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1 Overview

In the first half of 2018 the Portuguese economy continued in expansion, although at a more moderate pace than in 2017. Since the start of the recovery, in 2013, real GDP grew by about 11% in cumulative terms, reaching the level observed before the international financial crisis. Cyclical developments in the Portuguese economy have been moving in parallel with those of the euro area, reflecting the increasing economic, monetary and financial integration. In recent years there was a gradual process of real convergence in *per capita* terms *vis-à-vis* the euro area, albeit insufficient to recover the losses observed in the latest recession.

In the first half of 2018 the Portuguese economy continued to benefit from an overall benign international environment, albeit less favourable than observed in 2017. Global GDP growth remained robust, but developments in activity were more differentiated across economies. In particular, in the euro area, which concentrates the majority of Portuguese exports, activity slowed down from the previous year. World trade and the external demand for Portuguese goods and services decelerated, in a context of increased protectionist tensions at global level. In turn, monetary and financial conditions in the euro area and in Portugal – notwithstanding some volatility in financial markets and the appreciation of the euro – remained favourable, on the back of an ample degree of accommodation of the ECB's monetary policy.

The Portuguese economy's deceleration in the first half of the year chiefly reflected a slowdown in activity in manufacturing and construction. In terms of expenditure components, the deceleration resulted from lower growth of export and investment, while private consumption accelerated slightly. These developments extend those observed in the second half of 2017. The dynamics of private consumption continued to reflect strong growth in real household disposable income and the historically high levels of consumer confidence. This is also associated with the buoyancy of consumer credit, whose weight in household consumer spending continued to increase. The deceleration in Gross Fixed Capital Formation (GFCF) was broadly based across most components, with GFCF in construction contributing the most to the slowdown. In turn, GFCF in machinery and equipment continued to grow strongly, being the only component which already surpassed the levels observed prior to the international financial crisis. Developments in this investment component play a key role as it translates into an increase in the stock of productive capital and into the incorporation of new technologies by firms, thus contributing to higher potential output growth. Exports continued to grow more than external demand in the first half of 2018, and thus further market share gains were observed. However, these gains were lower than those registered in 2017 and concentrated in a few sectors, namely cars and tourism.

For 2018 the projected GDP growth rate is 2.3%, unchanged from the projection in the June issue of the *Economic Bulletin*. The slowdown compared to 2017 (2.8%) reflects lower export and investment growth, in line with the developments seen in the first half of the year.

The current expansionary phase of the Portuguese economy is characterised by a greater balance than in the past between the contribution from domestic demand and exports to GDP growth. This continued to be observed in the first half of the year, contributing to the preservation of the economy's external balance. In the year ended in the first half of 2018 the Portuguese economy continued to record a positive external net lending, albeit lower than in 2017. The expansion of activity has also been compatible with the decline in private agents' indebtedness. With regard

to general government, the combination of primary surplus with an interest rate on the debt stock below the economy's nominal growth should continue to imply a downward trajectory of the public debt-to-GDP ratio. In this scope, the available evidence on the budget outturn suggests that the official target for the general government deficit in 2018 is feasible, although not risk-free. The consolidation and deepening of progress in these areas is key to a durable correction of accumulated macroeconomic imbalances, with the high levels of indebtedness continuing to be one of the Portuguese economy's main vulnerabilities. The Portuguese economy's net debtor international investment position maintains very high levels historically and by international standards. The public debt-to-GDP ratio also remains among the highest in the euro area.

The labour market situation continued to improve in the first half of 2018. The pace of job creation decelerated, but continued to surpass activity growth. As in the two previous years, the contribution from the oldest age groups to employment growth continued to be significant. The fall in the unemployment rate – which in the second quarter of 2018 reached the lowest level seen since the second quarter of 2004 – continued to largely reflect the reduction of the so-called very long-term unemployment. The considerable decline in unemployment seems to be contributing to higher wage growth. This notwithstanding, amid lower external inflationary pressures and idiosyncratic factors, inflation remained at low levels in the first half of 2018, below those observed in the euro area.

After five years of recovery, where activity growth generally exceeded the average of potential growth estimates, there are signs of a reduction in the margin of unused productive resources in the Portuguese economy. On the one hand, the level of capacity utilisation in manufacturing and services has been increasing, moving closer to the levels recorded before the onset of the international economic and financial crisis. On the other hand, the indicators of labour underutilisation have been declining. Available estimates for the output gap – defined as the difference between actual GDP and potential output – suggest that it is close to zero, after being in negative territory for a long period. In this context, a gradual moderation in the pace of GDP growth is expected in the next few years, consistent with a move towards the potential growth rate.

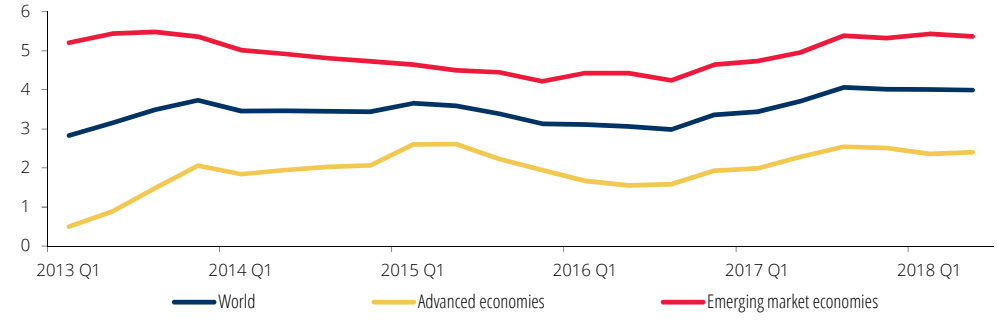
The progressive maturing of the cyclical process makes it crucial to pave the way for an increase in the structural potential growth of the Portuguese economy, particularly taking into account the risks posed by the high levels of indebtedness and the challenges associated with demographic developments, low levels of capital per employee and skills of the labour force, and with weaknesses in market functioning, which led to an inefficient allocation of resources in the past. In this context, structural policies should play an active role, with a focus on measures to promote a sustained increase in investment, improve input use and quality, and efficient market functioning. This Bulletin's special issue presents an analysis based on firm level data, showing that, over the past decade, the renewal of the business fabric – via the entry of new firms and the exit of firms that have ceased their business – made a positive contribution to developments in productivity in the tradable sector, which is subject to international competition, but contributed negatively to the productivity of the non-tradable services sector. This outcome suggests that the implementation of policies to increase competition in the latter sector may have a positive impact on productivity growth, associated with a better reallocation of resources. On another issue, it is equally important to set out measures to mitigate the macroeconomic impact of population decline and ageing trends. Finally, a key condition for sustained economic growth is the maintenance of a stable macroeconomic framework. In this context, decisive advances to deepen the economic and monetary union are instrumental.

2 International environment

Global activity and trade growth remained solid in the first half of 2018, albeit more differentiated across economies

Following an acceleration of global activity in 2017, in the first half of 2018 the pace of global GDP growth remained robust, but the economic expansion became more differentiated across countries (Chart I.2.1). In the group of advanced economies year-on-year growth in real GDP declined marginally from the second half of 2017. Activity decelerated in the euro area, the United Kingdom and Japan, but accelerated in the US. In turn, in emerging market economies as a whole GDP maintained a high growth rate. However, among the largest emerging market economies economic developments in the first half of the year were also varied, with strong growth in China and India, but a deceleration in Brazil and Turkey.

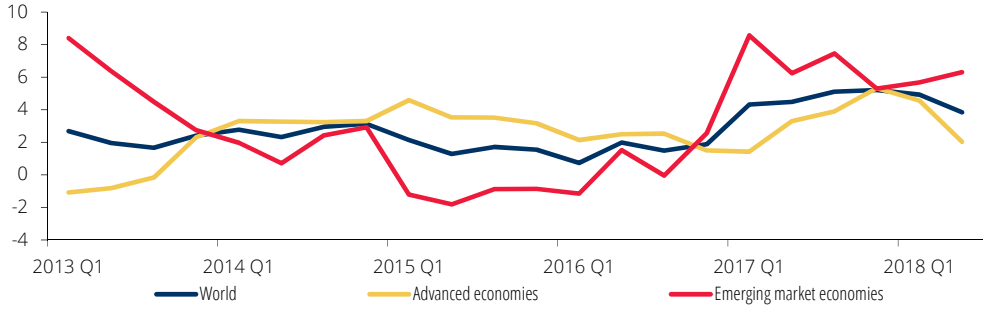
Chart I.2.1 • World GDP growth | Year-on-year rate of change, in percentage



Sources: Eurostat, IMF and Thomson Reuters (Banco de Portugal calculations).

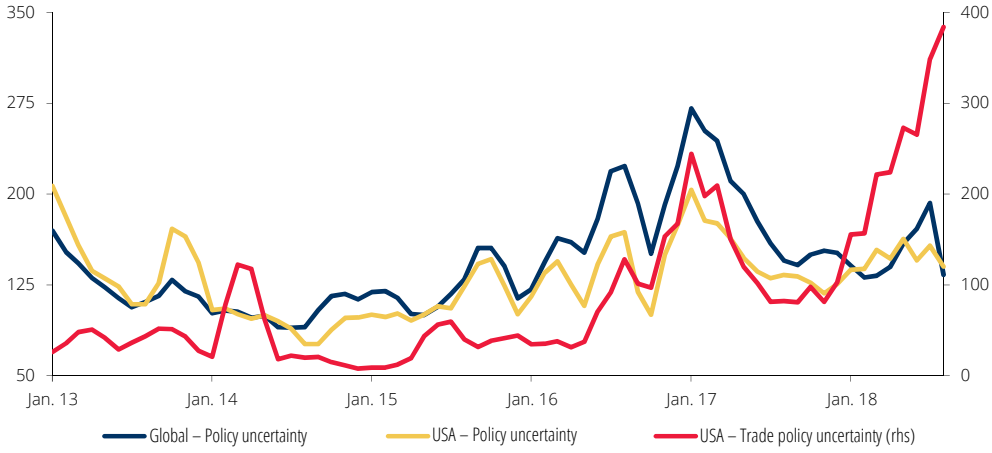
World trade in goods decelerated in the first half of 2018, but continued to show a solid growth pace (4.4% in year-on-year terms compared to 5.2% in the second half of 2017) (Chart I.2.2). It is worthy of note the deceleration of imports from advanced economies. Trade tensions at global level increased substantially in the first half of 2018, reflecting the protectionist measures announced by the US and the retaliations by its trading partners, posing a significant risk for the evolution of international trade and consequently for global activity (Chart I.2.3).

Chart I.2.2 • World imports of goods | Year-on-year rate of change, in percentage



Source: CPB Netherlands Bureau for Economic Policy Analysis.

Chart I.2.3 • Policy uncertainty index | 3 month moving average



Source: 'Measuring Economic Policy Uncertainty' – Scott Baker, Nicholas Bloom and Steven J. Davis available at www.PolicyUncertainty.com. | Notes: The global Index is a GDP-weighted average (current prices) of national EPU indices for 20 countries (Australia, Brazil, Canada, Chile, China, France, Germany, Greece, India, Ireland, Italy, Japan, Mexico, The Netherlands, Russia, South Korea, Spain, Sweden, the United Kingdom, and the United States. Each national index reflects the relative frequency of own-country newspaper articles that contain a trio of terms pertaining to the economy, policy and uncertainty. Regarding the US, the chart includes a policy uncertainty index and a trade policy uncertainty index which is based on the relative frequency of the above mentioned ter ms plus terms related specifically with trade policy. This last index is based on a sample of US newspapers with aq larger coverage. Last observation – July 2018.

International oil price developments driven by geopolitical tensions

The international oil price maintained up to May the upward path started in mid-2017, as a result of the extension of the production cuts agreed on between OPEC countries and other producers. Oil price developments were also driven by political uncertainty in the Middle East and the lower supply resulting from production limitations in Latin America. In June the oil price reversed this trend, given the expectation of a rise in production at the meeting of oil producing countries held at the end of the month. At this meeting, OPEC countries and other oil producing countries decided to raise production, so as to meet the supply levels set out in the November 2016 agreement. Subsequently, international oil price developments were affected by the tensions between the US and Iran and China, which intensified from mid-August onwards and drove the oil price to levels exceeding USD 77 per barrel (around EUR 66 per barrel) at the end of August. These levels are approximately 15% higher than those seen at the end of 2017 (19% in EUR).

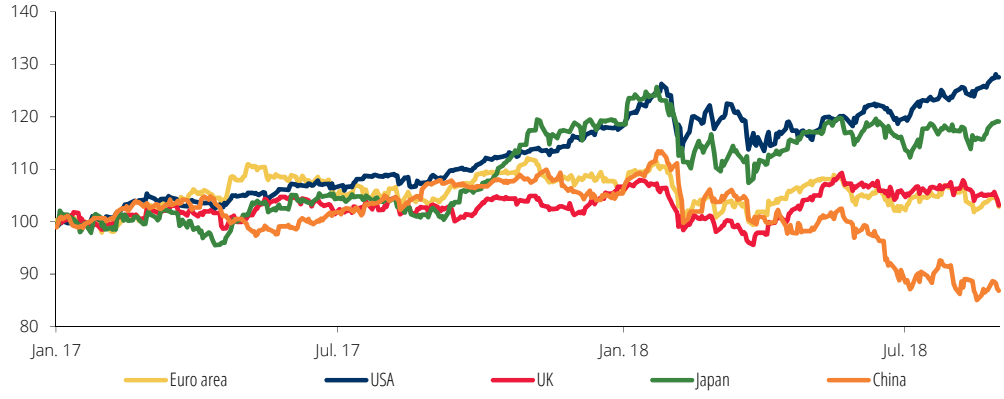
Volatility spikes were observed in international financial markets in the first half of the year and intensified in recent months

Over the course of the first half of the year there were various volatility spikes in international financial markets, associated with concerns about the Federal Reserve's withdrawal of monetary stimuli, the announcement and application of protectionist measures by the US, and political instability in a number of euro area countries. Up to late August episodes of volatility continued to be observed. Since the end of 2017 the major stock market indices performed differently, with a valuation of the US index and quite a negative performance of the Chinese index (Chart I.2.4). Indices also fell in the euro area and Japan, albeit in a more contained manner.

In the bond market public debt interest rates rose in the US and also in the United Kingdom, associated with expectations of rising monetary policy interest rates in the near future (Chart I.2.5). In the euro area, public debt interest rates experienced periods of volatility associated with the aforementioned political instability, which translated into a widening of government debt spreads in some countries *vis-à-vis* the German debt.

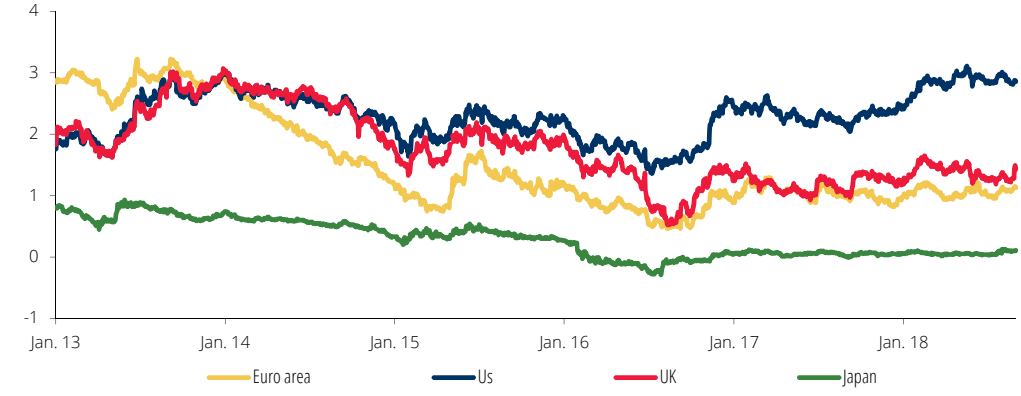
In the foreign exchange market advanced economies' currencies appreciated in the first half of 2018, especially the US dollar, while the currencies of emerging market economies depreciated, with the exception of the Chinese currency. Despite the slight appreciation trend of the Chinese renminbi in the first six months of the year (2.8% at the end of June compared to the end of 2007 in nominal effective terms), trade tensions with the US intensified, which led to a depreciation of the Chinese currency as of mid-June, interrupted only in August. At the end of August the Chinese renminbi was 0.7% higher than the level observed at the end of 2017. Political tensions with the US also influenced developments regarding the Turkish lira, whose depreciation trend became significantly more marked as of the end of the first half of the year. At the end of August this currency showed a depreciation of around 40% *vis-à-vis* the end of 2017 and about 30% since the end of June.

Chart I.2.4 • Stock markets | Index Jan.17 = 100



Sources: Bloomberg and Thomson Reuters. | Notes: Stock market indexes: Dow Jones Eurostoxx 50 (Euro area), Standard and Poors (USA), Footsie (UK), Nikkei (Japan) and Shanghai Stock Exchange Composite (China). Last observation – 31 August 2018.

Chart I.2.5 • 10-year sovereign bond interest rates | Percentage



Sources: Bloomberg and ECB. | Note: Last observation – 31 August 2018.

Activity growth in advanced economies remained robust, and inflation increased somewhat in the first half of the year

In the first half of the year economic activity in advanced economies maintained a robust growth pace, in spite of the slowdown seen in the first quarter that was partly associated with adverse weather conditions. The expansion of activity was accompanied by a moderate increase in total inflation, with different developments across the larger economies. However, inflation excluding the more volatile components remained relatively stable at lower levels.

In the US, GDP grew by 2.7% (year-on-year) in the first half of the year, above the growth pace recorded over the course of 2017 (2.2% in the year as a whole). The faster pace of activity expansion in the first half of the year reflected the maintenance of private consumption growth and an acceleration in GFCF and exports. The buoyant activity seems to have been supported by the maintenance of favourable monetary and financial conditions, the ongoing improvement of the labour market situation, and the impact of the fiscal stimulus package introduced at the end of 2017. As regards inflation, the year-on-year change in the private consumption deflator rose during the first half of 2018, to stand at 2.3% in July 2018 (1.8% in December 2017). This rise is also noticeable when excluding the more volatile components. The year-on-year change in the deflator for private consumption excluding energy and food increased from 1.6% in December 2017 to 2.0% in March, remaining around this figure up to July. The median of the Federal Open Market Committee members' estimates released in June places inflation at around 2.1% up to 2020, i.e. slightly above the Federal Reserve's monetary policy objective. In its March and June 2018 meetings the Federal Reserve increased monetary policy interest rates once again and reinforced the possibility of a faster upward cycle.

GDP in the United Kingdom, Portugal's main trading partner outside the euro area, rose by 1.2% year-on-year in the first semester, i.e. below growth recorded in the second half of 2017 (1.5%). Private consumption increased by 1.1%, a pace only slightly slower than recorded in the second half of 2017, whereas GFCF slowed down noticeably (from 3.3% year-on-year growth in the second half of 2017 to 1.1% in the first half of 2018). Exports and imports slowed down (from 6.0% and 1.8% respectively in the second half of 2017 to close to 0% in both cases in the first half of 2018). The year-on-year rate of change in the consumer price index went down from 3.0% in December 2017 to 2.5% in July 2018, reflecting the gradual fading of the impact of the British pound's past depreciation, which influenced inflation developments in 2017. However, the gradual build-up of internal pressures on prices and the effects of changes in the taxes and tariffs of some products and services implemented over the course of 2018 are expected to condition inflation developments. The Bank of England projects a convergence of inflation towards the 2.0% objective by the end of 2020. Given this expectation, combined with economic activity developments in line with expectations, in August the Bank of England decided to raise the monetary policy interest rate to 0.75% (+0.25 pp). The outlook for the United Kingdom's economy faces remarkable risks associated with the uncertainty surrounding the negotiations about the country's withdrawal from the European Union (EU), which saw limited progress. Most studies on the impact of the United Kingdom's withdrawal from the EU suggest that the impact on the United Kingdom's GDP might be substantial, particularly in scenarios of a future agreement between the two economic blocks which imply a lower degree of economic integration. For euro area countries the estimated impact is overall moderate and relatively similar across countries, with the notable exception of Ireland,

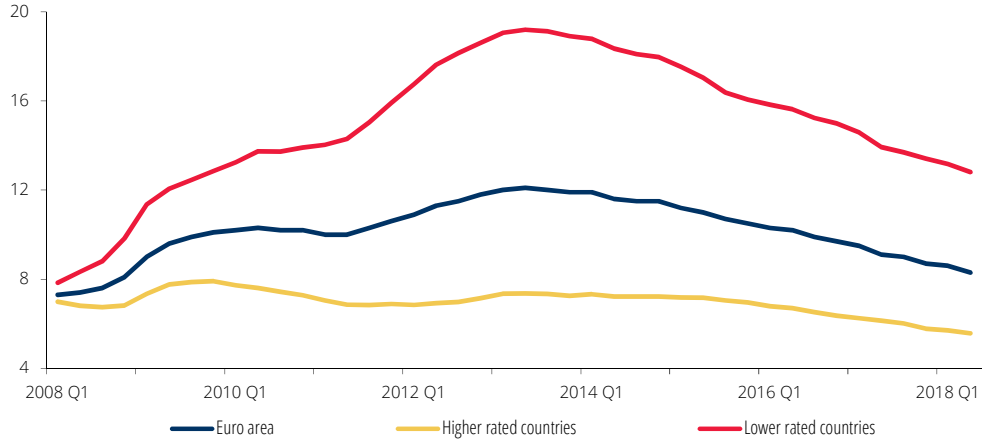
and essentially takes into account the repercussions resulting from impacts on trade and the exchange rate.[1]

With regard to economic activity developments in the emerging market economies that play a more important role as Portugal's trading partners, in the first half of the year the Chinese economy continued to grow at a strong pace (6.8% year-on-year, similar to 2017), but GDP in Brazil decelerated considerably (1.1% year-on-year against 2.0% in the second half of 2017) given high political uncertainty. In particular, exports and, to a lesser extent, imports slowed down.

The expansion of activity in the euro area extended into the first half of 2018, although at a slower pace than in the previous year

In the first half of 2018 activity in the euro area slowed down from the strong growth recorded in 2017, but maintained a robust growth pace (2.3% year-on-year compared to 2.5% in 2017). Activity growth in euro area countries showed one of the lowest dispersion levels since the start of the euro area. Domestic demand continued to grow robustly, in particular GFCF, but both exports and imports decelerated. The year-on-year growth pace of private consumption was slightly slower than in 2017 and continued to be supported by favourable financial conditions and an improved labour market situation. Employment continued to rise in the first half of the year, standing around 2.0% above the highest level reached before the crisis in the first quarter of 2008. The unemployment rate remained on a downward trend, reaching 8.2% in July, i.e. the lowest level of the past five years (Chart I.2.6). Although the reduction in the unemployment rate was visible in most euro area countries, it remains high in several countries, still standing above the figures recorded ten years ago in some cases.

Chart I.2.6 • Euro area unemployment rate | Percentage



Sources: Eurostat (Banco de Portugal calculations). | Notes: Euro area fixed composition (19 countries in the entire sample). Higher rated countries: Germany, France, The Netherlands, Austria, Belgium and Finland. Lower rated countries: Italy, Spain, Ireland, Portugal, Greece and Cyprus. Last observation – 2018 Q2.

1. See for example Box 2.1 – 'The economic impact of the United Kingdom's withdrawal from the European Union (Brexit)', *Economic Bulletin*, October 2016, Banco de Portugal, and IMF (2018), *Euro area policies – Selected Issues: Long-term impact of the Brexit on the EU*, June.

In the four major euro area economies, which weigh around 50% in Portuguese external demand (Table I.2.1), economic activity slowed down in the first half of the year, compared to growth in 2017. This slowdown was less marked in the Spanish economy, where GDP continued to grow at a stronger pace than in the other economies (year-on-year increase of 2.8% in the first half of the year *vis-à-vis* 3.1% in 2017). Exports and imports of goods and services decelerated in these four economies. Domestic demand behaved more differently. In Germany and France the growth pace moderated, although remaining more buoyant than in Italy, where domestic demand grew slightly more than in the previous half-year. In Spain, a particularly relevant economy due to its weight in Portuguese exports, domestic demand remained buoyant in the first half of the year, but recorded lower year-on-year growth than in the second half of 2017. This slowdown reflected a deceleration in GFCF (4.6% increase in the first half of the year, compared to 5.6% in the previous half-year), as a result of weak growth in the first quarter. The slowdown in exports and imports of goods and services was considerable in the Spanish economy, with a year-on-year increase in the first half of 2018 of 2.2% in the case of exports and 2.4 % in the case of imports, compared to 5.6% and 5.5% in the second half of 2017 respectively.

External demand for Portuguese goods and services slowed down in the first half of 2018, particularly when originating in the euro area

External demand for Portuguese goods and services in the first half of 2018 grew by 3.4% year-on-year, compared to 4.9% in the second half of 2017 (Table I.2.1). This deceleration mainly reflected the relatively broad based slowdown of intra-euro area imports.

Table I.2.1 • External demand of goods and services | Real year-on-year rate of change, in percentage

	Weights [b]	2014	2015	2016	2017	2017 H1	2017 H2	2018 H1
External demand [a]	100.0	5.0	4.4	1.7	4.4	3.9	4.9	3.4
Intra euro area external demand	62.7	5.1	6.3	3.1	4.7	4.3	5.1	2.8
Imports								
Spain	25.5	6.6	5.9	2.7	4.7	3.8	5.5	2.4
Germany	12.0	3.6	5.2	4.0	5.3	5.0	5.6	3.6
France	12.5	4.9	5.7	3.1	4.1	4.3	4.0	1.8
Italy	3.4	3.0	6.6	3.8	5.7	5.8	5.6	1.8
Extra euro area external demand		4.7	1.4	-0.5	3.9	3.2	4.5	4.3
Imports								
United Kingdom	6.8	3.8	5.5	3.3	3.1	4.4	1.8	0.2
United States	4.9	5.1	5.5	1.9	4.6	4.4	4.7	4.6
Memo:								
World imports of goods (CPB)		2.8	1.7	1.5	4.8	4.4	5.2	4.4

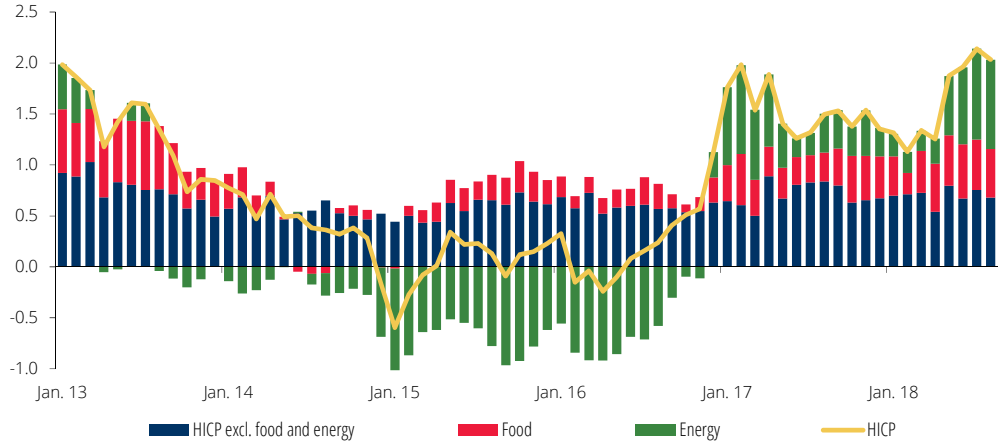
Sources: CPB Netherlands Bureau for Economic Policy Analysis, ECB, IMF and Thomson Reuters (Banco de Portugal calculations). | Notes: Year-on-year growth rates for different countries correspond to the respective imports of goods and services. (a) Computed by the ECB as the weighted average of imports volumes of the main trading partners of Portugal. Each country/region is weighted by its share in Portuguese exports. (b) Average weights over the period 2014-16.

Inflation increased in the euro area, reflecting an acceleration in energy prices

In the first half of the year inflation in the euro area increased compared to the end of 2017, after being somewhat irregular in the first few months of the year, largely associated with volatility in some

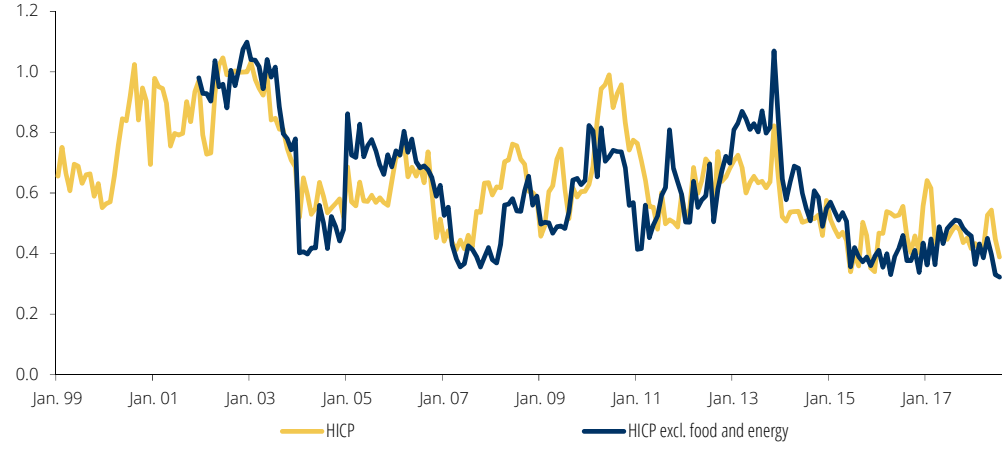
components (Chart I.2.7). The year-on-year rate of change in the harmonised index of consumer prices (HICP) rose considerably in May, from 1.3% to 1.9%, to stand at 2.0% in August. This was associated with the behaviour of oil prices in international markets and also with base effects. The year-on-year change in the HICP excluding food and energy remained at around 1.0% over the course of the first half of 2018, i.e. above the particularly low levels reached in 2014-15. The dispersion in inflation rates across euro area countries declined significantly in the past few years and has remained at historically low levels (Chart I.2.8).

Chart I.2.7 • Euro area inflation | Year-on-year growth rate in percentage and contributions in percentage points



Sources: Eurostat (Banco de Portugal calculations).

