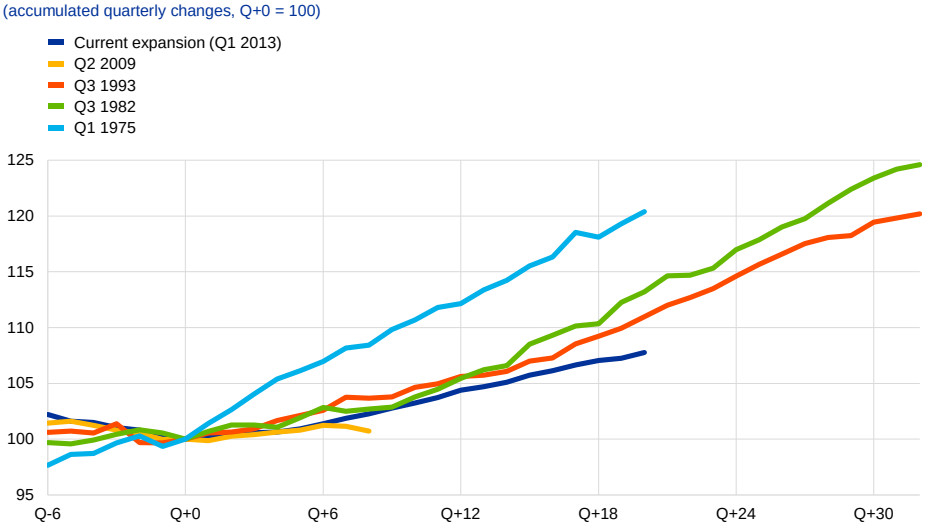


Sources: Consensus Economics, Eurostat and ECB calculations.
Note: Dots refer to Eurostat's most recent release of actual annual consumption growth data.

From a historical perspective, the expansion in private consumption has nevertheless remained weak. In fact, the current expansion in private consumption is among the weakest since the 1970s (see Chart 3).[139] However, the recent expansion in GDP has also been among the slowest on record. This observation is again not confined to the euro area only. Most industrialised countries have witnessed GDP growth below that of previous expansions.[140] This raises the question as to how much factors specific to the household sector (e.g. income and wealth developments, or borrowing constraints) have dampened the expansion in private consumption. In other words, has consumer spending that is *conditional* on household income and wealth been exceptionally weak during the past five years?

Chart 3

Historical expansions of euro area private consumption



Sources: Eurostat and ECB calculations.
Note: Q+0 represents the trough of the euro area business cycle as identified by the Euro Area Business Cycle Dating Committee.

Since 2013 private consumption has been closely aligned with developments in household income and wealth. Chart 4 presents a counterfactual consumption path, similar to that developed in Pistaferri, based on an estimated relationship between pre-crisis private consumption and household income and wealth developments.[141] The two textbook determinants of private consumption, household income and wealth, seem to explain the largest part of consumption growth since 2013. Only during the period of the Great Recession and the sovereign debt crisis was private consumption lower than this simple relationship with income and wealth would suggest. Since 2013 private consumption has recovered strongly; since mid-2016 it stands even higher than the estimated pre-crisis relationship with income and

139 See also Vermeulen, P., "The recovery of investment in the euro area in the aftermath of the Great Recession: how does it compare historically?", *Research Bulletin*, No 28, ECB, 2016.

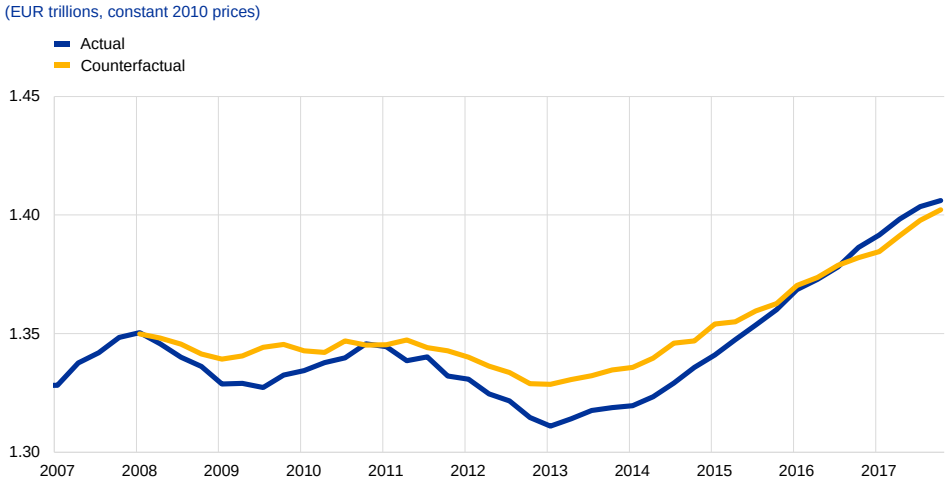
140 See for instance Fernald, J., Hall, R., Stock, J. and Watson, M., "The disappointing recovery of output after 2009", *Brookings Papers on Economic Activity*, 2017, pp. 1-54.

141 See Pistaferri, "Why has consumption remained moderate after the Great Recession?", paper presented at the Federal Reserve Bank of Boston's 60th Economic Conference "The Elusive 'Great' Recovery: Causes and Implications for Future Business Cycle Dynamics", 14 October 2016.

wealth suggests. This is also in line with a gradual decrease in the household saving ratio over the same period (see Section 4.2).

Chart 4

Consumption dynamics conditional on household income and wealth



Sources: ECB, Eurostat and ECB calculations.
Notes: The historical relationship between private consumption and household income and wealth is estimated using quarterly data from 1999 to 2007. The counterfactual consumption path from 2008 onwards is constructed using that estimated relationship and actual household income and wealth.

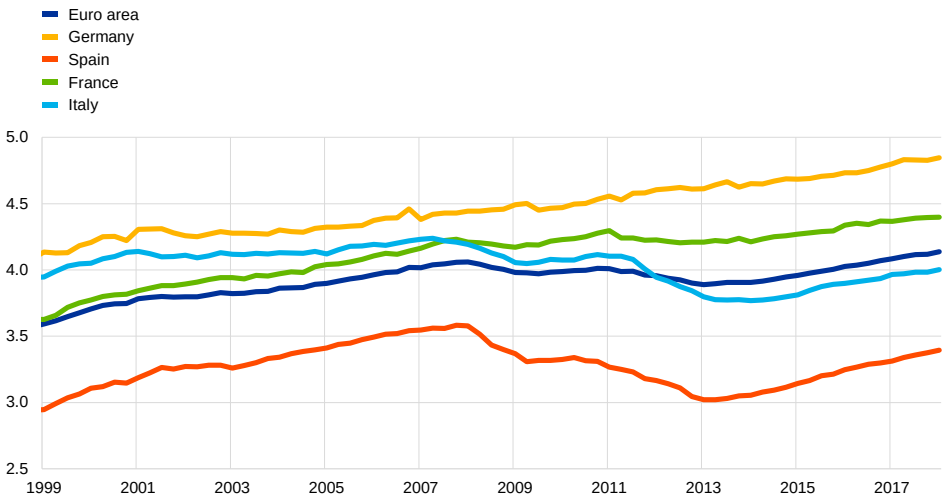
2.2 Consumption across countries

Consumption growth has been broad-based across countries since 2013, but the losses from the financial crisis have not been recouped everywhere. While some large euro area countries experienced strong declines in consumption as a result of the Great Recession and the sovereign debt crisis (e.g. Italy and Spain), other countries (e.g. Germany and France) have been much less affected (see Chart 5). Ten years after the start of the Great Recession private consumption in Germany and France stands about 10% higher than before it began. By contrast, consumption in Italy and Spain has not yet recovered completely. Since 2013, however, all countries have been on a clearly expansionary path. Spain, which experienced the deepest downturn, has shown the strongest expansion since 2013.

Chart 5

Consumption in the four largest euro area countries

(quarterly, EUR thousands per capita, constant 2010 prices)



Sources: Eurostat and ECB calculations.

2.3 Consumption across product categories

Household spending on durable goods is the part of private consumption that is most sensitive to the business cycle. Durable goods typically have an expected lifetime of more than three years, whereas semi-durables and non-durables have a much shorter lifetime. Households do not derive utility directly from spending on durable goods in the current period, but rather from the flow of services they provide over their lifetime. Households may decrease these purchases when their income is low, with a relatively small reduction in their utility, postponing them until periods when their income recovers. As a result, the consumption of durable goods varies more over the business cycle.[142]

Consumption of durables has recovered to "normal" levels. An important factor supporting recent durable goods consumption has been pent-up demand. The sharp drop in durable goods consumption during the crisis resulted in a decline in the effective stock of durables and a commensurate increase in its average age.[143] In the countries that were more affected by the financial crisis the average age of the stock of durable goods also increased more, which gave rise to pent-up demand as soon as economic conditions improved.[144] As the economic recovery progressed, households were able to increase spending on durable goods and offset earlier declines in their stock of durables. Since 2015, however, the positive impact of

142 See "Consumption of durable goods in the ongoing economic expansion", *Economic Bulletin*, Issue 1, ECB, Frankfurt am Main, 2018.

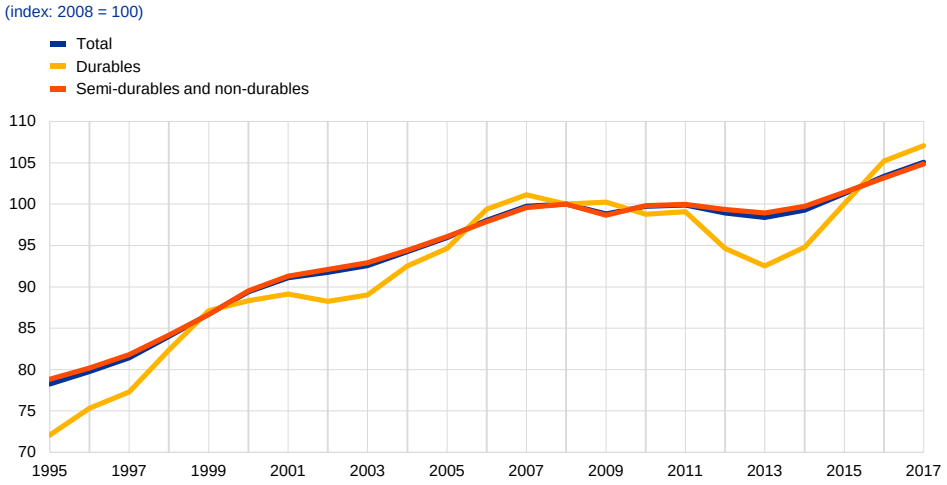
143 In 2009 consumption of durable goods was temporarily supported by the car scrappage schemes in several countries, which pushed up car sales. See "Recent developments in the consumption of durable goods in the euro area", *Monthly Bulletin*, ECB, Frankfurt am Main, May 2014.

144 See "Reabsorption of the pent-up demand for consumer durables", *Economic Bulletin*, Issue 4, Banco de España, 2017.

pent-up demand for durables has been declining. Following a long catch-up phase for private consumption, this can be regarded as a normalisation (see Chart 6).

Chart 6

Consumption of durable and non-durable goods



Sources: Eurostat and ECB calculations.
Note: The data point for 2017 has been computed using available data on real disposable income and consumption together with the historical income elasticity of durable goods.

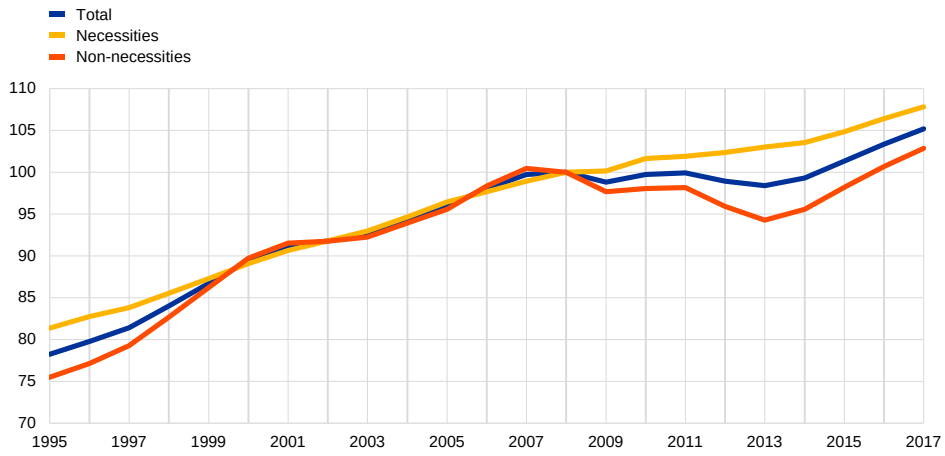
The consumption of necessities, which provide for basic human needs, suggests that there is more room for consumer spending to recover. Private consumption can also be split into necessities (e.g. food, health care and rent) and non-necessities (e.g. electrical appliances, holidays and restaurant visits), which each make up roughly 50% of total euro area private consumption. When households absorb a negative income shock, they mainly adjust their consumption of non-necessities. As a result, non-necessities have a higher income elasticity than necessities. However, in the long run both components of consumption can be expected to grow at a similar pace.[145] Chart 7 therefore suggests that as household income keeps rising, the consumption of non-necessities should further support total consumption. Put differently, the breakdown between necessities and non-necessities suggests that the cyclical recovery in euro area consumption can still be expected to last for some time.[146]

[145] This is confirmed by evidence from France and Finland in the 1980s and 1990s – for which longer time series are available – that shows that as the economy recovers, the path of these two components of private consumption converges again.

[146] See also McCarthy, J., "Discretionary services spending has finally made it back (to 2007)", *Liberty Street Economics*, 16 October 2017.

Chart 7

Consumption of necessities and non-necessities



Sources: Eurostat and ECB calculations.

Box 1

Income and wealth effects on euro area private consumption

Prepared by Gabe de Bondt, Arne Gieseck and Zivile Zekaite

This box reports empirical estimates of income and wealth effects on private consumption in the euro area since 1999. It follows a so-called thick modelling approach that considers a multiplicity of model specifications rather than a single "best" one. Thick modelling considers the uncertainty stemming from both model specifications and unstable parameters.[147] It is particularly useful for empirical applications using a short sample of "true" euro area data that starts in 1999, where model and parameter uncertainty are expected to matter. The thick modelling keeps those model specifications that reliably explain (in-sample) and forecast (out-of-sample) quarter-on-quarter growth of private consumption and have a solid theoretical basis.[148] It uses standard determinants from the consumption literature, distinguishing between long-run and short-run drivers of consumption. In the long run disposable income and wealth determine private consumption, assuming unit elasticity of total income and wealth combined. This assumption implies that consumer spending moves one-to-one with income and wealth in the long term. In the short run, besides income and wealth a rich set of other potential determinants is considered, such as interest rates, indebtedness, uncertainty and demographics.

In the long run, income has been the key driver of private consumption in the euro area since 1999. The estimated long-run elasticities of labour income are greater than those of non-labour income (alternatively, property and transfer income): typically they are about twice as

147 See Granger, C.W. and Jeon, Y., "Thick modelling", *Economic Modelling*, 21, 2004, pp. 323-343.

148 In technical detail, a five-step process selects those error correction model specifications with: 1) statistically significant coefficients, with the exception of the constant; 2) adjusted R-squared of at least 0.60; 3) no residual autocorrelation; 4) an out-of-sample forecast accuracy gain of at least 15% compared with a benchmark model consisting of only disposable income, financial and non-financial wealth; and 5) an economically meaningful sign of the coefficients. For a detailed description, see de Bondt, G.J., Gieseck, A. and Zekaite, Z., "Income and wealth effects: a thick modelling approach for euro area private consumption", paper presented at the EcoMod2018 conference, Venice, 4-6 July 2018.

big. The differences are smaller in terms of the proportion of additional income that an individual consumes, referred to as the marginal propensity to consume (MPC). The MPC out of labour income has been somewhat higher than the MPC out of non-labour income (see Table A). For wealth components, the average long-run elasticity of financial wealth is found to be four to five times larger than that of non-financial wealth. The average MPC out of financial wealth is found to be around 1 cent and out of non-financial wealth 0.1 cent. The estimated wealth effects are similar to those reported in the literature for the euro area.[149]

In the short run, labour income plays a bigger role in consumption growth than the other types of income. In the short run the estimated elasticity ranges are lower than those for the long run and vary between 0.1 and 0.3 for both labour and non-labour income. A similar range results for the second definition of labour income, whereas property and transfer income play a smaller role in consumption growth in the short run. For short-run wealth effects, the estimated elasticity range of financial wealth is smaller than that of non-financial wealth. This is in contrast to the long-run estimates, which show a larger impact for financial wealth than for non-financial wealth. This finding may be explained by the fact that financial asset prices are more volatile in the short run than house prices. Households may perceive financial wealth fluctuations as being less persistent with the result that they do not necessarily have an impact on short-run dynamics in consumption.

Table A

Income and wealth elasticities and marginal propensities to consume

(estimates for Q3 2001-Q3 2017, marginal propensity to consume (MPC) in euro cents)

	Long-run elasticity range	Long-run MPC range	Short-run elasticity range	Short-run MPC range
Income decomposition (i)				
Labour income	0.50-0.60	72-88	0.07-0.31	11-46
Non-labour income	0.29-0.37	63-80	0.12-0.24	26-54
Financial wealth	0.07-0.13	0.70-1.43	0.02-0.07	0.21-0.71
Non-financial wealth	0.01-0.03	0.05-0.15	0.03-0.12	0.14-0.55
Income decomposition (ii)				
Labour income	0.44-0.50	73-82	0.10-0.28	17-46
Property income	0.15-0.19	63-77	0.04-0.09	16-35
Transfer income	0.22-0.27	73-90	0.09-0.16	30-54
Financial wealth	0.07-0.11	0.73-1.12	0.02-0.04	0.25-0.45
Non-financial wealth	0.01-0.03	0.07-0.15	0.03-0.11	0.14-0.52

Source: Author calculations – see de Bondt, Gieseck and Zekaite.
Notes: Ranges and averages are based on selected equations from a thick modelling approach assuming long-run unit elasticity of income and wealth: 43 for the first income decomposition and 13 for the second. Labour income is defined in two different ways: (i) total compensation of employees minus direct taxes or total compensation of employees minus direct taxes and net social security contributions plus net social benefits and other current transfers; (ii) total compensation of employees plus mixed income (i.e. income of the self-employed) minus both net social security contributions and the labour income share of direct taxes. Property income is the sum of gross operating surplus excluding mixed income, net interest income, net other property income and net other current transfers. Non-labour/transfer income is the remaining part of disposable income.

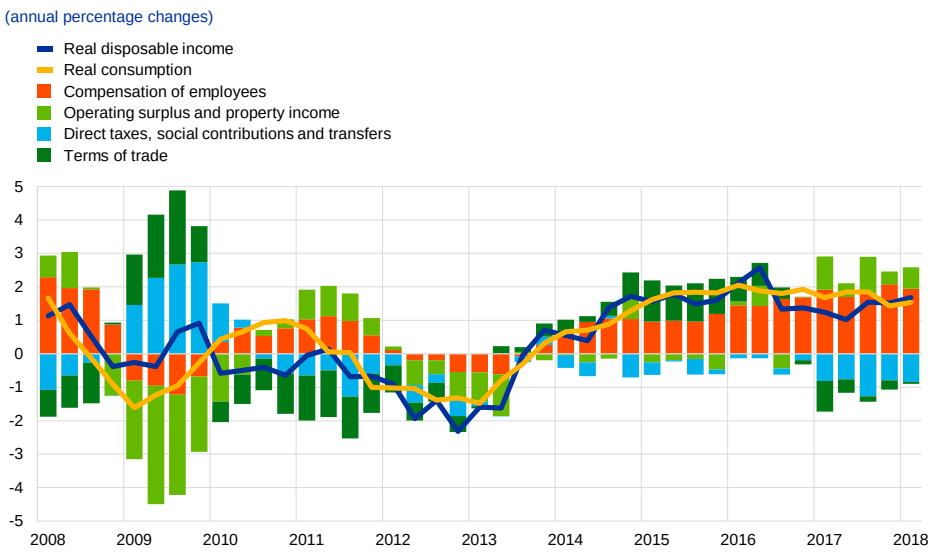
[149] For empirical evidence on euro area wealth effects, see Slacalek, J., "What drives personal consumption? The role of housing and financial wealth", *B.E. Journal of Macroeconomics*, Vol. 9(1), 2009, pp. 1-35; and Sousa, R.M., "Wealth effects on consumption: evidence from the euro area", *Working Paper Series*, No 1050, ECB, Frankfurt am Main, May 2009.

3 Developments in household income

Private consumption growth has closely followed growth in household income. This section sheds more light on the drivers of household income and their implications for overall spending on consumer goods. Chart 8 shows that in the early years of the expansion (2014-15), real disposable income was strongly supported by improvement in the terms of trade as a result of the fall in oil prices. At the same time, the compensation of employees gradually became the main driver of households' real disposable income. This stands in stark contrast to the contribution of property and mixed income, or the income households receive from holding assets, which has remained almost unchanged since 2010. As the economic expansion progressed, the contribution of taxes and transfers became somewhat more negative in 2017. In good times automatic fiscal stabilisers tend to have a dampening effect on the growth of real disposable income.

