



EUROPEAN CENTRAL BANK

EUROSYSTEM

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# Economic and monetary developments

## Overview

**Based on the assessment of the economic and inflation outlook for the euro area, also taking into account the latest Eurosystem staff macroeconomic projections, the Governing Council decided at its monetary policy meeting on 12 December to keep the key ECB interest rates unchanged and to reiterate its forward guidance on policy rates, net asset purchases and reinvestments.**

Incoming information since the last Governing Council meeting in late October points to continued muted inflation pressures and weak euro area growth dynamics, although there are some initial signs of stabilisation in the growth slowdown and of a mild increase in underlying inflation in line with previous expectations. Ongoing employment growth and increasing wages continue to underpin the resilience of the euro area economy. Against this overall background and in the light of the subdued inflation outlook, the Governing Council reiterated the need for monetary policy to remain highly accommodative for a prolonged period of time to support underlying inflation pressures and headline inflation developments over the medium term. In addition, the Governing Council's forward guidance ensures that financial conditions adjust in accordance with changes to the inflation outlook. In any event, the Governing Council continues to stand ready to adjust all of its instruments, as appropriate, to ensure that inflation moves towards its aims in a sustained manner, in line with its commitment to symmetry.

## Economic and monetary assessment at the time of the Governing Council meeting of 12 December 2019

**Global real GDP growth (excluding the euro area) weakened during the first half of 2019, but signs of stabilisation started to emerge towards the end of the year.**

The weak growth momentum was characterised by slowing growth in both manufacturing and investment, which have been reinforced by rising policy and political uncertainty particularly amid escalating trade tensions and Brexit-related developments. More recent information, however, points to a stabilisation in global growth, as confirmed also by survey-based data. In particular, the Purchasing Managers' Indices (PMI) point to a moderate recovery in manufacturing output growth and some moderation in services output growth. Looking ahead, the recovery in global economic activity is projected to be shallow, reflecting a moderation of growth in advanced economies and a sluggish recovery in some emerging economies. Global trade softened this year and is projected to expand at a slower pace than global activity in the medium term. Global inflationary pressures remain contained, and the balance of risks to global economic activity continues to be tilted to the downside, although risks are becoming less pronounced.

**Since the Governing Council meeting in September 2019 euro area long-term risk-free rates have increased and the forward curve of the euro overnight index**

**average (EONIA) has shifted upwards, with markets currently expecting no further cut in the deposit facility rate.** In line with an improvement in global risk sentiment, euro area equity prices have increased and corporate spreads have tightened. Euro area long-term sovereign yields also largely reflect the rise in risk-free rates. In foreign exchange markets, the euro remained broadly stable in trade-weighted terms.

**Euro area real GDP growth was confirmed at 0.2%, quarter on quarter, in the third quarter of 2019, unchanged from the previous quarter.** The ongoing weakness of international trade in an environment of persistent global uncertainties continues to weigh on the euro area manufacturing sector and is dampening investment growth. At the same time, incoming economic data and survey information, while remaining weak overall, point to some stabilisation in the slowdown of economic growth in the euro area. The services and construction sectors remain resilient, despite some moderation in the latter half of 2019. Looking ahead, the euro area expansion will continue to be supported by favourable financing conditions, further employment gains in conjunction with rising wages, the mildly expansionary euro area fiscal stance and the ongoing – albeit somewhat slower – growth in global activity.

**This assessment is broadly reflected in the December 2019 Eurosystem staff macroeconomic projections for the euro area.** These projections foresee annual real GDP increasing by 1.2% in 2019, 1.1% in 2020 and 1.4% in both 2021 and 2022. Compared with the September 2019 ECB staff macroeconomic projections, the outlook for real GDP growth has been revised down slightly for 2020. The risks surrounding the euro area growth outlook, related to geopolitical factors, rising protectionism and vulnerabilities in emerging markets, remain tilted to the downside, but have become somewhat less pronounced.

**According to Eurostat's flash estimate, euro area annual HICP inflation increased from 0.7% in October 2019 to 1.0% in November, reflecting mainly higher services and food price inflation.** On the basis of current futures prices for oil, headline inflation is likely to rise somewhat in the coming months. Indicators of inflation expectations stand at low levels. Measures of underlying inflation have remained generally muted, although there are some indications of a mild increase in line with previous expectations. While labour cost pressures have strengthened amid tighter labour markets, the weaker growth momentum is delaying their pass-through to inflation. Over the medium term, inflation is expected to increase, supported by the Governing Council's monetary policy measures, the ongoing economic expansion and solid wage growth.

**This assessment is also broadly reflected in the December 2019 Eurosystem staff macroeconomic projections for the euro area, which foresee annual HICP inflation at 1.2% in 2019, 1.1% in 2020, 1.4% in 2021 and 1.6% in 2022.** Compared with the September 2019 ECB staff macroeconomic projections, the outlook for HICP inflation has been revised up slightly for 2020 and down slightly for 2021, mainly driven by the expected future path of energy prices. Annual HICP inflation excluding energy and food is expected to be 1.0% in 2019, 1.3% in 2020, 1.4% in 2021 and 1.6% in 2022.

**In October 2019 the annual growth of broad money remained robust, while lending to the private sector continued its gradual recovery.** Broad money (M3) growth stood at 5.6% in October 2019, unchanged from the previous month. Sustained rates of broad money growth reflect ongoing bank credit creation for the private sector and low opportunity costs of holding M3. At the same time, favourable bank funding and lending conditions continued to support loan flows and thereby economic growth. The annual growth rate of loans to non-financial corporations increased to 3.8% in October, up from 3.6% in September. The Governing Council's accommodative monetary policy stance will help to safeguard very favourable bank lending conditions and will continue to support access to financing, across all economic sectors and in particular for small and medium-sized enterprises.

**The aggregate fiscal stance for the euro area is expected to remain mildly expansionary in 2020, thus providing support to economic activity.** The stance is expected to remain expansionary in 2021 and to stabilise in 2022, mainly on account of a declining but still positive primary balance. In view of the weakening economic outlook, governments with fiscal space should be ready to act in an effective and timely manner. In countries where public debt is high, governments need to pursue prudent policies and meet structural balance targets, which will create the conditions for automatic stabilisers to operate freely. All countries should intensify their efforts to achieve a more growth-friendly composition of public finances.

## Monetary policy decisions

**Based on the regular economic and monetary analyses, the Governing Council decided at its monetary policy meeting on 12 December to keep the key ECB interest rates unchanged and to reiterate its forward guidance on policy rates, net asset purchases and reinvestments:**

- First, the Governing Council expects the key ECB interest rates to remain at their present or lower levels until it has seen the inflation outlook robustly converge to a level sufficiently close to, but below, 2% within its projection horizon, and such convergence has been consistently reflected in underlying inflation dynamics.
- Second, after restarting net purchases under the ECB's asset purchase programme (APP) at a monthly pace of €20 billion on 1 November, the Governing Council expects them to run for as long as necessary to reinforce the accommodative impact of the key ECB interest rates, and to end shortly before it starts raising those rates.
- Third, the Governing Council intends to continue reinvesting, in full, the principal payments from maturing securities purchased under the APP for an extended period of time past the date when it starts raising the key ECB interest rates, and in any case for as long as necessary to maintain favourable liquidity conditions and an ample degree of monetary accommodation.

The comprehensive package of policy measures that the Governing Council decided in September provides substantial monetary stimulus, which ensures favourable

financing conditions for all sectors of the economy. In particular, easier borrowing conditions for firms and households are underpinning consumer spending and business investment. This will support the euro area expansion, the ongoing build-up of domestic price pressures and, thus, the robust convergence of inflation to the Governing Council's medium-term aim. Looking ahead, the Governing Council will closely monitor inflation developments and the impact of the unfolding monetary policy measures on the economy. The Governing Council continues to stand ready to adjust all of its instruments, as appropriate, to ensure that inflation moves towards its aim in a sustained manner, in line with its commitment to symmetry.

## 1 External environment

*While global real GDP growth (excluding the euro area) weakened during the first half of 2019, the latest available data point to a stabilisation in the second half. The weak growth momentum was characterised by slowing growth in both manufacturing and investment, which have been reinforced by rising policy and political uncertainty particularly amid escalating trade tensions and Brexit-related developments. More recent data, however, point to a stabilisation in global growth in the third quarter, as also confirmed by recent survey-based data. In particular, the Purchasing Managers' Indices (PMI) point to a moderate recovery in manufacturing output growth and some moderation in services output growth. Looking ahead, the recovery in global economic activity is projected to be shallow, reflecting a moderation of growth in advanced economies and a sluggish recovery in emerging economies. Global trade softened this year and is projected to expand at a slower pace than global activity in the medium term. Global inflationary pressures remain contained, while the balance of risks to global economic activity, although less pronounced, remains tilted to the downside.*

### Global economic activity and trade

**While global growth (excluding the euro area) weakened during the first half of the year, signs of stabilisation started to emerge towards the year-end.** After having peaked in mid-2018, global growth entered a period of weakness which continued into the first half of 2019, marking the weakest period of growth momentum since the global financial crisis. The slowdown has been characterised by weakness in both global manufacturing activity and investment, exacerbated by increasing policy uncertainty amid recurring escalations of trade tensions<sup>1</sup> and Brexit-related developments. Recent data, however, point to a stabilisation in global activity, though at low levels. Real GDP continued to expand steadily in the United States and Japan, while real activity growth rebounded in the United Kingdom. In the United States, in the third quarter, a strong labour market and consumer spending, and favourable financial conditions remained supportive of growth, while in Japan solid domestic demand was the main engine of growth. In the United Kingdom, growth rebounded on the back of unexpectedly strong net export growth, and solid growth in private consumption. In China, third quarter data confirmed the gradual slowdown in activity, driven by slowing investment, while growth has stabilised across other EMEs.

**Survey-based indicators suggest that the stabilisation of global activity has continued in the fourth quarter.** The global composite output Purchasing Managers' Index (PMI) excluding the euro area was unchanged in the third quarter compared to the previous quarter, pointing to a stabilisation in global activity. Available data for October and November confirm steady, albeit subdued, global GDP growth (excluding the euro area) in the fourth quarter. At a sectoral level, since July/August the gap between the manufacturing and services output PMIs at the global level has

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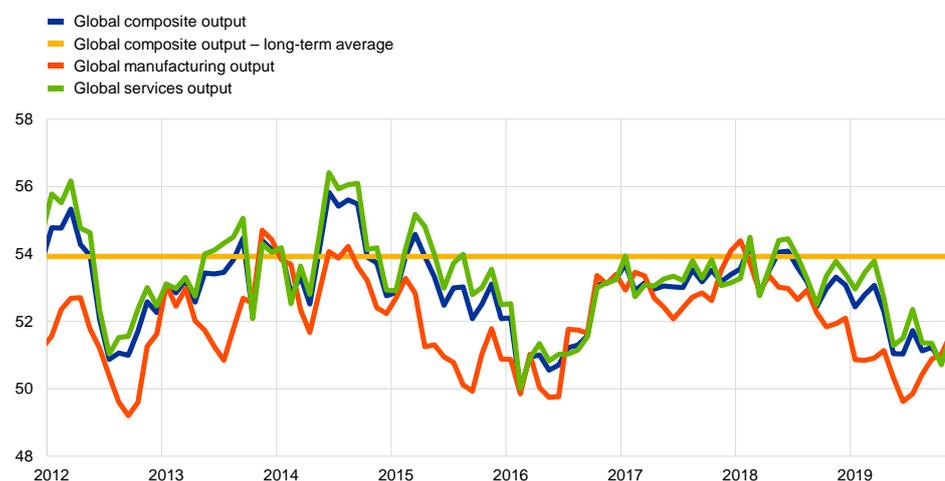
<sup>1</sup> See Box 1 for an analysis of the impact of trade tariffs on economic activity in the context of global value chains.

progressively narrowed, pointing to a gradual recovery in manufacturing output growth and some moderation in services output growth.

### Chart 1

#### Global composite output PMI (excluding the euro area)

(diffusion indices)



Sources: Markit and ECB calculations.

Notes: The latest observations are for November 2019. "Long-term average" refers to the period from January 1999 to November 2019. The indices reported in the chart refer to the global aggregate excluding the euro area.

**Global financial conditions have eased further.** Since the finalisation of the September 2019 ECB staff macroeconomic projections, financial conditions have eased in both advanced and emerging economies. In emerging markets, the improvement in financial conditions is mainly accounted for by the fall in bond yields and the compression of spreads. Advanced economies, on the other hand, have benefited from higher stock valuations (in particular in the United States and the United Kingdom) and the tightening of corporate spreads. An easing of trade tensions, lower Brexit-related uncertainty and further monetary accommodation have contributed to these developments.

**Looking ahead, only a mild pick-up in global growth is projected, reflecting a deceleration of growth in advanced economies and China, which is offset by a moderate recovery in EMEs.** Developments in global growth are shaped by three main forces. A slowing cyclical momentum in most advanced economies and the gradual transition of China to a lower growth path will weigh on global growth. Conversely, a favourable base effect due to a stabilisation of activity in those EMEs that experienced a (severe) recession will contribute to the recovery. Compared to the September 2019 macroeconomic projection exercise, the global growth outlook is revised down over the projection horizon, reflecting a less dynamic than previously expected recovery in some EMEs, including in the light of domestic instability in some of them (e.g. Hong Kong and Chile).

**Economic activity is expected to remain resilient in the United States in the near term, and to decelerate in the medium term.** Activity expanded at 2.1% in annualised terms in the third quarter of 2019, broadly unchanged from the second quarter. A strong labour market, resilient consumer spending and supportive financial

conditions remained the main drivers of growth, while non-residential investment continued to contract. The net trade contribution was neutral, with both imports and exports growing modestly. Annual headline consumer price inflation picked up marginally to 1.8% in October, from 1.7% in the previous month, largely on account of food and energy prices. Consumer price inflation excluding food and energy fell slightly in October to 2.3%. Over the medium term, growth is projected to gradually return to the potential growth rate of just below 2%, reflecting a maturing economic cycle and increasingly binding capacity constraints, while consumer price inflation is expected to remain above 2%.

**In China, economic activity remains on a gradually slowing trajectory.** In the third quarter of 2019 annual GDP growth slowed to 6.0% from 6.2% in the second quarter, driven by less supportive net trade. Investment surprised on the downside and is expected to remain weak, while the trade conflict with the United States continues to weigh on trade. Looking ahead, growth is projected to decrease further in 2020, reflecting slower exports and weak investment, and to marginally pick up in 2021 and 2022, supported by policy actions. Overall, the deceleration in economic activity reflects the past deleveraging efforts aimed at containing financial risks, the government's focus on rebalancing the economy away from investment and the impact of the ongoing trade tensions with the United States. Implementation of structural reforms is projected to result in an orderly transition to a more moderate growth path that is less dependent on investment and exports.

**Economic activity remains muted in Japan and is projected to grow moderately over the medium term.** Real GDP grew by 0.4% in the third quarter of 2019 (quarter on quarter), compared to 0.5% in the previous quarter. Solid domestic demand, supported by firms' private non-residential investment and frontloaded spending ahead of the 1 October value-added tax hike, was partially offset by weak exports and inventory adjustments as well as some payback for the relatively strong outcome in the second quarter (partly as a result of the extended holiday period to celebrate the Imperial succession). While growth is projected to temporarily weaken following the value-added tax hike and the natural disasters in October, activity is expected to gradually return to a moderate growth path as Japan continues to benefit from a highly accommodative monetary policy, robust labour market conditions and the preparations for the Tokyo 2020 Olympics. The recent announcement of a significant fiscal stimulus package by the Japanese government – still to be approved by parliament – is also likely to provide support to growth further ahead. At the same time, a maturing business cycle, amid increasingly binding labour and capacity constraints, is expected to limit the pace of growth.

**Real GDP growth recovered modestly in the third quarter in the United Kingdom, but the outlook remains subdued, despite a reduced risk of a disorderly Brexit.** After contracting in the second quarter (-0.2% quarter on quarter), real GDP expanded by 0.3% in the third, boosted by unexpectedly strong net export growth. Growth in private consumption remained solid (0.4% quarter on quarter), reflecting stronger real wage growth over the course of 2019, with further support from government consumption (0.3% quarter on quarter), while investment and inventories continued to be a drag on growth. Brexit-related uncertainty remained high,

constraining growth over the short term. Longer-term growth prospects remain heavily dependent on the nature of the eventual post-Brexit trading arrangements still to be agreed between the United Kingdom and the EU. Inflation declined strongly at the start of the fourth quarter, with UK annual CPI inflation falling to 1.5% in October, down from 1.8% in the third quarter. The fall reflects the impact of lower sterling-denominated oil prices compared with last year, lower import prices owing to the appreciation of the pound sterling since September, and a strong downward impact on domestic energy prices as a result of the decrease in the regulator's energy price cap, which is likely to be reversed in the spring of 2020.

**Real GDP growth is projected to remain buoyant in central and eastern European countries over the projection horizon.** Economic activity continues to be supported by solid consumer spending, underpinned by tight labour markets, while investment is forecast to soften against the backdrop of a more advanced phase of the EU funds cycle. Over the projection horizon, growth is expected to moderate from above-potential rates, albeit remaining robust.

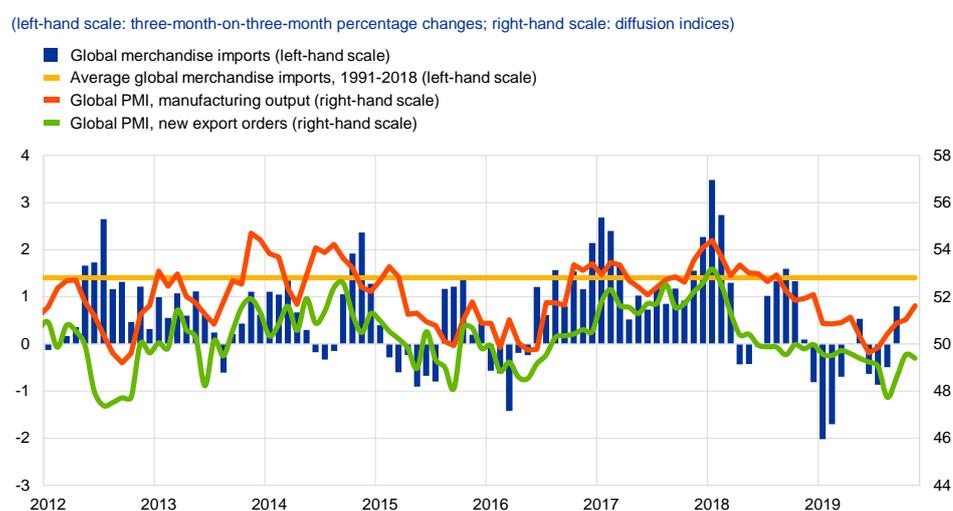
**Economic activity in large commodity-exporting countries is projected to rebound modestly from the weakness experienced in the course of 2019.** In Russia, the feed-in of contaminated oil into a key export pipeline led to large-scale disruptions, but a quicker than anticipated restoration of output resulted in better than expected GDP and export outcomes in the third quarter of 2019. Going forward, the medium-term outlook will be shaped primarily by fiscal and structural policy implementation, global oil market developments, specifically the commitment by the OPEC+ group of major oil producers to sustain oil production cuts, and the scope of the international sanctions regime under which Russia will be operating. In Brazil, despite some improvements since early 2019, growth remains fragile owing to a tight fiscal situation (including budget freezes), an uncertain external environment (e.g. trade tensions and crises in Argentina and other Latin American countries) and idiosyncratic shocks (e.g. a dam collapse in the country). While the recently approved pension reform was critical in boosting confidence, the degree to which additional necessary fiscal reforms are implemented will significantly influence growth in the medium-to-long term.

**In Turkey, growth is projected to remain mildly positive in 2019, before gradually recovering in the medium term.** Following the sharp contraction in GDP in the second half of 2018, the economy rebounded in the first half of 2019 owing to fiscal stimulus ahead of the local elections in March, stronger household consumption and net exports, while investment continued to contract. Growth is expected to remain mildly positive in 2019, assuming continued resilience in household consumption, while the external environment could be somewhat less supportive. Economic activity is expected to gradually accelerate towards the end of the projection horizon.

**Global trade has declined significantly in the course of 2019 amid recurring escalations of trade tensions and slowing industrial activity.** After contracting in the first half of 2019, the latest available data point to a stabilisation in global trade for the rest of the year, though at very subdued levels. Across advanced economies, trade returned to moderate growth in the third and fourth quarters of 2019, supported by a normalisation of imports in the United Kingdom (after the exceptional stock building at

the start of 2019)<sup>2</sup> and a pick-up in imports in central and eastern European EU countries, following a temporary slowdown in the second quarter. Across EMEs, trade continued to contract in the third quarter owing to trade headwinds in China, the economic slowdown in India and political turbulence in Latin America, but there are signs of stabilisation in the fourth quarter. According to CPB data, global merchandise imports (excluding the euro area) increased by 0.8% in the third quarter of 2019, relative to the second quarter, after three consecutive quarters of contraction and despite the sharp monthly fall in September (see Chart 2). As survey indicators on new export orders continue to remain in contractionary territory, despite some mild pick-up, the current weakness in global trade is likely to continue in the near term.

**Chart 2**  
Surveys and global trade in goods (excluding the euro area)



Sources: Markit, CPB Netherlands Bureau for Economic Policy Analysis and ECB calculations.  
Note: The latest observations are for November 2019 for the PMIs and September 2019 for global merchandise imports. The indices and data refer to the global aggregate excluding the euro area.

**Recent developments in the US trade policy stance provide mixed signals about a potential dissipation of trade tensions.** The resumption of the US-China bilateral trade negotiations in early October paved the way for a “Phase 1” trade deal, triggering hopes of some de-escalation of the trade conflict. However, at the cut-off date for this commentary, trade talks continued amid political skirmishes between the two countries and it remained unclear by when a trade deal could be signed.<sup>3</sup> In view of this progress, the United States has delayed indefinitely its 15 October tariff hike.<sup>4</sup> Furthermore, a US decision on whether to impose tariffs on EU car (and car part) imports (initially due by mid-November) has been postponed. However, trade tensions

<sup>2</sup> In the first quarter of 2019, UK imports grew by around 10% quarter on quarter on account of stockpiling ahead of the first Brexit deadline of 29 March 2019. A subsequent unwinding of those stockpiles in the second quarter of 2019 led to a 13% contraction in imports.

<sup>3</sup> The deal under negotiation is expected to touch upon various aspects of the relationship between the two countries, although details are not yet known. According to available information, in the Phase 1 deal China will commit to, among other things, increasing its imports of US farm products (returning broadly to the import volumes that prevailed before tariffs on agricultural products were imposed by China, i.e. around USD 20 billion per year), increasing transparency in the foreign exchange market and strengthening provisions protecting intellectual property.

<sup>4</sup> The 15 October tariff hike consists of a 5 percentage point increase (from 25% to 30%) in tariffs on USD 250 billion of imports from China.

have recently escalated vis-à-vis other countries. In early December the US administration threatened to reinstate tariffs on imports of steel and aluminium from Argentina and Brazil in response to their currency policies. At the same time, following the conclusion of an investigation initiated by the US Trade Representative into the Digital Services Tax enacted by France in 2019, the United States has threatened to impose tariffs on selected imports of French products, as this tax was found to be discriminating against US companies. While the overall volume of trade potentially affected by these tariffs is not large, these recent escalations do not bode well for a potential dissipation of trade tensions.

**Global imports are projected to increase gradually over the medium term, and to expand at a more subdued pace than global activity.** The further escalation of trade tensions, the effects of which will continue to be felt into 2020, coupled with a more gradual than previously projected recovery in emerging economies and the structural rebalancing of the Chinese economy, will contribute to a delay in the recovery in trade. As a result, the elasticity of trade to economic activity is projected to remain below the unit value over the projection horizon. According to the December 2019 Eurosystem staff macroeconomic projections, global imports (excluding the euro area) are expected to decelerate markedly from 4.6% growth in 2018 to zero growth in 2019, before recovering to 0.8% in 2020, 2.4% in 2021 and 2.7% in 2022. Euro area foreign demand, which expanded by 3.7% last year, is expected to slow down to 0.7% in 2019, before increasing gradually to 1.0% in 2020, 2.3% in 2021 and 2.6% in 2022. Compared to the September 2019 ECB staff macroeconomic projections, euro area foreign demand has been revised down by 0.3 percentage points in 2019, 0.9 percentage points in 2020 and 0.4 percentage points in 2021. In addition to the impact of the tariffs announced at the end of August and weaker data outturns, these revisions also reflect a broad-based weakness in import momentum across both advanced and emerging economies on the back of a subdued growth outlook.

**The balance of risks to global activity remains tilted to the downside, but risks have become somewhat less pronounced.** A further escalation of trade disputes would be detrimental to global trade and growth and cause disruptions to global supply chains. Moreover, a “no deal” Brexit scenario could have more adverse spillover effects, especially in Europe. A sharper slowdown in China’s economy could be harder to counteract with effective policy stimuli and might prove a challenge to the ongoing rebalancing process in China. Repricing in financial markets might dent risk appetite globally, while a further escalation of geopolitical tensions could also adversely affect global activity and trade. Upside risks concern a swifter recovery in global trade and a more benign resolution of current political uncertainties.

## Global price developments

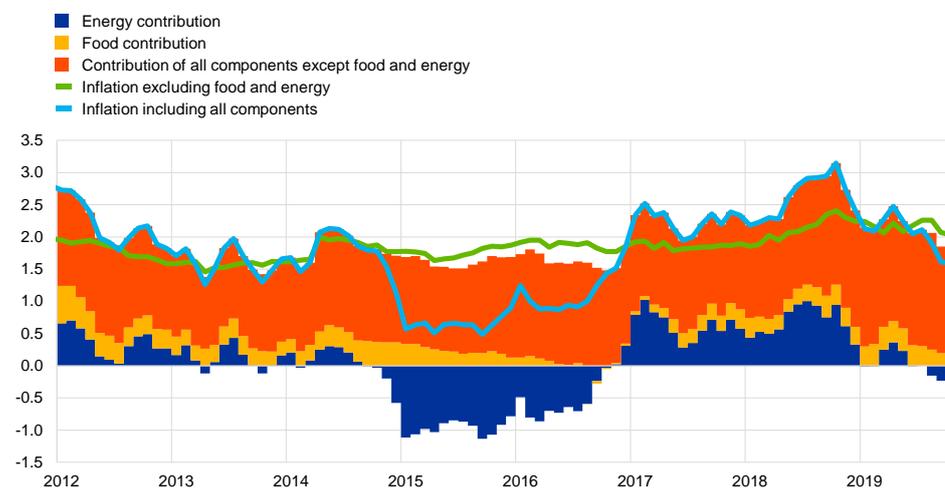
**Oil prices have increased amid improving market sentiment.** Concerns about weak global oil demand remained a predominant market force until mid-October when US-China trade talks resumed. Since then oil prices have recovered on the back of more buoyant market sentiment, and have been further supported by the agreement by OPEC+ on 6 December to implement more substantial production cuts.

**In the December 2019 Eurosystem staff macroeconomic projections, oil prices are foreseen to decline over the projection horizon.** Owing to the increase in spot prices, the oil futures curve has moved slightly above the one in the September 2019 ECB staff macroeconomic projections, while the slope is broadly unchanged. Consequently, the oil price assumptions underpinning the December 2019 Eurosystem staff macroeconomic projections were around 2.1%, 4.6% and 2.1% higher for 2019, 2020 and 2021, respectively, than the assumptions underpinning the September 2019 ECB staff macroeconomic projections. Since the cut-off date for the December projections, the price of oil has increased further, with Brent crude standing at USD 65.2 per barrel on 11 December.

**Global inflationary pressures remain muted.** In countries belonging to the Organisation for Economic Co-operation and Development (OECD), annual headline consumer price inflation was 1.6% in October 2019, unchanged from the previous month. Energy prices continued to be a drag on headline inflation (falling further to -3.0% from -2.7% in September), while food price inflation picked up marginally, thereby offsetting the fall in energy prices. Annual CPI inflation excluding food and energy decreased slightly to 2.0% from 2.1% in September (see Chart 3). Inflationary pressures remain muted across major advanced economies, despite the easing stance of monetary policy and tight labour market conditions, which are failing to fully pass through to wage increases. Overall, this suggests that underlying inflationary pressures are likely to remain subdued for the foreseeable future.

**Chart 3**  
OECD consumer price inflation

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



Sources: OECD and ECB calculations.  
Note: The latest observations are for October 2019.

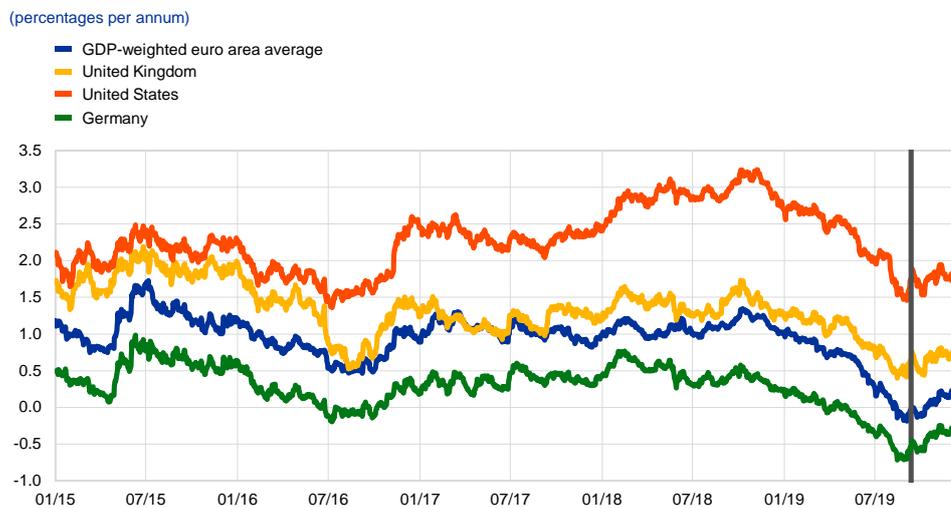
**Looking ahead, global inflationary pressures are expected to remain contained.** Growth in the euro area's competitors' export prices (in national currency) is expected to broadly stabilise over the medium term, as the contribution from a downward sloping oil price futures curve is expected to be broadly offset by the depreciation of the euro over the projection horizon.

## 2 Financial developments

Since the Governing Council's meeting in September 2019 euro area long-term risk-free rates have increased and the forward curve of the euro overnight index average (EONIA) has shifted upwards, with markets currently expecting no further cut in the deposit facility rate. In line with some improvement in global risk sentiment, euro area equity prices have increased and corporate spreads have tightened. As euro area sovereign yields have largely reflected the rise in risk-free rates, sovereign spreads have shown little change; only Italy's spread has risen significantly, mainly on account of domestic political tensions. In foreign exchange markets, the euro has remained broadly stable in trade-weighted terms.

**Long-term sovereign yields have increased across the euro area, indicating a turnaround of the downward trend seen from late 2018 until August 2019 (see Chart 4).** During the period under review (12 September to 11 December 2019) the GDP-weighted euro area ten-year sovereign bond yield increased by 25 basis points to 0.20% as risk-free rates rose amid an improvement in risk sentiment and a tentative stabilisation of the macroeconomic outlook. The ten-year sovereign bond yield in the United Kingdom also increased over the review period, to around 0.78%, while the equivalent yield in the United States remained roughly unchanged at 1.79%.

**Chart 4**  
Ten-year sovereign bond yields



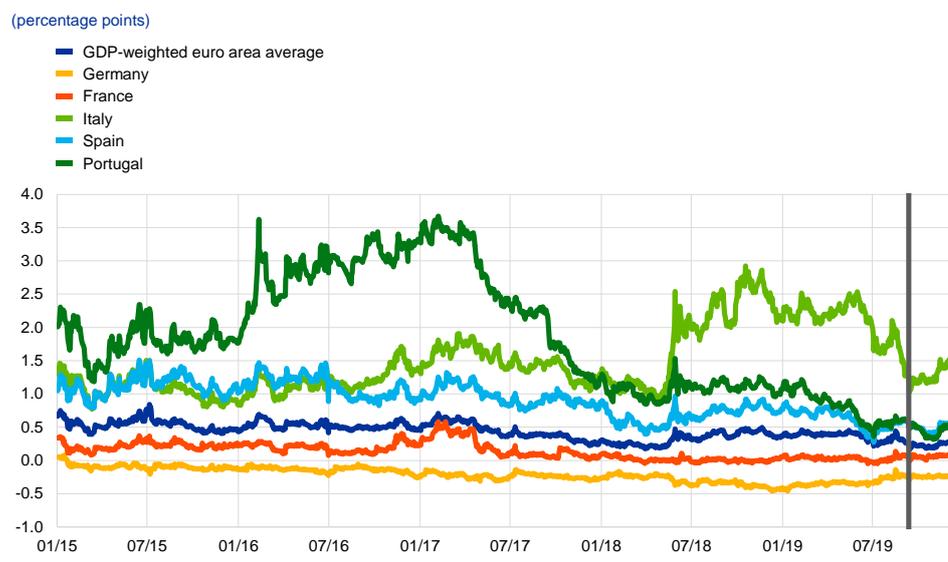
Sources: Thomson Reuters and ECB calculations.  
Notes: Daily data. The vertical grey line denotes the start of the review period on 12 September 2019. The latest observations are for 11 December 2019.

**Euro area sovereign bond yields largely reflected the rise in the risk-free overnight index swap (OIS) rate in the period under review, such that most spreads to the OIS – other than for Italy – remained broadly unchanged (see Chart 5).** A sizeable increase of 27 basis points to 1.43 percentage points was observed for the spread on ten-year Italian sovereign bonds, which mainly reflected increased domestic political tensions and hence had no spillover effects on other euro area countries. The corresponding spreads for Germany and Portugal narrowed by 3 and 4 basis points respectively to -0.23 and 0.46 percentage points, while those for

Spain and France widened by 7 and 1 basis points to 0.53 and 0.09 percentage points. Overall, the GDP-weighted spread for the euro area increased by 6 basis points to 0.27 percentage points.

### Chart 5

#### Ten-year euro area sovereign bond spreads vis-à-vis the OIS rate



Sources: Thomson Reuters and ECB calculations.

Notes: The spread is calculated by subtracting the ten-year OIS rate from the ten-year sovereign bond yield. The vertical grey line denotes the start of the review period on 12 September 2019. The latest observations are for 11 December 2019.

#### The EONIA and the new benchmark euro short-term rate (€STR) stood on average over the review period at -45 basis points and -54 basis points respectively.

Both rates were around 10 basis points lower than the average levels recorded in August 2019, reflecting the cut in the deposit facility rate which took effect on 18 September 2019. The methodology for computing the EONIA changed on 2 October 2019; it is now calculated as the €STR plus a fixed spread of 8.5 basis points.<sup>5</sup> Excess liquidity increased in the period under review by approximately €41 billion to around €1,800 billion, reflecting mainly a decrease in liquidity-absorbing autonomous factors and the restart of Eurosystem net asset purchases on 1 November 2019.

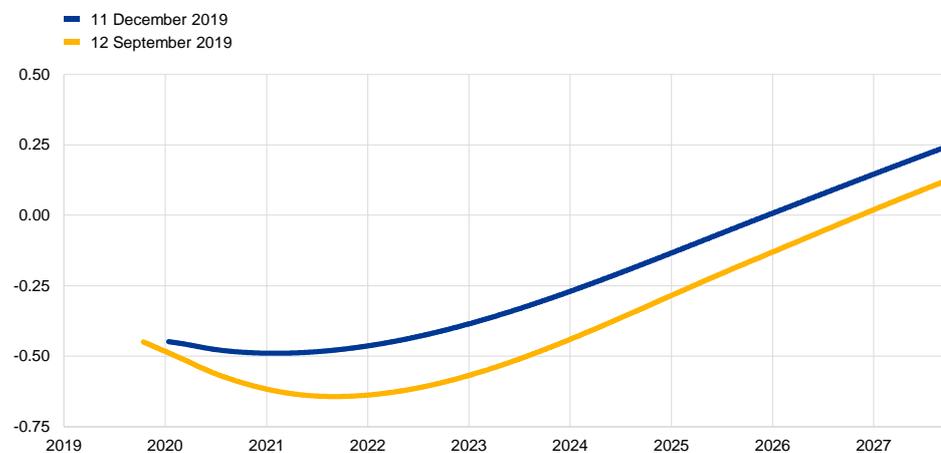
#### The EONIA forward curve has shifted considerably upwards, indicating that markets no longer expect a further deposit facility rate cut (see Chart 6).

Having almost entirely lost its inverted shape in the review period, the curve reaches a low of around -0.49% at the turn of the year from 2020 to 2021, i.e. just a few basis points below the current level of the EONIA. The vanishing inversion of the EONIA forward curve indicates that markets no longer expect a further cut in the deposit facility rate. Overall, the curve remains below zero for horizons up to 2025, reflecting continued market expectations of a prolonged period of negative interest rates.

<sup>5</sup> See the box entitled “Goodbye EONIA, welcome €STR!”, *Economic Bulletin*, Issue 7, ECB, 2019.

**Chart 6**  
EONIA forward rates

(percentages per annum)



Sources: Thomson Reuters and ECB calculations.

**Broad indices of euro area equity prices have risen on the back of an improvement in global risk sentiment (see Chart 7).** Over the review period equity prices of euro area financial and non-financial corporations (NFCs) increased by 6.6% and 3.0% respectively. The drag on equity prices stemming from higher risk-free rates and somewhat lower longer-term earnings expectations was more than offset by a reduction in the equity risk premium, which may partly reflect some relaxation of global trade tensions and a tentative stabilisation of the macroeconomic outlook.

**Chart 7**  
Euro area and US equity price indices

(index: 1 January 2015 = 100)



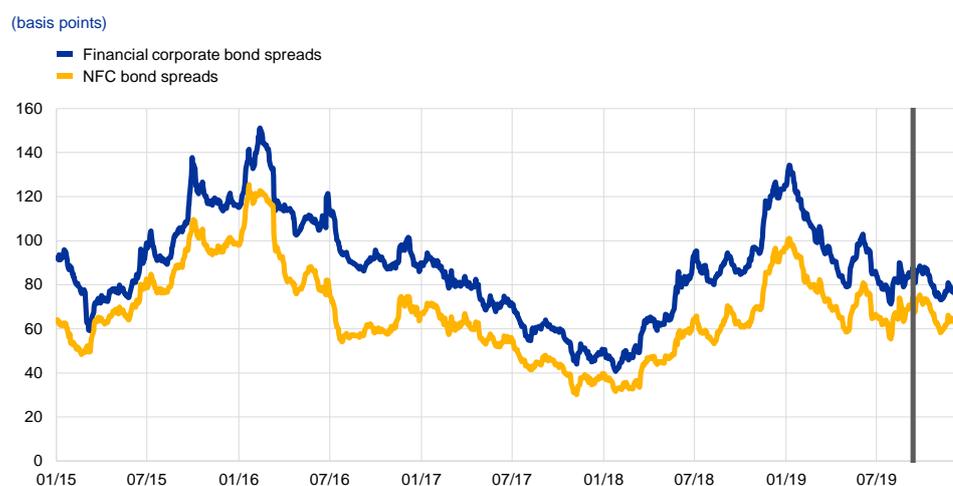
Sources: Thomson Reuters and ECB calculations.

Notes: The vertical grey line denotes the start of the review period on 12 September 2019. The latest observations are for 11 December 2019.

**Financial and non-financial corporate bond spreads in the euro area decreased over the review period (see Chart 8).** As the improvement in global risk sentiment proved supportive for risk assets in general, the gains in equity prices were mirrored

by a tightening of corporate bond yield spreads in the euro area. Spreads on both investment-grade NFC bonds and financial sector bonds relative to the risk-free rate came down 11 and 13 basis points respectively in the review period to stand at 61 and 73 basis points. The decline in spreads did not reflect changes in credit fundamentals, as measured by ratings and expected default frequencies, which remained broadly unchanged. Overall, although corporate bond spreads are currently above the lows reached in early 2018, they remain considerably below the levels observed in March 2016, prior to the announcement and subsequent launch of the corporate sector purchase programme.

**Chart 8**  
Euro area corporate bond spreads



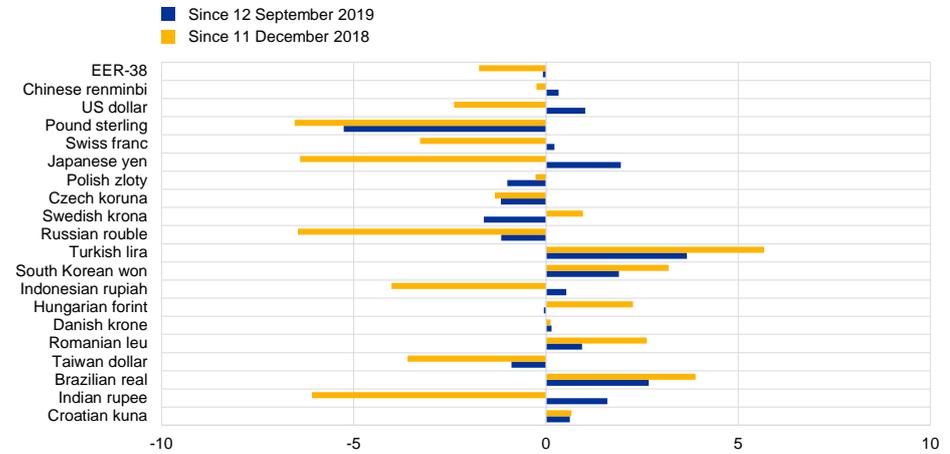
Sources: Markit iBoxx indices and ECB calculations.  
 Notes: The vertical grey line denotes the start of the review period on 12 September 2019. The latest observations are for 11 December 2019.

**In foreign exchange markets, the euro remained broadly stable in trade-weighted terms (see Chart 9), with some bilateral exchange rates moving in opposite directions.** The nominal effective exchange rate of the euro, as measured against the currencies of 38 of the euro area’s most important trading partners, depreciated by 0.1% over the review period. The euro strengthened against major currencies, including the US dollar (by 1.0%), the Chinese renminbi (by 0.3%), the Japanese yen (by 1.9%) and the Swiss franc (by 0.2%). The euro also appreciated vis-à-vis the currencies of Brazil, India and Turkey. This development was offset mainly by a fall in the euro of 5.3% against the pound sterling amid news pointing to an increased likelihood of a smooth Brexit. The euro also depreciated against the Czech koruna (by 1.2%) and the Polish zloty (by 1.0%).

### Chart 9

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

(percentage changes)



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. A positive (negative) change corresponds to an appreciation (depreciation) of the euro. All changes have been calculated using the foreign exchange rates prevailing on 11 December 2019.

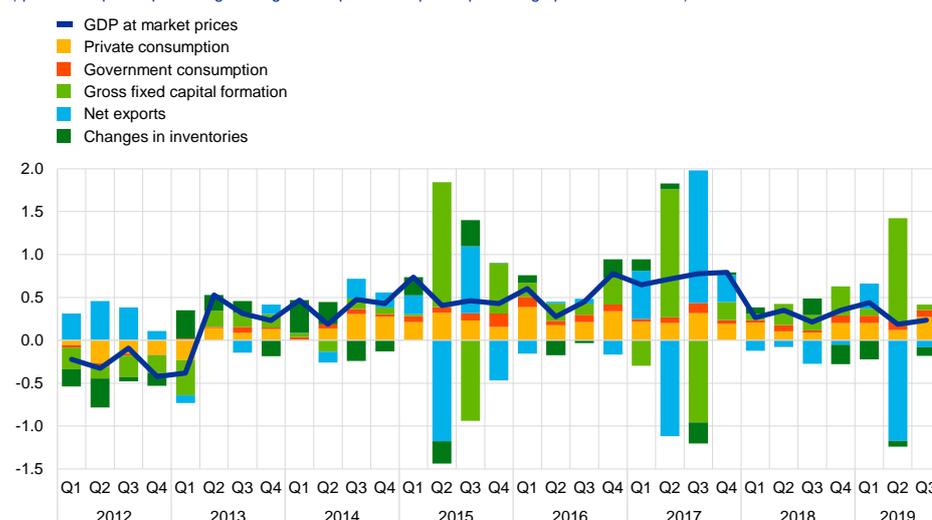
## 3 Economic activity

Euro area real GDP growth remained at 0.2%, quarter on quarter, in the third quarter of 2019. Economic activity in the euro area was supported primarily by private consumption, which continued to underpin the positive contribution to growth provided by domestic demand. In turn, the external sector continued to weigh on euro area growth, as reflected in the slight negative contribution from net trade. Looking ahead, incoming information suggests moderate growth, albeit with some downside risks. The December 2019 Eurosystem staff macroeconomic projections for the euro area foresee annual real GDP increasing by 1.2% in 2019, 1.1% in 2020 and 1.4% in both 2021 and 2022. Compared with the September 2019 projections, real GDP growth has been revised down by 0.1 percentage points in 2020, given sizeable downward revisions to foreign demand which are only partially offset by more supportive fiscal and monetary policies and an effective depreciation of the euro.

**Growth in the euro area continued at a moderate pace in the third quarter of 2019, supported by resilient domestic demand.** Real GDP increased by 0.2%, quarter on quarter, in the third quarter of this year, unchanged compared with the previous quarter and below the 0.4% seen in the first quarter of the year (see Chart 10). Domestic demand continued to make a positive contribution to growth in the third quarter of 2019, while changes in inventories contributed negatively. Developments in the external sector continued to weigh on euro area growth, as reflected by a slight negative contribution from net trade. On the production side, economic activity in the third quarter was mainly supported by growth in services and a rebound was seen in the construction sector, while value added in industry (excluding construction) contracted further.

**Chart 10**  
Euro area real GDP and its components

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



Source: Eurostat.

Note: The latest observations are for the third quarter of 2019. Large movements in gross fixed capital formation and net exports in 2015, 2017 and 2019 reflect specific developments related to investment in intangible assets in Ireland and the Netherlands.

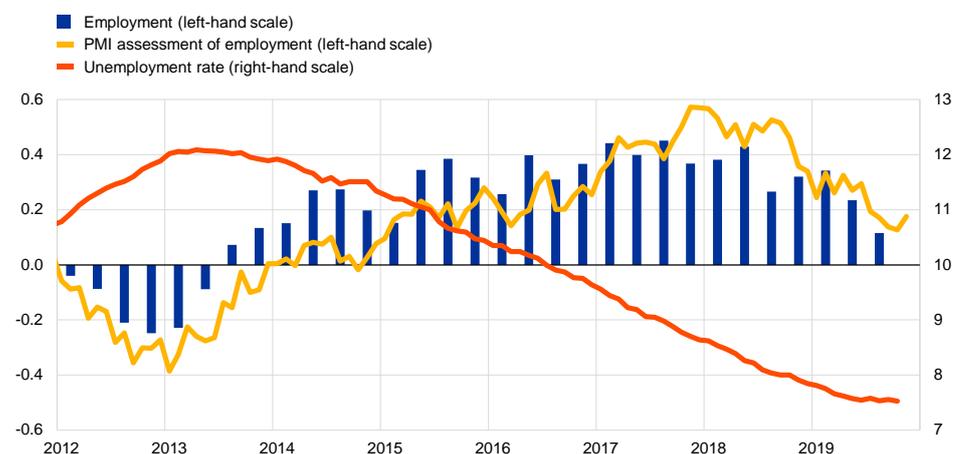
### The labour market continued to improve, but at a moderate pace (see Chart 11).

Employment increased by 0.1% in the third quarter of 2019, down from 0.2% in the second quarter. This moderate increase was broad-based across sectors and countries. The level of employment currently stands 3.9% above the pre-crisis peak recorded in the first quarter of 2008. The unemployment rate was unchanged at 7.6% in the third quarter. It has since declined to 7.5% in October and remains near pre-crisis low levels. Productivity per person employed increased by 0.1%, quarter on quarter, in the third quarter of 2019. Looking ahead, survey indicators suggest that near-term employment growth will continue to be positive. Box 4 describes a principal component analysis of the labour market and shows that labour market momentum remains elevated, although declining somewhat, suggesting further moderate improvements in the labour market in the near term.

### Chart 11

#### Euro area employment, PMI assessment of employment and unemployment

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



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 third quarter of 2019 for employment, November 2019 for the PMI and October 2019 for the unemployment rate.

**Private consumption continues to be supported by higher labour income and stronger household balance sheets.** Private consumption rose by 0.5%, quarter on quarter, in the third quarter of 2019, following somewhat weaker growth in the second quarter. Retail sales during the third quarter of 2019 were on average 0.5% above their level in the second quarter, when they also rose by 0.6% on a quarterly basis. However, in October retail sales edged down by -0.6%, compared to the previous month. From a medium-term perspective, increasing labour income continues to support the underlying momentum in consumer spending. In addition, the continued strengthening of households' balance sheets remains an important factor behind steady consumption growth.

**Business investment (proxied by non-construction investment) increased slightly by 0.2%, quarter on quarter, in the third quarter of 2019, following a significant increase in the previous quarter driven by investment in intellectual property in Ireland.** Incoming data suggest subdued business investment growth in the euro area. Confidence in capital goods manufacturing stabilised somewhat in

November, although it continued to decline in quarterly average terms, against the backdrop of global uncertainty coupled with a number of structural factors – such as environmental regulations and technological change – also contributing. Declining levels of capacity utilisation in the manufacturing sector, together with weak firm profit margins and earnings expectations, also point to muted investment growth. On a positive note, business investment will continue to be supported by favourable financing conditions.

**Housing investment increased by 0.6% in the third quarter of 2019, following a modest increase by 0.1% in the second quarter.** Supported by both its residential and non-residential components, construction investment also grew by 0.3% in the third quarter. Despite the continuing recovery in the housing sector, short-term and survey indicators suggested diverging developments in housing markets. On the one hand, demand-side indicators – such as an increase in consumers' spending intentions as regards new or existing housing – point to buoyant dynamics. On the other hand, supply-side indicators – such as construction production, building permits and reports by construction companies of labour shortages – hint at increasingly binding constraints to production. The positive, but decelerating, momentum in housing investment is expected to continue in the fourth quarter. In October and November, confidence indicators, although still above historical averages, declined, while the PMI for housing averaged 50.7, edging up from 50.1 in the third quarter.

**Total real euro area exports continued to expand at a slow pace in the third quarter of 2019 (0.4% from 0.3% in the second quarter in quarter-on-quarter terms).** Euro area exports of goods recovered while exports of services softened, amid some normalisation of exports to the United Kingdom and Turkey. Exports to the United States continued to expand, offsetting negative dynamics to other destinations – especially to Asia. Net trade contribution to GDP growth was marginally negative (-0.1 pp). Looking ahead, leading indicators suggest that trade conditions are stabilising around weak dynamics. Early indications of a bottoming out in the fourth quarter can be concluded from less negative export orders while shipping indicators return a mixed picture. International trade policy conditions are also having a negative impact on recent trade developments as manufacturing is organised around a deeply integrated regional network that makes the euro area particularly fragile to rising protectionist measures (see Box 1 entitled “The effects of tariff hikes in a world of global value chains”).

**The latest economic indicators and survey results continue to suggest a moderate pace of growth in the euro area economy.** The European Commission's Economic Sentiment Indicator (ESI) increased in November to a level above its long-term average, although so far it has declined in quarterly average terms in the fourth quarter of the year. Overall, the composite output PMI was unchanged between October and November, remaining at levels suggesting continued moderate growth, despite its decline in quarterly average terms until November.

**Looking ahead, favourable financing conditions will continue to support expansion within the euro area.** The ECB's accommodative monetary policy continues to support domestic demand. Ongoing employment gains, rising wages and improving households' balance sheets should continue to support private

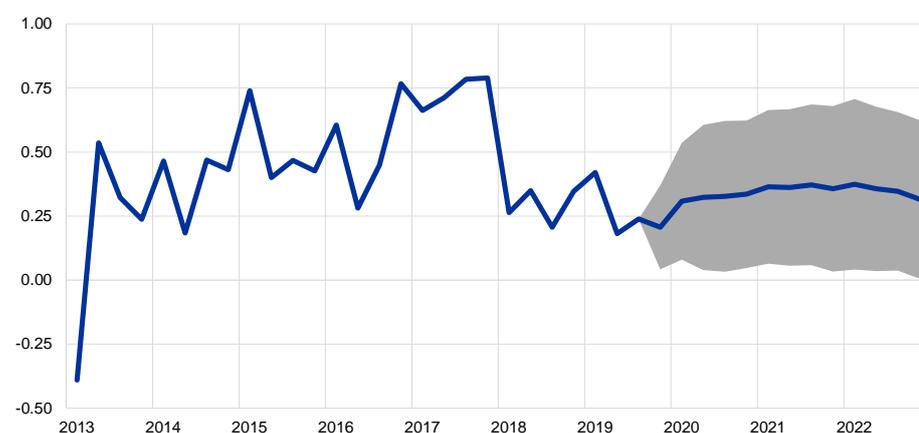
consumption. At the same time, the ongoing – albeit somewhat slower – expansion in global activity is expected to underpin growth.

**The December 2019 Eurosystem staff macroeconomic projections for the euro area foresee annual real GDP increasing by 1.2% in 2019, 1.1% in 2020 and 1.4% in both 2021 and 2022 (see Chart 12).** Compared with the September 2019 projections, real GDP growth has been revised down slightly by 0.1 percentage points in 2020, on account of downward revisions to foreign demand which are only partially offset by more supportive fiscal and monetary policies and an effective depreciation of the euro. The risks surrounding the outlook for euro area growth, related to geopolitical factors, rising protectionism and vulnerabilities in emerging markets, remain tilted to the downside, but have become somewhat less pronounced.

### Chart 12

#### Euro area real GDP (including projections)

(quarter-on-quarter percentage changes)



Sources: Eurostat and the article entitled "Eurosystem staff macroeconomic projections for the euro area, December 2019", published on the ECB's website on 12 December 2019.

Notes: The ranges shown around the central projections are based on the differences between actual outcomes and previous projections carried out over a number of years. The width of the range is twice the average absolute value of these differences. The method used for calculating the ranges, involving a correction for exceptional events, is documented in "New procedure for constructing Eurosystem and ECB staff projection ranges", ECB, December 2009, available on the ECB's website.

## 4 Prices and costs

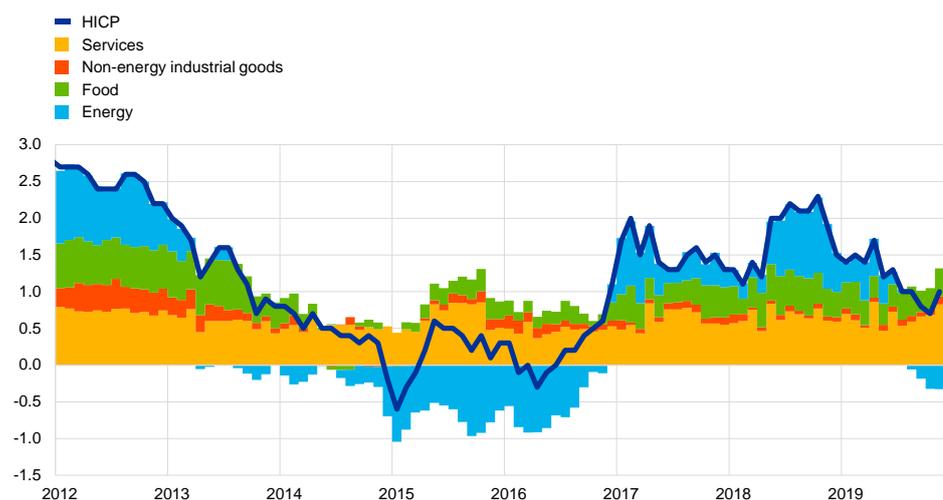
According to Eurostat's flash estimate, euro area annual HICP inflation increased from 0.7% in October 2019 to 1.0% in November, reflecting mainly higher services and food price inflation. On the basis of current futures prices for oil, headline inflation is likely to rise somewhat in the coming months. Indicators of inflation expectations stand at low levels. Measures of underlying inflation have remained generally muted, although there are some indications of a mild increase in line with previous expectations. While labour cost pressures have strengthened amid tighter labour markets, the weaker growth momentum is delaying their pass-through to inflation. Over the medium term, inflation is expected to increase, supported by the ECB's monetary policy measures, the ongoing economic expansion and solid wage growth. This assessment is also broadly reflected in the December 2019 Eurosystem staff macroeconomic projections for the euro area, which foresee annual HICP inflation at 1.2% in 2019, 1.1% in 2020, 1.4% in 2021 and 1.6% in 2022. Compared with the September 2019 ECB staff macroeconomic projections, the outlook for HICP inflation has been revised up slightly for 2020 and down slightly for 2021, mainly driven by the expected future path of energy prices. Annual HICP inflation excluding energy and food is expected to be 1.0% in 2019, 1.3% in 2020, 1.4% in 2021 and 1.6% in 2022.