Chart I.2.8 • Dispersion of inflation among euro area countries | Percentage points



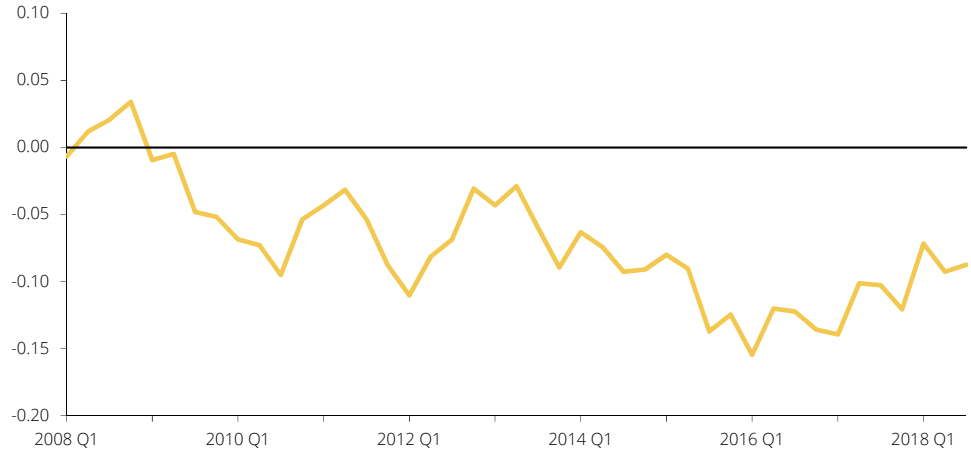
Sources: Eurostat (Banco de Portugal calculations). | Notes: Dispersion measured by the weighted standard deviation of HICP/HICP excl. food and energy year-on-year rate of change among euro area countries.

Domestic inflationary pressures associated with wage growth in the euro area have been gradually increasing. In the first half of 2018 compensation per employee remained on the acceleration path started in mid-2016, growing by 2.1% year-on-year (1.7% in the second half of 2017). Although this higher increase in compensation per employee was to a large extent associated with developments

in the wage drift,[2] which tends to react more rapidly to the economy's cyclical improvement, in the first half of 2018 there was also a greater rise in negotiated wages, which seem to have also started to react to the improvement in labour market conditions (Box 1).

Euro area inflation expectations for longer maturities implied in market instruments remained relatively stable since October 2017, around the time of the latest announcement of expansion of the asset purchase programme by the European Central Bank (ECB). For shorter maturities, inflation expectations continued to increase. According to the ECB's Survey of Professional Forecasters (SPF), inflation expectations for a horizon of four to five years have remained at around 1.9%. The balance of risks around this estimate, as measured by the asymmetry of the probability distribution surrounding the point estimate, has been increasing, but remained skewed to the downside (Chart I.2.9).

Chart I.2.9 • SPF – Balance of risks to 4/5 years-ahead inflation expectations



Source: ECB. | Notes: Balance of risks – mean of the aggregate probability distribution minus point forecast of the SPF. A negative value means a down-skewed balance of risks. Last observation – 2018 Q3.

2. The difference between the growth of wages and salaries per employee and the growth of negotiated wages.

Box 1 • Wages in the euro area: developments since 2013 and perspectives

The recovery of economic activity in the euro area has been accompanied by a notable pace of employment creation, above the historical elasticity when compared with GDP growth. In this context, the unemployment rate has fallen significantly, notwithstanding the continued increase in the participation rate. This dynamism in the labour market was not accompanied by an acceleration in wages until mid-2016 (Chart C1.1). Since then, the growth rate of wages has increased gradually. This box analyses developments of wages in the euro area since the beginning of the economic recovery in 2013 using a Phillips curve model. Perspectives for wage growth over the next years are also assessed.

In the Phillips curve model used in this box, compensation per employee growth is determined by past inflation, by growth of productivity per worker and by the unemployment rate in the preceding quarter (Chart C1.2). The explanatory power of the model is relatively low, a common result in the literature. Nevertheless, the model suggests that at the beginning of the period under analysis, the historically low wage growth was to a large extent explained by the negative and persistent contribution of the unemployment rate. From 2014 until mid-2017, there was a gradual reduction of this contribution, in the context of a fall in the unemployment rate. However, this reduction in the unemployment rate was compensated by a negative contribution of inflation in an environment of historically low inflation in the euro area.

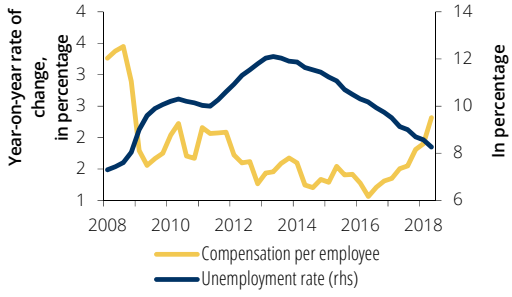
In the recent period, the upward trajectory of wage growth seems to have been partly explained by the continued reduction in the unemployment rate and the gradual dissipation of the negative contribution of inflation. However, the existence of significant negative and persistent residuals until the first quarter of 2018 suggests that other factors besides those considered in the model exercised a negative pressure on wages. These residuals can capture, in general, other factors that may have caused changes in the relationship between wage growth and the determinants considered in the model. Among other explanations, the literature has pointed to the impact of structural reforms to the labour market implemented in a number of countries, changes in the composition of employment and advances in the automation process.[3] However, the role of these factors is not consensual and the existing empirical evidence does not allow their relative contributions to be quantified.

Doubts about the drivers of wage growth during the recent period naturally make future perspectives relatively uncertain. Nevertheless, the continued reduction in the unemployment rate should continue to contribute positively to the gradual acceleration in wages, as predicted in the September 2018 ECB staff macroeconomic projections for the euro area. This perspective of continued acceleration is sustained by the results of the most recent wage negotiations (Chart C1.3). Indeed, whilst until the end of 2017 the acceleration in compensation per employee was mainly due to wage drift,[4] in 2018 it has primarily reflected the higher growth rates in negotiated

3. For further discussion of these factors see, for example, European Commission (2017), 'What drives wage developments?'. *European Economic Forecast*, autumn, box 1.2 and IMF (2017), 'Recent wage dynamics in advanced economies: drivers and implications'. *World Economic Outlook*, October, chapter 2.
4. The wage drift is measured as the difference between the growth in wages and salaries per employee and the growth in negotiated wages. This drift tends to reflect the evolution of non-recurring components such as bonuses, overtime payments and other occasional payments.

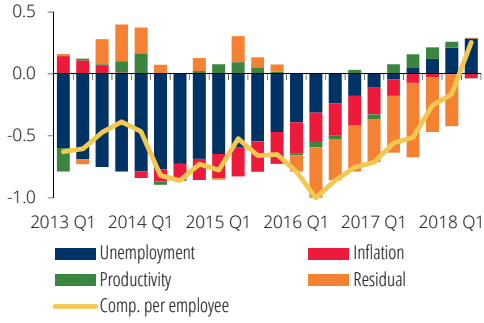
wages, which appear to have started reacting to the improvement of labour market conditions, albeit with a greater lag than in the past. The expectations of the agents for future wage growth have also been revised upwards, as shown by the approximation in the distribution of expectations of the ECB Survey of Professional Forecasters to the configuration observed in the period that preceded the wage moderation (Chart C1.4). Yet on average, expectations of these forecasters for the annual growth rate in 2020 (2.2%) are lower than the ECB staff projection (2.7%).

Chart C1.1 • Compensation per employee and unemployment rate



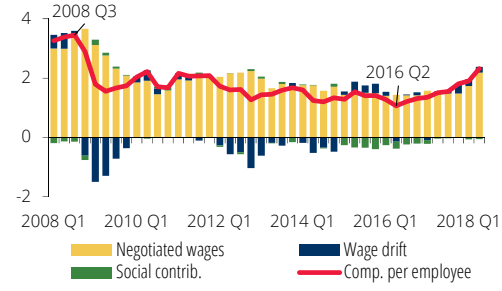
Sources: ECB and Eurostat.

Chart C1.2 • Compensation per employee and its determinants | Year-on-year rate of change and contributions, in deviations from the long-run mean



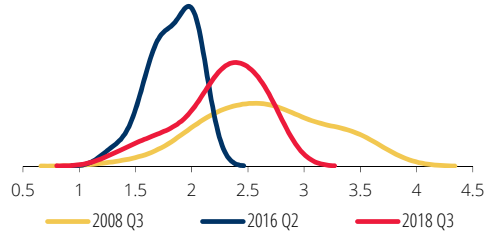
Sources: ECB and Eurostat (Banco de Portugal calculations). | Notes: Contributions based on a regression of compensation per employee (annualised quarterly growth) on a constant, compensation per employee in the previous quarter, unemployment rate in the previous quarter, inflation in the previous quarter and productivity per worker. Long-run mean – 1998 Q1-2018 Q2.

Chart C1.3 • Compensation per employee | Year-on-year rate of change, in percentage, and decomposition, in percentage points



Sources: ECB and Eurostat (Banco de Portugal calculations). | Notes: Wage drift – difference between the growth rate of wages and salaries per employee and that of negotiated wages. Social contributions – difference between the growth rate of compensation per employee and that of wages and salaries per employee; this component only differs from zero when employers' social contributions grow at a different rate than wages and salaries.

Chart C1.4 • Expectations for compensation per employee growth in year t+2 | Year-on-year rate of change, in percentage, and Kernel density



Sources: ECB Survey of Professional Forecasters (Banco de Portugal calculations).

3 Monetary and financial conditions

3.1 Euro area

The ECB announced its intention of ending net purchases under the APP at the end of 2018, but kept the commitment to maintain an accommodative monetary policy

The progress made for a sustained convergence of inflation in the euro area towards the ECB's price stability objective, particularly since the adoption of the expanded asset purchase programme (APP) in 2015, led the Governing Council of the ECB to announce at its June meeting the intention to reduce the monthly pace of net asset purchases under the APP to €15 billion from October until the end of December 2018, and to end net purchases at the end of 2018, should incoming data confirm the medium-term inflation outlook (Box 2). The ECB also announced its intention to maintain its policy of reinvesting the principal payments from maturing securities purchased under the APP for an extended period of time after the end of its net asset purchases, and that key interest rates are expected to remain at their current levels at least through the summer of 2019, and in any case for as long as necessary to ensure that inflation developments remain in line with the current expectations of a sustained adjustment path. At its meeting in September 2018 the Governing Council of the ECB confirmed the reduction of the monthly pace of net asset purchases to €15 billion from October to the end of December 2018.

Monetary and financial conditions in the euro area have remained favourable

Notwithstanding periods of higher volatility associated in particular with political uncertainty in some member countries, monetary and financial conditions in the euro area remained favourable in the first half of 2018. However, developments in financial markets contributed to a slight tightening of financial conditions, especially at the end of the first semester.

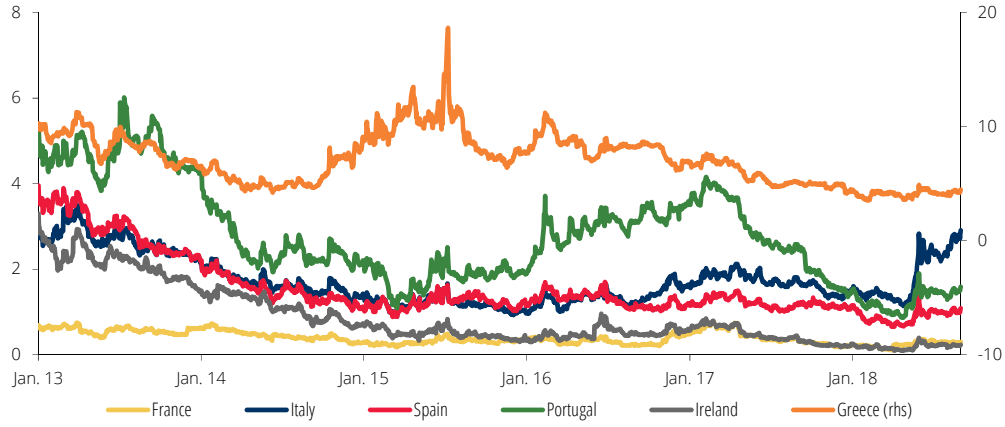
The sovereign bonds yield spreads of euro area countries *vis-à-vis* Germany widened in April and May 2018, especially in Italy, coinciding with heightened political tensions, but also in Portugal and Spain (Chart I.3.1). There was some subsequent normalisation, although Italian sovereign debt yield spreads *vis-à-vis* the German debt remained much higher than the levels observed in the beginning of the year. In July and August the Italian sovereign bonds yield spreads *vis-à-vis* the German debt widened further, particularly given the country's political uncertainty environment.

Compared to the end of 2017 there was an appreciation of the euro in nominal effective terms.[5] Despite a temporary depreciation associated with risk-aversion movements during the period of greater uncertainty surrounding the formation of a government in Italy, the weakening of a number

5. Nominal effective exchange rate of the euro calculated against the currencies of 38 of the most important trading partners of the euro area.

of currencies of emerging market economies since May (namely the Turkish lira) has boosted the appreciation of the euro in effective terms. However, the euro depreciated *vis-à-vis* the US dollar as of mid-April, amid expectations of a postponement of monetary policy changes by the ECB and continued normalisation of the interest rate level by the US Federal Reserve. In August the euro presented an appreciation of around 3% in nominal effective terms from December 2017.

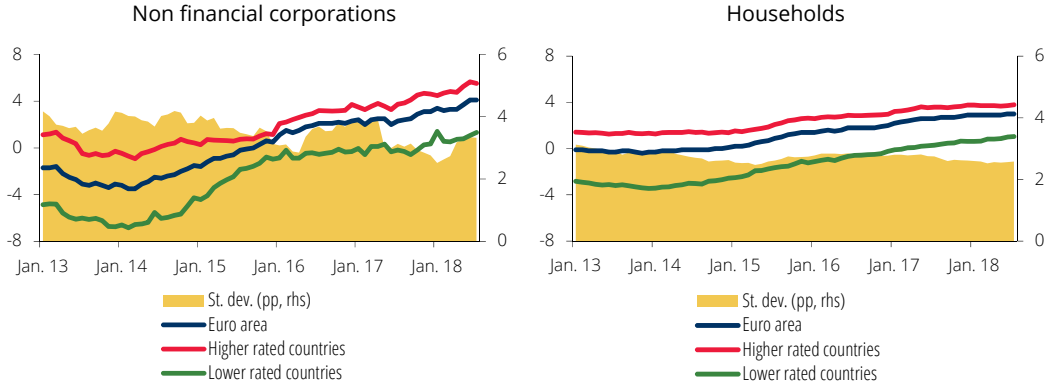
Chart I.3.1 • 10-year sovereign bond interest rate spreads against Germany | Percentage points



Source: Thomson Reuters. | Note: Last observation 31 August 2018.

The financing conditions of non-financial corporations and households remained favourable in the euro area. With regard to non-financial corporations, the cost of bank borrowing remained at a low level in the first half of 2018, and new bank loans continued to recover (annual rate of change of 4.1% in July, compared to 3.1% in December 2017), although the growth pace in lower rated countries is still relatively weak (Chart I.3.2). As for households, the cost of bank borrowing remained broadly unchanged since the start of the year, and the annual growth of new bank loans remained at levels similar to those seen at the end of 2017 (annual rate of change of 3.0% in July, against 2.9% in December 2017).

Chart I.3.2 • Euro area loans to the private sector | Annual rate of change in percentage



Source: ECB (Banco de Portugal calculations). | Notes: Annual growth rates of loans adjusted for sales and securitization and other changes ubrelated to financial transaction. Higher rated countries: Germany, France, The Netherlands, Austria, Belgium and Finland. Lower rated countries: Italy, Spain, Ireland, Portugal, Greece and Cyprus. Last observation – July 2018.

In the bank lending surveys released in April and July, euro area banks continued to report an increase in demand by non-financial corporations and households, associated with the low level of interest rates, and an easing of credit standards in the various segments, due to competitive pressures and lower risk perception. In the survey released in April banks also continued to indicate a positive impact of the APP and of the negative deposit facility rate in the volume of loans granted in the previous six months. With regard to the APP, banks continued to report a positive impact in their liquidity position and market financing conditions, but once more reported a deterioration in profitability due to lower lending margins. Banks also signalled an adverse impact of the negative deposit rate on their net interest margins. The responses of banks in the euro area as a whole to the ad hoc question included in the survey released in July on the main factors determining the banks' lending margins suggest that the main factor was pressure from competition, from other banks and from non-banks, as well as from market financing (Box 3). As regards the ad hoc question on the impact of the banks' non-performing loan ratio on their lending policy, euro area banks as a whole stated that this ratio contributed to a tightening in their credit standards and terms and conditions for loans (Box 4). The results reported by banks from several countries are heterogeneous, and their impact is more important in the group of lower rated countries. However, the impact on tightness reported for the past six months is considerably lower than identified for the period from the beginning of 2014 to the end of 2017.

3.2 Portugal

The funding conditions of resident banks remained stable in the first half of 2018

In the bank lending survey banks did not report significant changes in their funding conditions in most markets, with the exception of retail funding, which might be related to the persistence of an environment of negative official interest rates (Chart I.3.3).

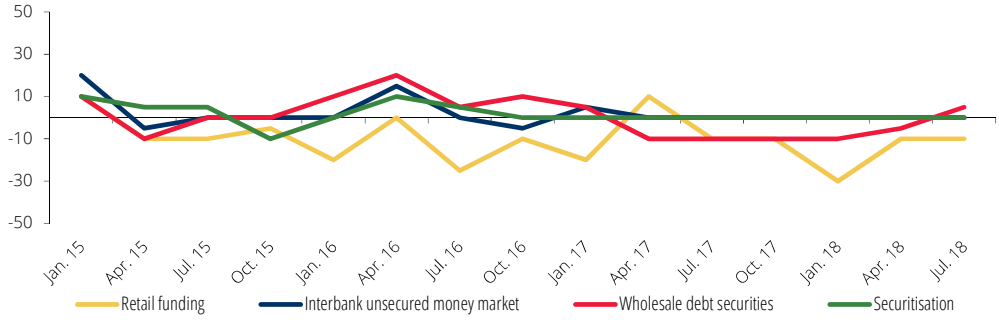
The stability of the banks' funding conditions, amid historically low interest rates, has been accompanied by an acceleration in bank credit granted to households and firms, especially in the household segment.

Household financing conditions continued to be favourable

In the first half of 2018 interest rates on new bank loans for house purchase continued to decline slightly, in line with 2017 (Chart I.3.4). The average annual percentage rate of charge (APRC) on new loans for house purchase declined from 2.4% in December 2017 to 2.1% in June 2018. This was chiefly due to a slight decline in spreads applied by banks, since the benchmark interbank interest rate remained stable. An analysis to responses to the ad hoc question included in the bank lending survey in July 2018 on the factors determining the level of spreads applied by resident banks in loans to households for house purchase suggests that pressure from competition is the most relevant factor (Box 3).

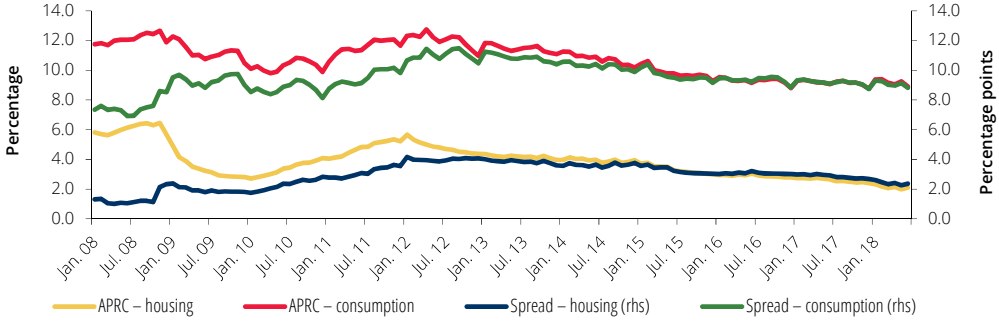
In consumer credit, interest rates on new loans remained relatively stable compared to the end of 2017. The respective average APRC went up from 8.8% in December 2017 to 8.9% in June 2018.

Chart I.3.3 • Changes in the access to funding of resident banks | Diffusion index



Source: Banco de Portugal. | Notes: The diffusion index is computed based on the Bank Lending Survey and varies between -100 and 100. Values greater (smaller) than zero mean an improvement (deterioration) in the funding conditions over the last three months. The value zero means 'remained unchanged'. The diffusion index of 'retail funding' is a simple average of the diffusion indexes of 'short-term deposits (up to one year)' and 'long-term (more than one year) deposits and other retail funding instruments'; the diffusion index of 'inter-bank unsecured money market' is a simple average of the diffusion indexes of 'very short-term money market (up to 1 week)' and 'short-term money market (more than 1 week)'; the diffusion index of 'wholesale debt securities' is a simple average of the diffusion indexes of 'short-term debt securities (e.g. certificates of deposit or commercial paper)' and 'medium to long term debt securities (incl. covered bonds)'; the diffusion index of 'securitisation' is a simple average of the diffusion indexes of 'securitisation of corporate loans ' and 'securitisation of loans for house purchase'.

Chart I.3.4 • Interest rates on new loans granted by resident banks to households | Percentage and percentage points



Sources: Thomson Reuters and Banco de Portugal. | Notes: The APRC (Annual Percentage Rate of Charge) is the total cost of the loan, i.e., the overall costs, including interests and other costs paid to acquire the loan. Average interest rates are based on new loans by initial fixation period and weighted by new loan amounts in each period. In the case of housing loans, the reference interest rate is the 6-month Euribor rate; in the case of loans for consumption, the 6-month Euribor rate, the 1-year Euribor rate and the 5-year swap rate are the reference interest rates for loans with initial fixation period of less than 1 year, 1 to 5 years and more than 5 years, respectively.

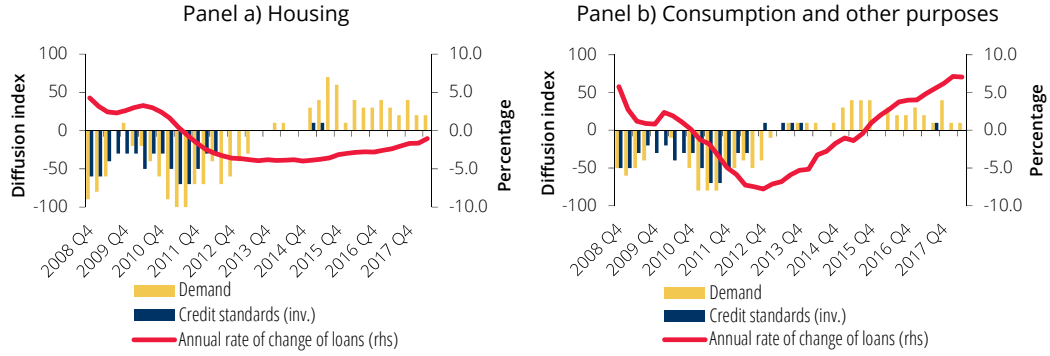
Credit to households continued to be dynamic, especially in the consumption segment

In the first half of 2018 the annual rate of change in bank loans to households for house purchase continued to increase (Chart I.3.5, panel a)). However, it remained in negative territory (-1.1% in June 2018 against -2.4% and -1.7% in June and December 2017, respectively), since repayments of loans previously granted continued to exceed the amounts of new loans. In the consumer credit and other lending segment the annual rate of change in loans granted by banks rose from 4.8% in June to 6.2% in December 2017 and to 7.0% in June 2018 (Chart I.3.5, panel b)).

According to the bank lending survey, recent developments in credit granted by resident banks to households were due to the higher dynamics of loan demand, since credit standards on the supply side have remained relatively stable. For reporting banks, increased demand was chiefly related to improved consumer confidence, as well as the low general level of interest rates. In the housing loan

segment they also mentioned the more favourable housing market prospects, including expected house price developments. On the supply side, despite the relatively stable credit standards, terms and conditions that banks apply when granting new loans, reporting banks mentioned that competitive pressure somehow contributed to an easing of credit standards for loans to households.

Chart I.3.5 • Demand and supply of loans granted by resident banks to households | Diffusion index and annual rate of change in percentage



Source: Banco de Portugal. | Notes: The diffusion index is computed based on the Bank Lending Survey and varies between -100 and 100. Values greater (smaller) than zero mean an increase (decrease) in demand and tighter (easier) credit standards (inverted scale). The value zero means 'remained unchanged'. Annual rates of change are based on the relation between end-of-month outstanding amounts (adjusted for securitisation operations) and monthly transactions. Monthly transactions correspond to the difference in the end-of-month outstanding amounts adjusted for reclassifications, write-offs/write-downs, exchange rate and price revaluations, and any other variations that do not correspond to financial transactions. Whenever relevant, figures are additionally adjusted for sales of credit portfolios.

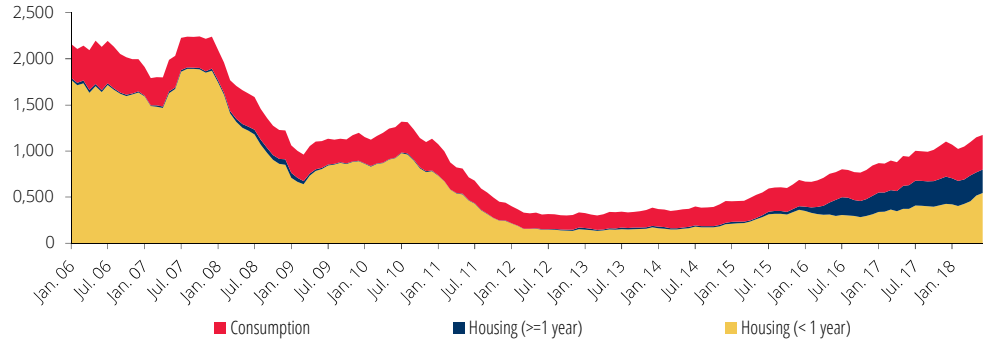
In the first half of 2018 the amount of new loans granted by resident banks to households for house purchase continued on an upward trend (Chart I.3.6). The value of these loans in June, assessed in real terms, was the highest since October 2010, although standing considerably below the amounts granted in the years prior to the international financial crisis. Developments in new loans for house purchase in the first six months of 2018 were mainly due to the higher dynamics of loans with a benchmark interest rate fixation period of up to one year. Loans with a benchmark interest rate fixation period of over one year stood on average at almost the same level as in 2017. Consequently, in the first half of 2018 the relative importance of this type of agreement in total new loans for house purchase declined to around 35%, after standing at around 40% in 2017.

The growth of new loans for house purchase occurred in a context of strong dynamics in this market[6], as shown by the evolution of its transactions and prices. The ratio of new loans for house purchase to the total amount of transactions of family dwellings in Portugal increased from the minimum levels reached in 2015 (Box 5). However, it remains at much lower levels than observed in 2010. The reduction of the weight of bank financing in transactions is broadly based across the different regions in the country, but its magnitude is greater in the Lisbon Metropolitan Area and the Algarve, where foreign investment or the purchase of real estate by corporations might have a higher weight in transactions.

In the second quarter of 2018 housing prices continued to increase, growing by 11.2% year-on-year (12.2% in the first quarter of 2018 and 10.5% in the fourth quarter of 2017) (Chart I.3.7). Housing prices in real terms continued to follow a similar trend and in this quarter stood above the level recorded in the first quarter of 2008.

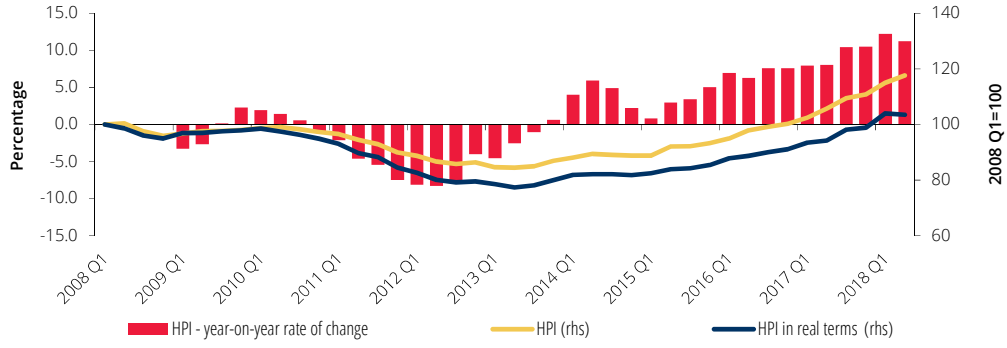
6. For a detailed analysis of the recent dynamics of the Portuguese real estate market, see Section 2.3 'Real estate market', Banco de Portugal, *Financial Stability Report*, June 2018.

Chart I.3.6 • New loans granted by resident banks to households | EUR million at 2011 prices, 3-month moving average



Source: Banco de Portugal. | Notes: In the housing segment, the amounts of new loans are disaggregated by interest rate fixation period. Values at constant prices were obtained using the Harmonised Index of Consumer Prices (HICP).

Chart I.3.7 • Housing prices | Percentage and index



Sources: Statistics Portugal (Banco de Portugal calculations). | Note: Housing prices are measured by the House Price Index (HPI). The real price corresponds to the ratio between the HPI and the Harmonised Index of Consumer Prices (HICP).

The weight of consumer loans in private consumption maintained an upward profile

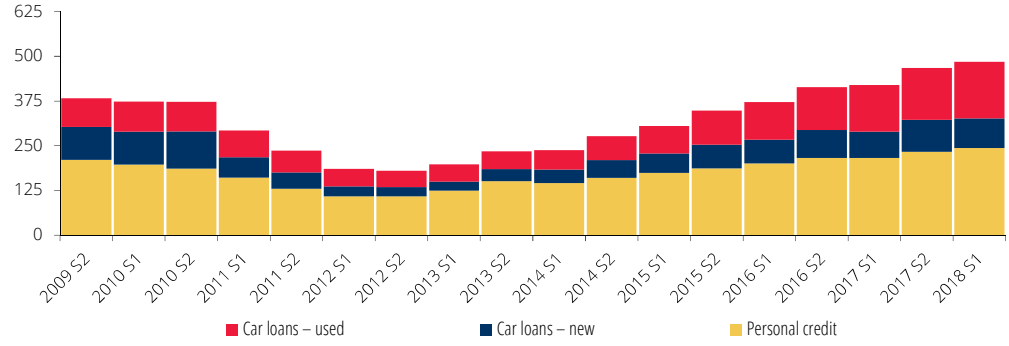
The amount of new consumer loans granted by resident banks continued to increase over the first half of 2018, reaching values close to those recorded in the years preceding the international financial crisis (Chart I.3.6). The evolution of consumer credit continued to reflect the rise in personal loans and credit for the purchase of used cars, which remained quite dynamic (Chart I.3.8).