Chart 8

Household real disposable income



Sources: Eurostat and ECB calculations.
Note: All income components are deflated with the GDP deflator. The contribution from the terms of trade is proxied by the differential between the GDP and consumption deflators. Consumption and total disposable income are deflated with the consumption deflator.

3.1 Labour income

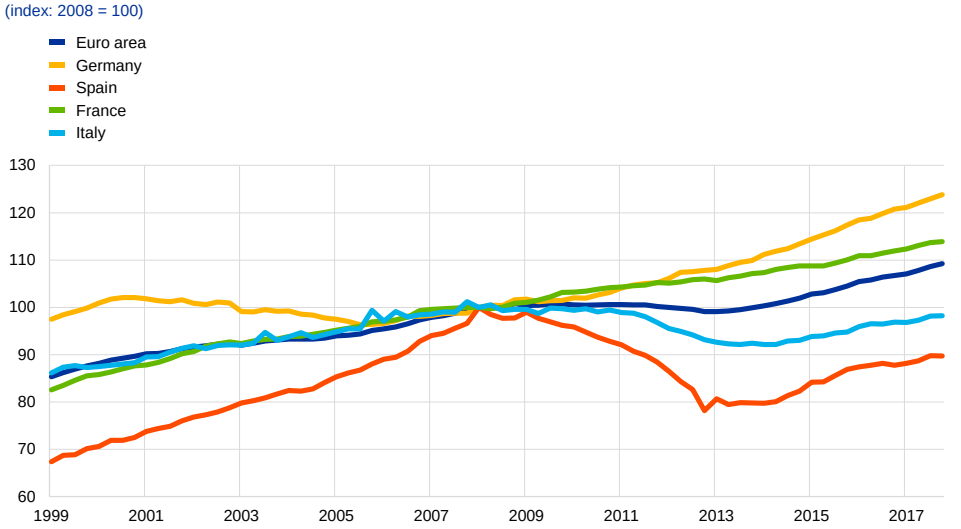
Despite broad-based increases, labour income in some countries remains significantly below its pre-2008 level. With an increase in the number of employed persons of around eight million since 2013, the current recovery in the euro area labour market has been remarkable.[150] However, these aggregate numbers conceal large differences. For example, in Italy and Spain real compensation of employees remains significantly lower than before the crisis (see Chart 9), on account of both

[150] See "Labour supply and employment growth", *Economic Bulletin*, ECB, Frankfurt am Main, Issue 1, 2018.

crisis-induced wage moderation and unemployment remaining elevated. Moreover, strong employment growth also reflects increased labour market participation among older as well as female workers. As the unemployment rate in some countries has not yet returned to pre-crisis levels, unemployment risk is still dampening consumption growth to some extent. Despite the strong consumption growth since 2013, this is clearly an important reason why, in these countries, private consumption has not yet recovered to its pre-crisis level (see Chart 5).[151]

Chart 9

Household real labour income across countries



Sources: Eurostat and ECB calculations.
Note: Real labour income is measured as compensation of employees divided by the consumption deflator.

Income risk remains elevated in the lower part of the income distribution. While the recovery in the labour market has boosted household income growth over the past few years, a significant share of the population continues to face a high degree of income risk. Chart 10 shows how net household income for lower skilled workers has remained far below that for higher skilled workers (see also Box 2). This is even more true for low-skilled workers in countries that were more affected by the financial crisis (e.g. Italy, Spain).[152]

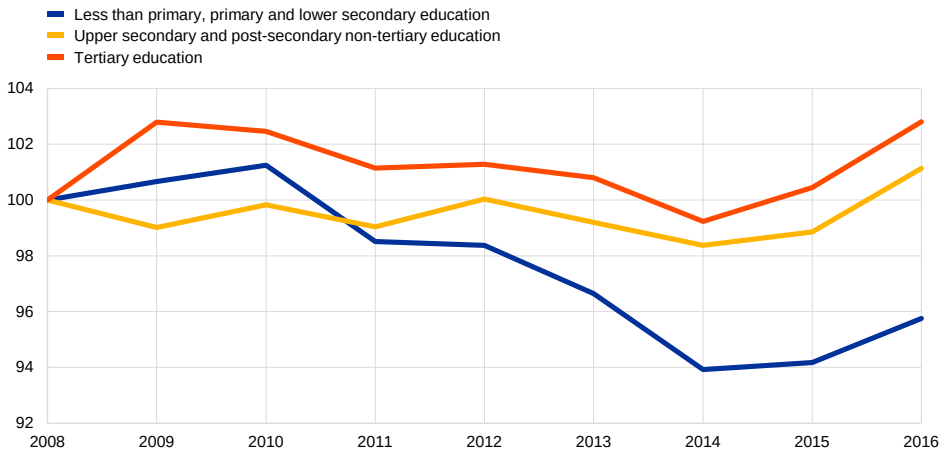
[151] This is also consistent with recent empirical research showing that consumers tend to respond more strongly to negative than to positive income shocks; see Christelis, D., Georgarakos, D., Jappelli, T., Pistaferri, L. and van Rooij, M. "Asymmetric Consumption Effects of Transitory Income Shocks", *CSEF Working Paper*, 476.

[152] In Germany, the unemployment rate for low-skilled workers has fallen from around 20% to below 10% since 2005.

Chart 10

Net household income across skill groups

(mean equivalised net income, 2008 = 100)



Sources: Eurostat and ECB calculations.
Note: Equivalised disposable income is the total income of a household, after tax and other deductions, that is available for spending or saving, divided by the number of household members converted into equalised adults; household members are made equivalent by weighting each according to their age.

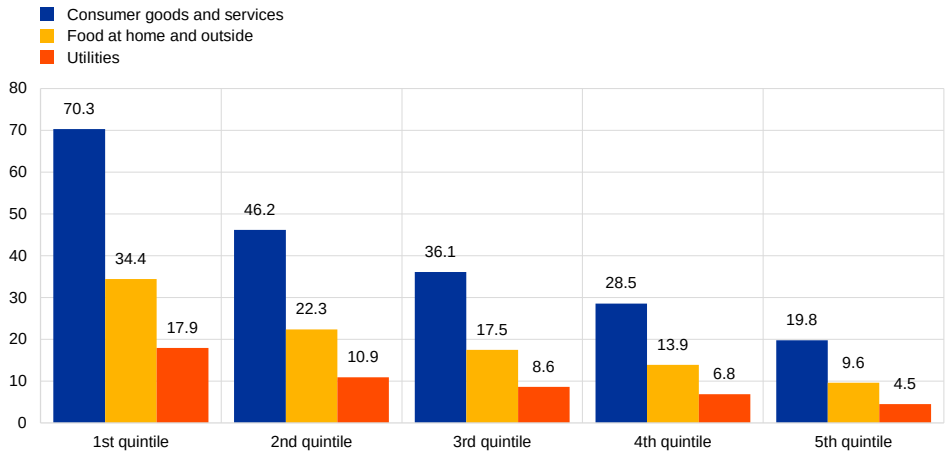
Falling unemployment should continue to support aggregate consumption growth. Households in the lower part of the income distribution (i.e. mostly lower skilled and/or younger workers) typically have a higher propensity to consume (see Chart 11). As the recovery in the labour market also reaches these households, aggregate consumer spending should receive additional impetus and continue to contribute to a low aggregate saving ratio (see Section 4.2). In addition, as the likelihood of becoming unemployed decreases also for low-skilled workers who are already employed, the available evidence suggests that they should also increase their consumption.[153] A lower unemployment rate not only increases income for those that find a job, but also increases the expected future income of those who are already employed (and face lower unemployment risk). All in all, this suggests that as long as the recovery in the labour market remains on track the underlying growth momentum of private consumption can be expected to continue.

153 See Dynarski and Sheffrin, "Consumption and unemployment", *The Quarterly Journal of Economics*, Vol. 102(2), 1987, pp. 411-428; Campos R. and I. Reggio, "Consumption in the shadow of unemployment", *European Economic Review*, Vol. 78(C), 2015 pp. 39-54; and Christelis, D., Georgarakos, D., Jappelli, T. and van Rooij, M., "Consumption uncertainty and precautionary saving", *DNB Working Paper*, 496.

Chart 11

Median consumption to income ratio by income quintile

(percentages)



Source: Eurosystem Household Finance and Consumption Survey.

3.2 Property income

Property income has remained weak since 2013, but the impact on private consumption growth seems limited. Together with the fall in economic activity and corporate profitability, property income and mixed income from self-employment has fallen significantly since 2008. This is a normal phenomenon, as profits are strongly procyclical. It is also in line with evidence that income risk across the business cycle is concentrated in the left and the right tails of the income distribution.[154] Poorer households experience larger drops in income from job losses (see previous section), while richer households experience larger drops in property income. This is because aggregate asset holdings are concentrated at the top of the wealth distribution (see Chart 16). In 2013 real mixed income (gross operating surplus) started to increase again, but most other components of property income have remained subdued (see Chart 12). Firms have not yet started to distribute more profits to their shareholders. As richer households also tend to have a higher average saving ratio (see Chart 11), the dampening effect on private consumption may have been contained (see also Box 1).[155] Strong growth of labour income and weak growth of property income is also consistent with a subdued aggregate household saving ratio.

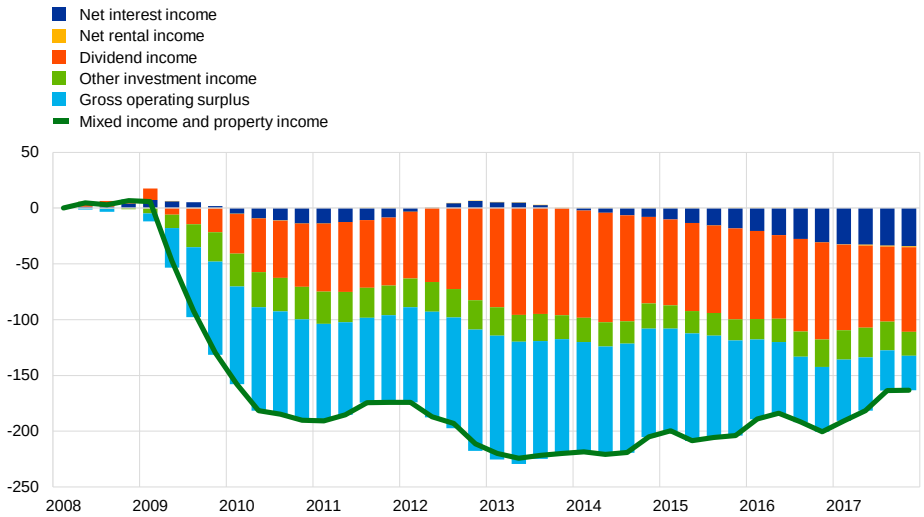
[154] See Guvenen, F., Ozkan, S. and Song, J., "The Nature of Countercyclical Income Risk", *Journal of Political Economy*, Vol. 122, 2014, pp. 621-660.

[155] See also Dynan, K., Skinner, J. and Zeldes, S., "Do the rich save more?", *Journal of Political Economy*, Vol. 112, 2004, pp. 397-444.

Chart 12

Decomposition of the change in real household property income

(EUR billions, four-quarter moving sums, constant 2010 prices)



Sources: Eurostat and ECB calculations.

Despite exceptionally low interest rates, household net interest income has hardly been affected.[156] While interest earnings declined significantly, interest payments have also decreased considerably. Between the third quarter of 2008 and the fourth quarter of 2017 interest payments fell by about three percentage points relative to disposable income. The drop in interest earnings has been comparable to the drop in interest payments, meaning that the average euro area household's net interest income has been largely unaffected. Lower interest rates have mainly redistributed resources from net savers to net borrowers. As net borrowers typically have a higher propensity to consume than net savers, this redistribution channel of lower interest rates supports aggregate consumption.[157]

The net interest income of the household sector has remained fairly stable in Germany and France, but less so in Italy and Spain. Evidence from the sectoral accounts (see Chart 13) shows that in Germany and France the drop in interest earnings and payments has been comparable, meaning that lower interest rates have had a minimal effect on the net interest income of the household sector as a whole. Conversely, in Italy, the drop in household interest earnings has been much larger, as Italian households hold a relatively large amount of interest-bearing assets, whereas they are relatively less indebted. In Spain, the drop in interest payments has been significantly larger than the fall in interest earnings. The larger decline in interest payments in Spain is explained by both the high stock of household debt (see Section 4) and the fact that a large share of mortgages have adjustable interest rates. This is an important factor in the transmission of monetary policy to private

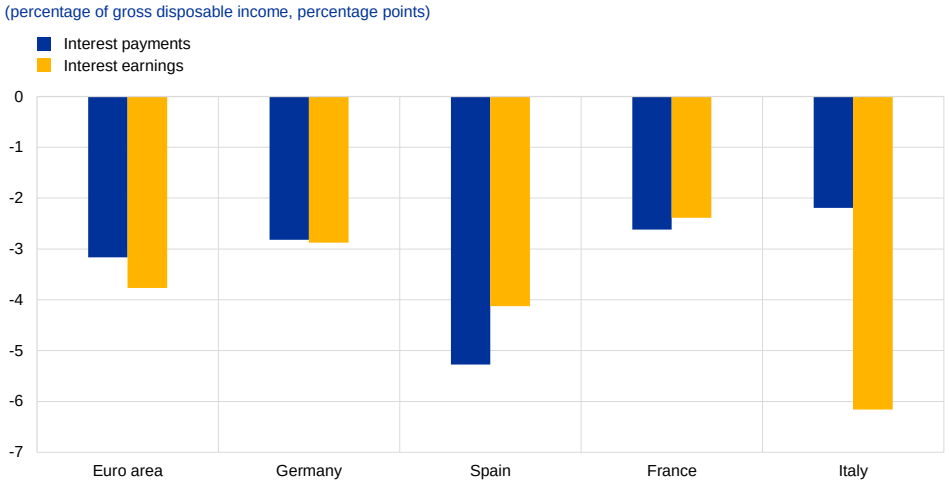
156 See the box entitled "Low interest rates and households' net interest income", *Economic Bulletin*, Issue 4, ECB, Frankfurt am Main, 2016.

157 See Auclert, A., "Monetary policy and the redistribution channel", *NBER Working Papers*, No 23451, 2017.

consumption, as there is evidence that it has a relatively larger effect in countries with adjustable-rate mortgages.[158]

Chart 13

Change in net interest income across countries (2008-17)



Sources: Eurostat and ECB calculations.

3.3 The 2014-15 drop in oil prices

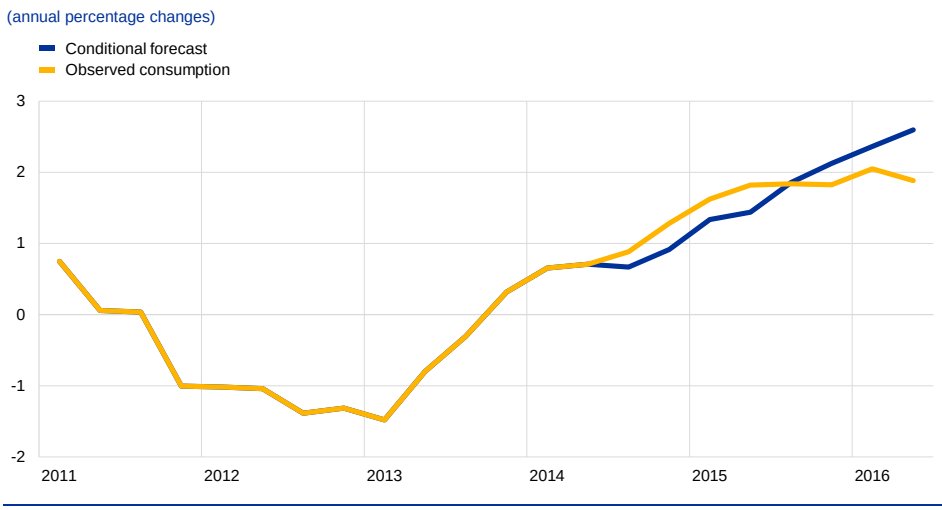
In 2014-15 lower energy prices contributed significantly to the expansion in private consumption. It was also in this period that professional forecasters made the largest upward revisions to their consumption growth forecasts (see Chart 2). The overall decline in oil prices since the second half of 2014 has provided households with a windfall gain. Typically, from a historical perspective, consumption reacts with a lag to changes in oil prices. A model-based forecast in the spirit of Edelstein and Kilian suggests that in 2014-15 private consumption reacted more quickly to the oil price decline than it had in previous episodes of falling oil prices (see Chart 14).[159] This is also evidenced by the relatively muted response of the household saving ratio to the windfall gain. Since 2016 the support from lower oil prices for consumption growth has faded. Going forward, the latest oil price increase between mid-2017 and mid-2018 is expected to dampen consumer spending somewhat.

158 See Calza, A., Monacelli, T. and Stracca, L., "Housing finance and monetary policy", *Journal of the European Economic Association*, Vol. 11, 2013, pp. 101-122.

159 See Edelstein, P. and Kilian, L., "How sensitive are consumer expenditures to retail energy prices?", *Journal of Monetary Economics*, Vol. 56, 2009, pp. 766-779.

Chart 14

Private consumption after the 2014-15 oil price drop



Sources: Eurostat and ECB calculations.
Notes: The conditional forecast is constructed using the model in Edelstein and Kilian for the euro area. It shows the model-based forecast of consumption conditional on the observed oil prices.

4 Developments in household wealth and debt

The strength of the household sector's balance sheet is a key determinant of private consumption. First, increases in household wealth make households richer and therefore also more inclined to consume. This is the standard wealth effect (see also Box 1).[160] Second, the strength of the household balance sheet also determines the availability of credit to households, and therefore their ability to smooth consumption over the business cycle. As balance sheets are typically weaker during recessions and stronger during expansions, there is a strong link between the strength of the balance sheet and consumption growth. This is the financial accelerator channel. Chart 15 illustrates how banks' credit standards have co-moved with the growth of households' net worth since 2003. Especially after periods of large increases in leverage, asset price falls can lead to large drops in net worth and generate significant deleveraging pressures that may persistently affect consumption dynamics.[161] This section provides more details about how changes in households' assets and liabilities have affected recent consumption growth.

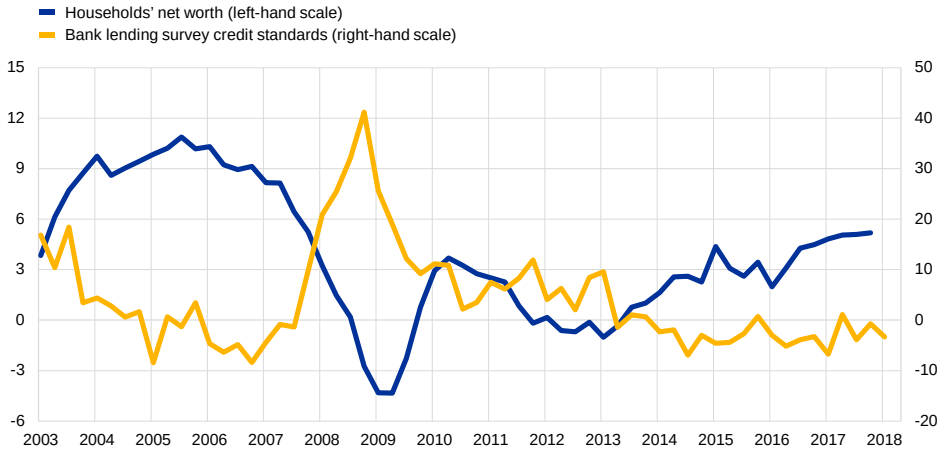
[160] See Poterba, J., "Stock market wealth and consumption", *Journal of Economic Perspectives*, Vol. 14, 2000, pp. 99-118; and Slacalek, "What Drives Personal Consumption? The Role of Housing and Financial Wealth", *The B.E. Journal of Macroeconomics*, Vol. 9, October 2009, pp. 1-37.

[161] See Mian, A., Rao, K. and Sufi, A., "Household balance sheets, consumption, and the economic slump", *Quarterly Journal of Economics*, Vol. 128, 2013, pp. 1687-1726.

Chart 15

Credit standards and households' net worth in the euro area

(left-hand scale: annual percentage changes; right-hand scale: weighted net percentages)



Source: ECB and ECB calculations.
Note: The bank lending survey asks banks how the credit standards applied to the approval of loans to households for consumer credit have changed over the preceding three months. An increase (decrease) represents a tightening (easing) in credit standards.