**According to Eurostat's flash estimate, HICP inflation increased from 0.7% in October to 1.0% in November.** This was mainly attributable to rises in services and food inflation and, to a lesser extent, an increase in non-energy industrial goods inflation, all of which more than offset a further small decline in energy inflation.

### Chart 13

#### Contributions of components of euro area headline HICP inflation

(annual percentage changes; percentage point contributions)



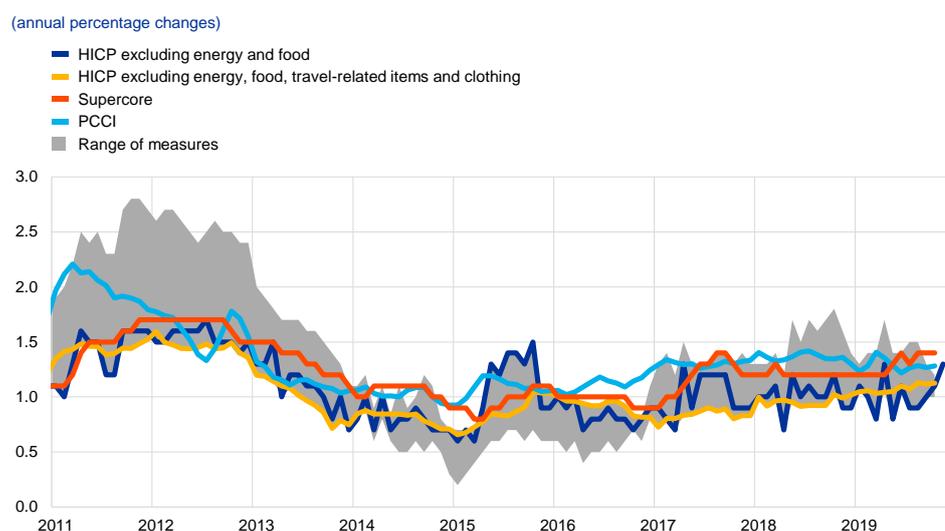
Sources: Eurostat and ECB calculations.

Notes: The latest observations are for November 2019 (flash estimates). Growth rates for 2015 are distorted upwards owing to a methodological change (see the box entitled "A new method for the package holiday price index in Germany and its impact on HICP inflation rates", *Economic Bulletin*, Issue 2, ECB, 2019).

**Measures of underlying inflation generally remained muted.** HICP inflation excluding food and energy rose further to 1.3% in November, up from 1.1% in October and 1.0% in September, which also reflected the fading-out of downward effects

associated with methodological changes.<sup>6</sup> Alternative measures of underlying inflation that tend to be less volatile than HICP inflation excluding energy and food have been fairly stable over recent quarters (data available up to October only; see Chart 14). HICP inflation excluding energy, food, travel-related items and clothing stood at 1.1% in October, continuing its very gradual upward trend that had started at the beginning of 2017. Signals from other measures of underlying inflation, including the Persistent and Common Component of Inflation (PCCI) indicator and the Supercore indicator,<sup>7</sup> point to a continuation of the broad sideways movement that has now been observed for several quarters.

**Chart 14**  
Measures of underlying inflation



Sources: Eurostat and ECB calculations.

Notes: The latest observations are for November 2019 for HICP excluding energy and food (flash estimate) and for October 2019 for all other measures. The range of measures of underlying inflation consists of the following: HICP excluding energy; HICP excluding energy and unprocessed food; HICP excluding energy and food; HICP excluding energy, food, travel-related items and clothing; the 10% trimmed mean of the HICP; the 30% trimmed mean of the HICP; and the weighted median of the HICP. Growth rates for HICP excluding energy and food for 2015 are distorted upwards owing to a methodological change (see the box entitled "A new method for the package holiday price index in Germany and its impact on HICP inflation rates", *Economic Bulletin*, Issue 2, ECB, 2019).

### Pipeline price pressures for HICP non-energy industrial goods remained broadly stable at the later stages of the supply chain.

Producer price inflation for domestic sales of non-food consumer goods, which is an indicator of price pressures at the later stages of the supply chain, stood at 0.8% year on year in October, unchanged since July and above its historical average. The corresponding annual rate of import price inflation declined, standing at 0.5% in October, down from 0.9% in September. Indicators of price pressures at the earlier stages of the supply chain weakened somewhat, with annual producer price inflation for intermediate goods falling to -1.0% in October, down from -0.7% in September, and import price inflation for intermediate goods decreasing to -0.5% in October, down from 0.4% in September. Weaker external price pressures are signalled by developments in global producer

<sup>6</sup> Changes in the statistical accounting of package holiday prices in Germany had a downward effect on services inflation and HICP inflation excluding food and energy in the euro area, which is now fading out. For details, see the box entitled "Dampening special effect in the HICP in July 2019" in the article entitled "Economic conditions in Germany", *Monthly Report*, Deutsche Bundesbank, August 2019, pp. 57-59.

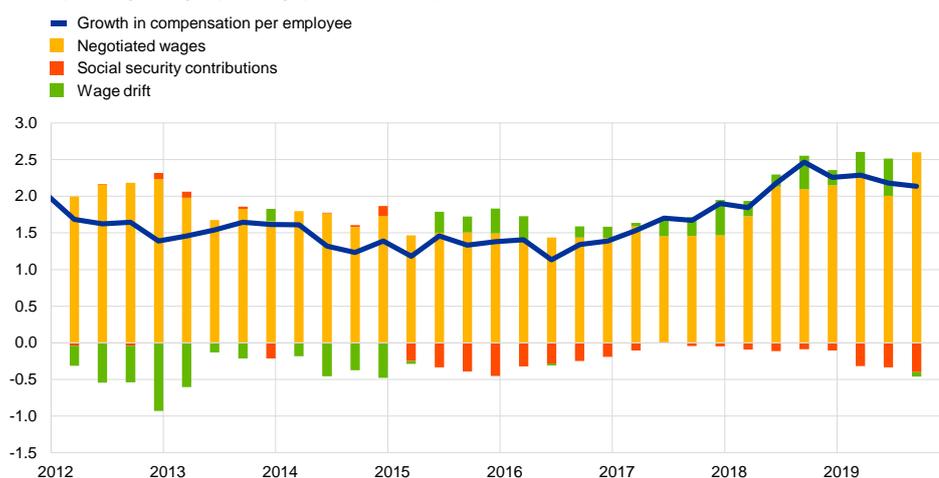
<sup>7</sup> For further information on these measures of underlying inflation, see Boxes 2 and 3 in the article entitled "Measures of underlying inflation for the euro area", *Economic Bulletin*, Issue 4, ECB, 2018.

price inflation excluding energy, which fell slightly further to 1.1% in October, down from 1.2% in September.

**Wage growth has remained resilient.** Annual growth in compensation per employee stood at 2.1% in the third quarter of 2019, down slightly from the 2.2% and 2.3% recorded in the second and first quarters respectively (see Chart 15). The figures for 2019 have been affected by a significant drop in social security contributions in France.<sup>8</sup> Annual growth in wages and salaries per employee, which excludes social security contributions, was 2.5% in the third quarter, unchanged from the second quarter, after 2.6% in the first quarter and 2.3% on average for the previous year. Annual growth in negotiated wages in the euro area was 2.6% in the third quarter of 2019, up from 2.0% in the second quarter. This increase was due mainly to one-off payments in the manufacturing sector in Germany. Looking across the different indicators and through temporary factors, wage growth has moved broadly sideways since mid-2018, either at around or slightly above historical averages.

**Chart 15**  
Contributions of components of compensation per employee

(annual percentage changes; percentage point contributions)



Sources: Eurostat and ECB calculations.  
Note: The latest observations are for the third quarter of 2019.

**Market-based indicators of longer-term inflation expectations have remained at very low levels, while survey-based expectations also stand at historical lows.**

Market-based indicators of inflation expectations remained broadly stable throughout the review period, hovering just above the new historical lows reached in early October 2019. The five-year forward inflation-linked swap rate five years ahead stood at 1.25% on 11 December 2019, around the same level as at the time of the September monetary policy meeting of the Governing Council. Nevertheless, the market-based probability of deflation remained contained, marking a turnaround in the upward trend observed in 2019. Overall, the forward profile of market-based indicators of inflation expectations continues to point to a prolonged period of low inflation. Survey-based long-term inflation expectations are also at historically low levels, according to the ECB Survey of Professional Forecasters for the fourth quarter of

<sup>8</sup> For a discussion, see Box 5 in this issue of the Economic Bulletin.

2019, as well as the November releases from Consensus Economics and the Euro Zone Barometer.

### Chart 16

#### Market-based indicators of inflation expectations

(annual percentage changes)



Sources: Thomson Reuters and ECB calculations.  
Note: The latest observations are for 11 December 2019.

**The December 2019 Eurosystem staff macroeconomic projections foresee an increase in underlying inflation over the medium term.** These projections, which are based on the information available at the end of November, expect headline HICP inflation to average 1.2% in 2019, 1.1% in 2020, 1.4% in 2021 and 1.6% in 2022, compared with 1.2%, 1.0% and 1.5% for the years 2019, 2020 and 2021 respectively in the September 2019 ECB staff macroeconomic projections (see Chart 17). The revisions were driven mainly by the expected future path of energy prices, which has been revised upwards for 2020 but downwards for 2021, owing to higher oil prices in the short term and a slightly more downward-sloping oil price futures curve. After a moderate rise by the end of 2019, HICP inflation excluding energy and food will move sideways at 1.3% in the course of 2020 and increase to 1.4% in 2021 and 1.6% in 2022. The upward path of HICP inflation excluding energy and food is expected to be supported by strengthening economic activity, by relatively robust wage growth amid tight labour markets and by recovering profit margins as activity regains pace, aided, among other things, by the ECB's September 2019 monetary policy measures. Rising non-energy commodity prices are also expected to provide some support to HICP inflation excluding energy and food.

### Chart 17

#### Euro area HICP inflation (including projections)

(annual percentage changes)



Sources: Eurostat and the article entitled "[Eurosystem staff macroeconomic projections for the euro area, December 2019](#)", published on the ECB's website on 12 December 2019.

Notes: The latest observations are for the third quarter of 2019 (data) and the fourth quarter of 2022 (projection). The ranges shown around the central projections are based on the differences between actual outcomes and previous projections carried out over a number of years. The width of the ranges is twice the average absolute value of these differences. The method used for calculating the ranges, involving a correction for exceptional events, is documented in "[New procedure for constructing Eurosystem and ECB staff projection ranges](#)", ECB, December 2009. The cut-off date for data included in the projections was 27 November 2019.

## 5 Money and credit

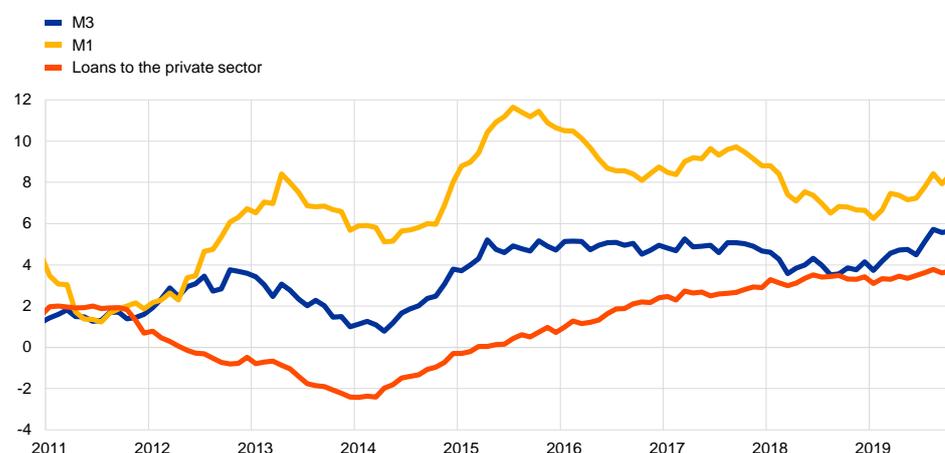
*In October 2019 the annual growth of broad money remained robust, while lending to the private sector continued its gradual recovery. The resilient growth of M3 mainly reflected the very low opportunity cost of holding money. Favourable bank funding and lending conditions continued to support loan flows and thereby economic growth. Net issuance of debt securities by non-financial corporations (NFCs) increased in the third quarter of 2019, from an already robust outturn in the previous quarter. Bond market conditions continue to support debt securities issuance.*

**Broad money grew at a robust pace in October.** The annual growth rate of M3 was unchanged at 5.6% in October (see Chart 18), slightly exceeding the rate of around 5% observed between 2015 and 2018, when net asset purchases under the asset purchase programme (APP) were positive. Broad money growth was supported by the very low opportunity cost of holding monetary instruments, while weaker economic growth acted as a drag on it. The interest rate constellation is also affecting the composition of M3, as it incentivises the concentration of volumes in the most liquid instruments. As in previous quarters, therefore, M3 growth continued to be driven by the narrow aggregate M1 – comprising overnight deposits and currency in circulation. The annual growth rate of M1 increased in October to 8.4%, from 7.8% in September, continuing the recovery observed since the start of the year.

**Chart 18**

### M3, M1 and loans to the private sector

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



Source: ECB.

Notes: Loans are adjusted for loan sales, securitisation and notional cash pooling. The latest observation is for October 2019.

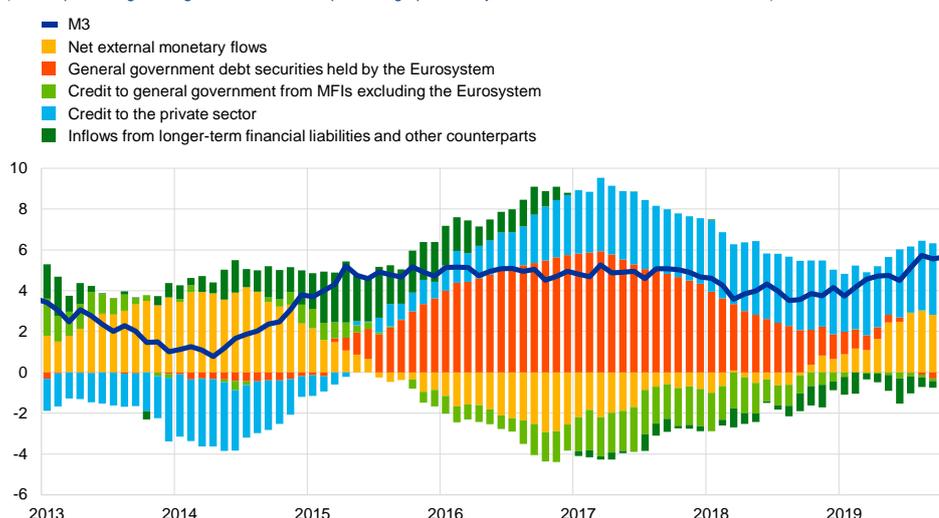
**Overnight deposits were the main contributor to money growth.** The annual growth rate of overnight deposits increased further to 9.0% in October, from 8.5% in September. Stable developments in currency in circulation do not point to an accelerated substitution of deposits with cash in view of the negative interest rate environment. Short-term deposits other than overnight deposits (i.e. M2 minus M1) made a positive contribution to M3 growth in October, which was mainly attributable to stronger growth in saving deposits. At the same time, marketable instruments (i.e. M3

minus M2) continued to make a small negative contribution to broad money growth as a result of the relatively low remuneration of these instruments.

**Credit to the private sector remained the main source of broad money creation in October.** Credit to the private sector made a sizeable contribution to broad money growth (see the blue portion of the bars in Chart 19). The acceleration in broad money growth since early 2019, however, is mainly due to developments in external monetary flows (see the yellow portion of the bars in Chart 19). This development reflects greater interest on the part of foreign investors in euro area assets. At the same time, the end of net asset purchases under the APP at the end of 2018 implied that the contribution from general government securities held by the Eurosystem was marginal (see the red portion of the bars in Chart 19). Furthermore, the drag from longer-term financial liabilities remained small (see the dark green portion of the bars in Chart 19).

**Chart 19**  
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 MFI loans to the private sector and MFI holdings of debt securities issued by the euro area private non-MFI sector. As such, it also covers purchases by the Eurosystem of non-MFI debt securities under the corporate sector purchase programme. The latest observation is for October 2019.

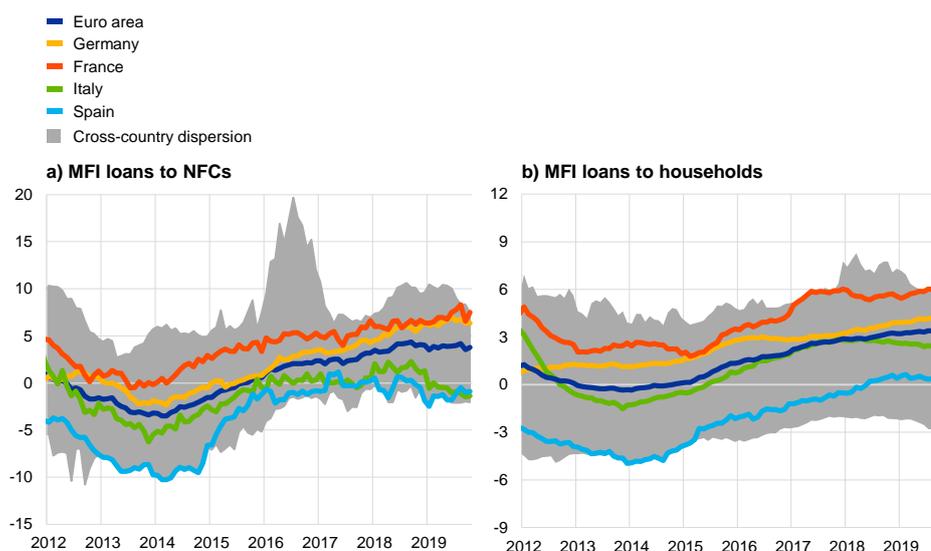
**The annual growth rate of loans to the private sector picked up slightly, consolidating its gradual recovery.** The annual growth rate of MFI loans to the private sector (adjusted for loan sales, securitisation and notional cash pooling) increased slightly to 3.7% in October, compared with 3.6% in September (see Chart 18). This development was mainly due to an increase in the annual growth rate of loans to NFCs, which rose to 3.8% in October, compared with 3.6% in September, therefore consolidating its stabilisation at levels around 4% since mid-2018. Lending to firms in the services sector – including firms providing real estate-related services – accounts for the largest share of the growth in lending to NFCs. Annual growth in loans to households continued on its gradual upward trend, benefiting in particular from favourable lending conditions and housing market developments. The annual growth rate of loans to households increased slightly to 3.5% in October, compared with 3.4% in September. The growth in loans to firms and households continues to be

characterised by considerable heterogeneity across countries (see Chart 20), reflecting, inter alia, cross-country differences in economic growth over time, variations in the availability of other funding sources, the level of indebtedness of households and non-financial corporations, and heterogeneity in house price developments across countries.

## Chart 20

### MFI loans in selected euro area countries

(annual percentage changes)



Source: ECB.

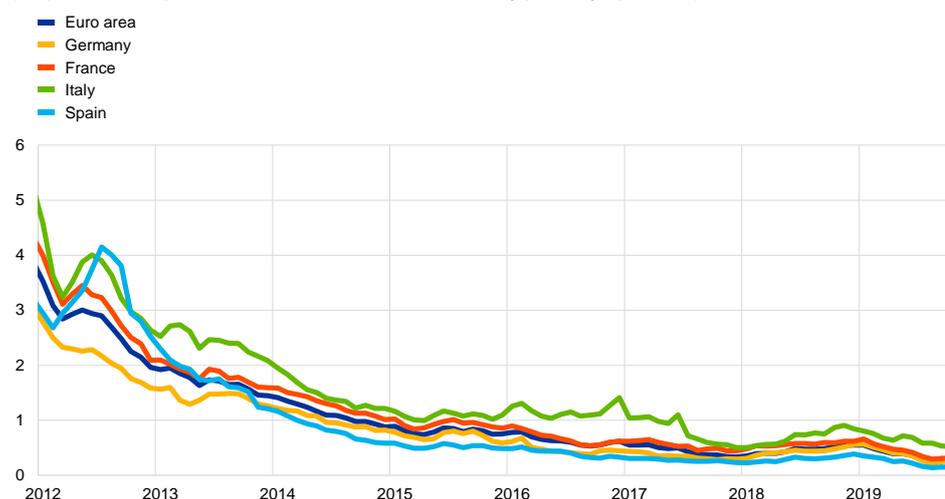
Notes: Loans are adjusted for loan sales and securitisation; in the case of NFCs, loans are also adjusted for notional cash pooling. The cross-country dispersion is calculated on the basis of minimum and maximum values using a fixed sample of 12 euro area countries. The latest observation is for October 2019.

**Banks' debt funding conditions remained favourable.** The composite cost of debt financing for euro area banks, which has decreased since the start of the year in line with market rates, remained at very low levels in the third quarter of 2019 (see Chart 21). This development reflects a considerable trend decline in bank bond yields, although there has been a slight rebound in bond yields since September, reflecting a broader increase in risk-free rates. At the same time, euro area banks' deposit rates recorded new historical lows in October. While developments in banks' debt funding costs were largely simultaneous in the largest euro area countries, reflecting the monetary policy measures of the ECB, the level of bank funding costs remained heterogeneous. In their responses to the ECB's October 2019 euro area bank lending survey, euro area banks reported that the resumption of net asset purchases under the APP is expected to facilitate a further easing of market financing conditions, thereby contributing to further improvements in funding conditions. Moreover, the downward pressure on euro area banks' loan-deposit margins, which exerts a dampening impact on bank profitability, is being compensated for by increasing lending volumes, and the overall effect on net interest income (as the product of lending margins and volumes) has been slightly positive. Despite the progress made by banks in consolidating their balance sheets, for instance by reducing non-performing loans, euro area bank profitability remains low by international and historical standards, and this can challenge banks' capacity to intermediate and transmit monetary policy signals.

Against this background, some of the non-standard monetary policy measures introduced recently by the ECB – such as TLTRO III and the two-tier system for reserve remuneration – are geared towards supporting bank-based intermediation.

**Chart 21**  
Banks' composite cost of debt financing

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



Sources: ECB, Markit iBoxx and ECB calculations.

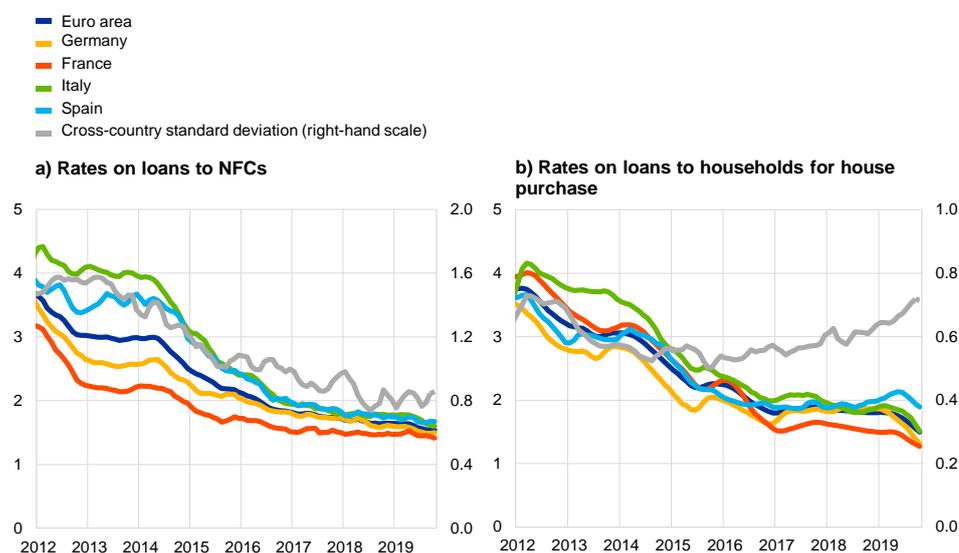
Notes: The composite cost of deposits is calculated as an average of new business rates on overnight deposits, deposits with an agreed maturity and deposits redeemable at notice, weighted by their corresponding outstanding amounts. The latest observation is for October 2019.

**Favourable lending rates continue to support economic growth.** In the last few months composite bank lending rates for loans to NFCs have remained broadly unchanged, in line with developments in market reference rates, while the equivalent rates for loans to households for house purchase have continued to decline. In October 2019 the composite bank lending rate for NFCs (see Chart 22) stood at 1.56%, only marginally above its historical low, while the composite bank lending rate for housing loans fell to a new historical low when it declined to 1.44% (see Chart 22). Competitive pressures and more favourable bank funding costs have dampened lending rates for loans to euro area NFCs and households. Overall, composite bank lending rates for loans to NFCs and households have fallen significantly since the ECB's credit easing measures were announced in June 2014. Between May 2014 and October 2019 composite lending rates on loans to NFCs and households for house purchase fell by around 140 and 150 basis points respectively.

## Chart 22

### Composite lending rates in selected euro area countries

(percentages per annum; three-month moving averages)



Source: ECB.

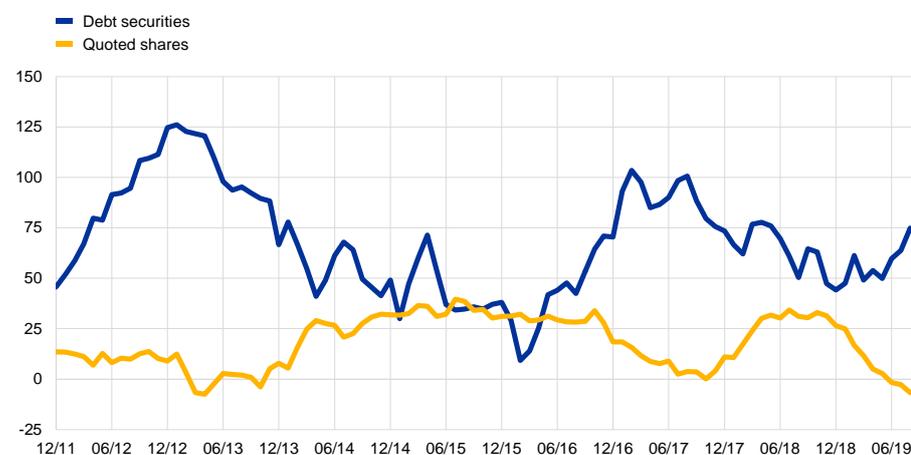
Notes: The indicator for the total cost of bank borrowing is calculated by aggregating short and long-term rates using a 24-month moving average of new business volumes. The cross-country standard deviation is calculated using a fixed sample of 12 euro area countries. The latest observation is for October 2019.

**The annual flow of total external financing to euro area NFCs remained solid in the third quarter of 2019.** Overall, as financing conditions are currently favourable, debt financing flows to NFCs have remained quite resilient to the current economic weakness. In this respect, the [Survey on the Access to Finance of Enterprises in the euro area \(SAFE\)](#) shows that small and medium-sized enterprises, which depend critically on banks for financing, report a sustained willingness of banks to lend to them. External financing to firms edged up in the third quarter of 2019, benefiting from low and falling costs on financing instruments. In the third quarter of 2019 the net issuance of debt securities by NFCs increased, leaving issuance so far in 2019 close to record levels. The increase in the net issuance of debt securities in the third quarter of 2019 occurred in a context of gradual recovery in overall credit to NFCs – including MFI loans – and a further improvement in corporate bond financing conditions that was more pronounced than the improvement in bank lending conditions. From a medium-term perspective, the recovery in debt securities issuance in 2019 has brought annual net issuance flows in September back to the levels recorded in spring 2018 and well above the trough of December 2018 (see Chart 23). Net issuance of listed shares was positive in September but remained negative for the whole third quarter of 2019, reflecting both sluggish merger and acquisition activity and an increase in the cost of equity financing over the period. Recent market data suggest that the net issuance of debt securities in October and November 2019 remained strong and was still dominated by investment-grade issuers, although high-yield issuance activity also increased.

### Chart 23

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

(annual flows in EUR billions)



Source: ECB.

Notes: Monthly figures based on a 12-month rolling period. The latest observation is for September 2019.

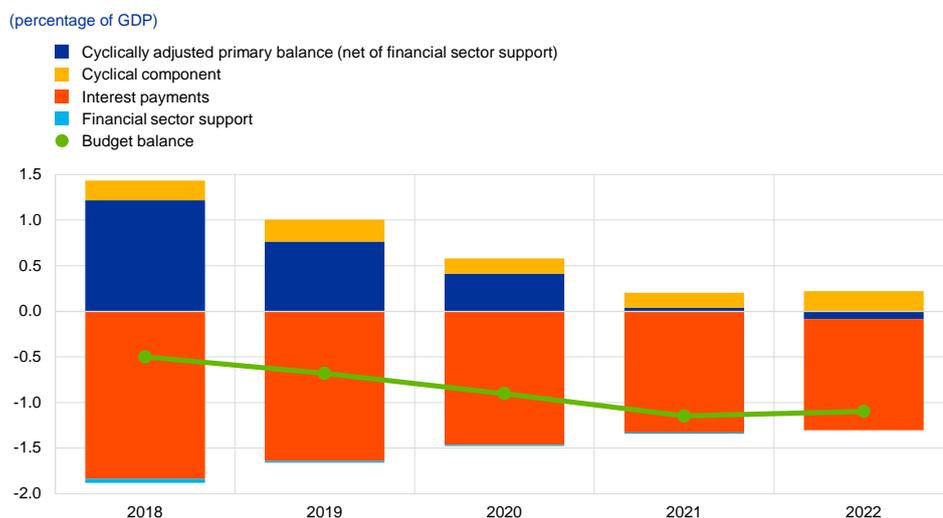
**In September 2019 the cost of financing for NFCs stood close to its historical minimum recorded in April 2019.** In September the overall nominal cost of external financing for NFCs, comprising bank lending, debt issuance in the market and equity finance, stood at 4.6%. This was 9 basis points higher than in April, when the cost of financing series was at its historical low but still very favourable. By the end of November, the overall cost of financing is estimated to have remained broadly unchanged from September. This reflects a slightly lower cost of equity, which was compensated for by a marginally higher cost of market-based debt. The lower estimated cost of equity was mostly driven by a decline in equity risk premia, in turn supported by an improvement in global risk sentiment. Meanwhile, the slight increase in the cost of market-based debt was due to an increase in risk-free rates, while corporate bond spreads declined over the same period.

## 6 Fiscal developments

The euro area fiscal deficit is expected to increase steadily during the years 2019-21 on account of lower primary surpluses. The decline in the primary balance reflects mainly a projected expansionary fiscal stance, which provides support to economic activity. The euro area government debt-to-GDP ratio is expected to remain on a downward path owing to a favourable interest rate-growth differential and a positive – even if declining – primary balance. However, debt levels in a number of countries remain high. In these countries, governments need to pursue prudent policies and meet structural balance targets, which will help create the conditions that will allow automatic stabilisers to operate freely. In view of the weakened economic outlook, governments with fiscal space should be ready to act in an effective and timely manner.

**The euro area general government budget balance is projected to decline steadily during 2019-21 and to stabilise in 2022.**<sup>9</sup> Based on the December 2019 Eurosystem staff macroeconomic projections, the general government deficit ratio for the euro area is expected to have increased from 0.5% of GDP in 2018 to 0.7% of GDP in 2019. The deficit is projected to continue increasing in 2020 and 2021, and to stabilise thereafter at 1.1% of GDP (see Chart 24). The decline in the budget balance in 2019-21 stems mainly from a lower cyclically adjusted primary balance. This is partly compensated by lower interest expenditure, while the cyclical component remains largely unchanged over the projection horizon.

**Chart 24**  
Budget balance and its components



Sources: ECB and December 2019 Eurosystem staff macroeconomic projections.  
Note: The data refer to the aggregate general government sector of the euro area.

**The euro area fiscal outlook for 2020-21 implies a somewhat more supportive fiscal policy than in the September 2019 ECB staff projections.** After a slight upward revision in 2019, the lower budget balance in 2020 and 2021 reflects

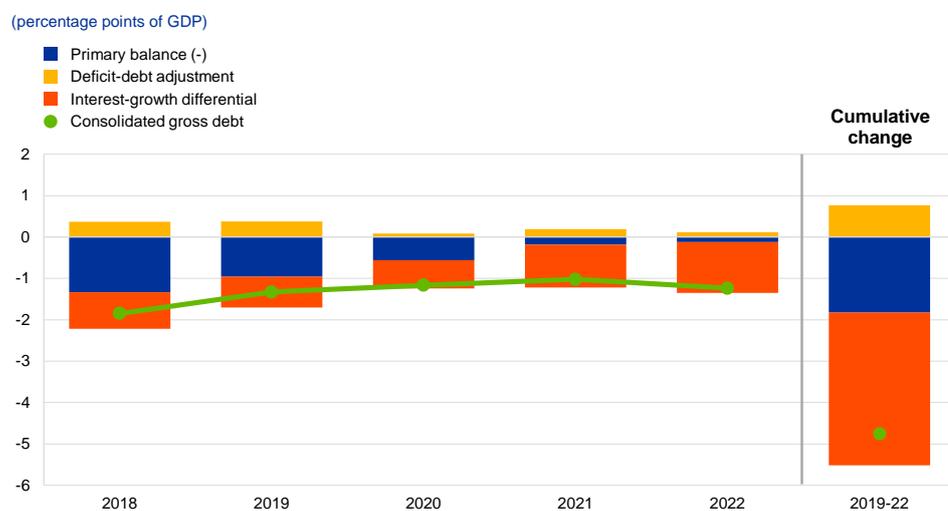
<sup>9</sup> See the “Eurosystem staff macroeconomic projections for the euro area, December 2019”, published on the ECB’s website on 12 December 2019.

additional fiscal loosening, while the cyclical component and the interest payment projections remain broadly unchanged.

**The aggregate fiscal stance for the euro area is assessed to be expansionary in 2019-21 and broadly neutral in 2022.**<sup>10</sup> The fiscal stance is estimated to loosen in 2019 and projected to remain expansionary in the years 2020-21, providing support to economic activity. This is mostly on account of cuts in direct taxes in France and the Netherlands, higher transfers and public investment in Italy and Germany, and higher government consumption in Germany, the Netherlands and Spain. In 2022 the fiscal stance is projected to be broadly neutral, with some limited further direct tax cuts in France and additional expenditure in Germany and Spain.

**The euro area aggregate public debt-to-GDP ratio is projected to remain on a downward path.** According to the December 2019 Eurosystem staff macroeconomic projections, the aggregate general government debt-to-GDP ratio in the euro area is expected to decline from 85.8% of GDP in 2018<sup>11</sup> to 81.1% of GDP in 2022. This reduction is supported by a favourable interest rate-growth differential<sup>12</sup> and primary surpluses that are, however, diminishing (see Chart 25). Compared with the September projections, the debt ratio is projected to be on a slightly higher path owing to upward revisions to historical data (0.5% of GDP in 2018), lower projected primary surpluses and less favourable interest rate-growth differentials in 2020-21.

**Chart 25**  
Drivers of change in public debt



Sources: ECB and December 2019 Eurosystem staff macroeconomic projections.  
Note: The data refer to the aggregate general government sector of the euro area.

<sup>10</sup> The fiscal stance reflects the direction and size of the stimulus from fiscal policies to the economy, beyond the automatic reaction of public finances to the business cycle. It is measured here as the change in the cyclically adjusted primary balance ratio net of government support to the financial sector. For more details on the concept of the euro area fiscal stance, see the article entitled “The euro area fiscal stance”, *Economic Bulletin*, Issue 4, ECB, 2016.

<sup>11</sup> As the projections usually take the most recent data revisions into account, there may be discrepancies compared with the latest validated Eurostat data.

<sup>12</sup> For more information, see the box entitled “Interest rate-growth differential and government debt dynamics”, *Economic Bulletin*, Issue 2, ECB, 2019.

**Even though the debt ratio is expected to fall in most euro area countries, it will continue to significantly exceed the reference value of 60% of GDP in some of them.** In those countries where government debt remains high, governments need to pursue prudent policies and meet structural balance targets, which will create the conditions for automatic stabilisers to operate freely. Governments with fiscal space should be ready to act in an effective and timely manner in view of the weakening economic outlook and the continued prominence of downside risks. At the same time, all countries should intensify their efforts to achieve a more growth-friendly composition of public finances.

# Boxes

## 1 The effects of tariff hikes in a world of global value chains

Prepared by Philipp Meinen

**In the context of the trade conflict between the United States and China, global value chains (GVCs) are a potential factor amplifying the impact of higher tariffs on economic activity.** Raising tariffs in a globalised world with international supply chains can have significant negative repercussions on economic activity. In general, global sourcing by firms implies that higher tariffs, usually imposed to protect a domestic industry, can lead to higher input costs for domestic producers. In addition, the effects of higher tariffs may be magnified by GVCs, especially in the case of multistage production processes, where goods move in a sequential manner from upstream to downstream with value added at each stage.<sup>13</sup> Against this background, this box provides some evidence of the adverse effects of tariffs on economic activity in the context of global sourcing and GVCs.

**GVC-related trade, defined here as those traded items that cross at least two international borders, expanded over the decade preceding the financial crisis (as a share of total trade), plateaued thereafter and declined during the most recent years with available data (see Chart A).**<sup>14</sup> GVC-related trade can be decomposed into the so-called backward and forward linkages. Forward linkages trade refers to a country's value-added exports that are not absorbed in the final demand of that country's direct trade partners, but (usually after some processing) are further exported to third markets. Backward linkages trade, on the other hand, comprises the foreign content used to produce a country's exports.<sup>15</sup> Industries further upstream in the supply chain (e.g. mining, product development) typically have a larger share of forward linkages, while more downstream sectors, such as many manufacturing industries, tend to rely more on backward linkages. Such considerations are of relevance in the context of the magnification effects of higher tariffs due to GVCs, since these depend, among other things, on the share of foreign value added in exports.

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<sup>13</sup> Such sequentially organised value chains are also referred to as "snakes". This is in contrast to supply chains sometimes labelled as "spiders", where multiple limbs (i.e. parts) come together to form a body (i.e. assembly) without a particular sequencing. Baldwin, R. and Venables, A.J., "Spiders and snakes: Offshoring and agglomeration in the global economy", *Journal of International Economics*, 90, Elsevier, Amsterdam, 2013, pp. 245-254.

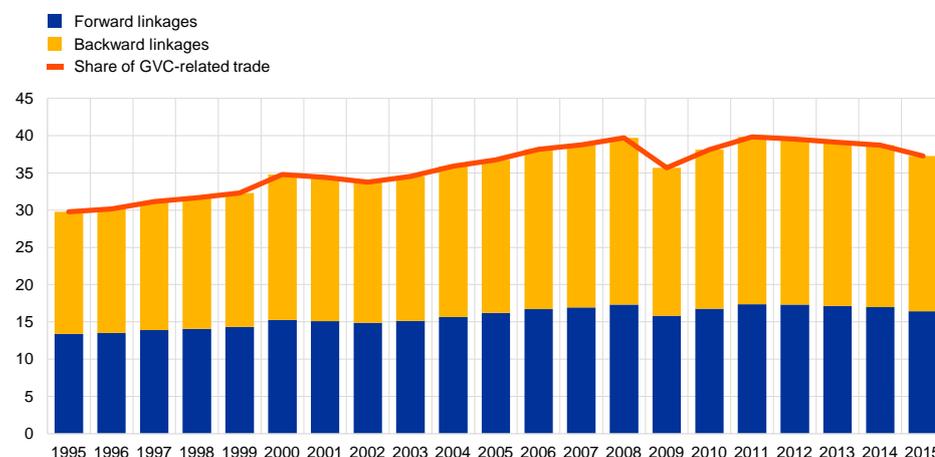
<sup>14</sup> GVC-related traded items are, therefore, re-exported at least once before being absorbed in final demand (Borin and Mancini, 2019). Such trade flows can be computed on the basis of inter-country input-output (ICIO) tables. This box uses ICIO tables published by the OECD. Note that the level of GVC-related trade may depend on the source of the ICIO tables (e.g. OECD data versus World Input Output Tables), while the displayed dynamics over time (Chart A) tend to be quite similar. Two releases of the OECD ICIO tables are here aligned over time in order to extend the sample period. Borin, A., and Mancini, M., "Measuring What Matters in Global Value Chains and Value-Added Trade", *Policy Research working paper*, WPS 8804, World Bank, 2019.

<sup>15</sup> Backward linkages also include domestic added value that is double-counted in the gross export decomposition. These double-counted terms are usually small.

## Chart A

### Evolution of GVC-related trade between 1995 and 2015

(global share of GVC-related exports in total (gross) exports, in %)



Sources: OECD inter-country input-output (ICIO) tables and ECB calculations based on Borin and Mancini (2019).

Note: GVC-related trade includes all traded items that cross at least two international borders. The chart presents the weighted average of the indicators across 64 countries.

**Intermediate goods trade can magnify the impact of tariffs on the economy, even more so if there is international multistage production.** International trade models which include sectoral linkages and intermediate goods trade suggest higher welfare gains from trade liberalisation than models which do not include these features. This is related to the fact that – when allowing for global sourcing – reductions in trade frictions not only lower the price of final goods but also the input costs faced by firms.<sup>16</sup> Accounting – in addition to this – for a global multistage production structure, where production stages are organised sequentially across borders, may magnify the effects of tariffs.<sup>17</sup> First, as goods cross borders multiple times in international multistage production processes, they may be taxed each time a border is crossed. Second, tariffs are commonly levied on a good's total (gross) import value, instead of the value added in the most recent production stage. As a result, the smaller the value added in the last production process (relative to its gross value), the larger the effective tariff rate applied to this production stage.

**Empirical analysis suggests that tariff hikes can, over the medium term, significantly dampen the economic activity of industries which rely on foreign inputs.** Global sourcing activities of firms mean that tariffs meant to protect specific sectors of the economy may at the same time hurt domestic producers in other

<sup>16</sup> See for example Caliendo, L. and Parro, F., "Estimates of the Trade and Welfare Effects of NAFTA", *The Review of Economic Studies*, 82(1), 2015, pp. 1-44. See also Jones, C.I., "Intermediate goods and weak links in the theory of economic development", *American Economic Journal: Macroeconomics*, 3(2), 2011, pp. 1-28, which discusses more generally how intermediate goods create linkages between firms that can give rise to multiplier effects.

<sup>17</sup> The quantitative importance of these magnification effects is usually investigated in general equilibrium trade models with mixed results. For example, Yi as well as Antràs and de Gortari find that such magnification effects of multistage production can be sizeable, while Johnson and Moxnes suggest that these effects are of limited importance when compared to a model which allows for global sourcing. See Yi, K.M., "Can Vertical Specialization Explain the Growth of World Trade?", *Journal of Political Economy*, 111(1), 2003, pp. 52-102; Yi, K.M., "Can multistage production explain the home bias in trade?", *American Economic Review*, 100, 2010, pp. 364-393; Antràs, P., and de Gortari, A., "On the Geography of Global Value Chains", mimeo, Harvard University, 2019; Johnson, R.C. and Moxnes, A., "GVCs and trade elasticities with multistage production", *NBER Working Paper*, No 26108, 2019.

industries by raising their input costs. Moreover, international multistage production implies that input costs are not only affected by a country's own tariff schedule, but also by the tariffs applied to production stages further upstream. For example, a tariff imposed by the United States on Chinese exports may hurt Mexican firms downstream if they use US inputs with Chinese content. Consequently, the impact of tariffs on economic activity depends on a country-industry's position in the supply chain. Chart B presents impulse responses of real industrial production to an increase by one standard deviation of a variable measuring "upstream tariffs" for country-industries with low and high backward linkages, respectively.<sup>18</sup> While an increase in "upstream tariffs" does not significantly affect the real activity of industries with low backward linkages, significant negative effects are found for industries downstream in the value chain (i.e. with high backward linkages), which seems intuitive since their production process relies on foreign inputs.<sup>19</sup> For such industries, a one standard deviation rise in upstream tariffs is associated with a decrease in industrial production by one percentage point after three years. This effect becomes statistically insignificant after six years.

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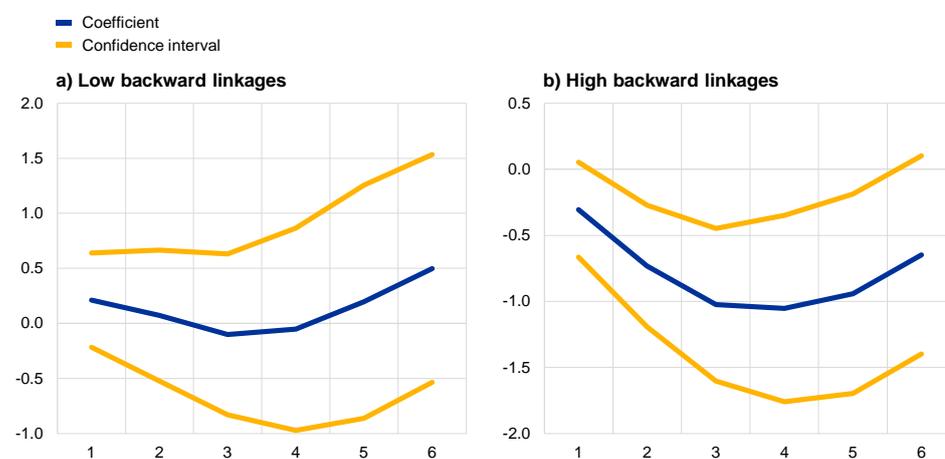
<sup>18</sup> Upstream tariffs are computed as the weighted average of tariffs applied to intermediate goods used by a country-industry, with weights referring to the share of inputs in a country-industry's total output. The measure is extended to also include tariffs imposed by countries further upstream in the supply chain by following insights on cumulative tariffs presented by Rouzet and Miroudot using the OECD ICIO tables. The tariff data are sourced at detailed product level from TRAINS and the WTO using the World Bank's World Integrated Trade Solution (WITS) tool and aggregated to the industry level using constant trade shares derived from CEPII's BACI data set. Note that tariffs imposed downstream in the value chain could also affect the output of upstream industries, which is not investigated in this box. Rouzet, D. & S. Miroudot, The cumulative impact of trade barriers along the value chain, *June 2013 Conference Paper*, GTAP resource No 4184, 2013.

<sup>19</sup> The impulse responses are obtained by using Jorda's local projections with standard errors clustered at the country-industry level. The observational unit is a country-industry in a given year. The outcome variable of interest is real industrial production (sourced from the UNIDO) which varies at the 2-digit ISIC industry level. Local projections imply that the change of this variable is regressed on the changes in tariffs and a vector of control variables which includes two lags (of each) of changes in the dependent variable, variables for input and protective tariffs, and nominal value added growth. The model further contains country-industry, industry-time and country-time fixed effects to control for various other types of factors that may drive industrial activity. The tariff variables are interacted with a country-industry measure of backward linkages computed from the OECD ICIO table for the year 2005, which is in the middle of the sample period. The sample covers the period from 1995 to 2017 and includes 54 countries and 22 industries. The focus on upstream tariffs may mitigate endogeneity concerns regarding the tariff variable, while it should be noted that the analysis does not necessarily present causal effects. Jorda, O., "Estimation and inference of impulse responses by local projections", *American Economic Review*, 95(1), 2005, pp. 161-182.

## Chart B

### Impulse responses of real industrial production to an increase in upstream (input) tariffs over a horizon of six years

(responses in pp and 90% confidence intervals)



Sources: UNIDO, OECD, WITS, BACI, ECB calculations.

Notes: Impulse responses refer to a tariff shock of one standard deviation. Country-industries with high (low) backward linkages are country-industries at the 80th (20th) percentile of the distribution of the variable. Backward linkages measure the foreign content in a country-industry's exports and are computed using the approach of Borin and Mancini (2019). More details about the data and the estimation approach are presented in footnote 7.

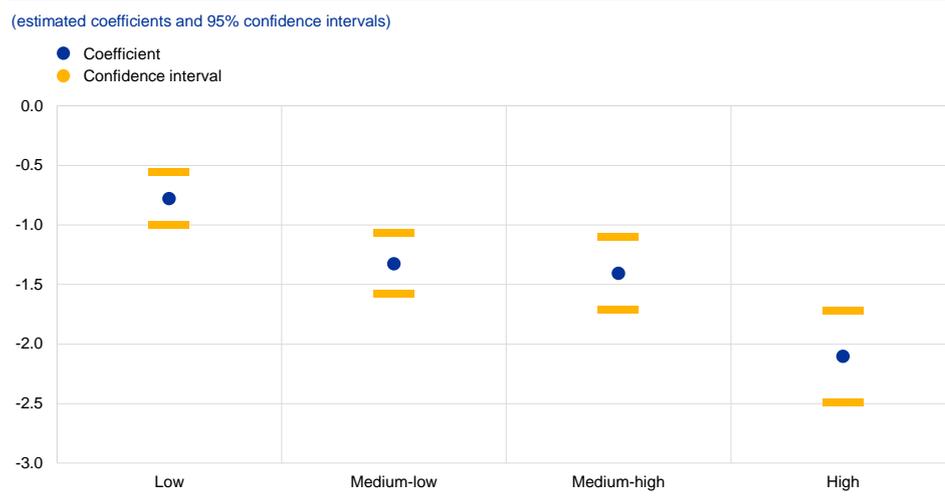
**The magnification effects of tariffs due to international multistage production mean that trade flows associated with downstream sectors are especially sensitive to tariffs, which is consistent with estimation results obtained from a gravity model.** Since the value of output accumulates along the value chain, ad valorem trade costs (like tariffs) are higher in absolute terms for downstream producers. Moreover, international multistage production implies that the cost savings derived from relocation apply only to the value added of the particular production stage being relocated, while ad valorem trade costs are levied on the stage's full value of output. Both aspects suggest that downstream sectors can be expected to be especially sensitive to tariffs, which would be consistent with tariff magnification effects due to multistage production.<sup>20</sup> This can be tested empirically by employing an empirical gravity framework with tariffs, where bilateral industry-level exports are regressed on time-varying bilateral industry-level tariff rates and a battery of fixed effects to control for other trade cost components.<sup>21</sup> The tariff coefficient is here allowed to vary with the degree of foreign content in bilateral exports in order to investigate whether a larger foreign content share (i.e. more backward) is associated with higher trade cost sensitivity. Empirical results indeed suggest that the sensitivity of trade to tariffs increases sharply with the foreign content in bilateral trade flows (see

<sup>20</sup> For more details, please refer to Johnson, R.C. and Moxnes, A., "GVCs and trade elasticities with multistage production", *NBER Working Paper*, No 26108, 2019.

<sup>21</sup> The applied empirical setup is similar to Bergstrand et al., who discuss estimation approaches for structural gravity models. For instance, the model contains exporter-industry-time and importer-industry-time fixed effects as well as exporter-importer-industry fixed effects. The model is estimated on sectorial trade and production data derived from the OECD's ICIO tables for the period from 1995 to 2015, covering 62 countries and 18 manufacturing industries. Tariff data are sourced from WITS. Standard errors are clustered at the bilateral industry level. The results presented in Chart C refer to a model estimated by OLS. Estimating the model by Poisson Pseudo Maximum Likelihood leads to qualitatively similar results, while the elasticity estimates are generally larger. See Bergstrand, J. H., Larch, M., and Yotov, Y.V., "Economic integration agreements, border effects, and distance elasticities in the gravity equation", *European Economic Review*, 78, 2015, pp. 307-327.

Chart C). While sectors with low backward linkages have a tariff elasticity of close to -0.8, it amounts to around -1.4 for sectors with a medium degree of foreign content, and it jumps to -2.1 for trade flows with high backward linkages.<sup>22</sup> These findings are therefore consistent with significant magnification effects of tariffs in the presence of sequentially organised international supply chains.

**Chart C**  
Sensitivity of exports to tariffs by backward linkages



Sources: OECD, WITS, BACI, ECB calculations.  
Notes: Low, medium-low, medium-high and high backward linkages refer to the four quartiles of the distribution of the backward linkages variable. Backward linkages measure the foreign content in a country-industry's exports and are computed using the approach of Borin and Mancini (2019). The dependent variable refers to bilateral industry-level exports, which are regressed on bilateral industry-specific tariff rates, controlling for other factors affecting exports with appropriate fixed effects. More details about the data and the estimation approach are presented in footnote 9.

**In the light of the above, GVCs are often thought to play a role in the current trade conflict between the United States and China by amplifying the effects of tariff hikes.** On the one hand, previous results suggest that tariffs that raise input costs can significantly dampen the output of sectors whose production processes rely on foreign intermediate goods. Since the tariffs imposed by the United States against China targeted a large number of intermediate goods, this channel may indeed be of relevance in the current trade dispute.<sup>23</sup> On the other hand, the importance of magnification effects due to global multistage production are less clear and depend on the predominance of GVC-related trade in bilateral trade relations. OECD data for 2015 suggest that, overall, around 25% of the trade between the United States and China takes place in the context of GVC linkages (non-blue bars in Charts D).<sup>24</sup> For both countries, this is below the total share of GVC-related trade in total exports as well as the (weighted) average share of GVC-related trade in global trade (Chart A), which in turn may be explained by the large distance between the two countries.

<sup>22</sup> The gravity model features a long-run perspective. An elasticity of -1 suggests that a 10% increase in bilateral tariffs would lower bilateral exports by 10%.

<sup>23</sup> Intermediate goods account for more than half of the value of the products affected by the tariffs that the United States imposed on imports from China (worth USD 250 billion) in the course of the third quarter of 2018. See, for example, Bown, C. P., Jung, E. and Lu, Z., "Trump and China formalize tariffs on \$260 billion of imports and look ahead to next phase", *Peterson Institute for International Economics Trade and Investment Policy Watch*, September 20 2018.

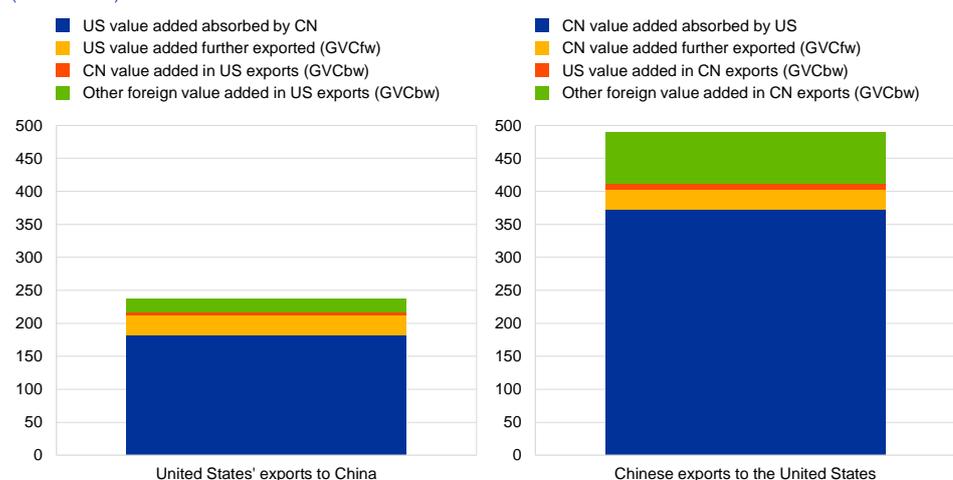
<sup>24</sup> Note that Chinese and US value added absorbed by the importer (i.e. blue bars in Chart D) comprise intermediate and final goods.

Moreover, for US exports to China, forward linkages (yellow bars in Chart D) are relatively more relevant indicating that US exports to China are rather upstream in the value chain.<sup>25</sup> By contrast, for Chinese exports to the United States, the share of backward linkages is larger (green and orange bars in Chart D), thus rendering these trade flows potentially more sensitive to the tariff hikes' magnification effects linked to the multistage organisation of production discussed earlier.<sup>26</sup>

### Chart D

#### Decomposition of bilateral exports between China and the United States in 2015

(In USD billion)



Sources: OECD inter-country input-output (ICIO) tables and ECB calculations based on Borin and Mancini (2019).

