EUROPEAN CENTRAL BANK
EUROSYSTEM

# December 2017 Eurosystem staff macroeconomic projections for the euro area[1]

*The economic expansion in the euro area is projected to remain robust, with growth stronger than previously expected and significantly above potential. Real GDP growth is projected to slow gradually, from 2.4% in 2017 to 1.7% in 2020, as the effects of a number of factors supporting growth slowly fade away. HICP inflation is expected to be broadly stable in the coming quarters before picking up to 1.7% in 2020, supported by rising underlying inflation as capacity constraints become more binding. HICP inflation is revised up somewhat in the short term owing to higher oil and food prices.*

## 1 Real economy

**Very favourable indicators suggest further robust real GDP growth in the short term.** According to the latest Eurostat release, real GDP rose by 0.6% in the third quarter of 2017, driven by a strong contribution from domestic demand and, notably, fixed investment spending. Labour market conditions have continued to improve in recent months, even faster than previously expected, with the unemployment rate falling to 9.0% in the third quarter of 2017, its lowest level since late 2008. Real GDP growth is projected to remain robust in the near term, in line with very elevated levels of business and consumer sentiment.

**Over the medium term, growth remains supported by favourable financing conditions, improving labour markets and the continued global recovery.** Beyond the near term, a number of favourable factors are expected to continue to support private consumption and investment. The ECB's accommodative monetary policy stance continues to be transmitted to the economy. Growth in lending to the private sector continues to increase, spurred by low interest rates and favourable bank lending conditions. Lower deleveraging needs will also contribute to the dynamism of private expenditure. Private consumption and residential investment growth should benefit as well from further improvements in labour market conditions.

[1] These macroeconomic projections produced by Eurosystem staff are an input to the Governing Council's assessment of economic developments and the risks to price stability. The projections produced by ECB or Eurosystem staff 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. Information on the procedures and techniques used is given in *A guide to the Eurosystem/ECB staff macroeconomic projection exercises*, ECB, July 2016, which is available on the ECB's website. The cut-off date for technical assumptions, such as for oil prices and exchange rates, was 22 November 2017 (see Box 1). The cut-off date for including other information in this exercise was 30 November 2017.
The current macroeconomic projection exercise covers the period 2017-20. Projections over such a long horizon are subject to very high uncertainty, and this should be borne in mind when interpreting them. See the article entitled "An assessment of Eurosystem staff macroeconomic projections" in the May 2013 issue of the ECB's Monthly Bulletin.
See http://www.ecb.europa.eu/pub/projections/html/index.en.html for an accessible version of the data underlying selected tables and charts.

At the same time, business investment will continue to recover, also reflecting a strengthening of profit mark-ups in the context of rising demand pressures. Euro area exports are expected to remain robust, benefiting from the ongoing expansion of global economic activity and corresponding growth in euro area foreign demand.

**Table 1**

Macroeconomic projections for the euro area[1)]

(annual percentage changes)

| | December 2017 | | | | September 2017 | | |
|---|---|---|---|---|---|---|---|
| | **2017** | **2018** | **2019** | **2020** | **2017** | **2018** | **2019** |
| **Real GDP** | 2.4 | 2.3 | 1.9 | 1.7 | 2.2 | 1.8 | 1.7 |
| | [2.3 - 2.5][2)] | [1.7 - 2.9][2)] | [0.9 - 2.9][2)] | [0.6 - 2.8][2)] | [2.1 - 2.3][2)] | [1.0 - 2.6][2)] | [0.6 - 2.8][2)] |
| **Private consumption** | 1.9 | 1.7 | 1.6 | 1.5 | 1.7 | 1.8 | 1.5 |
| **Government consumption** | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.1 |
| **Gross fixed capital formation** | 4.4 | 4.3 | 3.4 | 2.9 | 4.0 | 3.9 | 3.1 |
| **Exports**[3)] | 5.0 | 5.1 | 4.1 | 3.7 | 4.7 | 3.7 | 3.8 |
| **Imports**[3)] | 5.1 | 5.2 | 4.4 | 3.9 | 5.2 | 4.6 | 4.2 |
| **Employment** | 1.7 | 1.3 | 1.0 | 0.8 | 1.5 | 1.0 | 0.8 |
| **Unemployment rate (percentage of labour force)** | 9.1 | 8.4 | 7.8 | 7.3 | 9.1 | 8.6 | 8.1 |
| **HICP** | 1.5 | 1.4 | 1.5 | 1.7 | 1.5 | 1.2 | 1.5 |
| | [1.5 - 1.5][2)] | [0.9 - 1.9][2)] | [0.7 - 2.3][2)] | [0.8 - 2.6][2)] | [1.4 - 1.6][2)] | [0.6 - 1.8][2)] | [0.7 - 2.3][2)] |
| **HICP excluding energy** | 1.2 | 1.3 | 1.6 | 1.9 | 1.2 | 1.3 | 1.5 |
| **HICP excluding energy and food** | 1.0 | 1.1 | 1.5 | 1.8 | 1.1 | 1.3 | 1.5 |
| **HICP excluding energy, food and changes in indirect taxes**[4)] | 1.0 | 1.1 | 1.5 | 1.8 | 1.1 | 1.3 | 1.5 |
| **Unit labour costs** | 0.9 | 1.2 | 1.1 | 1.8 | 0.8 | 1.2 | 1.4 |
| **Compensation per employee** | 1.7 | 2.1 | 1.9 | 2.7 | 1.5 | 2.0 | 2.3 |
| **Labour productivity** | 0.8 | 1.0 | 0.9 | 0.9 | 0.7 | 0.8 | 0.9 |
| **General government budget balance (percentage of GDP)** | -1.1 | -0.9 | -0.9 | -0.5 | -1.3 | -1.0 | -0.9 |
| **Structural budget balance (percentage of GDP)**[5)] | -1.1 | -1.1 | -1.1 | -1.0 | -1.4 | -1.3 | -1.2 |
| **General government gross debt (percentage of GDP)** | 87.0 | 85.1 | 83.1 | 80.7 | 87.5 | 86.0 | 84.2 |
| **Current account balance (percentage of GDP)** | 3.1 | 2.9 | 2.7 | 2.8 | 2.9 | 2.5 | 2.5 |