4.1 Household wealth

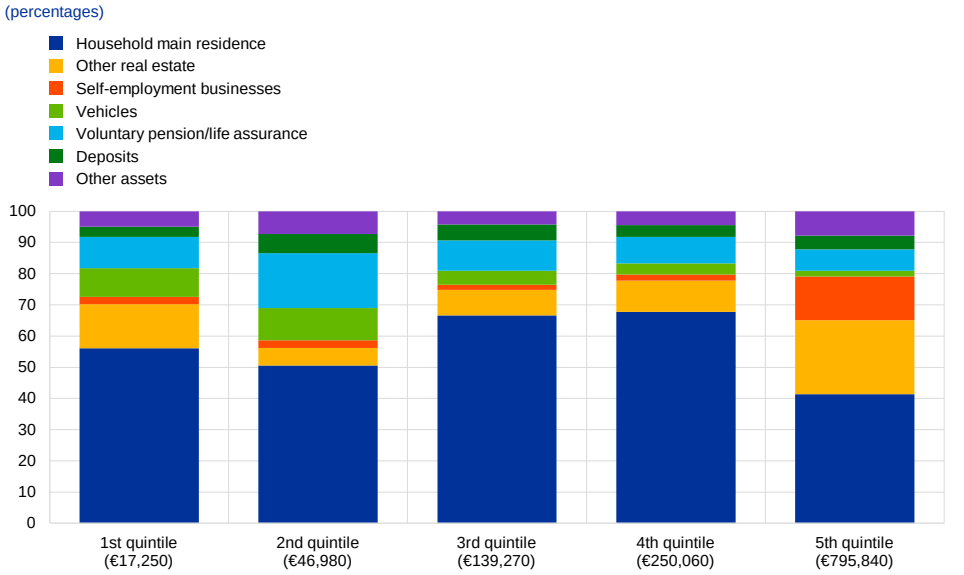
House price changes can have significant accelerator effects on private consumption. The reason for this is that for most households the main residence is their largest asset (see Chart 16). Housing wealth also tends to be more evenly distributed than financial wealth, which is mainly held by the top quintile of the wealth distribution.[162] Moreover, housing is typically also an asset that is financed by debt (i.e. through leverage), so that house price changes can have even larger effects on households' net worth. This may explain why, over the business cycle, housing wealth is often found to be more important for private consumption than financial wealth, despite similar direct wealth effects (see also the short-run elasticities reported in Box 1).[163] As the euro area housing market is segmented across countries, cross-country developments in housing wealth have been very heterogeneous.

[162] See Adam, K. and Tzamourani, P., "Distributional consequences of asset price inflation in the euro area", *European Economic Review*, Vol. 89, 2016, pp. 172-192.

[163] Iacoviello, M., "Housing wealth and consumption", *Federal Reserve Board Working Papers*, No 1027, 2010.

Chart 16

Average portfolio by net wealth quintile, euro area

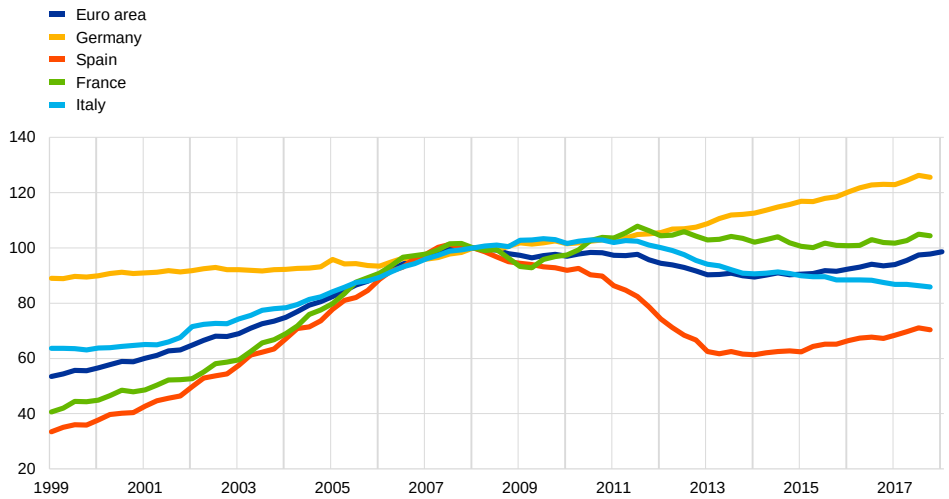


Source: Eurosystem Household Finance and Consumption Survey.
Note: The amounts in parentheses show the total size of the average portfolio in each quintile.

Housing wealth has developed very heterogeneously across euro area countries. While housing wealth in Germany started to increase significantly in 2013, in France it remained virtually flat over the same period (see Chart 17). In Spain housing wealth has started to increase again recently, but remains about 30% lower than before the Great Recession. In Italy, housing wealth has declined gradually. This contrasts with financial wealth, where developments have been much less heterogeneous across countries. Consequently, housing wealth seems also more relevant than financial wealth for explaining persistent cross-country differences in private consumption (see Chart 5).

Chart 17

Household real housing wealth across countries



Sources: ECB, Eurostat and ECB calculations.
Note: Household real housing wealth is computed as nominal housing wealth divided by the private consumption deflator.

4.2 Household debt and saving

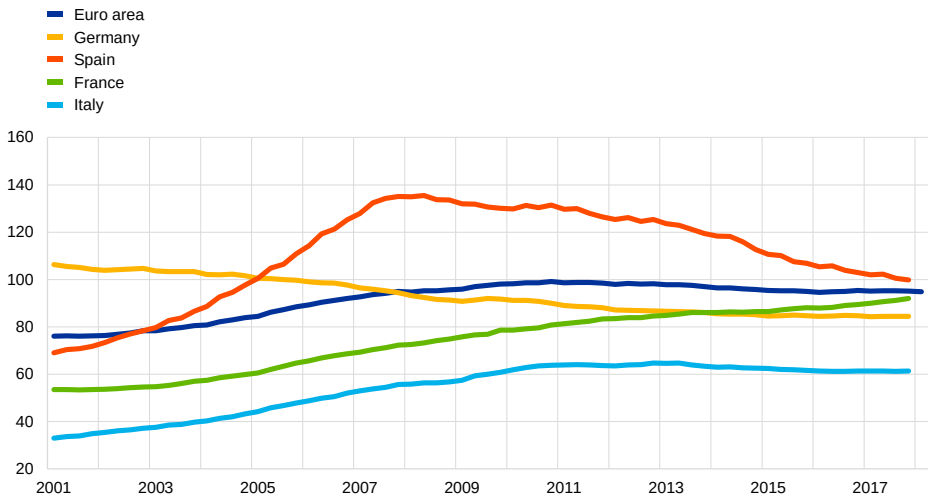
Decreasing household indebtedness underscores the sustainability of the expansion in private consumption. It has been argued that the current economic expansion is less sustainable, as it is based on private consumption and the accumulation of new debt.[164] This argument is mainly based on the presumption that consumption-led recoveries are always driven by an increase in household indebtedness. This does not apply to the current expansion in euro area consumption. In contrast to the period before the crisis, steady euro area consumption growth has been coupled with a gradual decrease in household indebtedness, which in the euro area has now stabilised around its pre-crisis level (see Chart 18). Moreover, while certain countries have still seen some increases in household indebtedness towards the euro area average (e.g. France), cross-country differences have significantly diminished on account of the strong decreases in those countries where the household sector was most indebted (e.g. Spain).

[164] See Kharroubi, E. and Kohlscheen, E., "Consumption-led expansions", *BIS Quarterly Review*, Bank for International Settlements, March 2017.

Chart 18

Household indebtedness

(percentage of gross disposable income)



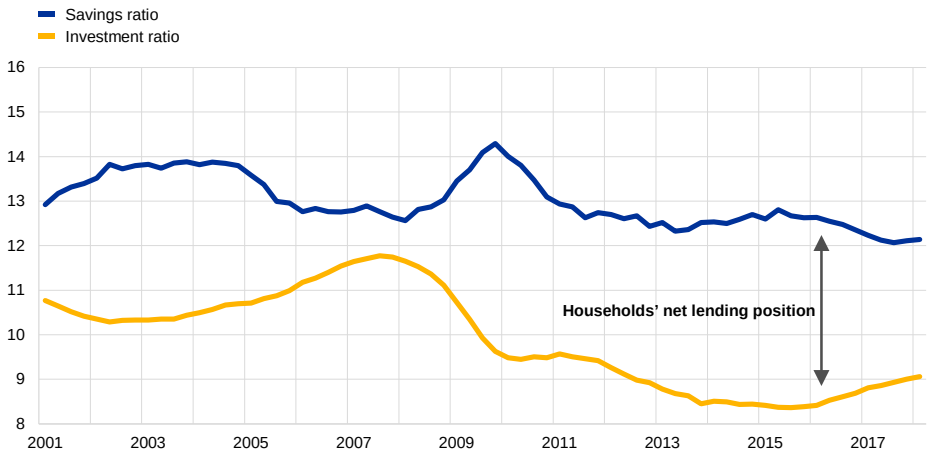
Sources: ECB, Eurostat and ECB calculations.
Note: Based on four-quarter sums of gross disposable income.

While the household saving ratio remained low, weak household investment has contributed to further deleveraging. Following a temporary increase in the household saving ratio during the 2008-09 recession, the saving ratio has been gradually declining since 2011. Chart 19 shows how the low household investment ratio gave rise to a high net lending position of the household sector, reflecting lower household borrowing than before the financial crisis. In contrast with household investment, recent consumption growth does not seem to be affected very much by deleveraging pressures. This pattern is strongest in those countries that experienced a boom-bust cycle in the housing market (e.g. Spain).

Chart 19

Household saving and investment ratio

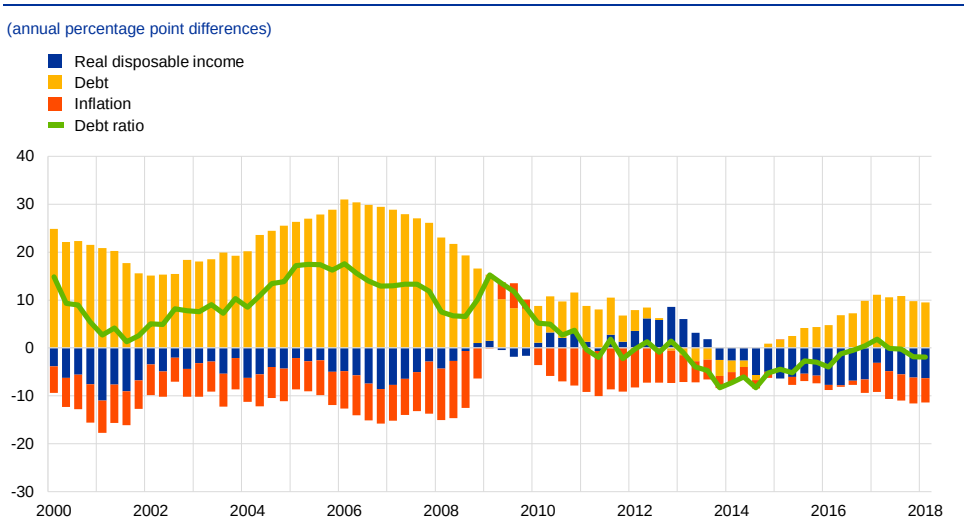
(percentage of gross disposable income)



Sources: Eurostat and ECB calculations.

Since 2013 household deleveraging has changed from "active" to "passive", making the expansion in consumption more self-sustaining. At the beginning of 2013 the contribution of nominal disposable income to the change in the household debt ratio (as a percentage of gross disposable income) was still close to zero (see Chart 20). Before the start of the current economic expansion, households' real disposable income was still contracting and inflation falling. As lower asset valuations gave rise to deleveraging pressures, households had to repay loans and refrain from new borrowing (i.e. there was active deleveraging). Once the economic expansion gained traction households' nominal disposable income growth gradually accelerated, leading to further decreases in household indebtedness. Higher nominal growth led to improvements in balance sheets and contributed to a self-sustaining increase in spending and economic activity (i.e. passive deleveraging took place). Over the past few years, households have again been increasing their debt, although household indebtedness continued to fall relative to income. These higher debt flows reflected loans for house purchase as the recovery in the housing market gradually progressed, as well as higher demand for consumer credit as purchases of durable goods (e.g. cars) increased again.[165]

Chart 20
Changes in household debt ratio



Sources: ECB, Eurostat and ECB calculations.
Note: Based on seasonally-adjusted quarterly gross disposable income.

Box 2
Monetary policy, household inequality and consumption

Prepared by Michele Lenza and Jiri Slacalek

Monetary policy affects individual households differently depending on the composition of their income and wealth. This box estimates how the unemployment rate, income and wealth of different households are affected by the non-standard monetary policy measures recently

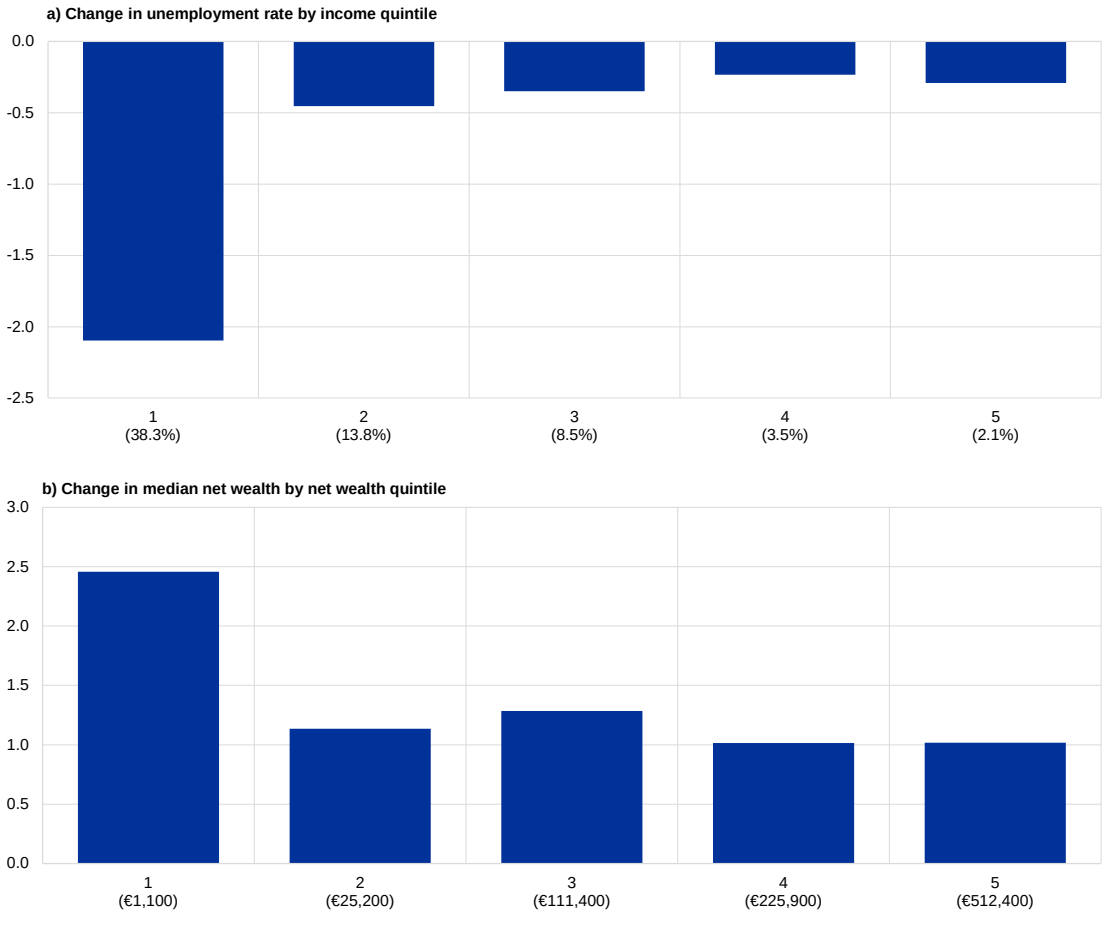
[165] See "Recent trends in consumer credit in the euro area", *Economic Bulletin*, Issue 7, ECB, Frankfurt am Main, 2017; and "Consumption of durable goods in the ongoing economic expansion", *Economic Bulletin*, Issue 1, ECB, Frankfurt am Main, 2018.

implemented by the ECB.[166] The results below are based on a simulation which, first, identifies the aggregate effects of an exogenous expanded asset purchase programme (APP) shock (designed to capture the effect of the APP announcements) on asset prices[167] and income, using a vector auto-regressive model. Then, such aggregate effects are distributed across individual households using micro data on income, wealth and their components from the Eurosystem Household Finance and Consumption Survey.[168]

Chart A

Response of unemployment and net wealth to the asset purchase programme

(upper chart: percentage point change in unemployment rate by income quintile; lower chart: percentage change in median net wealth by net wealth quintile)



Sources: Eurosystem Household Finance and Consumption Survey, and ECB calculations.
Notes: The upper chart shows the decline of unemployment rate in percentage points across quintiles of household income four quarters after the impact of the asset purchase programme (APP). The lower chart shows the increase in median net wealth in percent by net wealth quintile four quarters after the impact of the APP. The numbers in parentheses show the initial level of the unemployment rate and median net wealth in each quintile. Data relate to an aggregate of Germany, Spain, France and Italy.

166 We focus on the expanded asset purchase programme (APP), which was started in January 2015 as a way to address the risks of a long period of low inflation. The APP is modelled as a 30 basis point decrease in the term spread, i.e. the difference between the long-term and short-term interest rates.

167 The model includes house and stock prices and interest rates (which determine bond prices).

168 See also Constâncio, V., "Inequality and macroeconomic policies", speech delivered at the Annual Congress of the European Economic Association, Lisbon, 22 August 2017.

The APP has substantially reduced the unemployment rate in the lower part of the income distribution.[169] The upper chart above shows how the aggregate decline in the unemployment rate is distributed across various income groups of households. In particular, the chart displays the decrease in the unemployment rate across the five income quintiles, four quarters after the impact of the APP shock. The aggregate decline in the unemployment rate by about 0.7 percentage point affects individuals very heterogeneously and is heavily skewed towards the households with incomes in the lowest 20%, whose unemployment rate falls by more than 2 percentage points. By contrast, the unemployment rate in other income quintiles falls by less than 0.5 percentage point. The key reason for this finding is that the level of unemployment is much higher in the lower parts of the income distribution.

The decline in unemployment rates among households with lower incomes reduces income inequality. Changes in unemployment rates substantially affect household income: incomes increase considerably as households start earning wages (instead of receiving unemployment benefits). Mean income in the lowest income quintile rises by about 3%, while mean income in other parts of the distribution increases by about 0.5%. These changes reduce income inequality: the Gini coefficient, a common measure of inequality, is estimated to decline from 43.1% to 42.8%.

The APP has modestly increased household net wealth across the wealth distribution. As shown in the lower panel of Chart A, the median net wealth among households in the lowest net wealth quintile increases by 2.5%, while in the other quintiles it rises by around 1%. House prices play a key role in these changes, as housing wealth makes up about 70-80% of total household assets and this share is stable across the distribution (possibly with the exception of the very top tail). In addition, the response of stock prices is estimated to be small and transitory. The increase in wealth among the lowest quintile is partly driven by the high leverage of these households. These changes only negligibly affect inequality in net wealth (as measured by the Gini coefficient).

The developments in income and wealth are likely to affect consumer spending. A key factor determining how spending responds to changes in income is the MPC, the response of spending to a transitory increase in income. Substantial empirical literature has documented that households with lower incomes and low liquid assets tend to act in a hand-to-mouth manner: they tend to be liquidity constrained and their consumption is highly sensitive to transitory changes in income. In the euro area almost 25% of households hold little liquid assets and live hand-to-mouth; these households have MPCs of around 0.3, while the remaining households with ample liquid assets are well insured and have much lower MPCs, of around 0.1 or less.

The response of aggregate consumption to monetary policy is disproportionately affected by constrained households. This happens for two reasons. First, as estimated, incomes of households in the lower parts of the distribution are disproportionately stimulated by the APP. Second, these households also tend to have substantially higher MPCs. The response of spending by these households is determined as a product of the two numbers and is consequently substantially stronger than that of households in the upper part of the distribution. Ampudia et al.[170] document that this indirect income channel of monetary policy, which operates by stimulating

[169] The bulk of the changes in income are driven by individuals becoming employed, the probability of which is in turn dependent on their demographics (such as age, education, marital status and the number of children they have). More specifically, we estimate a probit model with the employment status as the dependent variable, which captures some heterogeneity in the probability of employment across households. The model is then used to simulate which individuals become employed.

[170] Ampudia, M., Georgarakos, D., Slacalek, J., Tristani, O., Vermeulen, P and Violante, G.L., "Monetary policy and household inequality", *Working Paper Series*, No 2170, ECB, Frankfurt am Main, July 2018.

employment and labour income, is stronger than the intertemporal substitution channel (which operates through households reducing saving and increasing spending following an interest rate cut). The indirect income channel accounts for around 80-90% of the total effect of monetary policy on the spending of "hand-to-mouth" households and for a substantial part of the overall reaction of the remaining households. In the aggregate, the indirect channel makes up about 60% of the total effect. Finally, these calculations also imply that the APP compresses the distribution of consumer spending across households, as the consumption of "hand-to-mouth" households is stimulated more strongly than that of well-insured households.