Notes: The blue bars comprise both intermediate and final goods. GVCfw and GVCbw refer to forward and backward linkages. Exports include goods and services.

<sup>25</sup> Such forward linkages can imply that the tariff costs are passed on to third markets downstream in the value chain. See, for example, Mao, H. & H. Görg (2019), Friends like this: The Impact of the US – China Trade War on Global Value Chains. Kiel Center for Globalization Working Paper No. 17.

<sup>26</sup> In terms of sectoral breakdown of gross bilateral trade, according to OECD data for 2015, 90% of Chinese total (i.e. goods and services) exports to the United States originate from the manufacturing sector, while less than 10% come from services and the role of the agriculture sector is negligible. By contrast, roughly 50% of US total exports to China originate from the manufacturing sector, while around 7% stem from agriculture and the rest is mainly related to service activities. Focussing only on trade in goods, almost 55% of Chinese gross exports to the United States are consumer goods (including personal phones, personal computers, and passenger cars), while intermediate and capital goods account for around 30% and 15%, respectively. US goods exports to China are mainly intermediate goods (more than 55%), while capital and consumer goods account for roughly 15% each (and another approximately 15% relates to miscellaneous products).

## 2 Market reaction to the two-tier system

Prepared by Luca Baldo, Cristina Coutinho and Nick Ligthart

**On 30 October 2019 the ECB implemented a two-tier system under which a portion of credit institutions' excess liquidity holdings with the Eurosystem are exempt from remuneration at negative rates.** The two-tier system applies to excess liquidity held by banks in current accounts with the Eurosystem and not to holdings with the ECB's deposit facility.<sup>27</sup> Excess liquidity holdings (i.e. reserve holdings in excess of minimum reserve requirements) that are exempt are remunerated at 0%, instead of at the rate of the deposit facility, currently -0.5%.

**The aim of the two-tier system is to support the bank-based transmission of monetary policy in preserving the overall positive contribution of negative rates to the accommodative stance of monetary policy.** The Governing Council has set exempt excess liquidity holdings (exemption allowance) at six times an institution's minimum reserve requirements. The multiplier is the same for all institutions and has been chosen to support the pass-through of the negative deposit facility rate to bank lending rates by offsetting some of the adverse impact of negative rates on bank profitability, while also ensuring that euro short-term money market rates remain close to this policy rate. The multiplier and the remuneration rate on exempt excess liquidity can be changed over time to ensure that banks continue to extend loans to their customers at conditions that fully reflect the desired stance of monetary policy.

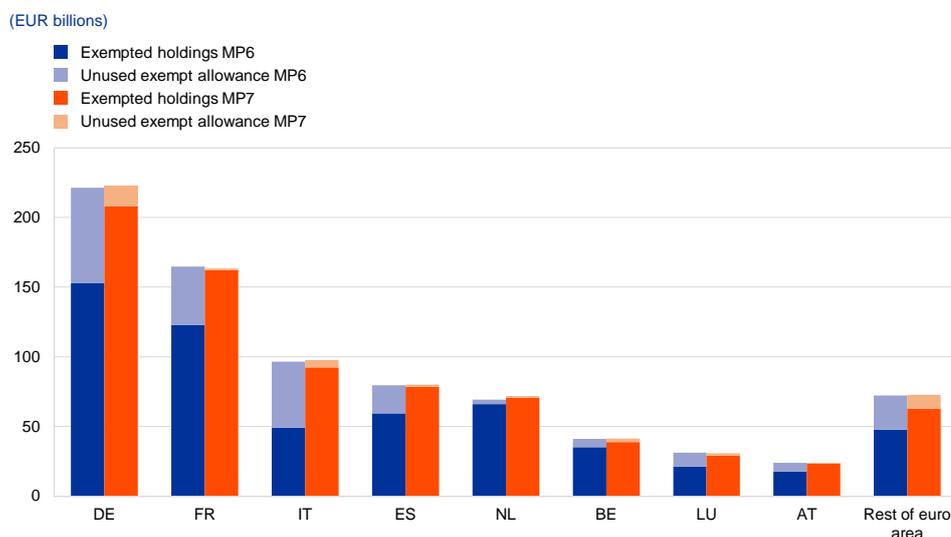
**With the introduction of the two-tier system banks holding less excess liquidity than their exemption allowance increased their excess liquidity holdings by borrowing from banks exceeding their exemption allowances.** On 30 October 2019, i.e. the day the two-tier system came into effect, banks reduced their unused exemption allowances from 28% to 13% of total exemption allowances. Over the following days banks that had not completely used their exemption allowances continued to gradually increase their excess liquidity holdings until by 11 December less than 5% of exemption allowances were unused (see Chart A). At the same time, excess liquidity held by banks exceeding their exemption allowances declined slightly – indicating a redistribution of excess liquidity through money markets and other channels in line with the incentives laid out by the two-tier system (see Chart B).

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<sup>27</sup> The ECB also published additional information on the [two-tier system for remunerating excess reserve holdings](#).

## Chart A

### Exempt excess liquidity holdings and exemption allowances per country

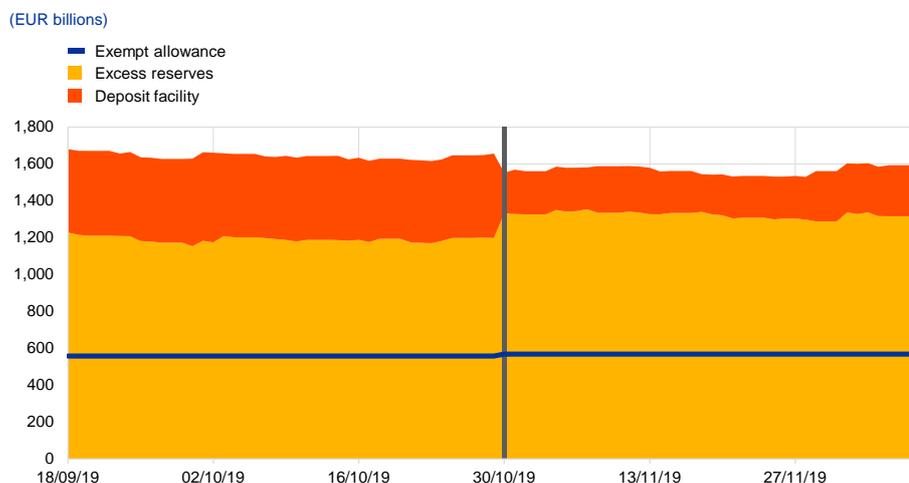


Source: ECB.

Notes: Exempt holdings and unused exemption allowances are computed on the basis of individual average excess liquidity holdings (excess reserves plus recourse to the deposit facility) for the sixth maintenance period (MP 6) and on the basis of average excess reserves holdings (until 24 November) for the seventh maintenance period (MP 7). Latest observations: 11 December 2019.

## Chart B

### Excess liquidity developments of banks exceeding their exemption allowances



Source: ECB.

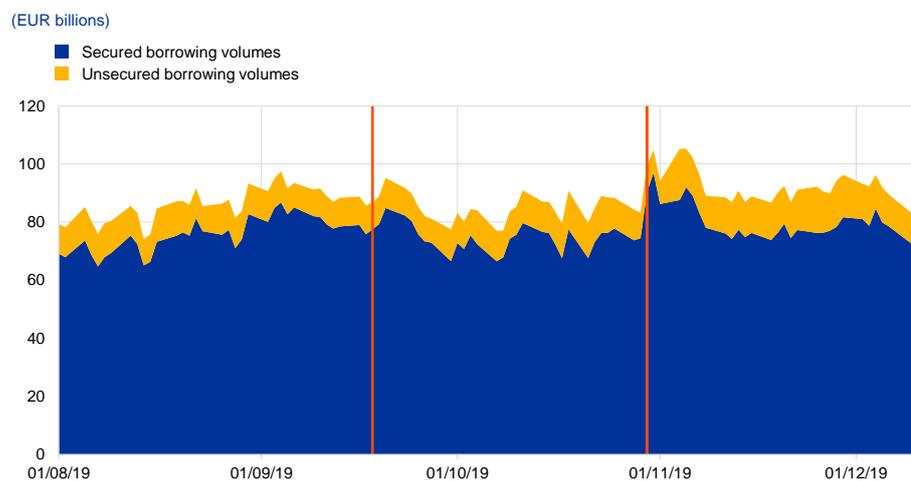
Notes: Excess reserves and recourse to the deposit facility of banks exceeding their exemption allowances in the sixth maintenance period (MP 6) and the start of the seventh maintenance period (MP 7). The grey line marks the start of the seventh reserve maintenance period (30/10/2019). Latest observations: 11 December 2019.

**The bulk of banks' increased borrowing in the money market occurred via secured transactions.** Transaction data for a subset of banks with unused exemption allowances show that on the first days following the implementation of the two-tier system they increased their average daily secured borrowing by about €15 billion, while keeping their unsecured borrowing broadly unchanged (see Chart C). However, the reliance on the money market to fill unused exemption allowances declined

thereafter. Banks can adopt other strategies beyond the money market to fill allowances, such as asset sales and attracting other forms of funding.

### Chart C

#### Short-term secured and unsecured cash borrowing volumes of banks with unused exemption allowances



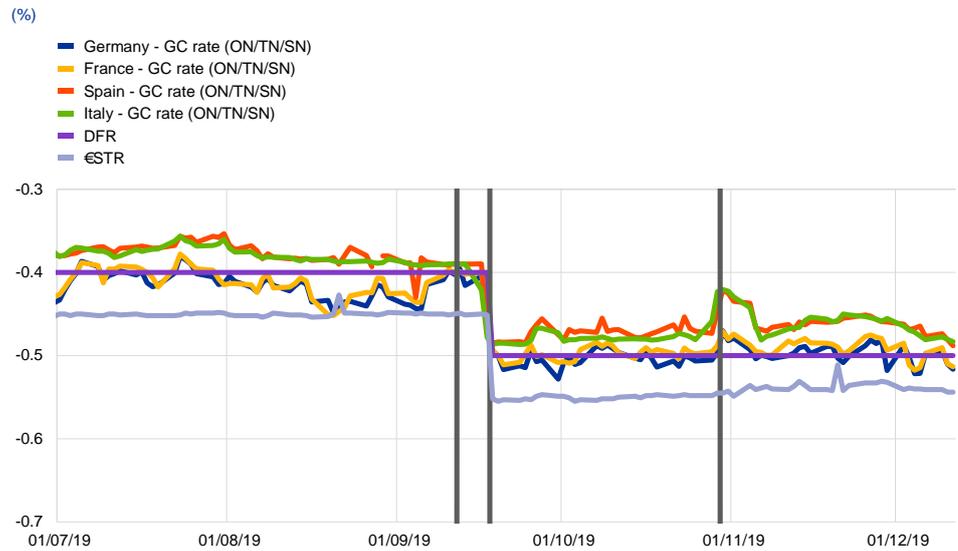
Sources: ECB, MMSR.

Notes: Cash borrowing in the secured and unsecured segment on transactions with the shortest tenors (ON, TN and SN) for MMSR banks with unused exemption allowances computed on the basis of their excess liquidity in the sixth reserve maintenance period. Red lines mark the start of the sixth reserve maintenance period (18/09/2019) and seventh reserve maintenance period (30/10/2019). Latest observations: 11 December 2019.

**Although the increase in trading activity temporarily coincided with higher money market rates, experience with the two-tier system over its first six weeks shows that money market rates were only marginally affected and remain well aligned with the policy rate.** After the implementation of the two-tier system, €STR, the unsecured overnight wholesale borrowing rate, remained close to its average level calculated over the period from 1 to 29 October. Secured rates temporarily increased by up to 6 basis points in the largest euro area countries, but have since reverted back to levels within the range of volatility seen before the start of two-tier system (see Chart D).

## Chart D

### Unsecured and secured money market rates



Sources: ECB, MTS, NEX.

Notes: GC repo rates are volume weighted average rates for German, French, Spanish and Italian collateral, and transactions with O/N, T/N, S/N maturities with the same transaction date. Grey lines mark the September Governing Council (12/09/2019), the start of the sixth reserve maintenance period (18/09/2019) when the rate cut of 10 basis points to the deposit facility rate took effect, and the start of the seventh reserve maintenance period (30/10/2019) when the two-tier system took effect. Pre-€STR until 30 September, €STR from 1 October onwards.

Latest observations: 11 December 2019.

## 3 Liquidity conditions and monetary policy operations in the period from 31 July to 29 October 2019

Prepared by Luca Baldo and Denis Lungu

**This box describes the ECB's monetary policy operations during the fifth and sixth reserve maintenance periods of 2019, which ran from 31 July to 17 September 2019 and from 18 September to 29 October 2019, respectively.** The review period encompasses the substantial package of monetary policy measures adopted by the Governing Council on 12 September 2019. The package consists of five elements: (i) a reduction in the interest rate on the deposit facility from -0.40% to -0.50%, effective from 18 September, while keeping the interest rates on the main refinancing operations (MROs) and the marginal lending facility unchanged at 0.00% and 0.25%, respectively; (ii) adjustments to the forward guidance on the key ECB interest rates; (iii) the restart of net purchases under the asset purchase programme (APP) from 1 November; (iv) modifications to the modalities of the new series of targeted longer-term refinancing operations (TLTRO III); and (v) the introduction of a two-tier system for reserve remuneration, effective as of the seventh reserve maintenance period starting on 30 October 2019. In parallel, the Eurosystem continued to reinvest, in full, the principal payments from maturing securities purchased under the APP. Furthermore, on 2 October 2019, the ECB started publishing the new overnight unsecured benchmark rate for the euro area, the euro short-term rate (€STR). From that date, the calculation methodology for the euro overnight index average (EONIA) was also changed to calculate EONIA by applying a fixed spread of 8.5 basis points to the €STR.

### Liquidity needs

**In the period under review, the average daily liquidity needs of the banking system, defined as the sum of net autonomous factors and reserve requirements, stood at €1,559.5 billion, an increase of €48.2 billion compared with the previous review period (i.e. the third and fourth reserve maintenance periods of 2019; see Table A).** This change in liquidity needs was largely the result of an increase in net autonomous factors by €45.6 billion to €1,426.9 billion.

**The increase in net autonomous factors was due to an increase in liquidity-absorbing factors, which more than offset the growth in liquidity-providing factors.** Liquidity-absorbing factors rose mostly on account of “Other autonomous factors”, which grew on average by €57.6 billion to €846.4 billion. Banknotes in circulation increased on average by €17.8 billion to €1,251.8 billion. Government deposits rose by €11.9 billion to €282.4 billion on average over the period under review and reached a historical high of €298.6 billion in the sixth reserve maintenance period. Among liquidity-providing autonomous factors, net foreign assets grew by €38.5 billion to €737.9 billion, while net assets denominated in euro remained broadly unchanged at €216.1 billion (up by €3.2 billion). Eurosystem liabilities to non-euro area residents declined in the period under review and showed a less

pronounced seasonal pattern at the end of September than at the previous quarter-end and at the end of September 2018.<sup>28</sup>

**Table A**  
Eurosystem liquidity conditions

**Liabilities**

(averages; EUR billions)

	Current review period: 31 July to 29 October 2019						Previous review period: 17 April to 30 July 2019	
	Fifth and sixth maintenance periods		Fifth maintenance period: 31 July to 17 September		Sixth maintenance period: 18 September to 29 October		Third and fourth maintenance periods	
<b>Autonomous liquidity factors</b>	<b>2,380.7</b>	<b>(+87.3)</b>	<b>2,345.3</b>	<b>(+6.3)</b>	<b>2,421.9</b>	<b>(+76.6)</b>	<b>2,293.3</b>	<b>(+57.2)</b>
Banknotes in circulation	1,251.8	(+17.8)	1,251.1	(+10.2)	1,252.7	(+1.7)	1,234.1	(+21.8)
Government deposits	282.4	(+11.9)	268.5	(-27.4)	298.6	(+30.1)	270.5	(+7.2)
Other autonomous factors <sup>1</sup>	846.4	(+57.6)	825.7	(+23.4)	870.5	(+44.8)	788.7	(+28.2)
<b>Current accounts above minimum reserve requirements</b>	<b>1,225.2</b>	<b>(-17.2)</b>	<b>1,199.5</b>	<b>(-4.8)</b>	<b>1,255.3</b>	<b>(+55.8)</b>	<b>1,242.4</b>	<b>(-0.7)</b>
<b>Monetary policy instruments</b>	<b>642.6</b>	<b>(-74.9)</b>	<b>687.8</b>	<b>(-14.5)</b>	<b>589.8</b>	<b>(-98.0)</b>	<b>717.5</b>	<b>(-40.1)</b>
Minimum reserve requirements	132.6	(+2.5)	132.0	(+0.6)	133.2	(+1.2)	130.1	(+1.9)
Deposit facility	510.0	(-77.4)	555.7	(-15.1)	456.6	(-99.1)	587.4	(-42.0)
Liquidity-absorbing fine-tuning operations	0.0	(+0.0)	0.0	(+0.0)	0.0	(+0.0)	0.0	(+0.0)

Source: ECB.

Notes: All figures in the table are rounded to the nearest €0.1 billion. Figures in brackets denote the change from the previous review or maintenance period.

1) Computed as the sum of the revaluation accounts, other claims and liabilities of euro area residents, capital and reserves.

<sup>28</sup> Eurosystem liabilities to non-euro area residents mainly consist of euro-denominated accounts held by non-euro area central banks at national central banks of the Eurosystem. At quarter-ends non-euro area central banks generally increase their deposits at national central banks of the Eurosystem because commercial banks are less willing to accept them. Indeed, non-euro area central banks also deposit their cash at commercial banks in the euro area except at reporting dates (i.e. quarter-ends) when commercial banks tend to deflate their balance sheets. On 30 September liabilities to non-euro area residents denominated in euro increased to €252.2 billion, compared to an average of €223.1 billion during the sixth maintenance period. This implied a less pronounced effect than that observed on 30 June 2019, when these liabilities increased to €277.4 billion, compared to an average of €243.7 billion in the fourth maintenance period. A year earlier, on 30 September 2018, the same balance sheet item increased to €301.7 billion, compared to an average of €264.7 billion during the sixth maintenance period of 2018.

## Assets

(averages; EUR billions)

	Current review period: 31 July to 29 October 2019						Previous review period: 17 April to 30 July 2019	
	Fifth and sixth maintenance periods		Fifth maintenance period: 31 July to 17 September		Sixth maintenance period: 18 September to 29 October		Third and fourth maintenance periods	
<b>Autonomous liquidity factors</b>	<b>954.0</b>	<b>(+41.7)</b>	<b>924.7</b>	<b>(+3.9)</b>	<b>988.2</b>	<b>(+63.5)</b>	<b>912.3</b>	<b>(+44.2)</b>
Net foreign assets	737.9	(+38.5)	720.2	(+9.9)	758.5	(+38.3)	699.4	(+27.9)
Net assets denominated in euro	216.1	(+3.2)	204.5	(-6.0)	229.7	(+25.2)	213.0	(+16.3)
<b>Monetary policy instruments</b>	<b>3,294.6</b>	<b>(-46.6)</b>	<b>3,307.9</b>	<b>(-17.2)</b>	<b>3,279.2</b>	<b>(-28.7)</b>	<b>3,341.2</b>	<b>(-27.9)</b>
Open market operations	3,294.6	(-46.6)	3,307.9	(-17.2)	3,279.2	(-28.7)	3,341.2	(-27.9)
Tender operations	683.9	(-31.1)	695.5	(-9.3)	670.5	(-25.0)	715.1	(-12.6)
MROs	2.5	(-2.6)	3.0	(-1.6)	2.0	(-1.0)	5.1	(-0.8)
Three-month LTROs	2.9	(-0.3)	3.0	(-0.2)	2.8	(-0.3)	3.3	(-0.7)
TLTRO II operations	677.2	(-29.5)	689.4	(-7.4)	662.9	(-26.5)	706.7	(-11.2)
TLTRO III operations	1.3	(+1.3)	0.0	(+0.0)	2.8	(+2.8)	0.0	(+0.0)
Outright portfolios	2,610.7	(-15.1)	2,612.4	(-8.0)	2,608.7	(-3.7)	2,625.9	(-15.4)
First covered bond purchase programme	2.8	(-0.3)	2.8	(-0.1)	2.8	(-0.1)	3.1	(-1.0)
Second covered bond purchase programme	3.2	(-0.3)	3.4	(-0.1)	3	(-0.3)	3.5	(-0.4)
Third covered bond purchase programme	260.9	(-0.8)	261.2	(-0.3)	260.6	(-0.5)	261.7	(-0.5)
Securities Markets Programme	52.8	(-8.6)	54	(-5.7)	51.4	(-2.6)	61.4	(-3.9)
Asset-backed securities purchase programme	26.1	(-0.1)	26	(-0.0)	26.2	(+0.2)	26.1	(-0.0)
Public sector purchase programme	2,087.6	(-4.8)	2,087.8	(-1.4)	2,087.4	(-0.4)	2,092.4	(-9.2)
Corporate sector purchase programme	177.3	(-0.4)	177.2	(-0.4)	177.4	(+0.1)	177.7	(-0.3)
Marginal lending facility	0.0	(-0.2)	0.0	(-0.0)	0.0	(+0.0)	0.2	(+0.1)

Source: ECB.

Notes: All figures in the table are rounded to the nearest €0.1 billion. Figures in brackets denote the change from the previous review or maintenance period.

## Other liquidity-based information

(averages; EUR billions)

	Current review period: 31 July to 29 October 2019						Previous review period: 17 April to 30 July 2019	
	Fifth and sixth maintenance periods		Fifth maintenance period: 31 July to 17 September		Sixth maintenance period: 18 September to 29 October		Third and fourth maintenance periods	
Aggregate liquidity needs <sup>1</sup>	1,559.5	(+48.2)	1,552.7	(+2.6)	1,567.4	(+14.8)	1,511.3	(+14.9)
Net autonomous factors <sup>2</sup>	1,426.9	(+45.6)	1,420.6	(+2.0)	1,434.2	(+13.6)	1,381.3	(+13.0)
Excess liquidity <sup>3</sup>	1,735.2	(-94.5)	1,755.2	(-19.9)	1,711.8	(-43.4)	1,829.6	(-42.9)

Source: ECB.

Notes: All figures in the table are rounded to the nearest €0.1 billion. Figures in brackets denote the change from the previous review or maintenance period.

1) Computed as the sum of Net autonomous factors and Minimum reserve requirements.

2) Computed as the difference between Autonomous liquidity factors on the liability side and Autonomous liquidity factors on the asset side. For the purpose of this table, "items in course of settlement" are also added to the Net autonomous factors.

3) Computed as the sum of Current accounts above minimum reserve requirements and the recourse to the Deposit facility minus the recourse to the Marginal lending facility.

## Interest rate developments

(averages; percentages)

	Current review period: 31 July to 29 October 2019						Previous review period: 17 April to 30 July 2019	
	Fifth and sixth maintenance periods		Fifth maintenance period: 31 July to 17 September		Sixth maintenance period: 18 September to 29 October		Third and fourth maintenance periods	
MRO	0.00	(+0.00)	0.00	(+0.00)	0.00	(+0.00)	0.00	(+0.00)
Marginal lending facility	0.25	(+0.00)	0.25	(+0.00)	0.25	(+0.00)	0.25	(+0.00)
Deposit facility	-0.45	(-0.05)	-0.40	(+0.00)	-0.50	(-0.10)	-0.40	(+0.00)
EONIA <sup>1</sup>	-0.408	(-0.04)	-0.362	(+0.01)	-0.462	(-0.10)	-0.363	(+0.00)
€STR <sup>2</sup>	-0.496	(-0.05)	-0.450	(+0.00)	-0.550	(-0.10)	-0.450	(-0.00)

Source: ECB.

Notes: All figures in the table are rounded to the nearest €0.1 billion. Figures in brackets denote the change from the previous review or maintenance period.

1) Computed as the €STR plus 8.5 basis points from 1 October 2019.

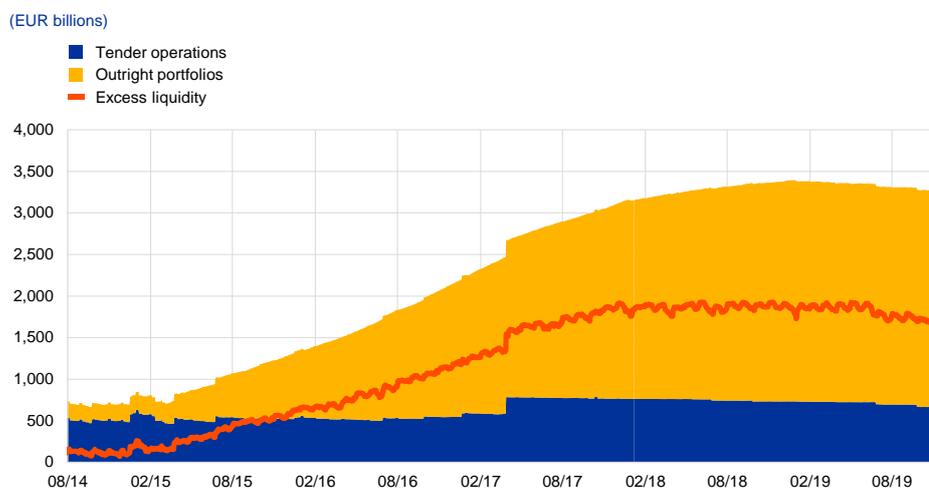
2) Pre-€STR figures are included in the calculation of averages before 30 September 2019.

## Liquidity provided through monetary policy instruments

**The average amount of liquidity provided through open market operations – including both tender operations and monetary policy portfolios – decreased by €46.6 billion to €3,294.6 billion (see Chart A).** This decrease was driven by lower demand in tender operations as well as a smaller liquidity injection stemming from monetary policy portfolios, owing to redemptions of securities purchased in the past under the Securities Markets Programme and a small decline in the book value of the assets acquired in the public sector purchase programme (PSPP).

## Chart A

### Evolution of liquidity provided through open market operations and excess liquidity



Source: ECB.

**The average amount of liquidity provided through tender operations declined over the review period, by €31.1 billion to €83.9 billion.** This decrease was mainly attributable to lower liquidity provided through targeted longer-term refinancing operations (TLTROs). The outstanding amount borrowed under TLTRO II decreased by €29.5 billion on average in the review period as a result of voluntary early repayments of €31.8 billion that settled on 25 September. This was only partially offset by €3.4 billion allotted in the first TLTRO III operation that settled on the same day. Lower demand among counterparties also led to a decline in the provision of liquidity via MROs and via three-month longer-term refinancing operations (LTROs), which fell by €2.6 billion to €2.5 billion on average and by €0.3 billion to €2.9 billion on average, respectively.

**Liquidity provided through the Eurosystem's monetary policy portfolios decreased by €15.1 billion to €2,610.7 billion, owing to redemptions of bonds held under the Securities Markets Programme and a small decline in the PSPP.** Redemptions of bonds held under the Securities Markets Programme and the first two covered bond purchase programmes totalled €9.1 billion in the review period. Regarding the APP, while net purchases had paused between 1 January 2019 and 31 October 2019, the principal payments from maturing securities continued to be reinvested. Even with full reinvestment, limited temporary deviations in the overall size and composition of the APP may occur for operational reasons.<sup>29</sup> As a result, the book value of the PSPP declined marginally over the review period by €4.8 billion to €2,087.6 billion on average.

<sup>29</sup> See the article entitled "[Taking stock of the Eurosystem's asset purchase programme after the end of net asset purchases](#)", *Economic Bulletin*, Issue 2, ECB, 2019.

## Excess liquidity

**As a consequence of the developments detailed above, average excess liquidity declined compared with the previous review period, by €94.5 billion to €1,735.2 billion (see Chart A).** This decline reflects higher net autonomous factors and lower liquidity provision through the Eurosystem's tender operations and monetary policy portfolios. In the sixth reserve maintenance period, recourse to the deposit facility decreased by €99.1 billion, while excess liquidity deposited at current accounts increased by €55.8 billion. The shift suggests that some intermediaries started moving funds from the deposit facility to current accounts anticipating the implementation of the two-tier system for reserve remuneration, which was announced on 12 September 2019, as the zero remuneration applies only to funds held in the current accounts. The two-tier system applies as of the seventh maintenance period starting on 30 October 2019, therefore it does not affect the remuneration of excess liquidity in the period under review. Counterparties' eligible reserve holdings are computed on the basis of average end-of-calendar-day balances held in the institutions' current accounts over the maintenance period.

## Interest rate developments

**During the review period, on 2 October, the €STR was published for the first time.**<sup>30</sup> Based on a comparison with pre-publication data, there was no change in the €STR around the time of first publication.

**The cut in the deposit facility rate to -0.50% with effect from 18 September has been transmitted to short-term money market rates.** In the unsecured money market segment, the 10 basis point reduction in the deposit facility rate was fully passed through to the €STR, as it averaged -0.550% in the sixth reserve maintenance period, compared to -0.450% in the fifth reserve maintenance period.<sup>31</sup> EONIA also declined from -0.362% to -0.462% during the same period. The lower deposit facility rate was also transmitted to secured money market rates. From the fifth to the sixth reserve maintenance period, the average overnight repo rates for the standard and the extended collateral basket in the general collateral (GC) pooling market<sup>32</sup> declined by 0.097% to -0.502% and by 0.094% to -0.491%, respectively.

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<sup>30</sup> See the box entitled “Goodbye EONIA, welcome €STR!”, *Economic Bulletin*, Issue 7, ECB, 2019.

<sup>31</sup> Pre-€STR data are included before 30 September 2019 for the sake of comparison.

<sup>32</sup> The GC Pooling market allows repurchase agreements to be traded on the Eurex platform against standardised baskets of collateral.

Prepared by Vasco Botelho and António Dias da Silva

This box presents two complementary tools for assessing the performance of the labour market in the euro area. The first is a visualisation tool in the form of a spider chart that displays 18 variables characterising the current euro area labour market conditions. The second applies a principal component analysis to the variables displayed on the spider chart. This approach summarises the available information on euro area labour market conditions in two synthetic indicators<sup>33</sup>: level of activity and labour market momentum. The indicator for the level of activity compares developments in the labour market over time, while the indicator for the labour market momentum assesses the rate of change in the performance of the labour market. The analysis presented is for the euro area as a whole and does not fully show cross-country labour market heterogeneity.

**The visualisation tool for the euro area labour market is shown in Chart A, which represents labour market conditions using a “multifocal lens” approach.**<sup>34</sup>

This tool allows for a quick overview of the labour market by comparing the current values of each time series with their best and worst outcomes since 2005. It also allows a comparison of current labour market conditions with those at other points in time, such as the peak before the crisis (the first quarter of 2008) and the start of the economic recovery (the first quarter of 2013). The variables presented in Chart A reflect the complexity of the labour market. As such, these variables not only address current employment and unemployment dynamics, but also provide further information on other factors characterising the labour market conditions for both workers and firms, such as (i) unemployment conditions in terms of duration and age, (ii) labour market flows and posted vacancies, (iii) the utilisation of labour input and its implications for labour productivity and real wages, and (iv) structural factors that may be affecting the developments currently observed in the labour market.

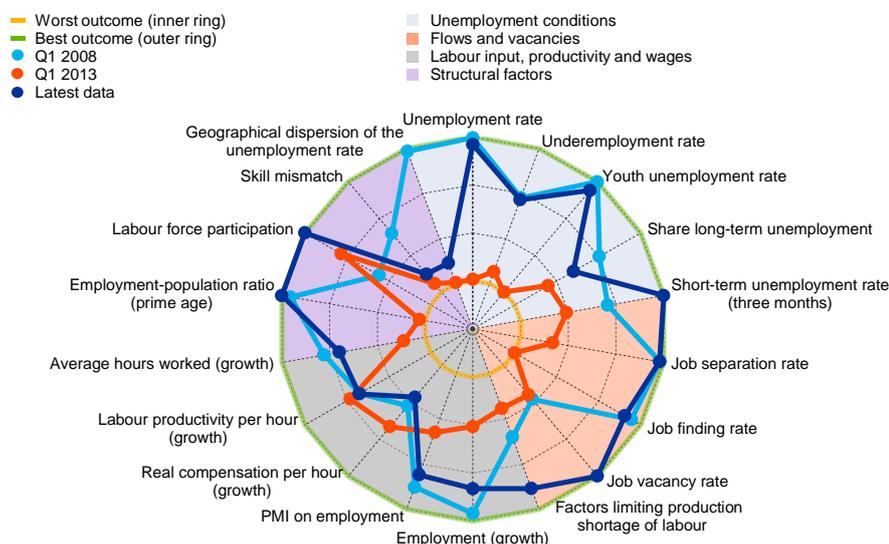
<sup>33</sup> The methodological approach follows that used for the Kansas City Fed’s “Labor Market Conditions Indicators (LMCI)”. Other LMCI have been developed by the Reserve Bank of Australia, the Bank of Canada and the Reserve Bank of New Zealand, using a similar approach.

<sup>34</sup> The presentation of the labour market variables in this form takes inspiration from the Atlanta Fed’s “Labor Market Distributions Spider Chart”, which is a tool developed to monitor broad developments in the labour market over time. The visualisation approach is slightly different to the Atlanta Fed’s chart, as the approach in this box does not perform any rank-ordering of the data. Instead, values are normalised so that the best and worst outcomes during the sample can be compared across variables. The business cycle dates defining the peak before the 2008-09 crisis and the trough highlighting the start of the economic recovery are taken from the announcements by the Centre for Economic Policy Research’s (CEPR) Euro Area Business Cycle Dating Committee.

## Chart A

### Helicopter view of the euro area labour market since 2005

(inner ring: worst outcome since Q1 2005; outer ring: best outcome since Q1 2005; values normalised for each variable)



Sources: Eurostat (short-term statistics and Labour Force Survey for all unemployment related variables, employment-population ratio and labour force participation; job vacancy statistics for the job vacancy rate; and national accounts for employment, compensation, hours and productivity), European Commission (business and consumer surveys for factors limiting production shortage of labour), Markit (for Purchasing Managers' Index, PMI) and ECB staff calculations. Further information on job finding and separation rates can be found in footnote 3 and on geographical dispersion of unemployment and skill mismatch in footnote 4. For the PMI on employment and for factors limiting production (shortage of labour), the latest observation is for October 2019; for the unemployment rate, the geographical dispersion of the unemployment rate and employment growth (flash estimate), the latest observation is for September 2019; and for the remaining variables, the latest observation is for the second quarter of 2019.

Notes: (i) all growth rates are defined as year-on-year; (ii) prime age is defined to comprise all individuals between 25 and 54 years old; (iii) the youth unemployment rate is defined for individuals between 15 and 24 years old; (iv) the underemployment rate is backcast for the first quarter of 2005 to the fourth quarter of 2007 using a cubic spline interpolation with the number of involuntary part-time workers in the euro area acting as a proxy to calculate the number of underemployed part-time workers over this period; (v) the best outcome is defined for each variable either as the lowest level achieved since the first quarter of 2005, which is applied to all variables related to the unemployment conditions of the labour market, to the job separation rate, to the share of long-term unemployment, to the skill mismatch indicator and to the geographical dispersion of the unemployment rate, or as the highest level achieved since the first quarter of 2005; and (vi) the worst outcome is defined conversely to the best outcome.

### Chart A shows that, while some labour market variables are close to their pre-crisis values, the underlying labour market structure has changed considerably.

The unemployment rate, the underemployment rate and the youth unemployment rate are close to their pre-crisis levels, even if the underemployment rate is still somewhat higher than its best outcome since 2005. The unemployment rate by duration is notably different from the pre-crisis figure: the short-term unemployment rate is at its lowest since 2005, whereas the current share of long-term unemployment is still higher than that observed before the crisis. The euro area labour market's performance in terms of flows and vacancies is strong, with all variables in this category recording values close to their best outcomes since 2005. Recent data on labour market flows<sup>35</sup> are similar to those observed during the pre-crisis period; while vacancies, measured by the job vacancy rate and the indicator on factors limiting production, are at or close to historical highs. Developments in labour input, productivity and wages are slightly weaker than (but comparable with) those observed before the crisis. As for structural factors, two notable features of the current labour

<sup>35</sup> Labour market flows are computed based on Shimer, R., "Reassessing the ins and outs of unemployment", *Review of Economic Dynamics*, Vol. 15, No 2, 2012, pp. 127-148, and Elsby, M.W.L., Hobbijn, B. and Şahin, A., "Unemployment dynamics in the OECD", *Review of Economics and Statistics*, Vol. 95, No 2, 2013, pp. 530-548, in that movements to and from unemployment are estimated based on information on unemployment duration, while flows to and from inactivity are assumed constant.

market situation are the record high levels of the employment to population ratio in the prime age population (persons aged 25 to 54 years old) and the labour force participation rate. Conversely, the skill mismatch indicator and the geographical dispersion of the unemployment rate<sup>36</sup> are significantly higher than they were pre-crisis and remain at levels comparable with those observed at the start of the recovery.

**The second tool applies a principal component analysis to consolidate the complex information on the labour market into two synthetic indicators.** This analysis uses the available information on the euro area labour market while isolating the main patterns affecting labour market conditions.<sup>37</sup> With this approach, two main components are identified. The first component is related to the level of activity in the labour market, reflecting primarily the developments in the employment-population ratio for the prime age population, unemployment rate, job finding rate, youth unemployment rate and share of long-term unemployment. The second component is more revealing of the momentum in the labour market, being related primarily to the growth rate of total employment, growth rate of average hours worked, share of long-term unemployment, PMI on employment and short-term unemployment rate. A third component is identified by controlling for any mismeasurement in the calculation of the synthetic indicators for the level of activity and euro area labour market momentum due to the possible non-stationarity of some labour market variables.<sup>38</sup>

**The synthetic indicators show that the level of activity in the euro area labour market is comparable with its pre-crisis peak in the second quarter of 2019, while labour market momentum remains elevated, even if it has slowed somewhat (see Chart B).** The two indicators appear to closely capture cyclical movements in the euro area labour market. The indicator for the level of labour market activity peaks before the recession in the first quarter of 2008, and then progressively declines until the beginning of the employment recovery, reaching its lowest value in the second quarter of 2013. It returned to its long-term average value at the end of 2016, concurrent with the return of total employment to its pre-crisis peak, and in the second quarter of 2019 reached levels comparable with those before the crisis. The

<sup>36</sup> The geographical dispersion of the unemployment rate is measured as the coefficient of variation of the unemployment rate across all euro area countries, weighted by their respective employment shares. The skill mismatch indicator follows the methodology in Task Force of the Monetary Policy Committee of the European System of Central Banks, “Euro Area Labour Markets and the Crisis”, *Occasional Paper Series*, No 138, ECB, Frankfurt am Main, October 2012.

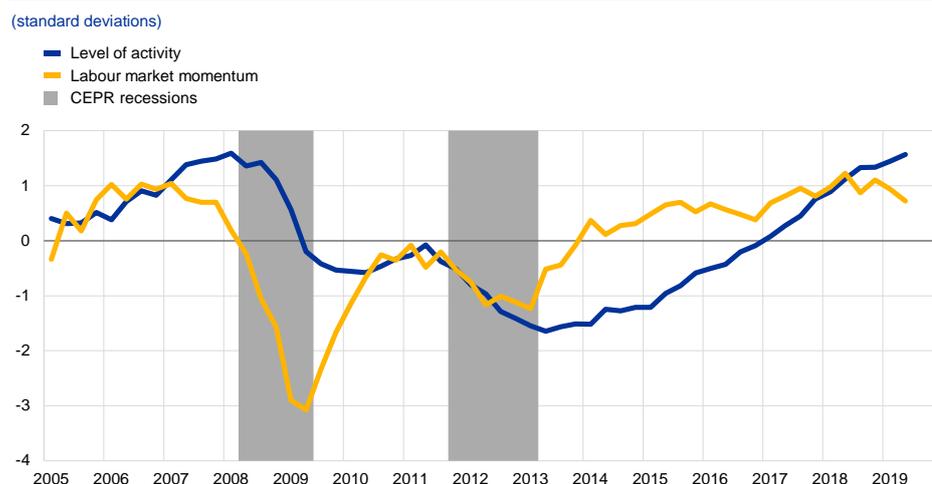
<sup>37</sup> This approach is similar to the methodology behind the Kansas City Fed’s LMCI (Hakkio, C.S. and Willis, J.L., “Assessing Labor Market Conditions: The level of activity and the speed of improvement”, *The Macro Bulletin*, Federal Reserve Bank of Kansas City, July 2013, and Hakkio, C.S. and Willis, J.L., “Kansas City Fed’s Labor Market Conditions Indicators”, *The Macro Bulletin*, Federal Reserve Bank of Kansas City, August 2014). The relevant principal components are chosen according to two criteria: (i) the sum of all chosen components has to account for at least 80% of the total variance of all 18 labour market variables, and (ii) each component must have a corresponding eigenvalue significantly above unity. The components are then passed through a varimax rotation to make them easier to interpret, in line with the Kansas City Fed’s LMCI. The LMCI developed for the euro area in this box are robust to the removal of any individual labour market variable.

<sup>38</sup> This component (not shown in Chart B) is mostly influenced by trending labour market variables, such as the labour force participation rate, skill mismatch indicator, geographical dispersion of the unemployment rate, job vacancy rate and labour indicator of the factors limiting production. As such, this component is associated with the long-term changes that occurred in the labour market between 2005 and 2019. Excluding the third component would result in a lower observed level for labour market activity and higher labour market momentum in recent quarters. The resulting three LMCI account jointly for 84.9% of the total variance of the 18 labour market variables in Chart A. Developments in the employment rate are consistent with the indicator on the level of activity.

indicator on labour market momentum started to decline some time before the crisis and reached its lowest levels in 2009, when there was a sharp fall in employment. The indicator remained below its average until the end of 2013, peaked in 2018 at levels slightly higher than before the crisis and remains above its long-term average, suggesting scope for the labour market to continue improving in the near term.

### Chart B

#### Labour market condition indicators for the euro area



Sources: Eurostat, European Commission, Markit and ECB staff calculations. The latest observation is for the second quarter of 2019. Note: The shaded areas represent recession periods, as identified by the Centre for Economic Policy Research's (CEPR) Euro Area Business Cycle Dating Committee.

**To conclude, this box presents two tools that complement each other and help to analyse the complex information of the labour market.** The spider chart represents the various concurrent dimensions of the labour market, e.g. unemployment conditions, developments in labour market flows and vacancies, developments of labour input, productivity and real wages, and changes in the structural conditions of the labour market in the euro area. The two synthetic labour market indicators summarise the most relevant information from the 18 variables plotted on the spider chart. These indicators provide a gauge for the level of activity and the momentum of the euro area labour market and thus help to assess its performance and cyclical position. The analysis suggests that there is scope for the level of activity in the euro area labour market to continue improving in the near future, benefiting from positive labour market momentum. The indicators do not fully cater for country-specific heterogeneity in the euro area labour market, and improvements in labour market conditions are dependent on future changes in the cyclical position of the economic activity.

## 5 Recent developments in social security contributions and minimum wages in the euro area

Prepared by Ferdinand Dreher, Omiros Kouvavas and Gerrit Koester

**The behaviour of labour costs can be significantly affected by country-specific changes in social security contributions and minimum wages.** An awareness of the nature and magnitude of such factors is important when assessing the strength of wage growth and its implications for producer and consumer price inflation. This box examines how these two factors have affected aggregate euro area wage growth.

**Measures of labour costs, such as compensation per employee<sup>39</sup>, can at times be affected by measures related to employers' social security contributions.** If substantial enough, changes in the social security contributions made by employers can drive a wedge between different wage measures (see Chart A, panel a). For example, the gap between the growth in compensation per employee and the growth in wages and salaries per employee in 2015-16 was related to cuts in employers' social security contributions in each of the four largest euro area countries (see Chart A, panel b).<sup>40</sup> Since the beginning of 2019, a gap has again opened up, which relates mainly to a significant drop in social security contributions in France, while in Germany, Italy and Spain employers' social security contributions have increased. The reduction in employers' social security contributions in France was related to a legislative change implying a permanent reduction in employers' social security contributions, which replaced the tax credit for competitiveness and employment (*crédit d'impôt pour la compétitivité et l'emploi* – CICE). This legislative change held back growth in compensation per employee in the first three quarters of 2019, with increases of 2.3%, 2.2% and 2.1% in the first, second and third quarters respectively – only slightly above the long-term average of 2.1% since 1999. Annual growth in wages and salaries per employee, which excludes employers' social security contributions and is not affected by the legislative change in France, hence grew stronger than compensation per employee at a rate of 2.6%, 2.5% and 2.5% in the first, second and third quarters respectively – comfortably above the long-term average of 2.2% since 1999. Overall, growth in wages and salaries per employee is more dynamic at the current juncture than growth in compensation per employee.

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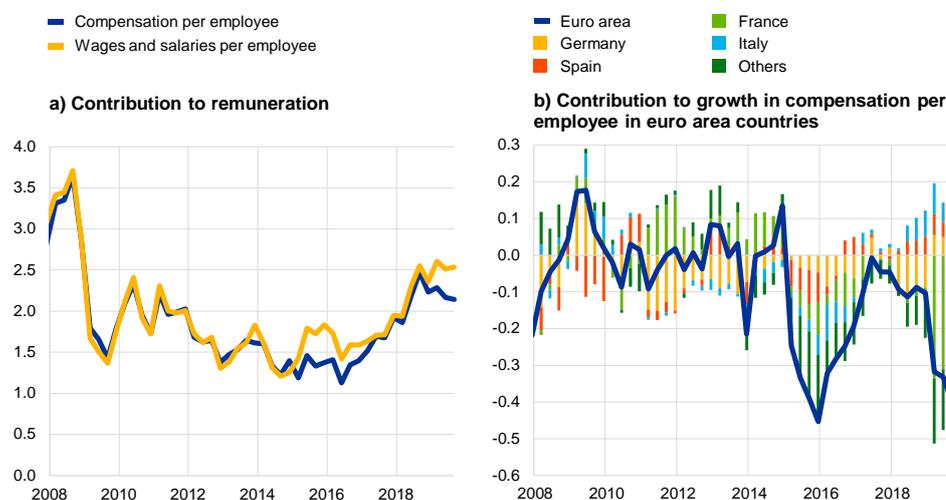
<sup>39</sup> Compensation per employee is the total remuneration, in cash or in kind, that is payable by employers to employees in return for work, i.e. gross wages and salaries, as well as bonuses, overtime payments and employers' social security contributions, divided by the total number of employees.

<sup>40</sup> It should be noted that social security contributions to wage growth can reflect more than just changes in social security rates.

## Chart A

### Employers' social security contributions and wage growth in the euro area

(panel a: annual percentage changes; panel b: percentage points)



Sources: Eurostat and ECB calculations.

Note: The latest observation is for the third quarter of 2019.

**Changes in minimum wages can also significantly affect wage behaviour, as they are governed by indexation or legislation rules rather than wage bargaining processes.** Minimum wages exist in 15 of the 19 euro area countries.<sup>41</sup>

In July 2019 the minimum wage paid in the euro area ranged from €430 (Latvia) to €2,071 (Luxembourg) per month. Over the last ten years, the minimum wage has increased, on average, by between 1.5% (Ireland) and 7% (Estonia) per year.<sup>42</sup>

Minimum wage levels are set using different methods – including predetermined formulas, expert committee recommendations and consultation with social partners – but are often also subject to government discretion. As a result, the frequency of change differs from one country to another. However, most countries usually revise their minimum wages every one to two years.

**Minimum wage growth has so far been substantially stronger in 2019 than growth in overall wages and salaries per employee.** An index for the euro area compiled on the basis of available country data<sup>43</sup> shows that, after only a 1% increase in statutory minimum wages in 2018, minimum wages increased by 4.6% year on year in the first half of 2019 (see Chart B).

<sup>41</sup> The four euro area countries with no statutory minimum wages are Italy, Cyprus, Austria and Finland.

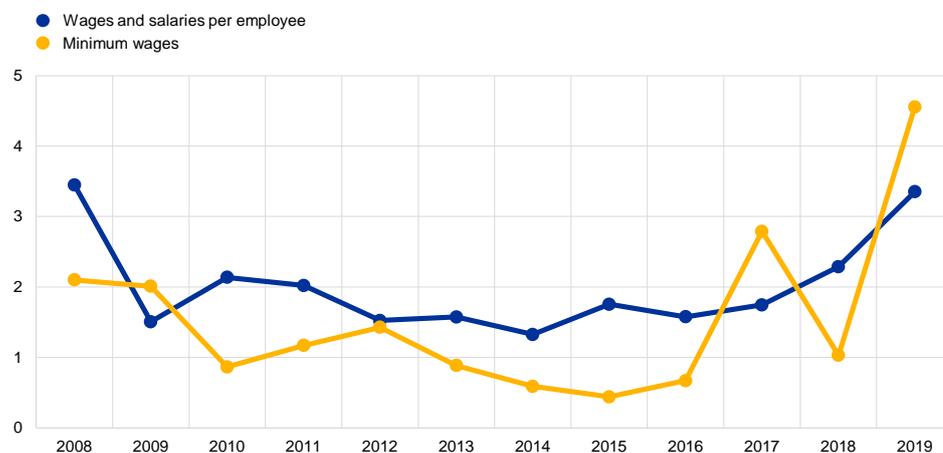
<sup>42</sup> Source: Eurostat.

<sup>43</sup> The index is weighted by the number of employees in the respective countries. For countries with no minimum wage, the minimum wage is assumed to be zero. This means that the growth rate of euro area minimum wages in Chart B is weighed down by the inclusion of countries with no minimum wage.

## Chart B

### Growth in wages and salaries per employee, as well as minimum wages, in the euro area

(annual percentage changes; annual data)



Sources: Eurostat and ECB calculations.

Note: The observation for 2019 is based on data for the first three quarters of 2019.

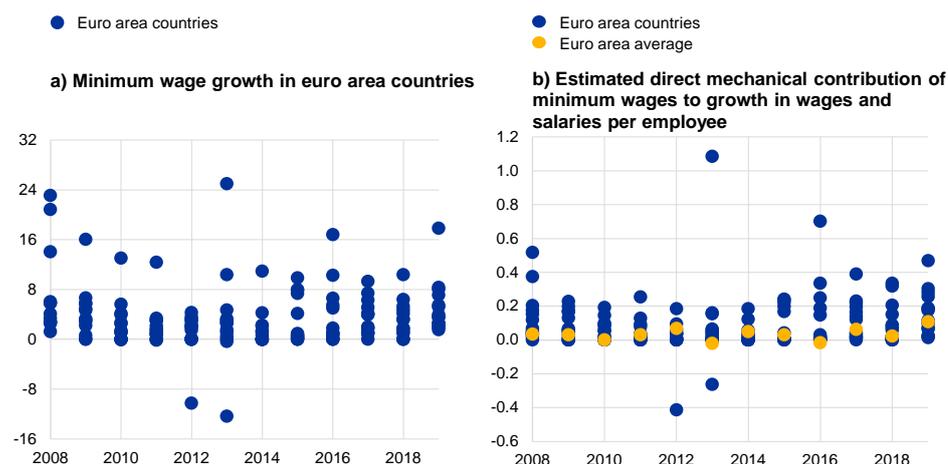
### Growth in the level of minimum wages in the first half of 2019 was broad-based across countries.<sup>44</sup>

For the first time since 2008, all euro area countries with minimum wages increased the statutory national minimum wage level in 2019, with increases on the previous year ranging from 1.5% (France) to 17.9% (Spain) (see Chart C, panel a).

## Chart C

### Minimum wage developments and their role in growth in wages and salaries per employee

(panel a: annual percentage changes; panel b: percentage points)



Sources: Eurostat and ECB.

Note: Panel b) is based on estimates (applying calculations based on EU-SILC data) for the size of the group of minimum wage recipients in euro area countries and the euro area aggregate.

<sup>44</sup> For each of the 15 euro area countries with a minimum wage, we estimate the national minimum wage by taking an average of the levels on 1 January and 1 July each year.

**The direct mechanical impact of changes in the level of the minimum wage on overall euro area wage growth tends to be small.** Calculating such direct contributions requires information on the number of recipients. This box uses data from the EU Statistics on Income and Living Conditions (EU-SILC) to derive a proxy for the share of minimum wage recipients in recipients of overall wages and salaries.<sup>45</sup> Bearing in mind the considerable uncertainty surrounding this proxy, the data for the euro area show that the direct mechanical contribution of minimum wages to growth in wages and salaries per employee has increased in 2019, but has – with a magnitude of around 0.1 percentage points – been quite limited (see Chart C, panel b).

**For some countries, the direct mechanical impact of changes in minimum wages on the growth of wages and salaries per employee has likely been more substantial.** In the first half of 2019, for example, the estimates based on the proxy suggest that minimum wage growth has contributed up to 0.5 percentage points to national wage growth (see Chart C, panel b). However, such estimates cover only the direct effects of minimum wage changes on wage growth in an accounting sense. Hence they abstract from indirect effects of minimum wages on the wage scale<sup>46</sup>, as well as from effects linked to the possible repercussions of changes in minimum wages on employment<sup>47</sup> or to the dynamic interaction of wage-setting and minimum wage adjustments.

**Taken together, wage growth has been quite robust recently, especially if developments in social security contributions are taken into account.** While growth in compensation per employee has been softening over recent quarters (see Chart A), it reflects mainly lower employers' social security contributions. Growth in wages and salaries per employee, which exclude employers' social security contributions, remained quite robust and has also benefited recently from a somewhat higher contribution of minimum wages. Overall this box supports the view that the robustness of wage growth is mainly the result of resilient labour markets, especially when taking into account recent developments in social security contributions and minimum wages.

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<sup>45</sup> First, the share of minimum wage recipients is calculated based on the EU-SILC data. For this we calculate the share of employees with an income within a band of 90% to 110% of the minimum wage. This share is then applied to the total number of employees in the economy to derive the number of recipients of minimum wages in an economy. Multiplying this number by the respective level of the minimum wage in each country gives the amount of wages and salaries that can be assigned to minimum wage recipients and allows for the calculation of the share of this group in overall wages and salaries in each country and – aggregating country results – the euro area. Controlling for differences in hours worked by minimum wage recipients and overall employment does not substantially affect the results. The percentages of employees have been estimated using EU-SILC micro data for every year up until the last observation of 2016. For the rest of the sample the percentages are kept constant, except where country-level administrative data are available to complement the analysis. For details of the EU-SILC micro data, see the discussion in the article entitled “The effects of changes in the composition of employment on euro area wage growth” in this issue of the Economic Bulletin.

<sup>46</sup> An analysis of such effects for the case of France can be found in Gautier, E., Fougère, D. and Roux, S., “The Impact of the National Minimum Wage on Industry-Level Wage Bargaining in France”, *Working Paper Series*, No 587, Banque de France, April 2016.

<sup>47</sup> Early work comparing studies on employment effects in a meta-analysis is presented in Card, D. and Krueger, A.B., “Time-Series Minimum-Wage Studies: A Meta-analysis”, *The American Economic Review*, Vol. 85, No 2, May 1995, pp. 238-243. A more recent contribution by Cengiz, D., Dube, A., Lindner, A. and Zipperer, B., “The Effect of Minimum Wages on Low-Wage Jobs”, *The Quarterly Journal of Economics*, Vol. 134, Issue 3, August 2019, pp. 1405–1454, uses a difference-in-differences approach to observe both employment and wage effects across the entire frequency distribution of wages and, in particular, changes at the bottom of the distribution.

## 6 Export activities of euro area SMEs: insights from the Survey on the Access to Finance of Enterprises (SAFE)

Prepared by Katarzyna Bańkowska, Annalisa Ferrando and Juan Angel Garcia

This box reports the responses to an ad hoc question in the latest round of the Survey on Access to Finance of Enterprises (SAFE) regarding the export activities of small and medium-sized enterprises (SMEs).<sup>48</sup> It has two aims: first, it provides an overview of the export activities of euro area SMEs, both within and outside the euro area; and, second, it explores the main characteristics of exporting SMEs and focuses on the analysis of some financial dimensions that are relevant to the decision to export, as derived from the survey responses.