1) Real GDP and components refer to working day-adjusted data.
2) The ranges shown around the 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, available on the ECB's website.
3) Including intra-euro area trade.
4) The sub-index is based on estimates of actual impacts of indirect taxes. This may differ from Eurostat data, which assume a full and immediate pass-through of tax impacts to the HICP.
5) Calculated as the government balance net of transitory effects of the economic cycle and temporary measures taken by governments (for the ESCB approach, see *Working Paper Series*, No 77, ECB, September 2001, and *Working Paper Series*, No 579, ECB, January 2007). The projection of the structural balance is not derived from an aggregate measure of the output gap. Under the ESCB methodology, cyclical components are calculated separately for different revenue and spending items. For more details, see the box entitled "Cyclical adjustment of the government budget balance" in the March 2012 issue of the ECB's Monthly Bulletin and the box entitled "The structural balance as an indicator of the underlying fiscal position" in the September 2014 issue of the ECB's Monthly Bulletin.

**Nevertheless, real GDP growth is projected to slow somewhat over the projection horizon, as many tailwinds gradually fade.** The impact of past monetary policy measures is expected to decline gradually over the projection horizon. The appreciation of the euro since April 2017 and a deceleration in the growth rate of euro area foreign demand are expected to dampen export growth. A slowdown in employment growth, partly related to labour supply shortages in some countries, is also projected.

**Private consumption is projected to remain robust over the projection horizon.** Very favourable consumer confidence, further improvements in labour market conditions and rising real wages per employee suggest a continuation of solid consumption growth over the next few quarters, broadly in line with real purchasing power. The contribution from gross wages and salaries to nominal disposable income growth will remain broadly flat over the projection horizon as the impact of a slowdown in employment is compensated for by stronger nominal wage growth. Growth in other personal income is projected to strengthen, reflecting positive profit and property income developments.

**Private consumption growth should also be supported by improving bank lending conditions, reinforced by the ECB's monetary policy measures, and by progress in deleveraging.** While low interest rates have affected both the interest earnings and the interest payments of households, they tend to redistribute resources from net savers to net borrowers. As the latter typically have a higher marginal propensity to consume, this redistribution should support aggregate private consumption. In addition, progress made in deleveraging should also support consumption.

**The household saving ratio is expected to increase gradually from historically low levels over the projection horizon.** The saving ratio has been declining during recent quarters, mainly reflecting the improvement in the economic and financial situation of households and the impact of very low interest rates on their propensity to save. The saving ratio is projected to recover over the projection horizon, mostly as a result of consumption smoothing in the context of the cyclical expansion. It is also expected that the saving ratio of private households will increase in response to direct tax cuts in some countries.

### Box 1
Technical assumptions about interest rates, exchange rates and commodity prices

**Compared with the September 2017 projections, the technical assumptions include significantly higher oil prices in US dollars but only minor changes to the exchange rate and other financial assumptions.** The technical assumptions about interest rates and commodity prices are based on market expectations, with a cut-off date of 22 November 2017. Short-term rates refer to the three-month EURIBOR, with market expectations derived from futures rates. The methodology gives an average level for these short-term interest rates of -0.3% for 2017 and 2018, -0.1% for 2019 and 0.1% for 2020. The market expectations for euro area ten-year nominal

government bond yields imply an average level of 1.1% in 2017 and 2018, 1.4% in 2019 and 1.7% in 2020.[2] Compared with the September 2017 projections, market expectations for short-term interest rates have been revised down slightly, while long-term interest rates have been revised down by about 10 and 20 basis points in 2018 and 2019 respectively.