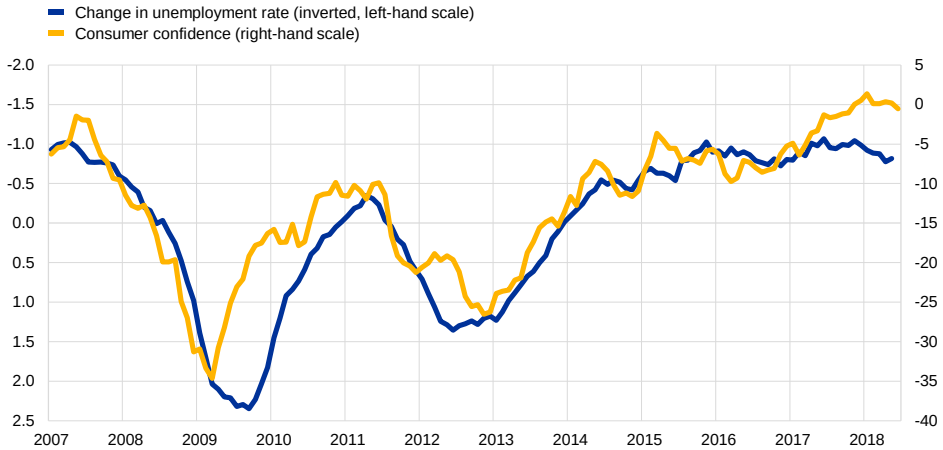
5 Conclusions

Private consumption has been a main driver of the recent economic expansion, but there is still scope for further growth. In the euro area private consumption has clearly recovered from the losses during the financial crisis. While the growth of consumption has been low compared with previous expansions, since 2013 it has exceeded initial expectations. This has been largely driven by the recovery in the labour market, even though unemployment in some countries and for some groups of workers remains higher than before the financial crisis. Looking forward, as labour markets continue to improve, consumer confidence should remain elevated and private consumption should rise further (see Chart 21).

Chart 21

Change in unemployment rate and consumer confidence

(left-hand scale: annual percentage point differences, right-hand scale: net percentage balances)



Sources: European Commission (Directorate-General for Economic and Financial Affairs), Eurostat and ECB calculations.

The ECB's accommodative monetary policy has contributed considerably to the expansion of private consumption. There is increasing evidence that monetary policy supports private consumption especially via financially constrained (e.g. unemployed or indebted) households. This highlights the role of heterogeneity in the transmission of monetary policy. At the same time, accommodative monetary policies have also directly decreased income and wealth inequality. Finally, there is

little evidence that low interest rates have led to generalised increases in household indebtedness, supporting the view that the overall economic expansion is sustainable.

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
2015	3.5	2.9	2.3	1.4	6.9	2.1	0.6	1.7	0.1	0.0	0.8	1.4	0.0
2016	3.2	1.5	1.8	1.0	6.7	1.8	1.1	1.8	1.3	0.7	-0.1	2.0	0.2
2017	3.8	2.3	1.7	1.7	6.8	2.4	2.3	1.8	2.1	2.7	0.5	1.6	1.5
2017 Q3	1.0	0.8	0.4	0.5	1.8	0.7	2.2	1.8	2.0	2.8	0.6	1.6	1.4
Q4	1.0	0.7	0.4	0.3	1.6	0.7	2.3	1.9	2.1	3.0	0.6	1.8	1.4
2018 Q1	0.9	0.5	0.2	-0.2	1.4	0.4	2.2	1.9	2.2	2.7	1.3	2.2	1.3
Q2	.	.	.	.	1.8	.	.	.	2.7	2.4	0.7	.	1.7
2018 Jan.	-	-	-	-	-	-	2.2	1.8	2.1	3.0	1.4	1.5	1.3
Feb.	-	-	-	-	-	-	2.2	1.9	2.2	2.7	1.5	2.9	1.1
Mar.	-	-	-	-	-	-	2.3	2.0	2.4	2.5	1.1	2.1	1.3
Apr.	-	-	-	-	-	-	2.3	1.9	2.5	2.4	0.6	1.8	1.3
May	-	-	-	-	-	-	2.6	2.0	2.8	2.4	0.7	1.8	1.9
June	-	-	-	-	-	-	.	.	2.9	2.4	0.7	.	2.0

Sources: Eurostat (col. 3, 6, 10, 13); BIS (col. 9, 11, 12); OECD (col. 1, 2, 4, 5, 7, 8).
1) Quarterly data seasonally adjusted; annual data unadjusted.
2) Data refer to the changing composition of the euro area.

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

	Purchasing Managers' Surveys (diffusion indices; s.a.)									Merchandise imports [1]		
	Composite Purchasing Managers' Index						Global Purchasing Managers' Index [2]					
	Global [2]	United States	United Kingdom	Japan	China	Memo item: euro area	Manufacturing	Services	New export orders	Global	Advanced economies	Emerging market economies
	1	2	3	4	5	6	7	8	9	10	11	12
2015	53.1	55.8	56.2	51.4	50.4	53.8	51.8	53.7	50.4	1.1	3.6	-0.4
2016	51.6	52.4	53.4	50.5	51.4	53.3	51.8	52.0	50.2	1.1	1.2	1.0
2017	53.3	54.3	54.7	52.5	51.8	56.4	53.9	53.8	52.8	5.3	3.0	6.8
2017 Q3	53.3	54.9	54.1	51.8	51.9	56.0	52.7	53.5	51.9	1.5	1.3	1.6
Q4	53.4	54.6	55.2	52.6	51.9	57.2	53.5	53.4	52.1	1.4	1.4	1.4
2018 Q1	53.6	54.6	53.4	52.1	53.0	57.0	53.8	53.5	52.2	2.2	0.7	3.2
Q2	53.9	55.9	54.3	52.3	52.5	54.7	53.2	54.2	50.2	.	.	.
2018 Feb.	54.3	55.8	54.5	52.2	53.3	57.1	53.8	54.5	52.3	2.7	2.1	3.0
Mar.	52.8	54.2	52.4	51.3	51.8	55.2	52.9	52.8	51.2	2.2	0.7	3.2
Apr.	53.6	54.9	53.2	53.1	52.3	55.1	53.5	53.6	50.3	0.2	-0.3	0.5
May	54.1	56.6	54.5	51.7	52.3	54.1	53.1	54.4	50.3	-0.5	-1.1	-0.1
June	54.1	56.2	55.2	52.1	53.0	54.9	53.0	54.5	50.1	.	.	.
July	.	55.9	.	.	.	54.3	.	.	.	.	.	.

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
2015	-0.11	-0.07	-0.02	0.05	0.17	0.32	0.09
2016	-0.32	-0.34	-0.26	-0.17	-0.03	0.74	-0.02
2017	-0.35	-0.37	-0.33	-0.26	-0.15	1.26	-0.02
2017 Dec.	-0.34	-0.37	-0.33	-0.27	-0.19	1.60	-0.02
2018 Jan.	-0.36	-0.37	-0.33	-0.27	-0.19	1.73	-0.03
Feb.	-0.36	-0.37	-0.33	-0.27	-0.19	1.87	-0.06
Mar.	-0.36	-0.37	-0.33	-0.27	-0.19	2.17	-0.05
Apr.	-0.37	-0.37	-0.33	-0.27	-0.19	2.35	-0.04
May	-0.36	-0.37	-0.33	-0.27	-0.19	2.34	-0.03
June	-0.36	-0.37	-0.32	-0.27	-0.18	2.33	-0.04

Source: ECB.

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

2.2 Yield curves

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

	Spot rates					Spreads			Instantaneous forward rates			
	Euro area [1, 2]					Euro area [1, 2]	United States	United Kingdom	Euro area [1, 2]			
	3 months	1 year	2 years	5 years	10 years	10 years - 1 year	10 years - 1 year	10 years - 1 year	1 year	2 years	5 years	10 years
	1	2	3	4	5	6	7	8	9	10	11	12
2015	-0.45	-0.40	-0.35	0.02	0.77	1.17	1.66	1.68	-0.35	-0.22	0.82	1.98
2016	-0.93	-0.82	-0.80	-0.47	0.26	1.08	1.63	1.17	-0.78	-0.75	0.35	1.35
2017	-0.78	-0.74	-0.64	-0.17	0.52	1.26	0.67	0.83	-0.66	-0.39	0.66	1.56
2017 Dec.	-0.78	-0.74	-0.64	-0.17	0.52	1.26	0.67	0.83	-0.66	-0.39	0.66	1.56
2018 Jan.	-0.63	-0.64	-0.52	0.05	0.71	1.35	0.81	1.07	-0.59	-0.21	0.96	1.60
Feb.	-0.66	-0.68	-0.57	0.01	0.71	1.39	0.80	0.81	-0.64	-0.26	0.96	1.65
Mar.	-0.67	-0.70	-0.61	-0.10	0.55	1.25	0.65	0.61	-0.67	-0.35	0.75	1.47
Apr.	-0.63	-0.66	-0.57	-0.04	0.63	1.29	0.72	0.73	-0.63	-0.30	0.85	1.56
May	-0.63	-0.72	-0.69	-0.25	0.40	1.12	0.63	0.73	-0.76	-0.52	0.57	1.34
June	-0.62	-0.71	-0.68	-0.26	0.38	1.09	0.54	0.60	-0.75	-0.52	0.53	1.31

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
2015	356.2	3,444.1	717.4	261.9	628.2	299.9	189.8	500.6	373.2	278.0	377.7	821.3	2,061.1	19,203.8
2016	321.6	3,003.7	620.7	250.9	600.1	278.9	148.7	496.0	375.8	248.6	326.9	770.9	2,094.7	16,920.5
2017	376.9	3,491.0	757.3	268.6	690.4	307.9	182.3	605.5	468.4	272.7	339.2	876.3	2,449.1	20,209.0
2017 Dec.	389.7	3,564.7	796.2	274.9	719.0	313.5	189.1	641.2	491.3	291.3	316.1	839.7	2,664.3	22,769.9
2018 Jan.	398.4	3,612.2	822.3	276.1	731.7	323.4	196.3	661.2	504.6	284.9	312.6	848.1	2,789.8	23,712.2
Feb.	380.6	3,426.7	783.7	264.7	703.6	306.9	190.1	629.7	488.3	263.2	291.3	792.0	2,705.2	21,991.7
Mar.	375.9	3,374.3	769.1	258.0	699.7	308.0	183.6	622.9	498.9	268.9	292.0	775.6	2,702.8	21,395.5
Apr.	383.3	3,457.6	772.6	260.7	724.8	331.3	185.5	627.7	496.3	281.3	302.6	789.1	2,653.6	21,868.8
May	392.3	3,537.1	806.4	272.3	735.3	351.0	182.5	653.1	527.3	287.9	302.6	819.1	2,701.5	22,590.1
June	383.4	3,442.8	797.5	273.1	719.5	346.7	169.0	647.2	543.6	279.9	290.9	828.1	2,754.4	22,562.9

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
2017 June	0.05	0.46	0.38	0.77	6.30	16.82	4.68	5.74	6.19	2.43	1.69	1.91	1.90	1.89	2.22	1.87
July	0.05	0.45	0.38	0.76	6.26	16.81	4.95	5.84	6.28	2.38	1.75	1.92	1.89	1.90	2.22	1.88
Aug.	0.05	0.44	0.35	0.75	6.24	16.80	5.32	5.89	6.34	2.38	1.75	2.01	1.91	1.94	2.21	1.91
Sep.	0.05	0.44	0.35	0.74	6.27	16.80	5.07	5.71	6.21	2.37	1.70	1.93	1.96	1.96	2.20	1.89
Oct.	0.05	0.44	0.35	0.75	6.23	16.80	4.94	5.68	6.16	2.43	1.68	1.91	1.93	1.96	2.18	1.88
Nov.	0.04	0.44	0.33	0.75	6.21	16.80	4.73	5.69	6.14	2.38	1.67	1.92	1.95	1.94	2.16	1.87
Dec.	0.04	0.44	0.34	0.73	6.09	16.84	4.46	5.39	5.80	2.31	1.68	1.86	1.92	1.87	2.15	1.83
2018 Jan.	0.04	0.44	0.36	0.69	6.16	16.90	5.02	5.83	6.28	2.30	1.67	1.86	1.91	1.90	2.14	1.84
Feb.	0.04	0.44	0.34	0.69	6.19	16.86	4.72	5.70	6.19	2.36	1.64	1.88	1.93	1.91	2.14	1.84
Mar.	0.04	0.45	0.35	0.67	6.14	16.87	4.71	5.57	6.05	2.34	1.63	1.84	1.95	1.91	2.14	1.84
Apr.	0.04	0.45	0.34	0.61	6.11	16.84	4.92	5.72	6.17	2.36	1.63	1.85	1.96	1.90	2.13	1.83
May [p]	0.04	0.46	0.34	0.57	6.10	16.88	4.83	5.88	6.39	2.38	1.58	1.87	1.97	1.90	2.13	1.83

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
2017 June	0.04	0.06	0.43	2.51	2.46	2.68	2.36	1.74	1.72	1.71	1.27	1.43	1.56	1.76
July	0.04	0.11	0.35	2.45	2.45	2.76	2.38	1.75	1.75	1.76	1.23	1.34	1.67	1.74
Aug.	0.04	0.10	0.36	2.44	2.49	2.71	2.43	1.74	1.79	1.82	1.24	1.44	1.59	1.75
Sep.	0.04	0.07	0.44	2.43	2.44	2.73	2.41	1.71	1.69	1.77	1.19	1.47	1.59	1.73
Oct.	0.04	0.11	0.40	2.40	2.39	2.69	2.38	1.70	1.66	1.73	1.23	1.35	1.61	1.73
Nov.	0.04	0.08	0.30	2.36	2.43	2.61	2.37	1.71	1.62	1.72	1.23	1.33	1.57	1.71
Dec.	0.04	0.06	0.32	2.35	2.40	2.46	2.31	1.70	1.67	1.71	1.34	1.28	1.53	1.71
2018 Jan.	0.04	0.05	0.39	2.35	2.39	2.51	2.33	1.65	1.61	1.72	1.12	1.37	1.60	1.67
Feb.	0.04	0.09	0.42	2.36	2.37	2.48	2.33	1.66	1.62	1.74	1.18	1.34	1.63	1.70
Mar.	0.04	0.08	0.40	2.33	2.42	2.53	2.34	1.67	1.61	1.70	1.26	1.39	1.66	1.73
Apr.	0.03	0.06	0.34	2.32	2.36	2.42	2.33	1.68	1.61	1.74	1.23	1.29	1.65	1.70
May [p]	0.03	0.08	0.44	2.28	2.31	2.47	2.37	1.65	1.61	1.75	1.08	1.22	1.65	1.62

Source: ECB.

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

2) In accordance with the ESA 2010, in December 2014 holding companies of non-financial groups were reclassified from the non-financial corporations sector to the financial corporations sector.

2 Financial developments

2.6 Debt securities issued by euro area residents, by sector of the issuer and initial maturity

(EUR billions; transactions during the month and end-of-period outstanding amounts; nominal values)

	Outstanding amounts							Gross issues [1]						
	Total	MFIs (including Euro-system)	Non-MFI corporations			General government		Total	MFIs (including Euro-system)	Non-MFI corporations			General government	
			Financial corporations other than MFIs	FVCs	Non-financial corporations	Central govern-ment	Other general govern-ment			Financial corporations other than MFIs	FVCs	Non-financial corporations	Central govern-ment	Other general govern-ment
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Short-term														
2015	1,269	517	147	.	62	478	65	347	161	37	.	33	82	34
2016	1,241	518	136	.	59	466	62	349	161	45	.	31	79	33
2017	1,240	519	155	.	70	438	57	368	167	55	.	37	79	31
2017 Dec.	1,240	519	155	.	70	438	57	305	139	51	.	30	55	29
2018 Jan.	1,272	532	155	.	77	447	61	403	194	40	.	41	91	36
Feb.	1,282	540	153	.	80	444	65	355	172	41	.	34	78	30
Mar.	1,299	541	154	.	84	453	67	386	167	60	.	41	84	33
Apr.	1,315	542	161	.	94	450	69	395	180	50	.	43	73	49
May	1,301	536	156	.	98	445	66	380	179	38	.	43	79	41
Long-term														
2015	15,250	3,786	3,286	.	1,060	6,481	637	216	68	46	.	13	80	9
2016	15,398	3,695	3,233	.	1,186	6,643	641	219	62	53	.	18	78	8
2017	15,354	3,560	3,142	.	1,190	6,819	642	248	66	75	.	17	83	7
2017 Dec.	15,354	3,560	3,142	.	1,190	6,819	642	212	46	93	.	14	52	6
2018 Jan.	15,371	3,569	3,151	.	1,174	6,841	636	302	99	75	.	14	109	5
Feb.	15,376	3,566	3,146	.	1,171	6,864	629	215	57	52	.	12	88	7
Mar.	15,439	3,580	3,148	.	1,183	6,904	624	256	68	60	.	24	96	7
Apr.	15,442	3,578	3,163	.	1,192	6,886	624	232	61	67	.	14	85	4
May	15,529	3,589	3,188	.	1,205	6,927	621	196	49	48	.	17	80	3

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											
2015	16,518.8	4,303.1	3,432.4	.	1,122.0	6,958.9	702.4	6,814.4	584.3	985.3	5,244.9
2016	16,638.9	4,212.9	3,368.8	.	1,245.5	7,108.1	703.5	7,089.5	537.6	1,097.8	5,454.1
2017	16,593.6	4,079.1	3,297.3	.	1,260.1	7,257.3	699.8	7,954.8	612.5	1,263.0	6,079.3
2017 Dec.	16,593.6	4,079.1	3,297.3	.	1,260.1	7,257.3	699.8	7,954.8	612.5	1,263.0	6,079.3
2018 Jan.	16,643.5	4,101.7	3,306.1	.	1,251.0	7,287.7	697.1	8,204.1	665.6	1,333.1	6,205.4
Feb.	16,658.1	4,105.8	3,299.9	.	1,251.7	7,307.4	693.4	7,920.3	638.6	1,293.1	5,988.6
Mar.	16,737.6	4,120.5	3,302.7	.	1,267.8	7,356.1	690.5	7,814.0	599.0	1,253.4	5,961.7
Apr.	16,757.1	4,120.1	3,323.5	.	1,285.6	7,335.1	692.8	8,143.4	620.8	1,351.3	6,171.2
May	16,830.5	4,124.3	3,344.7	.	1,303.2	7,371.5	686.8	8,032.4	531.2	1,301.4	6,199.8
Growth rate											
2015	0.3	-7.0	5.7	.	4.9	1.8	0.6	1.1	4.2	1.6	0.6
2016	0.3	-3.0	-1.6	.	7.6	2.2	-0.1	0.5	1.2	0.9	0.4
2017	1.3	-0.5	0.0	.	6.3	2.2	0.5	1.1	6.1	2.8	0.3
2017 Dec.	1.3	-0.5	0.0	.	6.3	2.2	0.5	1.1	6.1	2.8	0.3
2018 Jan.	1.2	-0.4	0.2	.	5.9	1.9	0.5	1.1	5.8	2.7	0.3
Feb.	1.4	-1.0	1.4	.	5.6	2.3	-0.8	0.9	3.1	2.8	0.4
Mar.	1.5	-0.1	1.8	.	6.0	2.0	-2.7	1.0	1.5	3.6	0.4
Apr.	1.5	0.4	0.8	.	6.0	2.0	-0.8	1.3	1.5	5.4	0.5
May	1.0	-0.1	0.0	.	6.0	1.5	-1.9	1.4	1.6	5.3	0.5

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
2015	91.7	87.6	88.6	82.8	81.3	88.2	105.7	86.9
2016	94.4	89.5	90.9	84.9	80.5	89.3	109.7	88.9
2017	96.6	91.4	92.0	85.8	80.6	90.0	112.0	90.0
2017 Q3	98.6	93.2	93.8	87.6	81.4	91.5	114.5	91.8
Q4	98.6	93.2	93.5	87.4	81.0	91.3	115.0	92.0
2018 Q1	99.6	94.0	94.4	88.0	81.7	91.7	117.0	93.4
Q2	98.4	93.1	93.2	.	.	.	117.0	93.4
2018 Jan.	99.4	93.9	94.4	-	-	-	116.1	92.7
Feb.	99.6	93.9	94.4	-	-	-	117.3	93.6
Mar.	99.7	94.2	94.4	-	-	-	117.7	93.9
Apr.	99.5	93.9	94.3	-	-	-	117.9	94.0
May	98.1	92.8	92.7	-	-	-	116.6	93.1
June	97.9	92.7	92.4	-	-	-	116.7	93.1
Percentage change versus previous month								
2018 June	-0.2	-0.2	-0.3	-	-	-	0.1	0.0
Percentage change versus previous year								
2018 June	1.6	1.6	0.5	-	-	-	4.7	4.0

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
2015	6.973	7.614	27.279	7.459	309.996	134.314	4.184	0.726	4.4454	9.353	1.068	1.110
2016	7.352	7.533	27.034	7.445	311.438	120.197	4.363	0.819	4.4904	9.469	1.090	1.107
2017	7.629	7.464	26.326	7.439	309.193	126.711	4.257	0.877	4.5688	9.635	1.112	1.130
2017 Q3	7.834	7.426	26.085	7.438	306.418	130.349	4.258	0.898	4.5822	9.557	1.131	1.175
Q4	7.789	7.533	25.650	7.443	311.597	132.897	4.232	0.887	4.6189	9.793	1.162	1.177
2018 Q1	7.815	7.438	25.402	7.447	311.027	133.166	4.179	0.883	4.6553	9.971	1.165	1.229
Q2	7.602	7.398	25.599	7.448	317.199	130.045	4.262	0.876	4.6532	10.330	1.174	1.191
2018 Jan.	7.840	7.436	25.452	7.445	309.269	135.255	4.163	0.883	4.6491	9.820	1.172	1.220
Feb.	7.807	7.440	25.320	7.446	311.735	133.293	4.165	0.884	4.6559	9.938	1.154	1.235
Mar.	7.798	7.438	25.429	7.449	312.194	130.858	4.209	0.883	4.6613	10.161	1.168	1.234
Apr.	7.735	7.421	25.365	7.448	311.721	132.158	4.194	0.872	4.6578	10.372	1.189	1.228
May	7.529	7.391	25.640	7.448	316.930	129.572	4.285	0.877	4.6404	10.342	1.178	1.181
June	7.551	7.382	25.778	7.449	322.697	128.529	4.304	0.879	4.6623	10.279	1.156	1.168
Percentage change versus previous month												
2018 June	0.3	-0.1	0.5	0.0	1.8	-0.8	0.4	0.2	0.5	-0.6	-1.8	-1.1
Percentage change versus previous year												
2018 June	-1.2	-0.4	-1.9	0.2	4.7	3.2	2.2	0.2	2.0	5.4	6.3	4.0