**The survey responses confirm that non-domestic sales are important for euro area SMEs.** More than a third of SMEs exported goods or services in 2018. In addition, the percentage of exporting companies increases with company size, with only a quarter of micro firms reporting exports outside their domestic market, but more than half of medium-sized and large companies. Comparing sectors, the industrial sector had the highest proportion of SMEs reporting exports of goods and services in 2018, followed by the trade and services sectors.<sup>49</sup>

**In terms of export destination, while SMEs exported predominantly within the euro area, a significant percentage of them also exported outside the euro area, and almost half of exporting SMEs exported outside Europe** (see Chart A, panel a). Among the latter, North America is the most frequent export market, followed by Asia and the Pacific and the Middle East and North Africa (see Chart A, panel b). The pattern varies across sectors. Markets outside the euro area are of particular importance for SMEs in the industrial sector, where North America is the most common export destination for SMEs in both the industrial and service sectors.

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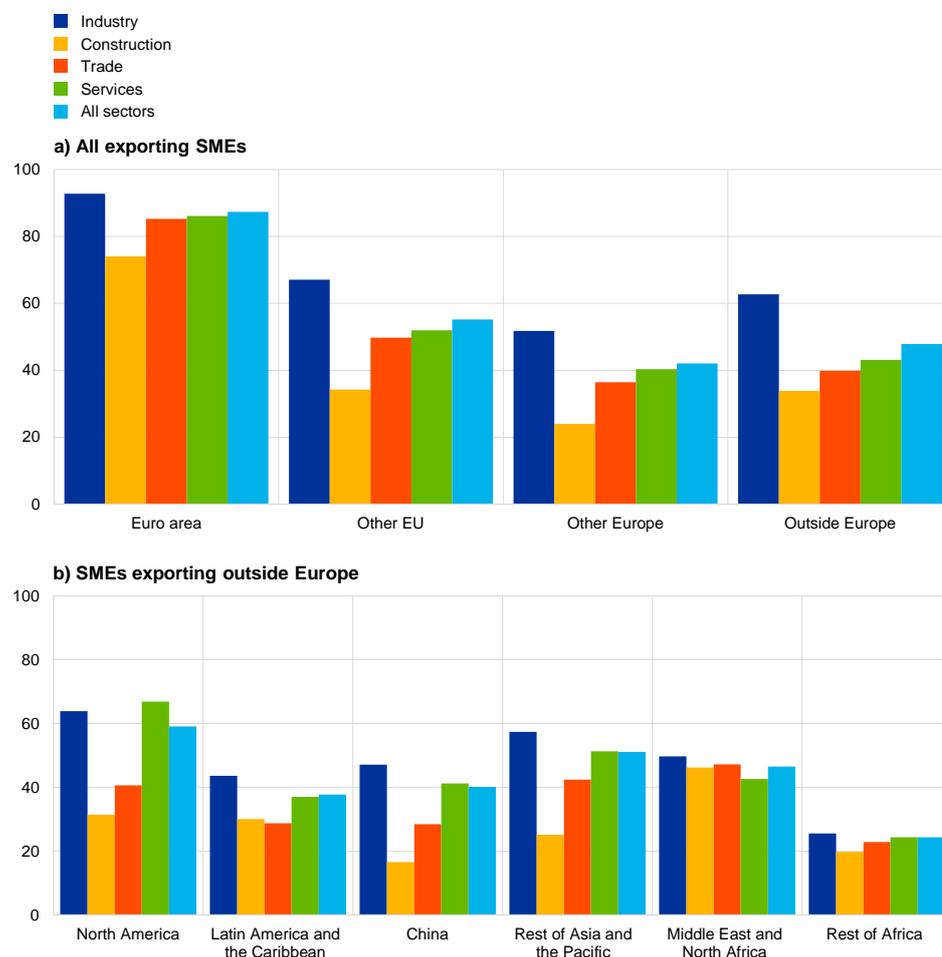
<sup>48</sup> The Survey on Access to Finance of Enterprises (SAFE) has been carried out by the ECB and the European Commission on a biannual basis since 2009. It provides information on developments in firms' access to and use of external financing in the euro area, broken down by firm size and sector of activity. The latest (21st) round of the survey was conducted from 16 September to 25 October 2019. The total euro area sample size was 11,204 firms, of which 10,241 (91%) had fewer than 250 employees. The main results and the questionnaire can be found on the [ECB's website](#).

<sup>49</sup> For more information on the sample composition, see "[Survey on the access to finance of enterprises – Methodological information on the survey and user guide for the anonymised micro dataset](#)". Survey results are weighted by number of persons employed, and weights are calibrated by (i) country and size class and (ii) country and economic activity.

## Chart A

### Export markets of euro area SMEs by sector

(weighted percentages of respondents)



Sources: SAFE and ECB staff calculations.

Notes: Panel a refers to all euro area SMEs that exported, and panel b refers to euro area SMEs that exported outside Europe. Results refer to round 21 of the survey (April to September 2019).

### Turning to financial characteristics, there is evidence that SMEs face several challenges in order to become exporters.

Exporting involves costs of entry into foreign markets and – in comparison with domestic sales – a longer time span between the export order and the final payment for the sale. In addition, these costs are often sunk costs that have to be paid up front, and exporters need to have sufficient financial flexibility to cope with the challenges. For these reasons, it has been argued that exporters may be particularly affected by constraints on their access to finance, and searching for supporting evidence has been the subject of many contributions in the academic literature.<sup>50</sup>

<sup>50</sup> For a recent contribution, see Wagner, J., “Access to Finance and Exports – Comparable Evidence for Small and Medium Enterprises from Industry and Services in 25 European Countries”, *Open Economies Review*, Vol. 30(4), 2019, pp. 739-757. For a seminal work on how credit constraints can hamper or even prevent exports, see Greenaway, D., Guariglia, A. and Kneller, R., “Financial factors and exporting decisions”, *Journal of International Economics*, Vol. 73(2), 2007, pp. 377-395.

**Exporting SMEs tend to be more profitable and innovative than non-exporting ones.** A regular question in the survey on exporting companies<sup>51</sup> allows an overall picture of the financial characteristics of exporting SMEs to be formed. Table A reports evidence on whether exporting SMEs display a specific characteristic more often than non-exporting SMEs (see Table A, panel A). It also shows the differences between SMEs exporting to different markets, i.e. within and outside of Europe (see Table A, panel B).<sup>52</sup> The reported characteristics are those that are commonly considered to explain why a firm decides to export: corporate ownership, financial soundness, innovativeness and diversification of sources of finance.<sup>53</sup> The signs in the table should not be interpreted as signals of a causal relationship but as a mere description of the evidence provided by firms' replies. For instance, a negative sign for the variable "family-owned" indicates that the percentage of SMEs that are family-owned is smaller among exporters than among non-exporters (see the first column in panel A of Table A) and the asterisks show that the difference with respect to non-exporters SMEs is statistically significant (see the second column in panel A of Table A).

Exporting SMEs tend more often to be listed on stock markets. In addition, there is a higher percentage of profitable<sup>54</sup> and more innovative firms among exporting SMEs. Furthermore, exporters make more use of external sources of finance, in particular subsidised loans – often in the form of guarantees or reduced interest rate loans – and normal bank loans. Trade credit is also an important external source of working capital, as it allows more flexibility in the capital requirements.

**SMEs exporting to markets outside Europe tend to make more use of own funds and equity financing than SMEs exporting only within Europe.** The ad hoc question also allows the investigation of which additional dimensions may characterise SMEs that export outside of Europe rather than confining themselves to the European market.<sup>55</sup> The prior is that, owing to additional trade barriers – technical rules, regulations and financial requirements, which might be different from those in the EU – and additional cross-border costs, these firms would need to be even more financially resilient than SMEs that export only within Europe. The results presented in panel B of Table A confirm that SMEs exporting outside of Europe are more innovative and tend to finance their activities more with their own funds and with subsidised loans than firms exporting only within Europe. At the same time, more of them report raising equity capital.

**SMEs that operate in the industrial sector and export outside of Europe are even more innovative and make more use of subsidised loans and trade credit than their peers who export only within Europe (see Table A).** The fact that SMEs exporting outside Europe use subsidised loans (or grants) and trade credit more than

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<sup>51</sup> For more details, see question D7 of the [SAFE questionnaire](#).

<sup>52</sup> All the results presented in Table A are based on univariate analyses. They are confirmed when multivariate regression analyses, based on probit models, are performed.

<sup>53</sup> See Paul, J., Parthasarathy, S. and Gupta, P., "Exporting challenges of SMEs: A review and future research agenda", *Journal of World Business*, Vol. 52(3), 2017, pp. 327-342.

<sup>54</sup> This refers to an encompassing indicator calculated from the SAFE data to assess whether firms are financially sound in terms of turnover, profits, interest expenses and leverage. For more information, see "[Survey on the Access to Finance of Enterprises in the euro area – April to September 2019](#)".

<sup>55</sup> Given the characteristics of the ad hoc question, SMEs exporting outside Europe may also export within Europe.

those exporting only within Europe may reflect the presence of subsidised financing conditions for companies exporting outside the EU.

**Table A**  
Financial characteristics of exporting SMEs

	A. Differences between exporters and non-exporters	Statistical significance	B. Differences between SMES exporting outside and only within Europe	Statistical significance
<b>Firms' characteristics</b>				
Family-owned	-	***	-	***
Listed	+	***	+	***
Financial constraints	+	ns	+	ns
Profitable	+	***	+	ns
Innovative	+	***	+	***
<b>Capital structure</b>				
Own funds	+	ns	+	***
Subsidised loans	+	***	+	**
Bank overdraft	+	***	+	ns
Bank loans	+	***	+	ns
Trade credit	+	***	+	***
Debt securities	+	ns	-	ns
Equity	+	**	+	**

Sources: SAFE and ECB staff calculations.

Notes: Based on a two-sample t-test with equal variance. Asterisks denote significance level: \*\*\* = 1%, \*\* = 5%, \* = 10%, ns = not statistically significant.

**To conclude, the responses to an ad hoc question in the latest round of SAFE on the export activities of euro area SMEs signal that non-domestic sales are important.** Moreover, a significant percentage of exporting SMEs are dealing with markets outside Europe, in particular in the industrial sector. In general, exporting SMEs tend to be more profitable and innovative than non-exporting SMEs. This evidence on the export activities of SMEs should help to improve understanding of the overall export dynamics among all euro area firms and the impact of external economic conditions on the euro area economy. However, it has to be taken into account that the ad hoc question only focused on direct exports by SMEs, but SMEs may well be part of the supply chain for larger companies, which, in turn, export other products.

The survey results also point to a few important features of exporting SMEs in the euro area. For example, most likely reflecting the additional costs and financing needs of exporting firms discussed above, the percentage of exporting companies increases with company size. They also tend to have greater diversification in their sources of external finance, which, together with the fact that they are more innovative, may suggest that they have to be more capital-intensive to compete in international markets. This underscores the need for well-functioning and well-developed financial markets that guarantee SMEs efficient access to finance to sustain their export activities.

## The review of draft budgetary plans for 2020 – some implications for a reform of fiscal governance

Prepared by Stephan Haroutunian, Sebastian Hauptmeier and Nadine Leiner-Killinger

**On 21 November 2019 the European Commission released its opinions on the draft budgetary plans of euro area governments for 2020, together with an analysis of the budgetary situation in the euro area as a whole.** Each opinion

includes an assessment of the compliance of the relevant plan with the Stability and Growth Pact (SGP) based on the Commission's 2019 autumn economic forecast. This review exercise also assesses whether countries have incorporated into their plans the country-specific recommendations for fiscal policies that were addressed to them under the 2019 European Semester, as adopted by the Economic and Financial Affairs Council on 9 July 2019.<sup>56</sup> The recommendations call on countries with high ratios of government debt to GDP to aim for a sufficiently fast reduction of these ratios. Some countries with room for budgetary manoeuvre are recommended to make use of this room, including for achieving an upward trend in government investment. The review of the draft budgetary plans identifies weaknesses in the follow-up to the recommendations. It is important that such shortcomings be addressed, inter alia, in the Commission's forthcoming review of the "six-pack" and "two-pack" regulations, which were implemented in 2011 and 2013 respectively in the aim of strengthening fiscal governance.

**The draft budgetary plans for 2020 result in a slightly expansionary fiscal stance for the euro area as a whole while reflecting very different fiscal developments across countries.** Measured as a deterioration in the structural primary balance amounting to 0.4% of GDP, the planned fiscal stance in 2020 would provide support to economic activity in the euro area. As regards its composition, however, the Commission concluded that "compliance with the Stability and Growth Pact by euro-area Member States not at their medium-term budgetary objectives combined with a bigger expansion by euro-area Member States with fiscal space would result in a better differentiation between euro-area Member States".<sup>57</sup> In view of the weaker growth outlook for the euro area and the elevated level of uncertainty, the Eurogroup stated that it "stands ready to co-ordinate" a differentiated fiscal response if downside risks were to materialise.<sup>58</sup>

**In the Commission's opinions, the draft budgetary plans of nine euro area countries are deemed to be compliant with the SGP:** Germany, Ireland, Greece, Cyprus, Lithuania, Luxembourg, Malta, the Netherlands and Austria. These countries are projected to record sound fiscal positions in 2020 as defined by their medium-term budgetary objectives (MTOs). In this context, the Eurogroup welcomed that some "Member States with a favourable budgetary situation have made use of it and plan to

<sup>56</sup> See the [country-specific recommendations under the 2019 European Semester](#) for more information. For more background information and further details, see the box entitled "Priorities for fiscal policies under the 2019 European Semester", *Economic Bulletin*, Issue 5, ECB, August 2019.

<sup>57</sup> See the [Commission's communication on the draft budgetary plans for 2020](#).

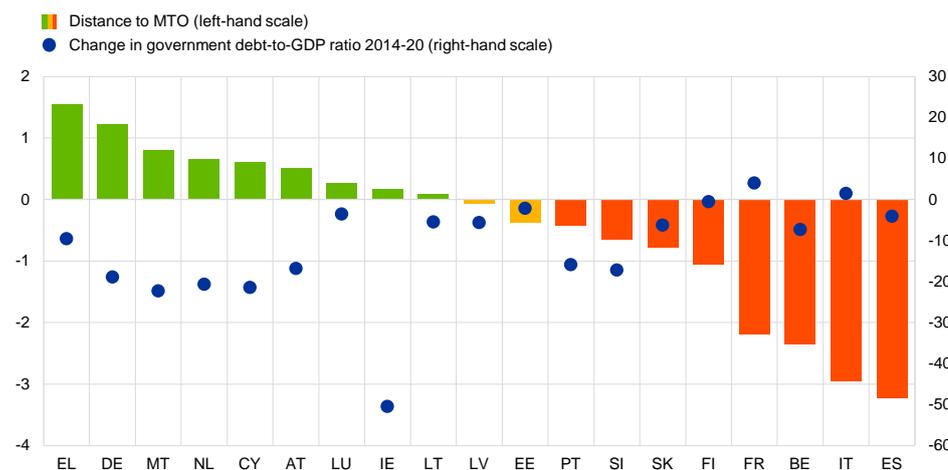
<sup>58</sup> See the [Eurogroup statement on the draft budgetary plans for 2020](#).

use it further to boost investment and growth, while preserving the long-term sustainability of public finances". In addition, the Commission considers that the draft budgetary plans of Estonia and Latvia are "broadly compliant" with the SGP.<sup>59</sup> The Eurogroup invited these two countries to ensure compliance with SGP provisions within the national budgetary processes.

### Chart A

#### Government debt and the gap between structural balances and MTOs in 2020

(percentages of GDP)



Sources: European Commission 2019 autumn economic forecast and ECB calculations.

Notes: The chart depicts the deviation of countries' structural balances in 2020 from their MTOs. Green (orange) bars denote countries whose draft budgetary plan for 2020 is considered by the European Commission to be (broadly) compliant with the SGP. Red bars denote countries whose draft budgetary plan for 2020 is considered by the European Commission to be at risk of non-compliance with the SGP.

**The draft budgetary plans of a sizeable number of euro area countries are assessed to pose risks of non-compliance with the SGP, which is a matter of particular concern for countries with high government debt ratios.**<sup>60</sup> According to the Commission's forecast, the planned structural adjustments are expected to fall significantly short of the SGP's requirements in eight countries, namely Belgium, Spain, France, Italy, Portugal, Slovenia, Slovakia and Finland (see Chart B). Among them, Belgium, Spain and Portugal submitted plans on a no-policy-change basis, reflecting the election of new governments in the latter two countries and the ongoing process for the formation of a federal government in Belgium. The Eurogroup invited all eight countries "to consider in a timely manner the necessary additional measures to address the risks identified by the Commission and to ensure that their 2020 budget will be compliant with SGP provisions". Importantly, it reiterated that "a slow pace of debt reduction from high levels in a number of Member States remains a matter for concern and should be decisively addressed, including by making use of windfall

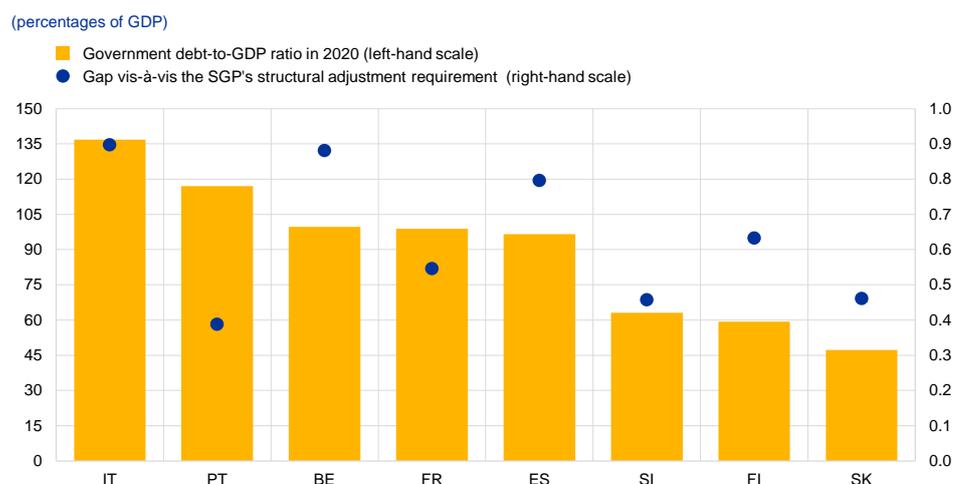
<sup>59</sup> For countries subject to the SGP's preventive arm, draft budgetary plans are "broadly compliant" if, according to the Commission's forecast, they may result in some deviation from the MTO or the adjustment path towards it, but the shortfall relative to the requirement would not represent a significant deviation from it. Deviations from the fiscal targets under the preventive arm are classified as "significant" if they exceed 0.5% of GDP in one year or 0.25% of GDP on average in two consecutive years.

<sup>60</sup> For countries subject to the SGP's preventive arm, the Commission assesses a draft budgetary plan as being "at risk of non-compliance with the SGP" if it forecasts a significant deviation from the MTO or the required adjustment path towards the MTO in 2020 and/or non-compliance with the debt reduction benchmark, where that benchmark is applicable.

gains from low interest rates”. This applies notably to Belgium, Spain, France and Italy, which continue to record very high debt ratios that are yet to commence a steady downward trend. By contrast, Slovakia and Finland are forecast to post debt ratios below the Treaty reference value of 60% of GDP in 2020, while in Portugal and Slovenia government debt has been put on a continuous downward trajectory.

### Chart B

Government debt in 2020 and gaps vis-à-vis the SGP’s structural adjustment requirements in Member States whose draft budgetary plans are assessed as being at risk of non-compliance with the SGP



Sources: European Commission 2019 autumn economic forecast and the country-specific recommendations for fiscal policies as adopted by the Economic and Financial Affairs Council on 9 July 2019 and updated in the Commission’s staff working documents providing analysis on the draft budgetary plans for 2020.

Note: The structural adjustment requirement for Italy does not yet include the request by the Italian authorities for flexibility under the unusual event clause of the SGP.

**The exercise of reviewing the draft budgetary plans is a reminder that the EU’s fiscal governance framework should be improved to facilitate a smoother operation of policies in Economic and Monetary Union (EMU).** In particular, the SGP’s rules remain asymmetric and thus cannot guide the aggregate euro area fiscal stance. Countries that have not yet achieved their MTOs need to make progress towards them, while countries that have reached them are not required to use their buffers. This can lead to procyclical fiscal policies in times when the euro area economy as a whole would benefit from support from budgetary policies. Moreover, in several countries the pace of the reduction in government debt from high levels remains far from sufficient, despite the strengthening of the rules in 2011 which set in place a debt rule to accelerate the decline in government debt-to-GDP ratios towards the Treaty reference value of 60% of GDP. Notably, owing to the cumulative effects of different forms of flexibility provided for in the SGP, it is not possible to ensure that countries – especially high-debt countries – will converge towards their MTOs sufficiently rapidly. Finally, the fact that the plans of a number of countries with high government debt levels contain significant shortfalls in structural adjustments from the Council’s recommendations shows that the draft budgetary plan review introduced

with the “two-pack” regulations is not exerting the needed pressure to correct fiscal imbalances.<sup>61</sup>

**The European Fiscal Board (EFB), which was mandated by the Commission President to assess the functioning of the EU’s fiscal rules in the light of the “six-pack” and “two-pack” review, has proposed options for a reform of fiscal governance in the EU.**<sup>62</sup> The EFB suggested changing the anchor for the rules from the MTO to a long-term ceiling in terms of government debt to GDP. It also suggested that this be combined with an expenditure rule as the only operational indicator to guide fiscal policies. According to the EFB, existing flexibility clauses should be merged into a single escape clause, to be triggered on the basis of independent economic judgement. In this context, a stronger role is foreseen for independent fiscal councils, while the Commission should have greater independence in its assessments. Sanctions, which have proven difficult to apply, could be complemented or replaced by incentive mechanisms. Such mechanisms could entail linking access to a macroeconomic stabilisation function (a “euro area fiscal capacity”) to compliance with the fiscal rules. All these suggestions merit in-depth discussion in the context of the forthcoming “six-pack” and “two-pack” review.<sup>63</sup>

**Looking ahead, the operation of the EU fiscal framework is a prerequisite for further deepening EMU.** Beyond the recently adopted budgetary instrument for convergence and competitiveness<sup>64</sup>, further progress on establishing a genuine macroeconomic stabilisation function for the euro area remains indispensable. Such a function typically exists in other monetary unions to better address economic shocks that cannot be managed at the national level.<sup>65</sup> This type of central fiscal stabilisation tool would reduce the risk of overburdening the ECB’s monetary policy instruments in severe euro area-wide recessions.<sup>66</sup>

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<sup>61</sup> For a discussion on why the draft budgetary review exercise has lost effectiveness over time, see the box entitled “An assessment of the review of draft budgetary plans based on the 2018 exercise”, *Economic Bulletin*, Issue 8, ECB, 2017.

<sup>62</sup> See the EFB report entitled “[Assessment of EU fiscal rules with a focus on the six and two-pack legislation](#)”, August 2019.

<sup>63</sup> For an overview, see also Kamps, Christophe, and Leiner-Killinger, Nadine, “[Taking stock of the functioning of the EU’s fiscal rules and options for reform](#)”, *Occasional Paper Series*, No 231, ECB, Frankfurt am Main, August 2019.

<sup>64</sup> For details, see the [term sheet](#) agreed by the Eurogroup in inclusive format on 10 October 2019.

<sup>65</sup> See the article entitled “[Fiscal rules in the euro area and lessons from other monetary unions](#)”, *Economic Bulletin*, Issue 3, ECB, 2019.

<sup>66</sup> See the article entitled “[Fiscal spillovers in a monetary union](#)”, *Economic Bulletin*, Issue 1, ECB, 2019.

# Articles

## 1 What does the bank lending survey tell us about credit conditions for euro area firms?

Prepared by **Lorenzo Burlon, Maria Dimou, Anna-Camilla Drahonsky and Petra Köhler-Ulbrich**<sup>67</sup>

This article examines bank lending conditions for euro area non-financial corporations (NFCs), making use of the wealth of soft information available in the euro area bank lending survey (BLS) since its inception in 2003. One relevant question in this context is whether the tightening of the bank loan supply during the financial and sovereign debt crises has been offset by the easing of bank lending conditions for loans to NFCs since 2014. The article illustrates that the easing over this period has come mainly through a substantial loosening of the actual terms and conditions applied by banks to new loans to firms of average credit quality, while the credit standards that banks have established for their loan approval decisions have eased by less. The article also draws on the responses of individual banks to examine the differences in bank lending conditions for NFC loans over time and across bank business models. This analysis reveals that the change in credit conditions of banks with business models more reliant on stable funding sources, such as deposits, is more muted. In short, it looks at additional aspects that enhance the regular assessment of bank lending conditions faced by firms based on the euro area BLS.

### 1 Introduction

**The euro area bank lending survey (BLS) provides a rich set of soft information on changes to bank lending conditions, which complements and potentially enhances hard statistical data on loan growth.** When combined with actual loan growth and lending rates, this unique set of information helps us to understand developments in loan supply and demand and the related driving factors. In addition, BLS data have been shown to have strong leading indicator properties vis-à-vis aggregate movements in loan volumes. Against this background, BLS survey information is regularly monitored and assessed to gain insights into bank lending conditions directly from reporting euro area banks.<sup>68</sup> This article focuses on bank lending conditions for euro area firms, drawing on the wealth of information available in the BLS, from both an aggregate and individual bank-level perspective.

**What can the euro area BLS tell us about the credit conditions faced by euro area firms over the past 10-15 years?** Following the severe tightening of banks'

<sup>67</sup> Bettina Farkas provided data support.

<sup>68</sup> See the ECB's website for the [euro area bank lending survey](#). The quarterly BLS report focuses on aggregate developments in net terms. With respect to credit standards, the net percentage is the difference between the sum of the percentages of banks responding "tightened considerably" and "tightened somewhat" and the sum of the percentages of banks responding "eased somewhat" and "eased considerably".

approval criteria for loans to non-financial corporations (NFCs) during the financial and sovereign debt crises, an unprecedented extended easing period was observed from the beginning of 2014 up to early 2019. More recently, there has been some variation in the changes made by banks to their loan approval criteria amid concerns about the euro area economic outlook. Against this background, the article takes a longer-term perspective on the BLS evidence, covering the period since the onset of the global financial crisis, and focuses on three distinct aspects.

**First, this article reviews the long-term developments in credit standards and the related contributing factors.** Differences in the importance of these driving factors over time are analysed with a view to gaining a better understanding of changes in bank lending conditions. It turns out that the perception of risks in relation to the economic outlook is an important driving factor behind bank lending conditions, particularly during periods when credit standards are tightened.

**Second, it examines whether the tightening of bank lending conditions during the financial and sovereign debt crises has been offset by the easing of bank lending conditions for NFC loans since 2014.** The article analyses the information from changes in banks' credit standards and terms and conditions, which cover complementary aspects, mainly relating to loan supply. While actual bank lending conditions for average NFC loans have loosened substantially since 2014 and appear to have returned to levels similar to those seen at the beginning of the financial crisis, banks' credit standards have eased by less. In this context, banks' supervisory requirements, the need to strengthen their balance sheets and the avoidance of heightened credit risk emerge as likely factors behind the moderate loosening of banks' loan approval criteria.

**Third, the article provides evidence on bank lending conditions across bank business models.** Based on a new BLS dataset that makes it possible to group banks' responses based on their business model, bank loan supply conditions are analysed over time, and similarities as well as differences across business models are highlighted. Importantly, business models with relatively stable funding sources show more moderate variations in credit conditions compared with other bank types. In short, this article looks at additional aspects that enhance the regular assessment of bank lending conditions based on the euro area BLS.

## 2 Bank loan supply conditions for euro area firms

### 2.1 Banks' credit standards for loans to euro area firms

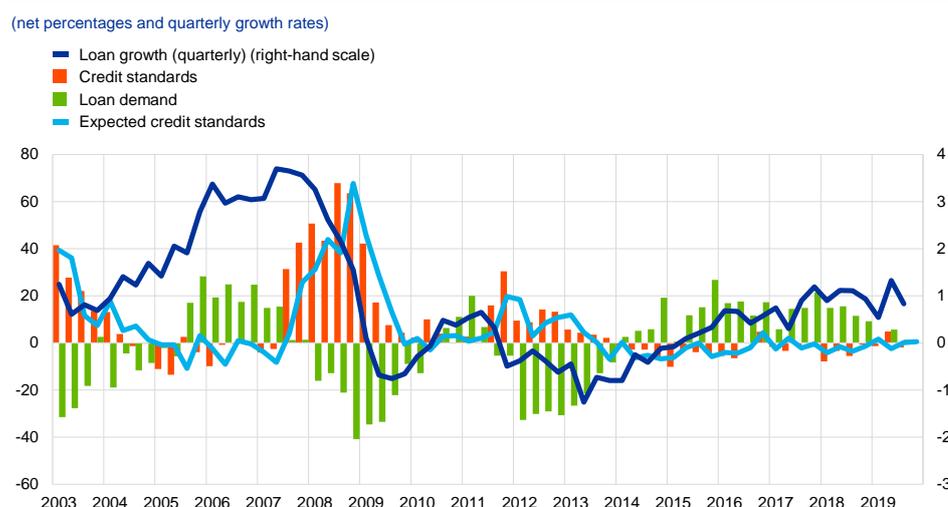
**Credit standards, which reflect banks' internal guidelines or loan approval criteria, are a key indicator of bank lending conditions.**<sup>69</sup> They help to disentangle loan supply and demand in the analysis of loan growth developments (see Chart 1).<sup>70</sup>

<sup>69</sup> See Köhler-Ulbrich, P., Hempell, H.S. and Scopel, S., "The euro area bank lending survey", *Occasional Paper Series*, No 179, European Central Bank, 2016.

<sup>70</sup> See Altavilla, C., Darracq Paries, M., Nicoletti, G., "Loan supply, credit markets and the euro area financial crisis", *Journal of Banking and Finance*, forthcoming.

In addition, changes in credit standards for NFC loans lead actual NFC loan growth by around one year.<sup>71</sup> They are therefore helpful for assessing loan growth developments over the coming year. Moreover, banks' expectations in relation to the development of their credit standards are generally an accurate reflection of their actual development, thereby providing further lead information on the development of bank lending conditions.

**Chart 1**  
NFC loan supply, demand and NFC loan growth



Source: ECB.

Notes: For credit standards, net percentages are defined as the difference between the sum of the percentages of banks responding "tightened considerably" and "tightened somewhat" and the sum of the percentages of banks responding "eased somewhat" and "eased considerably". For loan demand, net percentages are defined as the difference between the sum of the percentages of banks responding "increased considerably" and "increased somewhat" and the sum of the percentages of banks responding "decreased somewhat" and "decreased considerably". While actual developments of credit standards and loan demand refer to the past three months, expected credit standards refer to banks' expectations over the next three months and have therefore been shifted by one quarter.

**The net easing of credit standards from 2014 up until early 2019 has been the longest net easing period since the inception of the BLS at the beginning of 2003.** Following a drastic tightening of credit standards for euro area NFC loans between the third quarter of 2007 and the second half of 2011 during the euro area financial and sovereign debt crises (with a net peak of 68% at the time of the Lehman Brothers collapse in the third quarter of 2008), euro area banks started to ease credit standards in net terms in the first quarter of 2014. This net easing lasted for about 20 quarters (with an interruption in the second half of 2016) until the first quarter of 2019, equivalent to the longest net easing period since the BLS began. By comparison, the net easing period before the start of the financial crisis, from the third quarter of 2004 until the second quarter of 2007, lasted for 12 quarters. The net easing of banks' approval criteria for corporate loans since 2014 supported the recovery in NFC bank loan growth and economic activity in the aftermath of the financial crisis. In the second and third quarters of 2019, there was some variation in the changes made by banks to their credit standards amid concerns about the euro area economic outlook, while actual lending rates remained at historically low levels.

<sup>71</sup> See De Bondt, G., Maddaloni, A., Peydro, J.-L. and Scopel, S., "The euro area bank lending survey matters: empirical evidence for credit and output growth", *Working Paper Series*, No 1160, European Central Bank, 2010.

## 2.2 Which factors have driven changes in credit standards for NFC loans?

**The factors driving changes in credit standards provide a better understanding of the reasons behind changes in banks' loan approval criteria.** Euro area banks also report the underlying factors which contribute to changes in credit standards. The importance of these factors evolves over time, depending on the state of the economy (see Chart 2). They help us gain additional insight into alterations in bank lending conditions and to differentiate between changes in bank loan growth that have been driven mainly by changes originating in the banking system, such as in banks' funding cost or risk tolerance, and changes in the general economic environment that have an impact on bank loan supply owing to changes in borrowers' credit risk or collateral, but which do not reflect pure loan supply effects.<sup>72</sup>

**Risk perceptions regarding the economic outlook are the most important factor for explaining the changes in credit standards and are closely related to real economic developments.** When looking at the factors that contribute to the changes in credit standards from the banks' perspective, two main observations emerge (see Chart 2). First, and in keeping with the changes in credit standards for NFC loans, the tightening impact of these factors has been greater than the easing impact. Second, risk perceptions have been the most important factor for explaining the changes in credit standards over time (contributing an average net tightening of 13% since 2003). The high correlation with credit standards applies in particular to tightening periods, but risk perceptions also play an important role when banks ease their credit standards. They are closely related to the development of real economic and business sentiment indicators (see Chart 3). Therefore, risk perceptions signal the impact of changes in the economic outlook on credit standards, over and above the changes that originate in the banking system itself.<sup>73</sup>

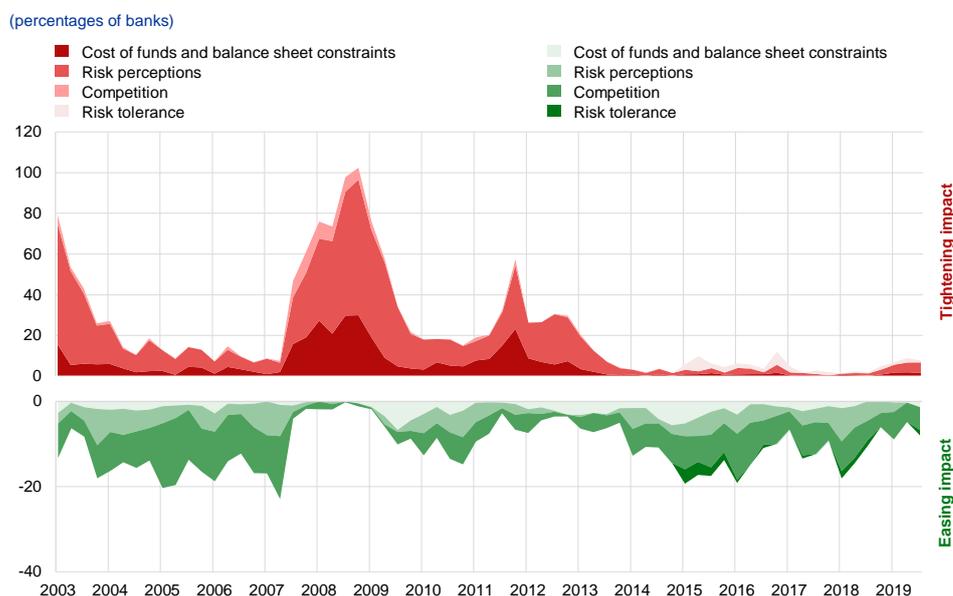
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<sup>72</sup> See Hempell, H. S., Kok Sorensen, C., "The impact of supply constraints on bank lending in the euro area. Crisis induced crunching?", *Working Paper Series*, No 1262, European Central Bank, 2010.

<sup>73</sup> With regard to the relationship of the BLS factors with other macroeconomic indicators, see the analysis in Chapter 3 of Köhler-Ulbrich, P., Hempell, H.S. and Scopel, S., "The euro area bank lending survey", *Occasional Paper Series*, No 179, European Central Bank, 2016.

**Chart 2**

**Factors contributing to NFC credit standards**

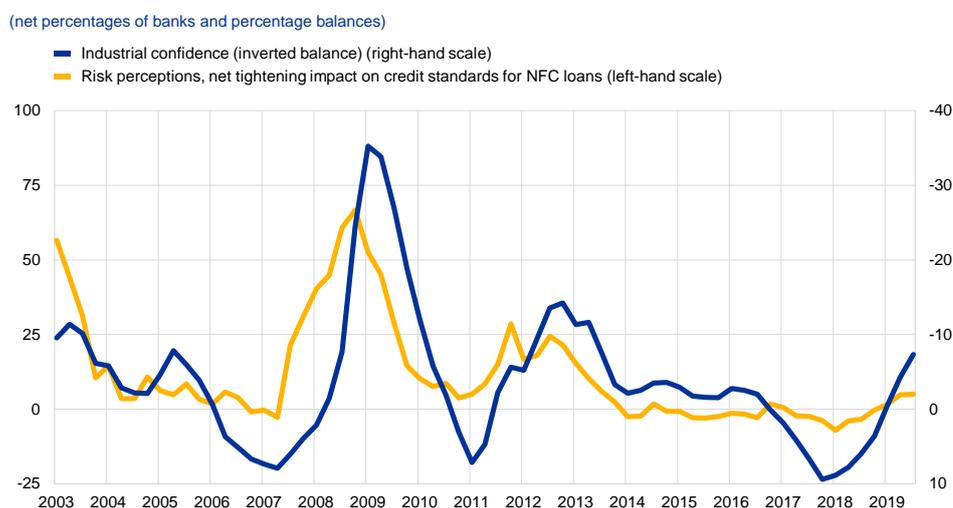


Source: ECB (BLS).

Notes: "Cost of funds and balance sheet constraints" is the unweighted average of "costs related to capital position", "access to market financing" and "liquidity position"; "risk perceptions" is the unweighted average of "general economic situation and outlook", "industry or firm-specific situation and outlook/borrower's creditworthiness" and "risk related to the collateral demanded"; "competition" is the unweighted average of "competition from other banks", "competition from non-banks" and "competition from market financing". "Banks' risk tolerance" was introduced in the first quarter of 2015.

**Chart 3**

**Banks' risk perceptions and industrial confidence**



Sources: ECB (BLS) and European Commission.

Notes: See Chart 2. The industrial confidence indicator refers to the European Commission DG-ECFIN opinion survey.

**Banks' cost of funds and balance sheet constraints play an important role, mainly in the tightening of credit standards, whereas the correlation between this factor and an easing of credit standards is rather small.** In particular, banks' capital position has had, on average, a tightening impact (with an average net percentage of 7% since 2003). In addition, banks' cost of funds and balance sheet

constraints contributed to a tightening of credit standards, particularly during the financial crisis, against the background of banks' losses and associated deleveraging pressure as well as an increase in banks' funding cost. As regards the relationship between the driving factors, a tightening contribution of risk perceptions has often been connected with a parallel tightening contribution of banks' cost of funds and balance sheet situation. This is because a worsening of the economic outlook tends to lead to a deterioration in borrowers' creditworthiness and increased credit risk, with negative implications for banks' balance sheets.

**By contrast, competitive pressure, mainly from other banks, is the most important factor for explaining an easing of credit standards.** Specifically, the net easing of credit standards on NFC loans since 2014 has, to a large extent, been related to competitive pressures.

**Lastly, banks' risk tolerance has overall had a broadly neutral and, in some periods, small tightening impact on credit standards for NFC loans since 2015.** This signals that, according to the banks, they have not reacted to low or negative interest rates by increasing their risk-taking.<sup>74</sup>

### 2.3 Why has the net easing of credit standards since 2014 been rather moderate?

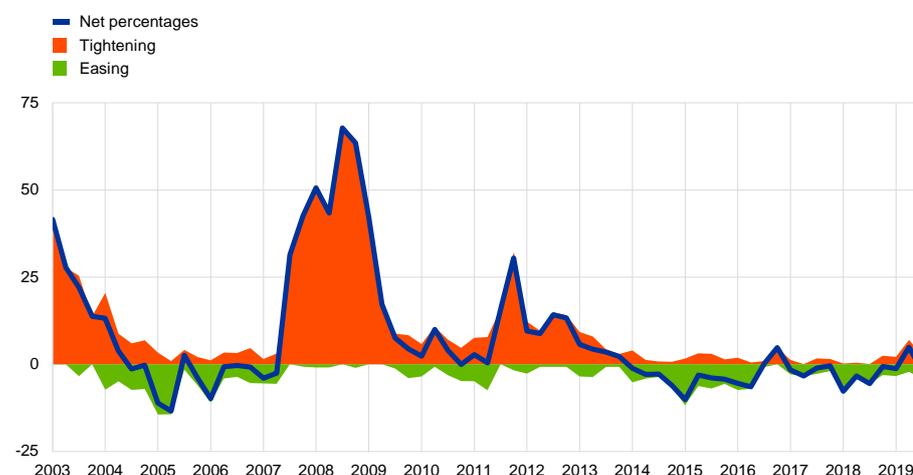
**Banks' overall easing of credit standards on corporate loans since 2014 appears moderate compared with the previous tightening (see Chart 4).** When summing up the net percentage changes, the cumulated net easing of credit standards over the past five years, compared with the cumulated net tightening of credit standards for loans to euro area NFCs during the financial crisis, appears moderate despite the extended net easing period. Banks indicated the strongest net easing of their credit standards in the first quarter of 2015 (-10%), when the ECB introduced its asset purchase programme, close to the values reached before the onset of the financial crisis (with a negative peak of -13% in the second quarter of 2005).

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<sup>74</sup> The factor "banks' risk tolerance" was introduced in the first quarter of 2015.

**Chart 4**  
Credit standards on NFC loans

(net percentages and percentages of banks)



Source: ECB (BLS).  
Note: See Chart 1.

**The overall moderate net easing suggests that credit standards are currently tighter than they were before the crisis.** Corroborating evidence is also provided by the BLS ad hoc question on the level of credit standards, which complements the quarterly question on changes in credit standards on an annual basis. According to the banks' responses, the level of banks' credit standards for euro area NFC loans in the first quarter of 2019 was still tighter than the historical range of credit standards since 2003.<sup>75</sup> Several reasons may be behind the limited net easing of banks' loan approval criteria.

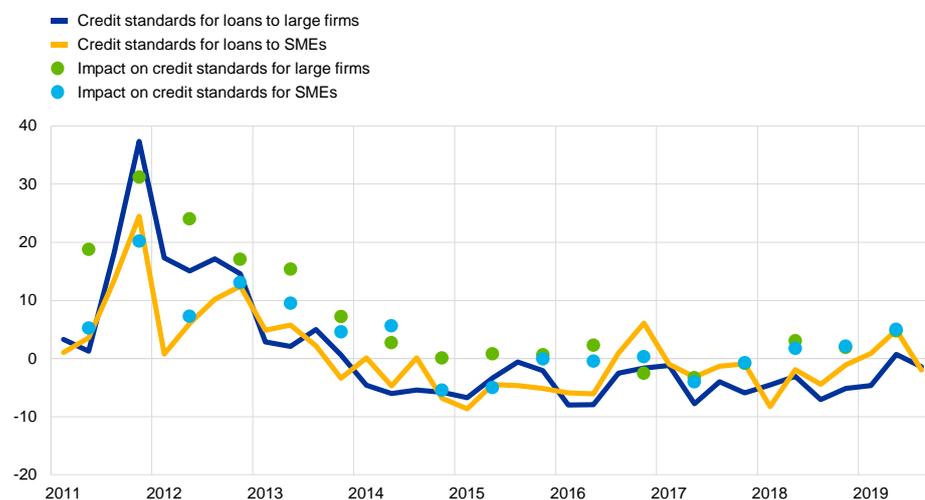
**First, generous lending conditions before the financial crisis have probably contributed to higher risk awareness of banks in their lending decisions since the crisis.** Among the driving factors behind credit standards mentioned above, banks' risk perceptions and willingness to take on credit risk matter considerably. They may contribute to explaining why banks have eased their credit standards only moderately since the financial crisis. In fact, while lax credit standards may have contributed to fuelling high NFC loan growth before the onset of the financial crisis, there are currently no indications of a heightened risk tolerance of euro area banks (see Section 2.2 above).

<sup>75</sup> See the ECB's website on the [euro area bank lending survey](#). At the same time, it should be acknowledged that an assessment of the current level of credit standards compared with the long-term range since 2003 may be difficult for the banks and therefore needs to be viewed with some caution.

## Chart 5

### NFC credit standards and impact of supervisory and regulatory requirements on credit standards

(net percentages of banks)



Source: ECB (BLS).

Notes: See Chart 1. The question refers to regulatory or supervisory actions relating to capital, leverage, liquidity or provisioning that have recently been approved/implemented or that are expected to be approved/implemented in the near future. "SMEs" denote small and medium-sized enterprises.

**Second, banks' need to fulfil additional supervisory and regulatory requirements in the wake of the financial crisis has had a tightening impact on their credit standards.** Euro area banks have stated that new regulatory and supervisory requirements have had, on average since 2011 (when the question was introduced), a tightening impact on their credit standards (see Chart 5). During the net easing period of NFC credit standards since 2014, the regulatory and supervisory impact on credit standards was neutral on average, suggesting that the previous tightening impact was not reversed. This is consistent with the broadly neutral impact of banks' capital positions on banks' credit standards for NFC loans during the net easing of credit standards since 2014.

**Third, in relation to banks' need to clean up their balance sheets, non-performing loan (NPL) ratios have also had a tightening impact on banks' credit standards.** The tightening impact was particularly relevant in the period from 2014 to 2017 according to euro area banks,<sup>76</sup> in line with the level of actual NPL ratios of banks, but NPLs have also more recently continued to exert a tightening impact on banks' credit standards (see Chart 6). Overall, banks have strengthened their balance sheets and, specifically, reduced their NPL ratios since 2014, supported by the ECB's unconventional monetary policy measures. This has improved banks' resilience. While this should contribute to favourable lending conditions in the medium term,<sup>77</sup> banks' efforts to increase their resilience help to explain why the net easing of banks' credit standards was not greater.

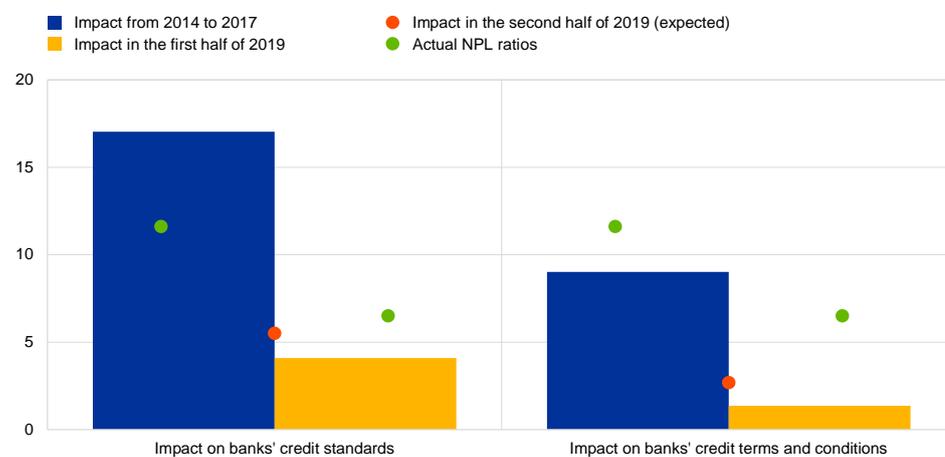
<sup>76</sup> See also the July 2018 BLS report on the [euro area bank lending survey](#) website for the impact of NPLs on banks' lending policy from 2014-17 and the July 2019 BLS report for more recent evidence.

<sup>77</sup> See Altavilla, C., Boucinha, M., Holton, S., Ongena, S., "Credit supply and demand in unconventional times", *Working Paper Series*, No 2202, European Central Bank, 2018.

## Chart 6

### Impact of banks' non-performing loan (NPL) ratios on bank lending conditions and actual NPL ratios for NFC loans

(net percentages of banks and percentages)



Source: ECB (BLS and Supervisory banking statistics).

Notes: In the BLS, the NPL ratio is defined as the stock of gross non-performing loans on banks' balance sheets as a percentage of the gross carrying amount of loans. The actual NPL ratios refer to euro area significant institutions and are defined as the gross carrying amount of non-performing loans (and advances), as a percentage of total loans (and advances). They are calculated as an average over the respective periods (Q2 2015-Q4 2017 and the second half of 2019 respectively).

## 2.4 Credit terms and conditions for loans to euro area firms

### **Banks' credit terms and conditions for new loans point to a considerable easing of the actual agreed lending conditions for NFC loans, which is more marked than for credit standards.**

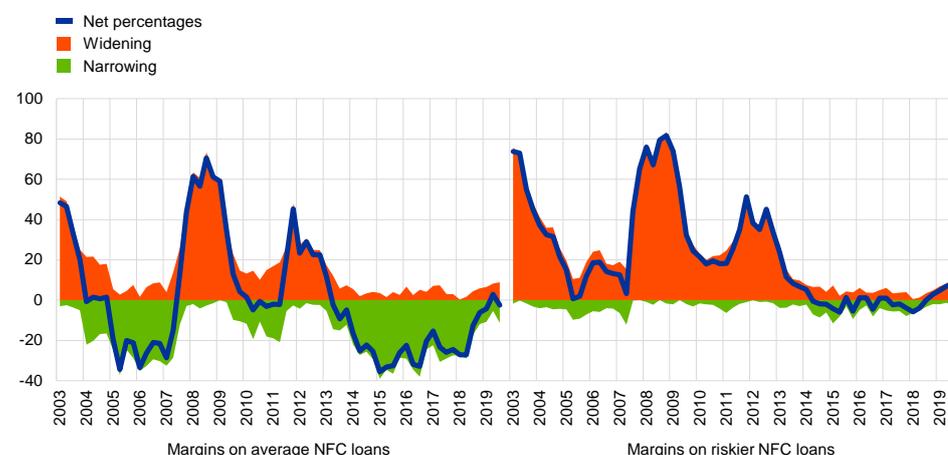
While credit standards are defined as banks' internal guidelines or loan approval criteria, banks' terms and conditions are defined as the actual terms and conditions applied to a new loan, as agreed in the loan contract. The analysis of banks' terms and conditions therefore complements the analysis of credit standards to provide an overall view on bank lending conditions.<sup>78</sup> Following a strong net widening of banks' margins on loans of average credit risk (defined as the spread of bank lending rates over a relevant market reference rate) during the financial and sovereign debt crises, margins have narrowed since the second quarter of 2013 (see Chart 7). This trend has become more acute since the second quarter of 2014 in light of the new wave of ECB unconventional measures (see Chart 8 below), signalling an improved pass-through of monetary policy measures to bank lending rates. According to reporting banks, margins on average NFC loans narrowed continuously from 2014 until the first quarter of 2019. In the second and third quarters of 2019, banks' overall terms and conditions tightened somewhat. Specifically, their margins on riskier NFC loans widened, while margins on average NFC loans in total broadly stabilised.

<sup>78</sup> Given that data on banks' overall terms and conditions have only been available since the first quarter of 2015, the focus here is on banks' loan margins, which are an important component of banks' overall terms and conditions.

**Chart 7**

**Margins on NFC loans**

(net percentages and percentages of banks)



Source: ECB (BLS).

Notes: "Margins" are defined as the spread over a relevant market reference rate. Net percentages are defined as the difference between the sum of the percentages of banks responding "tightened/widened considerably" and "tightened/widened somewhat" and the sum of the percentages of banks responding "eased/narrowed somewhat" and "eased/narrowed considerably".

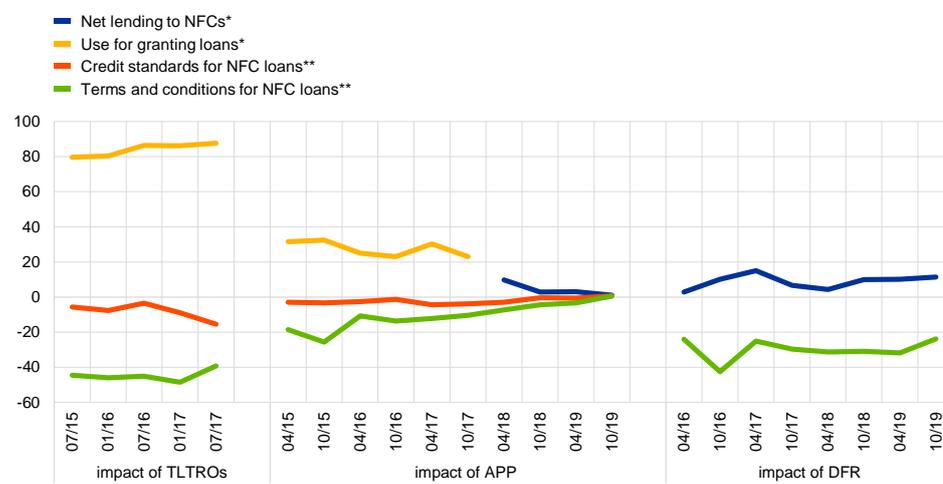
**Hence, while euro area banks have eased their credit standards for NFC loans only moderately since 2014, they have eased their actual terms and conditions for new NFC loans of average riskiness substantially.** Borrowers who have met the bank's loan approval criteria have benefited from considerably more favourable actual lending conditions for average NFC loans. The evidence is in line with banks' responses that the ECB's monetary policy measures have had a substantial net easing impact on banks' actual terms and conditions, while such measures had a more limited impact on their credit standards (see Chart 8).<sup>79</sup>

<sup>79</sup> For the impact of the ECB's monetary policy measures, see, for example, Demiralp, S., Eisenschmidt, J., Vlassopoulos, T., "Negative interest rates, excess liquidity and retail deposits: banks' reaction to unconventional monetary policy in the euro area", *Working Paper Series*, No 2283, European Central Bank, 2019; Altavilla, C., Burlon, L., Giannetti, M., Holton, S., "Is there a zero lower bound? The effects of negative policy rates on banks and firms", *Working Paper Series*, No 2289, European Central Bank, 2019.

## Chart 8

### Impact of the ECB's non-standard measures on bank lending conditions

(net percentages and percentages of banks; impact over the previous six months)



Source: ECB (BLS).

Notes: The horizontal axis refers to the BLS rounds in which the respective questions were included. The ad hoc question on the TLTRO-II was included until July 2017.

\*Use of TLTRO liquidity for granting loans. Use of increased liquidity arising from the ECB's asset purchase programme (APP) for granting loans out of sales of marketable assets and increased customer deposits until October 2017. Net impact of APP on lending volumes from April 2018. Net impact of the ECB's negative deposit facility rate (DFR) on lending volumes.

\*\*The TLTRO question asks for the easing impact only. Net easing impact for APP and DFR. Net easing is defined as easing minus tightening impact. Loan margins instead of overall terms and conditions for DFR.

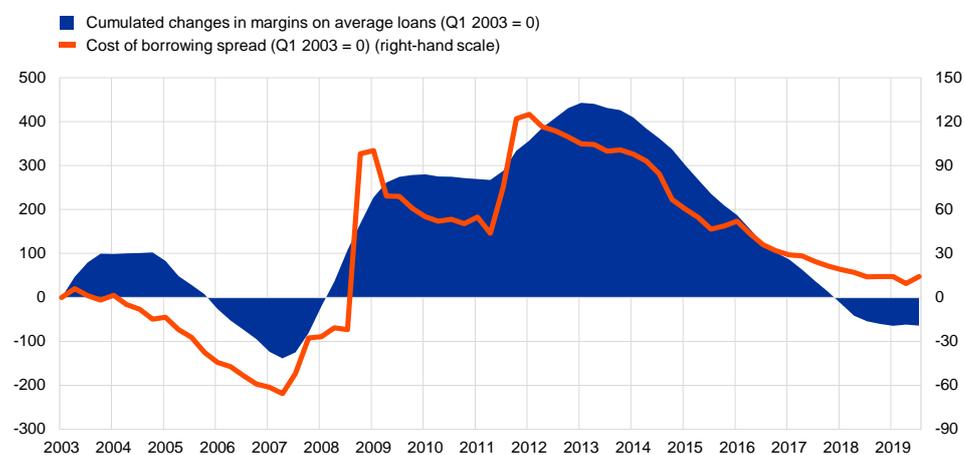
**In contrast to margins on average NFC loans, margins on riskier loans have narrowed only a little in net terms since 2014 (see Chart 7).** The more cautious attitude towards riskier loans may indicate that banks have not been willing to take on major risks when lending to firms in order to boost returns in a low interest rate environment. This is also consistent with banks' limited net easing of credit standards against a background of heightened regulatory requirements and, in some jurisdictions, still considerable levels of NPLs, as well as with the more modest risk tolerance of banks following the financial crisis.