As regards commodity prices, on the basis of the path implied by futures markets by taking the average of the two-week period ending on the cut-off date of 22 November, the price of a barrel of Brent crude oil is assumed to increase from USD 54.3 in 2017 to USD 61.6 in 2018, and to decline to USD 58.9 in 2019 and USD 57.3 in 2020. This path implies that, in comparison with the September 2017 projections, oil prices in US dollars are 4.8% higher in 2017, 17.2% higher in 2018 and 11.0% higher in 2019. The prices of non-energy commodities in US dollars are assumed to rise substantially in 2017 and somewhat more moderately beyond.[3]

Bilateral exchange rates are assumed to remain unchanged over the projection horizon at the average levels prevailing in the two-week period ending on the cut-off date of 22 November. This implies an average exchange rate of USD 1.13 per euro in 2017 and of USD 1.17 per euro over 2018-20, compared with USD 1.18 in the September 2017 projections. The effective exchange rate of the euro (against 38 trading partners) is broadly unchanged from the September 2017 projections.

Technical assumptions

| | December 2017 | | | | September 2017 | | |
|---|---|---|---|---|---|---|---|
| | 2017 | 2018 | 2019 | 2020 | 2017 | 2018 | 2019 |
| **Three-month EURIBOR (percentage per annum)** | -0.3 | -0.3 | -0.1 | 0.1 | -0.3 | -0.3 | -0.1 |
| **Ten-year government bond yields (percentage per annum)** | 1.1 | 1.1 | 1.4 | 1.7 | 1.1 | 1.3 | 1.6 |
| **Oil price (in USD/barrel)** | 54.3 | 61.6 | 58.9 | 57.3 | 51.8 | 52.6 | 53.1 |
| **Non-energy commodity prices, in USD (annual percentage change)** | 7.9 | 3.3 | 3.4 | 4.3 | 9.0 | 5.4 | 4.2 |
| **USD/EUR exchange rate** | 1.13 | 1.17 | 1.17 | 1.17 | 1.13 | 1.18 | 1.18 |
| **Euro nominal effective exchange rate (EER-38) (annual percentage change)** | 2.2 | 2.8 | 0.0 | 0.0 | 2.3 | 2.6 | 0.0 |

**The recovery in residential investment is expected to continue.** Housing investment has picked up strongly in recent quarters, supported by favourable financing conditions, portfolio reallocation towards housing in the context of low yields on alternative long-term investment opportunities, and rising income growth related to ongoing job creation. In addition, downward adjustment processes in the housing markets appear to have come to an end in a number of euro area countries. The key conditions for a further recovery of residential investment remain in place

[2] The assumption for euro area ten-year nominal government bond yields is based on the weighted average of countries' ten-year benchmark bond yields, weighted by annual GDP figures and extended by the forward path derived from the ECB's euro area all-bonds ten-year par yield, with the initial discrepancy between the two series kept constant over the projection horizon. The spreads between country-specific government bond yields and the corresponding euro area average are assumed to be constant over the projection horizon.

[3] Oil and food commodity price assumptions are based on futures prices up to the end of the projection horizon. The prices of other non-energy hard commodities are assumed to follow futures until the fourth quarter of 2018 and thereafter to evolve in line with global economic activity.

over the projection horizon. Nonetheless, some loss of momentum is expected, reflecting the mature phase of the housing cycle and the fading impact of fiscal incentives in some countries, as well as adverse demographic trends.

**Business investment has rebounded in recent quarters and is expected to continue recovering over the projection horizon, albeit at a slowing pace.** A number of factors are expected to support business investment: business confidence remains very high on the back of very favourable production expectations and order books; capacity utilisation continues to increase above average pre-crisis levels; financing conditions are expected to remain very supportive over the projection horizon; and profit mark-ups are expected to increase in the context of an already cash-rich non-financial corporation sector. Moreover, the strong recovery in stock prices observed in recent years and moderate debt financing growth have brought the leverage ratio (debt to total assets) in the non-financial corporation sector to historical lows. However, expectations of weaker potential output growth and limitations on the intermediation capacity of banks in some countries are expected to continue to weigh on the outlook for business investment. A gradual loss of momentum over the projection horizon also reflects the overall deceleration in both domestic and foreign demand.

## Box 2
## The international environment

**The sustained pace of expansion of the global economy continued into the second half of 2017, with activity and trade growth becoming more broadly based.** Survey-based indicators point to sustained global growth in the third quarter of the year, with the global composite output Purchasing Managers' Index (excluding the euro area) close to its long-run average. At the same time, the global recovery shows signs of synchronisation. Financial market sentiment has remained strong in the advanced economies, with gains in equity markets and a further decline in volatility. In emerging market economies interest rates have declined, contributing to a modest easing in financial conditions, while capital inflows have returned to levels not seen since 2015. Looking ahead, growth in global economic activity is expected to remain broadly stable and below pre-crisis rates, in line with lower potential growth. The outlook for advanced economies entails a robust expansion, which slows over the projection horizon as the recovery matures and output gaps gradually move into positive territory. In emerging market economies, the outlook is becoming more dynamic, supported by slowly strengthening activity in commodity–exporting countries, particularly Brazil and Russia, and by resilient growth in India and China, although growth in China remains on a downward trend. Growth in global activity (excluding the euro area) is projected to be between 3.7% and 3.9% over the projection horizon. Compared with the September 2017 projections, global GDP growth is revised marginally upwards in 2017 and 2018, with upward revisions mainly for the United States and China.