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)												
2017 Q2	24,750.0	25,174.2	-424.2	10,943.9	8,779.9	8,121.0	10,632.4	-46.0	5,048.5	5,761.9	682.7	13,843.7
Q3	24,511.8	24,961.5	-449.7	10,603.3	8,508.3	8,268.7	10,664.8	-57.1	5,022.0	5,788.3	674.8	13,742.3
Q4	24,655.4	24,897.1	-241.7	10,518.9	8,485.9	8,516.7	10,611.7	-51.7	5,001.8	5,799.5	669.7	13,566.5
2018 Q1	24,600.8	25,193.6	-592.8	10,392.4	8,520.4	8,491.5	10,660.8	-85.6	5,129.1	6,012.4	673.4	13,810.7
Outstanding amounts as a percentage of GDP												
2018 Q1	218.2	223.5	-5.3	92.2	75.6	75.3	94.6	-0.8	45.5	53.3	6.0	122.5
Transactions												
2017 Q2	215.4	136.3	79.1	31.3	14.7	173.3	148.4	0.5	11.8	-26.7	-1.4	-
Q3	69.2	-57.7	126.9	-153.1	-146.3	187.4	53.1	-10.3	44.6	35.6	0.5	-
Q4	85.2	-67.8	153.0	36.3	-1.9	90.9	23.4	10.7	-54.6	-89.3	1.9	-
2018 Q1	474.8	322.4	152.5	95.2	-38.7	193.5	141.7	-4.2	178.8	219.4	11.6	-
2017 Dec.	-192.3	-271.3	78.9	-25.4	-35.0	6.4	-4.4	4.7	-176.3	-231.8	-1.6	-
2018 Jan.	347.0	330.3	16.7	42.6	1.4	102.5	84.1	0.2	199.3	244.8	2.3	-
Feb.	137.6	101.7	35.8	33.6	0.9	44.6	-3.7	-0.6	60.1	104.5	-0.1	-
Mar.	-9.7	-109.6	99.9	18.9	-41.1	46.4	61.3	-3.8	-80.6	-129.8	9.4	-
Apr.	93.1	100.7	-7.6	20.4	-13.0	17.9	-9.0	1.7	56.6	122.7	-3.6	-
May	128.4	143.3	-14.9	11.8	30.6	-7.7	-34.1	5.7	116.2	146.9	2.3	-
12-month cumulated transactions												
2018 May	799.7	333.9	465.8	-14.4	-166.1	548.1	215.8	-2.3	254.0	284.3	14.2	-
12-month cumulated transactions as a percentage of GDP												
2018 May	7.1	3.0	4.1	-0.1	-1.5	4.9	1.9	0.0	2.3	2.5	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)											
2015	10,526.9	10,052.8	5,742.4	2,172.4	2,107.8	1,015.4	638.9	447.9	30.2	474.1	4,862.5	4,388.4
2016	10,793.1	10,313.6	5,876.0	2,222.7	2,201.0	1,052.3	675.5	467.8	13.9	479.5	4,935.4	4,455.8
2017	11,174.0	10,654.4	6,059.8	2,276.2	2,291.5	1,116.3	712.6	457.4	26.8	519.7	5,287.4	4,767.8
2017 Q2	2,781.1	2,659.6	1,511.2	566.9	572.8	277.7	176.2	117.5	8.7	121.5	1,309.9	1,188.4
Q3	2,812.4	2,676.5	1,519.3	571.3	574.8	280.6	179.8	113.1	11.1	135.8	1,325.0	1,189.2
Q4	2,838.4	2,693.6	1,529.1	575.2	585.4	285.6	184.4	114.2	4.0	144.7	1,361.1	1,216.4
2018 Q1	2,859.0	2,720.1	1,543.7	577.8	591.2	291.2	183.2	115.4	7.4	138.9	1,357.0	1,218.1
	as a percentage of GDP											
2017	100.0	95.3	54.2	20.4	20.5	10.0	6.4	4.1	0.2	4.7	-	-
	Chain-linked volumes (prices for the previous year)											
	quarter-on-quarter percentage changes											
2017 Q2	0.7	0.9	0.5	0.5	2.0	0.7	1.7	5.6	-	-	1.1	1.5
Q3	0.7	0.3	0.4	0.5	-0.1	0.4	1.9	-4.4	-	-	1.5	0.5
Q4	0.7	0.2	0.2	0.3	1.4	0.9	2.4	1.1	-	-	2.4	1.4
2018 Q1	0.4	0.7	0.5	0.1	0.3	1.3	-0.6	-0.4	-	-	-0.9	-0.3
	annual percentage changes											
2015	2.1	2.4	1.8	1.3	4.8	0.5	5.3	15.4	-	-	6.5	7.7
2016	1.8	2.2	2.0	1.8	3.7	2.6	5.6	3.6	-	-	3.0	4.0
2017	2.4	1.8	1.6	1.1	2.7	3.7	5.1	-3.0	-	-	5.2	4.0
2017 Q2	2.5	2.3	1.8	1.1	3.7	4.3	4.2	1.6	-	-	4.7	4.4
Q3	2.8	2.0	1.9	1.4	2.6	4.0	6.1	-5.6	-	-	5.9	4.2
Q4	2.8	1.4	1.4	1.3	2.8	4.1	7.5	-6.7	-	-	6.7	4.1
2018 Q1	2.5	2.0	1.6	1.3	3.6	3.3	5.5	1.7	-	-	4.1	3.1
	contributions to quarter-on-quarter percentage changes in GDP; percentage points											
2017 Q2	0.7	0.8	0.3	0.1	0.4	0.1	0.1	0.2	0.1	-0.1	-	-
Q3	0.7	0.2	0.2	0.1	0.0	0.0	0.1	-0.2	0.0	0.5	-	-
Q4	0.7	0.1	0.1	0.1	0.3	0.1	0.2	0.0	-0.3	0.5	-	-
2018 Q1	0.4	0.7	0.3	0.0	0.1	0.1	0.0	0.0	0.3	-0.3	-	-
	contributions to annual percentage changes in GDP; percentage points											
2015	2.1	2.3	1.0	0.3	0.9	0.0	0.3	0.6	0.1	-0.2	-	-
2016	1.8	2.1	1.1	0.4	0.7	0.3	0.3	0.2	-0.1	-0.3	-	-
2017	2.4	1.7	0.9	0.2	0.5	0.4	0.3	-0.1	0.0	0.7	-	-
2017 Q2	2.5	2.2	1.0	0.2	0.7	0.4	0.3	0.1	0.2	0.3	-	-
Q3	2.8	1.9	1.0	0.3	0.5	0.4	0.4	-0.2	0.1	0.9	-	-
Q4	2.8	1.4	0.8	0.3	0.6	0.4	0.5	-0.3	-0.3	1.4	-	-
2018 Q1	2.5	1.9	0.8	0.3	0.7	0.3	0.3	0.1	0.0	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	Const-ruction	Trade, transport, accom-modation and food services	Infor-mation and com-munica-tion	Finance and insurance	Real estate	Professional, business and support services	Public ad-ministration, education, health and social work	Arts, enter-tainment and other services	
	1	2	3	4	5	6	7	8	9	10	11	12
	Current prices (EUR billions)											
2015	9,453.9	155.3	1,905.5	466.2	1,784.2	433.2	470.1	1,074.1	1,029.5	1,807.7	328.1	1,073.0
2016	9,681.2	152.3	1,939.0	485.1	1,827.5	450.4	460.6	1,100.6	1,073.9	1,855.5	336.3	1,112.0
2017	10,016.6	164.6	2,009.1	510.2	1,905.9	468.0	452.9	1,132.8	1,124.6	1,903.6	344.8	1,157.5
2017 Q2	2,493.1	41.0	498.5	126.9	475.7	116.2	113.1	282.3	279.5	474.0	85.8	288.0
Q3	2,521.8	41.3	507.3	128.8	479.5	118.2	113.6	284.7	283.5	478.1	86.8	290.6
Q4	2,544.7	41.7	515.4	130.9	483.2	118.9	113.3	286.2	286.5	481.4	87.2	293.7
2018 Q1	2,562.0	41.6	515.3	133.3	487.2	120.0	114.2	288.6	289.9	484.1	87.8	297.0
	as a percentage of value added											
2017	100.0	1.6	20.1	5.1	19.0	4.7	4.5	11.3	11.2	19.0	3.4	-
	Chain-linked volumes (prices for the previous year)											
	quarter-on-quarter percentage changes											
2017 Q2	0.7	0.0	0.8	1.1	0.9	1.4	0.3	0.3	1.0	0.5	0.4	0.7
Q3	0.8	-0.2	1.7	0.5	0.5	1.7	-0.2	0.5	0.8	0.4	0.7	0.3
Q4	0.7	0.2	1.5	1.2	0.6	0.4	0.1	0.3	0.8	0.3	0.2	0.6
2018 Q1	0.4	1.7	-0.7	0.7	0.8	1.8	-0.3	0.4	0.8	0.3	0.2	0.5
	annual percentage changes											
2015	1.9	3.0	3.7	0.6	2.0	3.5	-0.2	0.6	2.8	0.9	0.6	3.4
2016	1.7	-1.7	2.0	1.3	1.8	3.2	0.8	0.7	2.9	1.4	1.6	2.8
2017	2.4	0.8	3.0	2.9	3.1	4.7	-1.1	1.3	4.0	1.3	1.2	2.5
2017 Q2	2.4	0.5	3.0	3.3	3.5	5.2	-1.1	1.1	3.5	1.4	1.1	2.9
Q3	2.9	0.6	4.4	3.3	3.6	5.0	-1.2	1.5	4.3	1.5	1.5	2.5
Q4	2.9	1.7	4.1	4.2	3.4	4.4	-0.6	1.4	4.5	1.4	1.5	1.9
2018 Q1	2.6	1.7	3.3	3.6	2.9	5.4	-0.1	1.5	3.4	1.6	1.5	2.1
	contributions to quarter-on-quarter percentage changes in value added; percentage points											
2017 Q2	0.7	0.0	0.2	0.1	0.2	0.1	0.0	0.0	0.1	0.1	0.0	-
Q3	0.8	0.0	0.3	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.0	-
Q4	0.7	0.0	0.3	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	-
2018 Q1	0.4	0.0	-0.1	0.0	0.2	0.1	0.0	0.0	0.1	0.1	0.0	-
	contributions to annual percentage changes in value added; percentage points											
2015	1.9	0.1	0.7	0.0	0.4	0.2	0.0	0.1	0.3	0.2	0.0	-
2016	1.7	0.0	0.4	0.1	0.3	0.1	0.0	0.1	0.3	0.3	0.1	-
2017	2.4	0.0	0.6	0.1	0.6	0.2	-0.1	0.1	0.4	0.3	0.0	-
2017 Q2	2.4	0.0	0.6	0.2	0.7	0.2	-0.1	0.1	0.4	0.3	0.0	-
Q3	2.9	0.0	0.9	0.2	0.7	0.2	-0.1	0.2	0.5	0.3	0.1	-
Q4	2.9	0.0	0.8	0.2	0.6	0.2	0.0	0.2	0.5	0.3	0.1	-
2018 Q1	2.6	0.0	0.7	0.2	0.5	0.2	0.0	0.2	0.4	0.3	0.1	-

Sources: Eurostat and ECB calculations.

3 Economic activity

3.3 Employment [1)]

(quarterly data seasonally adjusted; annual data unadjusted)

	Total	By employment status		By economic activity										
		Employees	Self-employed	Agriculture, forestry and fishing	Manufacturing, energy and utilities	Construction	Trade, transport, accommodation and food services	Information and communication	Finance and insurance	Real estate	Professional, business and support services	Public administration, education, health and social work	Arts, entertainment and other services
	1	2	3	4	5	6	7	8	9	10	11	12	13
Persons employed													
as a percentage of total persons employed													
2015	100.0	85.2	14.8	3.3	14.9	6.0	24.8	2.7	2.6	1.0	13.3	24.3	7.0
2016	100.0	85.5	14.5	3.2	14.8	5.9	24.9	2.8	2.6	1.0	13.5	24.3	7.0
2017	100.0	85.7	14.3	3.2	14.7	5.9	24.9	2.8	2.5	1.0	13.7	24.2	7.0
annual percentage changes													
2015	1.0	1.2	-0.3	-1.1	0.1	0.1	1.3	1.6	-0.4	0.9	2.7	1.1	0.6
2016	1.4	1.6	-0.2	-0.2	0.6	-0.3	1.7	2.7	0.0	2.1	2.9	1.4	0.8
2017	1.6	2.0	-0.4	-0.1	1.2	1.6	1.7	3.2	-1.0	1.8	3.3	1.3	1.3
2017 Q2	1.6	2.0	-0.6	0.4	1.1	1.1	1.8	3.4	-0.9	1.8	3.2	1.2	1.5
Q3	1.7	2.1	-0.5	-0.8	1.4	1.8	1.8	3.0	-1.0	1.6	3.3	1.2	2.2
Q4	1.6	1.9	-0.5	-0.8	1.4	2.3	1.4	3.1	-1.4	1.9	3.3	1.2	0.9
2018 Q1	1.4	1.8	-0.9	-0.9	1.5	1.9	1.4	2.5	-0.8	2.2	3.1	1.1	0.4
Hours worked													
as a percentage of total hours worked													
2015	100.0	80.3	19.7	4.4	15.4	6.7	25.7	2.9	2.7	1.0	13.0	21.9	6.2
2016	100.0	80.5	19.5	4.3	15.3	6.7	25.8	2.9	2.7	1.0	13.2	21.9	6.2
2017	100.0	80.9	19.1	4.2	15.3	6.7	25.8	3.0	2.6	1.0	13.4	21.8	6.2
annual percentage changes													
2015	1.1	1.4	-0.1	-0.4	0.5	0.5	1.0	2.6	-0.3	1.2	2.7	1.1	1.0
2016	1.4	1.7	0.0	-0.3	0.7	0.1	1.7	2.4	0.7	2.4	3.1	1.3	1.0
2017	1.3	1.8	-0.7	-1.1	1.1	1.5	1.4	3.0	-1.3	1.9	3.1	1.0	0.8
2017 Q2	1.4	1.9	-0.5	-1.1	1.2	1.2	1.7	3.5	-1.5	1.7	3.0	1.0	0.7
Q3	1.7	2.2	-0.4	-1.1	1.7	1.9	1.9	3.0	-0.9	1.5	3.4	1.1	1.7
Q4	1.7	2.2	-0.6	-0.8	2.0	3.2	1.4	3.0	-1.6	3.0	3.4	1.2	0.4
2018 Q1	1.3	1.8	-1.1	-1.4	1.5	2.0	1.2	2.1	-1.0	2.9	2.8	1.1	0.0
Hours worked per person employed													
annual percentage changes													
2015	0.1	0.1	0.3	0.7	0.4	0.4	-0.3	0.9	0.0	0.4	0.1	0.0	0.5
2016	0.0	0.1	0.3	0.0	0.1	0.3	0.0	-0.3	0.7	0.3	0.2	-0.1	0.2
2017	-0.3	-0.1	-0.3	-1.0	-0.1	-0.1	-0.3	-0.2	-0.4	0.1	-0.2	-0.2	-0.6
2017 Q2	-0.2	-0.1	0.1	-1.5	0.1	0.1	-0.1	0.1	-0.5	-0.1	-0.2	-0.2	-0.8
Q3	0.0	0.1	0.1	-0.3	0.3	0.1	0.1	0.0	0.1	-0.1	0.1	-0.1	-0.5
Q4	0.1	0.3	-0.1	0.0	0.6	0.9	0.0	-0.1	-0.2	1.1	0.1	0.0	-0.6
2018 Q1	-0.2	0.0	-0.3	-0.5	0.1	0.1	-0.2	-0.5	-0.1	0.7	-0.3	-0.1	-0.4

Sources: Eurostat and ECB calculations.

1) Data for employment are based on the ESA 2010.

3 Economic activity

3.4 Labour force, unemployment and job vacancies

(seasonally adjusted, unless otherwise indicated)

	Labour force, millions [1]	Under-employ-ment, % of labour force [1]	Unemployment												Job vacancy rate [2]
			Total		Long-term unemploy-ment, % of labour force [1]	By age				By gender					
						Adult		Youth		Male		Female			
			Millions	% of labour force		Millions	% of labour force	Millions	% of labour force	Millions	% of labour force	Millions	% of labour force		
	1	2	3	4	5	6	7	8	9	10	11	12	13		14
% of total in 2016			100.0			81.7		18.3		52.2		47.8			
2015	160.717	4.6	17.465	10.9	5.6	14.302	9.8	3.163	22.3	9.260	10.7	8.206	11.1		1.5
2016	162.012	4.3	16.252	10.0	5.0	13.288	9.0	2.964	20.9	8.482	9.7	7.770	10.4		1.7
2017	162.636	4.1	14.763	9.1	4.4	12.094	8.1	2.669	18.8	7.636	8.7	7.127	9.5		1.9
2017 Q2	162.353	4.2	14.866	9.1	4.5	12.143	8.2	2.723	19.2	7.692	8.8	7.174	9.5		1.9
Q3	163.319	4.0	14.607	9.0	4.2	11.966	8.0	2.642	18.5	7.578	8.6	7.029	9.3		1.9
Q4	163.108	3.9	14.221	8.7	4.2	11.663	7.8	2.558	17.9	7.329	8.4	6.892	9.1		2.0
2018 Q1	162.582	4.0	13.982	8.6	4.2	11.489	7.7	2.493	17.5	7.201	8.2	6.781	9.0		2.1
2017 Dec.	-	-	14.116	8.7	-	11.588	7.8	2.528	17.7	7.274	8.3	6.842	9.1		-
2018 Jan.	-	-	14.109	8.6	-	11.591	7.8	2.518	17.6	7.264	8.3	6.845	9.1		-
Feb.	-	-	13.971	8.6	-	11.461	7.7	2.510	17.6	7.214	8.2	6.756	9.0		-
Mar.	-	-	13.866	8.5	-	11.415	7.7	2.451	17.3	7.124	8.1	6.741	8.9		-
Apr.	-	-	13.781	8.4	-	11.355	7.6	2.427	17.1	7.068	8.1	6.714	8.9		-
May	-	-	13.656	8.4	-	11.266	7.5	2.390	16.8	6.990	8.0	6.666	8.8		-

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 2015	100.0	88.7	32.1	34.5	21.8	11.6	100.0	100.0	100.0	40.4	52.5	7.1	100.0
annual percentage changes													
2015	2.6	2.9	1.4	7.0	2.2	0.7	-0.6	3.4	2.9	1.6	4.0	2.7	8.8
2016	1.6	1.8	1.8	1.9	1.7	0.5	3.1	0.5	1.6	1.0	2.1	1.4	7.2
2017	3.0	3.2	3.7	3.8	1.5	1.4	2.9	7.9	2.3	1.4	3.3	0.9	5.6
2017 Q3	4.1	4.4	4.7	6.0	1.7	1.5	2.8	8.8	2.6	1.3	4.2	0.4	5.5
Q4	4.1	4.7	5.4	6.0	2.1	-0.5	2.8	9.5	2.0	0.9	3.1	0.1	6.3
2018 Q1	3.1	3.4	3.1	4.3	2.4	0.9	2.6	6.5	1.6	1.5	1.9	0.0	5.3
Q2	.	.	.	.	.	.	.	.	.	.	.	.	3.2
2018 Jan.	3.6	5.9	5.1	8.5	3.2	-9.4	6.6	9.3	1.4	0.1	3.0	-1.2	6.4
Feb.	2.6	2.2	2.6	1.9	2.0	5.2	0.0	5.7	1.8	1.9	1.9	0.7	4.8
Mar.	3.2	2.4	1.7	2.9	2.0	8.9	0.9	4.6	1.7	2.5	1.0	0.6	4.8
Apr.	1.7	2.0	0.8	4.0	1.1	-1.1	1.2	4.1	1.6	-0.4	3.4	0.4	2.7
May	2.4	2.8	2.3	3.9	2.0	-1.0	1.8	4.0	1.4	1.7	1.6	-0.3	2.8
June	.	.	.	.	.	.	.	.	.	.	.	.	3.9
month-on-month percentage changes (s.a.)													
2018 Jan.	-0.6	0.2	-1.2	0.5	0.4	-6.0	-0.8	-1.9	-0.4	-0.6	-0.1	0.0	0.4
Feb.	-0.8	-1.9	-0.8	-3.3	-1.1	7.1	-0.7	-0.6	0.3	1.0	-0.3	0.9	-0.7
Mar.	0.5	0.5	-0.1	-0.6	1.6	0.7	-0.3	-0.8	0.6	0.8	0.1	-0.3	-0.1
Apr.	-0.8	-0.2	-0.7	2.2	-1.4	-5.2	1.4	-0.6	-0.1	-1.4	1.6	-0.3	-1.9
May	1.3	1.4	1.6	0.7	2.2	0.5	0.3	1.4	0.0	1.1	-1.0	0.0	2.2
June	.	.	.	.	.	.	.	.	.	.	.	.	-0.6

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
1999-14	99.8	-5.8	80.7	-12.7	-14.5	-9.5	6.9	-	51.1	52.4	52.9	52.7
2015	103.8	-2.8	81.3	-6.2	-22.4	1.0	8.7	88.5	52.2	53.4	54.0	53.8
2016	104.2	-2.6	81.8	-7.7	-16.4	0.3	10.6	89.0	52.5	53.6	53.1	53.3
2017	110.8	5.0	83.3	-2.5	-4.0	2.1	14.1	89.9	57.4	58.5	55.6	56.4
2017 Q3	111.8	6.1	83.7	-1.5	-2.2	1.9	14.5	90.1	57.4	58.0	55.3	56.0
Q4	114.3	8.9	84.2	-0.2	1.7	3.9	16.1	90.1	59.7	60.7	56.0	57.2
2018 Q1	114.0	8.5	84.4	0.5	4.7	2.8	16.3	90.3	58.2	58.9	56.4	57.0
Q2	112.5	7.0	.	0.0	5.8	0.3	14.5	.	55.6	55.1	54.5	54.7
2018 Feb.	114.3	8.8	-	0.1	4.2	3.5	16.9	-	58.6	59.6	56.2	57.1
Mar.	112.8	7.0	-	0.1	5.2	0.8	16.0	-	56.6	55.9	54.9	55.2
Apr.	112.7	7.3	84.3	0.3	4.6	-0.7	14.7	90.2	56.2	56.2	54.7	55.1
May	112.5	6.9	-	0.2	7.1	0.7	14.4	-	55.5	54.8	53.8	54.1
June	112.3	6.9	-	-0.6	5.6	0.8	14.4	-	54.9	54.2	55.2	54.9
July	.	.	-	-0.6	.	.	.	-	55.1	54.2	54.4	54.3

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
2015	12.4	93.7	1.5	2.0	1.4	3.4	1.8	33.2	7.1	134.4	4.4	9.3	2.3
2016	12.2	93.3	1.9	2.0	5.5	4.5	2.7	33.0	8.0	135.7	4.0	1.6	2.1
2017	12.0	93.6	1.4	2.1	7.2	5.2	5.5	33.5	7.7	133.2	3.7	7.0	2.2
2017 Q2	12.0	93.2	1.2	2.0	5.3	5.0	3.8	32.9	7.3	134.7	4.2	10.2	2.5
Q3	12.0	93.1	1.5	2.1	6.7	5.1	4.7	33.2	7.3	133.5	4.3	4.1	2.6
Q4	12.0	93.6	1.3	2.1	7.3	5.2	5.5	33.5	7.7	133.2	3.7	3.4	2.2
2018 Q1	.	.	.	.	.	.	5.8	.	7.8	.	.	.	.