The dynamics of consumer loans to households has implied an increase in the share of consumption financed with recourse to credit to higher levels than those observed in the second half of 2009 (Chart I.3.9).

Household debt as a percentage of disposable income declined

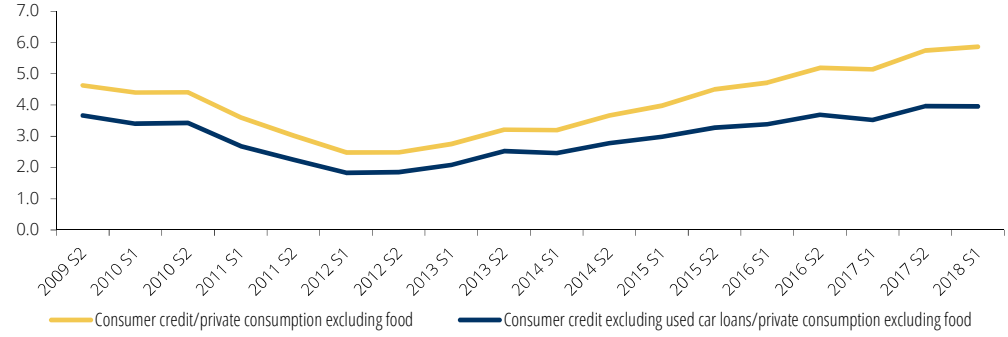
Household debt (loans, debt securities and trade credit) as a percentage of disposable income declined *vis-à-vis* the last quarter of 2017, extending the downward profile observed since the second quarter of 2012. Developments in 2018 mainly reflect a higher disposable income, with the rise in consumer credit offsetting an increasingly less marked reduction of credit for house purchase. At the end of the first quarter of 2018 this ratio stood at 106%, i.e. above the euro area average (Chart I.3.10).

Chart I.3.8 • New loans for consumption granted by resident financial institutions to households by credit category | EUR million at 2011 prices, monthly average amount



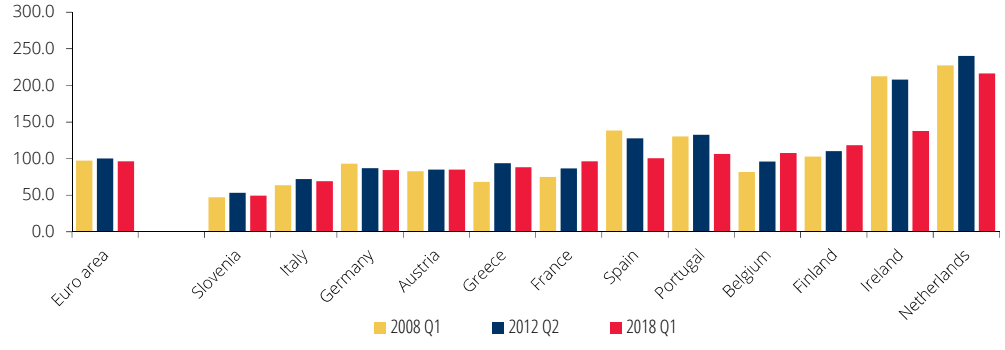
Source: Banco de Portugal. | Note: Does not include revolving credit (i.e., credit cards, credit lines, current bank accounts and overdraft facilities), as the amounts for this type of credit correspond to ceilings rather than effecive credit.

Chart I.3.9 • New loans for consumption granted by resident financial institutions | Percentage of private consumption excluding food expenditures



Sources: Statistics Portugal and Banco de Portugal. | Notes: New loans for consumption do not include revolving credit (i.e., credit cards, credit lines, current bank accounts and overdraft facilities), as the amounts for this type of credit correspond to ceilings rather than effective credit. The indicator that excludes credit for the purchase of used cars is also presented since part of these purchases are not accounted for in private consumption.

Chart I.3.10 • Debt of households in Portugal and other euro area countries | Percentage of disposable income

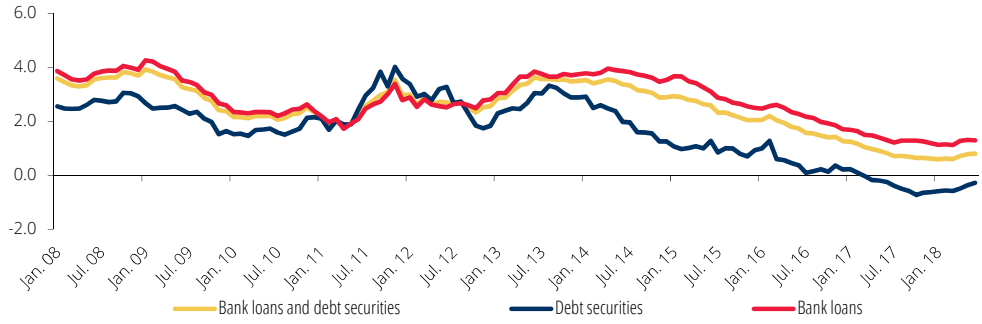


Sources: Eurostat and Statistics Portugal (Banco de Portugal calculations). | Notes: Debt corresponds to loans, debt securities and trade credit (unconsolidated amounts). Disposable income corresponds to the figure of the year ended in the respective quarter of 2008, 2012 and 2018. Data are shown for the euro area countries for which information is available. The figures for Austria and Greece labelled '2018 Q1' correspond to the most recent quarters available, respectively, 2017 Q3 and 2017 Q4. The values for the euro area are the sum of the values for the countries presented. The value for '2018 Q1' for the euro area corresponds to the value of 2017 Q3, the last quarter for which there is information for this set of countries.

Interruption of the downward profile of the cost of financing for firms

The cost of debt financing for non-financial corporations assessed in real terms increased slightly over the first half of 2018, after a downward trend between the first half of 2014 and the end of 2017 (Chart I.3.11). However, it remains at historically low levels. This resulted, on the one hand, from a less negative real cost associated with debt securities, in particular long-term debt securities and, on the other, from relatively stable levels of real interest rates on bank loans compared to the end of 2017.

Chart I.3.11 • Cost of funding of non-financial corporations (loans and debt securities), in real terms | Percentage

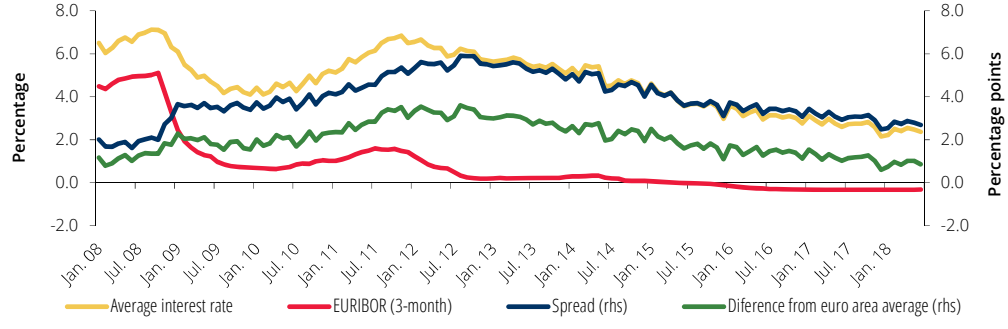


Sources: Barclays, Consensus Economics, Thomson Reuters and Banco de Portugal. | Notes: The cost of financing with bank loans, short-term debt securities and long-term debt securities is measured, respectively, by the interest rates on new loans granted by resident banks, interest rates on commercial paper and the yield implicit in the Barclays index for bonds issued by Portuguese corporations. Consensus Economics' inflation expectations for horizons comparable with the maturities of the different instruments were used to deflate the nominal values.

Interest rates on new loans to firms remained stable

In this half-year nominal interest rates on new bank loans to non-financial corporations remained relatively stable at around 2.4%, after a downward trend since late 2011 (Chart I.3.12). The positive spread *vis-à-vis* the average interest rate on loans to euro area non-financial corporations also remained stable.

Chart I.3.12 • Interest rates on new loans granted by resident banks to non-financial corporations | Percentage and percentage points

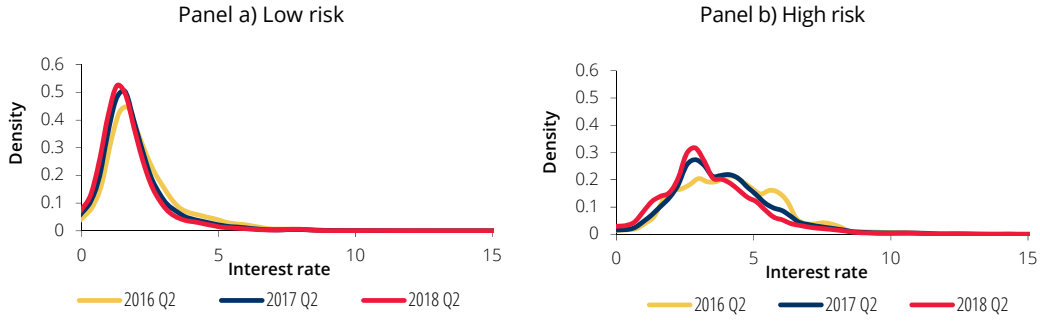


Sources: BCE, Bloomberg and Banco de Portugal. | Notes: Average interest rates are based on new loans by initial fixation period, weighted by new loan amounts in each period. The spread was calculated using a 3-month Euribor rate.

According to the responses to one of the ad hoc questions of the bank lending survey, pressure from competition, profitability targets and risk perceptions are the most important factors determining spreads in loans to firms (Box 3).

An analysis of interest rates on new loans granted by resident financial institutions to private non-financial corporations with different risk levels shows a noticeable decline from mid-2017 to mid-2018 (Chart I.3.13). As in the past, average interest rates on new loans granted to high-risk firms continued to be higher than observed in loans to low-risk firms, also continuing to show higher dispersion. However, high-risk firms are gradually entering into loans with lower interest rates and increasingly less dispersion.

Chart I.3.13 • Distribution of interest rates on new loans granted by resident financial institutions to private non-financial corporations by credit risk profile | Density



Source: Banco de Portugal. | Notes: Interest rates are weighted by loan amounts. The sample includes for-profit private non-financial corporations. Low (high) risk corporations lie in the first (last) quartile of the credit risk distribution. Credit risk is measured by the Z-score estimated according to Antunes, Gonçalves and Prego, 'Firm default probabilities revisited', *Banco de Portugal Economic Studies*, Vol. 2, No 2, April 2016.

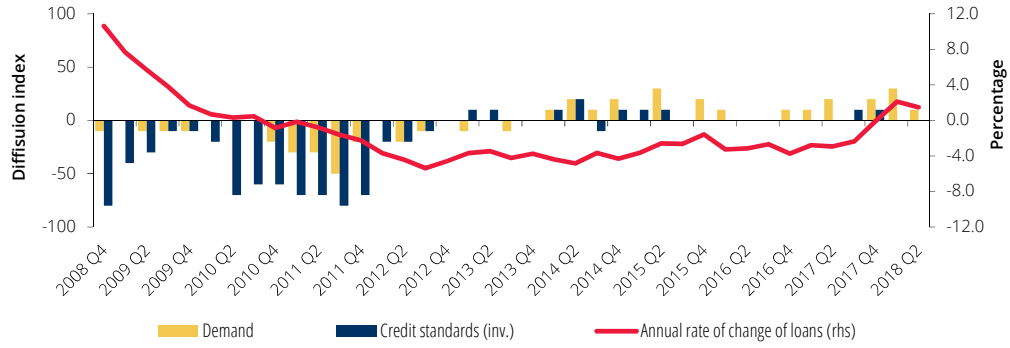
Loans granted by resident banks to firms continued to accelerate

In the first six months of 2018 credit granted by resident banks to non-financial corporations continued on an upward path (Chart I.3.14). According to banks' responses to the bank lending survey, the credit standards, terms and conditions applied to loans to firms remained relatively stable. The demand for loans by firms increased in this period, particularly in the first quarter of 2018. This seems to be associated especially with an increase in credit needs for investment financing (Chart I.3.15). According to the European Commission's opinion surveys, the share of firms signalling financial constraints as a limiting factor to activity continued to decline in all sectors surveyed, reaching values lower than those observed since 2008 (Chart I.3.16).

An analysis by dynamics of credit market presence, assessed based on loans granted by financial institutions to private non-financial corporations, shows a progressive increase in the contribution from loans granted to new debtors in the first half of 2018 (Chart I.3.17). Since mid-2015 the positive contribution from firms entering or re-entering the credit market has stood above the negative contribution from firms that cease to have loans. The contribution from firms that stay on this market has also been increasing, although still standing in negative territory.[7]

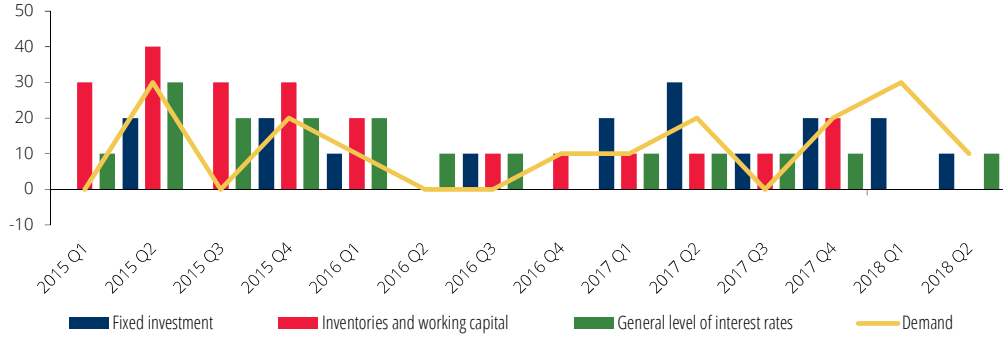
7. For a more detailed analysis on entrants, exits and stayers regarding non-financial corporations in the credit market, see Box 4 – 'Developments in loans granted to non-financial corporations by resident credit institutions: extensive margin vs. intensive margin', Banco de Portugal, *Economic Bulletin*, October 2017.

Chart I.3.14 • Demand and supply of loans granted by resident banks to non-financial corporations | Diffusion index and annual rate of change in percentage



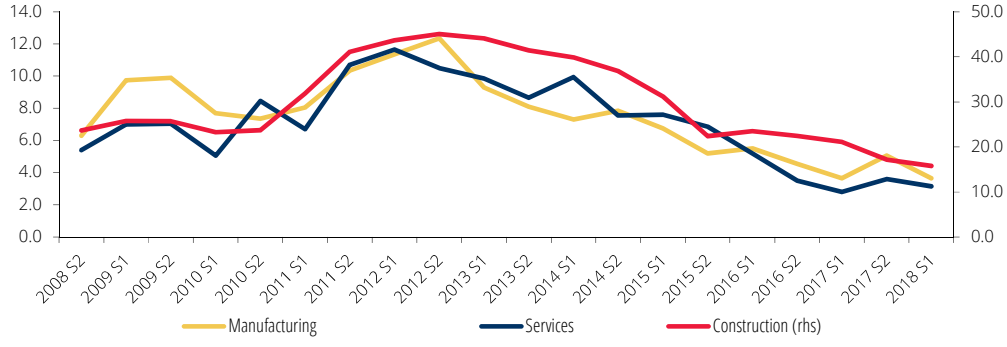
Source: Banco de Portugal. | Notes: The diffusion index is computed based on the Bank Lending Survey and varies between -100 and 100. Values greater (smaller) than zero mean an increase (decrease) in demand and tighter (easier) credit standards (inverted scale). The value zero means 'remained unchanged'. Annual rates of change are based on the relation between end-of-month outstanding amounts (adjusted for securitisation operations) and monthly transactions. Monthly transactions correspond to the difference in the end-of-month outstanding amounts adjusted for reclassifications, write-offs/write-downs, exchange rate and price revaluations, and any other variations that do not correspond to financial transactions. Whenever relevant, figures are additionally adjusted for sales of credit portfolios.

Chart I.3.15 • Evolution and determinants of demand for loans by non-financial corporations | Diffusion index



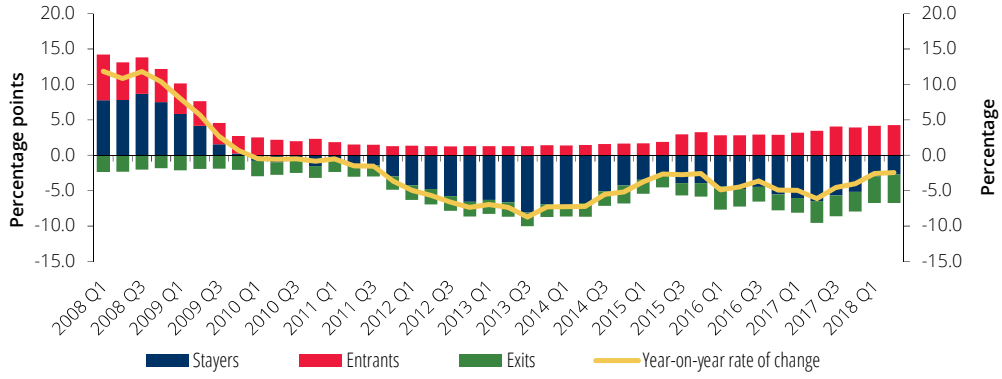
Source: Banco de Portugal. | Notes: The diffusion index is computed based on the Bank Lending Survey and varies between -100 and 100. Values greater (smaller) than zero mean an increase (decrease) in demand or a positive (negative) contribution for the change in demand. The value zero means 'remained unchanged' or no contribution for the change in demand.

Chart I.3.16 • Firms indicating financial constraints as a factor limiting activity | Percentage of responding firms



Sources: European Commission (Business Surveys) (Banco de Portugal calculations). | Note: Data for the manufacturing and services sectors are a simple average of the quarterly figures and for the construction sector are a simple average of the monthly figures.

Chart I.3.17 • Loans granted by resident credit institutions to private non-financial corporations according to their dynamic in the loans market | Percentage and percentage points

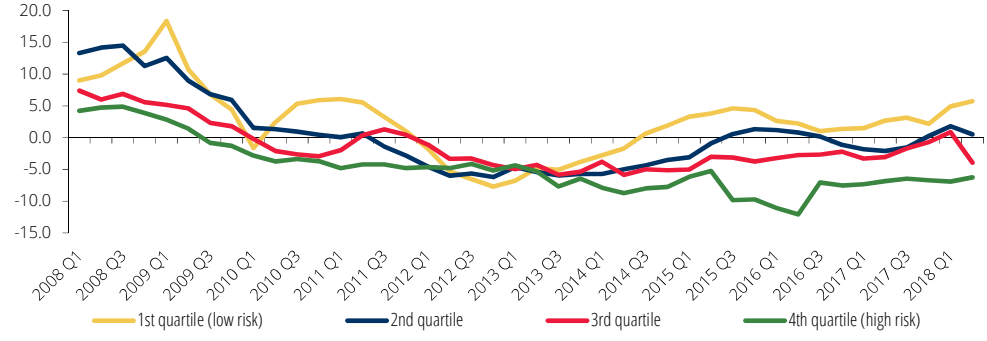


Source: Banco de Portugal. | Notes: Loan balances of private non-financial corporations with regular credit, past due loans or renegotiated loans are analyzed. The exit of a firm from the credit market in a certain month is defined by its absence from the CCR in 12 consecutive months. The entry of a firm is identified by the month of reporting to the CCR or by the month in which it reappears after exiting. Year-on-year rates of change are calculated based on the average monthly company-level balances. Sales and purchases of credit portfolios to the rest of the world or to other national institutions that do not report to the CCR are corrected from 2015 onwards.

Financing of firms with lower credit risk by resident financial institutions continued to increase

Resident financial institutions' financing of non-financial corporations continued to increase for firms with lower credit risk, similarly to the past few years. In the first half of 2018 firms in the lowest credit risk quartile[8] recorded positive year-on-year rates of change on loans, slightly higher than those observed in the two previous years. In turn, firms in the highest credit risk quartile continued to record negative year-on-year rates of change (Chart I.3.18).

Chart I.3.18 • Loans granted by resident financial institutions to private non-financial corporations by credit risk quartile | Year-on-year rate of change, in percentage



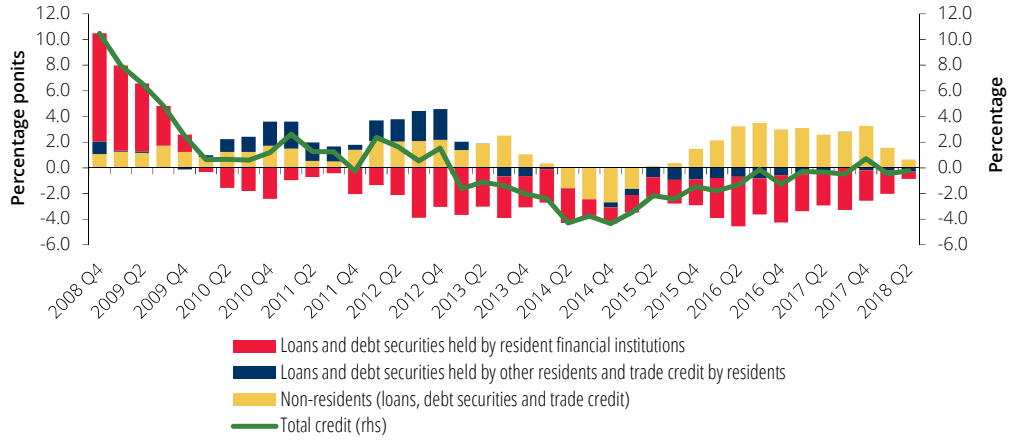
Source: Banco de Portugal. | Notes: Credit risk is measured by the Z-score estimated according to Antunes, Gonçalves and Prego, 'Firm default probabilities revisited', *Banco de Portugal Economic Studies*, Vol. 2, No 2, April 2016. The year-on-year rate of change is the annual rate of change of outstanding amounts in each month.

8. According to a given attribute, a population's quartiles are the four groups of 25% of the population's elements obtained by ranking the population in ascending order of the attribute. Hence, the first risk quartile corresponds to the group of 25% of firms with a lower credit risk.

Decline in the positive contribution from the non-resident financial sector and lower negative contribution from the resident financial sector to total credit

In line with the situation experienced since late 2015, the non-resident sector made a positive contribution to the financing of firms in Portugal, partly through the purchase of credit portfolios to resident banks (Chart I.3.19). This contribution largely offset the reduction of corporate indebtedness with the resident financial sector. However, the positive contribution from the non-resident sector declined the first half of 2018, in parallel with a decline in the negative contribution from the resident financial sector.

Chart I.3.19 • Total credit to non-financial corporations by funding sector | Year-on-year rate of change and contributes, in percentage and percentage points



Source: Banco de Portugal. | Notes: Total credit contains loans, debt securities and trade credit (trade credit between resident firms are excluded). Year-on-year rates of change are computed based on the relation between end-of-month outstanding amounts. No adjustments are done regarding sales, reclassifications, write-offs and exchange rate and price revaluations. Year-on-year rates of change permit to analyze debt in the perspective of the debtor sector.

Developments in credit to firms continued to be differentiated across sectors of activity. At the end of the first half of 2018 total credit (covering bank credit, financing obtained through loans and securities via other resident financial institutions, and loans, securities and trade credit of other residents and non-residents) increased in the trade, accommodation and food services' sector and in manufacturing, mining and quarrying. These activities continued to record positive annual rates of change (Chart I.3.20, panel a)). In most sectors of activity, credit granted by resident banks has recorded higher rates of change than total credit (Chart I.3.20, panel b)). The electricity, gas and water sector, which mostly includes large-sized firms with access to international market financing, continues to experience the most negative rates of change in bank credit.

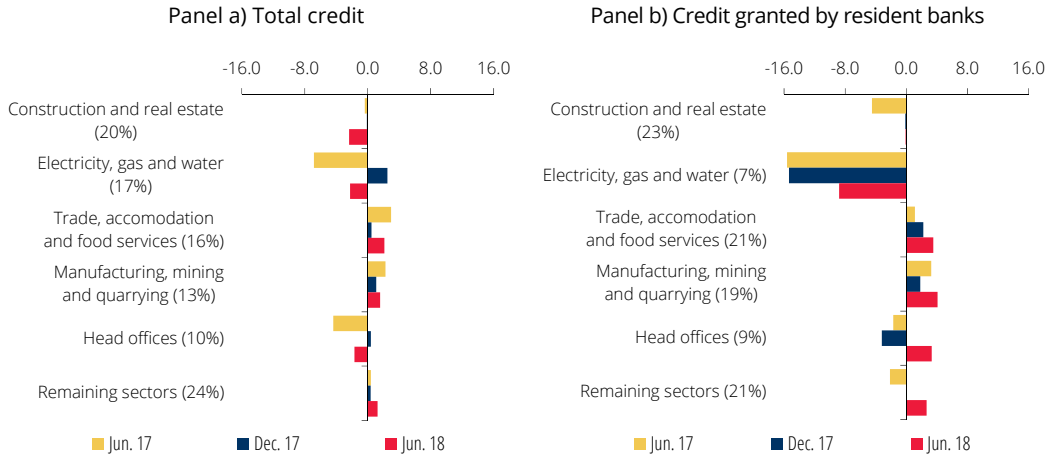
Corporate debt as a percentage of GDP maintained a downward profile

Debt (loans, debt securities and trade credit) recorded by non-financial corporations as a percentage of GDP maintained the downward profile observed since early 2013. In the wake of the

international financial crisis, firms in Portugal and other euro area countries started a deleveraging process, to which contributed the increase in equity and the entry/exit of firms (Box 6).

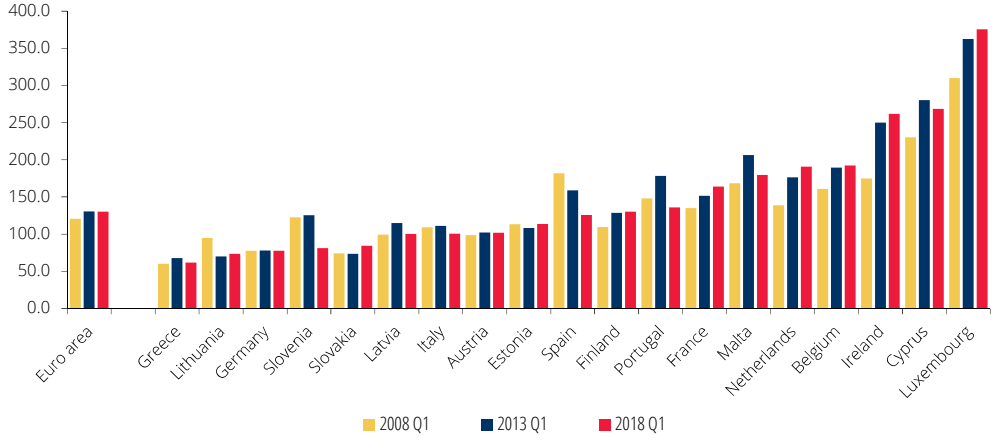
At the end of the first quarter of 2018 the debt-to-GDP ratio of Portuguese firms was close to the euro area average (Chart I.3.21).

Chart I.3.20 • Credit to non-financial corporations by sector of activity | Annual rate of change, in percentage



Source: Banco de Portugal. | Notes: Credit includes loans and debt securities. Annual rates of change are based on the relation between end-of-month outstanding amounts (adjusted for securitisation operations) and monthly transactions. Monthly transactions correspond to the difference in the end-of-month outstanding amounts adjusted for reclassifications, write-offs/write-downs, exchange rate and price revaluations, and any other variations that do not correspond to financial transactions. Whenever relevant, figures are additionally adjusted for sales of credit portfolio. In the vertical axes, the values in brackets correspond to the weight of credit granted to each sector of activity on the total credit to all non-financial corporations, considering in panel a) total credit and in panel b) only credit granted by resident banks.

Chart I.3.21 • Debt of non-financial corporations in Portugal and other euro area countries | Percentage of GDP

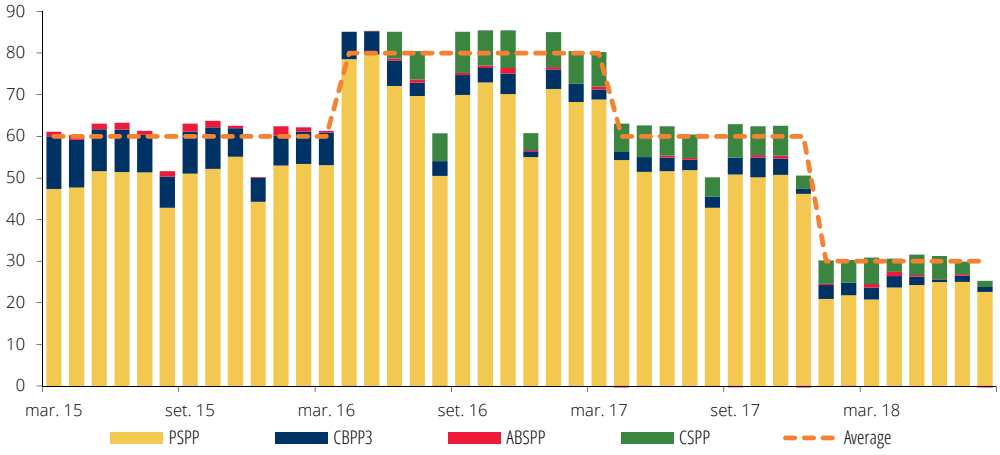


Sources: Eurostat (Banco de Portugal calculations). | Notes: Debt corresponds to loans, debt securities and trade credit (unconsolidated amounts). GDP corresponds to the figure of the year ended in the respective quarter of 2008, 2013 and 2018.

Box 2 • Euro area monetary policy: recent decisions and future prospects

At its monetary policy meeting of January 2015, the Governing Council of the ECB announced it would expand the Asset Purchase Programme (APP) that began in September 2014 to include bonds issued by euro area central governments, agencies and European institutions.[9] With the aim of maintaining an accommodative monetary policy stance, and ensuring a sustained adjustment in the path of inflation to levels below, but close to, 2% in the medium term, the Governing Council has made net asset purchases conditional on the extent of the progress made towards a sustained increase in inflation. As illustrated in chart C2.1, the APP was consequently recalibrated over time, with the monthly pace of net purchases standing at around €30 billion in the first half of 2018.