### The international environment

(annual percentage changes)

| | December 2017 | | | | September 2017 | | |
|---|---|---|---|---|---|---|---|
| | 2017 | 2018 | 2019 | 2020 | 2017 | 2018 | 2019 |
| **World (excluding euro area) real GDP** | 3.7 | 3.9 | 3.8 | 3.7 | 3.7 | 3.8 | 3.8 |
| **Global (excluding euro area) trade[1)]** | 5.6 | 4.5 | 4.2 | 3.7 | 5.3 | 3.8 | 3.8 |
| **Euro area foreign demand[2)]** | 5.5 | 4.4 | 3.8 | 3.5 | 4.7 | 3.4 | 3.5 |

1) Calculated as a weighted average of imports.
2) Calculated as a weighted average of imports of euro area trading partners.

**After exceptionally strong growth in the first half of 2017, global trade growth is expected to remain robust in the coming quarters, in line with favourable global trade indicators.** In the medium term, the trade outlook is expected to be more in line with global activity (anchored at an elasticity of trade to global GDP growth of around 1). Euro area foreign demand is expected to expand by 5.5% in 2017, by 4.4% in 2018, by 3.8% in 2019 and by 3.5% in 2020. Compared with the September 2017 projections, global growth has been revised slightly upwards, while euro area foreign demand has been revised upwards more significantly. The latter reflects upward data revisions and, in the light of more favourable global trade indicators, a more positive view of the momentum of euro area foreign demand developments in the coming quarters.

## Box 3
## Recent developments and the outlook for extra-euro area exports and foreign demand

**Both extra-euro area export growth and euro area foreign demand have recently gained momentum after very weak developments in early 2016.** In year-on-year terms, euro area foreign demand has strengthened notably since mid-2016 and climbed towards a six-year high in the second quarter of 2017. Similarly, extra-euro area export growth has recovered since early 2016.

**The recent upward trend in euro area foreign demand reflects the ongoing global recovery but may also reflect some procyclicality in the elasticity of trade to global activity**. Persistent overestimations of euro area foreign demand during the period 2011-16 were attributed to a largely structural decline in the income elasticity of global trade, insufficiently reflected in the past projections, resulting in an overestimation of global trade relative to global GDP growth. However, in the context of a global economic recovery, growth in euro area foreign demand in recent quarters has been stronger than anticipated in the last few projection exercises. This raises the issue as to whether the trade elasticity is currently displaying some “procyclicality”, not sufficiently reflected in recent projections, whereby trade growth intensifies at higher global growth rates.[4] To address these concerns, and reflecting recent data, euro area foreign demand has been revised up significantly in this projection exercise.

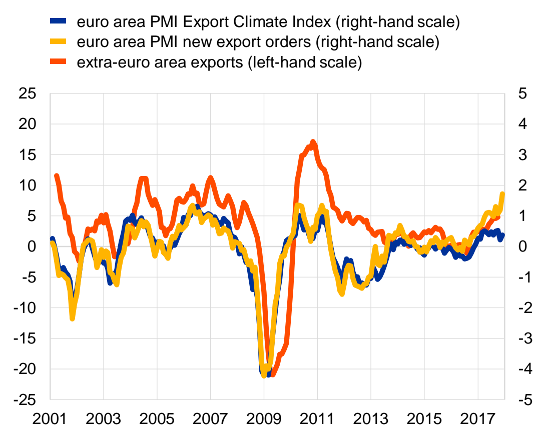
**The upward revision in euro area foreign demand is also supported by the strength in global and euro area trade indicators.** Indeed, trade indicators signal ongoing robust growth in euro area

[4] See, for example, Borin, A., Di Nino, V., Mancini, M. and Sbracia, M., “The cyclicality of the income elasticity of trade”, *Working Papers*, No 1126, Banca d’Italia, July 2017.

foreign demand and extra-euro area exports. Euro area trade surveys (such as Purchasing Managers' Indices for new manufacturing export orders and the Export Climate Index) suggest an ongoing rebound in trade (see Chart A). In addition, euro area data for new manufacturing export orders and industrial production remain robust, despite the recent appreciation of the effective exchange rate of the euro. Indicators for global trade, such as the global Purchasing Managers' Index for new export orders or the Goldman Sachs leading indicator of activity, have also strengthened considerably over the past 12 months (see Chart B).