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
2017 Q2	965.1	887.4	77.6	560.9	477.7	209.3	190.3	168.5	150.2	26.4	69.3	7.2	18.2
Q3	988.8	873.1	115.7	575.5	482.8	214.5	186.3	171.8	138.5	26.9	65.4	7.1	8.4
Q4	996.7	890.8	105.9	590.5	496.3	217.2	188.5	161.1	143.4	27.9	62.5	12.1	10.4
2018 Q1	985.5	874.4	111.1	579.7	489.2	213.5	186.1	164.0	139.5	28.3	59.6	9.1	6.4
2017 Dec.	337.7	303.4	34.3	201.2	167.6	73.3	62.9	53.1	52.0	10.0	20.9	6.3	5.3
2018 Jan.	328.1	291.9	36.3	197.1	166.5	71.1	61.6	50.8	44.7	9.2	19.1	3.0	1.9
Feb.	327.1	288.3	38.8	190.7	161.2	70.6	61.6	56.9	48.3	8.9	17.2	2.2	1.6
Mar.	330.2	294.2	36.0	191.9	161.5	71.8	62.9	56.3	46.4	10.2	23.3	3.9	2.9
Apr.	328.8	299.2	29.6	189.9	168.0	72.0	62.3	57.7	48.9	9.1	20.0	2.0	2.0
May	329.7	307.2	22.4	193.4	172.9	71.8	63.5	55.4	52.1	9.0	18.8	2.3	2.1
12-month cumulated transactions													
2018 May	3,950.6	3,541.3	409.2	2,316.3	1,966.6	859.5	750.6	664.6	575.2	110.1	249.0	35.6	35.8
12-month cumulated transactions as a percentage of GDP													
2018 May	35.0	31.4	3.6	20.5	17.4	7.6	6.6	5.9	5.1	1.0	2.2	0.3	0.3

1) The capital account is not seasonally adjusted.

3.9 Euro area external trade in goods [1] , values and volumes by product group [2]

(seasonally adjusted, unless otherwise indicated)

	Total (n.s.a.)		Exports (f.o.b.)					Imports (c.i.f.)					
			Total				Memo item:	Total				Memo items:	
	Exports	Imports		Intermediate goods	Capital goods	Consumption goods	Manufacturing		Intermediate goods	Capital goods	Consumption goods	Manufacturing	Oil
	1	2	3	4	5	6	7	8	9	10	11	12	13
Values (EUR billions; annual percentage changes for columns 1 and 2)													
2017 Q2	5.4	10.1	545.8	257.5	112.8	163.1	456.6	488.0	275.8	81.3	123.7	354.9	52.2
Q3	6.0	7.9	547.2	257.1	114.6	164.3	459.9	486.1	273.1	81.0	123.1	355.0	48.4
Q4	6.1	7.6	561.5	267.7	115.9	167.0	471.2	500.9	285.1	81.3	125.5	360.4	58.6
2018 Q1	2.3	1.8	561.4	270.7	113.2	167.9	470.6	502.8	290.3	81.0	123.2	356.6	65.0
2017 Dec.	0.8	2.7	191.8	91.0	40.5	56.9	161.5	169.0	97.4	26.6	41.5	120.7	21.4
2018 Jan.	9.1	6.2	190.2	92.5	38.1	56.6	158.8	170.7	98.6	27.6	41.7	120.7	23.1
Feb.	2.6	1.5	185.0	89.8	37.4	54.6	155.2	165.4	95.9	26.1	40.2	117.2	21.5
Mar.	-3.3	-2.0	186.2	88.3	37.8	56.7	156.7	166.7	95.8	27.3	41.4	118.7	20.3
Apr.	8.2	8.3	187.3	88.5	39.2	55.4	156.6	169.2	98.3	26.0	42.4	119.5	21.0
May	-0.9	0.7	187.6	.	.	.	156.6	170.7	.	.	.	120.5	.
Volume indices (2000 = 100; annual percentage changes for columns 1 and 2)													
2017 Q2	1.5	2.5	122.4	121.2	121.8	125.6	122.1	112.7	112.7	113.4	114.0	116.3	104.6
Q3	3.8	3.4	123.8	121.9	124.9	128.1	124.0	114.4	114.1	115.7	114.1	117.8	100.3
Q4	4.4	4.0	126.3	125.5	125.6	130.2	126.8	114.8	114.7	113.3	115.7	118.3	106.0
2018 Q1	2.6	1.8	125.9	125.7	122.7	131.4	126.5	113.9	114.4	111.7	114.7	116.9	110.2
2017 Nov.	6.7	4.3	127.4	126.2	126.4	131.9	127.5	115.6	114.5	115.8	117.5	118.5	105.0
Dec.	-0.4	-0.2	128.7	127.4	130.1	132.5	129.7	113.8	115.0	106.9	114.3	117.2	111.3
2018 Jan.	8.6	5.0	127.5	128.5	123.2	132.5	127.7	114.4	115.3	112.2	114.5	117.2	114.1
Feb.	3.1	2.2	124.9	125.6	121.9	128.2	125.4	113.1	113.9	110.4	112.7	116.1	110.3
Mar.	-2.5	-1.6	125.5	123.1	123.0	133.6	126.4	114.1	114.1	112.3	116.8	117.3	106.4
Apr.	8.2	7.3	125.7	122.9	127.1	129.8	125.8	114.4	115.5	106.4	118.6	117.2	104.5

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) [2)]						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 2018	100.0	100.0	70.7	55.6	44.4	100.0	12.1	7.5	26.3	9.7	44.4	86.6	13.4
2015	100.0	0.0	0.8	-0.8	1.2	-	-	-	-	-	-	-0.1	1.0
2016	100.2	0.2	0.9	-0.4	1.1	-	-	-	-	-	-	0.2	0.3
2017	101.8	1.5	1.0	1.7	1.4	-	-	-	-	-	-	1.6	1.0
2017 Q3	101.8	1.4	1.2	1.4	1.5	0.2	0.7	0.4	0.1	-0.9	0.3	1.5	1.1
Q4	102.4	1.4	0.9	1.6	1.2	0.4	0.5	1.2	0.1	2.6	0.1	1.5	1.2
2018 Q1	102.3	1.3	1.0	1.2	1.3	0.5	0.7	0.1	0.1	1.9	0.5	1.2	1.9
Q2	103.7	1.7	0.9	2.0	1.3	0.6	0.8	0.7	0.0	1.9	0.5	1.7	1.6
2018 Jan.	101.8	1.3	1.0	1.4	1.2	0.3	0.3	0.0	0.1	1.8	0.1	1.2	1.9
Feb.	102.0	1.1	1.0	1.0	1.3	0.0	-0.1	-0.2	0.0	-0.3	0.1	1.0	1.8
Mar.	103.0	1.3	1.0	1.2	1.5	0.1	0.7	0.1	-0.1	-0.8	0.3	1.2	2.0
Apr.	103.3	1.3	0.8	1.4	1.0	0.1	0.3	0.2	0.0	0.8	0.0	1.2	1.6
May	103.8	1.9	1.1	2.1	1.6	0.5	0.0	0.7	0.0	2.2	0.4	1.9	1.6
June	104.0	2.0	0.9	2.5	1.3	0.1	0.2	0.1	0.1	0.9	0.0	2.0	1.6

	Goods						Services					
	Food (including alcoholic beverages and tobacco)			Industrial goods			Housing		Transport	Communication	Recreation and personal care	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 2018	19.6	12.1	7.5	36.0	26.3	9.7	10.6	6.4	7.3	3.2	15.3	8.1
2015	1.0	0.6	1.6	-1.8	0.3	-6.8	1.2	1.1	1.3	-0.8	1.5	1.2
2016	0.9	0.6	1.4	-1.1	0.4	-5.1	1.1	1.1	0.8	0.0	1.4	1.2
2017	1.8	1.6	2.2	1.6	0.4	4.9	1.3	1.2	2.1	-1.5	2.1	0.7
2017 Q3	1.6	2.0	0.9	1.3	0.5	3.4	1.3	1.2	2.3	-1.8	2.4	0.8
Q4	2.2	2.1	2.3	1.3	0.4	3.5	1.2	1.2	1.7	-1.7	2.0	0.4
2018 Q1	1.7	2.6	0.3	0.9	0.5	2.1	1.3	1.3	1.7	-1.0	1.8	1.2
Q2	2.6	2.7	2.3	1.7	0.3	5.5	1.2	1.2	1.3	-0.7	1.8	1.3
2018 Jan.	1.9	2.5	1.1	1.0	0.6	2.2	1.3	1.2	1.5	-1.0	1.6	1.2
Feb.	1.0	2.3	-0.9	1.0	0.6	2.1	1.3	1.3	1.7	-1.2	1.7	1.1
Mar.	2.1	2.9	0.8	0.7	0.2	2.0	1.3	1.3	1.9	-0.9	2.1	1.2
Apr.	2.4	3.0	1.5	0.9	0.3	2.6	1.3	1.3	0.8	-0.7	1.2	1.2
May	2.5	2.6	2.4	1.8	0.3	6.1	1.3	1.3	1.7	-0.6	2.5	1.3
June	2.7	2.6	2.9	2.4	0.4	8.0	1.1	1.0	1.5	-0.8	1.7	1.3

Sources: Eurostat and ECB calculations.

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

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

4 Prices and costs

4.2 Industry, construction and property prices

(annual percentage changes, unless otherwise indicated)

	Industrial producer prices excluding construction [1]										Con-struction	Residential property prices [2]	Experimental indicator of commercial property prices [2]
	Total (index: 2015 = 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 2015	100.0	100.0	77.3	72.1	28.9	20.7	22.5	16.5	5.9	27.9			
2015	100.0	-2.6	-2.3	-0.5	-1.2	0.7	-0.6	-0.9	0.2	-8.7	0.4	1.7	2.3
2016	97.8	-2.2	-1.4	-0.5	-1.6	0.4	0.0	0.0	0.0	-6.9	0.6	3.4	5.0
2017	100.8	3.1	3.0	2.1	3.2	0.9	1.9	2.7	0.2	5.9	2.1	3.7	5.1
2017 Q2	100.3	3.3	3.0	2.4	3.5	0.8	2.3	3.4	0.2	6.1	2.0	3.5	4.2
Q3	100.5	2.4	2.7	2.1	3.0	1.0	2.2	3.1	0.2	3.3	1.9	3.7	5.7
Q4	101.7	2.5	2.5	2.0	3.2	0.9	1.6	2.0	0.3	3.8	2.5	3.9	6.6
2018 Q1	102.5	1.8	1.7	1.6	2.4	1.0	0.9	1.1	0.5	2.2	2.3	4.0	.
2017 Dec.	102.0	2.2	2.1	1.9	2.9	0.9	1.4	1.7	0.4	3.0	-	-	-
2018 Jan.	102.4	1.6	2.0	1.8	2.8	0.9	1.0	1.3	0.4	1.1	-	-	-
Feb.	102.5	1.7	1.4	1.6	2.4	1.0	0.9	1.0	0.5	1.9	-	-	-
Mar.	102.5	2.0	1.7	1.4	2.2	1.0	0.9	1.2	0.5	3.6	-	-	-
Apr.	102.5	1.9	1.8	1.3	2.1	1.0	0.5	0.4	0.5	3.5	-	-	-
May	103.3	3.0	2.8	1.4	2.4	0.9	0.4	0.2	0.5	7.6	-	-	-

Sources: Eurostat, ECB calculations, and ECB calculations based on MSCI data and national sources (col. 13).

1) Domestic sales only.

2) Experimental data based on non-harmonised sources (see https://www.ecb.europa.eu/stats/ecb_statistics/governance_and_quality_framework/html/experimental-data.en.html for further details).

4.3 Commodity prices and GDP deflators

(annual percentage changes, unless otherwise indicated)

	GDP deflators								Oil prices (EUR per barrel)	Non-energy commodity prices (EUR)					
	Total (s.a.; index: 2010 = 100)	Total	Domestic demand				Exports [1]	Imports [1]		Import-weighted [2]			Use-weighted [2]		
			Total	Private consump-tion	Govern-ment consump-tion	Gross fixed capital formation				Total	Food	Non-food	Total	Food	Non-food
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
% of total										100.0	45.4	54.6	100.0	50.4	49.6
2015	106.0	1.4	0.4	0.3	0.6	0.8	0.4	-1.9	47.1	0.0	4.2	-4.5	2.9	7.0	-2.7
2016	106.8	0.7	0.4	0.3	0.5	0.7	-1.5	-2.4	39.9	-3.7	-4.0	-3.3	-7.4	-10.4	-3.0
2017	107.9	1.1	1.5	1.5	1.3	1.4	1.8	2.9	48.1	5.9	-3.5	16.4	5.5	-3.2	17.5
2017 Q3	108.2	1.3	1.6	1.4	1.2	1.5	1.4	2.1	44.0	2.0	-7.4	12.3	2.7	-5.7	13.5
Q4	108.5	1.3	1.5	1.5	1.4	1.5	1.2	1.8	52.2	-2.5	-9.5	4.6	0.0	-5.2	6.3
2018 Q1	108.8	1.5	1.5	1.2	1.3	1.6	0.4	0.2	54.6	-8.9	-14.5	-3.6	-7.6	-12.6	-1.9
Q2	.	.	.	.	.	.	.	.	62.6	1.5	-6.7	9.6	1.0	-7.4	10.9
2018 Jan.	-	-	-	-	-	-	-	-	56.6	-8.1	-16.1	-0.2	-6.3	-13.4	2.0
Feb.	-	-	-	-	-	-	-	-	53.0	-9.5	-14.6	-4.6	-7.7	-12.2	-2.6
Mar.	-	-	-	-	-	-	-	-	53.9	-9.3	-12.8	-6.0	-8.8	-12.3	-4.8
Apr.	-	-	-	-	-	-	-	-	58.4	-4.9	-10.3	0.1	-5.2	-11.1	1.5
May	-	-	-	-	-	-	-	-	64.9	3.8	-5.0	12.6	2.9	-6.3	13.8
June	-	-	-	-	-	-	-	-	64.4	6.0	-4.9	17.0	5.5	-4.8	18.0

Sources: Eurostat, ECB calculations and Bloomberg (col. 9).

1) Deflators for exports and imports refer to goods and services and include cross-border trade within the euro area.

2) Import-weighted: weighted according to 2009-11 average import structure; use-weighted: weighted according to 2009-11 average domestic demand structure.

4 Prices and costs

4.4 Price-related opinion surveys
(seasonally adjusted)

	European Commission Business and Consumer Surveys (percentage balances)					Purchasing Managers' Surveys (diffusion indices)			
	Selling price expectations (for next three months)				Consumer price trends over past 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
1999-14	4.4	-	-	-3.1	33.5	57.2	56.5	-	49.8
2015	-3.1	3.1	2.3	-13.2	-0.2	48.9	53.5	49.6	49.0
2016	-1.0	2.2	4.1	-7.2	0.2	49.8	53.9	49.3	49.6
2017	8.7	5.0	6.7	2.6	12.3	64.6	56.3	55.1	51.6
2017 Q3	8.1	4.3	6.6	3.4	10.4	60.4	55.7	54.4	51.4
Q4	10.9	7.1	8.2	8.2	13.8	67.9	56.9	56.3	52.1
2018 Q1	12.5	6.7	8.9	10.9	17.4	68.4	57.2	57.9	52.9
Q2	9.7	6.8	9.0	12.2	18.5	65.6	57.6	56.5	52.3
2018 Feb.	12.6	6.5	9.4	10.2	18.3	68.7	56.9	58.4	52.9
Mar.	11.9	6.4	8.3	11.8	16.5	65.8	56.3	57.3	52.1
Apr.	9.9	6.1	9.0	9.8	16.3	63.9	56.5	57.5	51.8
May	9.3	7.3	9.0	14.3	18.0	65.3	57.6	56.4	52.0
June	9.9	6.9	9.1	12.5	21.1	67.6	58.6	55.7	53.2
July	.	.	.	.	.	66.9	58.2	55.7	52.7

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	
2015	104.3	1.6	2.0	0.7	1.6	1.6	1.5
2016	105.8	1.5	1.5	1.6	1.4	1.6	1.4
2017	107.5	1.6	1.7	1.2	1.7	1.4	1.5
2017 Q2	111.2	1.8	2.2	0.8	1.9	1.7	1.5
Q3	104.2	1.6	1.6	1.4	1.8	1.0	1.5
Q4	114.0	1.4	1.5	0.8	1.6	0.9	1.5
2018 Q1	102.5	2.0	1.8	2.6	2.4	1.1	1.8

Sources: Eurostat and ECB calculations.