Chart C2.1 • Developments in the monthly pace of net purchases under the APP | EUR Billion



Source: ECB. | Notes: The APP includes four asset purchase programmes: the public sector purchase programme (PSPP), the corporate sector purchase programme (CSPP), the asset-backed securities purchase programme (ABSPP) and the third covered bond purchase programme (CBPP3). Latest observation: August 2018.

In June 2018, the Governing Council undertook a careful review of the progress towards an adjustment in the path of inflation considering the price stability objective, taking into account, *inter alia*, Eurosystem staff macroeconomic projections, measures of price and wage pressures, and uncertainties surrounding the inflation outlook. Based on this assessment, the Governing Council concluded that progress towards a sustained adjustment in inflation has been substantial to date and that there were grounds to be confident that the sustained convergence of inflation towards the ECB's aim would continue, even after a gradual winding-down and end of net asset purchases. Against this backdrop, the Governing Council made the following decisions: (i) to continue to make net purchases under the APP at the monthly pace of €30 billion until the end of September 2018, after which, subject to incoming data confirming the medium-term inflation outlook, the monthly pace would be reduced to €15 billion until the end of December 2018 and then end; (ii) to maintain its policy of reinvesting the principal payments from maturing securities purchased under the APP for an extended period of time after the end of its net purchases, and in any case for as long as necessary to maintain favourable liquidity conditions and an ample degree of monetary accommodation; (iii) to keep the key interest rates unchanged, expecting them to remain at their present levels at least through the summer of 2019 and in any case for as long as

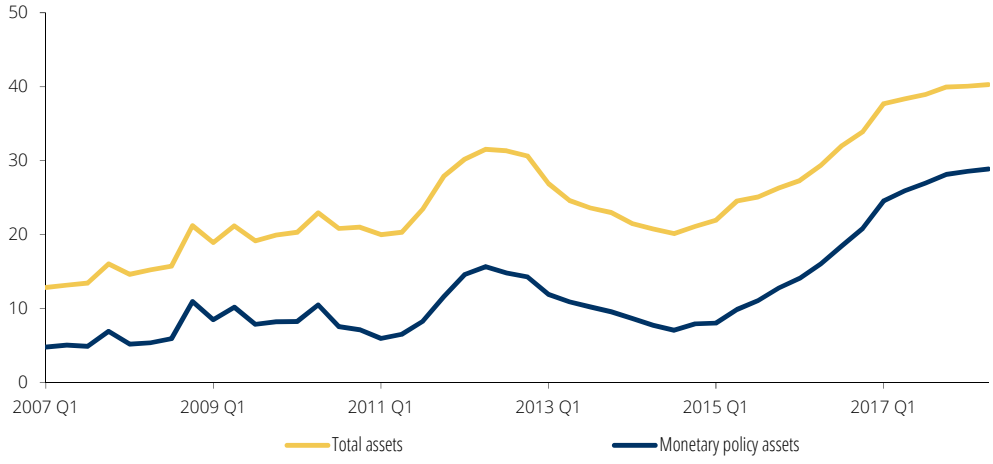
9. In March 2016, the Governing Council decided to add euro area corporate bonds to the APP.

necessary to ensure that the evolution of inflation remains aligned with current expectations of a sustained adjustment path.

As anticipated in the June meeting, in September 2018, the Governing Council confirmed it would reduce the monthly pace of net asset purchases to €15 billion between October and the end of December 2018, continuing to expect that net purchases would then end at that time. The Governing Council again indicated that the key interest rates would remain unchanged at least through the summer of 2019, and in any case for as long as necessary.

Although net purchases under the APP may end after December 2018, an ample degree of monetary accommodation is maintained in order to ensure that inflation converges towards the ECB's objective. This monetary support is provided through (i) net asset purchases until the end of 2018, (ii) the Eurosystem's balance sheet (Chart C2.2), which reflects the substantial stock of assets purchased under the APP[10] and future reinvestments that will ensure both a permanent presence in the market and that the size of this stock will be preserved for a prolonged period of time, and (iii) the enhanced forward guidance on expected developments in key ECB interest rates, which signalled a gradual normalisation of the euro area monetary policy stance while retaining sufficient flexibility to respond to future shocks (Mersch, 2018). In addition, the Governing Council has expressed its readiness to adjust all of its instruments to ensure that inflation continues to move towards the price stability aim in a sustained manner.

Chart C2.2 • Developments in the Eurosystem balance sheet size | Per cent of GDP



Sources: ECB, Thomson Reuters (Banco de Portugal calculations). | Note: Latest observation: 2018 Q2.

The monetary policy measures announced in June and September may influence the level and shape of sovereign yield curves by acting on the two components of long-term interest rates: (i) the expectations component, which reflects agents' perceptions regarding the future path of short-term interest rates, which are more directly affected by monetary policy rates; and (ii) the term premium component (sometimes called duration risk), which is associated with the excess yield that investors demand for holding bonds with a longer residual maturity, which are consequently subject

10. D'Amico and Thomas (2013) and De Santis and Holm-Hadulla (2017) explore the effects of the expanded asset purchase programmes conducted by central banks, highlighting the stock effect (balance sheet size) as well as the flow effect (net purchases).

to greater market value losses in a scenario of increased interest rates. From the end of December 2018 onwards, by keeping the balance sheet size through the reinvestment of the principal payments from maturing securities under the APP, the Eurosystem will continue to absorb part of the duration risk that otherwise would have to be borne by private investors, therefore preserving the accommodative monetary policy with positive effects on prevailing financial conditions.

Overall, duration extraction compresses term premia and consequently puts downward and lasting pressure on longer-term maturities along the yield curve, which makes long-term borrowing more affordable, thereby promoting investment and the consumption of durables. To sum up, with fewer long-dated bonds available to hold, private investors will have more capacity to hedge against the amount of duration risk and more risk-bearing capacity to reallocate funds to other instruments (portfolio rebalancing), including the acquisition and financing of productive capital. This is the key mechanism by which the effects of the central bank's asset purchase programmes propagate through the entire economy.

Within this context, the size and average duration of the APP portfolio will influence the euro area monetary policy stance. More specifically, the size projected for the APP portfolio from the end of December 2018 onwards will persistently continue to put downward pressure on euro area sovereign yield curves. However, keeping the size of the Eurosystem's balance sheet constant does not necessarily ensure a given amount of monetary accommodation over time due to the fact that, as the securities purchased under the APP draw closer to maturity, the fraction of duration risk that is withdrawn from the market gradually declines, consequently reducing the pressure on long-term yields. This endogenous mechanism (called portfolio ageing effect) is difficult to offset, as this would significantly increase the average maturity of reinvestment flows (and would prove operationally demanding if not unfeasible).

In any event, the longer the expected period of reinvestment, the stronger the downward pressure on long-term yields. Surveys show that financial market participants expect the period of reinvestment to last for two years. According to ECB estimates, the downward pressure that the APP portfolio – current and expected assets – exerts on euro area 10-year sovereign yields[11] through the compression of term premia may be in the order of 100 basis points (Praet, 2018).[12]

In addition to the adjustment made to the Eurosystem balance sheet policy, the expansionary monetary policy is also ensured by the forward guidance on expected developments in the ECB's key interest rates. After the end of the net asset purchases under the APP, interest rate changes and forward guidance on their expected evolution will tend to become the main tool for shaping the euro area monetary policy stance (Draghi, 2018a).[13] The adjustment of the monetary policy stance by means of changes in the interest rate level and forward guidance about their likely evolution will

11. This interest rate corresponds to the GDP-weighted average of sovereign bond yields of the four largest euro area countries.
12. The relation between the period of reinvestment and the compression of maturity premia is non-linear. In particular, there is evidence that extending the period of reinvestment from two to three years results in a negligible decline in the euro area ten-year sovereign yield. The marginal impact of additional extensions to the reinvestment horizon tends towards zero.
13. A number of central banks have combined adjustments to the balance sheet policy with forward guidance on the expected path of policy interest rates. The Federal Reserve and the Bank of England have stated their intention to keep reinvesting the securities purchased under the expanded asset purchase programmes until their policy interest rates reach a level that allows them to be used as a marginal instrument to calibrate the monetary policy stance.

mean returning to an environment in the euro area that has proven successful in the past.[14] In order to ensure inflation continues to evolve along a trajectory that is consistent with the price stability objective, the ECB Governing Council's communication on expected developments in key interest rates aims to: (i) influence agents' expectations on the timing of the first hike in the monetary policy interest rate; and (ii) influence agents' expectations on the path of interest rates after the first rise (yield curve slope). The Governing Council's communication has mostly rested on the first effect, which is paramount to ensuring that premature expectations of an interest rate rise are not formed, as well as controlling short-term interest rates, which, in turn, affect medium and longer-term interest rates. In addition, the Governing Council has stated that, after the first policy rate rise, adjustments to the monetary policy stance would proceed at a gradual pace (Draghi, 2018b), with euro area monetary policy expected to remain accommodative for a prolonged period of time.

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Mersch, Y. (2018). 'Are the economy and monetary policy at a turning point – and where are the European and US economies headed?', *Panel at the Petersberger Sommerdialog*, Königswinter, 30 June 2018.

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14. Forward guidance on the expected path of interest rates is also relevant in influencing the setting of interest rates on bank loans and financial conditions in the economy.

Box 3 • Bank lending survey: factors determining the level of banks' lending margins

The Bank lending survey (BLS) is a quarterly survey that has been conducted by the central banks of the euro area countries and the European Central Bank (ECB) since 2003. This survey is addressed to the main banks of each euro area country and is comprised of around 150 banks representative of the euro area banking system.[15] The survey gathers qualitative information on bank loan demand and supply from/to enterprises and households, and provides input for monetary policy decisions.

The BLS also includes ad hoc questions focusing on specific aspects of particular interest in a given time period. This box considers the results of the July 2018 survey and analyses the replies to the ad hoc question included for the first time in this survey on the determinants of the spread levels applied by banks on loans to firms and households.[16] This question contributes to a better understanding of the banks' price-setting and complements the standard question included in the survey on the factors that affected the banks' lending margins over the past three months. It is especially relevant in the prolonged context of low interest rates that has been compressing the banks' profitability.

The factors determining the level of banks' lending margins considered in the survey include costs related to the bank's capital position, the bank's access to market financing, the bank's liquidity position, the bank's operating costs (administrative or maintenance expenses), the bank's perception of risk (related to economic activity, borrowers' creditworthiness and collateral demanded), the bank's profitability target, and competition from other bank and non-bank institutions, as well as competition from market financing.

Banks identified the significance of the different factors in determining the spreads on new loans over the past six months and how the significance of the factors changed from the beginning of 2014 to the end of 2017. The analysis considers the results reported by the five Portuguese banks included in the sample as well as the results for the euro area reporting banks.

The surveyed banks reported competitive pressure as the most significant factor in determining the spreads applied on new loans to enterprises and households over the past six months (Chart C3.1). This result applies to Portuguese and euro area banks, even though it is substantially more significant for Portuguese banks. The banks' profitability target and their risk perception were also reported as significant factors in determining their spreads. In the case of loans to enterprises, these two factors are substantially more significant for Portuguese banks than for the euro area reporting banks. The liquidity position is the only factor that is more significant in determining banks' spreads for euro area banks than for Portuguese banks across all categories of loans.

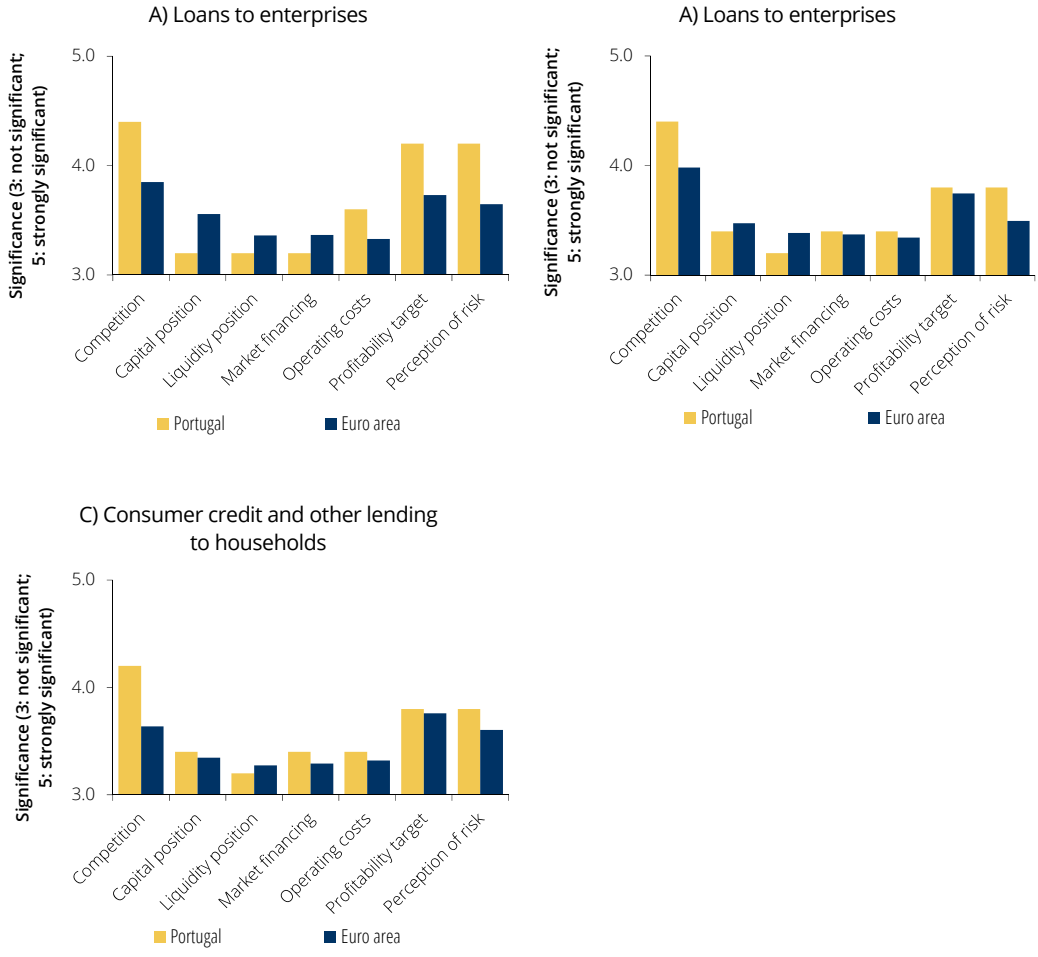
In what concerns to the change in the significance of the factors in determining the banks' lending margins from the beginning of 2014 to the end of 2017, competitive pressure is the factor that increased most in significance for Portuguese banks and euro area reporting banks (Chart C3.2). The results of the BLS standard questions on the impact of competitive pressure on terms and conditions applied on new loans in this time period suggest that it contributed to an easing

15. For more detailed information on the bank lending survey, see Köhler-Ulbrich, P., Hempell, H. and Scopel, S., 'The euro area bank lending survey', *Occasional Paper Series*, No 179, ECB, 2016.

16. It is not expected that this ad hoc question is included in the next surveys.

of the banks' lending policies, in particular in the case of medium-risk loans.[17] In this period, the significance of the banks' profitability target in determining spreads increased for Portuguese and euro area banks. The Portuguese banks participating in the survey reported that the factors related to balance sheet constraints (the costs related to the banks' capital position, the banks' liquidity position, and the banks' access to market financing) decreased in significance between the beginning of 2014 and the end of 2017, in contrast to the euro area reporting banks that reported a slight increase in the significance of these factors across all categories of loans. The Portuguese banks also reported a slight reduction in the significance of their perception of risk in determining banks' spreads on loans to enterprises. The importance of operating costs in determining banks' spreads remained unchanged for Portuguese banks in this period.

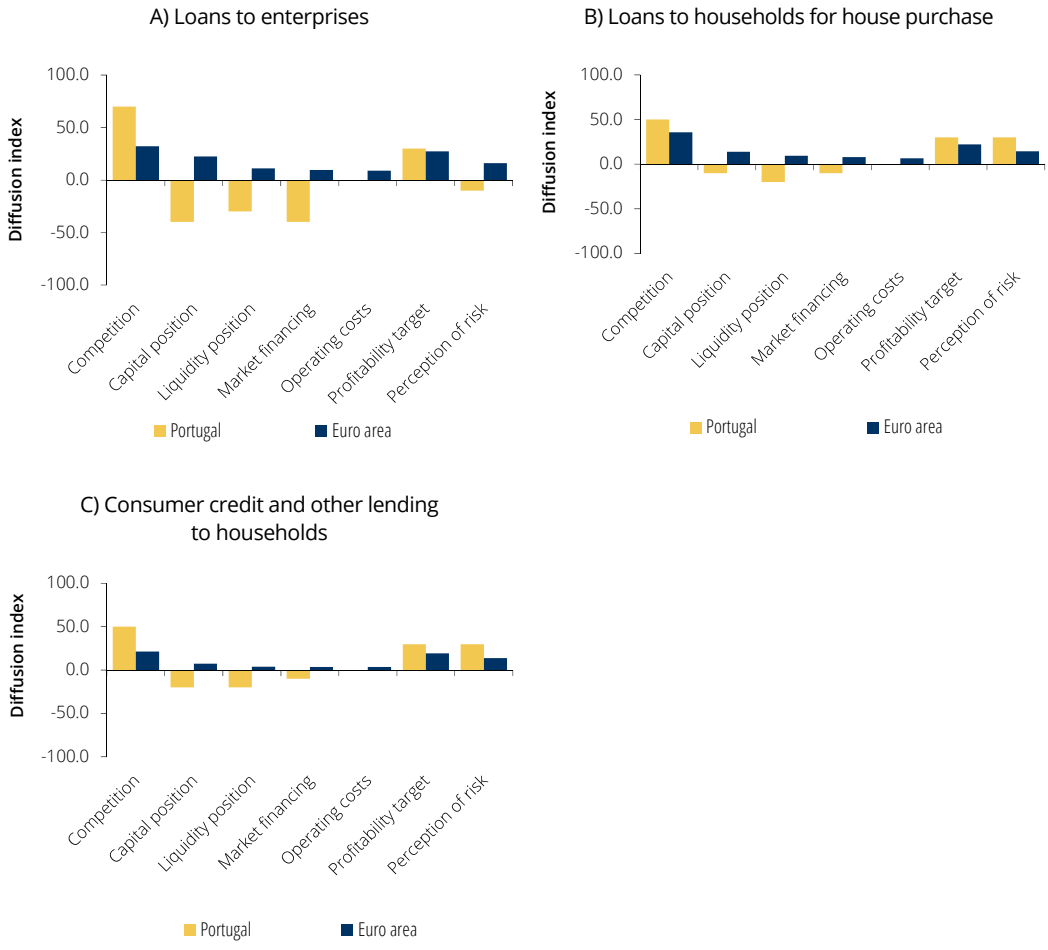
Chart C3.1 • Significance of the factors determining the level of banks' lending margins | Over the past six months



Sources: European Central Bank (Banco de Portugal calculations). | Notes: Banks identified the significance of each factor in determining the level of banks' lending margins (i.e. the difference between the lending rate and the relevant market reference rate). The values 3, 4, and 5 correspond to 'not significant', 'significant', and 'strongly significant', respectively. The chart presents the average significance of each factor. The euro area results are weighted by the share of each country in the total outstanding amounts of the euro area aggregate.

17. See 'Bank Lending Survey – Results for Portugal', Banco de Portugal, July 2018.

Chart C3.2 • Significance of the factors determining the level of banks' lending margins | From 2014 to 2017



Sources: European Central Bank (Banco de Portugal calculations). | Notes: The diffusion index ranges between -100 and 100 and zero corresponds to 'no change'. Positive values indicate that the factor is more significant and negative values indicate that the factor is less significant. The diffusion index for the euro area is weighted by the share of each country in the total loan outstanding amounts of the euro area aggregate.

Box 4 • Bank lending survey: the impact of banks' NPL ratios on their lending policies and respective transmission mechanisms

The July 2018 Bank Lending Survey (BLS) includes a new ad hoc question on the impact of the banks' non-performing loan (NPL) ratios on their lending policies.[18,19] In particular, banks reported the impact of their NPL ratios on credit standards and terms and conditions applied on loans to enterprises and households, as well as the mechanisms through which the NPL ratio affects the bank's lending policy. Banks were asked about the impact from the beginning of 2014 to the end of 2017, over the past six months, and over the next six months.

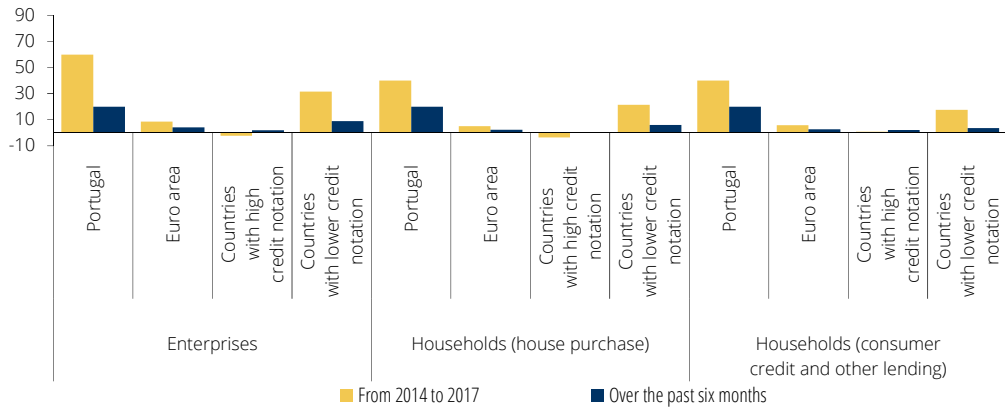
The transmission mechanisms through which the banks' NPL ratios affected their lending policies considered in the survey can be summarized in two main groups: (i) the bank's cost of funds and balance sheet constraints, namely the costs related to the bank's capital position, the costs related to the bank's balance sheet clean-up operations, the pressure related to the supervisory or regulatory requirements, the bank's access to market financing, and the bank's liquidity position, and (ii) the bank's perception of risk regarding the general economic situation, the borrowers' creditworthiness, and of the risk related to collateral demanded, and the bank's risk tolerance in its balance sheet.

Non-performing assets in the balance sheet of banks may affect their lending policies to enterprises and households and the ability of banks to finance in international financial markets, interfering with the monetary policy transmission mechanism. The strategies pursued by banks in the context of the action plans of national and European authorities to reduce NPL, as well as the more favourable economic context and financing conditions, contributed to the substantial reduction of the NPL ratio in some European countries, including in Portugal.[20,21] Despite the considerable progress, the stock of NPL remains high in Portugal and in other euro area countries. In this context, the replies of banks participating in the BLS contribute to understand how NPL ratios contribute to the degree of tightness of banks' lending policies to enterprises and households.

Chart C4.1 shows the results on the impact of the bank's NPL ratio on new loans and credit lines to enterprises and new loans to households for house purchase, consumer credit and other lending. It shows the impact over the past six months and in the period between the beginning of 2014 and the end of 2017 for Portugal and the euro area reporting banks. It also shows the impact for the euro area countries with high credit notation and lower credit notation.[22] Portuguese banks and euro area banks participating in the survey reported that the NPL ratio contributed to a tightening of credit standards and terms and conditions applied on loans in the period between the beginning of 2014 and the end of 2017. This result applies to both enterprises and households. The impact of the NPL ratio is particularly significant in the group of countries with lower credit notation, including in Portugal.

18. For a brief description of the euro area bank lending survey, see Box 3 entitled 'Bank lending survey: determinants of the loan margin', in this issue of the *Economic Bulletin*.
19. The NPL ratio is defined as the stock of gross non-performing loans on the bank's balance sheet as a percentage of the gross carrying amount of loans.
20. In Portugal, the NPL ratio declined from 17.9% in June 2016, when it recorded its highest value, to 12.7% in March 2018.
21. For more details, see Box 2 entitled 'Relevance of the legal framework in the recovery of NPL' and Box 3 entitled 'Action plan to tackle non-performing loans in Europe – main measures and state of play regarding its implementation', *Financial Stability Report*, Banco de Portugal, June 2018.
22. The group of countries with high credit notation includes Germany, France, the Netherlands, Finland, Austria, and Belgium and the group of countries with lower credit notation includes Italy, Spain, Portugal, Ireland, Greece, and Cyprus.

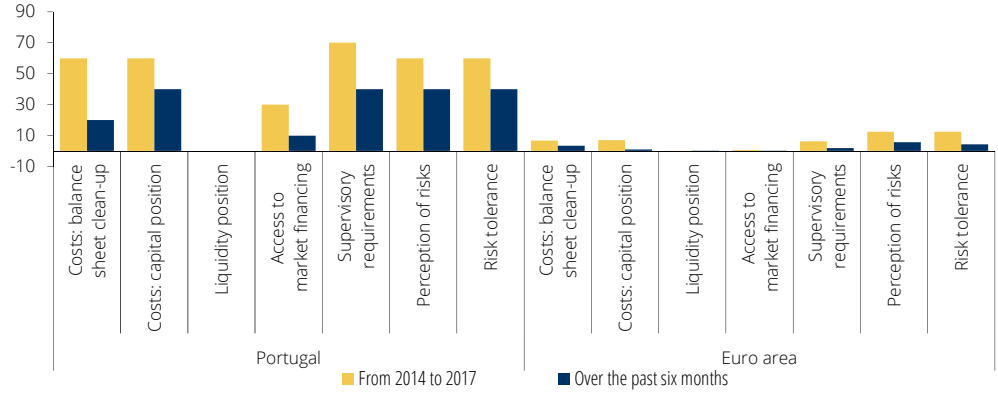
Chart C4.1 • Impact of NPL ratios on banks' lending policies | Diffusion index



Sources: European Central Bank (Banco de Portugal calculations). | Notes: The diffusion index of the banks' lending policies is the average diffusion index of banks' credit standards and credit terms and conditions. The diffusion index ranges between -100 and 100 and zero corresponds to 'no change'. Positive values indicate that the factor is more significant and negative values indicate that the factor is less significant. The diffusion index for the euro area is weighted by the share of each country in the total loan outstanding amounts of the euro area aggregate.

The contribution of the factors through which the banks' NPL ratios affect their lending policies (credit standards and terms and conditions) to enterprises and households is analysed in Charts C4.2 and C4.3. In particular, Chart C4.2 shows the replies of the Portuguese and the euro area banks participant in the survey. The surveyed Portuguese banks identified the costs related to their capital position, balance sheet clean-up operations, pressure related to supervisory or regulatory requirements, their risk perception, and risk tolerance in their balance sheets as the main factors through which the banks' NPL ratios affected their lending policies. The main mechanisms for the euro area reporting banks are their risk perception and tolerance of risk, and the costs related to balance sheet clean-up operations. The tightening impact reported by Portuguese and euro area banks over the past six months was substantially lower than that reported for the period from the beginning of 2014 to the end of 2017.

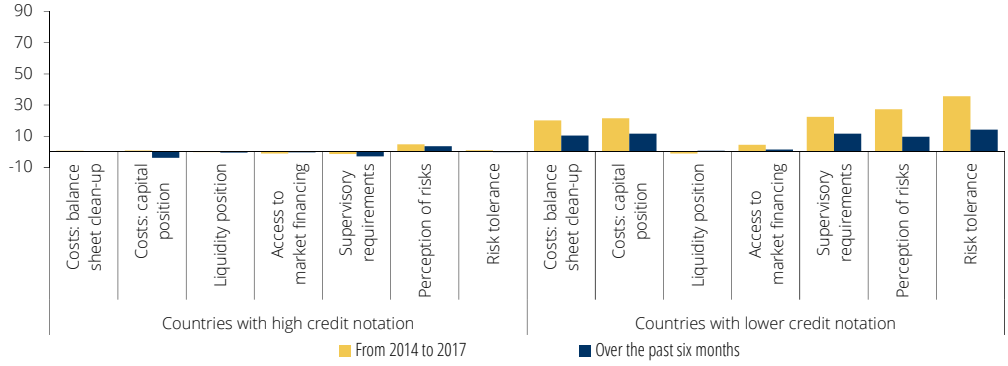
Chart C4.2 • Contribution of factors through which the NPL ratios affect banks' lending policies to enterprises and households | Diffusion index



Sources: European Central Bank (Banco de Portugal calculations). | Notes: The diffusion index ranges between -100 and 100 and zero corresponds to 'no change'. Positive values indicate that the factor is more significant and negative values indicate that the factor is less significant. The diffusion index for the auro area is weighted by the share of each country in the total outstanding amounts of the euro area aggregate. 'Costs: balance sheet clean-up' refers to costs related to balance sheet clean-up operations, namely costs due to the need for additional provisions and/or write-offs exceeding the previous stock of provisions; 'Costs: capital position' refers to costs related to bank's capital position: 'Supervisory requirements' refers to the pressure related to supervisory or regulatory requirements; and 'Perception of risks' refers to bank's perception of risk regarding the general economic situation and outlook, borrowers' creditworthiness and of the risk related to collateral demanded.

Chart C4.3 shows the tightening impact of the different factors for countries with high credit notation and countries with lower credit notation. In the countries with high credit notation – with relatively low NPL ratios – banks reported a very small or zero impact of all factors. In the case of countries with lower credit notation, the banks' risk perception and their tolerance of risk were identified as the main factors. The cost of funds and balance sheet clean-up operations and the pressure related to the supervisory or regulatory requirements were also relevant.

Chart C4.3 • Contribution of factors through which the NPL ratios affect banks' lending policies to enterprises and households | Diffusion index



Sources: European Central Bank (Banco de Portugal calculations). | Notes: The diffusion index ranges between -100 and 100 and zero corresponds to 'no change'. Positive values indicate that the factor is more significant and negative values indicate that the factor is less significant. The diffusion index for the auro area is weighted by the share of each country in the total outstanding amounts of the euro area aggregate. 'Costs: balance sheet clean-up' refers to costs related to balance sheet clean-up operations, namely costs due to the need for additional provisions and/or write-offs exceeding the previous stock of provisions; 'Costs: capital position' refers to costs related to bank's capital position: 'Supervisory requirements' refers to the pressure related to supervisory or regulatory requirements; and 'Perception of risks' refers to bank's perception of risk regarding the general economic situation and outlook, borrowers' creditworthiness and of the risk related to collateral demanded.