### Chart A
**Euro area trade indicators**

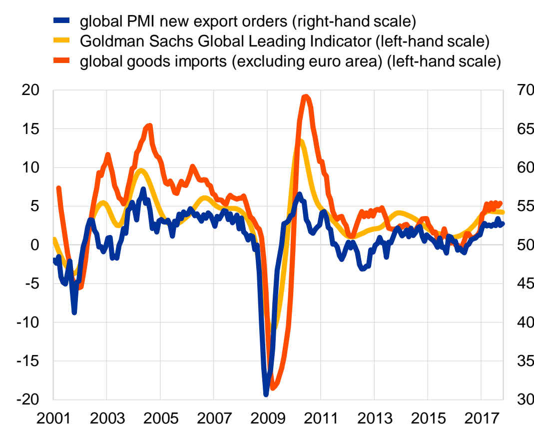
(left-hand scale: three-month-on-three-month annual percentage changes; right-hand scale: index, standardised)




Sources: Markit, Eurostat and ECB calculations.
Notes: Trade data are in volumes. The latest observation is for September 2017 for exports and for November 2017 for Export Climate Index and PMI manufacturing new export orders.

### Chart B
Global trade indicators

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

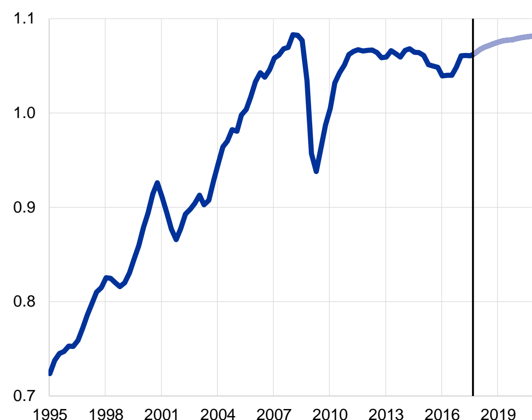



Sources: Haver Analytics, Goldman Sachs, Dutch Central Planning Bureau and ECB calculations.
Notes: The latest observation is for September 2017 for the CPB and for October 2017 for the Goldman Sachs and PMI indices.

**Despite some volatility in global import data at the beginning of 2017 – partly driven by temporary factors – there is an underlying upward trend in euro area foreign demand that is broadly in line with that of survey indicators.** Global imports at the beginning of 2017 were supported by a strong rise in imports from emerging Asia, driven by India and China, as well as from Russia and those EU countries in central and eastern Europe. However, in many cases this strength was driven by temporary factors. Looking through this volatility, the upward trend in euro area foreign demand growth is expected to persist at the end of 2017 and into 2018.

**Chart C**
**The ratio of global imports to GDP**

(index: 2005 = 1)




**In the medium term, however, the determinants of an income elasticity of trade around unity remain broadly unchanged.** The fact that trade used to grow at about twice the rate of GDP in the two decades prior to the Great Recession was a historical anomaly, supported primarily by waves of trade liberalisation (particularly in emerging markets), the rise of global value chains and changes in the geographical composition of trade.[5] As can be seen in Chart C, between 1995 and 2007 imports rose much faster than global activity. However, the above-mentioned factors are not likely to support the trade elasticity going forward. Trade liberalisation has largely run its course and, on the composition side, global trade elasticity remains tilted towards the lower trade elasticity of the emerging market economies. In the last few years, global imports and global activity have grown in tandem, with this pattern also expected to prevail over the projection horizon.

**Extra-euro area exports are projected to remain strong in the next few quarters, on the back of very favourable trade indicators, despite the recent appreciation of the euro.** Thereafter, exports are expected to decelerate over the projection horizon, in line with a deceleration in euro area foreign demand, implying broadly flat export market shares. Extra-euro area imports are expected to benefit from the positive domestic demand developments and the stronger euro, albeit to a lesser extent than exports, thus resulting in an overall slightly positive contribution of net trade to economic growth.

**Despite continued strong incoming data, employment growth is projected to decelerate somewhat over time.** The recent strength in employment growth has been broad-based across countries, but can be partly attributed to favourable temporary factors (such as fiscal stimulus measures in some countries). As the impact of these factors is expected to fade gradually and as public sector employment is projected to fall in some countries, employment growth is projected to lose some momentum over the next few quarters.

**Labour force growth is projected to be increasingly dampened by supply shortages.** The labour force is expected to continue to expand over the projection horizon, reflecting net immigration of workers, the expected integration of refugees and the encouraged worker effect. Nevertheless, these positive effects are projected to be gradually outweighed over the projection horizon by the impact of increasingly adverse demographics. This also contributes to a slowdown in employment growth.

[5] See also ECB IRC Task Force, "Understanding the weakness in global trade – What is the new normal?", *Occasional Paper Series*, No 178, ECB, 2016.