1) Experimental data based on non-harmonised sources (see https://www.ecb.europa.eu/stats/ecb_statistics/governance_and_quality_framework/html/experimental-data.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						
2015	104.8	0.5	-2.9	-1.4	0.7	0.8	0.8	0.7	2.7	1.6	1.4	1.7
2016	105.6	0.8	2.0	-0.1	0.0	1.2	-0.2	1.5	3.6	0.6	1.3	1.0
2017	106.4	0.8	0.0	-0.3	0.1	0.2	0.2	1.2	4.5	1.7	1.5	1.6
2017 Q2	106.2	0.7	0.9	-0.4	-0.5	-0.4	-0.2	1.4	5.4	2.0	1.5	1.8
Q3	106.3	0.4	-0.2	-1.5	-0.5	0.1	0.3	1.0	4.0	1.6	1.3	1.4
Q4	106.6	0.6	-0.9	-0.9	0.0	-0.1	0.6	0.2	4.4	1.5	1.6	1.4
2018 Q1	107.1	0.9	-0.6	-0.1	0.2	0.6	-0.2	0.8	3.5	2.1	1.3	1.3
						Compensation per employee						
2015	108.2	1.5	1.2	2.1	1.3	1.5	2.7	0.9	2.4	1.7	1.2	1.8
2016	109.5	1.2	0.5	1.3	1.6	1.3	0.3	2.4	2.1	0.6	1.3	1.8
2017	111.2	1.6	0.9	1.5	1.4	1.6	1.6	1.1	3.9	2.3	1.6	1.4
2017 Q2	110.9	1.5	1.1	1.4	1.7	1.3	1.6	1.3	4.7	2.3	1.6	1.4
Q3	111.4	1.6	1.3	1.5	1.0	1.9	2.3	0.7	3.8	2.6	1.5	0.8
Q4	112.2	1.8	1.6	1.7	1.9	1.8	1.8	1.0	4.0	2.6	1.8	1.9
2018 Q1	112.7	2.0	2.0	1.7	1.9	2.0	2.5	1.6	2.8	2.4	1.8	2.4
						Labour productivity per person employed						
2015	103.2	1.0	4.2	3.6	0.5	0.7	1.9	0.2	-0.3	0.1	-0.2	0.0
2016	103.7	0.4	-1.5	1.4	1.5	0.2	0.5	0.9	-1.4	0.0	0.0	0.8
2017	104.5	0.8	0.9	1.8	1.3	1.4	1.4	-0.1	-0.6	0.7	0.1	-0.2
2017 Q2	104.4	0.9	0.1	1.9	2.2	1.7	1.8	-0.2	-0.7	0.3	0.1	-0.4
Q3	104.8	1.1	1.5	3.0	1.5	1.8	1.9	-0.2	-0.2	1.0	0.2	-0.6
Q4	105.2	1.2	2.5	2.6	1.9	1.9	1.3	0.8	-0.5	1.1	0.1	0.5
2018 Q1	105.2	1.1	2.6	1.8	1.7	1.5	2.8	0.8	-0.7	0.3	0.4	1.1
						Compensation per hour worked						
2015	110.0	1.4	1.4	1.7	0.7	1.6	1.7	0.9	1.7	1.4	1.3	1.6
2016	111.3	1.1	0.1	1.2	1.6	1.1	0.6	1.7	2.0	0.3	1.5	1.6
2017	113.2	1.7	0.9	1.5	1.3	1.8	1.6	1.4	3.7	2.3	1.8	1.8
2017 Q2	112.7	1.6	2.1	1.3	1.4	1.5	1.4	1.9	5.1	2.1	1.9	2.1
Q3	113.0	1.4	-0.1	1.1	0.4	1.7	1.9	0.7	3.7	2.3	1.7	1.0
Q4	113.8	1.5	0.8	1.0	1.1	1.6	1.7	1.1	2.6	2.3	1.7	2.1
2018 Q1	114.4	1.9	1.8	1.6	1.4	2.1	2.8	1.7	1.9	2.6	1.8	2.4
						Hourly labour productivity						
2015	105.3	1.0	3.5	3.2	0.1	1.0	0.9	0.2	-0.7	0.1	-0.2	-0.4
2016	105.7	0.4	-1.5	1.3	1.2	0.1	0.8	0.2	-1.7	-0.2	0.1	0.6
2017	106.9	1.1	1.9	1.9	1.4	1.8	1.6	0.2	-0.7	0.9	0.3	0.4
2017 Q2	106.5	1.1	1.6	1.8	2.1	1.8	1.7	0.4	-0.6	0.4	0.3	0.4
Q3	106.8	1.1	1.8	2.7	1.4	1.7	1.9	-0.3	-0.1	0.9	0.3	-0.1
Q4	107.3	1.1	2.5	2.1	1.0	1.9	1.3	1.1	-1.5	1.0	0.1	1.1
2018 Q1	107.5	1.2	3.1	1.7	1.6	1.7	3.2	0.9	-1.4	0.6	0.5	1.6

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												
2015	1,037.7	5,575.8	6,613.5	1,444.1	2,159.7	3,603.8	10,217.2	74.5	485.1	75.6	635.2	10,852.4
2016	1,075.1	6,083.9	7,159.0	1,329.6	2,221.2	3,550.8	10,709.8	70.4	523.2	95.7	689.2	11,399.0
2017	1,112.0	6,636.6	7,748.7	1,194.4	2,261.2	3,455.5	11,204.2	75.7	509.4	75.7	660.8	11,865.0
2017 Q3	1,104.8	6,531.0	7,635.8	1,224.1	2,251.4	3,475.4	11,111.3	66.6	530.5	77.4	674.6	11,785.8
Q4	1,112.0	6,636.6	7,748.7	1,194.4	2,261.2	3,455.5	11,204.2	75.7	509.4	75.7	660.8	11,865.0
2018 Q1	1,113.4	6,736.4	7,849.8	1,171.5	2,265.9	3,437.4	11,287.2	71.6	505.7	74.6	652.0	11,939.1
Q2 [p]	1,133.3	6,899.5	8,032.9	1,183.5	2,269.6	3,453.1	11,486.0	74.0	505.1	68.7	647.7	12,133.7
2018 Jan.	1,114.5	6,679.0	7,793.4	1,198.0	2,263.9	3,461.9	11,255.3	74.7	514.5	61.6	650.9	11,906.2
Feb.	1,115.6	6,713.2	7,828.8	1,178.4	2,265.4	3,443.8	11,272.6	72.8	502.5	63.0	638.3	11,910.8
Mar.	1,113.4	6,736.4	7,849.8	1,171.5	2,265.9	3,437.4	11,287.2	71.6	505.7	74.6	652.0	11,939.1
Apr.	1,122.2	6,752.5	7,874.6	1,158.8	2,269.8	3,428.6	11,303.2	77.4	510.6	76.2	664.2	11,967.4
May	1,128.3	6,849.6	7,977.9	1,163.2	2,265.3	3,428.4	11,406.4	71.3	504.4	65.1	640.8	12,047.2
June [p]	1,133.3	6,899.5	8,032.9	1,183.5	2,269.6	3,453.1	11,486.0	74.0	505.1	68.7	647.7	12,133.7
Transactions												
2015	66.5	566.9	633.3	-134.5	12.3	-122.2	511.2	-47.4	49.7	-27.2	-24.9	486.2
2016	37.5	541.7	579.2	-105.6	16.0	-89.5	489.7	-4.2	38.0	16.1	49.8	539.5
2017	36.5	588.3	624.7	-112.1	36.3	-75.8	548.9	6.7	-13.7	-19.1	-26.1	522.8
2017 Q3	9.4	157.0	166.4	-32.9	10.8	-22.1	144.3	-1.1	16.8	3.1	18.9	163.1
Q4	7.2	109.0	116.2	-21.6	9.8	-11.7	104.5	9.4	-21.4	-5.9	-17.9	86.6
2018 Q1	1.4	103.8	105.2	-21.2	6.0	-15.2	90.0	-3.9	-3.6	-0.1	-7.5	82.5
Q2 [p]	20.0	145.3	165.2	8.5	10.7	19.2	184.5	-0.9	-0.3	-7.8	-9.1	175.4
2018 Jan.	2.4	49.0	51.4	6.3	4.3	10.6	62.0	-0.6	5.1	-13.0	-8.5	53.5
Feb.	1.1	30.0	31.1	-21.1	1.1	-20.1	11.1	-2.1	-12.1	0.6	-13.6	-2.5
Mar.	-2.2	24.8	22.7	-6.3	0.6	-5.7	17.0	-1.2	3.4	12.4	14.6	31.6
Apr.	8.8	11.7	20.5	-13.4	4.9	-8.4	12.1	3.0	4.8	1.0	8.8	20.9
May	6.2	84.2	90.3	1.5	1.5	3.0	93.3	-6.6	-6.1	-12.0	-24.7	68.6
June [p]	5.0	49.4	54.4	20.3	4.3	24.7	79.0	2.7	0.9	3.2	6.8	85.9
Growth rates												
2015	6.8	11.3	10.6	-8.5	0.6	-3.3	5.3	-38.9	11.4	-25.4	-3.8	4.7
2016	3.6	9.7	8.8	-7.3	0.7	-2.5	4.8	-5.7	7.8	21.0	7.8	5.0
2017	3.4	9.7	8.7	-8.5	1.6	-2.1	5.1	9.7	-2.6	-20.7	-3.8	4.6
2017 Q3	3.5	11.0	9.9	-10.4	1.4	-3.2	5.4	-13.2	5.6	-11.4	1.2	5.2
Q4	3.4	9.7	8.7	-8.5	1.6	-2.1	5.1	9.7	-2.6	-20.7	-3.8	4.6
2018 Q1	2.4	8.4	7.5	-8.7	1.7	-2.1	4.4	-1.6	-4.8	-23.3	-7.0	3.7
Q2 [p]	3.5	8.1	7.4	-5.4	1.7	-0.9	4.8	5.3	-1.6	-13.7	-2.4	4.4
2018 Jan.	3.1	9.8	8.8	-8.1	1.7	-1.9	5.3	-1.6	-1.0	-31.9	-5.1	4.6
Feb.	2.8	9.4	8.4	-9.3	1.8	-2.3	4.9	7.7	-2.3	-32.4	-5.4	4.3
Mar.	2.4	8.4	7.5	-8.7	1.7	-2.1	4.4	-1.6	-4.8	-23.3	-7.0	3.7
Apr.	2.8	7.7	7.0	-8.4	1.8	-1.9	4.1	5.3	-1.7	-4.3	-1.2	3.8
May	3.2	8.3	7.5	-7.6	1.7	-1.7	4.6	-3.5	-2.9	-20.9	-5.1	4.0
June [p]	3.5	8.1	7.4	-5.4	1.7	-0.9	4.8	5.3	-1.6	-13.7	-2.4	4.4

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													
2015	1,953.2	1,503.9	323.6	117.4	8.3	5,750.7	3,060.7	695.0	1,992.3	2.7	957.9	226.6	365.5
2016	2,082.3	1,617.4	296.2	160.3	8.4	6,052.3	3,400.9	644.8	2,004.7	1.9	989.1	198.2	383.2
2017	2,244.3	1,788.0	287.1	159.8	9.5	6,301.7	3,697.5	561.5	2,042.0	0.6	1,009.7	202.2	409.9
2017 Q3	2,219.9	1,770.4	286.0	158.3	5.3	6,255.9	3,633.7	583.6	2,036.6	2.0	977.1	201.0	419.2
Q4	2,244.3	1,788.0	287.1	159.8	9.5	6,301.7	3,697.5	561.5	2,042.0	0.6	1,009.7	202.2	409.9
2018 Q1	2,256.9	1,818.7	273.5	157.2	7.6	6,375.2	3,780.8	542.8	2,050.0	1.5	990.7	209.5	413.1
Q2 (p)	2,297.1	1,854.9	278.8	156.5	6.9	6,461.4	3,868.9	535.9	2,055.5	1.0	1,023.8	220.6	423.6
2018 Jan.	2,283.5	1,823.4	291.9	157.7	10.5	6,329.6	3,724.4	556.1	2,047.4	1.7	986.0	203.8	412.7
Feb.	2,266.6	1,812.6	287.0	158.1	8.9	6,359.5	3,760.1	548.7	2,048.9	1.8	982.3	207.9	413.7
Mar.	2,256.9	1,818.7	273.5	157.2	7.6	6,375.2	3,780.8	542.8	2,050.0	1.5	990.7	209.5	413.1
Apr.	2,270.6	1,837.9	269.4	155.6	7.7	6,406.0	3,808.8	539.3	2,056.1	1.8	952.8	211.5	417.6
May	2,295.9	1,863.2	269.9	156.2	6.7	6,432.5	3,842.7	536.6	2,051.9	1.3	985.0	217.8	418.1
June (p)	2,297.1	1,854.9	278.8	156.5	6.9	6,461.4	3,868.9	535.9	2,055.5	1.0	1,023.8	220.6	423.6
Transactions													
2015	85.1	124.3	-32.9	4.9	-11.2	194.7	303.8	-109.8	1.2	-0.4	88.3	-0.5	29.6
2016	128.0	151.8	-24.2	0.2	0.2	299.8	333.3	-46.3	13.7	-0.8	30.9	-29.6	18.8
2017	179.8	181.7	-3.0	-0.1	1.1	254.0	303.7	-81.9	33.4	-1.3	52.5	5.9	26.9
2017 Q3	34.8	41.7	-6.0	0.3	-1.1	65.9	75.1	-16.8	8.0	-0.3	12.2	4.8	16.1
Q4	24.7	17.8	1.2	1.5	4.2	47.6	65.2	-21.8	5.5	-1.3	41.0	2.2	-8.9
2018 Q1	15.5	32.7	-12.7	-2.7	-1.9	75.7	83.8	-18.4	9.5	0.9	-17.0	7.6	3.0
Q2 (p)	33.0	32.0	2.5	-0.7	-0.7	83.7	79.8	-8.1	12.6	-0.5	25.9	10.8	10.2
2018 Jan.	43.5	38.3	6.1	-2.1	1.1	30.8	27.9	-5.0	6.9	1.0	-19.6	1.5	2.8
Feb.	-19.3	-12.4	-5.5	0.3	-1.7	28.9	35.0	-7.6	1.4	0.1	-6.4	3.9	0.9
Mar.	-8.7	6.8	-13.3	-0.9	-1.3	16.1	21.0	-5.8	1.2	-0.3	9.0	2.1	-0.6
Apr.	11.7	17.8	-4.6	-1.6	0.1	30.0	26.5	-3.9	7.1	0.3	-41.6	1.8	4.5
May	20.6	22.8	-1.7	0.6	-1.0	25.0	27.1	-3.5	1.8	-0.5	28.8	6.0	0.3
June (p)	0.7	-8.6	8.8	0.3	0.2	28.8	26.2	-0.7	3.6	-0.3	38.8	2.9	5.4
Growth rates													
2015	4.6	9.0	-9.2	4.4	-57.6	3.5	11.0	-13.6	0.1	-13.2	10.2	-0.2	8.8
2016	6.7	10.1	-7.5	0.2	2.1	5.2	10.9	-6.7	0.6	-29.9	3.1	-13.0	5.2
2017	8.7	11.3	-1.0	0.0	13.8	4.2	8.9	-12.7	1.7	-65.9	5.5	3.0	7.0
2017 Q3	8.1	12.2	-7.4	-1.8	-42.3	4.6	9.9	-12.5	1.6	-25.3	5.7	-2.0	8.9
Q4	8.7	11.3	-1.0	0.0	13.8	4.2	8.9	-12.7	1.7	-65.9	5.5	3.0	7.0
2018 Q1	5.3	8.0	-7.5	-0.1	17.9	4.0	8.3	-12.5	1.6	-42.2	5.2	10.4	5.3
Q2 (p)	4.9	7.2	-5.2	-1.0	6.8	4.4	8.5	-10.9	1.8	-54.1	6.4	12.9	5.1
2018 Jan.	8.5	10.8	-0.6	-0.4	48.4	4.1	8.6	-12.5	1.7	-37.1	7.3	4.9	5.4
Feb.	6.7	9.0	-2.9	0.2	31.1	4.2	8.7	-12.5	1.7	-33.3	7.0	6.0	5.7
Mar.	5.3	8.0	-7.5	-0.1	17.9	4.0	8.3	-12.5	1.6	-42.2	5.2	10.4	5.3
Apr.	5.6	8.4	-7.6	-0.5	13.4	4.1	8.3	-12.0	1.8	-40.6	1.4	7.2	5.0
May	5.8	8.7	-8.2	-0.9	7.1	4.2	8.4	-11.7	1.7	-48.3	3.5	11.6	4.5
June (p)	4.9	7.2	-5.2	-1.0	6.8	4.4	8.5	-10.9	1.8	-54.1	6.4	12.9	5.1

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							
	Total	Loans	Debt securities	Total		Adjusted loans [2)]	To non-financial corporations [3)]	To households [4)]	To financial corporations other than MFIs and ICPFs [3)]	To insurance corporations and pension funds		
	1	2	3	4	5	6	7	8	9	10	11	12
Outstanding amounts												
2015	3,901.4	1,113.6	2,785.4	12,599.6	10,509.4	10,804.8	4,285.9	5,310.8	789.0	123.8	1,307.8	782.4
2016	4,393.7	1,083.4	3,297.1	12,877.3	10,707.9	10,978.8	4,310.2	5,448.9	836.1	112.7	1,385.4	784.0
2017	4,631.1	1,032.5	3,584.7	13,113.3	10,871.6	11,168.6	4,325.3	5,598.2	839.3	108.8	1,440.1	801.5
2017 Q3	4,548.3	1,050.5	3,483.6	13,048.9	10,816.0	11,103.5	4,302.2	5,556.2	845.6	111.9	1,439.0	794.0
Q4	4,631.1	1,032.5	3,584.7	13,113.3	10,871.6	11,168.6	4,325.3	5,598.2	839.3	108.8	1,440.1	801.5
2018 Q1	4,600.8	1,021.1	3,565.9	13,196.8	10,946.6	11,235.7	4,346.4	5,632.0	856.2	112.0	1,466.3	783.8
Q2 [p]	4,598.6	1,017.8	3,566.6	13,276.3	10,993.4	11,329.5	4,354.3	5,658.1	860.8	120.3	1,495.6	787.3
2018 Jan.	4,597.4	1,031.1	3,552.1	13,187.5	10,933.2	11,230.5	4,352.4	5,604.8	863.5	112.5	1,453.3	800.9
Feb.	4,598.8	1,023.2	3,561.3	13,188.8	10,936.6	11,225.4	4,349.2	5,615.1	858.5	113.8	1,459.5	792.7
Mar.	4,600.8	1,021.1	3,565.9	13,196.8	10,946.6	11,235.7	4,346.4	5,632.0	856.2	112.0	1,466.3	783.8
Apr.	4,593.8	1,021.0	3,558.9	13,252.0	10,963.9	11,257.4	4,358.5	5,644.5	843.1	117.9	1,484.3	803.7
May	4,576.6	1,023.3	3,539.0	13,299.9	11,008.1	11,302.0	4,384.0	5,649.2	854.4	120.6	1,490.5	801.3
June [p]	4,598.6	1,017.8	3,566.6	13,276.3	10,993.4	11,329.5	4,354.3	5,658.1	860.8	120.3	1,495.6	787.3
Transactions												
2015	295.0	-21.3	316.0	83.8	56.7	76.4	-16.6	101.2	-22.2	-5.7	25.6	1.5
2016	488.3	-34.6	522.8	316.9	234.0	258.0	82.4	119.7	43.0	-11.1	78.8	4.1
2017	289.4	-43.1	331.8	361.2	272.2	315.3	84.0	173.0	18.7	-3.6	64.1	24.9
2017 Q3	88.6	-10.8	99.5	74.2	75.9	86.8	21.4	40.6	14.5	-0.7	2.3	-3.9
Q4	89.7	-16.0	105.6	87.8	75.1	92.2	35.3	48.2	-5.4	-3.0	5.9	6.9
2018 Q1	-39.6	-10.6	-28.9	115.6	102.4	97.2	39.5	39.3	20.4	3.3	28.7	-15.5
Q2 [p]	34.7	-3.8	38.1	85.2	52.7	104.3	13.4	33.2	-2.1	8.1	29.7	2.8
2018 Jan.	-29.9	-0.7	-29.4	83.8	70.8	69.1	32.3	7.8	27.0	3.7	14.7	-1.7
Feb.	2.5	-7.7	10.1	2.1	0.9	-3.4	-5.0	10.4	-5.8	1.3	6.5	-5.3
Mar.	-12.2	-2.2	-9.5	29.7	30.7	31.5	12.1	21.1	-0.9	-1.7	7.4	-8.4
Apr.	-5.2	-0.1	-5.1	45.0	12.5	16.4	11.8	12.0	-17.1	5.8	17.8	14.6
May	26.2	1.8	24.0	55.0	47.2	50.7	26.4	9.9	8.4	2.5	6.2	1.6
June [p]	13.7	-5.5	19.2	-14.7	-7.1	37.2	-24.8	11.4	6.6	-0.3	5.7	-13.4
Growth rates												
2015	8.2	-1.9	12.8	0.7	0.5	0.7	-0.4	1.9	-2.7	-4.4	2.0	0.2
2016	12.5	-3.1	18.7	2.5	2.2	2.4	1.9	2.3	5.5	-8.9	6.0	0.5
2017	6.6	-4.0	10.2	2.8	2.6	2.9	2.0	3.2	2.3	-3.2	4.6	3.2
2017 Q3	8.3	-4.0	12.7	2.8	2.4	2.7	1.5	3.0	3.5	2.0	5.6	2.6
Q4	6.6	-4.0	10.2	2.8	2.6	2.9	2.0	3.2	2.3	-3.2	4.6	3.2
2018 Q1	3.9	-4.0	6.4	2.6	2.6	3.0	2.3	3.0	2.2	-0.4	4.0	-0.1
Q2 [p]	3.9	-3.9	6.3	2.8	2.9	3.5	2.6	2.9	3.3	6.8	4.7	-1.2
2018 Jan.	5.4	-4.4	8.7	3.1	2.9	3.3	2.3	3.1	5.6	-1.2	4.7	2.3
Feb.	5.2	-4.1	8.2	2.8	2.7	3.1	2.1	2.9	4.4	2.0	5.0	1.1
Mar.	3.9	-4.0	6.4	2.6	2.6	3.0	2.3	3.0	2.2	-0.4	4.0	-0.1
Apr.	3.2	-4.1	5.5	2.9	2.7	3.0	2.4	3.0	2.7	3.7	5.2	1.9
May	3.4	-3.6	5.6	3.1	3.0	3.3	2.8	3.0	3.8	8.1	4.6	2.0
June [p]	3.9	-3.9	6.3	2.8	2.9	3.5	2.6	2.9	3.3	6.8	4.7	-1.2

Source: ECB.

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

2) Adjusted for loan sales and securitisation (resulting in derecognition from the MFI statistical balance sheet) as well as for positions arising from notional cash pooling services provided by MFIs.