Box 5 • Recent developments in the sale of family dwellings and loans to households for house purchase: regional heterogeneity

Analysing developments in the housing market is essential when assessing risks to financial stability and the perspectives for households' economic situations. A significant part of housing acquisition is funded by loans contracted by households, which contributes to a correlation between the behaviour of real estate transactions and new credit contracts. In recent years, the dynamism in the housing market has benefited, as well as from an improvement in financing conditions and the general economic situation, from a sharp increase in tourism and non-resident demand for real estate. These latter factors have a greater impact on some regions of the country, making it interesting to analyse the regional heterogeneity in the evolution in sales of family dwellings and new loans granted to households for house purchase.

This box analyses real estate sales data alongside data for new loans to households for house purchase.[23] Every quarter, Statistics Portugal publishes the value and number of sales of family dwellings in the following regions: North, Porto Metropolitan Area, Centre, Lisbon Metropolitan Area, Alentejo, Algarve, Azores Autonomous Region and Madeira Autonomous Region . These data are based on information from the Municipal Real Estate Transfer Tax (IMT). New loans by region correspond to estimates obtained from Banco de Portugal's Central Credit Register (CCR).[24] These data refer to the borrower's region of residence, which may differ from the region where the property is located. This contributes to a lower (higher) level of the ratio between the value of the loans and sales in regions with a higher (lower) incidence of second homes in comparison to main residences. In interpreting new loans it is also important to consider that these may be intended not only for the purchase of real estate but also other situations such as housing construction or renovation.

Chart set C5.1 shows a comparison of the amounts of sales and new loans in Portugal and the various regions in the period between June 2010 and June 2018. These amounts, as with all the data used in this box, correspond to 12-month cumulative values (for example the figures for June 2010 correspond to the sum of the values between July 2009 and June 2010). As can be seen in the chart lines, the value of sales is greater than the value of loans. This situation agrees with the fact that not all sales are made through recourse to credit, or through recourse to credit granted in Portugal. Furthermore, even in cases where there is a purchase made by households using banking finance granted by credit institutions located in Portugal, the value of the loan does not cover the total cost of the property in the majority of cases.

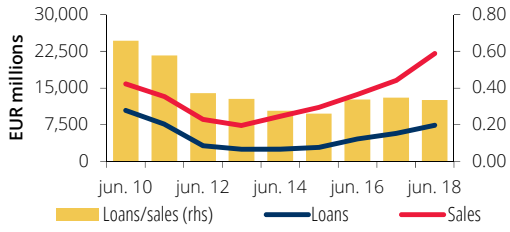
Over time, sales and loan values have reflected similar trends, showing a fall between mid-2010 and mid-2013 and a recovery in the subsequent period. In the country as a whole, new loans registered a steeper contraction than sales in the first period (variation of approximately -75% and of -55% respectively, between the beginning of 2010 and the beginning of 2013), and an identical recovery in the following period (variation of about 195% and 200% respectively). As a consequence of this evolution, the total sum of new loans in June 2018 was some 30% below the level of June 2010, whilst the value of sales was approximately 40% above. New loans showed identical developments in the various regions, not having returned at the end of the period analysed to mid-2010 levels in any of the regions. Regional sales developments were more heterogeneous. In June 2018, in Lisbon Metropolitan Area, the Algarve and less markedly in the North, sales were higher than those in June 2010. In the same period in the Centre and Alentejo regions and Madeira Autonomous Region, sales were at levels close to June 2010 and remained lower in the Azores Autonomous Region.

23. The reduced time dimension of House Price Statistics at local level published by Statistics Portugal (available only since the first quarter of 2016) invalidates that the analysis carried out be complemented with data on housing prices by region.

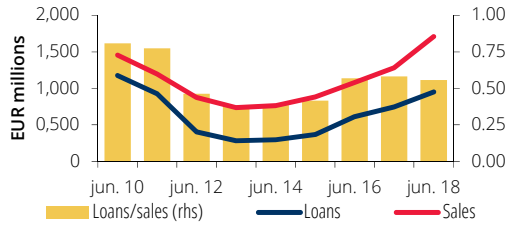
24. The CCR includes monthly information on credit balances of borrowers from all the credit institutions located in Portugal according to certain characteristics of these balances, including the municipality of residence of the borrower. In the analysis undertaken, it is assumed that a housing loan balance registered in the CCR during a particular month is a new loan when that borrower had no housing loan balance with the same characteristics as the balance in question (namely with the same credit institution and the same original maturity period) in the preceding three months.

Chart C5.1 • Sales of family dwellings and new loans for house purchase: total amounts and ratio | Sum of the values of the last 12 months

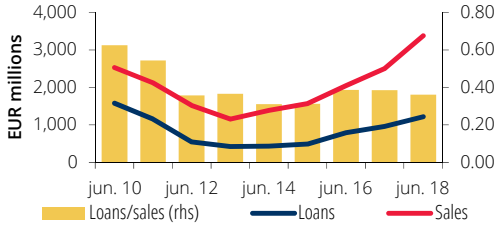
Panel a) Portugal



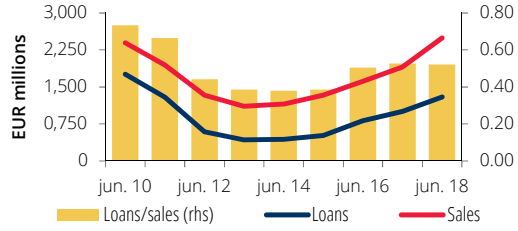
Panel b) North excluding Porto Metropolitan Area



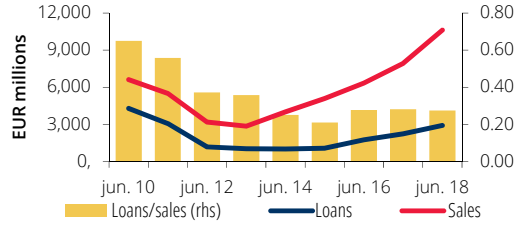
Panel c) Porto Metropolitan Area



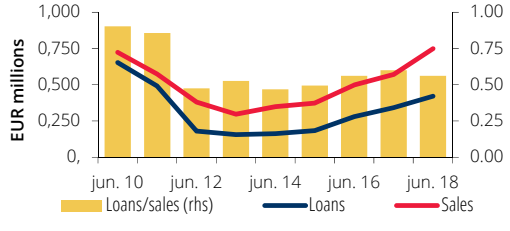
Panel d) Centre



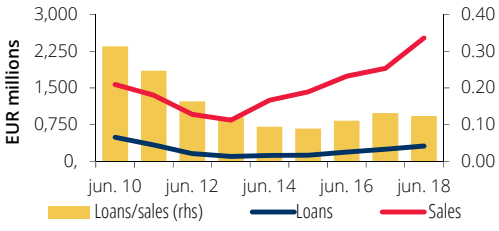
Panel e) Lisbon Metropolitan Area



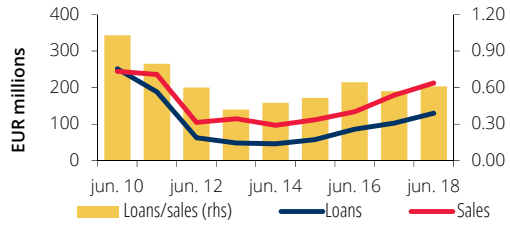
Panel f) Alentejo



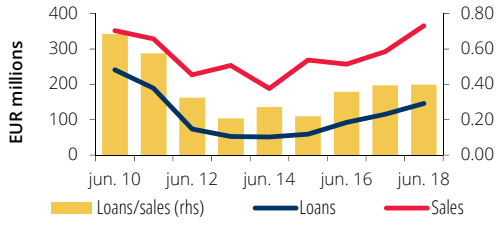
Panel g) Algarve



Panel h) Azores Autonomous Region



Panel i) Madeira Autonomous Region



Sources: Statistics Portugal and Banco de Portugal.

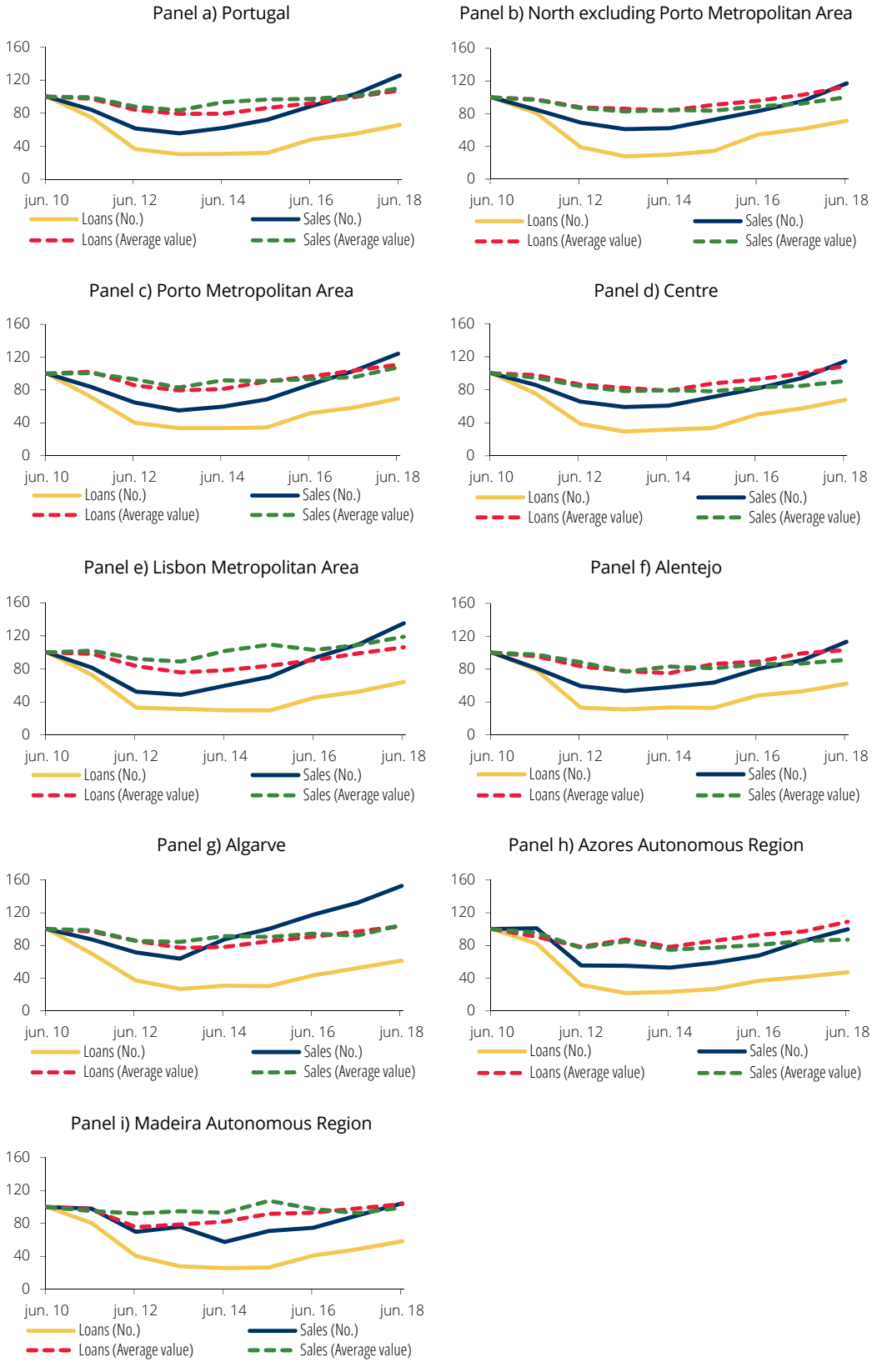
As a reflection of the developments described in the previous paragraph, the ratio between the amount of new loans and the amount of sales fell steeply in the early years of the period analysed, and only reverted slightly this movement from 2015 onwards (columns in Chart set C5.1). In the country as a whole, the ratio between loans and sales fell from 0.66 in June 2010 to a minimum of 0.26 in June 2015, standing at 0.34 in June 2018. This points to a reduction in the importance of bank financing to households in housing market developments in Portugal during the period analysed. When compared to levels registered for the same region in the past, the weight of bank financing appears to be particularly low in Lisbon Metropolitan Area and the Algarve (in June 2018 it was less than half of the value at the beginning of the sample period).[25] This evidence may be associated to the idea that in these regions foreign investment or the purchase of real estate by companies has a greater weight on transactions than in the past.

The reduction in the ratios between new loans and sales may reflect two types of factors. On the one hand, it could be associated with an increase in the percentage of the number of sales carried out without recourse to bank lending by households in Portugal. On the other, it could reflect an increase in the average value of sales when compared to the average value of loans. The latter case may occur if the real estate sold with and without recourse to lending have different price developments (namely for having different characteristics) or if there is a reduction in the percentage of the purchase value that is financed through bank lending. With a view to understanding which of these factors dominated recent developments, Chart set C5.2 compares developments in the number and average value of sales and loans. In all the regions, behaviour of the quantities is similar to that of the total amounts presented in Charts C5.1, whilst indicators relating to average values show less marked variations over time. Therefore, the reduction in the weight of lending on the total value of sales was mainly caused by an increase in the number of homes not financed by lending to households granted by banks in Portugal. In the case of the average values, Lisbon Metropolitan Area is the only region in which sales saw cumulative growth slightly higher than that of lending, as a result of an increasing trend in the average value of sales since 2013, which is not as marked in the remaining regions.[26]

To sum up, the weight of bank lending to households in transactions of family dwellings carried out in Portugal is currently at substantially lower levels than those registered in 2010. This situation reflects a greater buoyancy in the number of transactions than in the number of loans. The reduction in the weight of bank financing on sales cuts across the various regions of the country, although it is stronger in Lisbon Metropolitan Area and the Algarve; regions where foreign investment or the purchase of real estate by companies may have greater weight on transactions.

25. These ratios show systematic differences between regions that should reflect specific factors of each region. The lowest values are registered in the Algarve. This may be related with the fact it is a region with a greater number of second homes, which are typically located in different municipalities to those of the main residence. On the other hand, the highest values seen in the Alentejo or Azores may be due to the fact that, in regions where household income is lowest, a higher percentage of the purchase price of housing must be financed by recourse to lending.
26. In the analysis of developments in average sales values, it is important to consider that they are influenced by changes in the characteristics of the real estate sold at any moment and therefore do not directly reflect developments in housing prices. Over the period analysed, the percentage of sales of new properties as a percentage of properties sold fell significantly in all the regions, which should contribute to lower growth of the average sales value than price indicators that are adjusted by real estate characteristics.

Chart C5.2 • Sales of family dwellings and new loans for house purchase: number and average values | Sum of the values of the last 12 months, index (jun. 10=100)



Sources: Statistics Portugal and Banco de Portugal.

Box 6 • Evolution of firms' leverage in Portugal, Spain and Italy

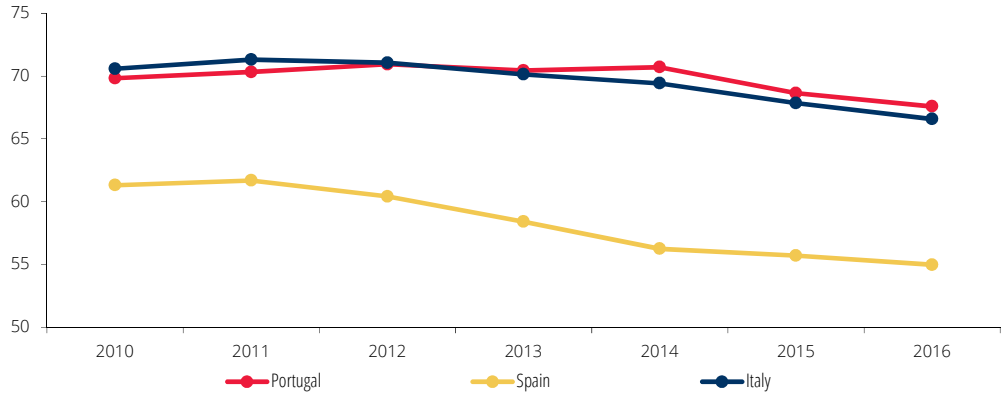
Portuguese non-financial corporations (NFC) have begun a process of gradual deleveraging since the crisis. An analysis of firms' accounting information in Portugal leads to the conclusion that this deleveraging process is essentially associated with increases in equity as well as entry/exit of firms (see Box 2 of the Special Issue of the May 2018 *Economic Bulletin*). This box analyses the accounting information of a similar nature available for firms in Portugal, Spain and Italy. The analysis explores the BACH database that aggregates harmonised information on balance sheets and income statements of NFC[27] in 11 European countries including Portugal.[28]

The assets of a firm can be financed through the resources of the company itself or its shareholders (equity) or through the resources of entities external to the company (debt). The concept of leverage measures to what extent assets are financed by debt. Considering that assets correspond to the sum of equity and debt, the leverage ratio can be defined in the following way:

$$Leverage\ Ratio = \frac{Debt}{Equity + Debt}$$

Between 2010 and 2016, Portuguese firms, like those in Spain and Italy, reduced their leverage ratios, that is, they increased their financing through equity (Chart C6.1). However, Portuguese firms started their deleveraging processes later and registered a reduction in the ratio of only 2.3 percentage points (p.p.), in contrast with a reduction of 4 p.p. in Italy and 6.3 p.p. in Spain. Firms in Italy and Portugal have similar leverage levels throughout the period (70% on average) and greater than the one observed in in Spain (58% on average).

Chart C6.1 • Evolution of the leverage ratio, by country | In percentage



Source: BACH (Banco de Portugal calculations). | Notes: The leverage ratio measures the percentage of the assets that is financed by debt.

In order to understand these developments in the leverage ratio, its variation was broken down into three components: i) contributions related to the change in equity; ii) contributions related to

27. Head offices are excluded from this analysis.
28. Microeconomic information in the database relating to Portugal, Spain and Italy shows high representativeness and quality for the three countries. The data for the other countries present, in some cases, significant differences in coverage or statistical breaks during the period under analysis. In other cases, developments in the macroeconomic and financial framework during this period were quite different.

the change in the firms' debt (in both cases for firms that carry on their activity over two consecutive years); and iii) the net contribution of the entry and exit of firms (Chart C6.2).[29] Positive (negative) contributions indicate an increase (decrease) in the leverage ratio. The reduction of the leverage ratio in Portugal is the result of an increase in equity and, to a lesser extent, of the contribution of the entry of firms (typically less leveraged than the average) and the exit of firms (typically more leveraged than the average). The greater level of deleveraging in Spain is due to a greater increase in equity, reinforced by debt reduction, in contrast to what has been observed in Portugal. In turn, the sharper reduction in the leverage ratio in Italy than in Portugal is associated particularly with a greater contribution of the entry and exit of firms and a greater increase in equity.

Chart C6.2 • Contributions to the change of the leverage ratio between 2010 and 2016, by country | In percentage points

Source: BACH (Banco de Portugal calculations).

To better understand the developments illustrated in the previous chart, the contributions of equity and debt were divided into their main components (Chart C6.3). Therefore changes in equity (ΔE) are attributed to three factors: i) net income for the year (NI); ii) changes in the revaluation account, adjustments in financial investments and other comprehensive income (ΔRev); and iii) other changes in capital (OCC).[30] The latter component can be interpreted as a proxy for net capital injections into the firm by shareholders. Dividends and stock purchases contribute to a negative net injection of capital, and therefore to a higher leverage, while capital increases through the issuance of new shares contribute to a positive net capital injection, and therefore to a lower leverage. In turn, debt contributions are divided into i) financial debt and ii) non-financial debt. Financial debt is subject to interest payments and includes bank loans and bonds. Non-financial debt corresponds to all the company's other liabilities to third parties, namely debts to suppliers and provisions.

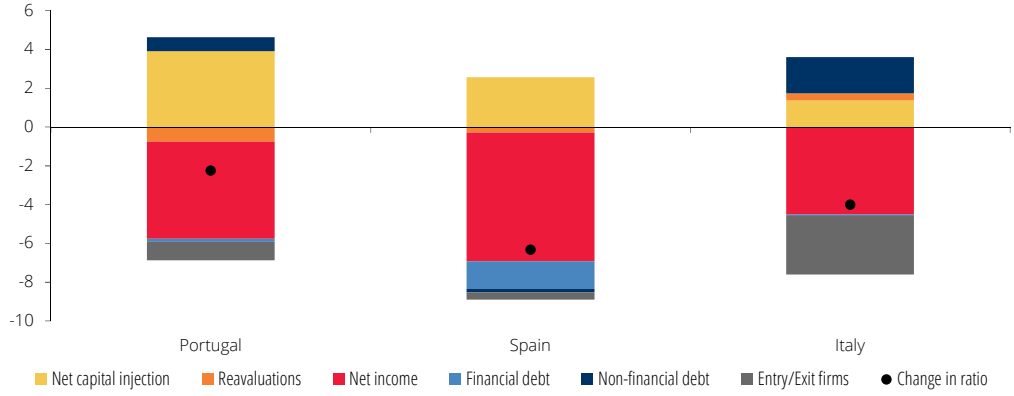
Of the three countries analysed, Portugal is the country where shareholders benefited from the biggest payment of dividends (that is, that had the most negative net capital injection), helping to

29. Contributions were estimated on the basis of the first and second order terms of the second-order Taylor series expansion of the leverage ratio.

30. Consider $E_t = NI_t + Rev_t + OC_t$ where OC_t corresponds to capital, reserves and other equity instruments at time t. Hence $\Delta E_t = NI_t + \Delta Rev_t + OCC_t$ where $OCC_t = OC_t - OC_{t-1} - NI_{t-1}$. The subtraction of NI_{t-1} in the change of OC is due to the fact that net income is a flow..

explain the low level of deleveraging of Portuguese companies. On the other hand, net income is the factor with the greatest impact on reducing the leverage ratio in Portuguese firms, and this factor was particularly important for Spanish firms. All the countries reduced their financial debt during the period under analysis, particularly Spanish firms.

Chart C6.3 • Contributions to the change of the leverage ratio between 2010 and 2016, by country | In percentage points



Source: BACH (Banco de Portugal calculations).

The granularity of the information available in the BACH database allows to capture the different characteristics of firms in certain areas, for example in terms of size or activity sector.

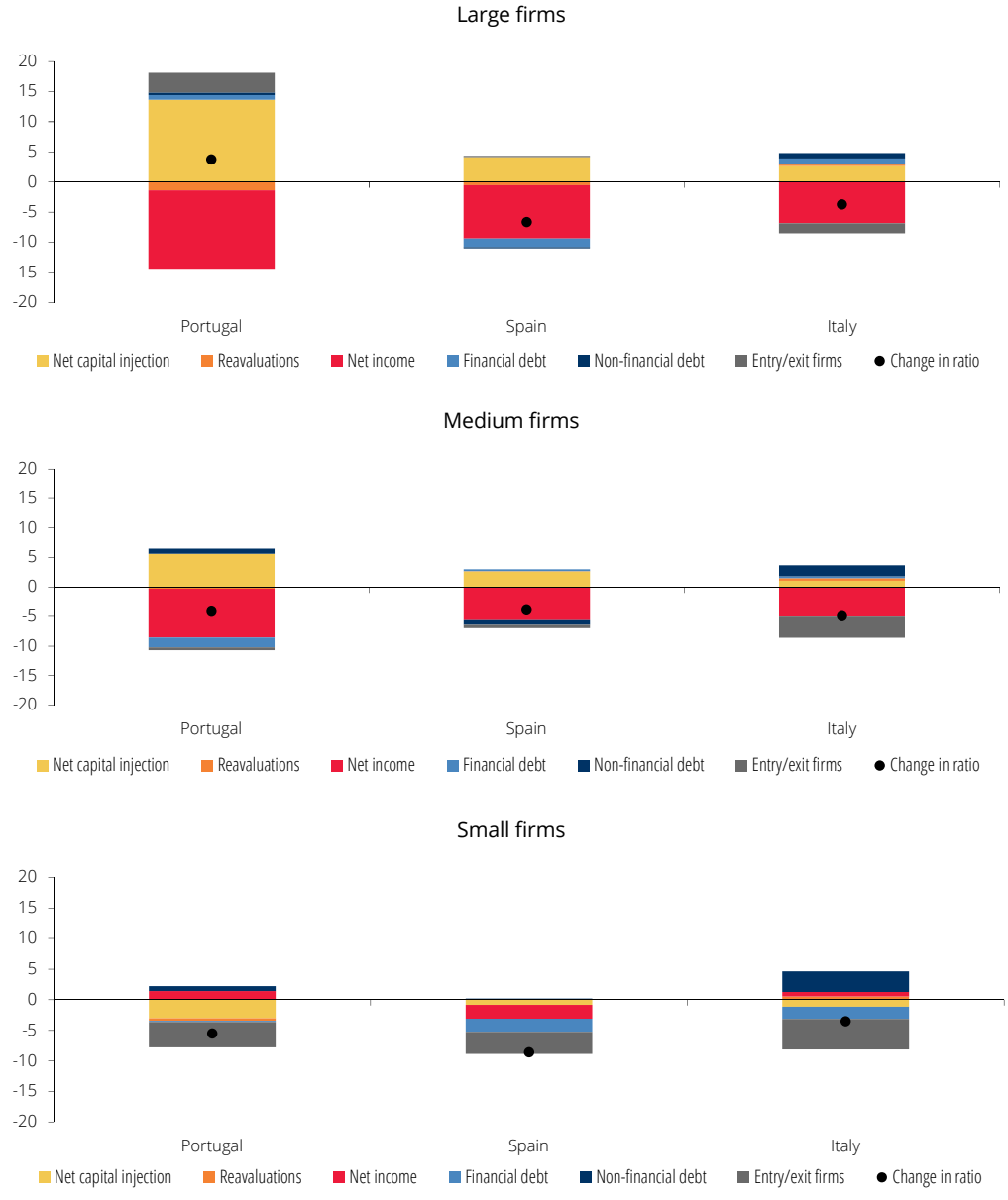
For each size class, it is possible to see some similarities between countries in the contributions to the variation of the leverage ratio (Chart C6.4).[31] Large and medium-sized enterprises in the three countries tend to have positive net incomes and negative net capital injections (corresponding to the payment of dividends). On the other hand, small enterprises typically have a significant and negative contribution from the entry/exit of firms (which may be associated to the bankruptcy of the most leveraged companies and entry of companies with little leverage), a positive net capital injection and reduction in financial debt. In terms of large-sized enterprises, Portugal stands out for being the only country where these enterprises saw an increase in leverage. Negative net income contributed to small enterprises increasing their leverage in Italy and Portugal.

Chart C6.5 shows developments in the leverage ratio for selected activity sectors. The electricity, gas and water sector shows similar developments in the countries analysed, with positive net income contributing to a reduction in leverage and the net capital injection contributing to its increase. The entry/exit of firms into this sector has made a positive contribution towards an increase in leverage, in contrast to the negative effect of this contribution to the majority of other sectors.

In the manufacturing sector, developments are also relatively similar in the countries analysed. However, in Italy the net capital injection has not contributed to an increase in firms' leverage.

31. The classification of size in the BACH database only considers sales volumes as a criterion. In accordance with this classification, small enterprises have a sales volume under €10 million, medium-sized enterprises have a sales volume between €10 and €50 million and large enterprises have a sales volume higher than €50 million.

Chart C6.4 • Contributions to the change of the leverage ratio between 2010 and 2016, by country and size | In percentage points



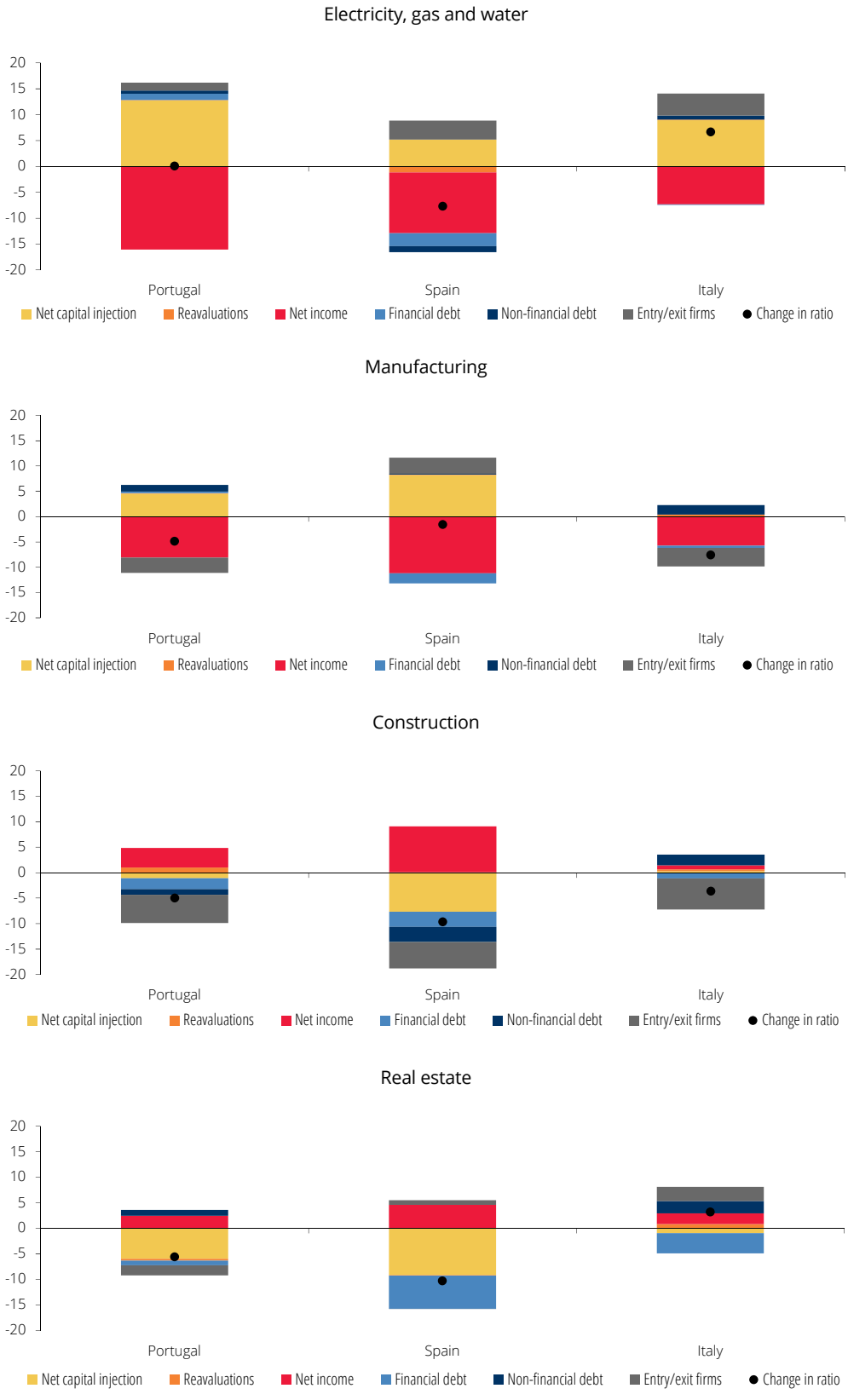
Source: BACH (Banco de Portugal calculations).