**Still, the unemployment rate is expected to continue to decline.** The unemployment rate declined to 9.0% in the third quarter of 2017 and, looking ahead, the number of unemployed is projected to continue to decline substantially. The unemployment rate is expected to decline to 7.3% in 2020.

**A recovery in productivity growth is projected over the horizon.** The initial strong recovery in productivity growth this year and next year reflects the fading of measures that had temporarily boosted employment in 2016. Later in the projection horizon, labour productivity (per head) is mainly driven by a slight increase of underlying total factor productivity growth, a pick-up in capital deepening and longer working time per head. The latter two factors reflect the ongoing improvement of the cyclical position and the increasing tightness of the labour market.

**Real GDP growth is expected to remain above potential growth until 2020.** Potential output growth is estimated to have gained some momentum in recent years, supported by more favourable contributions from capital, labour and total factor productivity. It is projected to continue to expand at slightly below its pre-crisis rate over the horizon. The contribution from labour is projected to decline over the projection horizon, mainly due to slowing growth in the working age population. The contribution from capital is likely to remain relatively strong, reflecting the rebound in fixed investment. The contribution from total factor productivity is estimated also to be fairly strong by recent standards, on the back of a more efficient allocation of resources after the crisis, structural reforms implemented in product and labour markets, improved human capital, the renewed capital stock and further convergence towards the technology frontier. It must be noted, however, that both potential growth and its drivers are unobservable and estimates are surrounded by considerable uncertainty.

**Compared with the September 2017 projections, real GDP growth has been revised up substantially.** The upward revision for 2017 relates partly to upward surprises in recent GDP data releases, with positive carry-over effects also into 2018. In addition, very strong business and consumer sentiment implies a stronger than previously expected growth momentum. Higher foreign demand and slightly lower long-term interest rates have also led to upward revisions to the growth outlook for 2018 and 2019.

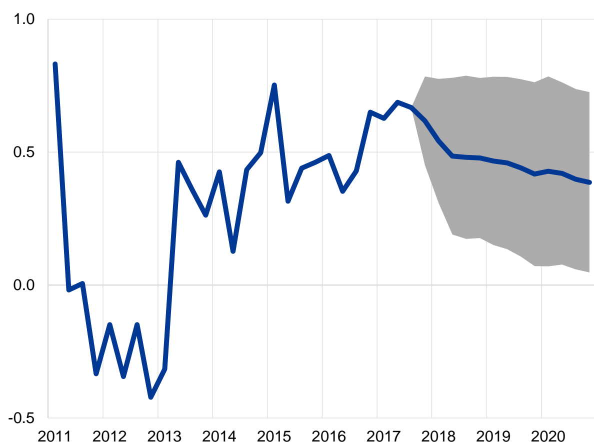
**Chart 1**

Macroeconomic projections[1)]

(quarterly data)

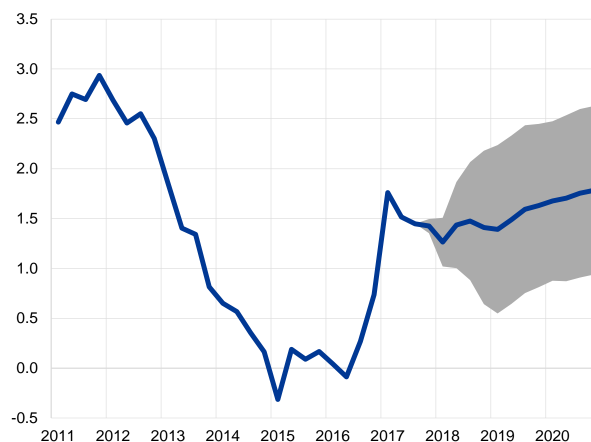
**Euro area real GDP[2)]**

(quarter-on-quarter percentage changes)




**Euro area HICP**

(year-on-year percentage changes)




1) 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, available on the ECB's website.
2) Working day-adjusted data.

## 2 Prices and costs

**Although downward energy-related base effects are expected to cause HICP inflation to decline slightly in the near term, it is expected to be on an upward path thereafter, reaching 1.7% in 2020.** Downward base effects in the energy component, which more than offset the recent rise in oil prices, will cause headline inflation to fall to a low of 1.3% in the first quarter of 2018. Over the remainder of the projection horizon, HICP energy inflation is expected to rise only very modestly, reflecting the slightly downward-sloping pattern of the oil price futures curve combined with upward effects from energy taxes. Following weak developments over the past few years, HICP food inflation is envisaged to pick up moderately, supported by the assumed increases in international food commodity prices and upward effects from increases in tobacco taxes. As the economy grows at a rate which exceeds its potential growth rate, underlying price pressures are expected to rise over the projection horizon. In particular, rising wages, reflecting increasing labour market tightness, with notable labour supply constraints in some countries, and upward effects from net indirect taxes are expected to push up underlying inflation further. External price pressures are also expected to add somewhat to the pick-up in HICP inflation excluding energy and food over the projection horizon, given some indirect effects from the recent increases in oil prices and the assumed increases in non-energy commodity prices, as well as the expected strengthening in global inflationary pressures more generally. Overall, headline inflation is expected to average 1.5% in 2017, 1.4% in 2018, 1.5% in 2019 and 1.7% in 2020.