**Taking a longer-term perspective, banks' margins on new loans to firms with an average risk profile have returned to levels not far off those prevailing around the beginning of the financial crisis, whereas previously they were lower.** The cumulation of the changes in loan margins (i.e. the spread of bank lending rates over a relevant market reference rate), as reported by BLS banks, can help when assessing the current state of bank lending conditions for firms. As shown in Chart 9, the widening of margins on average NFC loans during the financial and sovereign debt crises has been broadly offset by the narrowing of loan margins since the second quarter of 2013. When computed on the basis of actual lending rates for NFC loans and money market interest rates, loan margins did not return to the very low levels that prevailed before the onset of the financial crisis, which possibly represented an underpricing of borrowers' credit risk at that time. Interestingly, cumulated changes in NFC loan margins have moved broadly in line with actual bank lending rate spreads, in keeping with the definition of loan margins (see Chart 9). This evidence suggests that banks' margins on new loans have returned to levels around those seen at the beginning of the financial crisis, whereas previously they were lower.

### Chart 9

#### Cumulated changes in margins on average NFC loans and cost of borrowing spread for NFC loans

(cumulated net percentages and spread in basis points)



Source: ECB.

Notes: Margins are defined as the spread of bank lending rates over a relevant market reference rate. Net percentages for the margins on average loans have been cumulated from the first quarter of 2003 onwards. The spread is calculated as the difference between the cost of borrowing indicator for NFC loans and the three-month overnight interest swap rate. It has been indexed at Q1 2003 = 0, corresponding to the cumulated change in the spread since Q1 2003. The cost of borrowing indicator for NFC loans is calculated by aggregating short- and long-term rates using a 24-month moving average of new business volumes.

### 3 Bank lending conditions across bank business models

#### A new dataset on bank business models makes it possible to detect differences in bank loan supply conditions across different types of bank business models for the BLS banks.<sup>80</sup>

The analysis in this section is based on a confidential individual bank-level dataset covering 13 euro area countries. Individual bank data have been aggregated following the BLS methodology to report aggregate changes in bank lending conditions at the euro area level across bank business models.<sup>81</sup> Universal banks are the dominant business model in this dataset both in terms of number of banks and main assets. In addition, global systemically important banks (G-SIBs) are important in terms of their assets, while retail lenders play an important role in terms of their number, albeit less in terms of assets. By contrast, corporate wholesale banks and specialised lenders in particular play a limited role in this dataset.

**Overall, while the direction of the movements in credit standards over time has been consistent across bank business models, there have been notable variations (see Chart 10).** Across all bank business models, a pronounced tightening of credit standards for NFC loans during the period from 2007 to 2014 preceded a more recent period of moderate easing, reflecting changes at the euro area level (see

<sup>80</sup> For a methodological explanation of the bank business model classification and an overview of asset- and liability- structures by business model, see Altavilla, C., Andreeva, D.C., Boucinha, M. and Holton, S., "Monetary policy, credit institutions and the bank lending channel in the euro area", *Occasional Paper Series*, No. 222, European Central Bank, 2019.

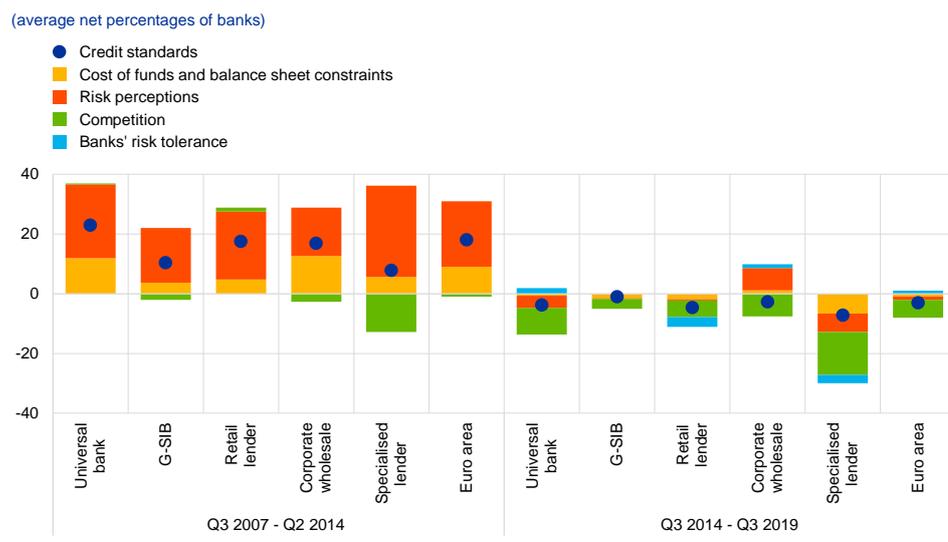
<sup>81</sup> An explanation of the BLS aggregation methodology can be found in the BLS user guide on the [euro area bank lending survey](#) website. In addition, for some parts of the analysis, individual bank BLS data were merged with bank balance sheet and interest rate data.

Section 2.1). Universal banks and retail lenders on average tightened their bank lending conditions by more than other lenders during the crisis period. Both business models also widened their margins for NFC loans (see Chart 11 below) considerably, reflecting the increased credit risk faced by borrowers during the crisis. By contrast, from 2007 to 2014, the net tightening of credit standards on average was contained for specialised lenders owing to intense competitive pressures.

**Across all bank types, risk perceptions were the most important factor for changes in credit standards for NFC loans during the period from 2007 to 2014, reflecting borrowers' heightened credit risk.** While this factor has tended to contribute to an easing of credit standards since 2014 across most business models, it continued to contribute to a net tightening of credit standards for corporate wholesale lenders. This may be linked to the specific business model of this bank type specialised in financing large investment projects which tend to have a higher risk profile.

**For some bank types, especially universal banks and corporate wholesale banks, funding costs and balance sheet constraints were an important factor for the tightening of their credit standards.** The co-movement of this factor with risk perceptions signals the interlinking between borrowers' heightened credit risk and banks' balance sheet constraints, as weaker borrower quality translated into banks' balance sheet fragility. While risk perceptions have played a leading role in the tightening of credit standards for loans to firms across bank business models, competition has been the biggest contributing factor over the net easing period since 2014. Finally, banks' risk tolerance had a rather small impact on changes in credit standards across bank business models.

**Chart 10**  
Credit standards on NFC loans across bank business models



Source: ECB (BLS).  
Notes: See Charts 1 and 2. The figures for the bank business models are based on a confidential dataset comprising data from 13 euro area countries. The euro area figures refer to all euro area countries.

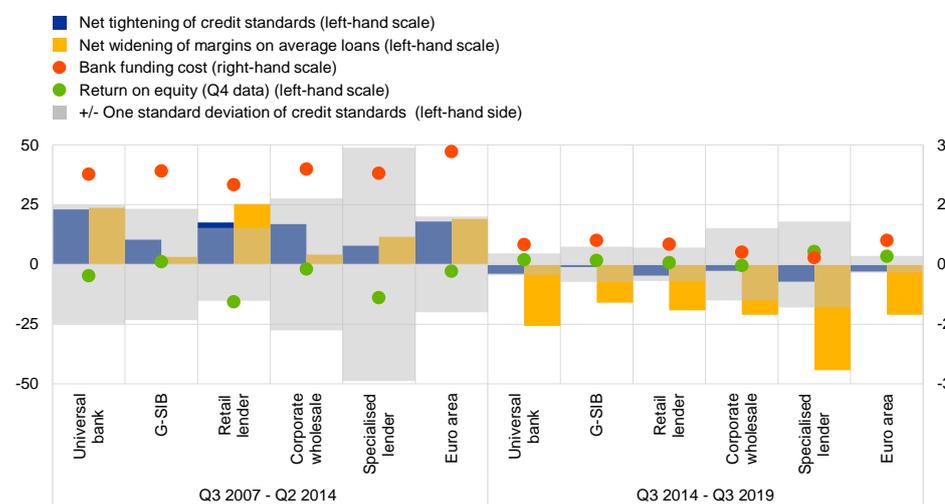
**Mimicking the net easing of bank lending conditions in the overall sample, margins on average loans have narrowed across all business models since 2014, along with a parallel decrease in bank funding costs, following the ECB's credit easing package (see Chart 11).** Following the widening of margins on NFC loans during the financial crisis, the largest net percentage of banks indicating a narrowing of their loan margins can be observed for universal banks and specialised lenders, passing on to their customers the significant decrease in their funding costs. Specialised lenders seem to have benefited particularly from squeezed bond yields, given their stronger dependence on funding through the issuance of debt securities. Importantly, ECB borrowing under attractive terms within the ECB's TLTRO-II operations has additionally benefited all bank types. In the second and third quarters of 2019, G-SIBs tightened their credit standards on NFC loans and reported an increase in margins on average NFC loans, while developments were more mixed for other bank types.

**Differences in business models' reliance on specific customer and market segments can be linked to the heterogeneity in the developments of loan supply as well as in funding conditions and overall profitability.** G-SIBs and retail lenders have shown the least variation in credit standards and average loan margins for NFC loans over time (measured based on the standard deviation, see Chart 11). This is most probably due to the fact that banks following the former business model are in general more diversified and less prone to cyclical variations of macroeconomic variables (also implied by their asset- and liability-structure), and to the fact that lenders belonging to the latter bank group tend to maintain relatively long-lasting relationships with their customers. Retail lenders have also experienced the least variation with respect to their funding costs, resulting from their larger dependence on retail funding and, therefore, their smaller exposure to prevailing market-based financing conditions. In line with this rather stable funding structure, retail lenders tightened their credit standards for loans to firms more moderately than more market-dependent bank types as an immediate reaction to the Lehman Brothers collapse in the third quarter of 2008. The considerable tightening of credit standards by retail lenders on average from 2007 to 2014, mentioned above, may instead be explained by a continuous, but limited tightening of credit standards during the crisis period. By contrast, corporate wholesale and specialised lenders have exhibited significant variability in terms of not only credit standards and average loan margins, but also funding costs across the timespan of the sample, owing to their considerable dependence on the issuance of debt securities and, as a result, on the movement of bond yields. The opposite is true when taking a closer look at the developments in return on equity, with the retail lenders' business model recording the strongest decline and widest variability during the crisis, largely reflecting their lower diversification and related considerable dependence on net interest income.

**Chart 11**

**NFC loan supply, bank funding cost and bank profitability across bank business models**

(averages of net percentages of banks, percentages and percentages p.a.)



Sources: ECB, Markit iBoxx, S&P Market Intelligence (SNL Financial) and ECB calculations.

Notes: See Charts 1 and 7. Return on equity refers to figures in the fourth quarter of the respective year and has been aggregated based on individual bank data, weighted by banks' total assets. Bank funding cost is a weighted average of banks' cost of deposits and bank bond yields. It has been aggregated based on individual bank data, weighted by banks' total assets. The figures for the bank business models are based on a confidential dataset including 13 euro area countries. The euro area figures refer to all euro area countries. The standard deviation refers to the standard deviation of the net percentages indicator of credit standards for each category.

## 4 Conclusions

**This article assesses bank loan supply conditions for euro area firms based on BLS indicators for credit standards and terms and conditions for new loans.**

While average margins for new loans to NFCs seem to have returned to conditions prevailing around the beginning of the financial crisis, banks' loan approval criteria and margins on riskier loans have remained tighter overall, due to banks' balance sheet cleaning, stricter regulatory and supervisory requirements and a cautious attitude towards risk. Since 2014, bank lending conditions for firms in the euro area have eased considerably, supported by favourable financing conditions to which the ECB's non-standard monetary policy measures have contributed positively.

**In addition, the BLS provides information about the driving factors of bank loan supply developments, which allows a deeper understanding of changes in bank lending conditions.**

The importance of these driving factors varies over time. While risk perceptions have played a dominant role, mainly during tightening periods, competitive pressures have been predominant during easing periods.

**Finally, this article gives new insights into the changes in bank lending conditions and the contributing factors across bank business models.**

While the broad developments are in line with overall euro area developments across business models, the intensity of changes in credit standards and the relative importance of the driving factors vary across bank types. Interestingly, while the variation of bank lending conditions for NFC loans has been generally more moderate for retail lenders and

G-SIBs, it has been more pronounced for other bank types which are more dependent on financial market funding and less diversified.

## 2 The effects of changes in the composition of employment on euro area wage growth

Prepared by Omiros Kouvavas, Friderike Kuik, Gerrit Koester and Christiane Nickel

### 1 Introduction

**Until recently, wage growth in the euro area has been low and under-predicted.**

Looking at the period 2013-17, this weakness can be explained to a large extent by the factors traditionally captured in a Phillips curve analysis, such as economic slack and inflation expectations. Slack in the labour market can be measured by a broad range of different indicators, which include “narrow” indicators (e.g. the unemployment rate) or more unconventional measures such as the broad unemployment rate. The latter also includes euro area working age population marginally attached to the labour force – i.e. those members of the labour force categorised as inactive but still competing, albeit less actively, in the labour market.<sup>82</sup> In general it seems that broader measures of labour underutilisation brought some marginal gains in explaining the subdued wage growth observed in the euro area over the period 2013-17.<sup>83</sup> However, the factors traditionally included in a Phillips curve analysis do not paint the full picture.<sup>84</sup>

**Could changes in the composition of employment also have contributed to low wage growth in the euro area?** Wages differ, for example, across sectors and are affected by employees’ personal characteristics and contract types. These “compositional effects” can mean that changes in the composition of employment can affect average wage growth in an economy. They also depend on the degree to which the composition of employment changes and on the size of differences in wages.

**In the euro area, significant changes in the composition of employment have taken place since the beginning of the crisis.** These include shifts in age and level of education, as well as in the prevalence of different contract types reflecting temporary and permanent employment.<sup>85</sup> The sectoral composition of employment has also changed because of shifts in employees working in higher and lower-paying sectors of the economy.

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<sup>82</sup> See, for example, the box entitled “[Assessing labour market slack](#)”, *Economic Bulletin*, Issue 3, ECB, Frankfurt am Main, 2017.

<sup>83</sup> See, for example, Lane, P.R. et al., “[The Phillips Curve at the ECB](#)”, *speech given at the 50th Anniversary Conference of the Money, Macro & Finance Research Group*, London School of Economics, 4 September 2019; Coeuré, B., “[Scars or scratches? Hysteresis in the euro area](#)”, *speech given at the International Center for Monetary and Banking Studies*, Geneva, 19 May 2017; and Section 2.2. of Nickel, C., Bobeica, E., Koester, G., Lis, E. and Porqueddu, M. (eds.), “[Understanding low wage growth in the euro area and European countries](#)”, *Occasional Paper Series*, No 232, ECB, Frankfurt am Main, September 2019.

<sup>84</sup> For the results of an ESCB Wage Expert Group, see Nickel, C., Bobeica, E., Koester, G., Lis, E. and Porqueddu, M. (eds.), *op. cit.*

<sup>85</sup> For details, see the box entitled “[Compositional changes behind the growth in euro area employment during the recovery](#)”, *Economic Bulletin*, Issue 8, ECB, Frankfurt am Main, 2018, and the article entitled “[Labour supply and employment growth](#)”, *Economic Bulletin*, Issue 1, ECB, Frankfurt am Main, 2018.

### **Shifts in the composition of employment can be driven by trend and cyclical developments.**

One case in point is the age structure of employees: this can be affected by trend developments, such as an ageing population, but also by cyclical developments, such as younger workers being at a higher risk of losing their job in a downturn.

### **Based on the economic literature, compositional effects can have a substantial impact on wage growth.**

Early studies have shown that the impact of changes on the composition of employment can be sizeable,<sup>86</sup> and the results of more recent studies focusing on the period of the crisis are similar.<sup>87</sup>

### **Can such compositional effects help us understand the development of wage growth over the cycle?**

They can do, for example, if compositional effects are heavily influenced by the cycle, pushing up wage growth in a downturn or depressing wage growth in an upturn. According to the literature, compositional changes in employment may indeed lead to such a countercyclical effect on aggregate wages.<sup>88</sup>

### **This article assesses how compositional effects have affected wage growth in the euro area and its member countries since 2007.**

<sup>89</sup> For our analysis we mainly rely on microdata from the EU Survey on Income and Living Conditions (EU-SILC). The article also includes cross-checks based on the EU Labour Force Survey (EU-LFS) and national accounts data. After a discussion of some conceptual foundations, we introduce the data used and illustrate recent changes in employment composition in the euro area. This is followed by an outline of our approach to assessing compositional effects and, finally, a discussion of evidence of the role of compositional effects for the euro area as a whole and the contribution of individual euro area countries.<sup>90</sup>

### **This article finds that compositional effects have contributed to a subdued reaction of wages in the euro area over the business cycle – including in the period of low wage growth.**

Compositional effects pushed up wage growth early in the crisis, but have since decreased and turned negative. This has contributed to a relatively muted response from aggregate wage growth, both to the strong downturn of the labour market early in the crisis and later to cyclical improvements during the years

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<sup>86</sup> See, for example, Coleman, T., “Essays on Aggregate Labor Market Business Cycle Fluctuations”, *PhD Thesis*, University of Chicago, 1984, Barsky, R. and Solon, G., “Real Wages over the Business Cycle”, *Working Paper Series*, NBER, 1988, Blank, R.M., “Why are Wages Cyclical in the 1970s”, *Journal of Labor Economics*, 8(1):17-47, 1990, and Kydland, F.E. and Prescott, E.C., “Cyclical Movements of the Labor Input and its Implicit Real Wage”, *Economic Review*, (second quarter):12-23, 1993.

<sup>87</sup> For later studies, see the box entitled “Real wages and employment composition effects during the crisis”, “[Euro area labour markets and the crisis](#)”, *Occasional Paper Series*, No 138, ECB, Frankfurt am Main, October 2012, and the box entitled “Real wage cyclical in the euro area: disentangling composition from wage structure effects” in “[Comparisons and contrasts of the impact of the crisis on euro area labour markets](#)”, *Occasional Paper Series*, No 159, ECB, Frankfurt am Main, February 2015.

<sup>88</sup> For more details on aggregation and selection bias, see, for example, Stockman, A.C., “Aggregation Bias and the Cyclical Behavior of Real Wages”, *unpublished manuscript*, 1983, and Keane, M., Moffitt, R., and Runkle, D., “Real Wages over the Business Cycle : Estimating the Impact of Heterogeneity with Micro Data”, *Journal of Political Economy*, 96(6):1232–1266, 1988.

<sup>89</sup> The starting point of the analysis has been chosen in line with data availability and quality – see also the discussion in Box 2.

<sup>90</sup> The article builds on extensive analyses of compositional effects pursued in the context of an ESCB Wage Expert Group – see Section 3.1 of Nickel, C., Bobeica, E., Koester, G., Lis, E. and Porqueddu, M. (eds.), *op. cit.*

after 2013. The most important contributions to compositional effects seem to have been related to changes in the age and educational structure of employment, which have had both a long-term and a cyclical impact. The countercyclical pattern of compositional effects resulted mainly from the group of young and comparatively low-skilled workers with relatively low wages; this group was hit especially hard by job losses early in the crisis (pushing average wage growth up during the downturn) and only experienced higher re-employment probability during the recovery period (with a downward effect on average wage growth). Looking at country-specific evidence, the euro area aggregate results have been influenced by Spain and Italy in particular.

**Conceptually, it would be appealing to estimate a Phillips curve for wage growth net of compositional effects, but this seems to be very difficult to implement.** With respect to data availability, such an approach is complicated by (i) the annual frequency of data needed to calculate compositional effects, (ii) the short length of the time series, and (iii) the substantial time lags in publication of the data.<sup>91</sup>

## 2 The effects of changes in the composition of employment on wage growth – conceptual foundations

**Differences in wages can be observed in various dimensions and can vary based on workers' individual characteristics and across sectors.** As labour productivity differs strongly across sectors, wages vary. They tend, for example, to be higher in the industrial sector of the economy than in the services sector. Another factor accounting for differences in pay is level of education, with higher levels of education being correlated with higher skills and thus higher wages. Contract type may also play a role, depending on whether individuals work part-time or full-time, and whether they are employed on a temporary or permanent basis.<sup>92</sup>

**Based on differences in wages across individuals and sectors, changes in the composition of employment can affect both the average level and the growth rate of wages in an economy.** Key indicators for wages in an economy are compensation per employee (CPE) or compensation per hour (CPH). CPE is the sum total of employees' compensation divided by the total number of employees, and CPH is the sum total of employees' compensation divided by the total number of hours worked in the economy. Employees' compensation includes not only wages and salaries in cash but also wages and salaries in kind, as well as employers' social contributions. Sectoral shifts in employment composition in the industrial sector, with its relatively high wages, can, for example, cause CPE and CPH to increase. In a

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<sup>91</sup> Additionally, parts of compositional effects are likely to affect average labour productivity developments, are partially captured in Phillips curve analysis by including a productivity parameter.

<sup>92</sup> For studies on contract type and wages, see Blanchard, O. and Landier, A., "The perverse effect of partial labour market reform: fixed-term contracts in France", *Economic Journal*, 112, 214-244, 2002, and Booth, A.L., Francesconi, M. and Frank, J., "Temporary jobs: stepping stones or dead ends", *Economic Journal*, 112(480), 2002. For more details on Germany, see Hagen, T. "Do temporary workers receive risk premiums? Assessing the wage effects of fixed-term contracts in West Germany by a matching estimator compared with parametric approaches", *Labour*, 16(4), 667-705, 2002. For more details on contract type as a proxy for tenure, see Carneiro, A., Guimarães, P. and Portugal, P., "Real Wages and the Business Cycle: Accounting for Worker, Firm, and Job Title Heterogeneity", *American Economic Journal: Macroeconomics*, 4(2):133–152, 2012.

similar vein, an increasing share of employees with high levels of education can also have a positive effect on average CPE and average CPH in an economy.

**Changes in the composition of employment can have implications for wage growth based not only on differences in wage levels but also on differences in wage growth among different types of workers.** One example is older workers tending to have higher wage levels but experiencing slower wage growth than younger workers. While both effects need to be taken into account, the effects resulting from the difference in wage levels, at least in the short run, seem to be dominating.<sup>93</sup>

**While compositional effects based on sectoral developments can, to a certain extent, be analysed based on macrodata from national accounts, studying the impact of individual employees' characteristics requires the use of microdata.** The effects of sectoral shifts in employment can, to a certain level of sectoral granularity, be analysed based on national accounts data for employment and compensation. However, comprehensive and consistent datasets for the euro area, including data on employment composition based on individual employees' characteristics and their wages, are only available based on surveys (see Box 2 for a discussion of available data).

**Drivers of compositional effects may be of a cyclical or structural nature.** Structural developments, such as ageing, are likely to have a slow-moving compositional effect on wage growth, since older employees tend to have higher wages.

**Cyclical developments drive compositional effects, especially due to differences in the risk of losing or gaining employment.** Employment risk over the business cycle is unequally distributed with respect to workers' skills and characteristics. During downturns and upturns, job losses and gains have the greatest effect on lower-skilled and younger workers. This is supported by research both in the United States and Europe.<sup>94</sup>

**Compositional effects can be countercyclical and may contribute to a muted reaction from wage growth to the business cycle.** If lower-skilled and younger workers, who are more likely to receive relatively low wages, are particularly likely to lose their jobs in a downturn, average wage growth (measured by CPE and CPH, for example) is pushed up mechanically. On the other hand, the reintegration of these workers into employment in an upturn depresses average wage growth. Such countercyclical compositional effects can partially mute the "true" cyclical reaction of wages to changes in the labour market.

**Empirical studies have indeed found a countercyclical pattern of compositional effects in the euro area and some EU countries.**<sup>95</sup> Such countercyclical effects

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<sup>93</sup> See the box entitled "Changes in employment composition and their impact on wage growth: an example based on age groups", *Economic Bulletin*, Issue 1, ECB, Frankfurt am Main, 2018.

<sup>94</sup> For a review of the response of income and employment risk over the business cycle, see the box entitled "Household income risk over the business cycle", *Economic Bulletin*, Issue 6, ECB, Frankfurt am Main, 2019.

<sup>95</sup> For a detailed literature review, see Christodouloupoulou, S. and Kouvavas, O., "Wages, Compositional Effects and the Business Cycle", *Working Paper Series*, forthcoming, ECB, Frankfurt am Main, 2019.

have been found in empirical studies of the euro area in the early part of the crisis<sup>96</sup> and also in country-specific studies for Belgium<sup>97</sup>, Italy<sup>98</sup> and the United Kingdom<sup>99</sup>.

**Trend developments might have a pronounced impact on compositional effects but are unlikely to cancel out possible cyclical patterns.** Overall, compositional effects are likely to reflect both trend and cyclical developments, the roles of which can vary over time depending on how pronounced a trend or cyclical development is. However, even if trend developments are very pronounced, they are unlikely to cancel out possible countercyclical patterns. This is because structural changes are usually uncorrelated with the business cycle.

## Box 1

### Effects of changes in the sectoral composition of employment on wage growth

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Prepared by Katalin Bodnár and Gerrit Koester

As wage levels differ across sectors in the economy, changes in the sectoral composition of employment can affect aggregate wage growth.<sup>100</sup> These differences are often linked to variations in labour productivity. The size of the effects on aggregate wage growth depends both on the extent of sectoral shifts in employment and on the size of differences in pay. For example, a rise in the share of employment in sectors with low wage levels can dampen wage growth. These sectoral changes can be analysed on the basis of national accounts data, which are available for ten main sectors (see Chart A).

Sectoral shifts are driven both by trend and cyclical developments. For example, a long-term reallocation of employment from industry to market and public services is observable (see Chart A). This longer-term trend is in line with developments in terms of value added, but may also be related to increasing automation in industry and the limited scope for that in the services sector. In the public sector, one main structural driver of increased employment is likely to be the demand for healthcare, which is related to the ageing of a society (among other things). The business cycle also has an impact on the sectoral composition of employment. This is most clearly visible in the concentration of the labour market adjustment during the crisis, primarily in the industrial and construction sectors.

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<sup>96</sup> For the early part of the crisis, see Verdugo, G., “Real wage cyclicality in the Eurozone before and during the Great Recession: Evidence from micro data”, *European Economic Review*, 2016.

<sup>97</sup> De Sloover, F. and Saks, Y., “Is job polarisation accompanied by wage polarisation?”, *Economic Review*, 2018.

<sup>98</sup> Adamopoulou, E., Bobbio, E., De Philippis, M. and Giorgi, F., “Allocative efficiency and aggregate wage dynamics in Italy”, *Occasional Paper Series*, Bank of Italy, 2016.

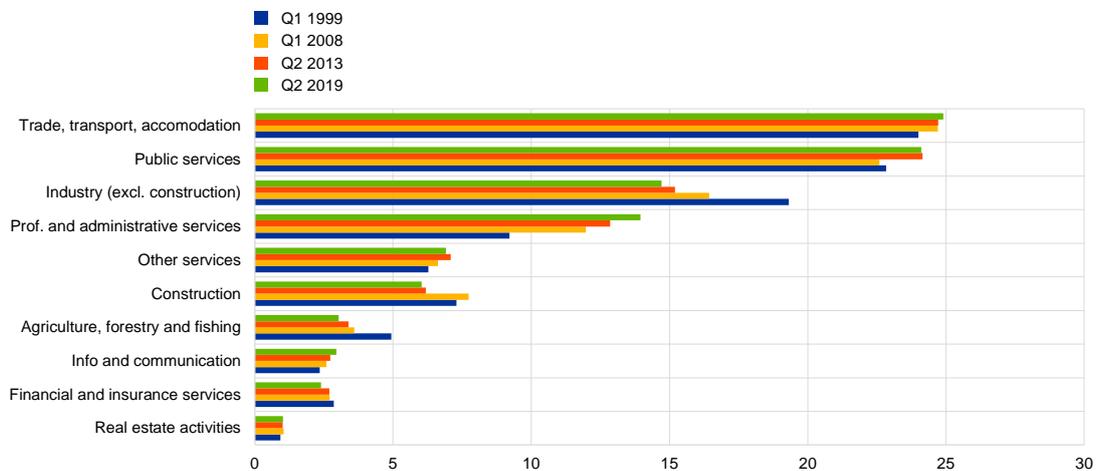
<sup>99</sup> Blundell, R., Crawford, C. and Jin, W., “What can wages and employment tell us about the UK’s productivity puzzle?”, *Economic Journal*, 124:377-407, 2014, and Elsby, M.W., Shin, D. and Solon, G., “Wage Adjustment in the Great Recession and Other Downturns: Evidence from the United States and Great Britain”, *Journal of Labor Economics*, 2013.

<sup>100</sup> See Abraham, K.G. and Haltiwanger, J.C., “Real Wages and the Business Cycle”, *Journal of Economic Literature*, 33(3):1215–1264, 1995.

## Chart A

### The composition of euro area employment by sector

(share of sectors in total employment, percentages)



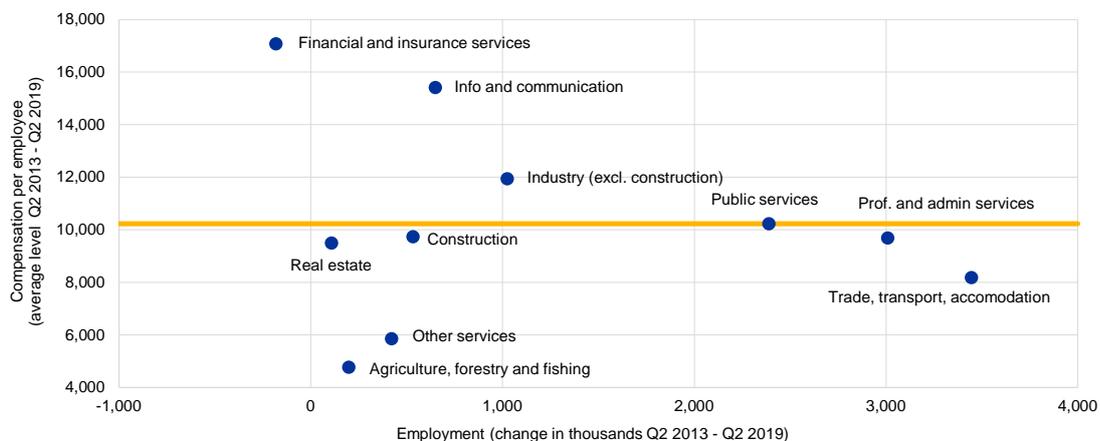
Source: Eurostat.

The sectoral composition of employment growth in the euro area over the recovery period would suggest a downward impact on overall wage growth. Since the second quarter of 2013 – the start of the economic and labour market recovery – employment has grown most strongly in the services sectors. Wage levels in these sectors – such as in professional and administrative services, or trade transport and accommodation – are close to or below euro area averages (see Chart B). At the same time, employment growth was relatively small or negative in some sectors characterised by high wage levels, including financial and insurance services, information and communication services, and industry (excluding construction).

## Chart B

### Changes in euro area employment by sector and sectoral wage levels over the recovery period

(x-axis: change in employment; y-axis: average quarterly compensation in euro)



Source: Eurostat.

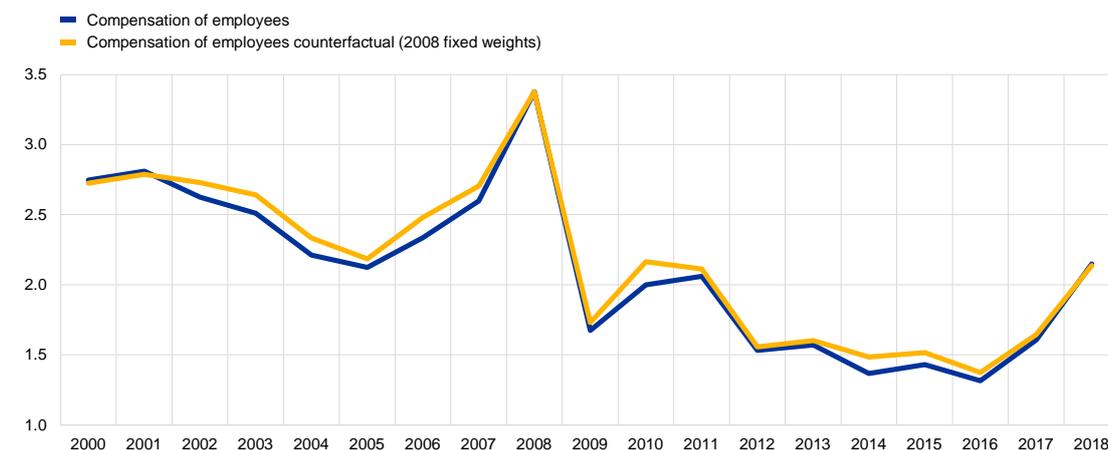
However, shifts in sectoral composition seem to have had only a very limited effect on aggregate wage growth in the euro area overall. Effects of changes in the sectoral composition on wage growth can be identified by comparing realised aggregate wage growth with a counterfactual series for wage

growth, which keeps sectoral shares in overall employment constant. Fixing sectoral weights at their 2008 level reveals that such sectoral shifts have most likely had only a very limited effect on overall wage growth (see Chart C).

### Chart C

#### Growth of compensation per employee with changing and fixed sectoral weights

(annual percentage changes)



Sources: Eurostat and ECB calculations.

**This box finds that shifts in the sectoral composition of employment do not seem to have had a major influence on wage growth. This could also be seen as an indication that microdata studies, like the one pursued in the main text, can also shed some light on within-sector shifts.**<sup>101</sup>

## 3 Developments in the composition of employment and wage differences across employee characteristics

**In the euro area, significant changes have taken place in the age and educational structure of employment (see Chart 1).**<sup>102</sup> This can be illustrated based on microdata from EU-SILC, which are available up to and including 2016<sup>103</sup> (see Box 2 for details and a comparison of EU-SILC data with alternative available datasets; see Box 4 for a cross-check against data from the EU-LFS). Most importantly, the share of older employees has increased, while the share of younger workers has decreased substantially. At the same time, the share of employees with a lower level of education has decreased, while the share of more highly educated employees has increased.

<sup>101</sup> This finding is in line with analyses, for example, for the United Kingdom – see Broadbent, B., “Compositional shifts in the labour market”, speech given at “Understanding the Great Recession: from micro to macro”, Bank of England, 2015.

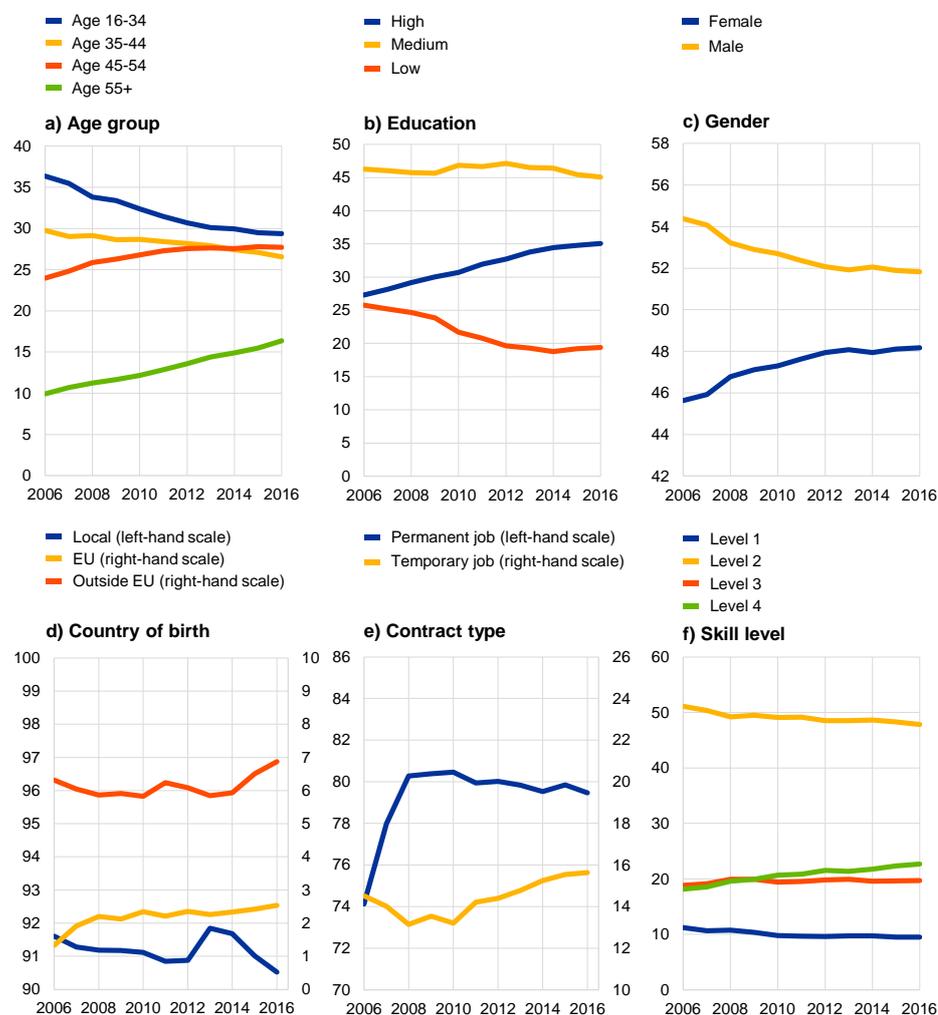
<sup>102</sup> All results presented in this section are calculated using survey weights.

<sup>103</sup> The 2017 data refers to the 2016 situation for individuals in most countries included in the EU-SILC.

## Chart 1

### Development of the main characteristics related to employment in the euro area according to the EU-SILC

(percentages)



Sources: Eurostat (EU-SILC) and ECB staff calculations.

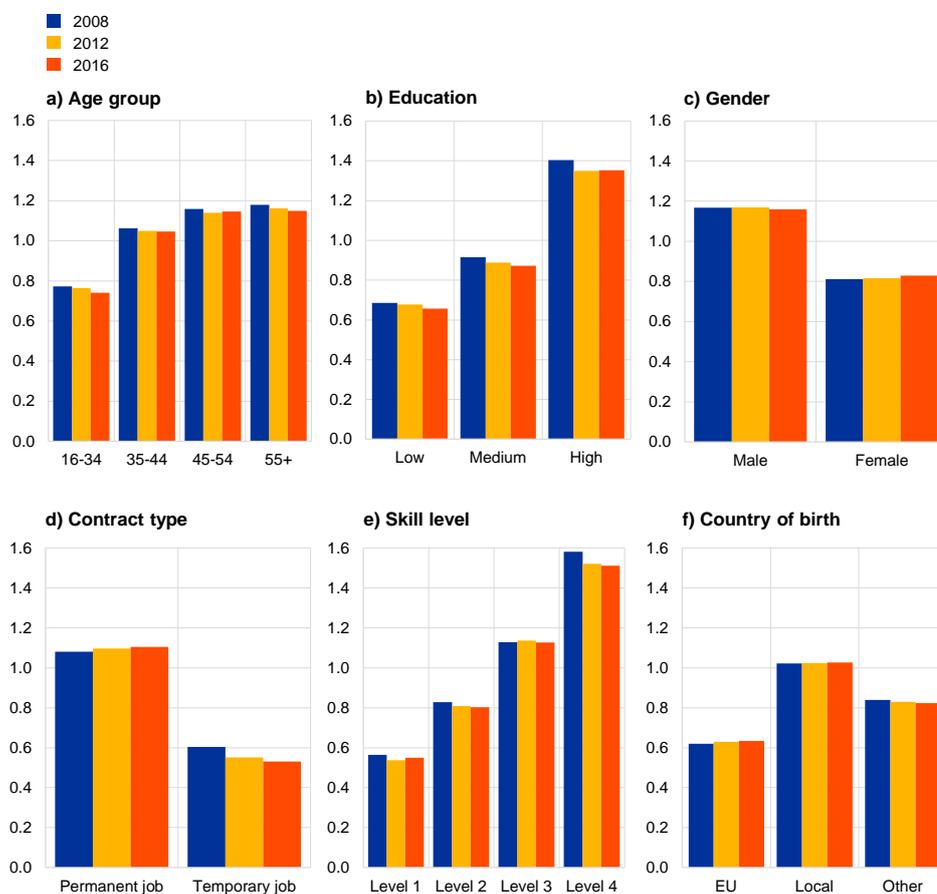
Notes: Euro area aggregate weighted by hours worked; numbers not adding up to 100% indicate missing data. The skill levels are defined by grouping different occupational groups: level 1 includes elementary occupations; level 2 includes clerical support workers, service and sales workers, skilled agricultural, forestry and fishery workers, craft and related trades workers, and plant and machine operators and assemblers; level 3 includes technicians and associate professionals; and level 4 includes managers and professionals.

**These developments can be partly attributed to longer-term trends (demographic changes, pension system reforms, the trend towards higher levels of education, etc.) but can be also related to cyclical developments in some countries:** younger and less educated/skilled workers were the first to lose their jobs during the crisis, further increasing the share of older and more highly educated employees. This cyclical pattern is also observed in the development of temporary contracts, the number of which declined early in the crisis in a number of countries but whose share increased during the recovery.

## Chart 2

### Mean income per group of employees compared with overall mean income

(euro area, 1 = mean income)



Sources: Eurostat (EU-SILC) and ECB staff calculations.

Notes: Weighted by hours worked. The skill levels are defined by grouping different occupational groups: level 1 includes elementary occupations; level 2 includes clerical support workers, service and sales workers, skilled agricultural, forestry and fishery workers, craft and related trades workers, and plant and machine operators and assemblers; level 3 includes technicians and associate professionals; and level 4 includes managers and professionals. The income variable used is wage per hour as derived from EU-SILC variables.

**The developments in the composition of employment, together with considerable differences in the mean income of the different groups, motivates the assessment of compositional effects on wage growth.** A comparison of the euro area mean income of different age groups with the mean income of all employees (see Chart 2) shows that workers over the age of 44, in particular, earn considerably more than workers between the ages of 16 and 34, the wages of the latter being, on average, less than 80% of the overall mean. The difference is even more notable when comparing employees across different levels of education: while less highly educated employees earn around 60% of the mean, more highly educated employees earn between 20% and 40% more than the mean (depending on the year). Similar differences can be observed when comparing employees' occupations, skill levels, genders, contract types and nationalities.

## Box 2

### Available microdata for studying compositional effects in euro area wage growth

Prepared by Friderike Kuik

Microdata that include characteristics of individual workers and cover EU or euro area countries in a consistent way are only available on the basis of surveys. Administrative data based on social security systems, for example, are only available in some countries,<sup>104</sup> which does not allow for a consistent approach covering all euro area countries.

The main survey-based microdata that can be used to describe the labour market and income statistics in EU countries are the Statistics on Income and Living Conditions (EU-SILC), the EU Labour Force Survey (EU-LFS) and the Structure of Earnings Survey (SES). Their main features are depicted in Table A. Contrary to macro-level data, e.g. from national accounts, which provide aggregate information, these datasets include micro-level data at the individual and/or household level.

**Table A**

Main features of different sets of microdata describing the labour market

	EU Labour Force Survey (EU-LFS)	Structure of Earnings Survey (SES)	EU Statistics on Income and Living Conditions (EU-SILC)
<b>Coverage</b>	EU members, plus some non-EU countries	EU members, plus candidate countries and EFTA countries	EU members and candidate countries, plus Iceland, Norway and Switzerland
<b>Surveyed entities</b>	Households and individuals	Firms with at least ten employees	Households and individuals
<b>Frequency</b>	Quarterly	Every four years	Annual
<b>Availability</b>	Most countries covered since 2000, some since 1983	Since 2002	Since 2004/2005

The analysis presented in this article is based on the EU-SILC dataset, which is “the reference source for comparative statistics on income distribution and social inclusion in the European Union”<sup>105</sup>. It is an annual survey conducted in all EU and some non-EU countries.<sup>106</sup> The data are collected by National Statistical Institutes and disseminated by Eurostat. The survey offers a wide range of variables related to individual, job-related and firm-related characteristics as depicted in Table B. For the analysis in this article, the cross-sectional dataset<sup>107</sup> is used, which is currently available for the survey years from 2005 to 2017<sup>108</sup>.

<sup>104</sup> For more details on Spain, see Puente, S. and Galán, S., “[Analysis of composition effects on wage behaviour](#)”, *Economic Bulletin, Banco de España*, February 2014.

<sup>105</sup> See [Eurostat](#).

<sup>106</sup> EU-SILC data are based on a common framework and harmonised definitions, but implementations at the country level are different, particularly with regard to sampling methods and data sources. For example, some countries base the income information they include in the EU-SILC mostly or completely on administrative registers, while others base their information entirely on household and personal interviews. Income data are gross of taxes and social contributions, but a few countries collect net incomes and convert them to gross income. These differences may lead to differences in data quality for different countries. For further information, see, for instance, Atkinson, A.B., Guio, A.-C. and Marlier, E. (eds.), “[Monitoring social inclusion in Europe](#)”, *Statistical Books*, Eurostat, 2017.

<sup>107</sup> The EU-SILC data includes a cross-sectional and a longitudinal dataset. While the cross-sectional data is related to a given time or time period, the longitudinal data also tracks changes in the individual level over a four-year period. However, the longitudinal data does not cover all countries (e.g. Germany is not covered) and includes fewer variables.

<sup>108</sup> Available from 2004 for Austria, Belgium, Denmark, Estonia, Finland, France, Greece, Iceland, Ireland, Italy, Luxembourg, Norway, Portugal, Spain and Sweden, and gradually for all EU countries.

**Table B**

Selected variables included in the different sets of microdata, including variables with potential relevance for compositional effects

	EU Labour Force Survey (EU-LFS)	Structure of Earnings Survey (SES)	EU Statistics on Income and Living Conditions (EU-SILC)
<b>Individual characteristics</b>			
Gender	x	x	x
Age	Age category	Age category	x
Education	x	x	x
Citizenship	x	-	x
<b>Job-related characteristics</b>			
Employment status	x	Only employed	x
Income	Income deciles	x	x
Occupation	x	x	x
Permanent/temporary	x	x	x
Self-employed	x	-	x
Full-time/part-time	x	x	x
Length of service in firm	x	x	-
Length of total work experience	Can be derived	-	x
<b>Firm characteristics</b>			
Sector	x	x	x

Compared with EU-LFS and SES data, the EU-SILC data offer a range of advantages for an analysis of the contribution of compositional changes in the labour force to wage growth. Most importantly, the EU-LFS only provides information on income in the form of income deciles for a country as a whole, which does not allow for an analysis of the effects of individual characteristics on wages.<sup>109</sup> Still, it is a valuable data source that – unlike the EU-SILC – offers very timely statistics on labour market developments (see also Box 4). The SES, on the other hand, includes rich and detailed information on the relationship between wages and workers' individual characteristics, but is only conducted once every four years. This prevents analyses of changes in compositional effects from year to year. Furthermore, the survey includes individuals in firms with at least ten employees for most countries (see Table A), and thus excludes an important share of individuals who would ideally be included in an analysis of compositional effects.

Trends in aggregate hourly wage growth as calculated from the EU-SILC are broadly consistent with wage growth from national accounts. In some cases, however, differences exist.<sup>110</sup> Mismatches may relate to differences between the survey target population and national accounts, and small differences in variable definitions (e.g. hourly wages). For example, the survey might not fully capture special (i.e. temporary) working time adjustments or short-term changes. Furthermore, the EU-SILC target population is the resident population in private households of the survey country but excludes cross-border workers and “collective households”, e.g. immigrants in temporary housing arrangements.

<sup>109</sup> In some cases, more detailed income information is available from National Statistical Offices.

<sup>110</sup> See also <https://ec.europa.eu/eurostat/web/experimental-statistics/ic-social-surveys-and-national-accounts>

## 4 Evidence of compositional effects in the euro area

### 4.1 Microdata evidence for compositional effects based on individual characteristics of the euro area

**Analysing the effects of changes in the composition of employment on aggregate wage growth requires the effects from changes in the characteristics of employment to be disentangled from the changes in the individual returns.**

Disentanglement can be achieved using the “Oaxaca-Blinder decomposition” technique, which is the general approach we have taken for our analysis.

**The compositional effect calculated using the Oaxaca-Blinder decomposition measures the mechanical differences in aggregate wages due only to the changed composition of employees.** Box 3 describes the methodology in greater detail.

**The dependent variable in our analysis is hourly gross wage growth, while the independent variables in a “baseline” configuration include the individual characteristics of age, education, gender and nationality.**<sup>111</sup> Owing to the nature of the survey, the data represent annual averages. We weight all results with hours worked<sup>112</sup> during the decomposition.<sup>113</sup>

**Sectoral and firms’ characteristics are not included in the analysis, as they are part of the market structure and would lead to an “artificial” inflation of the compositional effect.** There are several arguments against including these characteristics: first, sectoral and firm characteristics may be correlated with individual characteristics, decreasing the impact of the individual characteristics. Furthermore, adding a covariate correlated to wages will increase the overall estimated composition effect, leading to overestimation.<sup>114</sup> Finally, as shown in Box 1, changes in sectoral composition do not seem to have had a decisive influence on wage growth in the euro area.

#### Box 3

#### Estimating compositional effects on euro area wage growth based on microdata from the EU Statistics on Income and Living Conditions (EU-SILC)

Prepared by Omiros Kouvavas

The Oaxaca-Blinder<sup>115</sup> decomposition is the standard approach used to study the effects of compositional changes on labour market outcomes. The method has been used in studies covering a

<sup>111</sup> Dummies are used for the different sub-groups of each characteristic.

<sup>112</sup> Along with the survey weights.

<sup>113</sup> For a detailed explanation on the correct weighting of the EU-SILC for wage aggregation, see Christodouloupoulou, S. and Kouvavas, O., “Wages, compositional effects and the business cycle”, *Working Paper Series*, forthcoming, ECB, Frankfurt am Main, 2019.

<sup>114</sup> An alternative approach is to include the firms’ characteristics as controls and not to include them in the composition effects.

<sup>115</sup> Oaxaca, R., “Male-Female Wage Differentials in Urban Labour Markets”, *International Economic Review* 14(3): 693-709, 1973.

wide array of topics, from inequality to discrimination and demographics, in order to explain the change in the means of an outcome variable between groups. This gap is decomposed into the part that is due to changes in the determinants of an outcome and the part that is due to changes in the effects of these determinants. In our case the outcome variable is the wage, and the determinants are worker skills and characteristics. The Oaxaca-Blinder decomposition of aggregate wage growth disentangles effects owing to a change in the weighting of groups (composition change), a change in individual returns (returns effect) and a simultaneous change of both (interaction term).

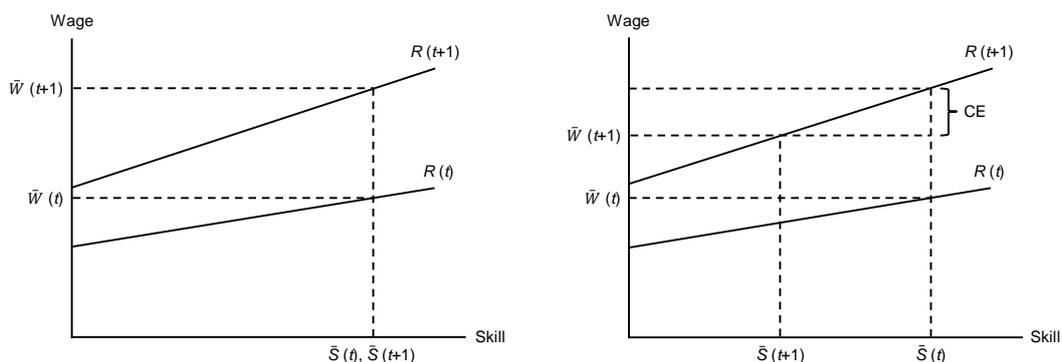
The estimation of compositional effects requires the availability of individual-level data containing wages and skill characteristics. In order to determine, for example, whether an increase in the average wage is due to a nominal increase in returns to skills or to a change in the skill distribution of employment, an accurate estimate of the returns to skills for each year is required. As shown in Chart A, if both the average skills (S) and the returns to skills (R) change at the same time (right-hand figure), the observed wage growth ( $\bar{W}(t+1) - \bar{W}(t)$ ) may be understated. Thus, to accurately estimate the impact of the composition changes we first need to determine the returns to skills using individual-level wages and characteristics.

### Chart A

#### Decomposing wage growth into returns growth and average skill level

##### Aggregate wages and skills over two consecutive years

(average wage, average skill level)



Note: Authors' illustration.

The Oaxaca-Blinder decomposition uses a series of regressions to disentangle compositional effects from changes in individual returns. First, the two different years are defined as two groups of employed individuals (group  $t$  and group  $t+1$ ), the individual wage ( $Y$ ) and workers' characteristics ( $X$ ). The difference of the mean wage can be written:

$$\Delta E(Y) = E(Y_{t+1}) - E(Y_t) \quad (1)$$

Given a linear model:

$$Y_T = X_T' \beta_T + \epsilon_T, E(\epsilon_T) = 0 \quad T \in (t, t+1) \quad (2)$$

it can be proven that:

$$\Delta E(Y) = \underbrace{[E(X_{t+1}) - E(X_t)]' \beta_t}_{\text{Compositional Effect}} + \underbrace{E(X_t)(\beta_{t+1} - \beta_t)}_{\text{Returns to Skills}} + \underbrace{[E(X_{t+1}') - E(X_t')](\beta_{t+1} - \beta_t)}_{\text{Interaction Term}} \quad (3).$$

The first term on the right-hand side of equation (3) is the compositional effect, measuring the differences in predicted wages due only to changes in the composition of the employed workforce. The second term is the coefficient effect, which measures the difference in wages (or the returns to the covariates) if the skillset of the workers is kept constant. The last term is the interaction effect, which accounts for the fact that differences in skills and returns coexist.

**The interaction term captures changes in wages resulting indirectly from a change in the composition of the workforce.** An example would be low-skilled immigration lowering the average wage of domestic workers (as a result of an increase in labour supply in this segment). In this article we exclude this term, as it goes beyond the direct (mechanical) effects of changes in the composition of employment on wage growth and could also capture effects other than those related to changes in the composition of employment. This is because shocks that are happening at the same time as the change in composition might, to some extent, be captured by the interaction term. For example, if a technology shock only hits low wage earners (i.e. the specific group that experiences the compositional change in a way different from the other groups) then the effects will be captured by the interaction term. Furthermore, this term is usually small<sup>116</sup> and would change the results only marginally. Nevertheless, we choose not to include it in the compositional effect, as it also captures an endogenous change in market conditions due to the composition change.

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## 4.2 Evidence for the euro area

**Euro area aggregate<sup>117</sup> results suggest that compositional effects pushed up wage growth early in the crisis, but the effect has since decreased and turned negative, thereby contributing to a relatively muted response from aggregate wage growth to cyclical improvements (see Chart 3).** According to the results from the “baseline” configuration (see panel a in Chart 3), the largest positive contribution of compositional effects can be observed between 2008 and 2012, with compositional effects contributing more than 1 percentage point, up to about 1.5 percentage points, to wage growth.<sup>118</sup> The effect has been declining steadily since then, turning negative in 2015 and 2016.

**The largest contribution to the overall effect comes from changes in the composition of the age and education structure.** This is consistent with aggregate changes in the composition of employment, as discussed in Section 3, with the changes in age and education structure being dominant.

**The declining and eventually negative impact of compositional effects is consistent with compositional effects having contributed to subdued wage**

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<sup>116</sup> On average an order of magnitude smaller than the other two terms.

<sup>117</sup> The results for euro area countries are weighted based on hours worked taken from the national accounts data.

<sup>118</sup> The lower two specifications are also included in Chart 15 of the paper by Nickel, C., Bobeica, E., Koester, G., Lis, E. and Porqueddu, M. (eds.), *op. cit.* The results presented in Chart 3 add an additional year of data (2016). Furthermore, they are based on an improved weighting methodology that does not simply rely on survey weights but also uses hours worked for individual observations to determine the within-country weights. This reflects within-country weights more accurately, as differences in patterns of hours worked are accounted for. While the general pattern of the results is not affected, the improved approach leads to a slightly more negative effect for 2015 for all specifications.

**growth in the euro area in recent years.** Hence compositional effects could have contributed to the subdued reaction of wage growth to cyclical changes in the labour market – with compositional effects pushing up wage growth early in the crisis and the strong recovery of the labour market from 2013 onwards dampening this growth.