In the construction sector deleveraging due to the exit of indebted enterprises is quite evident. Negative net income contributed to an increase in leverage in the three countries. Furthermore, the contribution of net capital injections reduced leverage in Spain, compensating the effect of the negative income.

In the real estate sector, the injection of capital by shareholders contributed significantly to a reduction in leverage, especially in Portugal and Spain.

This box illustrates the importance of using accounting data at microeconomic level to deepen the analysis of developments in firms' leverage. Against this background, firms' income generation and the payment of dividends are fundamental, as is the contribution of entry and exiting of enterprises.

Chart C6.5 • Contributions to the change of the leverage ratio between 2010 and 2016, by country and sector | In percentage points



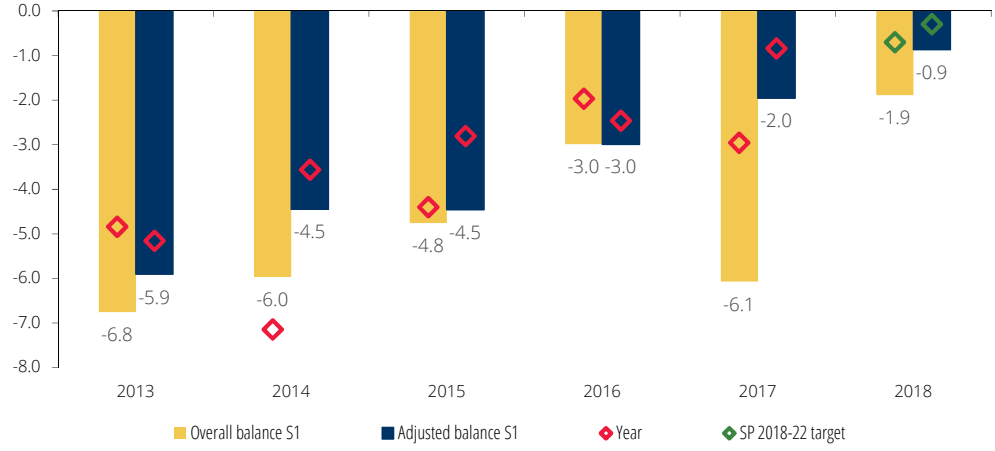
Source: BACH (Banco de Portugal calculations).

4 Fiscal policy and situation

The general government deficit was lower in the first half of 2018 than in the previous year

According to the Quarterly National Accounts released by Statistics Portugal, the general government deficit stood at 1.9% of GDP in the first half of 2018, 4.2 p.p. less than in the same period of the previous year (Chart I.4.1). However, these developments were affected by a number of one-off operations that led to increased expenditure in 2017 and 2018.[32] Excluding these operations, the deficit reduction corresponded to 1.1 p.p. of GDP. This stemmed from a decrease in primary expenditure and interest outlays as a ratio of GDP (-0.8 and -0.3 p.p. respectively), together with a slight decline of the revenue-to-GDP ratio (-0.1 p.p.).

Chart I.4.1 • General government budget balance | Percentage of GDP



Sources: Statistics Portugal and Banco de Portugal. | Note: The adjusted balance excludes the following one-off effects: in 2013, capital injection in Banif and the impact of the special scheme for the payment of tax arrears; in 2014, recording of the stock of debt of transportation corporations STCP and Carris, write-off of non-performing loans on the BPN Crédito balance sheet, equity increases in Efisa and Novo Banco; in 2015, equity increase in Efisa and in the corporations Carris and STCP, reclassification of loans to Caixa Imobiliária by shareholder Wolfpart, recording of requests for budget increases by Instituto de Financiamento da Agricultura e Pescas and the resolution measure applied to Banif; in 2016 the sale of F-16, the temporary effect of PERES and the reimbursement of the prepaid margin; in 2017, capital injection into Caixa Geral de Depósitos, recovery of the BPP guarantee, expenditure related to the conversion of deferred tax assets and financial support granted to STCP and CARRIS to accommodate swap contract-related costs; in 2018, transfer from the Resolution Fund to Novo Banco, a loan granted by the State to the Fundo de Recuperação de Créditos and a decision by the Supreme Court regarding the payment of an indemnity.

Over the past few years, the deficit adjusted for one-off factors has always been lower in the second half of the year compared with the first half. Against this background, the official deficit target for this year (0.7% of GDP), established in the Stability Programme (SP 2018-22) and unchanged under the second notification of the Excessive Deficit Procedure, seems feasible, but not risk-free. A number of factors put upward pressure on expenditure in the second half of the year, such as,

32. These operations corresponded to the capital injection into Caixa Geral de Depósitos in 2017 and, in 2018, the transfer from the Resolution Fund to Novo Banco, the loan granted by the State to the Fundo de Recuperação de Créditos and the ruling by the Supreme Court of Justice regarding the payment of an indemnity in a judicial proceeding concerning a concession of land.

the different payment profile of the Christmas bonuses, the gradual effect of unfreezing of careers of civil servants and the extraordinary pension increase as of August 2018.[33] Furthermore, uncertainty remains about developments in several tax and non-tax revenue items. As regards non-tax revenue, one particular risk concerns the remaining share of the guarantee granted by the State, executed at the time of the resolution of Banco Privado Português, which was included in the annual estimates and may not be fully materialised in 2018.

In the first half of the year, current revenue grew in line with the annual forecast

Current revenue grew by 3.1% in the first half of the year, in line with the official forecast for the year. This resulted from a robust growth in revenue from taxes on production and imports and actual social contributions, which more than offset the drop in the collection of taxes on income and wealth and imputed contributions (Table I.4.1). Indeed, revenue from taxes on production and imports rose by 5.5%. In particular, VAT revenue grew by 4.0%, although decelerating markedly in the course of the first half of the year, influenced by changes in the levying of VAT on extra-EU imports. In turn, actual social contributions rose markedly in the first half of the year (5.7%), and revenue from this item is expected to exceed that projected for the year as a whole.

Conversely, the collection of taxes on income and wealth dropped by 1.5%, year-on-year, partly due to the different profile of PIT reimbursements and the deferral of the final settlement of the corporate income tax regarding previous year's revenues.[34] These factors only affect the intra-annual revenue profile and, as such, the annual estimate of a quasi-stabilisation of direct tax revenue is clearly feasible, as confirmed by the outturn in public accounts up to August.

Other current revenue posted positive developments, broadly in line with those estimated for the year, to a large extent due to the materialisation of the expected increase in dividends received by the general government.

Primary current expenditure, adjusted for changes in the intra-annual profile, grew broadly in line with the expected rate for the year as a whole

Primary current expenditure increased slightly in the first half of the year, substantially less than what is estimated for 2018. This differential is markedly lower taking into account the changes in the payment profile of wages and pensions, which, albeit neutral in annual terms, had a negative impact on growth rates of these items during the first half of the year.

33. While in 2017 half of the Christmas bonus (or equivalent) was paid in twelfths, in 2018 these instalments will be fully paid in November (December in the case of pensioners of the Social Security scheme).

34. The deadline for submitting the periodic corporate income tax statement for 2017 was extended from May to June 2018. However, this affects the semi-annual comparison, given that a number of payments are collected in the month following that established by tax authorities.

Despite a strong acceleration in the second quarter, intermediate consumption growth stood below the annual estimate (0.6% in the first half of the year, compared to an expected increase of 1.3% in the year), which is partly explained by the substantial reduction in expenses related to road sector public-private partnerships. However, these expenses typically post very volatile intra-annual developments.

Developments in social benefits in cash, adjusted for intra-annual changes in the payment of pensions, were also slightly below annual forecasts, benefiting from a reduction in expenditure on unemployment benefits, against a background of improved labour market conditions. However, it is important to note that there are upward pressures on pension expenditure in the second half of the year, due to the extraordinary increase in pensions as of August 2018.

Table I.4.1 • General government accounts | EUR million

	First half 2017	First half 2018	y-o-y (%)	Memo: official forecast (1)	
				2018	y-o-y (%)
Total revenue	37923.7	39012.2	2.9	86573.1	4.2
Current revenue	37545.3	38712.0	3.1	84940.4	3.2
Tax and contributory revenue	32066.6	33125.0	3.3	73864.6	3.4
Taxes on income and wealth	7301.3	7191.0	-1.5	19758.9	0.2
Taxes on production and imports	13819.4	14579.8	5.5	30471.7	4.9
Social contributions	10945.9	11354.1	3.7	23634.1	4.2
Actual	8563.9	9054.8	5.7	18826.2	4.9
Imputed	2382.0	2299.3	-3.5	4808.0	1.5
Other current revenue	5478.8	5587.1	2.0	11075.7	1.9
Capital revenue	378.3	300.2	-20.7	1632.7	104.5
Total expenditure	43738.8	40876.9	-6.5	88063.3	-0.9
Current expenditure	38200.1	38066.4	-0.3	81909.3	2.0
Social payments	16389.0	16369.5	-0.1	36755.8	3.1
in cash	14697.1	14631.8	-0.4	33169.9	3.1
in kind	1692.0	1737.7	2.7	3585.9	2.8
Compensation of employees	10700.6	10551.6	-1.4	21721.4	2.0
Intermediate consumption	4930.9	4960.9	0.6	10703.0	1.3
Subsidies	355.2	406.9	14.6	874.8	2.0
Interest	3606.0	3389.9	-6.0	7052.1	-5.2
Other current expenditure	2218.4	2387.6	7.6	4802.0	7.2
Capital expenditure	5538.7	2810.5	-49.3	6154.0	-28.3
Gross fixed capital formation	1371.2	1457.8	6.3	4585.0	28.7
Other capital expenditure	4167.5	1352.7	-67.5	1569.0	-68.8
Overall balance	-5815.1	-1864.7	–	-1490.2	–
Overall balance (% of GDP)	-6.1	-1.9		-0.7	
Memo:					
Primary current expenditure	34594.1	34676.5	0.2	74857.1	2.8

Sources: Statistics Portugal and Banco de Portugal. | Notes: (1) Official estimate underlying the Stability Programme for 2018-22 (2) These growth rates consider the SP 2018-22 nominal values and the 2017 account, as released by INE in the second EDP notification of 2018.

In turn, compensation of employees, also adjusted for the different payment profile of Christmas bonuses, grew in line with the forecast for 2018. This increase was influenced by the sizeable growth in the number of civil servants in the first half of the year (0.9%). Given the expected acceleration in

compensation of employees in the second half of the year due to the effect of the gradual unfreezing of civil servants' careers, the materialisation of the annual estimate is surrounded by considerable uncertainty.

Public investment in the first half of the year grew markedly below what is expected for the year as a whole

Turning to capital items, investment grew considerably below the estimate for the year (6.3%, compared with 28.7%). This is likely to reflect an under-implementation of EU funds, with an impact on capital revenue as well. Indeed, capital revenue decreased, in contrast to the robust growth projected for the year, even when adjusted for the one-off impact of the recovery of the guarantee granted to Banco Privado Português. Taking into account capital expenditure net of capital revenue and adjusted for extraordinary one-off effects, growth was above that projected in the update of the Stability Programme, giving rise to some uncertainty about the outturn for the year as a whole.[35]

Public debt as a percentage of GDP remained close to end-2017 levels

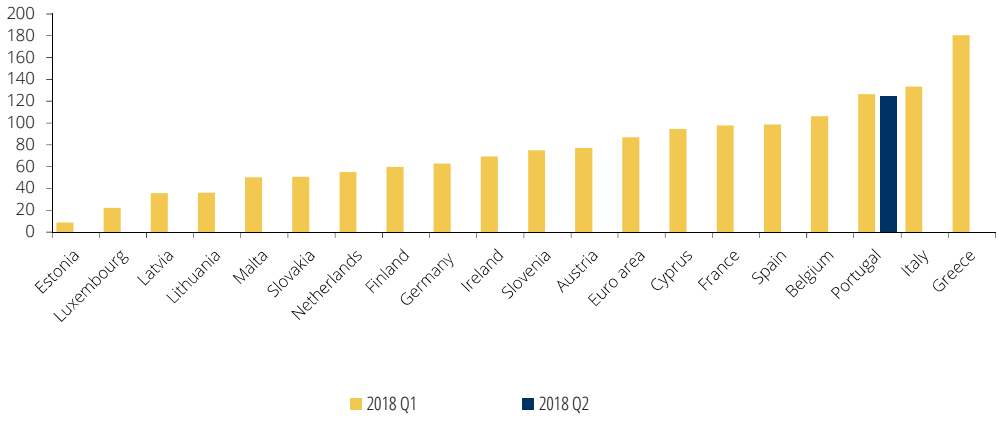
At the end of the first half of 2018, the public debt-to-GDP ratio stood at 124.9%, which accounts for a quasi-stabilisation from the end of 2017 (124.8%). Excluding general government deposits, the debt ratio increased slightly in this period (+0.7 pp).[36] This indebtedness level is still among the highest in the euro area (Chart I.4.2). The stabilisation of the debt ratio stemmed from deficit-debt adjustments that contributed to an increase in the ratio and, conversely, from the impact of the primary surplus and the snowball effect (due to the negative differential between the interest rate on the debt stock and the nominal GDP growth rate). Positive deficit-debt adjustments largely reflect the impact of differentiated recording of time-lagged operations, which should be mitigated in the year as a whole.

In the course of the first half of 2018, the Portuguese State ensured a regular presence in sovereign debt markets, carrying out issuances with different maturities. As regards short-term issues, the average interest rate on Treasury bill auctions stood at -0.4%, compared with -0.1% in the same period of 2017. Turning to developments in long-term rates, in the 9-10 year maturity range, the average auction rate was 1.9% in the first half of the year, i.e. 1.5 p.p. less than one year earlier. These developments were reflected in the continued drop in the nominal value of interest expenditure in the first half of 2018 (-6.0%), against a background of an increasing nominal public debt stock.

35. This includes the one-off factors mentioned in the footnote to Chart I.4.1 in the correction of the semi-annual figures, and the temporary measures identified in the updated Stability Programme in the correction of annual estimates.

36. This indicator rose from 114.5%, at the end of 2017, to 115.1%, at the end of June 2018.

Chart I.4.2 • Public debt in the euro area | Percentage of GDP



Source: Eurostat.

With regard to the annual target for public debt, estimates for 2018 released under the latest Excessive Deficit Procedure notification point to a reduction in its weight in GDP to 121.2% at the end of the year. This falls below the estimates included in the update of the Stability Programme, stemming from a denominator effect associated with the recent upward revision of nominal GDP by Statistics Portugal.

5 Supply

Deceleration in GVA in the first half of 2018 largely reflected a slowdown in manufacturing and construction activity

In the first half of 2018 gross value added (GVA) grew by 1.8%, in real terms, compared with the same period one year earlier, which accounts for a deceleration from 2.3% in the second half of 2017 (Table I.5.1). As in previous years, in the first half of 2018, GVA growth was below that of GDP, which increased by 2.3%, year-on-year, during that period (Chapter 6). The discrepancy between GVA growth and GDP reflects developments in taxes net of subsidies, whose volume rose by 5.4% in the first half of 2018 from one year earlier, following 5.9% growth in 2017.

In the first half of 2018, GVA in the euro area grew by 2.4%, year-on-year, which corresponds to a deceleration from a 2.9% increase in the second half of 2017. The deceleration in GVA in the euro area in the first half of 2018 was similar to that seen in Portugal and, consequently, its growth differential remained unchanged at -0.6 p.p.

Table I.5.1 • GVA and main sectoral components | Year-on-year growth, in percentage, unless otherwise stated

	% of GVA in 2017	2016	2017	2017		2018	2017		2018	
				H1	H2	H1	Q3	Q4	Q1	Q2
GVA	100.0	1.6	2.4	2.6	2.3	1.8	2.4	2.2	1.6	1.9
Agriculture, forestry and fishing	2.3	-3.6	4.6	3.5	5.7	1.8	6.1	5.3	2.7	0.9
Manufacturing	14.8	2.7	3.6	4.1	3.1	1.1	3.0	3.3	1.5	0.7
Electricity, gas and water supply	3.7	-0.5	-2.1	-3.1	-1.1	3.1	-2.4	0.2	3.6	2.6
Construction	4.0	-0.5	6.3	7.7	4.8	1.6	5.0	4.7	0.9	2.3
Services	75.3	1.8	2.1	2.2	2.0	1.8	2.2	1.8	1.5	2.1
Trade and repair	14.0	2.7	3.0	2.9	3.1	3.3	3.1	3.1	3.3	3.4
Restaurants and hotels	6.0	4.2	2.6	3.1	2.1	2.4	2.4	1.8	1.9	2.9
Transport, storage and communication	8.4	0.5	5.7	6.5	5.0	2.9	7.0	3.0	2.1	3.7
Financial intermediation and real estate	17.1	0.0	0.1	0.1	0.0	1.2	0.1	0.0	1.1	1.3
Other services	29.7	2.2	1.8	1.8	1.7	1.0	1.7	1.8	0.7	1.4
Memo:										
Euro area	–	1.7	2.5	2.2	2.9	2.4	2.9	2.9	2.6	2.3

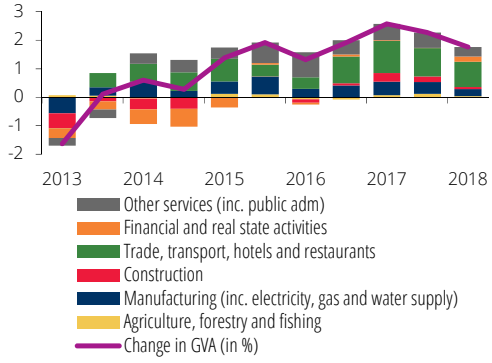
Sources: Eurostat and Statistics Portugal

The deceleration in GVA in the first half of 2018 largely reflects a slowdown in manufacturing and construction (Table I.5.1 and Chart I.5.1). Year-on-year growth of GVA in the services sector was also lower than in the second half of 2017. Continued high growth of trade, accommodation and food services was in line with the momentum in tourism.

Total GVA in the first half of 2018 was above that seen prior to the international economic and financial crisis (Chart I.5.2). This was broadly based across most major sectors of activity, excluding construction, where activity fell very markedly during the economic adjustment period. Indeed, despite the recovery observed since the end of 2016, GVA in construction in the first half of 2018 was around 40% below

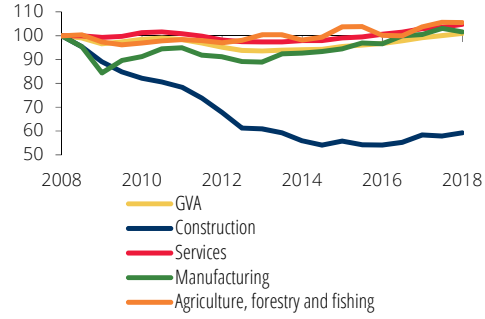
the levels observed in the first half of 2008. In the services sector, GVA has remained above pre-crisis figures since the first half of 2008. In the services sector, GVA has remained above pre-crisis figures since the first half of 2016, largely due to the momentum in trade, accommodation and food services.

Chart I.5.1 • Contributions to the GVA year-on-year rate of change | Sector contributions, percentage points



Sources: Statistics Portugal (Banco de Portugal calculations)

Chart I.5.2 • GVA developments by sector | 2008 Q1=100



Sources: Statistics Portugal (Banco de Portugal calculations)

Recent indicators point to an increase in the levels of capacity utilisation in the Portuguese economy

Over a longer time horizon, the pace at which an economy can grow without generating inflationary pressures largely depends on its productive capacity. In this regard, potential output is key, and is associated with the aggregate supply capacity of the economy. Potential output depends on various structural aspects of the economy, such as demographic developments and productivity. Productivity is related to factors such as technological progress, the efficiency in the use of resources and the institutional framework. The Portuguese economy faces important challenges regarding a number of these aspects. This includes demographic developments, due the decline in and the ageing of population (Box 7). Another major challenge is the increase in capital per worker levels and the need to establish a favourable framework for higher investment growth, both in terms of quality and volume.[37] The marked fall in investment in Portugal during the recent recession had a negative impact on capital build-up and the economy's potential output.

However, in the short run and against a background of sub-optimal use of productive resources, economic activity may grow faster than potential output without generating inflationary pressures. Most estimates for the output gap, measured as the difference between actual real output and potential output, show that it was particularly negative during the recent recession, which contributed to greater activity growth in the Portuguese economy during the ongoing recovery than that estimated for potential output.[38] However, the latest indicators point to a reduction in spare capacity in the

37. See the box entitled 'Capital stock in the Portuguese economy', May 2018 issue of the *Economic Bulletin*.

38. For a discussion of the main issues related to the use of potential output and the output gap as economic analysis tools, more specifically the uncertainty associated with their calculation, see the Special Issue entitled 'Potential output: challenges and uncertainties', December 2017 issue of the *Economic Bulletin*.

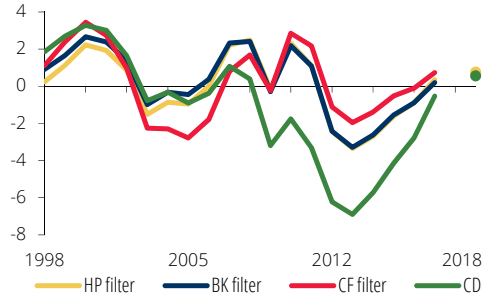
Portuguese economy. Available estimates for the output gap, while surrounded by high uncertainty, suggest that it is close to zero, following a prolonged stint in negative territory (Chart I.5.3).

Further improvement in labour market conditions, with solid employment growth

The recovery in productive activity has been reflected in labour market conditions, amid robust employment growth and a marked fall in the unemployment rate. According to the Labour Force Survey, in the first half of 2018 employment grew by 2.8%, year-on-year, which corresponds to a 0.5 p.p. deceleration from the second half of 2017 (Table I.5.2). Employment recovered also across the euro area, most notably in Portugal and Spain, whose labour markets had deteriorated significantly during the recent recession (Chart I.5.4).

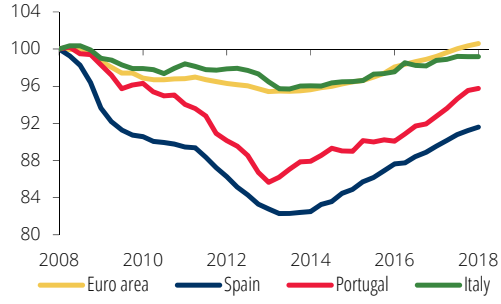
Amid a decrease in self-employment, the momentum in total employment has reflected the substantial increase in the number of employees. In the first half of 2018 the number of employees rose by 3.7%, year-on-year, while self-employment dropped by 1.5%. As in 2016 and 2017, employment grew significantly among individuals aged over 54 (Chart I.5.5). In the first half of 2018 this age group made a 1.3 p.p. contribution to year-on-year growth in employment (2.8%).[39] The oldest groups are also important to employment growth in the euro area, although with variable intensities across countries.[40] The two main forms of hiring (open-ended contracts and fixed-term contracts) continued to grow markedly in the first half of 2018, with their relative weight total employees remaining virtually unchanged.[41]

Chart I.5.3 • Output gap estimates for Portugal | Output gap in percentage of potential GDP



Sources: Statistics Portugal (Banco de Portugal calculations) | Notes: The output gap corresponds to the difference between GDP and four estimates for potential output: Hodrick-Prescott (HP) filter, Baxter e King (BK) filter, Christiano e Fitzgerald (CF) filter and calculations base on a Cobb-Douglas production functions (CD PF). For a more detailed analysis see the Special issue 'Potential output: challenges and uncertainties', *Economic Bulletin*, December 2017.

Chart I.5.4 • Employment developments in Portugal and in the euro area | 2008 Q1=100



Sources: Eurostat (Banco de Portugal calculations) | Notes. Results are based on employment for the age subgroup from 15 to 64 years old, in accordance with the Eurostat release, and differs from the criteria adopted by the Statistics Portugal quarterly accounts (15 or more years).

39. Between the first half of 2016 and the first half of 2018, approximately half of employment growth (283 thousand individuals) was due to the increase in employment among individuals aged over 54.
40. In the first quarter of 2018 employment for individuals aged 15-64 grew, year-on-year, by 1.4% in the euro area, 3.3% in Portugal, 2.3% in Spain and 0.4% in Italy, with employment among individuals aged 55-64 contributing with 0.9 p.p., 1.5 p.p., 0.8 p.p. and 1.1 p.p. respectively.
41. The share of fixed-term contracts in paid employment has remained around 18.5% since 2015. In the second quarter of 2018, it stood at 18.6%.

Table I.5.2 • Indicators of recent employment developments in Portugal | Year-on-year growth, in percentage, unless otherwise stated

	Thousand individuals in 2017	2016	2017	2017		2018
				H1	H2	H1
Total employment	4756.6	1.2	3.3	3.3	3.3	2.8
Employees	3948.7	2.1	4.3	3.9	4.6	3.7
Self-employed	785.9	-3.2	-0.4	1.4	-2.2	-1.5
Homeworkers	22.0	26.0	-23.9	-24.6	-23.2	-12.2
By type of contract:						
Open-ended contracts	3080.3	1.6	4.7	4.8	4.5	3.5
Fixed-term contracts	728.7	2.6	3.3	0.1	6.5	5.4
Service providers	139.7	8.4	0.8	5.6	-3.5	2.0
By duration:						
Full-time	4220.3	1.8	4.1	3.6	4.5	4.1
Part-time	536.3	-3.0	-2.4	1.5	-6.2	-7.4
By age:						
From 15 to 24 years old	282.6	4.4	7.7	7.3	8.0	3.8
From 25 to 34 years old	933.0	-2.0	1.1	0.7	1.5	1.5
From 35 to 44 years old	1306.8	0.9	-0.1	0.1	-0.3	0.2
From 45 to 54 years old	1219.6	2.0	4.3	3.8	4.8	3.8
More than 54 years old	1014.5	3.3	7.7	8.8	6.5	6.0

Source: Statistics Portugal.

Growth in employment once again exceeded that of GVA, which led to a further decrease in productivity per worker in the first half of 2018. As such, this measure of productivity remained on the downward path already seen in 2017. Between 2014 and the first half of 2018, the aggregate decline in GVA per worker seems to have stemmed from productivity decreases within each sector of activity (Table I.5.3). The contribution made by the intersectoral component (i.e. cross-sectoral changes in workers) was positive, and, in fact, exceeded that made between 2009 and 2013. This suggests that in the course of the ongoing economic recovery, as during the previous recession, employment flows are being redirected to more productive sectors of the economy, particularly those most exposed to international competition. However, the breakdown shown in Table I.5.3 is based on sectoral aggregate data and illustrates the reallocation of labour across sectors. The Special Issue entitled 'Reallocation of resources and total factor productivity in Portugal', included in this Bulletin, undertakes a review somewhat similar to the one discussed in this section, but looks into the reallocation of resources on the basis of an alternative productivity measure – multifactor productivity or total factor productivity – using firm-level data. With this analysis, on the basis of microdata, other channels for resource reallocation were identified, such as the reallocation from the entry of new firms or the exit of firms from business.

Robust employment growth has contributed to the maintenance of the downward profile for the unemployment rate

The substantial flows of individuals that switch from unemployment to employment have contributed to employment growth. Taking into account flows, with a constant sample, i.e. considering individuals that remain in the sample of the Labour Force Survey for two consecutive quarters, in the first half of

2018, 156 thousand individuals switched from unemployment to employment, while 107 thousand individuals followed the reverse path (Table I.5.3).

Table I.5.3 • Contributions to growth in GVA per worker (by sector)[42] | Year-on-year growth, in percentage, and contributions, in percentage points

	2014	2015	2016	2017	2018 H1	Cummulative values: 2014-2018 H1	2009-2013
Whole economy (exc. PA e RSA, change rate, in percentage)	-0.7	0.0	0.3	-0.3	-0.7	-1.5	9.2
Contributions (in p.p.):	0.1	0.3	-0.1	0.1	0.1	0.6	0.4
Agriculture, forestry and fishing	0.1	0.0	0.1	0.0	-0.6	-0.4	2.4
Manufacturing	0.1	0.1	-0.1	-0.2	0.1	0.0	-0.1
Electricity, gas and water supply	-0.4	-0.2	-0.4	-0.2	0.0	-1.3	5.3
Trade, transport, hotels and restaurants	-0.3	-0.1	-0.1	0.0	-0.2	-0.6	0.6
Construction	-1.3	-1.0	0.4	-0.3	-0.5	-2.7	-1.3
Other services							
Within sector contribution	-1.7	-0.8	-0.1	-0.6	-1.1	-4.3	7.3
Inter-sectoral shift	0.9	0.9	0.4	0.3	0.4	2.8	1.9

Sources: Statistics Portugal (Banco de Portugal calculations). | Notes: PA – Public Administration; RSA – Real state activities. For a more detailed on the methodology used to compute sectoral contribution see the box entitled 'The evolution of GVA, employment and productivity in the ongoing recovery: sectoral contributions' in the October 2017 issue of the *Economic Bulletin*.