**Tightening labour market conditions and the expiration of measures that have dampened wage growth in some countries over the past few years are the main factors behind the rebound in labour costs over the projection horizon.** Growth in compensation per employee is projected to rise from 1.7% in 2017 to 2.7% in 2020, with a temporary slowdown in 2019. The latter reflects the conversion of a tax credit in France (the CICE) into a permanent cut to employers' social security contributions[6]. Given the expected cyclical improvement in productivity growth, this wage pattern implies a strengthening in unit labour cost growth, from 0.9% in 2017 to 1.8% in 2020. More generally, improvements in euro area labour market conditions and increasing labour supply shortages in some parts of the euro area are seen as important factors behind the expected pick-up in wage growth. Also, the need for wage moderation to regain price competitiveness in some countries after the crisis and pent-up wage restraint in view of binding downward rigidities in nominal wages during the crisis should gradually abate as the economic recovery continues and broadens across euro area countries. Beyond this, the significant pick-up in headline inflation in 2017 compared with the previous three years can be expected to contribute to the increase in wage growth. Finally, higher public sector wages also add to the pick-up in total wage growth over the projection horizon.

**Profit margins are envisaged to widen over the first part of the projection horizon at a somewhat faster pace, on average, than observed over the past year.** Terms-of-trade losses stemming from the rise in oil prices weighed on profit margins over recent quarters. As these dampening effects fade, profit margins are expected to expand somewhat more vigorously than recently, benefiting from the continued economic recovery. However, the expected increases in unit labour cost growth, as well as in indirect taxes, are expected to constrain the pace of expansion of profit margins over the projection horizon.

**External price pressures have rebounded in 2017 and are expected to remain positive but more moderate over the projection horizon than recently observed.** The rather robust rise in import prices this year reflects the turnaround in oil and non-energy commodity prices. After 2017, a slowdown in the growth rates is expected, relating to the assumed more moderate developments in commodity prices over the projection horizon and to dampening effects from the recent appreciation of the euro. However, underlying global inflationary pressures are expected to strengthen gradually over the projection horizon as global production costs rise in line with diminishing global slack.

**Compared with the September 2017 projections, the outlook for HICP inflation has been revised up by 0.2 percentage points for 2018 and is unrevised thereafter.** The upward revision of headline inflation in 2018 reflects stronger developments in HICP energy and HICP food inflation given the recent upward data surprises in these components, higher oil price assumptions and upward effects from energy and tobacco taxes. HICP inflation excluding food and energy is revised down in the short term, partly related to recent negative data surprises.

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[6] As the decrease in compensation per employee and unit labour costs is largely offset by a corresponding increase in profit margins, the impact on price-setting is expected to be limited.

## 3 Fiscal outlook

**The euro area fiscal stance is expected to remain on average broadly neutral over the projection horizon.** The fiscal policy stance is measured as the change in the cyclically adjusted primary balance net of government support to the financial sector. In 2017, cuts to direct taxes and higher transfers to households are fully offset by indirect tax hikes and more subdued growth in government consumption. In 2018, the fiscal stance is shaped mainly by cuts in direct taxes and social security contributions and the assumption of more dynamic growth in government investment, which are only partly offset by indirect tax hikes and subdued growth in transfers to households. The fiscal stance is also projected to be on average neutral over 2019-20.

**Over the projection horizon, both the government deficit and debt ratios are projected to be on a downward path.** The fiscal projection entails a gradual decline in the government deficit over the projection horizon, owing mainly to an improvement in the cyclical component and a decline in interest payments. The cyclically adjusted primary balance will remain stable over the projection horizon. The government debt-to-GDP ratio is expected to remain on a declining path over the projection horizon, supported by a favourable interest rate-growth rate differential[7] and the primary surplus. Compared with the September 2017 projections, the outlook for the budget deficit is broadly unchanged, while the debt ratio is somewhat lower, mainly reflecting a more favourable interest rate-growth rate differential in 2018 and 2019.

### Box 4
### Sensitivity analyses

**Projections rely heavily on technical assumptions regarding the evolution of certain key variables.** Given that some of these variables can have a large impact on the projections for the euro area, examining the sensitivity of the latter with respect to alternative paths of these underlying assumptions can help in the analysis of risks around the projections. This box discusses the uncertainty around some key underlying assumptions and the sensitivity of the projections with respect to these variables.