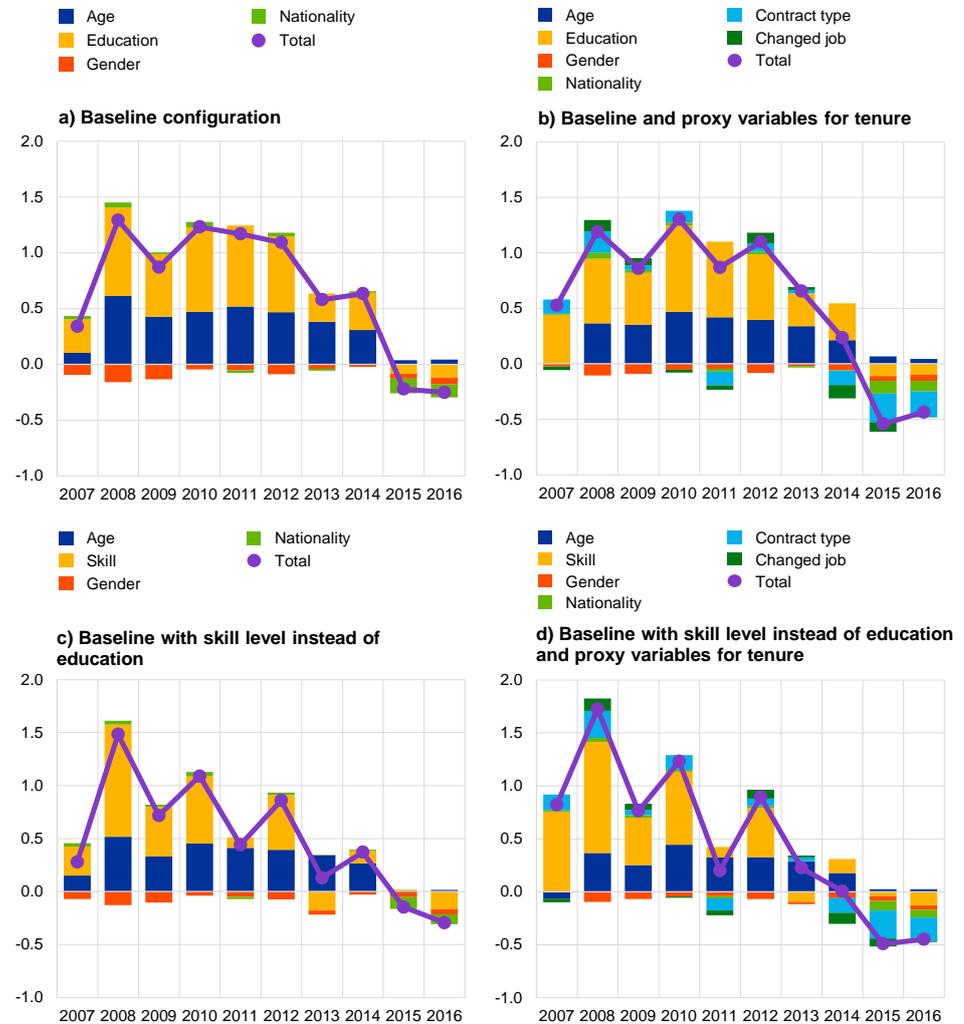
**Different specifications are used as robustness checks – including workers’ skills – and different proxies for tenure as independent variables.** As a first cross-check, education is replaced by skill level based on the employee’s occupation (see panel c in Chart 3). This is useful in cases where a large proportion of employees work in occupations not commensurate with their level of education. The second cross-check assesses the impact of adding proxy variables for tenure, including whether the individual has a permanent or temporary contract and whether the individual has changed jobs in the past year (see panels b and d in Chart 3). They are added on top of the baseline configuration. However, it is important to note that these proxies can only partially capture the concept of “tenure”, i.e. length of service with the same employer.

### Chart 3

#### Euro area average compositional effects on wage growth

##### Results obtained with four different specifications

(percentage points)



Sources: Eurostat (EU-SILC) and ECB calculations.  
Note: EU aggregates weighted by hours worked.

**When replacing education with occupation as a proxy for skill level, the overall effect becomes more volatile and shows a less pronounced pattern for many countries.** This indicates that the use of occupation as a proxy for skill level in the EU-SILC seems to be meaningful only to a limited extent. This can partly be attributed to data issues. Nevertheless, the results are in line with the overall pattern of the sign and amplitude of the compositional effects.

**Adding variables that represent tenure has resulted in more negative compositional effects in recent years.** The effect is illustrated in the figures in panels b and d in Chart 3, and might be explained by new hires (potentially on temporary contracts) on lower salaries coming into employment after the crisis.

**Several additional checks were done but did not result in substantial changes to the results.** We tested replacing “citizenship” with “country of birth”, as this seemed to be a better proxy for immigration. However, as changes in citizenship and country of birth in the EU-SILC largely follow the same trends, this did not impact the results either at the euro area aggregate level or for selected test countries.<sup>119</sup>

### 4.3 Microdata evidence for individual euro area countries

**On a country-by-country basis, our analyses show a general trend in compositional effects that is similar to that for the euro area as a whole, but with some heterogeneity between countries concerning the sign and size of the effects in individual years (see Chart 4).** In the configuration including proxy variables for tenure, compositional effects were positive in all countries in 2008 (see green shading in Chart 4), with effects decreasing between 2009 and 2013. This is in line with the findings for the euro area aggregate, which showed that, at the beginning of the crisis, compositional effects pushed up wage growth before later declining. For a large number of countries the results switched sign in 2014 and 2015 (see red shading in Chart 4). Large compositional effects were seen for some southern European countries in particular (e.g. Spain, Portugal and Italy), but the effect also decreased or even became negative in these countries in 2015 and 2016. Again, this sign switching is reflected in the euro area aggregate data and is driven to a significant extent by compositional changes in age and education.

**Spain and Italy seem to be the main contributors to the euro area aggregate compositional effect (see Chart 5).** The contribution from Spain was particularly large in 2008 but then declined, while Italy’s contribution was relatively large in 2012. In 2015 and 2016 Italy and Spain experienced very negative compositional effects; this can be explained by their respective increases in employment, which were concentrated at the lower end of the wage distribution. These results illustrate that compositional effects seem to be driven mostly by effects in countries that have experienced the largest cyclical changes in employment.<sup>120</sup> In line with these results, Germany and France seem to have experienced less marked compositional effects (with regard to total employment) throughout the cycle.

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<sup>119</sup> It must be noted that this immigration variable in our analysis only captures potential differences over and above what could already be captured by education, age and the other characteristics.

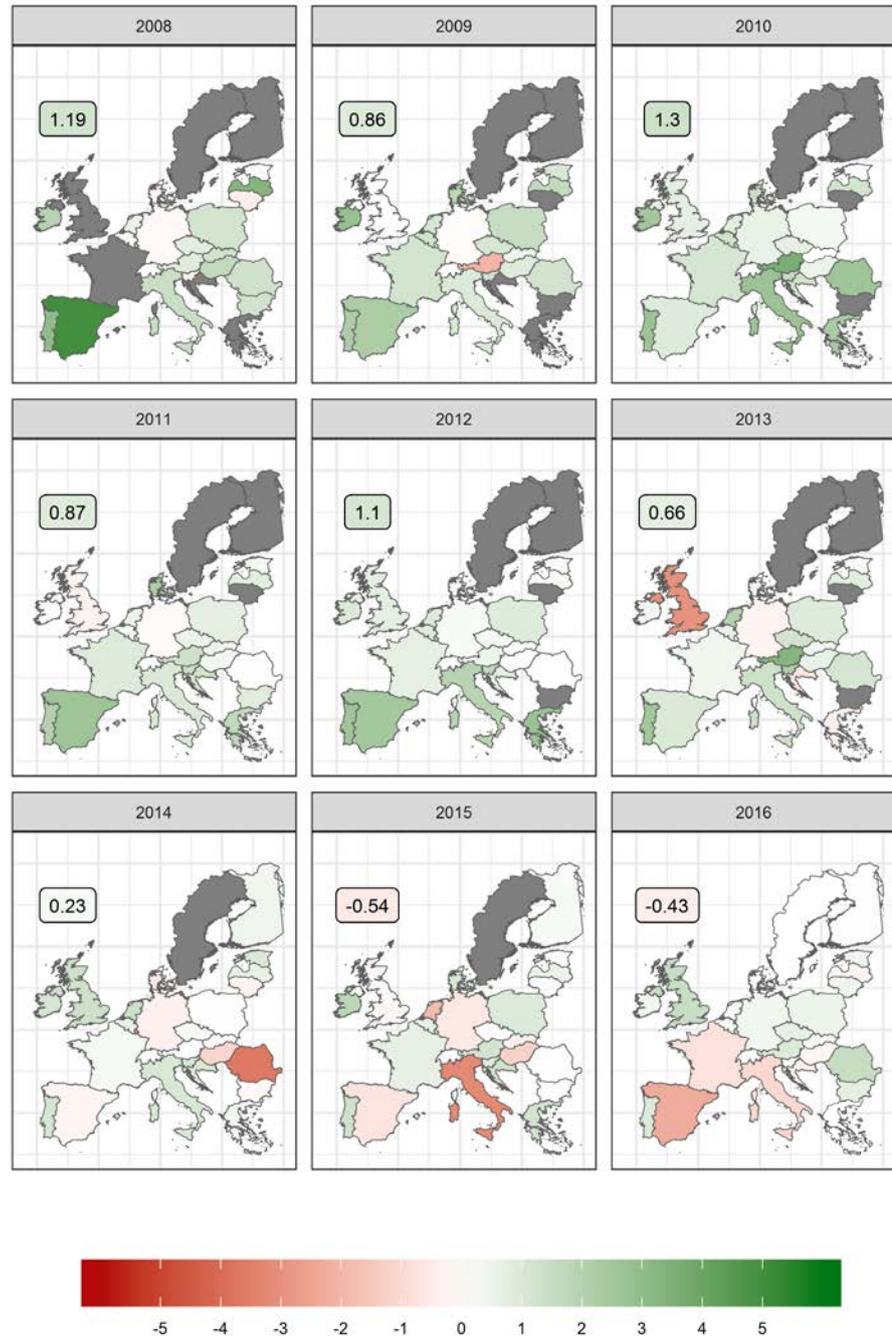
<sup>120</sup> The size of the employment changes experienced by these counties is affected by the high share of temporary contracts, among other things (Portugal and Spain have around 20%-25%, in comparison with Germany, which has less than 15%), which allows for higher flows and more labour market flexibility.

### Chart 4

#### Euro area average wage growth attributed to composition changes

Results obtained for the configuration including age, education, gender, nationality and proxies for tenure

(percentage points, numbers in boxes refer to euro area weighted mean)



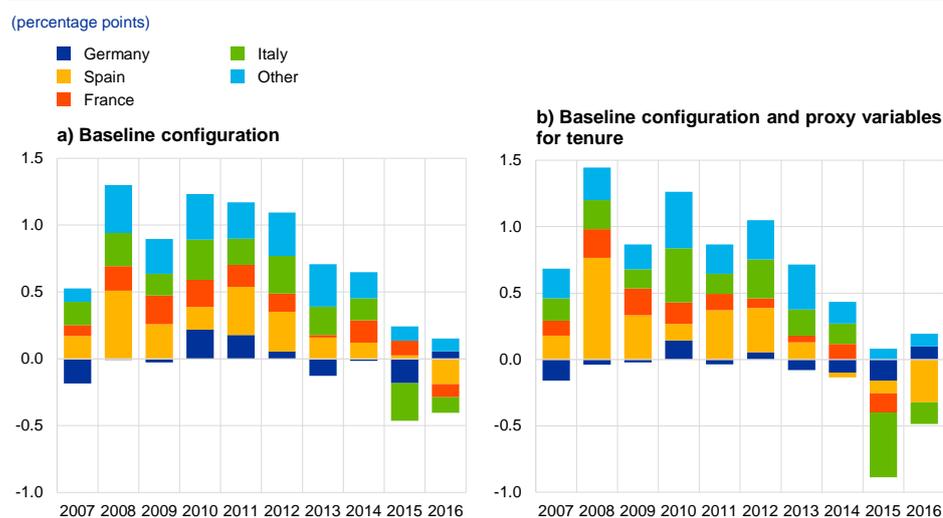
Sources: Eurostat (EU-SILC) and ECB calculations.  
Notes: EU aggregates weighted by hours worked. Grey shading indicates missing data.

**Negative compositional effects in recent years are mainly due to education and the reduced effect of age.** Particularly in Spain and Italy – the two countries mainly

driving the negative compositional effect – education has the greatest impact, as there is a stronger increase in employment among employees with a lower level of education. Furthermore, the impact of the age profile has become negative for both countries in the last two years, having previously had a strong positive effect.

### Chart 5

#### Country contributions to the euro area compositional effect on wage growth



Note: ECB calculations.

**Our results are consistent with studies on individual countries, such as Italy and Spain.** This analysis shows significant and positive compositional effects in Italy<sup>121</sup> and Spain<sup>122</sup> during the period 2008-13.<sup>123</sup>

### Box 4

#### Changes in the composition of the workforce based on the EU Labour Force Survey (EU-LFS)

Prepared by Katalin Bodnár and Friderike Kuik

This box cross-checks the extent to which the findings on compositional changes in employment derived from the EU-SILC dataset are consistent with data derived from the EU-LFS. On top of this robustness check, the EU-LFS data – which, contrary to the EU-SILC data, are already available for 2017 and 2018 – also allow a discussion on more recent developments in the composition of employment and a preliminary assessment of their possible knock-on effects on wage growth in 2017 and 2018.

<sup>121</sup> See, for example, D'Amuri, F., "Composition effects and average wage dynamics in Italy", *Mimeo*, 2014, and Adamopoulou, E., Bobbio, E., De Philippis, M. and Giorgi, F., "Allocative Efficiency and Aggregate Wage Dynamics in Italy", *Occasional Paper Series*, Banca d'Italia, 2016.

<sup>122</sup> See, for example, Puente, S. and Galán, S., "Analysis of Composition Effects on Wage Behaviour." *Economic Bulletin*, Banco de España, 2014, and Orsini, K., "Wage Adjustment in Spain: Slow, Inefficient and Unfair?" *ECFIN Country Focus*, European Commission, 2014.

<sup>123</sup> The impact of immigration on wage growth in Germany is discussed in "Wage growth in Germany: assessment and determinants of recent developments", *Monthly Report*, Deutsche Bundesbank, April 2018, p.18.

The EU-LFS is a set of microdata providing detailed information on the composition of employment using several characteristics (see Box 2). It is a household survey that is conducted in all euro area countries in a harmonised way. A representative sample of individuals is regularly asked about their labour market status, personal characteristics and the characteristics of their employment (for those who are employed). This dataset is regularly used to monitor the composition of employment growth in the euro area but does not provide information on wages in a harmonised way.<sup>124</sup> Given that the EU-LFS is representative of the labour force, a comparison of the composition of employment in this dataset with the EU-SILC is an important robustness check for the results shown in the article.<sup>125</sup>

As with the developments indicated by EU-SILC data, EU-LFS data point to sizeable changes in the composition of the workforce in the euro area. The most striking change can be seen in terms of the age composition of employment. Driven by demographic developments and a significant rise in the labour force participation rate, older workers (i.e. those older than 55) account for an increasing share of employment. This age group's share in the stock of employment in the euro area has increased from around 12% to 20% since 2006.<sup>126</sup> At the same time, the employment share of the more highly skilled has also increased considerably, by about 10 percentage points, while the share of those who are lower skilled has declined. The composition of employment by gender has become closer to equal, as the labour supply of women has risen considerably; however, most of this change happened before 2013. The EU-LFS also points to an increase in the share of workers with citizenship of non-euro area EU Member States. According to the characteristics of the contracts and the tasks performed, there has been a moderate shift towards temporary positions in the years to 2018, and towards occupations requiring higher skill levels.

Overall the trends in the development of workers' individual characteristics, as found by the EU-LFS, confirm the picture given by the EU-SILC data. The two datasets provide very similar pictures, both in the composition of employment according to individual characteristics and in terms of the changes to the time period for which both are available (see Chart A). For example, although the EU-LFS points to a slightly higher share of workers with a high level of education than is reflected by the EU-SILC, the change of this share over time is very similar in the two. Remaining differences between the two datasets might be attributable to differences in the definition of variables, differences in the samples and sampling methods, and other data issues such as missing data.<sup>127</sup>

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<sup>124</sup> While the EU-LFS is used for a detailed breakdown of employment, it is not the primary source. National accounts are the main source for employment levels in the economy. While the dynamics of these two sets of statistics are similar, the resulting levels of employment and cumulative growth rates are somewhat different for methodological reasons. For a detailed explanation see Eurostat's "[Relation between employment in the labour force survey and in national accounts](#)".

<sup>125</sup> While the analysis in the main text abstracts from self-employment, the comparison of the EU-LFS and EU-SILC datasets in this box is done based primarily on data for employment, including self-employment. The main reason for this difference between the box and the main text is that not all breakdowns for employment are available in the EU-LFS data, including self-employment. However, this should not affect the reliability of this box's robustness check, as it consistently analyses employment, including self-employment, using both EU-LFS and EU-SILC data. Furthermore, a comparison of EU-SILC data shows that including self-employment has only a very limited effect on the overall picture.

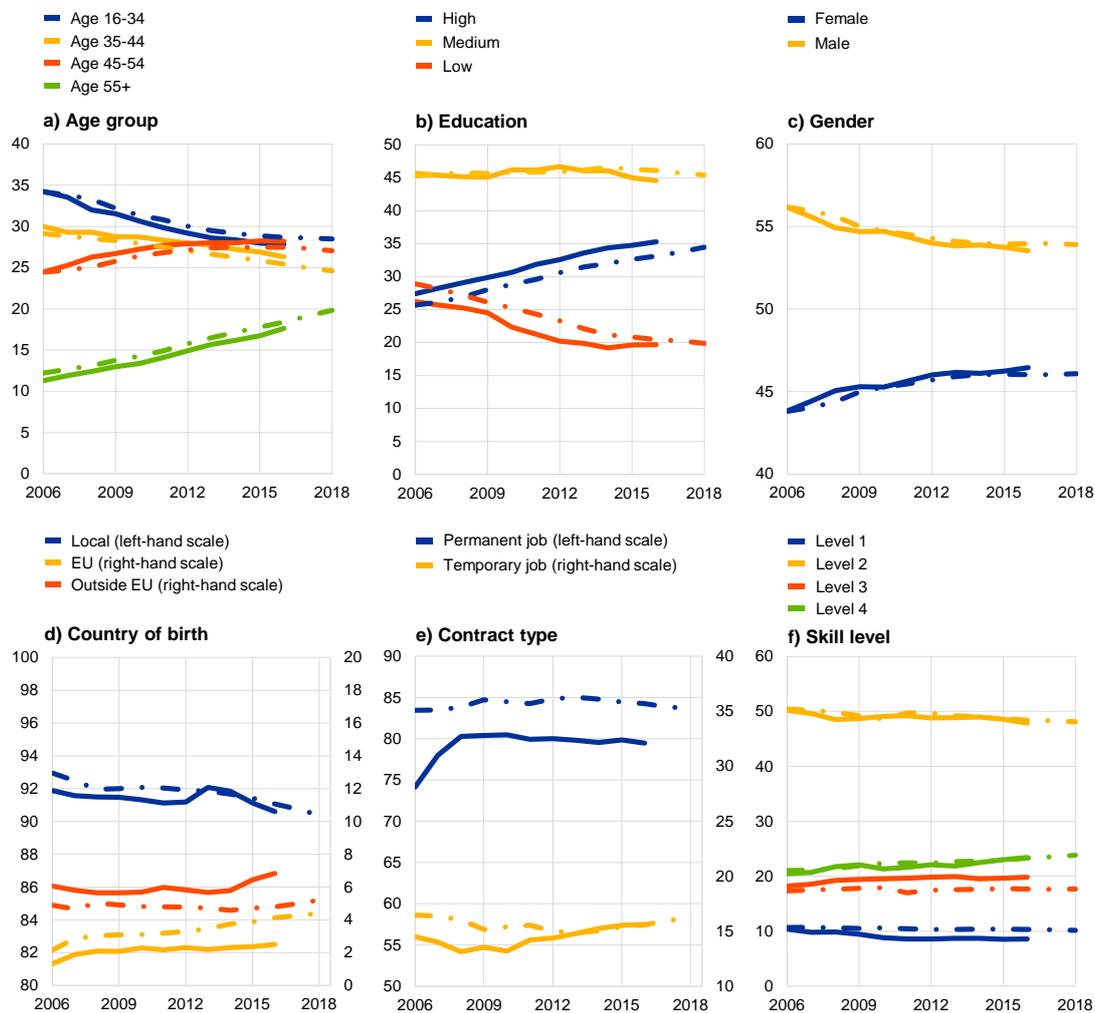
<sup>126</sup> See "[Compositional changes behind the growth in euro area employment during the recovery](#)", *Economic Bulletin*, Issue 8, ECB, Frankfurt am Main, 2018.

<sup>127</sup> For example, up to 50% of the information on contract type (permanent/temporary) is missing in the EU-SILC for some countries and years.

## Chart A

### Composition of employment by workers' characteristics according to the EU-LFS and the EU-SILC

(EU-SILC = solid line, EU-LFS = dotted line)



Sources: Eurostat (EU-SILC and EU-LFS) and ECB staff calculations.

Notes: Euro area aggregate weighted by hours worked; numbers not adding up to 100% indicate missing data. The decomposition according to contract type (permanent or temporary) refers to employees, while the other decompositions apply to total employment (covering employees, those who are self-employed and contributing family members). The first category, according to ages, covers people aged 15 to 34 in the EU-LFS and 16 to 34 in the EU-SILC.

More recent data from the EU-LFS indicate that some of the changes in the composition of employment have continued since 2016, for which EU-SILC data are not yet available (see Chart A). For example, the share of older workers has continued to increase and the share of workers with lower levels of education and skill has continued to decrease. These were found to be the main drivers of compositional changes in terms of aggregate wage dynamics according to the microdata analysis used in this article. Thus, the continuation of these trends suggests that we may still find some compositional effects in wage dynamics from more recent years. However, in some respects (in terms of gender, for example) the composition of employment has not changed considerably in recent years. Overall, the more limited changes in the composition of employment – especially when compared with the early years of the crisis – seem to indicate that compositional effects on wage growth might have been relatively limited in 2017 and 2018 and are unlikely to have been a major driving force behind the relatively strong recovery of wage growth in the euro area in that period.

However, this can only be seen as preliminary evidence that must be reassessed once the EU-SILC data has become available for 2017 and 2018.

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## 5 Conclusion

**In the euro area, sizeable changes in the composition of employment have taken place since 2007.** The share of older and more highly educated employees has increased, while the share of younger workers and those with a lower level of education has decreased. These developments can partly be attributed to longer-term trends (e.g. demographic changes, pension system reforms and the trend towards higher levels of education), but they can also be related to cyclical developments in some countries: younger and less educated/skilled workers were the first to lose their jobs during the crisis, further increasing the share of older and more highly educated employees. These patterns are confirmed by both EU-SILC and EU-LFS data.

**These changes in the composition of employment seem to have pushed up wages during the crisis and contributed to subdued wage growth in recent years.** An Oaxaca-Blinder decomposition applied to EU-SILC microdata suggests that these compositional effects were strongest between 2008 and 2012, but turned negative in 2015 and 2016.

**A country-by-country consideration of the compositional effects shows a general trend that is similar to the trend for the euro area as a whole but with some heterogeneity among countries concerning the size of the effects in individual years.** Spain and Italy seem to be the main contributors to the euro area aggregate compositional effect, while contributions from Germany and France are small with regard to total employment.

**Overall, the results are robust across different specifications applied in the decomposition, and the changes in the composition of employment are also reflected in different sets of microdata.** This indicates that the main developments in euro area compositional effects seem to be represented well, overall, by the analyses presented in this article.

## 3 The performance of the Eurosystem/ECB staff macroeconomic projections since the financial crisis

Prepared by Kyriacos Lambrias and Adrian Page

**This article evaluates the performance of the Eurosystem/ECB staff macroeconomic projections for the euro area in the context of the elevated macroeconomic volatility and uncertainty that has prevailed since the financial crisis.** It finds that there has been considerable variability in projection errors over time. With regard to real GDP growth projections, errors that were substantial during the sovereign debt crisis have become more limited in recent years. As for headline inflation, unexpected fluctuations in oil prices – which in the staff macroeconomic projections are assumed to follow the path of oil price futures – played a dominant role in explaining the errors, as was the case during the pre-crisis years. On the other hand, HICP inflation excluding energy and food has been persistently overprojected since 2013. While these projection errors can also partly be attributed to errors in the conditioning technical assumptions, other factors (such as modelling errors, changes in economic relationships or judgement) have also played a key role at different points in time. The forecast performance of the Eurosystem/ECB staff macroeconomic projections has been broadly similar to that of other international institutions and of private sector forecasters, suggesting that projection errors have been mainly driven by common elements. These may include economic shocks unforeseeable to any forecaster and developments that have become more prominent since the financial crisis, including, among other things, structural reforms, changes in the relationship between slack and prices, globalisation and digitalisation. The article is structured as follows: Section 1 explains how the staff macroeconomic projections are constructed/compiled, Section 2 provides an overview of the errors made in projecting real GDP and HICP inflation since 2010,<sup>128</sup> Section 3 reviews some of the sources of the errors, and Section 4 provides a comparison with the forecasting performance of other institutions and private sector forecasters.

### 1 Introduction

**Every quarter, the ECB publishes projections of real GDP growth, inflation and a range of other macroeconomic variables which serve as a key input into the monetary policy decision-making process.**<sup>129</sup> In March and September these [staff macroeconomic projections](#) are produced by ECB staff, while in June and December they are produced jointly by staff from the ECB and all of the Eurosystem national central banks. The projections are published for the current and the two subsequent

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<sup>128</sup> This article focuses on the post-financial crisis period, starting in 2010. The staff macroeconomic projections for the year 2009, which was, as for most other forecasters, a severe outlier in the forecasting record, have been analysed elsewhere in detail. See, for example, Kenny, G. and Morgan, J., “[Some lessons from the financial crisis for the economic analysis](#)”, *Occasional Paper Series*, No 130, ECB, October 2011.

<sup>129</sup> For further information on the staff macroeconomic projections, see [A guide to the Eurosystem/ECB staff macroeconomic projection exercises](#), ECB, July 2016.

calendar years<sup>130</sup> and serve as a coherent reconciliation of all available information based on a wide range of econometric models and on conditioning technical assumptions (such as for oil prices, exchange rates and interest rates), which can also be supplemented by staff judgement. It should be noted that the projections are neither endorsed by the Governing Council nor do they necessarily reflect the views of the Governing Council on the outlook for the euro area. Instead, they reflect the views of Eurosystem/ECB staff. Nevertheless, they serve as a key input into the monetary policy decision-making process and it is important that they provide reliable indications of the most likely course of future economic developments.

**Regular evaluations<sup>131</sup> of the performance of the projections serve two main purposes.** First, identifying patterns in projection errors and understanding the reasons why such errors were made can help to improve future projections. For example, persistent errors with the same sign may imply that the econometric models used to produce the projections are not capturing some of the structural changes in the economy and that the models or the tools used for the projections may require some adjustments. Second, past projection errors can provide an indication of the degree of uncertainty surrounding the projections at various horizons ahead.<sup>132</sup>

## 2 Overview of errors in projecting real GDP and HICP inflation

**GDP growth was strongly overpredicted during the sovereign debt crisis, but the accuracy of projections has improved in recent years.** Chart 1 shows the projections of annual average real GDP growth in each of the quarterly staff macroeconomic projection exercises since 2010, together with their outcomes. For each year, twelve projections are shown, starting with the projection produced in the first quarter two years prior to the reference year and ending with the projection produced in the last quarter of the reference year. The projections produced in the last quarter of the year preceding the reference year are indicated with a dot (e.g. the projections produced in the fourth quarter of 2014 for the year 2015). This is the last projection exercise for which no hard or soft indicators are available for the year being projected.<sup>133</sup> Since economic data, in particular GDP estimates, tend to be revised, Chart 1 shows two outturns: the vintage of the outturns available one year after their initial publication and the latest vintage. As would be expected, in most cases, the projections became successively more accurate as the projection horizon was

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<sup>130</sup> Since 2017 the projection horizon has been extended in the month of December so that the projections published in that month include the current year and the three subsequent calendar years.

<sup>131</sup> For a previous analysis of the forecast performance of Eurosystem staff macroeconomic projections, see the article entitled “An assessment of Eurosystem staff macroeconomic projections”, *Monthly Bulletin*, ECB, May 2013, and, more recently, Kontogeorgos, G. and Lambrias, K., “An analysis of the Eurosystem/ECB projections”, *Working Paper Series*, No 2291, ECB, June 2019, which provides a comprehensive assessment of the staff macroeconomic projections over a longer time-span (from 1999 to 2018) using a battery of formal statistical tests.

<sup>132</sup> In addition to point estimates, the ECB publishes projection ranges for the outlook for real GDP growth and inflation. These ranges are constructed on the basis of past projection errors. For further details, see “New procedure for constructing Eurosystem and ECB staff projection ranges”, ECB, December 2009.

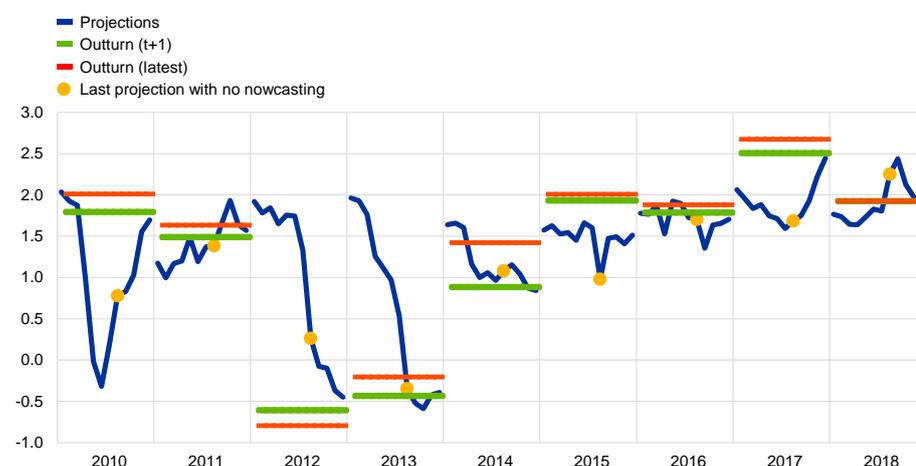
<sup>133</sup> The projections after this point in time are produced with increasing amounts of data on economic developments for the year in question (including short-term indicators allowing the use of nowcasting tools and quarterly GDP information). As would be expected, the inclusion of more information typically helps to improve considerably the accuracy of the projections.

reduced and as more information became available. An exception is 2010, for which the initial projections produced in 2008 were quite accurate, but were revised downwards heavily with the onset of the financial crisis in 2009 and then revised upwards again as the recovery took hold. The largest errors after 2010 came with the intensification of the sovereign debt crisis between 2012 and 2013, which led to much weaker growth than expected. Over the subsequent years, although the accuracy of the growth projections has been much better, there has been a tendency to underpredict growth, particularly for 2017. This tendency was exacerbated by persistent upward revisions to official data (as illustrated in Chart 1 by the gap between the outturn one year after initial publication and the latest vintage).

### Chart 1

#### Projections and outturns for real GDP growth since 2010

(annual average percentage changes)



Sources: Eurosystem/ECB staff macroeconomic projections and Eurostat.

Notes: Outturn (t+1) refers to the outturn for the year, as available one year after the initial publication. Outturn (latest) refers to currently available data for the year. For each year, twelve projections are shown, starting with those produced in the first quarter of year t-2 up to the fourth quarter of year t. The yellow dots (last projection with no nowcasting) indicate the projection made in the fourth quarter of the previous year, i.e. the last projection for which no hard or soft indicators were available for the year being projected.

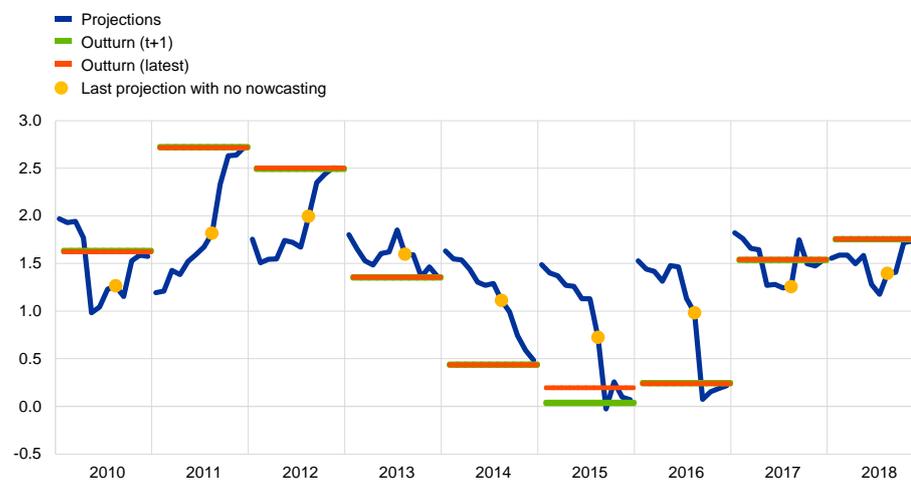
**Eurosystem/ECB staff projections underpredicted HICP inflation in the early part of the sample and overpredicted it between 2013 and 2016, but HICP inflation projections were broadly accurate in more recent years.** Chart 2 shows the projections and outturns for HICP inflation since 2010. The projections made following the financial crisis significantly underestimated inflation, which was expected to fall more significantly in response to the additional economic slack during this period, a feature common across advanced economies at the time.<sup>134</sup> In the ensuing years, particularly between 2014 and 2016, inflation surprised persistently on the downside. In each year, initial projections were around 1.5%, but they were persistently revised downwards, in particular in the light of sharp declines in oil prices, which led to outturns of around 0.2% to 0.5% between 2014 and 2016. More recently, in 2017 and 2018, inflation outturns have been more in line with the projections.

<sup>134</sup> See, for example, “The Dog That Didn’t Bark: Has Inflation Been Muzzled or Was It Just Sleeping?”, *World Economic Outlook*, IMF, April 2013, Chapter 3.

## Chart 2

### Projections and outturns for HICP inflation since 2010

(annual average percentage changes)



Sources: Eurosystem/ECB staff macroeconomic projections and Eurostat.

Notes: Outturn (t+1) refers to the outturn for the year, as available one year after the initial publication. Outturn (latest) refers to currently available data for the year. For each year, twelve projections are shown, starting with those produced in the first quarter of year t-2 up to the fourth quarter of year t. The yellow dots (last projection with no nowcasting) indicate the projection made in the fourth quarter of the previous year, i.e. the last projection for which no hard or soft indicators were available for the year being projected.

## 3 Sources of projection errors

**This section reviews some of the key factors behind the projection errors for growth and inflation.** The Eurosystem/ECB staff macroeconomic projections are conditioned on a number of technical assumptions which can play an important role in explaining the errors that have occurred. The main assumptions are those related to commodity prices (such as oil prices) and financial assumptions (such as interest rates and equity prices), which are based on market expectations, together with assumptions on exchange rates, which are held constant over the projection horizon.<sup>135</sup> Euro area projections are also dependent on the staff assessment of the outlook for the international environment, which can be an additional source of errors. For the purposes of this article, errors are defined as the outcome minus the projection, so a positive error indicates a higher than expected outcome (i.e. an underprediction), while a negative error indicates a lower than expected outcome (i.e. an overprediction).

**Errors in the projections for international developments and the technical assumptions explain only a part of the projection errors made for real GDP growth.** Chart 3 decomposes the projection errors in the March projections for the following calendar year. Since official GDP data are normally available up to the fourth quarter of the previous year, this corresponds to a two-year projection horizon. Panel a uses elasticities from Eurosystem macroeconomic models to decompose the errors into what can be explained by (i) errors in the conditioning technical assumptions; (ii) errors in the outlook for the international environment; and (iii) all other factors. The

<sup>135</sup> For further details on how the staff projections are constructed, see [A guide to the Eurosystem/ECB staff macroeconomic projection exercises](#), op. cit.

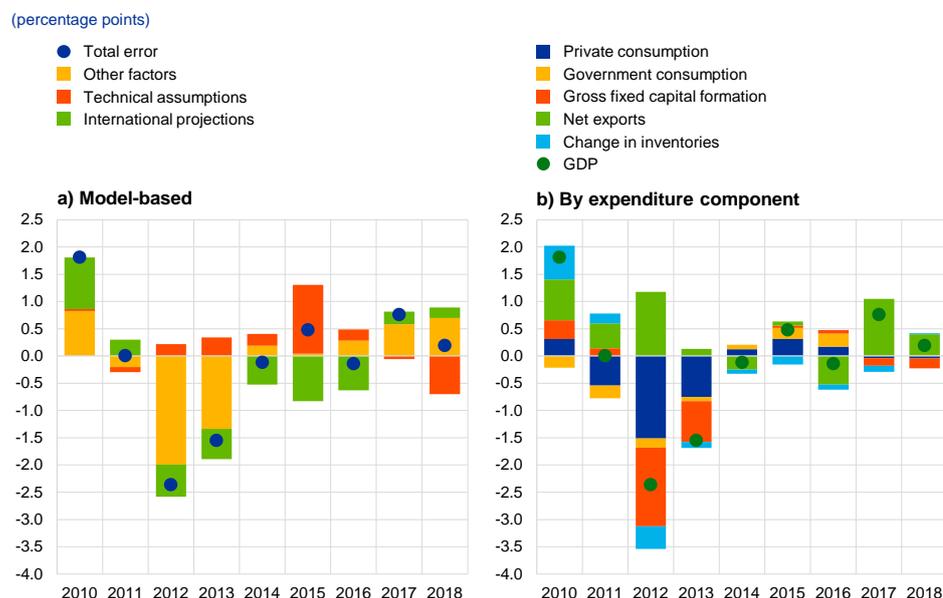
decomposition reveals that errors in technical assumptions played a limited role in explaining errors in the GDP growth projections, with the exception of 2015, when a sharp drop in oil prices gave an unexpected boost to growth, and 2018, when the appreciation of the euro exchange rate in the course of 2017 and early 2018 weighed on exports. Errors in international projections (i.e. euro area foreign demand) explain part of the underpredictions of growth for 2010 and 2017, which were years in which euro area exports grew strongly. Global trade was persistently weaker than expected between 2012 and 2016, but the impact on the growth projections was partly offset by other errors with an opposite sign arising from the technical assumptions. The overpredictions of global trade, particularly for emerging market economies, was partly related to a structural shift in the trade intensity of global economic activity. Such structural shifts are difficult to anticipate in real time, but projections since 2016 have been anchored around the view that – over the medium term – global imports will grow at broadly similar rates to global activity.<sup>136</sup> Since that year the projections for global trade have been more accurate. “Other factors” in Chart 3 refers to all other sources of errors, including model misspecification, domestic factors, such as fiscal, structural and monetary policies (beyond the effects captured in the technical assumptions), and judgements introduced by staff. In most cases, the errors in the international projections move in the same direction as the other errors, which may reflect indirect effects beyond direct trade channels. For example, shocks to the global outlook could also have had a negative impact on domestic confidence, leading to lower domestic demand.

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<sup>136</sup> Trade/income elasticity had fallen in the post-crisis period, amid compositional changes in trade patterns and a declining impetus from the longer-term structural factors that previously drove the rapid expansion of global trade, such as trade liberalisation, the expansion of global value chains and reductions in tariffs and transportation costs. See, for example, IRC Trade Task Force, “[Understanding the weakness in global trade – What is the new normal?](#)”, *Occasional Paper Series*, No 178, ECB, September 2016.

**Chart 3**

**Decomposition of errors in the March projections of real GDP growth for the next calendar year**



Source: ECB staff macroeconomic projections.

Notes: Errors are defined as the outcome, as available one year after the initial publication, minus the projection. Technical assumptions refer to the contribution of errors in the conditioning assumptions for oil prices, exchange rates, interest rates and stock prices to the total error. International projections refer to the contribution of errors in the ECB's projections for euro area foreign demand to the total error. The contributions from errors in the technical assumptions and international environment are calculated using elasticities taken from the macroeconomic models used to produce the Eurosystem staff macroeconomic projections.

**Turning to the errors made in the projections for the expenditure components of GDP, there were broad-based overpredictions during the sovereign debt crisis, while recent errors were concentrated in net exports.** Panel b of Chart 3

shows a decomposition based on the contributions of the projection errors in the expenditure components to the overall projection error for real GDP growth. In 2012 and 2013 all domestic demand components turned out to be weaker than expected, while the negative surprise on imports was larger than the negative surprise on exports, leading to a more positive than expected contribution from net exports. In the subsequent years, domestic demand components were somewhat stronger than expected, supported by the oil price declines mentioned above and also by successive monetary policy packages which eased financing costs for households and firms. Most recently, the projection errors were dominated by the contribution from net exports, which surprised on the downside in 2016 and on the upside in 2017 and (to a lesser extent) 2018.<sup>137</sup>

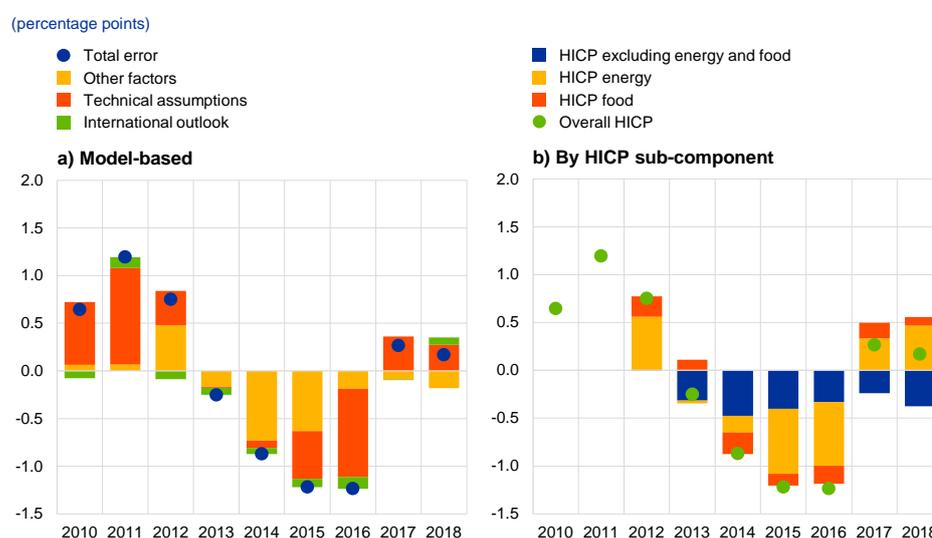
**As regards inflation, errors in the conditioning technical assumptions, particularly for oil and exchange rates, play a significant role.** Chart 4 shows similar decompositions for the projection errors in inflation. As seen in panel a, in

<sup>137</sup> Note that there is no direct correspondence between the contribution of the errors in the international projections in the model-based decomposition and the contribution of errors in net exports. The former has an impact not only on net exports, but also on other components, notably investment, while the latter is also affected by changes in export market shares and by developments in imports. In recent years, errors in euro area investment and import projections have been affected by partly offsetting developments in Irish imports, which are related to the activities of multinational enterprises and complicate the interpretation of projection errors for these components of GDP.

general, errors in assumptions explain a larger proportion of the errors in inflation projections than was the case for the growth projections. In particular, large unexpected swings in oil prices played a dominant role in the underpredictions of HICP inflation in 2010-11 and 2017-18 and in the overpredictions in 2015 and 2016. Fluctuations in the exchange rate also contributed to the projection errors. In particular, a large depreciation of the euro in 2014-15 offset part of the downward impact from the lower than expected oil prices in 2015. Apart from the contribution from the technical assumptions, there remains a contribution from other factors which, since 2013, has been persistently negative, albeit rather small over the past two years.

#### Chart 4

#### Decomposition of errors in the March projections of HICP inflation for the next calendar year



Source: ECB staff macroeconomic projections.

Notes: Errors are defined as the outcome, as available one year after the initial publication, minus the projection. Technical assumptions refer to the contribution of errors in the conditioning assumptions for oil prices, exchange rates, interest rates and stock prices to the total error. International projections refer to the contribution of errors in the ECB's projections for euro area foreign demand to the total error. The contributions from errors in the technical assumptions and international projections are calculated using elasticities taken from the macroeconomic models used to produce the Eurosystem staff macroeconomic projections. Decomposition by HICP sub-component is only available since 2012.

#### Outcomes of HICP inflation excluding food and energy have surprised persistently on the downside since 2013.

Panel b of Chart 4 shows the decomposition of errors in the inflation projections according to the main HICP sub-components and shows that the volatile food and energy components explain the majority of these projection errors, largely driven by the errors in technical assumptions. The projection errors in HICP inflation excluding energy and food, although of a much lower magnitude than those for the volatile components, have shown a persistent negative bias (i.e. overprediction) over the past six years. Errors in technical assumptions may have played some part in generating these errors, such as indirect effects of unexpected declines in oil prices over recent years on non-energy consumer goods and services as well as the appreciation of the euro in 2017 and early 2018. Nevertheless, even after accounting for the errors in technical assumptions, there still remains a persistent overestimation.

**A number of explanations have been put forward for the persistently and unexpectedly low underlying inflation over recent years.**<sup>138</sup> There may have been an underestimation of the amount of slack in labour and product markets, which may have contributed to lower than expected wage growth and thus reduced cost pressures on prices. Another explanation is related to “pent-up restraints”, meaning that, while declines in prices and wages during the sovereign debt crisis were limited by downward nominal rigidities (contributing to the higher than expected inflation outturns during that period), in the subsequent years, price and wage inflation may have been correspondingly subdued.<sup>139</sup> It may also have been the result of a strengthening of the relationship between slack and prices, i.e. a given level of slack may have resulted in a stronger downward impact on price developments. This may, for example, be a reflection of the role and impact of structural reforms in some countries which were designed to lower nominal rigidities. A further explanation relates to the role of global influences on domestic inflation, which could extend beyond what is captured by the import and commodity prices typically considered in the staff macroeconomic projections. Low inflation might partly reflect increased trade flows, the integration of emerging economies into the world economy and the rise of global value chains shifting parts of production abroad.<sup>140</sup> Within the Eurosystem, a dedicated working group is tasked with improving the models used to produce the projections by looking at the latest advances in forecasting techniques, performing regular analyses of forecast errors and identifying and modelling structural breaks and non-linearities.<sup>141</sup> Eurosystem staff have also tried to address the large contribution of errors in technical assumptions by examining alternative ways of projecting oil prices, rather than using oil futures prices. An approach using a combination of oil price models was found to perform relatively well over some sample periods. However, so far no method has been found which can consistently outperform oil price futures over longer periods.<sup>142</sup>

## 4 Comparisons with other forecasters

**The Eurosystem/ECB staff macroeconomic projections for growth and inflation have performed similarly to those of private sector forecasters and other international institutions.** Chart 5 shows the root mean squared forecast error (RMSFE) and the bias (average error) of the projections for the next calendar year produced by Eurosystem/ECB staff compared with the ECB’s Survey of Professional Forecasters (SPF), the European Commission, the International Monetary Fund (IMF)

<sup>138</sup> For an overview, see the article entitled “[Drivers of underlying inflation in the euro area over time: a Phillips curve perspective](#)”, *Economic Bulletin*, Issue 4, ECB, 2019.

<sup>139</sup> See Praet, P., “[Price stability: a sinking will-o'-the-wisp?](#)”, intervention at the IMF Spring Meetings Seminar, Washington, D.C., April 2015.

<sup>140</sup> See “[Domestic and global drivers of inflation in the euro area](#)”, *Economic Bulletin*, Issue 4, ECB, 2017, and Nickel, C., “The role of foreign slack in domestic inflation in the Eurozone”, VOX, CEPR Policy Portal, July 2017.

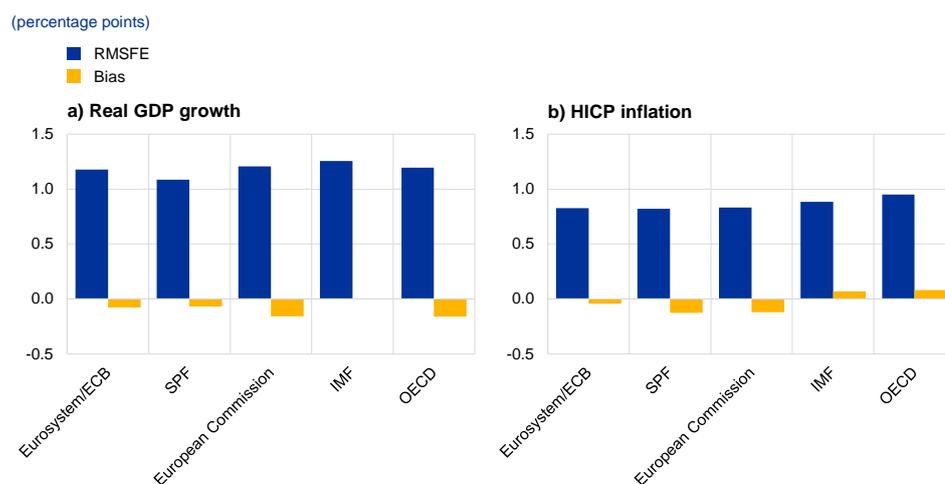
<sup>141</sup> Within this context, a Eurosystem expert group studied the causes of low inflation; see Ciccarelli, M. and Osbat, C. (eds.), “[Low inflation in the euro area: Causes and consequences](#)”, *Occasional Paper Series*, No 181, ECB, January 2017. A second expert group studied the causes of low wage growth; see Nickel, C., Bobeica, E., Koester, G., Lis, E. and Porqueddu, M. (eds.), “[Understanding low wage growth in the euro area and European countries](#)”, *Occasional Paper Series*, No 232, ECB, September 2019.

<sup>142</sup> For further details, see the article entitled “[Forecasting the price of oil](#)”, *Economic Bulletin*, Issue 4, ECB, 2015.

and the Organisation for Economic Co-operation and Development (OECD) – in each case taking the forecasts produced in the second quarter of the year. Different institutions publish at different times during the second quarter, with the Eurosystem staff macroeconomic projections being the last to be published (in June), implying that the latter may have some comparative advantage due to the availability of more recent economic data. In order to adjust for this, the figures shown for the Eurosystem/ECB staff macroeconomic projections are the average RMSFE and bias for the projections published in March and June of each year. Chart 5 shows that the forecast accuracy since 2010 has been rather similar across forecasters and that they share a similar (low) degree of bias. For growth, the RMSFE in the Eurosystem/ECB staff macroeconomic projections was above that of the SPF (indicating a worse performance), but below that of the European Commission and the IMF and similar to that of the OECD. Over this period, the average error for growth was low for all forecasters, albeit slightly negative (indicating overprediction), ranging from 0.0 percentage points for the IMF to -0.16 percentage points for the OECD, with the Eurosystem/ECB staff macroeconomic projections at -0.08 percentage points.

### Chart 5

Comparison of errors in Eurosystem/ECB staff macroeconomic projections for the next calendar year with those of the private sector and other institutions



Sources: Eurosystem/ECB staff macroeconomic projections, SPF, European Commission, IMF and OECD.  
 Notes: The charts refer to the period 2010-18. Errors are defined as the outturn available one year after the initial publication minus the projection. Eurosystem/ECB staff macroeconomic projections refer to the average RMSFE and bias from the March and June projections for the next calendar year. For the other forecasters, the statistics refer to forecasts published in the second quarter for the next calendar year.

For inflation, the RMSFE of the Eurosystem/ECB staff macroeconomic projections was equal to that of the SPF and below those of the other forecasters, implying a better performance for the Eurosystem/ECB staff macroeconomic projections. The average error of the Eurosystem/ECB staff macroeconomic projections was the closest to zero (-0.04 percentage points), indicating the lowest bias, while the largest bias was for the European Commission and the SPF (-0.12 percentage points).<sup>143</sup>

<sup>143</sup> A recent note suggests that market-implied inflation expectations performed similarly to the SPF at horizons similar to those analysed here (one to two years), but argues that markets may have been quicker in adjusting long-term inflation expectations, leading to better forecasting performance over longer horizons in recent years. See Kirker, M. and de-Muizon, M., "The post-crisis performance of inflation expectations and forecasts", Deutsche Bank Research, September 2019.

Nevertheless, as can be seen in Chart 6, all institutions and the private sector made inflation forecast errors consistently in the same direction over the period between 2010 and 2018, albeit at different magnitudes. That is to say, all forecasters underpredicted HICP inflation between 2010 and 2012 and in 2017 and 2018 (positive forecast errors), but inflation surprised everyone on the downside between 2013 and 2016 (negative errors). This could suggest that the source of the error was common to all forecasters, which could include fundamental economic shocks that were unforeseeable and/or changes in economic relationships, but is unlikely to be related to errors in judgement. Panel c of Chart 6 also shows that the persistent overprediction of HICP inflation excluding food and energy in Eurosystem/ECB staff projections over recent years was a feature they had in common with the forecasts produced by other institutions. The performance of the Eurosystem/ECB staff macroeconomic projections for GDP and inflation over a much longer sample was studied in a recent ECB working paper and the results are discussed in Box 1.

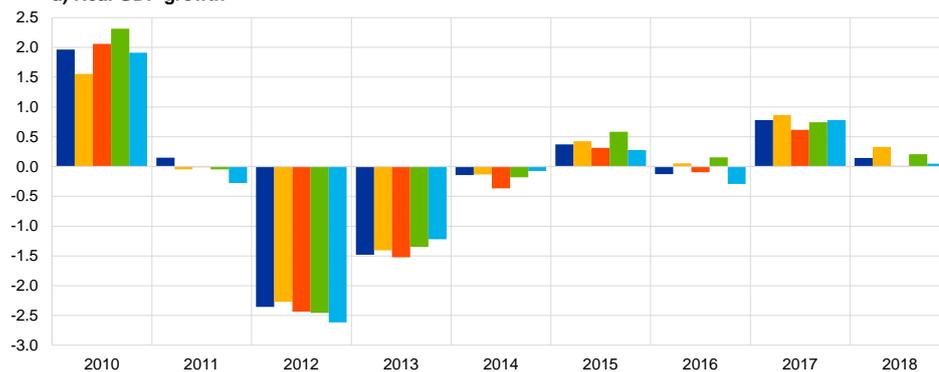
## Chart 6

### Comparison of errors in Eurosystem/ECB staff macroeconomic projections for the next calendar year with those of the private sector and other institutions

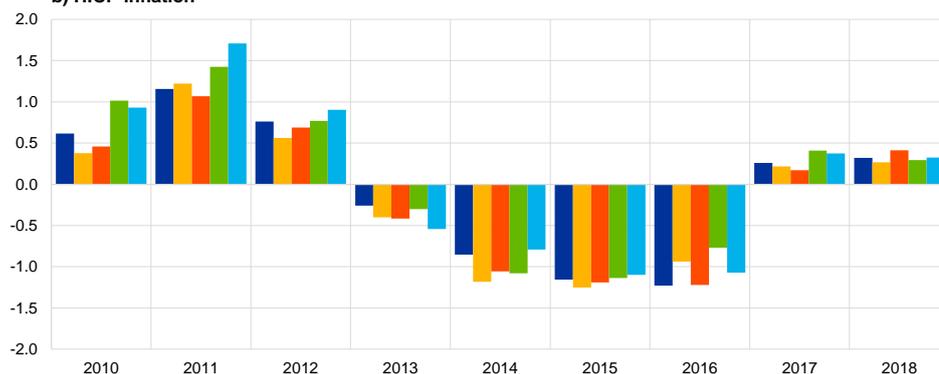
(percentage points)



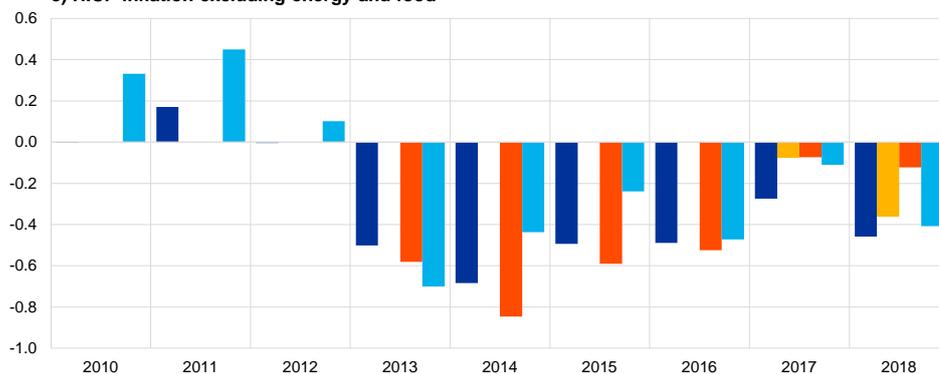
#### a) Real GDP growth



#### b) HICP inflation



#### c) HICP inflation excluding energy and food



Sources: Eurosystem/ECB staff macroeconomic projections, SPF, European Commission, IMF and OECD.