Table I.5.4 • Quarterly flows between labour market states (constant sample)[(1)] | Thousands of persons

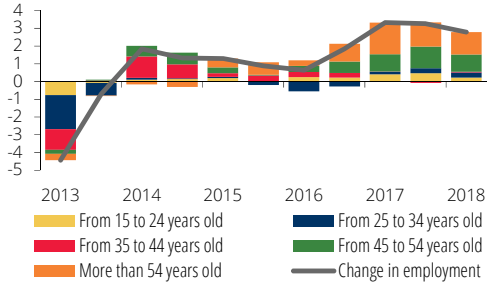
	2017 H1	2017 H2	2018 H1
1 – Net flow from unemployment to employment	51.3	43.6	49.5
From employment to unemployment	176.8	166.1	156.3
From unemployment to employment	125.5	122.4	106.9
2 – Net flow from employment to inactivity	-27.3	2.0	-27.5
From employment to inactivity	227.7	262.0	216.2
From inactivity to employment	255.0	260.0	243.7
3 – Net flow from inactivity to unemployment	25.5	27.0	21.7
From inactivity to unemployment	152.1	158.8	127.4
From unemployment to inactivity	126.6	131.7	105.7
Memo:			
Net flow to unemployment (3-1)	-25.8	-16.6	-27.8
Sample effect (2)	-27.9	-43.1	-24.2
Change in unemployment (all sample)	-53.7	-59.7	-52.0

Sources: Statistics Portugal (Banco de Portugal calculations). | Notas: (1) Half-yearly values are based on constant sample quarterly flows (individuals that remain in the sample of the Labour Force Survey for two consecutive quarters) (2) The sample effect represents the difference between constant and non-constant (whole sample) flows reflecting the impact of the quarterly refresh of the database (1/6 of total sample) and changes in reporting individuals that are kept in the remaining 5/6 of the sample.

42. According to ESA 2010, when households own the dwelling they occupy, a value must be estimated for the respective rent – the 'imputed rent' – based on the rent of similar dwellings actually rented. Conceptually, imputed rents correspond to the income associated with the assets owned by households as own housing and can be seen as compensation for the services provided by that asset. From the production viewpoint, the value estimated for these services is incorporated into the GDP as a component of value added for the branch of activity relating to real estate activities. This results in extremely high GVA in this sector and consequently of the respective productivity per worker. In this context, this section also presents the calculations of sectoral contributions to growth of GVA per worker excluding not only public administration but also real estate activities.

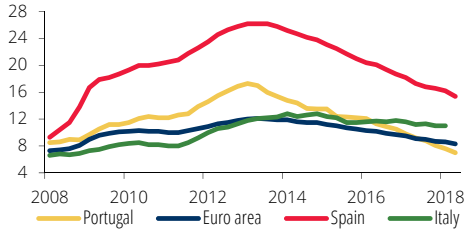
In the first half of 2018 the unemployment rate stood at 7.3% (Table I.5.5). In quarterly terms, the unemployment rate stood at 7.9% in the first quarter of 2018, dropping to 6.7% in the second quarter – the lowest figure since the second quarter of 2004. The unemployment rate has also declined across the euro area, but particularly in Portugal and Spain (Chart I.5.6). Year-on-year, underlying the reduction in the unemployment rate in Portugal is a drop in the number of unemployed of 22.7%. Compared with the first quarter of 2013, when the unemployment rate reached a historical peak of 17.5%, the number of unemployed in Portugal fell by 62% (575 thousand fewer unemployed).

Chart I.5.5 • Contributions to employment growth by age segments | Contributions, percentage points



Sources: Statistics Portugal (Banco de Portugal calculations).

Chart I.5.6 • Unemployment developments in Portugal and in the euro area | Quarterly figures, percentage of total labour force



Source: Eurostat. | Note: The unemployment rate presented in the chart is for age subgroup from 15 to 74 years old, consistently with the Eurostat release. This is in contrast with the criteria adopted by the Statistics Portugal in the quarterly accounts estimates (15 years old and over). Figures are seasonally adjusted.

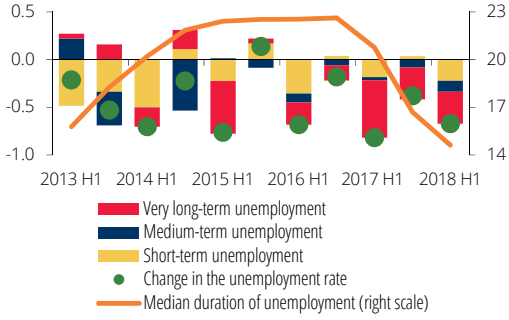
As in 2017, the drop in the unemployment rate in the first half of 2018 largely reflected a reduction in the incidence of very long-term unemployment (individuals unemployed for two years or more), also weighing on the decrease in the median duration of unemployment (Chart I.5.7). In the second quarter of 2018, the share of very long-term unemployment in total unemployment was 36%, mirroring a substantial fall from 48% in the last quarter of 2016. Over that period, the median duration of unemployment declined from 23 to 14 months.

Available indicators point to a reduction in underemployment in Portugal

The marked fall in unemployment over the most recent period raises questions about underemployment in the Portuguese labour market. This is particularly important against a background where an increasing number of firms have difficulties recruiting staff, particularly skilled personnel. According to Statistics Portugal's Business Cost of Contexts Survey, released at the end of July, difficulties in recruiting staff and accessing skilled personnel by firms increased the most between 2014 and 2017. Furthermore, according to the European Commission's Opinion Surveys, the percentage of firms that refer to labour shortages as adversely affecting production has increased since early 2017, particularly in construction (Chart I.5.8).

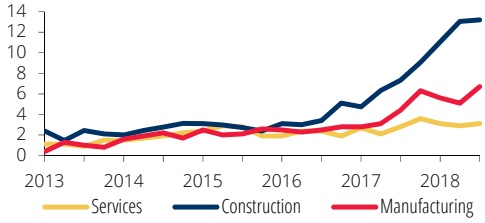
Available information points to the continued momentum in labour demand, with sectoral indicators on employment expectations following an upward path, to stand above the levels seen prior to the international financial crisis (Chart I.5.9).[43]

Chart I.5.7 • Contributions to changes in the unemployment rate, by duration brackets and median duration of unemployment | Contributions in percentage points and median duration in months



Sources: Statistics Portugal (Banco de Portugal calculations). | Notes: Short-term unemployment includes individuals unemployed for less than 12 months; medium-term unemployment includes those unemployed for 12 months or more but less than 24 months; very long-term unemployment includes those unemployed for 24 months or more. Median duration calculated as a two-semester moving average of median durations.

Chart I.5.8 • Firms indicating labour shortage as a factors limiting production | Percentage of responding firms



Source: European Commission.

To assess the overall level of labour market slack, comprehensive measures other than merely the unemployment rate should be considered. Indeed, employment growth may be associated with a decline in unemployment but also with the switch of individuals to employment who were formerly flagged as inactive given that, for instance, they were not actively seeking work. In this context, alternative indicators also point to the substantial reduction in the slack of the Portuguese labour market. The number of individuals without a job that claim they want to work but who are not actively seeking has decreased substantially.[44] This includes the sub-group of individuals currently available for work (also known as 'discouraged'), which decreased by 13.0% in the first half of 2018, year-on-year. Nevertheless, the number of discouraged workers in the first half of 2018 (184 thousand) is above the levels seen prior to the international financial crisis.[45] In turn, the labour underutilisation rate calculated by Statistics Portugal has been on a steeper downward path than unemployment rate (Chart I.5.10).[46] In the first half of 2018 the labour underutilisation rate stood at 14.3%, which corresponds to a 3.1 p.p. decline from the first half of 2017 (over the same period, the unemployment rate dropped by 2.2 p.p.) (Table I.5.5).

43. Furthermore, according to the Quarterly Job Vacancy Statistics, collected by the Office of Strategy and Planning of the Ministry of Labour, Solidarity and Social Security, in the first quarter of 2018, the number of job vacancies in the Portuguese economy (manufacturing, construction and services) was 27,400, i.e. 29% above that seen in the first quarter of 2016.
44. In literature, these individuals are known as marginally attached workers. In the first half of 2018 the number of individuals in this situation fell year-on-year by 12.8 %, to stand at 299 thousand.
45. In the first half of 2008 the number of discouraged workers was 67 thousand.
46. The labour underutilization rate is an indicator calculated by Statistics Portugal that aggregates unemployed population, involuntary part-time work, individuals seeking work but not immediately available and individuals available to work but not seeking.

These indicators suggest that the room for employment to grow by the inclusion of unemployed individuals or inactive workers still attached to the labour market has narrowed over the most recent period. The more intensive use of the existing workers gives a larger margin for firms to expand their productive capacity, against a background where capacity utilisation in manufacturing and services rose to levels close to those seen prior to the onset of the international economic and financial crisis (Chart I.5.11).

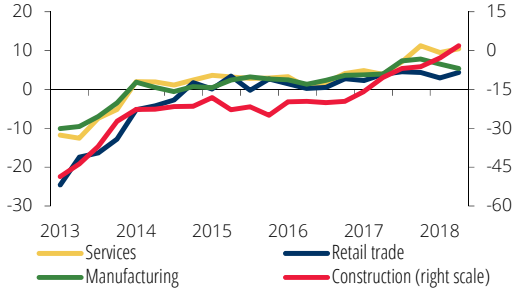
Table I.5.5 • Indicators of recent unemployment developments in Portugal | Year-on-year growth, in percentage, unless otherwise stated

	Thousand individuals in 2017	2016	2017	2017		2018
				H1	H2	H1
Unemployment (year-on-year rate of change, in percentage)	462.8	-11.4	-19.2	-17.9	-20.7	-22.7
Unemployment rate	-	11.1	8.9	9.5	8.3	7.3
By age(1):						
From 15 to 24 years old	88.6	28.0	23.9	23.9	23.9	20.7
From 25 to 34 years old	100.4	12.5	9.7	10.5	8.9	8.0
From 35 to 44 years old	100.7	8.5	7.2	7.9	6.4	6.2
From 45 to 54 years old	94.7	9.7	7.2	7.9	6.5	5.5
More than 54 years old	78.4	8.9	7.2	7.6	6.8	5.8
Labour underutilisation rate (2)	900.9	19.4	16.5	17.4	15.7	14.3
Long-term unemployment (in percentage of total unemployment) (3)	268.7	62.5	58.1	59.3	56.6	53.2
Very long-term unemployment (in percentage of total unemployment) (4)	193.9	47.3	41.9	43.3	40.3	36.8
Discouraged	213.0	4.6	4.1	4.1	4.1	3.5

Sources: Statistics Portugal (Banco de Portugal calculations). | (1) The labour underutilization rate is an indicator calculated by Statistics Portugal that aggregates unemployed population, involuntary part-time work, individuals seeking work but not immediately available and individuals available to work but not seeking. (2) The long-term unemployment includes those unemployed for 12 months or more months. (3) The very long-term unemployment includes those unemployed for 24 months or more.

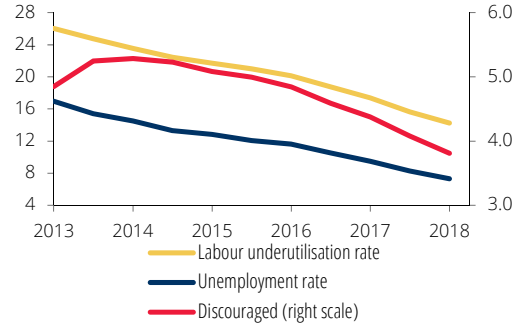
In this context, according to the Labour Force Survey, the number of part-time workers who cannot find a full-time job (involuntary part-time work) has decreased. In the first half of 2018 the number of individuals in this situation was 188 thousand, which corresponds to an 8.6% year-on-year decline. Over the same period, the number of full-time workers willing to work more hours to earn more fell by 10.3%.

Chart I.5.9 • Assessment of employment expectations for the three months ahead | Balance, seasonally adjusted



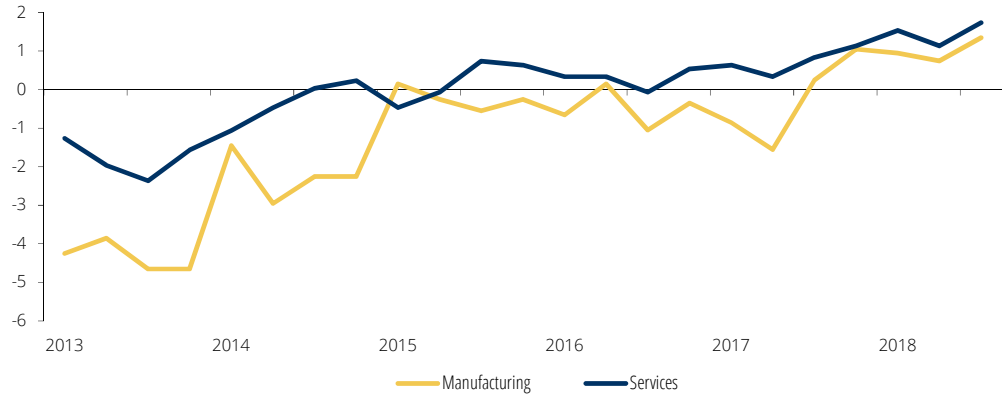
Source: European Commission.

Chart I.5.10 • Indicators of labour market slack | Percentage of total labour force



Sources: Statistics Portugal (Banco de Portugal calculations).

Chart I.5.11 • Capacity utilisation in manufacturing and services | Difference *vis-à-vis* the average since 2000 (manufacturing) and 2011 (services)



Sources: European Commission (Banco de Portugal calculations). | Notes: Capacity utilisation is reported by firms as a percentage of total capacity. The values for capacity utilisation in services are expressed *vis-à-vis* the average since the third quarter of 2011, when these series started to be released.

Maintenance of the upward trend in labour force in an adverse demographic scenario, amid population decrease and ageing

Given that available indicators point to lower labour market slack, the potential for employment to grow in the medium run will largely depend on the labour supply growth. In the first half of 2018, labour force rose by 0.4%, year-on-year, compared with 0.8% growth in 2017 as a whole (Table I.5.6). Following consecutive decreases between 2011 and 2016, the recovery of the labour force is set against a background of adverse demographic developments, with the maintenance of a downward trend in resident population and its ageing profile. As such, the labour force in Portugal in the first half of 2018 was 5.8% belowthe level seen in the first half of 2008.

Table I.5.6 • Indicators of recent labour force developments in Portugal | Year-on-year growth, in percentage, unless otherwise stated

	Thousand individuals in 2017	2016	2017	2017		2018
				H1	H2	H1
Population	10285.1	-0.3	-0.2	-0.2	-0.2	-0.2
Less than 15 years old	1431.9	-1.6	-1.1	-1.2	-1.0	-1.3
From 15 to 24 years old	1092.5	-0.4	-0.5	-0.6	-0.4	-0.4
From 25 to 34 years old	1148.8	-2.5	-2.7	-2.7	-2.7	-2.3
From 35 to 44 years old	1525.9	-1.3	-1.6	-1.6	-1.6	-1.8
From 45 to 54 years old	1516.7	0.0	0.5	0.4	0.5	0.4
More than 54 years old	3569.3	1.4	1.4	1.4	1.4	1.4
Labour force	5219.4	-0.3	0.8	0.9	0.7	0.4
From 15 to 24 years old	371.3	-1.4	1.9	0.2	3.7	-0.4
From 25 to 34 years old	1033.4	-2.7	-2.0	-2.6	-1.5	-1.3
From 35 to 44 years old	1407.5	-1.0	-1.5	-0.9	-2.2	-1.6
From 45 to 54 years old	1314.4	0.9	1.4	1.2	1.7	1.1
More than 54 years old	1092.9	2.0	5.7	6.8	4.6	4.0
Participation rate (in percentage of total population)	–	50.2	50.7	50.6	50.9	50.9
Participation rate 15-64 years old (in percentage of total population)	–	73.7	74.7	74.2	75.1	75.0

Sources: Statistics Portugal (Banco de Portugal calculations).

In the first half of 2018 the resident population dropped by 0.2%, year-on-year. Similarly to the past few years, population decreased across age groups up to 44 years: among those aged 0 to 24 years, it dropped by 1.0%, aged 25 to 34, by 2.3%, and aged 35 to 44, by 1.8%. By contrast, the resident population rose by 0.4% for individuals aged 45 to 54, and by 1.4% in the group aged over 54. Population ageing has a negative impact on the labour force due to typically lower activity rates across older groups.[47] The favourable developments in the labour force over the most recent period benefited from the rise in the participation rate among older groups and, to a lesser extent, the positive migration balance as of 2017 and the maintenance of the long-term upward trend in the female participation rate.[48] In Portugal, the participation rate for individuals aged 55 to 64 increased from 54.4% in 2013 to 63.3% in the first half of 2018.

The participation rate among older groups also increased in the euro area as a whole. In addition to the momentum in labour demand by firms, this seems to be also associated with an increase in the average lifespan of the population. Indeed, over the past decade, population ageing has inspired several euro area countries to work on steps to reform the pension system, so as to ensure its financial sustainability. One of the most frequent measures proposed was postponing retirement, namely by increasing the statutory minimum retirement age, mostly gradually and, in a number of cases, linked to the increase in the average lifespan of the retired population. This increase may also lead to the extension of working lives, as some individuals may choose to work longer than the minimum retirement age, thus preventing long periods of inactivity and minimising poverty risk. Finally, given that participation rates tend to rise in tandem with the educational attainment of the population, developments in the participation rate among older groups may also reflect potential composition effects associated with the substantial increase in the educational attainment of the older segment of the population. In Portugal, for instance, in the first half of 2018, 29.5% of individuals aged over 54 had completed at least upper secondary education, compared with 16.5% in the first half of 2011.

Improved labour market conditions have led to higher wage growth

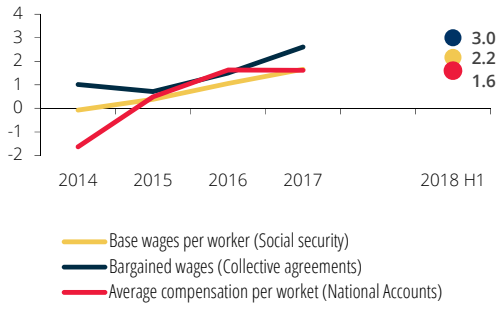
Similarly to the euro area, improved labour market conditions in Portugal have led to greater wage growth in the most recent period (Box 1). According to data released by the Office of Strategy and Planning of the Ministry of Labour, Solidarity and Social Security, in the first half of 2018, base wages per employee declared to the Social Security grew by 2.2%, which accounts for an acceleration from 1.7% in 2017 as a whole (Chart I.5.12). Wage developments also reflect the greater momentum in collective bargaining in Portugal, which was translated into the greater number of collective agreements. Up to July 2018, 173 new collective agreements were released, covering approximately 520 thousand

47. In the first half of 2018 the share of resident population aged over 54 in total population was 35%, which corresponds to an 8 p.p. rise from that seen in 2000.

48. The increase in foreign labour force accounted for 1/3 of labour force growth in the first half of 2018, year-on-year. In turn, in the first half of 2018 the female participation rate stood at 47.4%, up by 2.6 p.p. from 2000 levels.

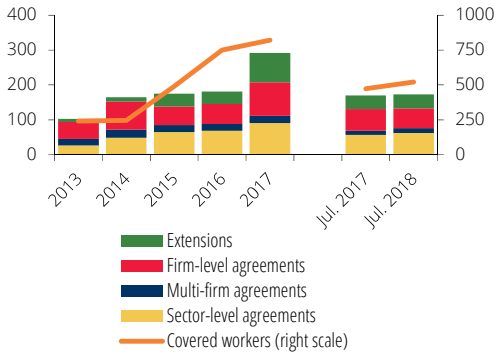
workers, which led to a 3.0% growth in bargained wages (Chart I.5.13). Given its growing importance in wage distribution in Portugal, wage developments in 2018 seems to be also reflecting the increase in the national minimum wage.[49] At the beginning of the year, national minimum wage rose from 557 to 580 euros, which corresponds to a cumulative increase of 19.6% since end-2014.

Chart I.5.12 • Indicators of wage developments | Rate of change, in percentage



Sources: Statistics Portugal, Ministry of Labour, Solidarity and Social Security and Directorate-General for Employment and Labour Relations (Banco de Portugal calculations).

Chart I.5.13 • Collective agreements and workers covered | Number and thousand of workers



Source: Directorate-General for Employment and Labour Relations.

49. According to the Labour Gains and Duration Survey, released by the Office of Strategy and Planning of the Ministry of Labour, Solidarity and Social Security, the share of workers earning the national minimum wage was 25.7% in April 2017, compared with 13.2% in April 2014.

Box 7 • Demographics in Portugal: recent developments and projections

Demographic changes impact economies in several domains. The most immediate is the labour market, where changes to the size and composition of population constrain potential economic growth. For instance, an ageing population together with a low birth rate hamper growth in *per capita* potential output. Even consumption and saving patterns tend to vary over the life cycle and, as such, the demographic structure affects aggregate expenditure. Another domain of great relevance of demographics is the sustainability of public finances, given the budgetary sensitivity to ageing-related revenue and expenditure. A reduction in the labour force and employment implies, *ceteris paribus*, a lower revenue from social contributions, while longevity gains result in increasing pension and health-care expenditure. Against a background of high public debt-to-GDP ratios, demographic developments put additional pressure. Furthermore, reform measures to ensure financial sustainability for these schemes may impact on the labour market and are not neutral with regard to the welfare, most notably of future generations.

Since the 1980s, Portugal has been under an ongoing process of demographic transition.[50] Demographic changes are typically long-run phenomena and for approximately three decades, Portugal has experienced demographic changes at composition level, with gradual population ageing. However, over the past few years, this process has intensified, which has also led to a decline in total population.

In this context, the purpose of this box is twofold. First, it characterises demographic developments in Portugal, particularly over the past decade. Second, it sheds light on long-term trends using the most recent projection scenario for the 2017-80 horizon released by Statistics Portugal. At the same time, it aims at comparing the trends in Portugal *vis-à-vis* European developments.

Recent developments

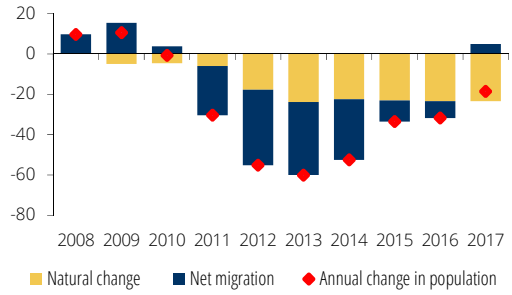
Since 2010 the resident population in Portugal has declined, more markedly up to 2013 and to a lesser extent since then. In 2017 the population decreased further, but less than in previous years, accounting for a reduction of approximately 18,500 individuals. This lower reduction was due to the net migration, which turned positive in 2017, after six consecutive years in negative territory (Chart C7.1).

The net migration has been on the recovery path since 2014, in line with the business cycle, resulting from the combination of an increase in the number of permanent immigrants and a drop in the number of permanent emigrants (Chart C7.2). It should be noted that the net migration had been systematically positive since the early 1990s.

Over the past decade, in cumulative terms, the resident population in Portugal decreased by around 260 thousand individuals, while its age structure also changed significantly and more adversely than the European Union (EU) average (Chart C7.3).

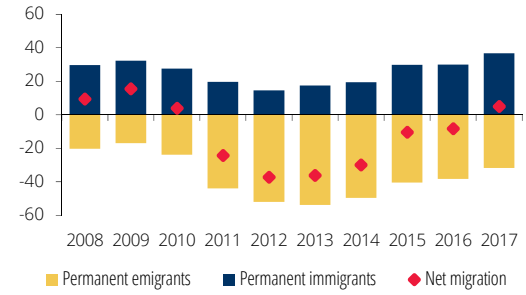
50. In this regard, see the Special Issue in the October 2015 issue of the *Economic Bulletin*, entitled 'Demographic transition and growth in the Portuguese economy'.

Chart C7.1 • Annual change in the resident population | Thousands of persons



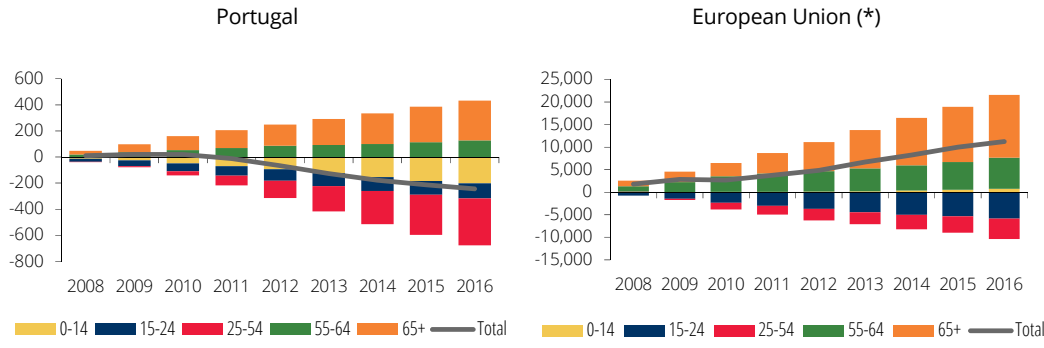
Source: Statistics Portugal.

Chart C7.2 • Migration flows | Thousands of persons



Source: Statistics Portugal.

Chart C7.3 • Cumulative change in population by age group since 2007 – international comparison | Thousands of persons



Source: Eurostat. | Note: (*) EU28.

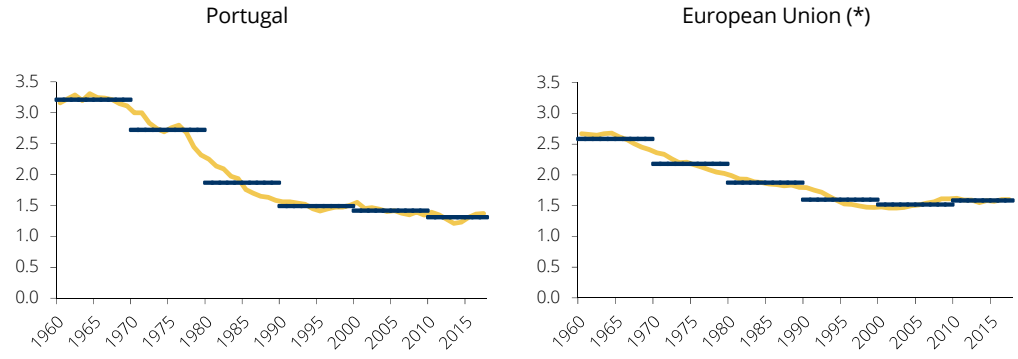
Since end-2007 the population in Portugal has decreased among age groups of up to 54 years old. The reduction across younger groups has exceeded the increase in older groups, which mirrors a shrinking population. In the EU as a whole, despite a reduction in the population aged from 15 to 54, total population has increased over the past decade. The age group of up to 14 years old has been fairly constant, with a slight increase over the past few years, but with highly disparate situations across countries.[51]

In Portugal, the reduction in the labour force over the past decade reflects the marked fall in birth rates since the 1980s, when the total fertility rate (TFR)[52] dropped below 2.1, which is considered to be the replacement level (Chart C7.4). This fall in the TFR occurred against a background of increased participation by women in the labour market, the implementation of family planning,[53] and halving

51. In France, for instance, the youngest group has increased, reflecting high fertility levels. In that country, the total fertility rate (TFR) has hovered around 2. In Spain, on the other hand, the TFR is relatively close to that in Portugal (approximately 1.4), but the country has benefited from a very positive contribution from migration flows (corresponding to 0.5% of the resident population, in annual average terms, between 2000 and 2015, while in Portugal it stood at 0.1%).
52. Average number of children per woman in her child-bearing years.
53. As established in the Constitution of the Portuguese Republic (1976) and in additional relevant legislation in 1984.

the child mortality rate during the 1980s. Over the past decades, the TFR has decreased more mutedly, but still accounts for one of the lowest rates in the EU (1.3 in the last decade), translating into a reduction in younger age groups. In turn, in the EU as a whole, the TFR has been relatively stable since the 1990s, having increased slightly to 1.6 in the past decade.

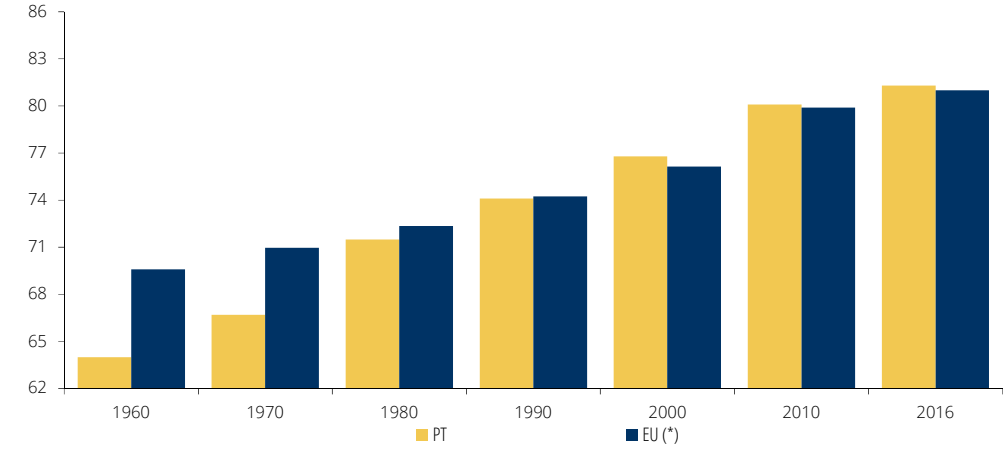
Chart C7.4 • Total fertility rate | Number



Sources: Eurostat, Human Fertility Database (Max Planck Institute for Demographic Research and Vienna Institute of Demography) and Statistics Portugal (Banco de Portugal calculations). | Notes: the horizontal bars represent the average value per decade. (*) EU28 (simple average). It does not include Latvia until 1999 and Croatia until 2000.

In turn, the average life expectancy at birth in Portugal converged towards the EU average at the end of the 1980s, and has since then followed a very similar path to the EU average, standing slightly above it since the 2000s (Chart C7.5).