#### 1) An alternative oil price path

**Alternative oil price models point to a risk of oil prices being higher over the projection horizon than suggested by oil price futures.** The technical assumptions for oil price developments underlying the baseline projections, based on futures markets, predict a declining profile for oil prices, with the price of a barrel of Brent crude oil standing at about USD 57 by the end of 2020. This path entailed in oil price futures is consistent with moderate growth in world oil demand, a scenario associated with the global economic recovery gaining some modest traction. As regards supply factors, although the extension of the agreement between OPEC and major non-OPEC producers on 30 November occurred after the cut-off date (22 November), it was most likely

[7] The differential is calculated as the difference between the nominal effective interest rate on debt and the nominal GDP growth rate.

included in market expectations. However, cutbacks by conventional producers are expected to be partly offset by the expansion in the production of shale oil in the United States. A combination of alternative models used by Eurosystem staff[8] to predict oil prices over the projection horizon points towards stronger increases in oil prices than assumed in the technical assumptions, reflecting a faster than expected tightening of the supply/demand balance. The materialisation of an alternative oil price path, in which oil prices are 11% higher than in the baseline by 2020, would marginally dampen real GDP growth, while entailing a slightly faster increase in HICP inflation (up by 0.2 percentage point in both 2019 and 2020).

### 2) An alternative exchange rate path

**This sensitivity analysis investigates the effects of a further strengthening of the exchange rate of the euro.** One possible source of an appreciation risk stems from a stronger than expected economic recovery in the euro area. The scenario is based on the 75th percentile of the distribution provided by the option-implied risk-neutral densities for the USD/EUR exchange rate on 22 November 2017. The path implies a gradual appreciation of the euro vis-à-vis the US dollar to an exchange rate of USD 1.36 per euro in 2020, which is around 16% above the baseline assumption for that year. The corresponding assumption for the nominal effective exchange rate of the euro reflects historical regularities, whereby changes in the USD/EUR exchange rate correspond to changes in the effective exchange rate with an elasticity of 52%. In this scenario, the average of the results from a number of staff macroeconomic models points to real GDP growth being 0.2 percentage point lower in 2018, 0.6 percentage point lower in 2019 and 0.2 percentage point lower in 2020. HICP inflation would be 0.2, 0.5 and 0.6 percentage point lower in 2018, 2019 and 2020 respectively. It should be noted that these estimated impacts on growth and inflation only apply in the event of a purely exogenous exchange rate shock.

## Box 5
Forecasts by other institutions

**A number of forecasts for the euro area are available from both international organisations and private sector institutions.** However, these forecasts are not strictly comparable with one another or with the Eurosystem staff macroeconomic projections, as they were finalised at different points in time. Additionally, they use different (partly unspecified) methods to derive assumptions for fiscal, financial and external variables, including oil and other commodity prices. Finally, there are differences in working day adjustment methods across different forecasts (see the table).

**As indicated in the table, other institutions' currently available projections for real GDP growth and HICP inflation are within the ranges surrounding the Eurosystem staff projections (shown in brackets in the table).**

8 See the four-model combination presented in the article entitled "Forecasting the price of oil", *Economic Bulletin*, Issue 4, ECB, 2015.

## Comparison of forecasts for euro area real GDP growth and HICP inflation

(annual percentage changes)

| | Date of release | GDP growth | | | HICP inflation | | |
|---|---|---|---|---|---|---|---|
| | | 2018 | 2019 | 2020 | 2018 | 2019 | 2020 |
| **Eurosystem staff projections** | December 2017 | 2.3 | 1.9 | 1.7 | 1.4 | 1.5 | 1.7 |
| | | [1.7-2.9] | [0.9-2.9] | [0.6-2.8] | [0.9-1.9] | [0.7-2.3] | [0.8-2.6] |
| **European Commission** | November 2017 | 2.1 | 1.9 | - | 1.4 | 1.6 | - |
| **OECD** | November 2017 | 2.1 | 1.9 | - | 1.5 | 1.7 | - |
| **Euro Zone Barometer** | November 2017 | 2.0 | 1.7 | 1.5 | 1.4 | 1.6 | 1.8 |
| **Consensus Economics Forecasts** | December 2017 | 2.1 | 1.5 | 1.3 | 1.4 | 1.5 | 1.7 |
| **Survey of Professional Forecasters** | October 2017 | 1.9 | 1.7 | - | 1.4 | 1.6 | - |
| **IMF** | October 2017 | 1.9 | 1.7 | 1.6 | 1.4 | 1.7 | 1.8 |

Sources: European Commission's European Economic Forecast, Autumn 2017; IMF World Economic Outlook, 10 October 2017; OECD Economic Outlook, November 2017; Consensus Economics Forecasts, December 2017; MJEconomics for the Euro Zone Barometer, November 2017; and the ECB's Survey of Professional Forecasters, October 2017.
Notes: The Eurosystem and ECB staff macroeconomic projections and the OECD forecasts both report working day-adjusted annual growth rates, whereas the European Commission and the IMF report annual growth rates that are not adjusted for the number of working days per annum. Other forecasts do not specify whether they report working day-adjusted or non-working day-adjusted data.

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