3) In accordance with the ESA 2010, in December 2014 holding companies of non-financial groups were reclassified from the non-financial corporations sector to the financial corporations sector. These entities are included in MFI balance sheet statistics with financial corporations other than MFIs and insurance corporations and pension funds (ICPFs).

4) Including non-profit institutions serving households.

5 Money and credit

5.4 MFI loans to euro area non-financial corporations and households [1)]

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

	Non-financial corporations [2)]					Households [3)]				
	Total		Up to 1 year	Over 1 and up to 5 years	Over 5 years	Total		Loans for consumption	Loans for house purchase	Other loans
		Adjusted loans [4)]					Adjusted loans [4)]			
	1	2	3	4	5	6	7	8	9	10
Outstanding amounts										
2015	4,285.9	4,268.5	1,041.5	760.8	2,483.6	5,310.8	5,643.8	595.9	3,949.4	765.5
2016	4,310.2	4,309.8	1,001.1	796.8	2,512.3	5,448.9	5,728.8	615.8	4,083.2	749.9
2017	4,325.3	4,364.9	977.2	820.4	2,527.7	5,598.2	5,865.9	653.4	4,214.3	730.4
2017 Q3	4,302.2	4,323.5	977.5	811.7	2,513.0	5,556.2	5,830.5	644.9	4,178.9	732.5
Q4	4,325.3	4,364.9	977.2	820.4	2,527.7	5,598.2	5,865.9	653.4	4,214.3	730.4
2018 Q1	4,346.4	4,383.6	1,002.1	820.1	2,524.2	5,632.0	5,905.4	663.1	4,242.0	726.8
Q2 [p)]	4,354.3	4,422.0	985.2	827.2	2,542.0	5,658.1	5,938.6	669.2	4,273.9	715.0
2018 Jan.	4,352.4	4,387.3	996.6	826.3	2,529.5	5,604.8	5,880.8	659.4	4,215.7	729.7
Feb.	4,349.2	4,382.1	988.9	824.9	2,535.5	5,615.1	5,892.2	662.3	4,223.8	728.9
Mar.	4,346.4	4,383.6	1,002.1	820.1	2,524.2	5,632.0	5,905.4	663.1	4,242.0	726.8
Apr.	4,358.5	4,395.1	1,005.1	818.3	2,535.1	5,644.5	5,919.0	667.6	4,250.6	726.4
May	4,384.0	4,416.9	1,011.8	823.7	2,548.5	5,649.2	5,926.3	669.3	4,257.0	722.9
June [p)]	4,354.3	4,422.0	985.2	827.2	2,542.0	5,658.1	5,938.6	669.2	4,273.9	715.0
Transactions										
2015	-16.6	20.7	-62.4	31.8	14.0	101.2	79.3	22.7	80.2	-1.8
2016	82.4	99.6	-16.8	44.3	55.0	119.7	113.7	23.5	105.4	-9.3
2017	84.0	134.0	2.4	37.1	44.6	173.0	165.9	44.1	134.1	-5.2
2017 Q3	21.4	33.3	-5.9	16.9	10.4	40.6	36.0	10.9	33.3	-3.6
Q4	35.3	57.7	4.1	11.0	20.1	48.2	45.8	11.7	36.7	-0.2
2018 Q1	39.5	38.5	29.9	4.4	5.2	39.3	46.0	11.7	27.2	0.4
Q2 [p)]	13.4	46.2	-17.0	10.6	19.9	33.2	41.3	10.1	30.7	-7.6
2018 Jan.	32.3	25.5	21.9	7.3	3.1	7.8	16.2	6.0	1.8	0.0
Feb.	-5.0	-4.1	-9.1	-1.6	5.7	10.4	12.3	3.1	7.5	-0.2
Mar.	12.1	17.1	17.1	-1.3	-3.6	21.1	17.5	2.5	17.9	0.6
Apr.	11.8	11.3	2.9	-1.9	10.9	12.0	13.2	4.4	8.4	-0.9
May	26.4	25.0	5.0	8.3	13.1	9.9	13.1	5.2	5.5	-0.8
June [p)]	-24.8	9.9	-25.0	4.3	-4.1	11.4	15.1	0.5	16.8	-5.9
Growth rates										
2015	-0.4	0.5	-5.6	4.4	0.6	1.9	1.4	4.0	2.1	-0.2
2016	1.9	2.3	-1.7	5.8	2.2	2.3	2.0	4.0	2.7	-1.2
2017	2.0	3.1	0.2	4.7	1.8	3.2	2.9	7.2	3.3	-0.7
2017 Q3	1.5	2.5	-1.2	4.3	1.7	3.0	2.7	6.9	3.2	-1.1
Q4	2.0	3.1	0.2	4.7	1.8	3.2	2.9	7.2	3.3	-0.7
2018 Q1	2.3	3.3	2.6	4.4	1.4	3.0	2.9	7.2	3.0	-0.5
Q2 [p)]	2.6	4.1	1.1	5.4	2.2	2.9	2.9	7.0	3.1	-1.5
2018 Jan.	2.3	3.5	1.2	5.4	1.8	3.1	2.9	7.4	3.1	-0.8
Feb.	2.1	3.2	0.5	5.2	1.7	2.9	2.9	7.5	2.9	-0.7
Mar.	2.3	3.3	2.6	4.4	1.4	3.0	2.9	7.2	3.0	-0.5
Apr.	2.4	3.3	3.3	3.7	1.6	3.0	2.9	7.4	2.9	-0.5
May	2.8	3.7	3.4	4.6	2.0	3.0	2.9	7.2	3.1	-0.7
June [p)]	2.6	4.1	1.1	5.4	2.2	2.9	2.9	7.0	3.1	-1.5

Source: ECB.

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

2) In accordance with the ESA 2010, in December 2014 holding companies of non-financial groups were reclassified from the non-financial corporations sector to the financial corporations sector. These entities are included in MFI balance sheet statistics with financial corporations other than MFIs and insurance corporations and pension funds (ICPFs).

3) Including non-profit institutions serving households.

4) Adjusted for loan sales and securitisation (resulting in derecognition from the MFI statistical balance sheet) as well as for positions arising from notional cash pooling services provided by MFIs.

5 Money and credit

5.5 Counterparts to M3 other than credit to euro area residents [1)]

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

	MFI liabilities						MFI assets			
	Central government holdings [2)]	Longer-term financial liabilities vis-à-vis other euro area residents					Net external assets	Other		
		Total	Deposits with an agreed maturity of over 2 years	Deposits redeemable at notice of over 3 months	Debt securities with a maturity of over 2 years	Capital and reserves		Total	Repos with central counter-parties [3)]	Reverse repos to central counter-parties [3)]
	1	2	3	4	5	6	7	8	9	10
Outstanding amounts										
2015	284.7	6,999.2	2,119.4	80.0	2,255.8	2,543.9	1,350.6	284.7	205.9	135.6
2016	314.2	6,956.8	2,090.9	70.9	2,146.7	2,648.4	1,136.9	262.2	205.9	121.6
2017	356.2	6,768.8	1,968.9	59.7	2,016.1	2,724.2	934.7	311.0	143.8	93.4
2017 Q3	365.3	6,730.6	2,007.3	61.5	2,015.9	2,645.8	1,022.3	262.2	140.6	85.4
Q4	356.2	6,768.8	1,968.9	59.7	2,016.1	2,724.2	934.7	311.0	143.8	93.4
2018 Q1	339.6	6,748.5	1,952.4	59.4	2,020.1	2,716.5	911.1	318.5	136.2	87.0
Q2 [(p)]	318.2	6,697.8	1,947.8	58.5	2,020.1	2,671.4	853.9	420.7	174.3	184.9
2018 Jan.	316.2	6,754.8	1,960.1	60.5	2,022.5	2,711.7	821.6	370.7	132.9	84.2
Feb.	346.9	6,741.3	1,958.4	59.8	2,016.1	2,707.0	841.1	370.3	124.3	81.8
Mar.	339.6	6,748.5	1,952.4	59.4	2,020.1	2,716.5	911.1	318.5	136.2	87.0
Apr.	349.7	6,767.0	1,956.1	59.3	2,019.2	2,732.5	881.0	357.3	147.1	153.6
May	329.3	6,750.1	1,951.0	58.9	2,029.8	2,710.5	859.1	391.1	177.5	187.9
June [(p)]	318.2	6,697.8	1,947.8	58.5	2,020.1	2,671.4	853.9	420.7	174.3	184.9
Transactions										
2015	8.9	-216.5	-106.3	-13.5	-210.9	114.2	-87.5	-12.7	21.4	-4.0
2016	26.7	-113.8	-69.6	-9.1	-110.4	75.3	-276.1	-76.6	12.8	-12.0
2017	45.8	-85.6	-84.6	-8.7	-72.2	79.8	-97.8	-69.8	-60.9	-27.6
2017 Q3	65.0	-24.5	-25.4	-2.9	-31.0	34.8	24.7	16.1	-13.6	-24.3
Q4	-9.1	-35.6	-17.7	-1.8	-10.7	-5.4	-75.6	-60.1	3.2	7.9
2018 Q1	-16.5	11.4	-16.1	-1.3	12.5	16.3	61.6	-60.3	-7.6	-6.4
Q2 [(p)]	-21.4	-45.6	-7.7	-1.0	-25.7	-11.3	-75.8	64.2	16.4	19.7
2018 Jan.	-39.8	15.4	-6.8	-0.6	20.1	2.7	-27.6	2.6	-10.8	-9.2
Feb.	30.6	-23.3	-3.7	-0.4	-16.3	-3.0	10.2	-9.9	-8.6	-2.4
Mar.	-7.3	19.3	-5.5	-0.4	8.6	16.5	79.0	-52.9	11.9	5.2
Apr.	10.1	6.0	2.9	-0.2	-9.9	13.1	-37.4	34.6	-10.8	-11.6
May	-20.4	-37.9	-7.4	-0.4	-6.1	-24.0	-51.6	-19.2	30.3	34.4
June [(p)]	-11.1	-13.7	-3.2	-0.4	-9.7	-0.4	13.3	48.8	-3.2	-3.1
Growth rates										
2015	3.5	-3.0	-4.8	-14.4	-8.6	4.6	-	-	11.6	-2.9
2016	9.4	-1.6	-3.3	-11.5	-4.9	2.9	-	-	6.3	-9.0
2017	14.4	-1.3	-4.1	-12.4	-3.4	3.0	-	-	-29.7	-22.7
2017 Q3	22.1	-0.9	-4.1	-12.5	-3.5	4.2	-	-	-31.2	-33.4
Q4	14.4	-1.3	-4.1	-12.4	-3.4	3.0	-	-	-29.7	-22.7
2018 Q1	11.8	-0.9	-4.1	-12.5	-1.6	2.4	-	-	-25.6	-22.2
Q2 [(p)]	5.7	-1.4	-3.3	-10.8	-2.7	1.3	-	-	-3.6	-17.3
2018 Jan.	5.1	-0.9	-4.0	-12.4	-2.3	3.1	-	-	-24.6	-20.8
Feb.	16.9	-1.3	-3.7	-12.6	-2.7	2.0	-	-	-27.4	-21.6
Mar.	11.8	-0.9	-4.1	-12.5	-1.6	2.4	-	-	-25.6	-22.2
Apr.	7.3	-0.7	-3.6	-12.8	-1.7	2.7	-	-	-28.5	-27.3
May	5.9	-1.3	-3.6	-10.3	-2.4	1.5	-	-	-6.8	-11.5
June [(p)]	5.7	-1.4	-3.3	-10.8	-2.7	1.3	-	-	-3.6	-17.3

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	Social security funds	
	1	2	3	4	5	6
2014	-2.5	-2.1	-0.2	0.0	-0.1	0.1
2015	-2.0	-1.9	-0.2	0.2	-0.1	0.3
2016	-1.5	-1.7	-0.1	0.2	0.0	0.6
2017	-0.9	-1.3	0.1	0.2	0.1	1.1
2017 Q2	-1.2	.	.	.	.	0.9
Q3	-1.0	.	.	.	.	1.0
Q4	-0.9	.	.	.	.	1.1
2018 Q1	-0.7	.	.	.	.	1.2

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
2014	46.7	46.2	12.5	13.1	15.4	0.5	49.2	45.3	10.3	5.3	2.6	23.0	4.0
2015	46.3	45.7	12.6	13.0	15.2	0.5	48.3	44.4	10.0	5.2	2.3	22.7	3.9
2016	46.1	45.7	12.6	13.0	15.3	0.5	47.6	44.0	10.0	5.2	2.1	22.8	3.5
2017	46.2	45.8	12.9	13.0	15.3	0.4	47.1	43.3	9.9	5.1	2.0	22.5	3.7
2017 Q2	46.3	45.8	12.7	13.0	15.3	0.5	47.5	43.8	9.9	5.2	2.1	22.7	3.7
Q3	46.2	45.8	12.8	13.0	15.3	0.4	47.2	43.5	9.9	5.1	2.0	22.6	3.7
Q4	46.2	45.8	12.8	13.0	15.3	0.4	47.1	43.3	9.8	5.1	2.0	22.5	3.7
2018 Q1	46.2	45.8	12.9	13.0	15.2	0.4	46.9	43.2	9.8	5.1	1.9	22.5	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
2014	91.9	2.7	17.1	72.0	44.0	25.6	47.9	10.0	81.9	18.8	31.9	41.2	89.8	2.1
2015	89.9	2.8	16.2	71.0	44.1	27.1	45.8	9.3	80.6	17.6	31.2	41.1	87.9	2.0
2016	89.0	2.7	15.5	70.8	46.1	30.4	42.9	9.0	80.0	17.2	29.9	41.9	87.0	2.0
2017	86.7	2.6	14.3	69.8	46.7	31.8	40.1	8.3	78.5	16.0	28.8	41.9	84.9	1.8
2017 Q2	89.1	2.7	14.9	71.4	.	.	.	.	.	.	.	.	.	.
Q3	88.1	2.8	14.7	70.7	.	.	.	.	.	.	.	.	.	.
Q4	86.7	2.6	14.4	69.8	.	.	.	.	.	.	.	.	.	.
2018 Q1	86.8	2.6	14.1	70.1	.	.	.	.	.	.	.	.	.	.

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
2014	0.3	-0.1	-0.2	-0.5	0.2	-0.5	-0.3	0.0	0.1	0.2	0.6	2.2
2015	-1.9	-0.3	-0.8	-0.5	0.2	-0.2	-0.3	-0.1	0.0	-0.3	-0.8	1.3
2016	-1.0	-0.6	-0.2	0.3	0.3	-0.1	0.0	0.1	-0.3	-0.2	-0.1	1.6
2017	-2.3	-1.1	-0.1	0.4	0.4	0.1	-0.2	0.1	-0.1	-0.5	-1.0	0.8
2017 Q2	-1.7	-0.9	-0.6	-0.4	-0.2	-0.1	-0.1	0.0	-0.2	0.0	-0.3	0.8
Q3	-1.6	-1.0	0.1	0.7	0.8	-0.1	-0.1	0.1	-0.1	-0.5	-0.7	1.2
Q4	-2.3	-1.1	-0.2	0.4	0.4	0.1	-0.2	0.1	-0.1	-0.5	-1.0	0.8
2018 Q1	-2.5	-1.2	-0.1	0.5	0.5	0.0	-0.1	0.2	-0.1	-0.5	-1.2	0.7

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
2015	14.7	12.8	4.3	1.9	0.5	6.6	2.9	1.4	0.1	3.3	3.0	0.4	1.2
2016	14.1	12.4	4.6	1.7	0.4	6.9	2.6	1.2	-0.1	3.0	2.9	0.2	1.2
2017	12.9	11.2	4.2	1.7	0.4	7.1	2.4	1.1	-0.2	2.8	2.3	0.3	1.1
2017 Q1	13.9	12.2	4.2	1.7	0.4	6.9	2.6	1.2	-0.2	3.0	2.9	0.2	1.1
Q2	13.8	12.1	4.3	1.7	0.4	7.0	2.5	1.2	-0.2	2.9	2.6	0.2	1.2
Q3	13.0	11.3	3.8	1.7	0.4	7.1	2.5	1.1	-0.2	2.9	2.5	0.2	1.1
Q4	12.9	11.2	4.2	1.7	0.4	7.1	2.4	1.1	-0.2	2.8	2.3	0.3	1.1
2018 Jan.	12.7	11.1	4.2	1.6	0.4	7.2	2.4	1.1	-0.2	2.8	2.2	0.4	1.2
Feb.	12.7	11.1	4.1	1.6	0.4	7.2	2.4	1.1	-0.2	2.8	2.4	0.4	1.2
Mar.	13.0	11.4	4.2	1.6	0.4	7.2	2.4	1.1	-0.2	2.8	2.5	0.4	1.1
Apr.	12.8	11.2	3.9	1.6	0.4	7.3	2.4	1.1	-0.2	2.8	2.5	0.4	1.1
May	12.9	11.3	3.7	1.6	0.4	7.3	2.4	1.1	-0.2	2.8	2.5	0.4	1.0
June	12.8	11.2	3.6	1.6	0.4	7.3	2.4	1.1	-0.2	2.8	2.5	0.4	0.9

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 (+)								
2014	-3.1	0.5	0.7	-3.6	-3.6	-6.0	-3.9	-3.0	-9.0
2015	-2.5	0.8	0.1	-1.9	-5.7	-5.3	-3.6	-2.6	-1.3
2016	-2.5	1.0	-0.3	-0.5	0.6	-4.5	-3.4	-2.5	0.3
2017	-1.0	1.3	-0.3	-0.3	0.8	-3.1	-2.6	-2.3	1.8
2017 Q2	-1.6	1.0	-0.7	-0.5	1.1	-3.6	-3.1	-2.5	0.8
Q3	-1.3	1.3	-0.7	-0.6	1.1	-3.2	-2.9	-2.4	1.8
Q4	-1.0	1.2	-0.3	-0.4	0.8	-3.1	-2.6	-2.3	1.8
2018 Q1	-1.0	1.4	-0.6	-0.4	1.1	-3.0	-2.6	-2.2	2.4
	Government debt								
2014	107.0	74.7	10.7	104.5	178.9	100.4	94.9	131.8	107.5
2015	106.1	71.0	10.0	76.9	176.8	99.4	95.6	131.5	107.5
2016	105.9	68.2	9.4	72.8	180.8	99.0	96.6	132.0	106.6
2017	103.1	64.1	9.0	68.0	178.6	98.3	97.0	131.8	97.5
2017 Q2	106.3	66.1	8.9	75.5	176.1	99.5	99.3	134.9	105.6
Q3	107.2	65.2	8.9	72.9	177.4	98.5	98.3	134.2	102.5
Q4	103.4	64.1	9.0	68.4	178.6	98.3	96.8	131.8	97.5
2018 Q1	106.3	62.9	8.7	69.3	180.4	98.8	97.7	133.4	94.7

	Latvia	Lithuania	Luxembourg	Malta	Netherlands	Austria	Portugal	Slovenia	Slovakia	Finland
	10	11	12	13	14	15	16	17	18	19
	Government deficit (-)/surplus (+)									
2014	-1.5	-0.6	1.3	-1.8	-2.3	-2.7	-7.2	-5.5	-2.7	-3.2
2015	-1.4	-0.2	1.4	-1.1	-2.1	-1.0	-4.4	-2.9	-2.7	-2.8
2016	0.1	0.3	1.6	1.0	0.4	-1.6	-2.0	-1.9	-2.2	-1.8
2017	-0.5	0.5	1.5	3.9	1.1	-0.7	-3.0	0.0	-1.0	-0.6
2017 Q2	0.3	0.7	1.1	2.1	0.8	-1.2	-3.5	-1.0	-1.6	-1.0
Q3	0.1	0.9	1.4	3.3	1.0	-0.9	-2.4	-0.5	-1.6	-1.2
Q4	-0.5	0.5	1.5	3.9	1.2	-0.7	-3.0	0.0	-1.0	-0.6
2018 Q1	0.2	0.4	1.4	3.3	1.6	-0.5	-0.7	0.4	-1.0	-0.4
	Government debt									
2014	40.9	40.5	22.7	63.8	68.0	84.0	130.6	80.3	53.5	60.2
2015	36.8	42.6	22.0	58.7	64.6	84.6	128.8	82.6	52.3	63.5
2016	40.5	40.1	20.8	56.2	61.8	83.6	129.9	78.6	51.8	63.0
2017	40.1	39.7	23.0	50.8	56.7	78.4	125.7	73.6	50.9	61.4
2017 Q2	39.9	41.7	23.4	55.0	58.9	81.4	131.7	79.8	51.7	61.8
Q3	38.2	39.4	23.4	53.4	57.2	80.2	130.5	78.5	51.3	60.6
Q4	40.1	39.7	23.0	50.7	57.1	78.3	125.7	73.6	50.9	61.3
2018 Q1	35.8	36.3	22.2	50.4	55.2	77.2	126.4	75.1	50.8	59.8

Source: Eurostat.

Postal address 60640 Frankfurt am Main, Germany
Telephone +49 69 1344 0
Website www.ecb.europa.eu

This Bulletin was produced under the responsibility of the Executive Board of the ECB. Translations are prepared and published by the national central banks.

The cut-off date for the statistics included in this issue was 25 July 2018.

PDF ISSN 2363-3417 QB-BP-18-005-EN-N
HTML ISSN 2363-3417 doi:10.2866/364 (html) QB-BP-18-005-EN-Q