Notes: Errors are defined as the outturn available one year after the initial publication minus the projection. Eurosystem/ECB staff macroeconomic projections refer to the average error in the March and June projections for the next calendar year. For the other forecasters, the statistics refer to forecasts published in the second quarter for the next calendar year. For the European Commission, HICP inflation excluding energy and food refers to HICP inflation excluding energy and unprocessed food.

## Box 1

### Performance of the Eurosystem/ECB staff macroeconomic projections over a longer time-span

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Prepared by Kyriacos Lambrias

A recent ECB working paper<sup>144</sup> investigated more thoroughly the forecasting performance of Eurosystem/ECB staff since almost the start of monetary union. A long sample at a quarterly frequency allows for a more thorough evaluation of the forecasting performance, using tests and statistical criteria that are often employed in the literature of forecast evaluation. Such exercises have been performed by other institutions such as the European Commission, the IMF and the Bank of England.

One of the main issues addressed in the working paper is whether the Eurosystem/ECB staff macroeconomic projections are biased, i.e. whether there is a persistent tendency to make errors in one direction. The paper concludes that Eurosystem/ECB staff inflation projections are unbiased. This conclusion does not contradict the finding of persistent forecast errors in one direction discussed above when evaluating the more recent period. An analysis of a longer sample, with more information and using statistical tools, suggests that this more recent period of persistent overprediction is relatively limited. Interestingly, GDP growth projections appear to have been more biased than HICP inflation projections, and the authors conclude that this bias (overprediction) is persistent and significant at a two-year horizon, such that one cannot conclude that GDP projections are unbiased. The authors also looked at the degree of bias in a time-varying context. Chart A shows the estimated bias over rolling windows of 25 quarters at two different forecasting horizons, four quarters-ahead ( $h=4$ ) and eight quarters-ahead ( $h=8$ ), with the green and red lines representing confidence intervals around the estimates. Chart A shows a clear pattern in the HICP inflation projections: the bias has been steadily decreasing over time, from a persistent underprediction in the first few years of monetary union and up to the financial crisis to a persistent overprediction in more recent years. These “cancel out” when analysing the whole sample, thereby leading to the aforementioned conclusion of a general lack of bias. On the other hand, GDP projections appear to have been persistently biased in one direction (overprediction).<sup>145</sup>

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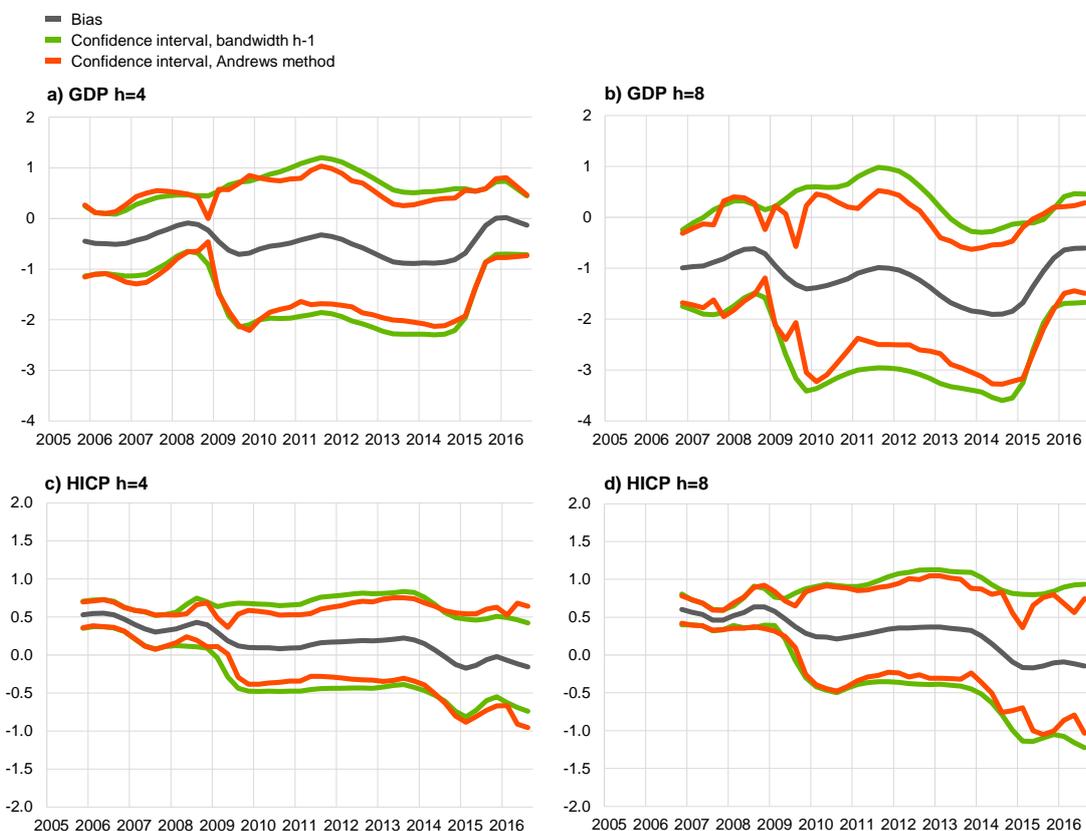
<sup>144</sup> Kontogeorgos, G. and Lambrias, K., op. cit.

<sup>145</sup> Even though in a time-varying context, as in Chart A, the bias does not appear to be statistically significant, it is when examined over the entire sample.

## Chart A

Time-varying bias estimates in the forecasts of euro area GDP growth and HICP inflation four quarters-ahead ( $h=4$ ) and eight quarters-ahead ( $h=8$ )

(percentage points)



Source: Kontogeorgos and Lambrias (2019).

Notes: Average error (bias, grey line) in the projections of annual percentage changes of real GDP and HICP over rolling windows of 25 quarters. A positive bias indicates underprediction and a negative bias overprediction. The green and red lines represent confidence intervals estimated using different methods, i.e. by setting the bandwidth equal to  $h-1$  (green line) or optimally chosen using the Andrews method (red line) (See Andrews, D.W.K., "Heteroskedasticity and Autocorrelation Consistent Covariance Matrix Estimation", *Econometrica*, Vol. 59, No 3, May 1991, pp. 817-858).

## 5 Conclusions

**Overall, the article suggests that the Eurosystem/ECB staff macroeconomic projections have performed well over recent years and in line with projections of other institutions.** At the same time, continuous efforts are needed to improve the projections by (i) exploring alternative methods that could increase the accuracy of the technical assumptions; (ii) ensuring that the economic models used for the projections follow the latest advances in forecasting techniques; and, importantly, (c) better evaluating or anticipating fundamental changes in economic relationships resulting, for example, from the impact of structural reforms, globalisation and digitalisation. In order to address these issues, a dedicated group of experts within the Eurosystem regularly reviews the performance of the staff projections and refines the tools used to produce the projections.

# Statistics

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2 Financial developments	S 3
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## Further information

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

## 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 <sup>1)</sup> (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 <sup>2)</sup> (HICP)
							Total	excluding food and energy					
	1	2	3	4	5	6	7	8	9	10	11	12	13
2016	3.3	1.6	1.9	0.6	6.7	1.9	1.1	1.9	1.3	0.7	-0.1	2.0	0.2
2017	3.9	2.4	1.9	1.9	6.8	2.5	2.3	1.9	2.1	2.7	0.5	1.6	1.5
2018	3.7	2.9	1.4	0.8	6.6	1.9	2.6	2.1	2.4	2.5	1.0	2.1	1.8
2018 Q4	0.7	0.3	0.3	0.4	1.5	0.3	2.8	2.3	2.2	2.3	0.8	2.2	1.9
2019 Q1	0.8	0.8	0.6	0.5	1.4	0.4	2.2	2.2	1.6	1.9	0.3	1.8	1.4
Q2	0.7	0.5	-0.2	0.4	1.6	0.2	2.3	2.2	1.8	2.0	0.8	2.6	1.4
Q3	.	0.5	0.3	0.1	1.5	0.2	1.9	2.2	1.8	1.8	0.3	2.9	1.0
2019 June	.	.	.	.	.	.	2.1	2.2	1.6	2.0	0.7	2.7	1.3
July	.	.	.	.	.	.	2.1	2.3	1.8	2.1	0.5	2.8	1.0
Aug.	.	.	.	.	.	.	1.9	2.3	1.7	1.7	0.3	2.8	1.0
Sep.	.	.	.	.	.	.	1.6	2.1	1.7	1.7	0.2	3.0	0.8
Oct.	.	.	.	.	.	.	1.6	2.0	1.8	1.5	0.2	3.8	0.7
Nov. <sup>3)</sup>	.	.	.	.	.	.	.	.	.	.	.	.	1.0

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.

3) The figure for the euro area is an estimate based on provisional national data, as well as on early information on energy prices.

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

	Purchasing Managers' Surveys (diffusion indices; s.a.)									Merchandise imports <sup>1)</sup>		
	Composite Purchasing Managers' Index						Global Purchasing Managers' Index <sup>2)</sup>			Global	Advanced economies	Emerging market economies
	Global <sup>2)</sup>	United States	United Kingdom	Japan	China	Memo item: euro area	Manufacturing	Services	New export orders			
	1	2	3	4	5	6	7	8	9	10	11	12
2016	51.6	52.4	53.4	50.5	51.4	53.3	51.7	52.0	50.1	1.2	1.4	1.0
2017	53.2	54.3	54.7	52.5	51.8	56.4	53.8	53.8	52.8	5.8	3.1	7.6
2018	53.4	55.0	53.3	52.1	52.3	54.6	53.1	53.8	50.9	4.4	3.1	5.2
2018 Q4	53.1	54.7	51.4	52.3	51.5	52.3	52.0	53.5	49.9	-0.8	1.5	-2.2
2019 Q1	52.8	54.8	50.6	50.6	51.5	51.5	50.9	53.4	49.6	-0.7	0.0	-1.1
Q2	51.5	51.8	50.5	50.8	51.6	51.8	50.4	51.8	49.4	-0.6	-1.4	-0.2
Q3	51.4	51.4	50.1	51.3	51.4	51.2	50.4	51.7	48.5	0.8	1.3	0.5
2019 June	51.0	51.5	49.7	50.8	50.6	52.2	49.6	51.5	49.2	-0.6	-1.4	-0.2
July	51.7	52.6	50.7	50.6	50.9	51.5	49.9	52.4	49.0	-0.9	0.3	-1.6
Aug.	51.1	50.7	50.2	51.9	51.6	51.9	50.4	51.4	47.7	-0.5	0.1	-0.9
Sep.	51.2	51.0	49.3	51.5	51.9	50.1	50.9	51.4	48.6	0.8	1.3	0.5
Oct.	50.8	50.9	50.0	49.1	52.0	50.6	51.0	50.7	49.5	.	.	.
Nov.	51.6	52.0	49.3	49.8	53.2	50.6	51.6	51.6	49.4	.	.	.

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 <sup>1)</sup>						United States	Japan
	Euro short-term rate (€STR) <sup>2)</sup>	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	8
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
2018	-0.45	-0.36	-0.37	-0.32	-0.27	-0.17	2.31	-0.05
2019 May	-0.45	-0.37	-0.37	-0.31	-0.24	-0.13	2.53	-0.07
June	-0.45	-0.36	-0.38	-0.33	-0.28	-0.19	2.40	-0.07
July	-0.45	-0.37	-0.40	-0.36	-0.35	-0.28	2.29	-0.07
Aug.	-0.45	-0.36	-0.41	-0.41	-0.40	-0.36	2.16	-0.10
Sep.	-0.49	-0.40	-0.45	-0.42	-0.39	-0.34	2.13	-0.09
Oct.	-0.55	-0.46	-0.46	-0.41	-0.36	-0.30	1.98	-0.11
Nov.	-0.54	-0.45	-0.45	-0.40	-0.34	-0.27	1.90	-0.10

Source: ECB.

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

2) The ECB published the euro short-term rate (€STR) for the first time on 2 October 2019, reflecting trading activity on 1 October 2019. Data on previous periods refer to the pre-€STR, which was published for information purposes only and not intended for use as a benchmark or reference rate in any market transactions.

### 2.2 Yield curves

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

	Spot rates					Spreads			Instantaneous forward rates			
	Euro area <sup>1), 2)</sup>					Euro area <sup>1), 2)</sup>	United States	United Kingdom	Euro area <sup>1), 2)</sup>			
	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	
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
2018	-0.80	-0.75	-0.66	-0.26	0.32	1.07	0.08	0.51	-0.67	-0.45	0.44	1.17
2019 May	-0.57	-0.64	-0.69	-0.56	-0.13	0.51	-0.08	0.24	-0.72	-0.72	-0.17	0.64
June	-0.60	-0.69	-0.75	-0.64	-0.26	0.43	0.07	0.14	-0.78	-0.79	-0.29	0.44
July	-0.67	-0.74	-0.79	-0.72	-0.39	0.35	0.02	0.09	-0.82	-0.84	-0.45	0.25
Aug.	-0.84	-0.88	-0.93	-0.92	-0.65	0.23	-0.27	0.03	-0.94	-1.00	-0.73	-0.12
Sep.	-0.70	-0.76	-0.81	-0.77	-0.52	0.24	-0.10	0.03	-0.83	-0.86	-0.58	-0.02
Oct.	-0.67	-0.69	-0.69	-0.62	-0.36	0.32	0.17	-0.01	-0.70	-0.69	-0.41	0.14
Nov.	-0.61	-0.63	-0.65	-0.57	-0.30	0.34	0.18	0.04	-0.66	-0.65	-0.33	0.23

Source: ECB.

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

2) ECB calculations based on underlying data provided by EuroMTS and ratings provided by Fitch Ratings.

### 2.3 Stock market indices

(index levels in points; period averages)

	Dow Jones EURO STOXX indices												United States	Japan
	Benchmark		Main industry indices										Standard & Poor's 500	Nikkei 225
	Broad index	50	Basic materials	Consumer services	Consumer goods	Oil and gas	Financials	Industrials	Technology	Utilities	Telecoms	Health care		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
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
2018	375.5	3,386.6	766.3	264.9	697.3	336.0	173.1	629.5	502.5	278.8	292.9	800.5	2,746.2	22,310.7
2019 May	369.4	3,385.4	710.2	267.4	721.6	324.7	157.0	643.9	519.6	312.0	290.9	732.7	2,854.7	21,218.4
June	369.7	3,406.0	722.6	264.9	728.5	323.2	152.0	652.3	517.5	323.9	296.6	734.0	2,890.2	21,060.2
July	380.0	3,507.8	739.6	271.8	752.7	329.3	155.8	666.2	548.2	326.4	292.2	769.2	2,996.1	21,593.7
Aug.	363.6	3,355.3	704.2	262.0	722.8	303.0	144.1	639.4	523.4	325.7	281.9	778.9	2,897.5	20,629.7
Sep.	379.7	3,514.5	738.2	271.3	751.1	319.7	151.8	669.4	545.0	338.5	294.7	804.3	2,982.2	21,585.5
Oct.	382.8	3,551.2	748.2	273.3	742.2	316.6	157.0	671.1	556.8	341.4	306.7	791.7	2,977.7	22,197.5
Nov.	398.4	3,693.1	794.5	283.0	761.3	328.8	163.6	711.6	585.2	339.4	304.8	837.7	3,104.9	23,278.1

Source: ECB.

## 2 Financial developments

### 2.4 MFI interest rates on loans to and deposits from households (new business) <sup>1), 2)</sup>

(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				Composite cost-of-borrowing indicator	
	Over-night	Redeemable at notice of up to 3 months	With an agreed maturity of:				By initial period of rate fixation	APRC <sup>3)</sup>	By initial period of rate fixation			APRC <sup>3)</sup>	Composite cost-of-borrowing indicator			
			Up to 2 years	Over 2 years					Floating rate and up to 1 year		Over 1 year			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
2018 Nov.	0.04	0.45	0.29	0.73	5.93	16.67	4.94	5.68	6.19	2.37	1.61	1.85	1.94	1.88	2.11	1.81
Dec.	0.03	0.44	0.30	0.78	5.87	16.68	4.92	5.47	5.99	2.27	1.61	1.80	1.91	1.84	2.11	1.80
2019 Jan.	0.03	0.43	0.33	0.74	5.92	16.63	5.32	5.82	6.33	2.36	1.61	1.81	1.89	1.86	2.09	1.82
Feb.	0.03	0.43	0.32	0.70	5.97	16.61	5.28	5.71	6.27	2.41	1.59	1.84	1.87	1.84	2.09	1.80
Mar.	0.03	0.41	0.30	0.76	5.90	16.65	5.41	5.61	6.18	2.36	1.60	1.80	1.83	1.81	2.06	1.78
Apr.	0.03	0.41	0.32	0.75	5.88	16.66	5.56	5.63	6.19	2.36	1.60	1.77	1.77	1.77	2.02	1.75
May	0.03	0.44	0.31	0.79	5.81	16.67	5.61	5.76	6.34	2.33	1.58	1.79	1.73	1.74	1.99	1.72
June	0.03	0.44	0.32	0.82	5.81	16.63	5.42	5.67	6.25	2.31	1.56	1.73	1.67	1.65	1.95	1.67
July	0.03	0.43	0.31	0.80	5.75	16.58	5.74	5.74	6.31	2.34	1.56	1.71	1.59	1.57	1.90	1.61
Aug.	0.03	0.43	0.28	0.78	5.75	16.60	6.15	5.76	6.35	2.25	1.52	1.68	1.53	1.50	1.84	1.56
Sep.	0.03	0.43	0.27	0.78	5.82	16.61	5.65	5.62	6.17	2.22	1.47	1.63	1.49	1.43	1.77	1.48
Oct. <sup>(p)</sup>	0.03	0.42	0.24	0.83	5.70	16.63	5.87	5.55	6.19	2.26	1.45	1.59	1.44	1.39	1.74	1.44

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) <sup>1), 2)</sup>

(Percentages per annum; period average, unless otherwise indicated)

	Deposits			Revolving loans and overdrafts	Other loans by size and initial period of rate fixation									Composite cost-of-borrowing indicator
	Over-night	With an agreed maturity of:			up to EUR 0.25 million			over EUR 0.25 and up to 1 million			over EUR 1 million			
		Up to 2 years	Over 2 years		Floating rate and up to 3 months	Over 3 months and up to 1 year	Over 1 year	Floating rate and up to 3 months	Over 3 months and up to 1 year	Over 1 year	Floating rate and up to 3 months	Over 3 months and up to 1 year	Over 1 year	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2018 Nov.	0.03	0.06	0.63	2.19	2.19	2.40	2.34	1.67	1.60	1.67	1.20	1.35	1.69	1.66
Dec.	0.03	0.07	0.53	2.18	2.20	2.29	2.25	1.60	1.59	1.67	1.21	1.39	1.59	1.63
2019 Jan.	0.03	0.05	0.54	2.22	2.15	2.40	2.32	1.67	1.62	1.72	1.13	1.30	1.61	1.63
Feb.	0.03	0.03	0.52	2.21	2.15	2.41	2.33	1.65	1.64	1.69	1.13	1.39	1.56	1.64
Mar.	0.03	0.07	0.62	2.17	2.17	2.38	2.30	1.66	1.58	1.68	1.19	1.36	1.57	1.65
Apr.	0.03	0.06	0.54	2.19	2.19	2.36	2.26	1.67	1.60	1.64	1.16	1.33	1.44	1.62
May	0.03	0.04	0.46	2.15	2.18	2.38	2.29	1.66	1.59	1.63	1.09	1.17	1.50	1.57
June	0.03	0.03	0.56	2.17	2.13	2.33	2.25	1.63	1.55	1.56	1.09	1.28	1.39	1.55
July	0.03	0.04	0.57	2.11	2.07	2.50	2.20	1.66	1.57	1.54	1.16	1.32	1.39	1.56
Aug.	0.03	-0.04	0.54	2.08	2.07	2.36	2.19	1.64	1.59	1.53	1.06	1.32	1.40	1.52
Sep.	0.03	-0.05	0.88	2.16	2.03	2.25	2.15	1.61	1.51	1.44	1.10	1.26	1.29	1.54
Oct. <sup>(p)</sup>	0.02	-0.03	0.44	2.08	2.01	2.41	2.10	1.61	1.54	1.40	1.14	1.40	1.27	1.56

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 <sup>1)</sup>						
	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														
2016	1,241	518	135	.	59	466	62	349	161	45	.	31	79	33
2017	1,240	519	155	.	70	438	57	367	167	54	.	37	79	31
2018	1,217	504	170	.	72	424	47	389	171	66	.	41	76	35
2019 May	1,339	574	170	.	115	422	59	447	196	75	.	56	83	37
June	1,314	557	173	.	100	428	56	380	152	78	.	45	71	35
July	1,340	577	173	.	110	424	57	457	205	75	.	56	76	45
Aug.	1,368	588	180	.	113	424	63	405	181	76	.	39	71	38
Sep.	1,387	593	182	.	106	439	66	404	153	81	.	48	81	41
Oct.	1,349	576	173	.	106	424	69	422	197	53	.	52	75	45
Long-term														
2016	15,373	3,695	3,173	.	1,176	6,686	642	219	62	53	.	19	78	8
2017	15,353	3,560	3,048	.	1,235	6,866	643	247	66	73	.	18	83	7
2018	15,745	3,688	3,149	.	1,260	7,022	627	228	64	68	.	16	75	6
2019 May	16,052	3,767	3,199	.	1,297	7,153	636	246	62	79	.	13	86	7
June	16,113	3,768	3,217	.	1,305	7,190	633	245	61	76	.	23	80	5
July	16,182	3,789	3,257	.	1,315	7,184	636	253	70	72	.	25	78	8
Aug.	16,191	3,784	3,255	.	1,312	7,200	639	120	25	40	.	8	41	6
Sep.	16,264	3,805	3,285	.	1,339	7,200	634	277	82	83	.	34	74	4
Oct.	16,202	3,795	3,292	.	1,339	7,153	623	260	60	84	.	24	85	6

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	
Outstanding amount											
2016	16,613.8	4,213.4	3,308.6	.	1,235.2	7,151.7	704.9	7,089.5	537.6	1,084.2	5,467.7
2017	16,593.1	4,079.4	3,203.3	.	1,304.8	7,304.7	700.8	7,954.7	612.5	1,249.6	6,092.6
2018	16,961.8	4,192.1	3,318.4	.	1,332.1	7,445.8	673.4	7,027.2	465.1	1,099.4	5,462.7
2019 May	17,390.8	4,341.0	3,369.2	.	1,412.0	7,574.3	694.5	7,586.6	470.9	1,208.1	5,907.6
June	17,426.9	4,324.6	3,390.4	.	1,405.1	7,617.7	689.1	7,940.6	493.3	1,246.0	6,201.3
July	17,522.2	4,366.2	3,429.6	.	1,425.5	7,607.8	693.1	7,980.2	484.0	1,252.8	6,243.4
Aug.	17,559.1	4,372.7	3,435.0	.	1,425.0	7,624.6	702.0	7,841.0	462.4	1,183.0	6,195.6
Sep.	17,650.6	4,398.7	3,467.3	.	1,445.4	7,639.6	699.8	8,182.3	496.1	1,335.6	6,350.6
Oct.	17,550.8	4,370.6	3,464.6	.	1,445.4	7,577.4	692.8	8,257.7	508.2	1,348.6	6,400.8
Growth rate											
2016	0.3	-3.0	-1.2	.	6.2	2.2	-0.1	0.5	1.2	0.9	0.4
2017	1.3	-0.5	0.1	.	6.0	2.2	0.4	1.0	6.1	2.8	0.2
2018	1.9	1.7	2.9	.	3.4	1.9	-4.3	0.7	-0.1	2.4	0.4
2019 May	2.6	3.9	2.2	.	3.7	2.1	0.6	0.0	-0.2	-0.2	0.0
June	2.9	4.5	2.3	.	4.5	2.3	1.0	0.0	-0.1	0.0	0.0
July	3.0	5.2	2.0	.	4.7	2.0	1.3	-0.1	-0.1	-0.1	-0.1
Aug.	3.2	5.0	2.9	.	5.6	2.2	1.6	-0.1	-0.1	-0.1	-0.1
Sep.	3.1	4.3	3.6	.	5.3	1.8	3.1	-0.1	-0.1	-0.2	-0.1
Oct.	2.9	3.9	3.9	.	5.3	1.5	1.3	-0.2	-0.1	-0.2	-0.2

Source: ECB.

## 2 Financial developments

### 2.8 Effective exchange rates <sup>1)</sup>

(period averages; index: 1999 Q1=100)

	EER-19						EER-38		
	Nominal	Real CPI	Real PPI	Real GDP deflator	Real ULCM	Real ULCT	Nominal	Real CPI	
	1	2	3	4	5	6	7	8	
2016	94.4	89.5	90.9	85.2	80.0	90.2	109.7	88.9	
2017	96.6	91.4	91.9	86.0	78.8	90.6	112.0	90.0	
2018	98.9	93.4	93.4	87.4	79.2	91.5	117.9	93.8	
2018 Q4	98.5	93.0	92.9	86.9	79.1	91.0	118.4	93.8	
2019 Q1	97.4	91.7	92.1	85.7	78.3	89.6	116.7	92.1	
Q2	97.3	91.4	91.7	85.5	78.6	89.3	116.8	91.8	
Q3	97.7	91.4	91.8	.	.	.	116.9	91.5	
2019 June	97.9	91.9	92.1	-	-	-	117.4	92.2	
July	97.5	91.3	91.6	-	-	-	116.5	91.3	
Aug.	98.1	91.9	92.1	-	-	-	117.6	92.0	
Sep.	97.4	91.1	91.7	-	-	-	116.7	91.2	
Oct.	97.4	90.8	91.6	-	-	-	116.6	90.9	
Nov.	96.7	90.2	91.1	-	-	-	116.0	90.3	
			<i>Percentage change versus previous month</i>						
2019 Nov.	-0.6	-0.7	-0.6	-	-	-	-0.6	-0.7	
			<i>Percentage change versus previous year</i>						
2019 Nov.	-1.6	-2.9	-1.8	-	-	-	-1.6	-3.4	

Source: ECB.

1) For a definition of the trading partner groups and other information see the General Notes to the Statistics Bulletin.

### 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	
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	
2018	7.808	7.418	25.647	7.453	318.890	130.396	4.261	0.885	4.6540	10.258	1.155	1.181	
2018 Q4	7.895	7.420	25.864	7.462	322.995	128.816	4.299	0.887	4.6605	10.320	1.137	1.141	
2019 Q1	7.663	7.422	25.683	7.464	317.907	125.083	4.302	0.873	4.7358	10.419	1.132	1.136	
Q2	7.672	7.418	25.686	7.467	322.973	123.471	4.282	0.875	4.7480	10.619	1.126	1.124	
Q3	7.800	7.394	25.734	7.463	328.099	119.323	4.318	0.902	4.7314	10.662	1.096	1.112	
2019 June	7.794	7.408	25.605	7.467	322.559	122.081	4.264	0.891	4.7250	10.626	1.117	1.129	
July	7.715	7.390	25.548	7.466	325.269	121.406	4.260	0.899	4.7286	10.560	1.108	1.122	
Aug.	7.858	7.390	25.802	7.460	326.906	118.179	4.347	0.916	4.7280	10.736	1.089	1.113	
Sep.	7.832	7.401	25.868	7.463	332.448	118.242	4.353	0.891	4.7381	10.697	1.090	1.100	
Oct.	7.845	7.436	25.689	7.469	331.462	119.511	4.301	0.875	4.7538	10.802	1.098	1.105	
Nov.	7.757	7.440	25.531	7.472	333.617	120.338	4.285	0.858	4.7698	10.650	1.098	1.105	
				<i>Percentage change versus previous month</i>									
2019 Nov.	-1.1	0.0	-0.6	0.0	0.7	0.7	-0.4	-2.0	0.3	-1.4	0.0	0.0	
				<i>Percentage change versus previous year</i>									
2019 Nov.	-1.7	0.2	-1.6	0.1	3.5	-6.6	-0.4	-2.7	2.3	3.5	-3.5	-2.8	

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 <sup>1)</sup>			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
<i>Outstanding amounts (international investment position)</i>												
2018 Q3	26,129.9	26,707.7	-577.8	11,198.5	9,161.6	8,890.1	11,147.7	-72.5	5,439.9	6,398.4	673.9	14,502.9
2018 Q4	25,399.7	25,891.3	-491.6	10,895.1	9,041.6	8,475.2	10,508.5	-87.9	5,398.2	6,341.2	719.1	14,197.4
2019 Q1	26,652.9	26,908.5	-255.6	11,179.5	9,124.4	9,114.2	11,251.0	-91.4	5,709.4	6,533.1	741.1	14,629.3
2019 Q2	26,837.0	27,084.1	-247.1	11,064.3	9,096.4	9,232.2	11,424.4	-78.2	5,847.8	6,563.3	770.8	14,695.5
<i>Outstanding amounts as a percentage of GDP</i>												
2019 Q2	229.0	231.1	-2.1	94.4	77.6	78.8	97.5	-0.7	49.9	56.0	6.6	125.4
<i>Transactions</i>												
2018 Q4	-407.0	-470.9	63.8	-303.9	-195.0	-28.2	-158.2	29.6	-110.4	-117.6	5.8	-
2019 Q1	355.0	303.6	51.4	90.6	35.7	58.6	141.8	2.2	200.7	126.1	2.8	-
2019 Q2	217.7	180.7	37.0	-47.3	12.0	49.5	91.3	30.2	182.6	77.4	2.6	-
2019 Q3	251.7	174.4	77.2	-23.0	-8.1	154.4	170.6	5.3	113.4	11.9	1.7	-
2019 Apr.	157.3	173.7	-16.3	21.4	49.0	-7.6	-10.6	10.6	129.8	135.3	3.2	-
2019 May	86.0	73.8	12.2	9.0	16.1	-0.5	60.3	12.6	63.2	-2.6	1.8	-
2019 June	-25.6	-66.8	41.2	-77.7	-53.1	57.6	41.7	7.1	-10.3	-55.4	-2.3	-
2019 July	184.1	172.3	11.8	-16.7	1.4	50.1	74.3	8.1	135.5	96.6	7.1	-
2019 Aug.	43.8	13.8	30.0	-20.2	-24.9	28.8	12.9	3.4	31.1	25.7	0.7	-
2019 Sep.	23.8	-11.6	35.4	14.0	15.4	75.5	83.4	-6.3	-53.3	-110.4	-6.2	-
<i>12-month cumulated transactions</i>												
2019 Sep.	417.4	187.8	229.6	-283.6	-155.4	234.4	245.5	67.3	386.3	97.8	13.0	-
<i>12-month cumulated transactions as a percentage of GDP</i>												
2019 Sep.	3.5	1.6	1.9	-2.4	-1.3	2.0	2.1	0.6	3.3	0.8	0.1	-

Source: ECB.

1) Net financial derivatives are included in total assets.

## 3 Economic activity

### 3.1 GDP and expenditure components

(quarterly data seasonally adjusted; annual data unadjusted)

	GDP											
	Total	Domestic demand							External balance <sup>1)</sup>			
		Total	Private consumption	Government consumption	Gross fixed capital formation			Changes in inventories <sup>2)</sup>	Total	Exports <sup>1)</sup>	Imports <sup>1)</sup>	
	Total construction				Total machinery	Intellectual property products						
1	2	3	4	5	6	7	8	9	10	11	12	
<i>Current prices (EUR billions)</i>												
2016	10,817.0	10,339.5	5,858.7	2,235.3	2,193.0	1,038.2	675.1	473.5	52.5	477.5	4,928.9	4,451.4
2017	11,200.9	10,707.5	6,036.9	2,296.7	2,304.3	1,101.6	707.0	489.2	69.6	493.4	5,297.9	4,804.5
2018	11,561.2	11,060.8	6,207.5	2,363.9	2,405.9	1,175.2	742.2	481.7	83.5	500.4	5,547.4	5,047.0
2018 Q4	2,922.9	2,805.7	1,566.8	597.5	619.7	302.8	189.0	126.2	21.6	117.2	1,410.5	1,293.3
2019 Q1	2,945.1	2,814.9	1,575.3	602.3	626.0	310.8	190.2	123.3	11.3	130.2	1,422.3	1,292.2
Q2	2,967.3	2,868.9	1,588.8	608.6	661.4	311.4	192.2	155.9	10.1	98.4	1,426.5	1,328.1
Q3	2,981.9	2,878.3	1,599.6	613.0	666.4	314.1	192.0	158.5	-0.6	103.6	1,432.7	1,329.2
<i>as a percentage of GDP</i>												
2018	100.0	95.7	53.7	20.4	20.8	10.2	6.4	4.2	0.7	4.3	-	-
<i>Chain-linked volumes (prices for the previous year)</i>												
<i>quarter-on-quarter percentage changes</i>												
2018 Q4	0.3	0.4	0.4	0.4	1.6	1.2	0.4	4.5	-	-	0.9	1.2
2019 Q1	0.4	0.2	0.4	0.4	0.4	1.6	0.5	-2.6	-	-	0.9	0.3
Q2	0.2	1.4	0.2	0.5	5.7	0.0	1.4	26.5	-	-	0.2	2.8
Q3	0.2	0.3	0.5	0.4	0.3	0.3	-0.5	1.2	-	-	0.4	0.6
<i>annual percentage changes</i>												
2016	1.9	2.4	2.0	1.9	4.0	2.7	5.8	4.5	-	-	2.9	4.1
2017	2.5	2.2	1.7	1.3	3.5	3.6	4.0	2.4	-	-	5.5	5.0
2018	1.9	1.6	1.4	1.1	2.3	3.4	4.3	-2.8	-	-	3.3	2.7
2018 Q4	1.2	1.8	1.1	1.1	4.1	3.3	2.3	8.8	-	-	1.7	3.1
2019 Q1	1.4	1.5	1.1	1.4	4.1	4.9	3.2	3.6	-	-	3.0	3.6
Q2	1.2	2.5	1.1	1.5	8.8	3.4	3.2	30.7	-	-	2.3	5.3
Q3	1.2	2.3	1.5	1.7	8.1	3.2	1.8	30.2	-	-	2.4	5.0
<i>contributions to quarter-on-quarter percentage changes in GDP; percentage points</i>												
2018 Q4	0.3	0.4	0.2	0.1	0.3	0.1	0.0	0.2	-0.2	-0.1	-	-
2019 Q1	0.4	0.1	0.2	0.1	0.1	0.2	0.0	-0.1	-0.2	0.3	-	-
Q2	0.2	1.4	0.1	0.1	1.2	0.0	0.1	1.1	-0.1	-1.2	-	-
Q3	0.2	0.3	0.3	0.1	0.1	0.0	0.0	0.1	-0.1	-0.1	-	-
<i>contributions to annual percentage changes in GDP; percentage points</i>												
2016	1.9	2.3	1.1	0.4	0.8	0.3	0.4	0.2	0.0	-0.4	-	-
2017	2.5	2.1	0.9	0.3	0.7	0.3	0.3	0.1	0.2	0.5	-	-
2018	1.9	1.5	0.7	0.2	0.5	0.3	0.3	-0.1	0.0	0.4	-	-
2018 Q4	1.2	1.7	0.6	0.2	0.8	0.3	0.2	0.4	0.0	-0.5	-	-
2019 Q1	1.4	1.5	0.6	0.3	0.8	0.5	0.2	0.1	-0.3	-0.1	-	-
Q2	1.2	2.4	0.6	0.3	1.8	0.3	0.2	1.3	-0.3	-1.2	-	-
Q3	1.2	2.2	0.8	0.4	1.7	0.3	0.1	1.3	-0.6	-1.0	-	-

Sources: Eurostat and ECB calculations.

1) Exports and imports cover goods and services and include cross-border intra-euro area trade.

2) Including acquisitions less disposals of valuables.

## 3 Economic activity

### 3.2 Value added by economic activity

(quarterly data seasonally adjusted; annual data unadjusted)

	Gross value added (basic prices)											Taxes less subsidies on products
	Total	Agriculture, forestry and fishing	Manufacturing energy and utilities	Construction	Trade, transport, accommodation and food services	Information and communication	Finance and insurance	Real estate	Professional, business and support services	Public administration, education, health and social work	Arts, entertainment and other services	
	1	2	3	4	5	6	7	8	9	10	11	12
Current prices (EUR billions)												
2016	9,703.7	161.1	1,931.6	479.2	1,834.9	444.3	473.7	1,106.3	1,084.7	1,847.2	340.6	1,113.3
2017	10,040.0	176.2	1,991.7	502.2	1,909.8	468.8	465.8	1,133.7	1,143.7	1,897.4	350.6	1,160.9
2018	10,356.2	177.7	2,041.5	537.2	1,968.4	488.5	469.8	1,168.0	1,195.2	1,954.7	355.3	1,205.0
2018 Q4	2,618.9	44.6	512.5	138.7	497.3	124.5	118.6	295.1	304.0	494.2	89.4	303.9
2019 Q1	2,638.7	44.9	514.6	142.6	502.3	125.5	117.7	297.9	305.6	497.4	90.2	306.4
Q2	2,658.5	45.2	513.4	144.1	506.0	127.9	118.9	300.2	309.0	502.6	91.2	308.8
Q3	2,669.0	44.9	512.0	146.2	509.1	128.4	119.5	302.0	310.7	504.9	91.2	312.8
<i>as a percentage of value added</i>												
2018	100.0	1.7	19.7	5.2	19.0	4.7	4.5	11.3	11.5	18.9	3.4	-
Chain-linked volumes (prices for the previous year)												
<i>quarter-on-quarter percentage changes</i>												
2018 Q4	0.3	0.7	-0.4	1.3	0.5	0.6	-0.3	0.3	1.0	0.4	0.3	0.4
2019 Q1	0.4	-0.1	0.0	1.6	1.0	1.5	0.7	0.5	-0.1	0.1	0.6	0.4
Q2	0.1	-0.9	-0.5	-0.2	0.1	1.3	0.9	0.3	0.3	0.3	0.3	0.5
Q3	0.2	0.1	-0.4	0.6	0.3	1.1	0.4	0.4	0.2	0.2	0.0	0.7
<i>annual percentage changes</i>												
2016	1.8	-2.0	2.9	1.9	1.9	4.2	-1.0	0.6	2.6	1.6	0.0	2.7
2017	2.6	0.7	3.4	2.4	3.0	5.8	1.0	0.8	4.3	1.6	1.5	2.1
2018	2.0	1.2	1.8	3.4	2.1	4.4	1.1	1.6	3.3	1.0	0.4	1.5
2018 Q4	1.2	-0.4	-0.6	3.5	1.5	3.7	0.5	1.4	2.8	0.9	0.2	1.1
2019 Q1	1.4	-0.6	-0.4	4.9	2.0	4.8	1.2	1.4	1.7	1.0	1.0	1.1
Q2	1.2	-1.4	-1.1	3.4	1.6	5.1	1.8	1.5	1.6	1.1	1.4	1.3
Q3	1.1	-0.2	-1.3	3.2	1.9	4.4	1.6	1.5	1.4	1.1	1.2	2.0
<i>contributions to quarter-on-quarter percentage changes in value added; percentage points</i>												
2018 Q4	0.3	0.0	-0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	-
2019 Q1	0.4	0.0	0.0	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.0	-
Q2	0.1	0.0	-0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	-
Q3	0.2	0.0	-0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	-
<i>contributions to annual percentage changes in value added; percentage points</i>												
2016	1.8	0.0	0.6	0.1	0.4	0.2	-0.1	0.1	0.3	0.3	0.0	-
2017	2.6	0.0	0.7	0.1	0.6	0.3	0.1	0.1	0.5	0.3	0.1	-
2018	2.0	0.0	0.4	0.2	0.4	0.2	0.1	0.2	0.4	0.2	0.0	-
2018 Q4	1.2	0.0	-0.1	0.2	0.3	0.2	0.0	0.2	0.3	0.2	0.0	-
2019 Q1	1.4	0.0	-0.1	0.2	0.4	0.2	0.1	0.2	0.2	0.2	0.0	-
Q2	1.2	0.0	-0.2	0.2	0.3	0.2	0.1	0.2	0.2	0.2	0.0	-
Q3	1.1	0.0	-0.3	0.2	0.4	0.2	0.1	0.2	0.2	0.2	0.0	-

Sources: Eurostat and ECB calculations.

## 3 Economic activity

### 3.3 Employment <sup>1)</sup>

(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													
<i>as a percentage of total persons employed</i>													
2016	100.0	85.2	14.8	3.3	14.7	6.0	24.9	2.8	2.6	1.0	13.6	24.4	7.0
2017	100.0	85.6	14.4	3.2	14.6	6.0	24.9	2.8	2.5	1.0	13.8	24.3	6.9
2018	100.0	85.8	14.2	3.1	14.6	6.0	24.9	2.9	2.4	1.0	14.0	24.2	6.9
<i>annual percentage changes</i>													
2016	1.3	1.6	-0.2	-0.2	0.8	0.3	1.4	3.0	-0.5	2.2	2.9	1.3	0.7
2017	1.6	2.0	-0.7	-0.5	1.1	1.5	1.8	3.4	-1.5	1.8	3.7	1.1	1.0
2018	1.5	1.8	-0.2	-0.4	1.5	2.4	1.4	3.4	-0.7	1.7	2.8	1.3	0.6
2018 Q4	1.4	1.6	0.0	-0.4	1.3	3.0	1.3	3.8	-0.4	1.8	1.9	1.3	0.3
2019 Q1	1.4	1.6	0.1	0.1	1.3	2.5	1.2	4.1	-0.1	2.1	1.8	1.3	0.5
Q2	1.2	1.4	-0.4	-2.0	1.0	1.5	1.2	4.1	-0.4	1.0	1.3	1.4	1.0
Q3	1.0	1.3	-0.7	-1.1	0.8	0.9	0.9	3.3	-0.1	0.1	1.3	1.2	1.2
Hours worked													
<i>as a percentage of total hours worked</i>													
2016	100.0	80.3	19.7	4.4	15.1	6.7	25.8	2.9	2.6	1.0	13.3	21.9	6.3
2017	100.0	80.7	19.3	4.3	15.1	6.7	25.8	3.0	2.5	1.0	13.6	21.8	6.2
2018	100.0	81.1	18.9	4.2	15.0	6.8	25.7	3.0	2.5	1.0	13.8	21.8	6.1
<i>annual percentage changes</i>													
2016	1.4	1.9	-0.3	0.0	0.9	0.5	1.6	3.0	-0.1	2.9	3.0	1.3	0.7
2017	1.1	1.7	-1.2	-1.1	0.8	1.3	1.3	3.2	-2.0	1.5	3.4	0.5	0.4
2018	1.4	1.9	-0.4	0.4	1.2	2.7	1.1	3.2	-1.0	2.4	2.7	1.3	0.4
2018 Q4	1.5	1.9	-0.1	0.3	1.2	3.3	1.4	3.8	-0.1	1.9	2.2	1.4	0.4
2019 Q1	1.6	1.9	0.2	1.2	1.5	3.1	1.4	4.1	0.0	1.6	1.9	1.4	0.5
Q2	0.9	1.2	-0.6	-1.9	0.6	1.5	0.9	3.5	-0.4	1.1	1.3	1.0	0.1
Q3	0.7	1.1	-1.1	-1.3	0.5	0.8	0.5	3.1	-0.2	1.8	1.1	1.0	0.3
Hours worked per person employed													
<i>annual percentage changes</i>													
2016	0.1	0.3	-0.2	0.3	0.1	0.2	0.2	0.0	0.4	0.7	0.1	0.0	0.0
2017	-0.5	-0.3	-0.5	-0.6	-0.3	-0.1	-0.5	-0.1	-0.5	-0.3	-0.3	-0.6	-0.6
2018	-0.1	0.1	-0.2	0.8	-0.2	0.2	-0.3	-0.3	-0.3	0.6	-0.1	0.0	-0.2
2018 Q4	0.1	0.3	-0.1	0.7	-0.1	0.2	0.0	0.1	0.3	0.1	0.3	0.1	0.2
2019 Q1	0.2	0.3	0.1	1.1	0.2	0.6	0.2	0.0	0.1	-0.5	0.1	0.1	-0.1
Q2	-0.3	-0.2	-0.3	0.0	-0.4	0.0	-0.3	-0.5	0.0	0.2	0.0	-0.3	-0.8
Q3	-0.3	-0.2	-0.4	-0.2	-0.3	-0.2	-0.4	-0.2	-0.1	1.7	-0.1	-0.2	-0.8

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 <sup>1)</sup>	Under-employment, % of labour force <sup>1)</sup>	Unemployment										Job vacancy rate <sup>2)</sup>	
			Total		Long-term unemployment, % of labour force <sup>1)</sup>	By age				By gender				
			Millions	% of labour force		Adult		Youth		Male		Female		
						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			
2016	162.028	4.3	16.259	10.0	5.0	13.294	9.0	2.964	20.9	8.484	9.7	7.775	10.4	1.7
2017	162.659	4.1	14.761	9.1	4.4	12.093	8.1	2.668	18.8	7.637	8.7	7.124	9.5	1.9
2018	163.305	3.8	13.393	8.2	3.8	10.965	7.4	2.429	17.0	6.900	7.9	6.493	8.6	2.1
2018 Q4	163.707	3.7	12.956	7.9	3.6	10.590	7.1	2.366	16.4	6.642	7.6	6.314	8.3	2.3
2019 Q1	163.284	3.6	12.678	7.7	3.5	10.362	6.9	2.315	16.1	6.471	7.4	6.206	8.2	2.3
Q2	163.765	3.6	12.419	7.6	3.3	10.158	6.8	2.260	15.7	6.381	7.3	6.038	7.9	2.3
Q3	-	-	12.366	7.6	-	10.106	6.8	2.260	15.7	6.346	7.2	6.020	7.9	2.2
2019 May	-	-	12.412	7.6	-	10.143	6.8	2.269	15.7	6.388	7.3	6.025	7.9	-
June	-	-	12.361	7.5	-	10.117	6.8	2.243	15.6	6.350	7.2	6.011	7.9	-
July	-	-	12.404	7.6	-	10.134	6.8	2.270	15.8	6.357	7.2	6.047	8.0	-
Aug.	-	-	12.330	7.5	-	10.086	6.8	2.244	15.6	6.332	7.2	5.998	7.9	-
Sep.	-	-	12.365	7.6	-	10.098	6.8	2.267	15.7	6.350	7.2	6.016	7.9	-
Oct.	-	-	12.334	7.5	-	10.073	6.7	2.261	15.6	6.298	7.2	6.036	7.9	-

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					Construction production	ECB indicator on industrial new orders	Retail sales				New passenger car registrations	
	Total (excluding construction)		Main Industrial Groupings					Total	Food, beverages, tobacco	Non-food	Fuel		
	Manufacturing	Intermediate 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													
2016	1.6	1.8	1.8	2.0	1.8	0.5	3.0	0.7	1.7	1.0	2.3	1.1	7.1
2017	2.9	3.2	3.4	3.8	1.4	1.2	3.1	7.9	2.5	1.6	3.5	0.8	5.7
2018	0.9	1.2	0.6	1.8	1.3	-1.5	2.1	2.7	1.6	1.3	1.9	0.5	0.9
2018 Q4	-1.9	-1.7	-2.1	-2.0	-0.4	-3.7	1.9	-1.0	1.6	1.4	1.8	1.6	-9.0
2019 Q1	-0.5	-0.2	-0.6	-0.6	1.3	-2.7	4.7	-3.2	2.5	1.0	3.5	2.8	-3.1
Q2	-1.3	-1.4	-2.3	-2.7	2.1	-0.1	2.2	-3.5	2.1	1.1	3.0	0.5	-0.7
Q3	-2.1	-2.2	-3.4	-2.5	0.3	-2.4	0.9	-4.8	2.6	0.9	4.1	1.3	0.6
2019 May	-0.8	-0.8	-2.4	-1.8	3.0	0.4	1.5	-5.1	1.3	-0.3	2.5	-1.0	-2.1
June	-2.4	-2.5	-3.4	-4.0	1.4	-0.9	1.5	-3.6	2.8	1.2	4.5	0.9	1.1
July	-2.1	-2.2	-2.9	-3.2	0.7	-1.3	1.6	-4.5	2.4	1.0	3.6	1.2	-3.8
Aug.	-2.8	-2.7	-3.3	-3.2	-1.1	-3.3	0.8	-5.6	2.8	1.2	4.2	1.9	-6.1
Sep.	-1.7	-1.7	-3.9	-1.4	1.2	-2.6	-0.7	-4.4	2.7	0.6	4.7	0.7	14.8
Oct.	-	-	-	-	-	-	-	-	1.4	0.3	2.3	1.4	9.8
month-on-month percentage changes (s.a.)													
2019 May	0.8	0.8	-0.3	0.9	2.0	0.4	-0.5	-2.0	-0.3	-0.7	0.0	-1.4	0.2
June	-1.4	-1.4	-1.2	-3.8	-1.3	-0.8	0.7	0.5	1.0	1.0	1.1	1.5	2.5
July	-0.5	-0.5	-0.3	2.3	-1.4	-0.2	-0.5	-1.7	-0.5	-0.5	-0.4	-0.1	-1.8
Aug.	0.4	0.4	0.1	1.1	0.4	-0.2	-0.8	0.7	0.6	0.6	0.7	0.2	13.3
Sep.	0.1	0.3	-0.9	0.6	0.6	-0.8	0.7	0.2	-0.2	-0.8	0.1	-0.3	-17.2
Oct.	-	-	-	-	-	-	-	-	-0.6	0.3	-1.1	0.6	3.8

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
1999-15	99.2	-5.3	80.7	-11.7	-15.0	-8.7	7.2	-	51.2	52.5	53.0	52.8
2016	104.1	-1.8	81.7	-8.1	-16.4	0.6	11.3	88.9	52.5	53.6	53.1	53.3
2017	110.1	5.5	83.2	-5.4	-4.2	2.3	14.6	89.8	57.4	58.5	55.6	56.4
2018	111.2	6.6	83.8	-4.9	6.1	1.3	15.2	90.3	54.9	54.7	54.5	54.6
2018 Q4	108.8	3.6	83.6	-6.4	7.9	-0.3	13.4	90.4	51.7	51.0	52.8	52.3
2019 Q1	106.0	-0.5	83.2	-7.0	7.5	-1.0	11.6	90.7	49.1	49.0	52.4	51.5
Q2	104.1	-4.3	82.4	-7.0	6.1	-0.7	11.6	90.5	47.7	48.5	53.1	51.8
Q3	102.5	-7.4	81.6	-6.7	4.1	0.0	9.8	90.3	46.4	47.0	52.8	51.2
2019 June	103.3	-5.6	-	-7.2	7.6	0.1	11.0	-	47.6	48.5	53.6	52.2
July	102.7	-7.3	82.0	-6.6	5.0	-0.7	10.6	90.5	46.5	46.9	53.2	51.5
Aug.	103.1	-5.8	-	-7.1	3.9	0.6	9.2	-	47.0	47.9	53.5	51.9
Sep.	101.7	-8.9	-	-6.5	3.4	0.2	9.5	-	45.7	46.1	51.6	50.1
Oct.	100.8	-9.5	81.2	-7.6	4.4	-0.9	9.0	90.2	45.9	46.6	52.2	50.6
Nov.	101.3	-9.2	-	-7.2	3.1	-0.2	9.3	-	46.9	47.4	51.9	50.6

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)	Debt ratio	Real gross disposable income	Financial investment	Non-financial investment (gross)	Net worth <sup>2)</sup>	Housing wealth	Profit share <sup>3)</sup>	Saving ratio (net)	Debt ratio <sup>4)</sup>	Financial investment	Non-financial investment (gross)	Financing
	Percentage of gross disposable income (adjusted) <sup>1)</sup>	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
2016	12.3	94.0	2.0	2.0	5.4	3.4	2.8	35.0	7.4	79.7	4.2	5.6	2.5
2017	12.1	93.8	1.4	2.2	5.4	4.4	4.4	34.4	7.1	77.2	4.5	7.7	2.9
2018	12.3	93.6	1.8	2.0	6.9	2.6	4.6	33.8	5.9	76.6	2.3	5.5	1.6
2018 Q3	12.2	93.6	1.3	2.0	7.5	3.5	4.5	33.9	6.4	77.3	3.3	7.1	2.1
Q4	12.3	93.6	1.6	2.0	8.7	2.6	4.6	33.8	5.9	76.6	2.3	20.9	1.6
2019 Q1	12.6	93.3	2.0	2.2	7.7	3.9	4.4	33.7	6.1	76.7	2.2	7.4	1.7
Q2	12.9	93.5	2.1	2.4	4.4	4.3	4.2	33.4	5.9	77.1	1.6	16.1	1.4

Sources: ECB and Eurostat.

1) Based on four-quarter cumulated sums of saving, debt 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) Defined as consolidated loans and debt securities 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 <sup>1)</sup>	
	Total			Goods		Services		Primary income		Secondary income		Credit	Debit
	Credit	Debit	Net	Credit	Debit	Credit	Debit	Credit	Debit	Credit	Debit		
1	2	3	4	5	6	7	8	9	10	11	12	13	
2018 Q4	1,058.5	977.4	81.2	599.3	527.1	234.6	210.4	195.2	166.4	29.4	73.4	22.0	64.4
2019 Q1	1,065.8	974.4	91.4	604.7	520.5	235.6	210.0	196.7	175.5	28.8	68.3	10.7	14.9
Q2	1,061.1	990.5	70.7	600.2	519.3	241.1	233.2	193.2	175.0	26.6	63.0	8.7	24.0
Q3	1,057.6	979.9	77.7	603.0	519.7	240.7	221.8	188.6	172.7	25.3	65.7	9.1	6.9
2019 Apr.	352.9	330.8	22.1	199.3	173.5	80.1	77.8	64.6	58.9	8.9	20.6	2.4	7.8
May	355.2	329.1	26.1	200.6	172.8	80.1	76.9	65.4	59.5	9.1	20.0	3.0	8.0
June	353.0	330.6	22.5	200.3	173.1	80.8	78.5	63.2	56.6	8.7	22.4	3.4	8.2
July	353.2	332.2	21.0	200.3	172.2	79.7	77.7	64.1	59.5	9.0	22.7	3.5	2.4
Aug.	352.1	323.5	28.5	200.3	171.9	81.1	74.5	62.3	55.0	8.4	22.1	3.1	1.9
Sep.	352.3	324.2	28.2	202.4	175.6	80.0	69.5	62.1	58.2	7.8	20.9	2.5	2.6
<i>12-month cumulated transactions</i>													
2019 Sep.	4,243.0	3,922.1	320.9	2,407.2	2,086.7	952.1	875.4	773.6	689.5	110.1	270.5	50.6	110.2
<i>12-month cumulated transactions as a percentage of GDP</i>													
2019 Sep.	35.9	33.2	2.7	20.4	17.7	8.1	7.4	6.5	5.8	0.9	2.3	0.4	0.9

1) The capital account is not seasonally adjusted.

### 3.9 Euro area external trade in goods<sup>1)</sup>, values and volumes by product group<sup>2)</sup>

(seasonally adjusted, unless otherwise indicated)

	Total (n.s.a.)		Exports (f.o.b.)					Imports (c.i.f.)					
	Exports	Imports	Total			Memo item: Manu- facturing	Total			Memo items:			
			Intermediate goods	Capital goods	Consumption goods		Intermediate goods	Capital goods	Consumption goods	Manu- facturing	Oil		
1	2	3	4	5	6	7	8	9	10	11	12	13	
<i>Values (EUR billions; annual percentage changes for columns 1 and 2)</i>													
2018 Q4	4.0	8.3	579.6	278.2	123.2	168.3	485.1	538.1	310.3	89.4	131.0	382.0	66.1
2019 Q1	3.6	5.4	586.1	283.3	121.0	172.3	492.8	533.1	307.1	86.1	133.2	382.6	64.2
Q2	2.2	2.4	582.4	276.0	119.8	175.8	486.4	530.5	302.6	84.9	134.3	380.6	65.6
Q3	3.0	0.2	583.6	.	.	.	486.9	528.4	.	.	.	384.2	.
2019 Apr.	5.4	6.7	193.1	92.3	39.4	58.1	160.0	177.5	101.4	28.3	45.0	127.1	21.8
May	7.0	5.2	195.4	91.7	40.7	59.0	163.3	176.8	101.9	28.6	44.2	125.3	22.5
June	-5.3	-4.2	193.8	92.0	39.6	58.6	163.1	176.2	99.3	28.1	45.1	128.2	21.3
July	6.0	2.6	193.7	92.8	38.8	58.3	162.0	176.6	100.8	28.8	44.5	128.6	20.3
Aug.	-2.7	-4.2	194.3	93.0	38.7	58.8	162.8	174.6	98.2	28.5	44.7	127.7	20.2
Sep.	5.2	2.1	195.6	.	.	.	162.0	177.2	.	.	.	128.0	.
<i>Volume indices (2000 = 100; annual percentage changes for columns 1 and 2)</i>													
2018 Q4	0.2	2.2	107.6	110.1	109.9	103.7	107.6	109.9	109.0	112.7	110.9	111.7	98.2
2019 Q1	-0.3	1.7	108.0	111.7	107.4	104.9	108.0	110.1	110.4	108.6	112.2	111.4	105.2
Q2	-1.4	-0.2	106.5	108.4	105.6	105.4	106.2	109.0	107.6	108.3	112.9	111.1	97.3
Q3	.	.	.	.	.	.	.	.	.	.	.	.	.
2019 Mar.	-1.1	0.9	108.2	111.9	106.1	106.3	108.0	110.2	109.9	106.9	114.4	111.8	103.9
Apr.	0.9	2.3	105.9	108.5	103.6	105.3	104.7	109.2	108.1	106.7	113.6	111.3	96.6
May	3.2	1.6	107.0	107.8	108.3	105.8	106.9	108.8	107.9	110.1	111.9	110.0	97.1
June	-7.8	-4.6	106.7	109.1	105.1	105.1	107.0	109.1	106.8	108.1	113.2	112.1	98.1
July	3.7	3.0	106.4	109.4	102.8	104.9	106.1	109.8	109.5	110.5	111.4	112.4	94.9
Aug.	-4.7	-3.9	106.4	109.5	101.9	105.3	106.0	107.9	107.9	103.6	110.2	109.3	98.9

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 <sup>1)</sup>

(annual percentage changes, unless otherwise indicated)

	Total					Total (s.a.; percentage change vis-à-vis previous period) <sup>2)</sup>						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
		1	2										
% of total in 2019	100.0	100.0	70.9	55.5	44.5	100.0	14.5	4.5	26.4	10.1	44.5	86.7	13.3
2016	100.2	0.2	0.8	-0.4	1.1	-	-	-	-	-	-	0.2	0.3
2017	101.8	1.5	1.0	1.6	1.4	-	-	-	-	-	-	1.6	1.0
2018	103.6	1.8	1.0	2.0	1.5	-	-	-	-	-	-	1.7	2.2
2018 Q4	104.3	1.9	1.0	2.3	1.5	0.3	0.3	0.3	0.1	1.6	0.2	1.8	2.8
2019 Q1	103.5	1.4	1.0	1.5	1.4	0.0	0.6	0.2	0.1	-2.4	0.3	1.3	2.4
Q2	105.3	1.4	1.1	1.3	1.5	0.5	0.6	-0.2	0.1	1.6	0.6	1.3	2.1
Q3	105.1	1.0	0.9	0.7	1.3	0.2	0.5	1.3	0.1	-1.5	0.4	0.9	1.4
2019 June	105.4	1.3	1.1	1.0	1.6	0.1	0.1	0.4	0.0	-1.2	0.4	1.1	2.2
July	104.9	1.0	0.9	0.9	1.2	0.0	0.2	0.5	0.1	-0.6	0.1	1.0	1.3
Aug.	105.1	1.0	0.9	0.8	1.3	0.1	0.1	0.8	0.0	-0.6	0.1	0.9	1.5
Sep.	105.3	0.8	1.0	0.3	1.5	0.0	0.0	-0.4	0.0	0.0	0.1	0.7	1.4
Oct.	105.4	0.7	1.1	0.1	1.5	0.1	0.1	-0.3	0.0	0.4	0.1	0.7	1.0
Nov. <sup>3)</sup>	105.1	1.0	1.3	.	1.9	0.2	0.4	0.6	0.2	0.0	0.1	.	.

	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 2019	19.0	14.5	4.5	36.5	26.4	10.1	11.0	6.5	7.2	2.6	15.3	8.4
2016	0.9	0.6	1.4	-1.1	0.4	-5.1	1.1	1.1	0.8	0.0	1.3	1.2
2017	1.8	1.5	2.4	1.5	0.3	4.9	1.3	1.2	2.1	-1.1	2.1	0.8
2018	2.2	2.1	2.3	1.9	0.3	6.4	1.2	1.2	1.5	-0.1	2.0	1.4
2018 Q4	2.0	1.9	2.0	2.4	0.2	8.4	1.2	1.1	1.5	-0.3	1.9	1.7
2019 Q1	2.0	1.9	1.9	1.3	0.3	3.9	1.2	1.2	1.3	-0.6	1.7	1.5
Q2	1.5	1.8	0.6	1.2	0.3	3.6	1.3	1.3	2.1	-1.2	2.0	1.5
Q3	1.8	1.9	1.6	0.0	0.3	-0.7	1.5	1.5	2.2	-0.8	1.1	1.5
2019 June	1.6	1.9	0.7	0.6	0.3	1.7	1.5	1.4	2.2	-0.9	2.1	1.4
July	1.9	2.0	1.7	0.4	0.4	0.5	1.5	1.5	2.1	-1.1	0.8	1.4
Aug.	2.1	1.9	2.5	0.1	0.3	-0.6	1.5	1.5	2.3	-0.8	0.9	1.7
Sep.	1.6	1.8	0.7	-0.3	0.2	-1.8	1.5	1.5	2.1	-0.6	1.5	1.6
Oct.	1.5	1.8	0.7	-0.7	0.3	-3.1	1.5	1.5	2.4	-0.4	1.5	1.6
Nov. <sup>3)</sup>	2.0	2.1	1.8	.	0.4	-3.2	.	.	.	.	.	.

Sources: Eurostat and ECB calculations.

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

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

3) Estimate based on provisional national data, as well as on early information on energy prices.

## 4 Prices and costs

### 4.2 Industry, construction and property prices

(annual percentage changes, unless otherwise indicated)

	Industrial producer prices excluding construction <sup>1)</sup>										Con- struction <sup>2)</sup>	Residential property prices <sup>3)</sup>	Experimental indicator of commercial property prices <sup>3)</sup>
	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			
2016	97.9	-2.1	-1.4	-0.5	-1.6	0.5	0.0	0.0	0.0	-6.9	0.7	4.0	5.0
2017	100.8	3.0	3.0	2.1	3.2	0.9	1.9	2.9	0.2	5.6	2.0	4.3	4.8
2018	104.0	3.2	2.4	1.5	2.6	1.0	0.4	0.2	0.6	8.1	2.5	4.8	4.2
2018 Q4	105.7	4.0	2.3	1.4	2.5	1.1	0.3	-0.2	0.8	11.1	2.4	4.7	3.0
2019 Q1	105.4	3.0	1.3	1.1	1.3	1.5	0.4	-0.1	1.0	7.7	2.5	4.1	4.4
Q2	104.8	1.6	1.0	0.9	0.7	1.5	1.0	0.9	0.9	3.0	2.2	4.1	6.5
Q3	104.2	-0.6	0.0	0.5	-0.4	1.5	1.0	1.2	0.8	-4.3	.	.	.
2019 May	105.0	1.6	1.2	1.0	0.8	1.6	1.0	0.9	0.9	3.0	-	-	-
June	104.4	0.7	0.3	0.8	0.2	1.5	1.2	1.2	0.9	-0.2	-	-	-
July	104.5	0.1	0.4	0.6	-0.3	1.6	1.0	1.1	0.8	-2.0	-	-	-
Aug.	104.0	-0.8	-0.2	0.5	-0.4	1.5	1.0	1.3	0.8	-4.9	-	-	-
Sep.	104.1	-1.2	-0.3	0.4	-0.7	1.5	1.2	1.4	0.8	-6.1	-	-	-
Oct.	104.2	-1.9	-0.7	0.3	-1.0	1.4	1.5	1.8	0.8	-7.9	-	-	-

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

1) Domestic sales only.

2) Input prices for residential buildings.

3) 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](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: 2015 = 100)	Total	Domestic demand					Exports <sup>1)</sup>	Imports <sup>1)</sup>	Import-weighted <sup>2)</sup>			Use-weighted <sup>2)</sup>		
			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	
2016	100.9	0.9	0.4	0.4	0.4	0.7	-1.3	-2.4	39.9	-2.0	-1.4	-2.8	-3.1	-3.7	-2.3
2017	101.8	1.0	1.3	1.3	1.4	1.6	1.9	2.8	48.1	5.8	-3.5	16.6	6.7	-1.6	17.8
2018	103.1	1.3	1.7	1.4	1.8	2.0	1.4	2.3	60.4	-0.7	-5.8	4.3	-0.1	-5.3	5.7
2018 Q4	103.8	1.5	2.0	1.7	1.9	2.3	1.8	2.9	59.5	2.1	0.4	3.6	2.3	0.4	4.4
2019 Q1	104.1	1.5	1.7	1.3	1.7	2.6	1.2	1.5	55.6	3.1	3.4	2.8	3.9	5.1	2.7
Q2	104.7	1.7	1.7	1.5	1.7	2.1	1.0	0.9	61.0	-1.8	-0.7	-2.8	-0.1	4.7	-4.9
Q3	105.0	1.7	1.2	1.3	1.7	1.5	0.1	-1.0	55.7	1.9	3.8	0.2	1.7	6.6	-3.1
2019 June	-	-	-	-	-	-	-	-	56.0	-3.1	0.1	-5.8	-2.1	4.2	-8.4
July	-	-	-	-	-	-	-	-	57.1	2.7	3.7	1.8	2.9	7.4	-1.6
Aug.	-	-	-	-	-	-	-	-	53.3	-1.2	0.5	-2.7	-1.3	3.1	-5.7
Sep.	-	-	-	-	-	-	-	-	56.6	4.3	7.4	1.7	3.6	9.3	-2.0
Oct.	-	-	-	-	-	-	-	-	53.7	1.3	5.7	-2.4	2.1	9.7	-5.4
Nov.	-	-	-	-	-	-	-	-	56.8	4.0	10.5	-1.6	6.6	17.4	-4.2

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
1999-15	4.2	-	-	-3.6	32.0	56.7	56.3	-	49.7
2016	-0.4	2.3	4.4	-7.1	0.6	49.8	53.9	49.3	49.6
2017	9.2	5.1	6.9	2.5	12.7	64.6	56.3	55.1	51.6
2018	11.5	7.4	9.4	12.1	20.3	65.4	57.9	56.1	52.7
2018 Q4	11.9	8.5	10.0	13.0	23.9	62.6	58.4	54.5	52.7
2019 Q1	8.9	8.2	10.4	11.4	20.4	53.9	57.7	53.0	53.1
Q2	4.6	7.2	9.1	6.1	19.7	50.6	57.1	51.2	52.3
Q3	1.7	6.6	8.3	4.5	17.9	46.4	56.5	48.9	52.0
2019 June	3.2	5.5	9.0	3.9	21.0	48.0	56.2	50.6	52.3
July	1.4	6.8	8.5	4.0	18.7	46.3	56.7	48.8	52.3
Aug.	2.3	6.1	8.8	4.4	18.1	46.7	56.8	49.4	52.1
Sep.	1.4	7.0	7.6	5.0	17.0	46.3	55.9	48.6	51.7
Oct.	1.1	6.5	7.9	4.8	16.0	43.7	57.3	48.7	52.1
Nov.	0.7	6.3	7.4	5.3	14.0	43.9	56.8	48.3	52.1

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: 2016 = 100)	Total	By component		For selected economic activities		Memo item: Indicator of negotiated wages <sup>1)</sup>
			Wages and salaries	Employers' social contributions	Business economy	Mainly non-business economy	
	1	2	3	4	5	6	7
% of total in 2018	100.0	100.0	75.3	24.7	69.0	31.0	
2016	100.0	1.3	1.4	1.0	1.1	1.6	1.4
2017	101.8	1.8	1.8	1.8	1.9	1.6	1.5
2018	104.0	2.2	2.1	2.3	2.3	1.9	2.0
2018 Q4	110.5	2.2	2.2	2.0	2.1	2.3	2.1
2019 Q1	99.6	2.5	2.7	2.0	2.6	2.5	2.3
Q2	110.5	2.7	2.7	2.9	2.7	3.0	2.0
Q3	.	.	.	.	.	.	2.6

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](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: 2015 =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
<b>Unit labour costs</b>												
2016	105.4	0.7	1.9	-0.8	0.1	1.1	-0.7	2.3	4.5	0.9	1.1	2.3
2017	106.2	0.7	-0.1	-0.6	1.0	0.3	0.0	-1.3	3.2	1.9	1.4	1.0
2018	108.2	1.8	0.7	1.7	1.0	1.7	1.6	-0.5	3.3	2.2	2.3	2.5
2018 Q4	109.0	2.5	1.8	3.8	1.2	2.3	2.2	0.4	5.0	2.2	2.5	3.0
2019 Q1	109.4	2.3	2.7	3.8	0.8	2.1	1.3	-0.4	5.1	2.0	2.4	1.9
Q2	110.1	2.2	1.3	3.4	1.2	2.0	0.5	-0.7	3.3	2.1	2.6	2.6
Q3	110.7	1.9	0.1	4.3	0.4	1.4	0.3	-0.4	1.7	1.8	2.4	1.6
<b>Compensation per employee</b>												
2016	109.5	1.3	0.1	1.4	1.7	1.6	0.5	1.8	2.9	0.6	1.4	1.5
2017	111.3	1.7	1.1	1.6	2.0	1.4	2.3	1.2	2.2	2.5	1.8	1.6
2018	113.8	2.2	2.4	2.0	1.9	2.4	2.5	1.4	3.2	2.7	2.0	2.3
2018 Q4	114.9	2.3	1.9	1.8	1.7	2.4	2.1	1.4	4.6	3.0	2.1	2.9
2019 Q1	115.4	2.3	1.9	2.1	3.1	2.9	2.0	1.0	4.4	1.8	2.1	2.3
Q2	116.1	2.2	1.8	1.3	3.1	2.4	1.5	1.5	3.8	2.3	2.3	3.0
Q3	116.8	2.1	1.1	2.1	2.7	2.4	1.4	1.3	3.2	1.9	2.2	1.6
<b>Labour productivity per person employed</b>												
2016	103.9	0.6	-1.8	2.2	1.6	0.5	1.2	-0.5	-1.5	-0.2	0.3	-0.8
2017	104.8	0.9	1.2	2.2	0.9	1.1	2.3	2.6	-1.0	0.6	0.5	0.6
2018	105.2	0.4	1.6	0.3	0.9	0.7	0.9	1.9	-0.2	0.5	-0.3	-0.2
2018 Q4	105.3	-0.2	0.0	-1.9	0.5	0.2	-0.1	0.9	-0.4	0.9	-0.4	-0.1
2019 Q1	105.4	0.0	-0.7	-1.6	2.4	0.8	0.7	1.4	-0.6	-0.1	-0.3	0.4
Q2	105.4	0.0	0.6	-2.1	1.9	0.4	1.0	2.2	0.6	0.3	-0.2	0.4
Q3	105.5	0.2	0.9	-2.1	2.2	1.0	1.1	1.7	1.4	0.1	-0.2	0.0
<b>Compensation per hour worked</b>												
2016	111.2	1.0	-0.6	1.2	1.8	0.9	0.5	1.4	2.5	0.2	1.4	1.5
2017	113.3	2.0	1.3	1.8	2.0	1.8	2.4	1.8	2.1	2.4	2.4	2.1
2018	115.8	2.1	1.9	2.1	1.4	2.5	2.6	1.7	2.4	2.7	1.9	2.2
2018 Q4	116.2	2.0	1.4	1.8	1.2	2.0	1.9	1.1	4.3	2.8	1.9	2.4
2019 Q1	116.8	2.0	0.1	1.9	2.4	2.3	1.8	0.9	4.5	1.8	1.9	2.4
Q2	117.6	2.4	2.9	1.6	3.1	2.4	2.0	1.5	3.6	2.3	2.6	3.9
Q3	118.3	2.3	1.7	2.4	2.9	2.5	1.4	1.5	1.6	1.9	2.4	2.5
<b>Hourly labour productivity</b>												
2016	105.7	0.5	-2.1	2.0	1.4	0.3	1.2	-0.9	-2.2	-0.4	0.3	-0.8
2017	107.2	1.4	1.8	2.5	1.1	1.7	2.5	3.1	-0.8	0.9	1.1	1.1
2018	107.7	0.5	0.8	0.5	0.7	1.0	1.1	2.1	-0.8	0.6	-0.3	0.0
2018 Q4	107.3	-0.4	-0.6	-1.8	0.3	0.1	-0.1	0.6	-0.5	0.6	-0.6	-0.2
2019 Q1	107.5	-0.2	-1.8	-1.8	1.8	0.6	0.7	1.2	-0.2	-0.2	-0.4	0.5
Q2	107.6	0.3	0.5	-1.7	1.9	0.7	1.5	2.2	0.4	0.2	0.1	1.3
Q3	107.7	0.5	1.1	-1.8	2.4	1.4	1.3	1.8	-0.3	0.2	0.0	0.8

Sources: Eurostat and ECB calculations.

## 5 Money and credit

### 5.1 Monetary aggregates <sup>1)</sup>

(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				Repos	Money market fund shares	Debt securities with a maturity of up to 2 years			
	Currency in circulation	Overnight deposits	Deposits with an agreed maturity of up to 2 years	Deposits redeemable at notice of up to 3 months								
1	2	3	4	5	6	7	8	9	10	11	12	
Outstanding amounts												
2016	1,076.0	6,082.7	7,158.7	1,329.1	2,221.6	3,550.7	10,709.5	69.3	522.6	87.9	679.9	11,389.4
2017	1,112.0	6,638.1	7,750.1	1,196.7	2,261.8	3,458.4	11,208.5	74.4	511.7	72.2	658.3	11,866.9
2018	1,163.3	7,119.0	8,282.3	1,125.2	2,299.0	3,424.1	11,706.5	74.3	523.2	71.5	669.0	12,375.4
2018 Q4	1,163.3	7,119.0	8,282.3	1,125.2	2,299.0	3,424.1	11,706.5	74.3	523.2	71.5	669.0	12,375.4
2019 Q1	1,179.2	7,277.1	8,456.3	1,114.8	2,318.1	3,432.8	11,889.1	74.2	509.3	39.5	623.1	12,512.2
Q2	1,189.0	7,415.3	8,604.3	1,111.2	2,338.5	3,449.7	12,054.1	74.5	513.5	35.3	623.2	12,677.3
Q3	1,204.0	7,605.1	8,809.2	1,110.1	2,354.7	3,464.8	12,274.0	74.5	534.8	19.7	629.1	12,903.0
2019 May	1,185.9	7,364.7	8,550.6	1,122.6	2,333.9	3,456.4	12,007.1	71.1	513.6	44.8	629.4	12,636.5
June	1,189.0	7,415.3	8,604.3	1,111.2	2,338.5	3,449.7	12,054.1	74.5	513.5	35.3	623.2	12,677.3
July	1,193.7	7,486.4	8,680.1	1,104.5	2,344.3	3,448.9	12,129.0	75.7	523.5	37.6	636.9	12,765.8
Aug.	1,198.7	7,572.2	8,770.9	1,114.0	2,347.1	3,461.1	12,232.1	72.3	534.9	25.6	632.7	12,864.8
Sep.	1,204.0	7,605.1	8,809.2	1,110.1	2,354.7	3,464.8	12,274.0	74.5	534.8	19.7	629.1	12,903.0
Oct. <sup>(p)</sup>	1,209.4	7,673.9	8,883.3	1,094.2	2,357.0	3,451.2	12,334.5	79.6	518.0	27.7	625.4	12,959.9
Transactions												
2016	38.5	539.6	578.0	-105.9	16.0	-90.0	488.1	-4.3	34.1	18.9	48.7	536.8
2017	36.0	592.6	628.6	-109.5	34.5	-74.9	553.7	6.5	-10.8	-18.9	-23.1	530.5
2018	50.3	465.3	515.6	-74.2	45.1	-29.1	486.5	-0.9	11.6	-4.5	6.2	492.7
2018 Q4	13.1	112.4	125.5	-8.3	14.2	5.9	131.4	2.5	26.9	7.6	37.0	168.4
2019 Q1	15.9	156.3	172.2	-12.7	19.6	6.8	179.0	-0.3	-20.8	-28.5	-49.5	129.5
Q2	9.8	143.0	152.7	-4.4	20.3	15.8	168.6	0.4	4.5	-3.8	1.1	169.7
Q3	15.1	180.8	195.8	-4.6	16.4	11.8	207.6	-0.6	20.0	-15.2	4.2	211.8
2019 May	3.4	56.4	59.8	-3.7	7.9	4.1	63.9	-2.4	-0.2	2.8	0.2	64.1
June	3.1	54.9	57.9	-10.6	4.7	-5.9	52.0	3.6	0.0	-7.5	-3.8	48.1
July	4.7	68.0	72.7	-8.1	5.8	-2.3	70.4	1.1	8.8	1.2	11.1	81.5
Aug.	5.0	83.1	88.1	8.3	2.8	11.1	99.2	-3.7	11.3	-11.5	-3.8	95.4
Sep.	5.3	29.7	35.1	-4.8	7.8	3.1	38.1	2.0	-0.2	-5.0	-3.1	35.0
Oct. <sup>(p)</sup>	5.4	71.8	77.1	-14.1	3.0	-11.1	66.0	5.5	-16.8	9.3	-2.0	64.0
Growth rates												
2016	3.7	9.7	8.7	-7.4	0.7	-2.5	4.8	-5.9	7.0	26.5	7.7	5.0
2017	3.3	9.8	8.8	-8.3	1.6	-2.1	5.2	9.5	-2.1	-21.5	-3.4	4.7
2018	4.5	7.0	6.6	-6.2	2.0	-0.8	4.3	-1.3	2.3	-6.3	0.9	4.2
2018 Q4	4.5	7.0	6.6	-6.2	2.0	-0.8	4.3	-1.3	2.3	-6.3	0.9	4.2
2019 Q1	5.9	7.7	7.5	-5.3	2.6	-0.1	5.2	2.4	-1.7	-43.0	-5.8	4.6
Q2	4.7	7.7	7.2	-6.1	3.0	-0.1	5.0	1.1	-0.9	-43.9	-5.0	4.5
Q3	4.7	8.5	7.9	-2.6	3.1	1.2	5.9	3.0	6.1	-65.2	-1.1	5.6
2019 May	4.9	7.5	7.2	-3.7	3.0	0.7	5.2	-2.4	-0.3	-31.0	-3.6	4.7
June	4.7	7.7	7.2	-6.1	3.0	-0.1	5.0	1.1	-0.9	-43.9	-5.0	4.5
July	4.9	8.3	7.8	-5.4	3.0	0.2	5.5	10.4	1.1	-38.1	-1.7	5.1
Aug.	4.8	9.0	8.4	-3.1	2.9	0.9	6.2	-1.1	4.9	-59.7	-2.4	5.7
Sep.	4.7	8.5	7.9	-2.6	3.1	1.2	5.9	3.0	6.1	-65.2	-1.1	5.6
Oct. <sup>(p)</sup>	4.8	9.0	8.4	-4.3	3.0	0.6	6.1	10.1	1.4	-48.0	-2.4	5.6

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
<b>Outstanding amounts</b>													
2016	2,093.8	1,632.5	293.3	159.9	8.0	6,057.4	3,403.3	645.6	2,006.2	2.3	964.3	200.8	386.6
2017	2,240.3	1,797.4	285.0	149.1	8.8	6,317.7	3,702.8	562.2	2,051.9	0.8	991.1	206.6	415.3
2018	2,335.5	1,902.9	277.2	147.8	7.6	6,645.0	4,035.9	517.6	2,090.1	1.4	998.5	203.1	435.4
2018 Q4	2,335.5	1,902.9	277.2	147.8	7.6	6,645.0	4,035.9	517.6	2,090.1	1.4	998.5	203.1	435.4
2019 Q1	2,380.3	1,956.0	270.1	148.1	6.1	6,752.9	4,126.3	514.9	2,110.4	1.4	978.0	213.0	460.0
Q2	2,406.1	1,983.7	265.3	150.0	7.1	6,847.0	4,207.8	509.9	2,127.6	1.7	1,009.5	216.6	460.4
Q3	2,450.3	2,030.7	262.2	151.4	5.9	6,965.1	4,318.3	504.6	2,141.3	1.0	1,042.3	221.3	465.4
2019 May	2,401.5	1,976.1	269.2	149.3	6.9	6,824.1	4,186.6	512.1	2,123.9	1.6	992.7	215.4	458.5
June	2,406.1	1,983.7	265.3	150.0	7.1	6,847.0	4,207.8	509.9	2,127.6	1.7	1,009.5	216.6	460.4
July	2,429.0	2,008.1	264.1	150.4	6.4	6,894.2	4,250.7	508.8	2,132.9	1.8	1,009.3	220.7	457.8
Aug.	2,462.0	2,040.0	264.4	151.0	6.6	6,927.8	4,283.4	507.4	2,135.4	1.7	1,022.9	231.5	461.3
Sep.	2,450.3	2,030.7	262.2	151.4	5.9	6,965.1	4,318.3	504.6	2,141.3	1.0	1,042.3	221.3	465.4
Oct. (p)	2,471.9	2,052.8	260.2	150.9	7.9	6,994.7	4,349.3	500.5	2,143.3	1.7	1,047.5	223.1	467.4
<b>Transactions</b>													
2016	131.9	157.0	-25.5	0.3	0.1	301.1	334.8	-46.3	13.6	-0.9	21.0	-28.3	19.6
2017	180.7	182.4	-1.9	-0.8	0.9	254.7	304.7	-82.1	33.6	-1.5	54.9	7.2	26.7
2018	92.8	105.0	-9.8	-1.1	-1.4	326.5	324.8	-45.0	46.1	0.5	0.8	-4.2	19.3
2018 Q4	28.9	21.2	7.4	-0.2	0.4	95.1	87.2	-7.1	14.8	0.2	4.2	-8.2	0.8
2019 Q1	47.4	54.8	-7.2	0.7	-0.9	106.7	89.7	-3.2	20.3	0.0	-24.6	9.3	24.1
Q2	29.4	30.5	-4.4	2.2	1.1	94.1	82.1	-5.0	16.7	0.3	31.7	3.9	0.1
Q3	40.5	43.3	-2.8	1.4	-1.3	117.2	109.8	-6.0	13.9	-0.6	25.5	4.2	4.6
2019 May	15.2	16.3	-1.3	0.4	-0.1	36.3	30.8	-1.3	6.9	0.0	2.9	3.3	0.3
June	7.3	9.3	-3.3	1.0	0.3	23.7	21.9	-1.8	3.5	0.1	18.5	1.5	1.7
July	22.2	23.2	-0.4	0.2	-0.8	46.8	42.8	-1.4	5.3	0.1	-3.6	4.0	-2.7
Aug.	31.1	30.5	-0.1	0.6	0.1	33.4	32.6	-1.6	2.5	-0.1	11.8	10.6	3.6
Sep.	-12.8	-10.4	-2.3	0.5	-0.7	37.0	34.5	-2.9	6.1	-0.7	17.3	-10.4	3.7
Oct. (p)	24.6	24.5	-1.4	-0.5	2.1	29.7	30.1	-3.7	2.7	0.7	7.8	2.1	1.9
<b>Growth rates</b>													
2016	6.8	10.4	-8.0	0.2	0.8	5.2	10.9	-6.7	0.6	-28.4	2.2	-12.4	5.3
2017	8.6	11.2	-0.7	-0.5	11.5	4.2	9.0	-12.7	1.7	-65.1	5.8	3.6	6.9
2018	4.1	5.8	-3.5	-0.7	-16.5	5.2	8.8	-8.0	2.3	67.7	0.1	-2.0	4.6
2018 Q4	4.1	5.8	-3.5	-0.7	-16.5	5.2	8.8	-8.0	2.3	67.7	0.1	-2.0	4.6
2019 Q1	5.9	7.6	-2.3	0.2	-17.1	5.7	8.9	-5.6	2.9	-17.2	-2.2	0.5	10.4
Q2	5.8	7.6	-4.6	2.3	12.2	5.8	8.6	-4.9	3.1	72.0	-0.9	-1.5	7.7
Q3	6.3	8.0	-2.6	2.8	-11.8	6.3	9.3	-4.0	3.2	-10.1	3.7	4.3	6.8
2019 May	5.5	6.7	-0.8	1.4	8.8	5.9	8.9	-4.7	3.2	20.5	-0.5	0.0	8.7
June	5.8	7.6	-4.6	2.3	12.2	5.8	8.6	-4.9	3.1	72.0	-0.9	-1.5	7.7
July	6.8	8.6	-2.5	2.4	-8.1	6.1	9.1	-4.5	3.1	13.9	0.0	1.8	6.9
Aug.	7.8	9.6	-2.0	2.4	3.2	6.2	9.2	-4.0	3.0	6.1	3.2	8.7	6.2
Sep.	6.3	8.0	-2.6	2.8	-11.8	6.3	9.3	-4.0	3.2	-10.1	3.7	4.3	6.8
Oct. (p)	7.2	9.1	-3.8	2.5	31.9	6.2	9.2	-4.1	3.1	30.9	4.3	6.8	6.3

Source: ECB.

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

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

3) Including non-profit institutions serving households.

4) Refers to the general government sector excluding central government.

## 5 Money and credit

### 5.3 Credit to euro area residents <sup>1)</sup>

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

	Credit to general government			Credit to other euro area residents								
	Total	Loans	Debt securities	Total	Loans					Debt securities	Equity and non-money market fund investment fund shares	
					Total	To non-financial corporations <sup>3)</sup>	To households <sup>4)</sup>	To financial corporations other than MFIs and ICPFs <sup>3)</sup>	To insurance corporations and pension funds			
	1	2	3	4	5	Adjusted loans <sup>2)</sup>	6	7	8	9	10	11
<b>Outstanding amounts</b>												
2016	4,382.4	1,083.1	3,286.0	12,879.6	10,708.6	10,980.9	4,310.3	5,449.8	835.8	112.8	1,385.8	785.2
2017	4,617.2	1,032.3	3,571.0	13,114.1	10,870.5	11,165.0	4,323.5	5,600.2	838.0	108.7	1,440.4	803.2
2018	4,675.5	1,006.3	3,657.8	13,415.1	11,122.7	11,478.4	4,405.9	5,742.1	847.9	126.8	1,517.4	774.9
2018 Q4	4,675.5	1,006.3	3,657.8	13,415.1	11,122.7	11,478.4	4,405.9	5,742.1	847.9	126.8	1,517.4	774.9
2019 Q1	4,661.4	1,001.5	3,648.5	13,526.5	11,201.0	11,553.1	4,426.5	5,787.7	856.1	130.7	1,526.8	798.7
Q2	4,639.5	1,000.7	3,627.1	13,639.5	11,290.7	11,665.4	4,462.5	5,825.8	870.3	132.1	1,546.3	802.5
Q3	4,696.4	999.8	3,685.0	13,774.2	11,394.4	11,762.8	4,488.5	5,876.3	883.5	146.2	1,569.5	810.2
2019 May	4,634.5	1,004.1	3,618.7	13,595.3	11,261.6	11,625.4	4,462.2	5,806.8	867.7	124.9	1,533.6	800.1
June	4,639.5	1,000.7	3,627.1	13,639.5	11,290.7	11,665.4	4,462.5	5,825.8	870.3	132.1	1,546.3	802.5
July	4,672.9	1,000.5	3,660.7	13,682.2	11,335.0	11,706.1	4,483.6	5,843.4	873.6	134.4	1,541.0	806.2
Aug.	4,707.4	1,003.8	3,691.9	13,735.7	11,388.3	11,748.2	4,505.0	5,864.6	878.3	140.4	1,544.6	802.8
Sep.	4,696.4	999.8	3,685.0	13,774.2	11,394.4	11,762.8	4,488.5	5,876.3	883.5	146.2	1,569.5	810.2
Oct. <sup>(p)</sup>	4,665.5	1,001.8	3,652.1	13,801.7	11,423.2	11,786.2	4,503.2	5,895.0	886.2	138.9	1,562.7	815.8
<b>Transactions</b>												
2016	484.2	-34.4	518.5	318.8	234.5	258.2	81.7	121.0	43.0	-11.1	79.9	4.4
2017	287.5	-43.7	330.6	363.3	274.2	315.8	84.9	173.2	19.7	-3.5	63.7	25.4
2018	89.5	-28.4	117.9	375.6	307.8	380.0	124.0	166.4	-0.3	17.8	88.6	-20.7
2018 Q4	29.6	2.4	27.3	65.1	58.0	88.6	16.2	42.4	-4.1	3.5	11.2	-4.1
2019 Q1	-30.7	-5.5	-25.2	110.1	92.1	91.0	32.3	49.1	8.4	2.3	0.5	17.5
Q2	-49.2	-1.5	-48.0	123.6	105.7	126.0	50.7	38.8	17.8	-1.5	17.6	0.3
Q3	-1.5	-0.9	-0.6	128.6	102.2	104.7	27.1	52.1	9.2	13.9	20.2	6.2
2019 May	-7.5	5.4	-13.1	34.5	25.9	34.5	19.7	6.4	1.4	-1.6	11.6	-3.0
June	-22.4	-3.9	-18.4	46.2	39.0	48.9	8.4	18.7	7.6	4.4	9.9	-2.7
July	7.0	-0.3	7.2	39.7	44.3	41.9	22.3	17.8	2.0	2.2	-7.2	2.5
Aug.	5.4	3.2	2.2	50.8	51.5	43.8	20.8	21.3	3.5	5.9	1.5	-2.3
Sep.	-13.9	-3.8	-10.0	38.2	6.4	19.0	-16.0	13.0	3.6	5.7	25.8	6.0
Oct. <sup>(p)</sup>	-17.1	2.2	-19.3	35.8	36.6	35.6	18.8	20.4	4.6	-7.2	-6.3	5.5
<b>Growth rates</b>												
2016	12.4	-3.1	18.6	2.5	2.2	2.4	1.9	2.3	5.5	-9.0	6.1	0.6
2017	6.6	-4.1	10.2	2.8	2.6	2.9	2.0	3.2	2.4	-3.2	4.6	3.2
2018	2.0	-2.8	3.3	2.9	2.8	3.4	2.9	3.0	0.0	16.4	6.2	-2.6
2018 Q4	2.0	-2.8	3.3	2.9	2.8	3.4	2.9	3.0	0.0	16.4	6.2	-2.6
2019 Q1	1.8	-2.4	3.0	2.8	2.7	3.3	2.5	3.1	-1.0	14.7	4.1	1.8
Q2	-0.2	-2.0	0.3	3.1	3.2	3.5	3.3	3.2	1.8	5.9	3.2	1.3
Q3	-1.1	-0.6	-1.3	3.2	3.2	3.6	2.9	3.2	3.6	14.4	3.3	2.5
2019 May	0.6	-2.2	1.5	2.6	2.7	3.3	2.7	3.1	-0.3	1.7	3.0	0.4
June	-0.2	-2.0	0.3	3.1	3.2	3.5	3.3	3.2	1.8	5.9	3.2	1.3
July	-0.5	-1.5	-0.3	2.9	3.2	3.6	3.3	3.2	2.6	7.2	1.4	1.8
Aug.	-0.6	-0.4	-0.7	3.1	3.5	3.8	3.5	3.3	3.2	12.9	1.2	2.1
Sep.	-1.1	-0.6	-1.3	3.2	3.2	3.6	2.9	3.2	3.6	14.4	3.3	2.5
Oct. <sup>(p)</sup>	-1.4	-0.1	-1.7	3.2	3.3	3.7	3.1	3.3	3.7	11.0	2.2	3.3

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 <sup>1)</sup>

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

	Non-financial corporations <sup>2)</sup>					Households <sup>3)</sup>				
	Total	Adjusted loans <sup>4)</sup>	Up to 1 year	Over 1 and up to 5 years	Over 5 years	Total	Adjusted loans <sup>4)</sup>	Loans for consumption	Loans for house purchase	Other loans
	1					2				
<b>Outstanding amounts</b>										
2016	4,310.3	4,308.4	1,012.2	796.5	2,501.6	5,449.8	5,729.0	616.5	4,083.7	749.6
2017	4,323.5	4,358.8	986.2	821.2	2,516.2	5,600.2	5,866.6	654.9	4,216.3	729.0
2018	4,405.9	4,489.0	993.2	845.4	2,567.3	5,742.1	6,023.0	684.6	4,353.0	704.5
2018 Q4	4,405.9	4,489.0	993.2	845.4	2,567.3	5,742.1	6,023.0	684.6	4,353.0	704.5
2019 Q1	4,426.5	4,511.6	980.7	853.1	2,592.7	5,787.7	6,065.6	694.5	4,391.1	702.2
Q2	4,462.5	4,554.2	977.6	867.2	2,617.7	5,825.8	6,113.9	705.4	4,422.2	698.1
Q3	4,488.5	4,581.9	982.0	873.5	2,633.0	5,876.3	6,164.6	713.1	4,468.9	694.3
2019 May	4,462.2	4,544.2	981.2	865.3	2,615.7	5,806.8	6,098.5	700.7	4,408.9	697.3
June	4,462.5	4,554.2	977.6	867.2	2,617.7	5,825.8	6,113.9	705.4	4,422.2	698.1
July	4,483.6	4,569.8	983.3	872.9	2,627.4	5,843.4	6,133.3	708.6	4,437.6	697.2
Aug.	4,505.0	4,591.9	995.8	876.3	2,632.9	5,864.6	6,150.7	711.7	4,456.5	696.5
Sep.	4,488.5	4,581.9	982.0	873.5	2,633.0	5,876.3	6,164.6	713.1	4,468.9	694.3
Oct. <sup>(p)</sup>	4,503.2	4,593.3	983.4	878.3	2,641.5	5,895.0	6,181.4	715.2	4,488.3	691.5
<b>Transactions</b>										
2016	81.7	99.6	-14.3	43.4	52.6	121.0	113.8	24.2	105.2	-8.5
2017	84.9	134.8	0.6	39.1	45.2	173.2	164.9	45.1	134.0	-5.9
2018	124.0	174.7	18.7	33.9	71.5	166.4	187.6	40.2	136.1	-9.9
2018 Q4	16.2	38.1	-1.4	8.3	9.4	42.4	49.7	8.9	38.0	-4.5
2019 Q1	32.3	32.5	-10.9	10.3	32.9	49.1	49.2	10.8	39.1	-0.8
Q2	50.7	54.1	0.8	17.1	32.8	38.8	49.9	12.1	28.8	-2.1
Q3	27.1	33.5	3.7	6.2	17.2	52.1	55.6	8.5	46.3	-2.7
2019 May	19.7	17.1	-2.3	6.2	15.8	6.4	16.9	4.8	3.3	-1.7
June	8.4	16.6	-1.2	4.3	5.3	18.7	15.7	4.2	14.5	0.1
July	22.3	17.5	5.2	5.9	11.2	17.8	19.8	3.5	15.1	-0.9
Aug.	20.8	24.4	12.0	3.2	5.7	21.3	17.9	3.2	18.5	-0.4
Sep.	-16.0	-8.4	-13.5	-2.8	0.3	13.0	18.0	1.8	12.6	-1.4
Oct. <sup>(p)</sup>	18.8	17.6	3.4	5.7	9.8	20.4	20.6	2.4	20.4	-2.3
<b>Growth rates</b>										
2016	1.9	2.3	-1.4	5.7	2.1	2.3	2.0	4.1	2.7	-1.1
2017	2.0	3.2	0.1	5.0	1.8	3.2	2.9	7.3	3.3	-0.8
2018	2.9	4.0	1.9	4.2	2.9	3.0	3.2	6.2	3.2	-1.4
2018 Q4	2.9	4.0	1.9	4.2	2.9	3.0	3.2	6.2	3.2	-1.4
2019 Q1	2.5	3.7	-1.2	4.6	3.3	3.1	3.3	6.0	3.5	-1.5
Q2	3.3	3.9	0.2	5.6	3.8	3.2	3.3	6.3	3.4	-1.1
Q3	2.9	3.6	-0.8	5.0	3.6	3.2	3.4	6.0	3.5	-1.4
2019 May	2.7	3.9	-1.6	5.5	3.5	3.1	3.3	6.1	3.4	-1.6
June	3.3	3.9	0.2	5.6	3.8	3.2	3.3	6.3	3.4	-1.1
July	3.3	4.0	-0.4	5.7	3.9	3.2	3.4	6.2	3.5	-1.2
Aug.	3.5	4.2	0.6	5.8	3.8	3.3	3.4	6.1	3.5	-1.2
Sep.	2.9	3.6	-0.8	5.0	3.6	3.2	3.4	6.0	3.5	-1.4
Oct. <sup>(p)</sup>	3.1	3.8	0.6	4.8	3.5	3.3	3.5	5.8	3.7	-1.7

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 <sup>1)</sup>

(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 <sup>2)</sup>	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 counterparties <sup>3)</sup>	Reverse repos to central counterparties <sup>3)</sup>	
1	2	3	4	5	6	7	8	9	10	
<b>Outstanding amounts</b>										
2016	306.5	6,957.3	2,088.6	71.0	2,148.4	2,649.3	1,127.6	263.5	205.9	121.6
2017	342.7	6,771.0	1,967.4	59.8	2,017.5	2,726.2	938.5	310.8	143.5	92.5
2018	379.3	6,819.0	1,940.5	56.1	2,099.3	2,723.1	1,029.8	453.4	187.0	194.9
2018 Q4	379.3	6,819.0	1,940.5	56.1	2,099.3	2,723.1	1,029.8	453.4	187.0	194.9
2019 Q1	370.0	6,906.3	1,937.1	55.9	2,145.8	2,767.6	1,180.5	420.2	199.0	212.3
Q2	373.7	6,984.2	1,956.6	57.5	2,135.0	2,835.2	1,322.1	434.2	191.5	207.8
Q3	388.0	7,100.2	1,947.3	57.2	2,162.2	2,933.6	1,478.5	442.2	184.2	198.1
2019 May	368.1	6,913.4	1,932.6	56.5	2,138.0	2,786.3	1,277.9	410.3	212.8	229.2
June	373.7	6,984.2	1,956.6	57.5	2,135.0	2,835.2	1,322.1	434.2	191.5	207.8
July	374.5	7,018.2	1,931.1	57.7	2,150.5	2,878.9	1,404.1	399.4	206.5	224.1
Aug.	403.5	7,060.0	1,916.5	57.3	2,148.4	2,937.7	1,461.2	423.9	212.6	231.5
Sep.	388.0	7,100.2	1,947.3	57.2	2,162.2	2,933.6	1,478.5	442.2	184.2	198.1
Oct. <sup>(p)</sup>	380.6	7,057.4	1,947.8	55.0	2,131.1	2,923.5	1,490.2	440.4	221.4	236.2
<b>Transactions</b>										
2016	21.6	-123.0	-71.3	-8.6	-118.5	75.4	-277.6	-90.0	12.8	-12.0
2017	39.0	-73.4	-83.5	-6.6	-71.1	87.8	-92.8	-61.9	-61.2	-28.5
2018	40.5	50.6	-37.9	-4.9	22.8	70.7	77.7	41.0	16.2	23.6
2018 Q4	-22.2	23.7	-1.7	-0.8	11.2	15.0	34.4	40.8	9.7	11.9
2019 Q1	-9.1	43.9	-10.4	-0.2	37.0	17.5	116.5	-31.5	2.7	5.5
Q2	3.8	46.0	21.9	1.6	-0.1	22.6	109.7	35.4	-7.1	-4.5
Q3	14.6	13.3	-15.2	-0.6	5.1	24.0	83.8	28.8	6.9	7.4
2019 May	1.0	6.3	-1.3	0.4	0.4	6.8	59.5	-15.1	-4.1	-2.9
June	5.7	42.7	25.3	1.0	8.0	8.4	23.7	49.0	-20.8	-21.4
July	0.7	-5.2	-26.8	0.2	9.3	12.1	56.3	-25.9	14.9	16.3
Aug.	29.1	-20.5	-17.2	-0.4	-7.8	4.8	8.4	39.4	6.1	7.4
Sep.	-15.2	39.0	28.7	-0.4	3.6	7.0	19.2	15.3	-14.1	-16.3
Oct. <sup>(p)</sup>	-7.2	-12.6	2.0	-1.5	-22.4	9.3	34.1	-8.6	37.3	38.1
<b>Growth rates</b>										
2016	7.7	-1.7	-3.4	-10.9	-5.3	2.9	-	-	6.3	-9.0
2017	12.6	-1.1	-4.0	-9.6	-3.4	3.4	-	-	-29.8	-23.5
2018	11.8	0.8	-1.9	-8.1	1.1	2.7	-	-	8.1	7.7
2018 Q4	11.8	0.8	-1.9	-8.1	1.1	2.7	-	-	8.1	7.7
2019 Q1	8.9	1.3	-1.6	-6.4	2.8	2.6	-	-	17.8	21.2
Q2	12.6	2.2	-0.4	-1.3	3.5	3.1	-	-	5.1	6.7
Q3	-3.2	1.9	-0.3	0.1	2.5	2.9	-	-	6.9	11.0
2019 May	9.1	1.4	-1.6	-3.8	2.8	2.7	-	-	14.4	15.9
June	12.6	2.2	-0.4	-1.3	3.5	3.1	-	-	5.1	6.7
July	5.8	2.0	-1.8	0.4	4.1	3.2	-	-	7.1	9.9
Aug.	5.7	1.7	-2.2	0.4	3.7	3.0	-	-	11.9	15.6
Sep.	-3.2	1.9	-0.3	0.1	2.5	2.9	-	-	6.9	11.0
Oct. <sup>(p)</sup>	-2.9	1.5	-0.1	-2.0	1.2	2.9	-	-	36.4	38.9

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
2015	-2.0	-1.9	-0.2	0.2	-0.1	0.3
2016	-1.4	-1.7	0.0	0.2	0.1	0.7
2017	-0.9	-1.3	0.1	0.2	0.1	1.0
2018	-0.5	-1.1	0.1	0.2	0.3	1.3
2018 Q3	-0.4	.	.	.	.	1.5
Q4	-0.5	.	.	.	.	1.3
2019 Q1	-0.6	.	.	.	.	1.2
Q2	-0.7	.	.	.	.	1.0

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	Compensation of employees			Intermediate consumption	Interest	Social benefits			
	1	2	3	4	5	6	7	8	9	10	11	12	13
2015	46.4	45.8	12.5	13.0	15.2	0.6	48.4	44.5	10.1	5.3	2.3	22.7	3.9
2016	46.2	45.7	12.6	13.0	15.3	0.5	47.7	44.1	10.0	5.3	2.1	22.7	3.6
2017	46.2	45.8	12.8	13.0	15.2	0.4	47.2	43.4	9.9	5.3	1.9	22.5	3.8
2018	46.5	46.0	13.0	13.0	15.2	0.5	47.0	43.3	9.9	5.3	1.8	22.3	3.7
2018 Q3	46.5	46.0	13.0	13.0	15.2	0.4	46.8	43.2	9.9	5.3	1.9	22.3	3.7
Q4	46.5	46.0	13.0	13.0	15.2	0.5	47.0	43.3	9.9	5.3	1.8	22.3	3.7
2019 Q1	46.4	45.9	12.9	13.0	15.2	0.5	47.0	43.3	9.9	5.3	1.8	22.4	3.7
Q2	46.4	45.9	12.9	13.0	15.2	0.4	47.1	43.4	9.9	5.3	1.8	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	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 currencies	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
2015	90.8	3.4	16.5	71.0	45.0	27.6	45.8	9.7	81.2	18.3	31.1	41.4	88.8	2.1
2016	90.0	3.3	15.7	71.0	47.5	30.8	42.5	9.4	80.6	17.9	29.8	42.3	87.9	2.1
2017	87.8	3.2	14.5	70.1	48.2	32.2	39.5	8.6	79.1	16.4	29.0	42.3	86.0	1.8
2018	85.9	3.1	13.8	69.0	48.0	32.4	37.8	8.0	77.8	16.1	28.3	41.4	84.5	1.4
2018 Q3	87.1	3.2	13.9	70.1	.	.	.	.	.	.	.	.	.	.
Q4	85.9	3.1	13.8	69.0	.	.	.	.	.	.	.	.	.	.
2019 Q1	86.5	3.1	13.6	69.8	.	.	.	.	.	.	.	.	.	.
Q2	86.4	3.1	13.5	69.8	.	.	.	.	.	.	.	.	.	.

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

## 6 Fiscal developments

### 6.4 Annual change in the government debt-to-GDP ratio and underlying factors <sup>1)</sup>

(as a percentage of GDP; flows during one-year period)

	Change in debt-to-GDP ratio <sup>2)</sup>	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
2015	-1.9	-0.3	-0.8	-0.5	0.2	-0.3	-0.3	-0.1	0.0	-0.3	1.2	
2016	-0.8	-0.7	0.2	0.1	0.3	-0.1	0.0	0.1	0.0	0.0	1.6	
2017	-2.3	-1.0	-0.1	0.3	0.5	0.0	-0.2	0.1	-0.1	-0.3	0.9	
2018	-1.9	-1.3	0.4	0.3	0.4	-0.1	0.0	0.2	0.0	0.1	0.8	
2018 Q3	-2.2	-1.5	0.5	0.7	0.6	-0.1	0.0	0.2	-0.1	-0.2	0.9	
Q4	-1.9	-1.3	0.4	0.5	0.4	-0.1	0.0	0.2	0.0	-0.1	0.8	
2019 Q1	-1.3	-1.2	0.7	0.6	0.6	-0.2	0.0	0.2	0.1	0.0	1.2	
Q2	-0.9	-1.0	0.8	0.7	0.7	-0.1	0.0	0.2	0.1	0.0	1.4	

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 <sup>1)</sup>

(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 <sup>2)</sup>					Average residual maturity in years <sup>3)</sup>	Average nominal yields <sup>4)</sup>						
	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		
												7	8
1	2	3	4	5	6	7	8	9	10	11	12	13	
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
2018	12.6	11.1	3.7	1.5	0.4	7.3	2.3	1.1	-0.1	2.7	2.5	0.4	0.9
2018 Q3	12.7	11.1	3.7	1.6	0.4	7.3	2.3	1.1	-0.1	2.7	2.6	0.4	0.9
Q4	12.6	11.1	3.7	1.5	0.4	7.3	2.3	1.1	-0.1	2.7	2.5	0.4	0.9
2019 Q1	12.7	11.2	3.8	1.5	0.4	7.4	2.3	1.1	0.0	2.6	2.5	0.5	1.0
Q2	12.9	11.4	3.7	1.5	0.4	7.4	2.3	1.3	0.0	2.6	2.3	0.5	0.9
2019 May	12.9	11.4	3.5	1.5	0.4	7.4	2.3	1.2	0.0	2.6	2.5	0.5	1.0
June	12.9	11.4	3.7	1.5	0.4	7.4	2.3	1.3	0.0	2.6	2.3	0.5	0.9
July	13.0	11.5	4.1	1.5	0.4	7.5	2.3	1.3	-0.1	2.6	2.3	0.4	1.0
Aug.	12.9	11.4	4.2	1.5	0.4	7.4	2.2	1.3	-0.1	2.6	2.3	0.4	1.1
Sep.	13.1	11.6	3.9	1.5	0.4	7.4	2.2	1.3	-0.1	2.5	2.1	0.3	1.0
Oct.	12.8	11.3	3.4	1.5	0.4	7.5	2.2	1.3	-0.1	2.5	2.1	0.3	1.2

Source: ECB.

1) At face value and not consolidated within the general government sector.

2) Excludes future payments on debt securities not yet outstanding and early redemptions.

3) Residual maturity at the end of the period.

4) Outstanding amounts at the end of the period; transactions as 12-month average.

## 6 Fiscal developments

### 6.6 Fiscal developments in euro area countries

(as a percentage of GDP; flows during one-year period and outstanding amounts at end of period)

	Belgium 1	Germany 2	Estonia 3	Ireland 4	Greece 5	Spain 6	France 7	Italy 8	Cyprus 9	
Government deficit (-)/surplus (+)										
2015	-2.4	0.9	0.1	-1.9	-5.6	-5.2	-3.6	-2.6	-1.0	
2016	-2.4	1.2	-0.5	-0.7	0.5	-4.3	-3.5	-2.4	0.1	
2017	-0.7	1.2	-0.8	-0.3	0.7	-3.0	-2.8	-2.4	1.7	
2018	-0.7	1.9	-0.6	0.1	1.0	-2.5	-2.5	-2.2	-4.4	
2018 Q3	-0.2	2.1	0.2	-0.5	0.8	-2.7	-2.5	-2.0	-4.2	
Q4	-0.8	1.9	-0.6	0.1	1.0	-2.5	-2.5	-2.2	-4.4	
2019 Q1	-1.1	1.8	-0.7	0.1	0.3	-2.6	-3.0	-2.2	-3.9	
Q2	-1.6	1.7	-0.6	0.7	0.5	-2.8	-3.3	-2.1	-3.7	
Government debt										
2015	105.2	72.1	10.0	76.7	175.9	99.3	95.6	135.3	107.5	
2016	104.9	69.2	10.2	73.9	178.5	99.2	98.0	134.8	103.4	
2017	101.8	65.3	9.3	67.8	176.2	98.6	98.4	134.1	93.9	
2018	100.0	61.9	8.4	63.6	181.2	97.6	98.4	134.8	100.6	
2018 Q3	105.4	62.7	8.5	67.2	182.3	98.9	99.4	136.1	107.9	
Q4	102.1	61.9	8.4	63.6	181.2	97.6	98.4	134.8	100.6	
2019 Q1	105.3	61.7	8.0	65.4	182.1	98.9	99.7	136.6	103.2	
Q2	104.7	61.2	9.3	63.9	180.2	98.9	99.6	138.0	107.2	
	Latvia 10	Lithuania 11	Luxembourg 12	Malta 13	Netherlands 14	Austria 15	Portugal 16	Slovenia 17	Slovakia 18	Finland 19
Government deficit (-)/surplus (+)										
2015	-1.4	-0.3	1.4	-1.0	-2.0	-1.0	-4.4	-2.8	-2.7	-2.4
2016	0.1	0.2	1.8	0.9	0.0	-1.5	-1.9	-1.9	-2.5	-1.7
2017	-0.5	0.5	1.4	3.4	1.3	-0.7	-3.0	0.0	-1.0	-0.7
2018	-0.7	0.6	2.7	1.9	1.5	0.2	-0.4	0.8	-1.1	-0.8
2018 Q3	-0.4	0.5	2.2	3.4	2.0	0.1	-0.1	0.5	-0.7	-0.7
Q4	-0.7	0.6	2.7	1.9	1.5	0.2	-0.4	0.8	-1.1	-0.8
2019 Q1	-0.7	0.2	3.1	1.8	1.7	-0.1	-0.2	0.6	-1.0	-0.9
Q2	-0.9	0.0	3.2	1.0	1.8	0.0	0.2	0.6	-1.0	-1.0
Government debt										
2015	36.7	42.7	22.0	57.8	64.6	84.9	131.2	82.6	51.9	63.0
2016	40.2	39.9	20.1	55.5	61.9	82.9	131.5	78.7	52.0	62.6
2017	38.6	39.3	22.3	50.3	56.9	78.3	126.0	74.1	51.3	60.9
2018	36.4	34.1	21.0	45.8	52.4	74.0	122.2	70.4	49.4	59.0
2018 Q3	37.5	34.9	21.2	45.9	52.9	75.7	125.5	71.4	51.7	58.9
Q4	36.4	34.1	21.0	45.8	52.4	74.0	122.2	70.4	49.1	59.0
2019 Q1	37.7	34.0	20.8	46.4	50.9	72.7	123.7	68.1	49.0	58.7
Q2	36.7	36.1	20.3	45.7	50.9	71.8	121.2	67.7	48.4	60.5

Source: Eurostat.

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