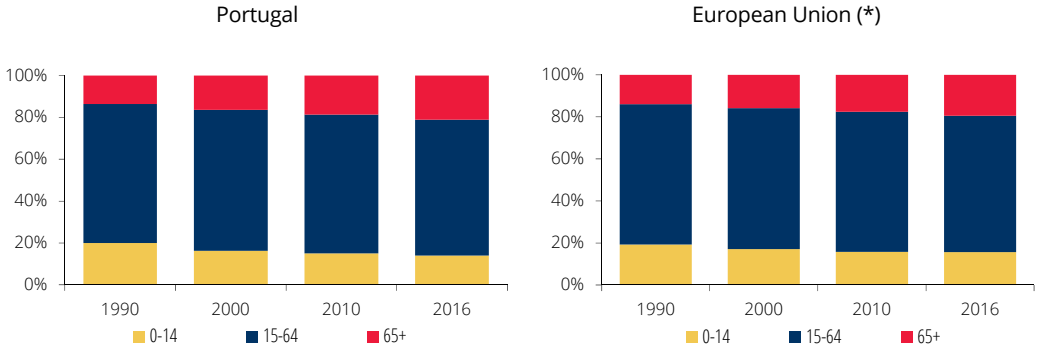
Chart C7.5 • Average life expectancy at birth | Number



Sources: Eurostat and Statistics Portugal (Banco de Portugal calculations). | Note: (*) EU28 (simple average).

This means that lower mortality rates have made a positive contribution to developments in the natural change of population, making it possible to offset lower birth rates up to the mid-2000s. However, at the end of this decade, the natural change of population turned negative. Combined with a decrease in the net migration which became negative between 2011 and 2016, both components contributed to the reduction in the resident population in Portugal and to more substantial changes in its age composition than in the EU as a whole (Chart C7.6).

Chart C7.6 • Population by age group | Percentage



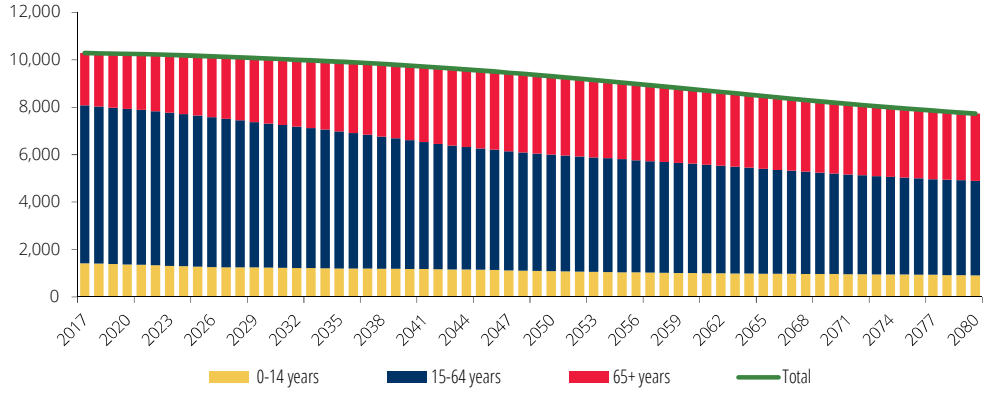
Sources: Eurostat. | Note: (*) EU28.

Projections

To assess in what way these demographic changes in Portugal will extend into the future, the latest demographic projections released in June 2018 by Statistics Portugal for the central scenario are detailed below.[54] These projections point to a continued downward and ageing trend in the population over the 2017-80 horizon.

The latest projections point to a decrease in the resident population from approximately 10 million and 300 thousand individuals in 2017 to around 7 million and 700 thousand individuals in 2080 (Chart C7.7).

Chart C7.7 • Resident population projections by age group | Thousands of persons



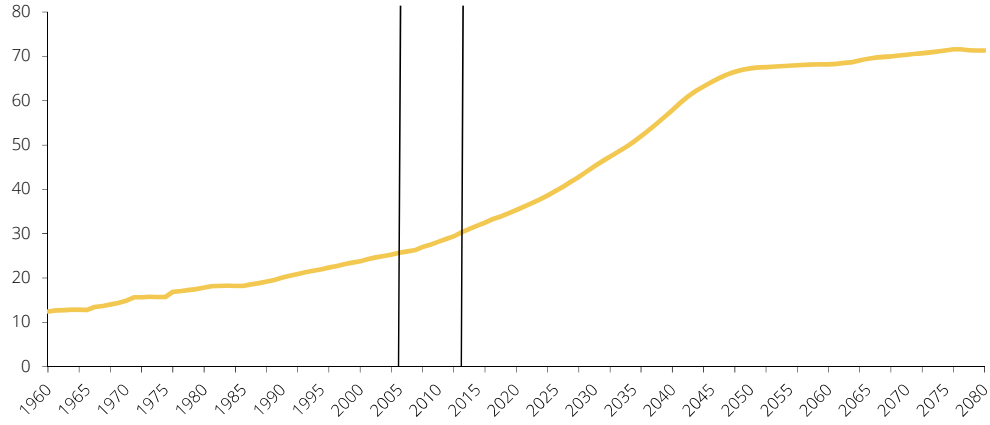
Source: Statistics Portugal.

This decrease in the population will continue to be accompanied by a change in the age group composition, with an increase in the old-age dependency ratio, which will become more marked up to 2050 and will stabilise later on. This result is similar to those in the central scenarios of previous projection exercises carried out by Statistics Portugal (March 2017) and Eurostat (EUROPOP 2015).

54. As regards the main results, see: a https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaques&DESTAQUESdest_boui=315156710&DESTAQUESema=55466&DESTAQUESmodo=2&xlang=en. For more details on the methodology applied to resident population projections, see: http://smi.ine.pt/DocumentacaoMetodologica/Detalhes/1463 (Portuguese version).

It should be noted that the upward trend in the dependency ratio has started in the mid-1960s, but the highest increase has occurred since 2009 (Chart C7.8).

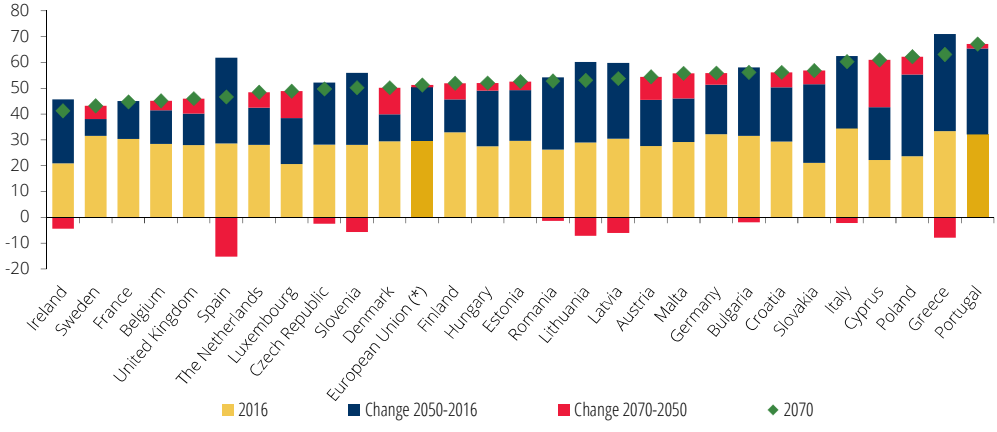
Chart C7.8 • Old-age dependency ratio | Percentage



Sources: Eurostat and Statistics Portugal. | Notes: the last decade is delimited by vertical bars. The ratio corresponds to the number of individuals aged 65 and over to the number of individuals aged 15-64.

Over the past decade, this ratio rose by 6 p.p., which doubled from that seen in each of the previous decades. In 2016, the dependency ratio in Portugal was in line with the EU average (around 30%), but in 2050 it is expected to be considerably above it, posting one of the highest figures, of close to 70%. This ratio is projected to stabilise by 2070, but on that date it will account for the highest value among EU countries (20 p.p. above the EU average) (Chart C7.9).

Chart C7.9 • Old-age dependency ratio – international comparison | Percentage



Sources: European Commission, *Ageing Report 2018*. | Note: (*) EU28.

The higher dependency ratio in Portugal reflects not only longevity gains across all European countries, but also lower birth rates, with long-term projections pointing to a very muted recovery in the TFR to around 1.6 at the end of the projection horizon.

Uncertainty surrounds all demographic scenarios, particularly in the net migration component. This is the most volatile variable, which is more difficult to capture and to project, but accounts for

a substantial share in several countries and periods. According to the latest Eurostat projection exercise, the cumulative net immigration flows in the 2017-70 period correspond to 11% of EU population in 2070, while for Portugal the projected value is 9%.

In short, over the past decade the resident population in Portugal has decreased by approximately 260 thousand individuals, which can only be partly explained by migration flows. Indeed, the most substantial and persistent contribution has been made by the negative natural population change, given that the TFR is among the lowest in the EU. At the same time, the population age structure has also changed more markedly, with the dependency ratio rising above 30%. These developments simultaneously reflect the reduction in labour force and the increase in older population. The latest demographic projections still point to a downward and ageing trend over the 2017-80 horizon, against a background where the dependency ratio projected for Portugal is the highest among EU countries (approximately 70%). Although this demographic projection horizon is extended over a very long run and is, therefore, surrounded by high uncertainty, evidence from the past decade suggests that demographic developments in Portugal have already been more adverse than the EU average, which has also pointed to a population ageing trend. This demographic outlook poses very substantial challenges to the Portuguese economy and must be taken into account as regards the action of economic agents and public policy-making.

6 Demand

GDP decelerated in the first half of 2018, in line with developments in the euro area

In the first half of 2018 real GDP grew by 2.3% year on year, decelerating by 0.2 p.p. from the second half of 2017 (Table I.6.1). Activity in the euro area also decelerated in the same period with the year on year growth rate of GDP falling from 2.8% to 2.3%. GDP growth in Portugal in the first half of 2018 recorded a chain rate of change of 1.1% (1.2% in the previous half-year). Indicators of cyclical developments for the Portuguese economy suggest that the pace of growth remains strong and above its long-term average (Box 8).

Table I.6.1 • GDP and its main components | Year-on-year rate of change in percentage, unless otherwise stated

	As a % of GDP in 2017	2016	2017	2017		2018	2017		2018	
				H1	H2	H1	Q3	Q4	Q1	Q2
GDP	100.0	1.9	2.8	3.1	2.5	2.3	2.5	2.5	2.2	2.4
Domestic demand	99.2	2.0	3.0	2.9	3.2	2.6	3.7	2.7	2.5	2.6
Private consumption	64.8	2.4	2.3	2.2	2.4	2.5	2.7	2.2	2.2	2.7
Public consumption	17.5	0.8	0.2	-0.2	0.6	0.8	0.6	0.6	0.7	0.9
Investment	16.9	1.7	9.2	9.2	9.2	5.0	11.5	7.0	6.1	4.0
GFCF	16.6	2.3	9.2	10.8	7.7	4.0	9.3	6.1	4.3	3.7
Change in inventories [a]		-0.4	0.1	-0.4	0.6	0.4	0.4	0.1	0.3	0.1
Exports	42.7	4.4	7.8	9.0	6.7	6.0	6.2	7.2	4.9	7.0
Imports	41.9	4.7	8.1	8.3	7.9	6.4	8.7	7.2	5.6	7.2
Contribution of domestic demand net of import content [b]		0.9	1.3	1.2	1.2	1.1	1.4	1.0	1.0	1.1
Contribution of exports net of import content [b]		0.9	1.5	1.8	1.3	1.2	1.1	1.5	1.1	1.3
Memo item:										
GDP - change over the previous period				1.3	1.2	1.1	0.6	0.8	0.4	0.6
Domestic demand (exc. change in inventories)	98.9	2.1	3.0	3.1	2.9	2.4	3.3	2.5	2.3	2.6

Sources: Statistics Portugal (Banco de Portugal calculations). Note: (a) Contributes to real growth of GDP, in percentage points. (b) Contributes to the real growth rate of GDP, net of imports, in percentage points. The demand aggregates net of imports are obtained subtracting an estimate of imports that are included in each component. The calculation of the import content used the information available for the year 2013. For more details, see Box "The import content of global demand in Portugal", *Economic Bulletin*, December 2017.

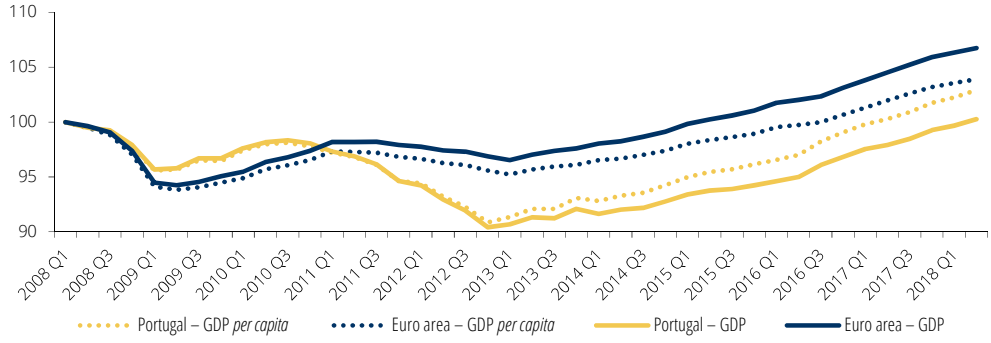
In the second quarter of 2018 real GDP surpassed the level observed prior to the international economic and financial crisis, similarly to GDP *per capita* since mid-2017. In both cases, cumulatively, the recovery of activity in Portugal lagged behind that recorded in the euro area (Chart I.6.1).

Deceleration of activity reflected the developments in exports and investment

The deceleration of exports and of GFCF led to a slower pace of growth in economic activity in the first half of 2018 (Table I.6.1 and Chart I.6.2). In contrast, private consumption accelerated slightly. These developments extend the profiles seen in the second half of 2017. In the euro area there

was also a deceleration in exports, while domestic demand growth remained stable, with stronger dynamics of GFCF (Chapter 2).

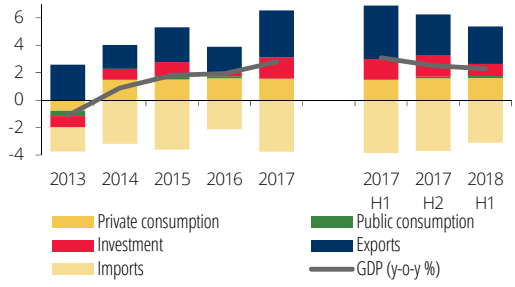
Chart I.6.1 • GDP and GDP *per capita* developments in Portugal and Euro area | Index 2008 Q1=100



Sources: Eurostat and Statistics Portugal (Banco de Portugal calculations).

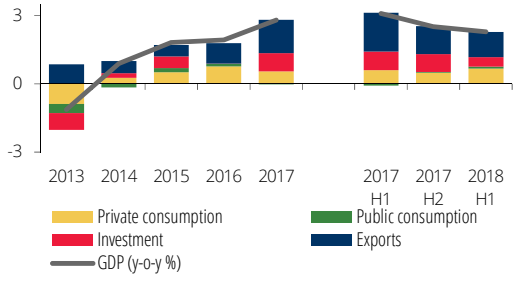
Considering the contributions to the year on year rate of change in GDP net of import content, exports contributed 1.1 p.p. in the first half of 2018, against 1.2 p.p. in the second half of 2017 (Chart I.6.3). The contribution from investment went down from 0.8 p.p. to 0.4 p.p. in the same period, while the contribution from private consumption increased to 0.7 p.p., after 0.5 p.p. in the second half of 2017.

Chart I.6.2 • Gross contributions to year-on-year rate of change of GDP | In percentage and percentage points



Sources: Statistics Portugal (Banco de Portugal calculations).

Chart I.6.3 • Net contributions to year-on-year rate of change of GDP | In percentage and percentage points



Sources: Statistics Portugal (Banco de Portugal calculations). | Notes: The demand aggregates net of imports are obtained by subtracting an estimate of the imports needed to meet each component. The calculation of the import content used the information available for the year 2013. For more details, see Box 'The import content of global demand in Portugal', *Economic Bulletin*, December 2017.

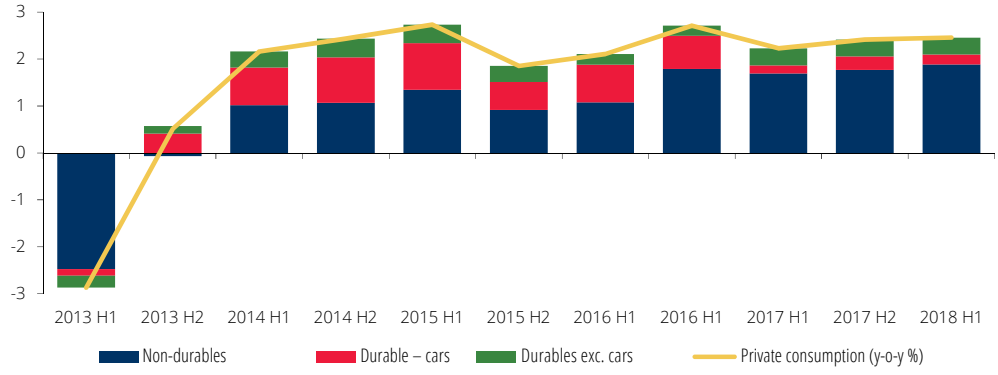
Slight acceleration of private consumption translated the increase in the contribution from the non-durable component

In the first half of 2018 private consumption grew by 2.5%, standing 0.1 p.p. above the figures recorded in the second half of 2017. This was sustained by historically high levels of consumer confidence and a

robust growth of households' real disposable income, associated to rising employment and the acceleration of wages. This trend of consumption is also related to households' financing conditions, which remained favourable, namely consumer credit, contributing to the momentum experienced by lending for this purpose (Chapter 3). The savings rate declined further, remaining at historically low levels.

The slight acceleration of private consumption resulted from developments in current consumption (2.0% change in the second half of 2017 and 2.1% in the first half of 2018), while consumption of durables decelerated, specifically the component related to cars (Chart I.6.4). Yet, consumption of durable goods kept a still high growth rate (5.8% in the first half of 2018).

Chart I.6.4 • Contributions to the private consumption growth rate | Year-on-year rate of change, in percentage, and contributions, in percentage points



Sources: Statistics Portugal (Banco de Portugal calculations).

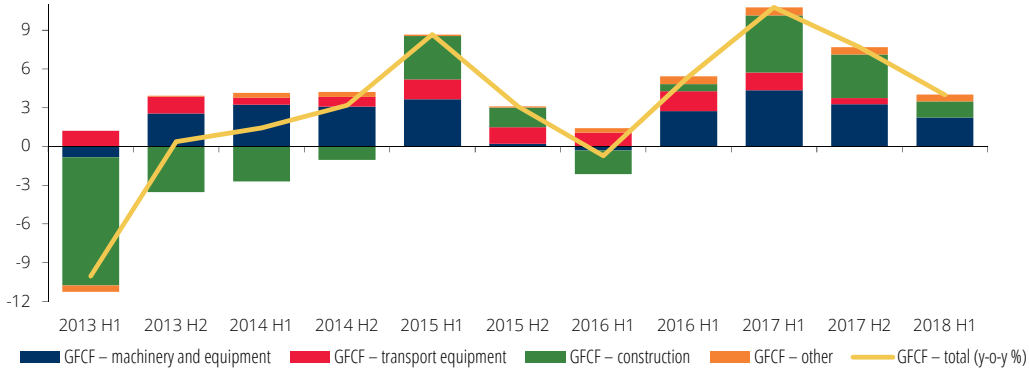
GFCF slowdown extended to most components

GFCF growth was down from 7.7% in the second half of 2017 to 4.0% in the first half of 2018.

Construction was the component that contributed the most to the deceleration of total GFCF (Chart I.6.5). This component's growth in the first half of 2018 stood at 2.7%, after 7.3% in the second half of 2017, within a framework of improving confidence in the construction sector (Chart I.6.6). Residential investment slowed in this period, partially reflecting the adverse weather conditions experienced in the first quarter of the year. The deceleration of the GFCF in construction is also influenced by the base effect of the strong increase in public works in 2017 (Chart I.6.7).

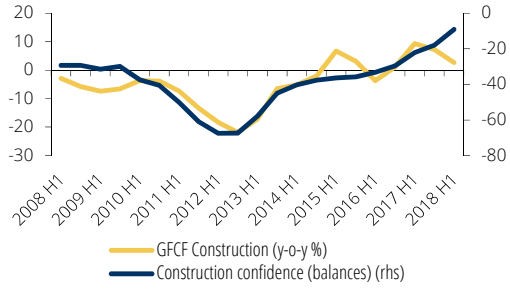
GFCF in machinery and equipment continued to grow at a strong pace in the first half of the year (8.2%), even if slower than in the second half of 2017 (12.3%). This GFCF component has been experiencing a strong recovery, and was the only one that already surpassed the level recorded in the first quarter of 2008 (Chart I.6.8). The momentum of this type of investment continued to reflect the favourable prospects for future global demand, the capacity utilisation level and the need to replace the capital stock, together with the maintenance of favourable financing conditions (Chapter 3).

Chart I.6.5 • Contributions to the GFCF growth rate | Year-on-year rate of change, in percentage, and contributions, in percentage points



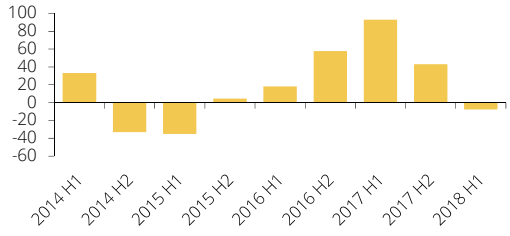
Sources: Statistics Portugal (Banco de Portugal calculations).

Chart I.6.6 • GFCF in construction and confidence | Year-on-year rate of change, in percentage, and balances



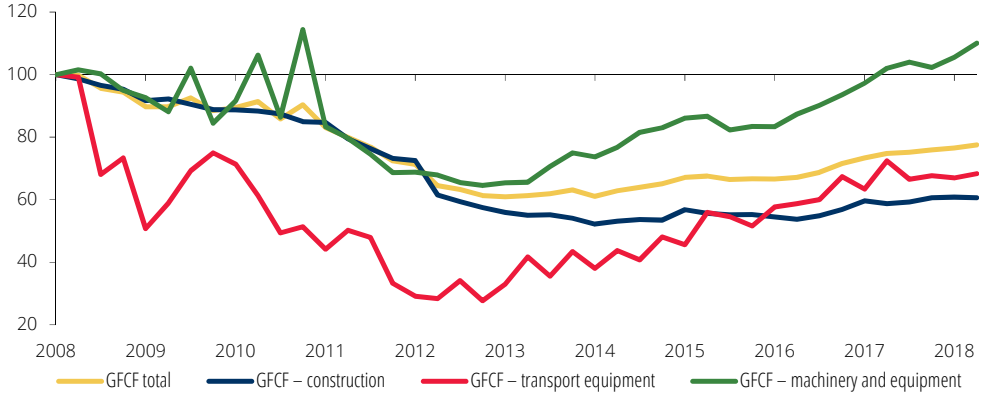
Sources: European Commission and Statistics Portugal (Banco de Portugal calculations).

Chart I.6.7 • Value of public procurement contracts | Year-on-year rate of change, in percentage



Source: AECOPS.

Chart I.6.8 • Developments in GFCF by type of investment| 2008 Q1=100



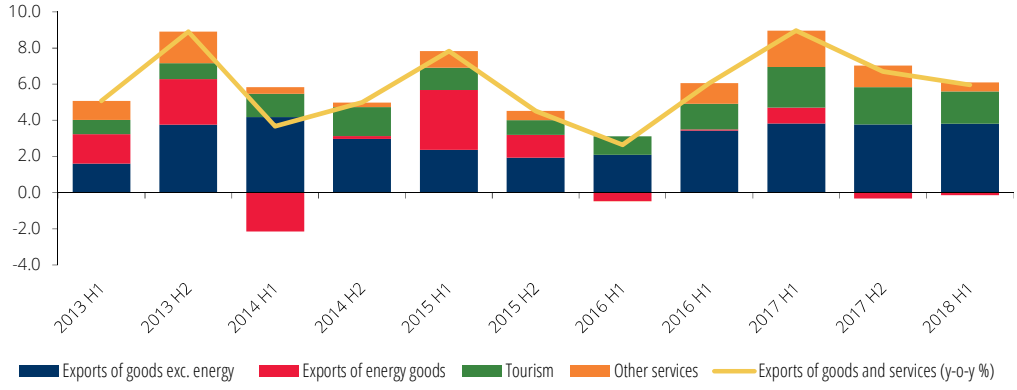
Sources: Statistics Portugal (Banco de Portugal calculations).

GFCF in transport equipment decelerated from 5.3% in the second half of 2017 to -0.4% in the first half of 2018. This was largely due to a base effect resulting from a very high value associated with the purchase of airplanes in the second quarter of 2017.

Export growth buoyed by external sales of cars and tourism

In the first half of 2018 real exports of goods and services were up by 6.0% year on year, after a 6.7% increase in the second half of 2017 This lower growth resulted from a slight acceleration in exports of goods combined with a deceleration in exports of services, extended to tourism and other services (Chart I.6.9).

Chart I.6.9 • Contributions to the real growh rate of goods and services exports | Year-on-year rate of change, in percentage, and contributions, in percentage points



Source: Statistics Portugal (Banco de Portugal calculations).

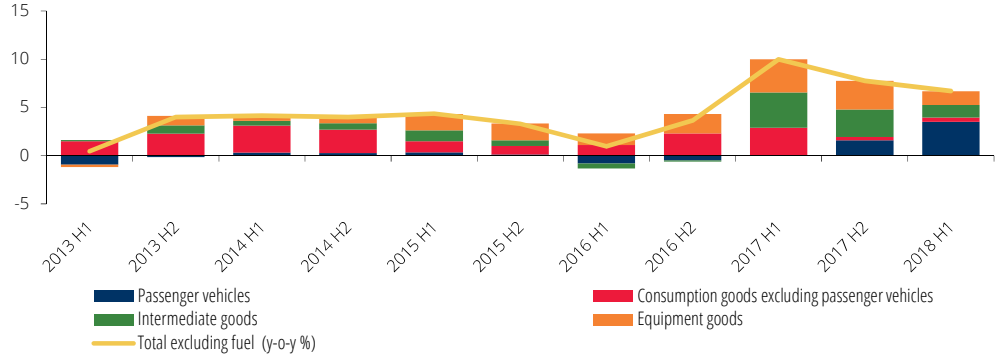
Real exports of goods recorded a year-on-year growth rate of 5.4% in the first half of 2018, compared with 5.0% for the second half of 2017. Real exports of energy goods fell further in the first half of the year, which reflected the decline in the production of industrial units in the energy sector.

According to data on international trade in nominal terms, exports of non-fuel goods decelerated in the first half of 2018, which extended to all types of goods, except for passenger cars (Chart I.6.10). Passenger car exports' growth rate surged from 47.4% to 93% between the second half of 2017 and the first half of 2018, reflecting the impact of the investment to increase export capacity made by an important industrial unit of this sector in 2017. By geographical destination, nominal exports of non-fuel goods to non-EU markets declined, with sales to Angola making a marked negative contribution. The appreciation of the euro in this period also contributed to these results. In contrast, the contribution of the intra-EU market to total exports' growth increased, despite a slight reduction in the contribution made by Spain, Portugal's main trading partner (Chart I.6.11).

As regards real exports of services, the tourism component continued to grow significantly, with a year-on-year change of 12.0%, though decelerating from the 14.7% rise in the second half of 2017. In the same period the growth rate of exports of other services declined from 6.9% to 2.9%

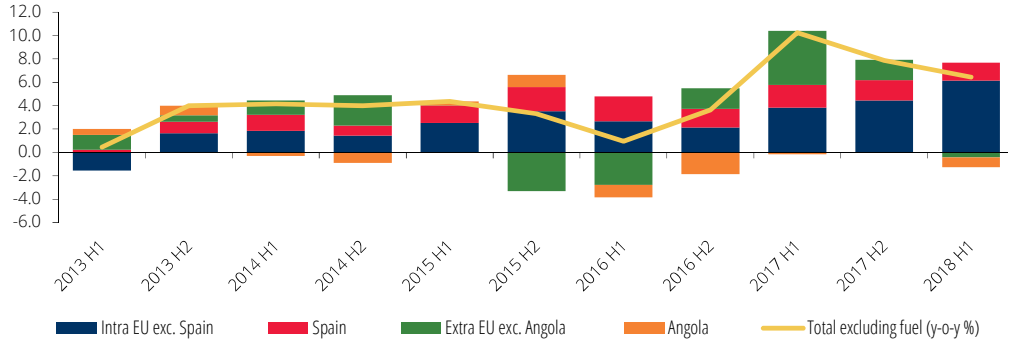
According to nominal data from the balance of payments, growth of tourism exports in Portugal continued to experience greater momentum than most Mediterranean countries in 2017 (Chart I.6.12).

Chart I.6.10 • Contributions of the main types of goods to the nominal change of exports of goods excluding fuel | Year-on-year rate of change, in percentage, and contributions, in percentage points



Fontes: INE e cálculos do Banco de Portugal.

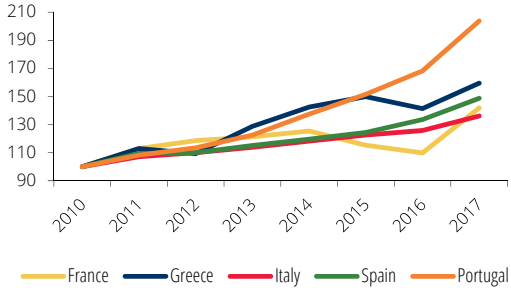
Chart I.6.11 • Contribution of the main geographic markets to the nominal change in exports of goods excluding fuel | Year-on-year rate of change, in percentage, and contributions, in percentage points



Sources: Statistics Portugal (Banco de Portugal calculations).

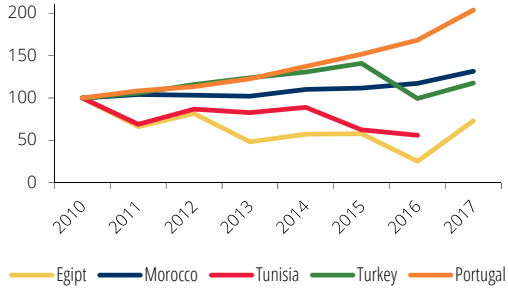
Chart I.6.12 • Comparison of the evolution of nominal exports of tourism in mediterranean countries | Index 2010=100

Portugal and euro area countries



Sources: IMF (Banco de Portugal calculations).

Portugal and emerging markets



Sources: IMF (Banco de Portugal calculations). | Note: For Tunisia, there is no data available for year 2017.

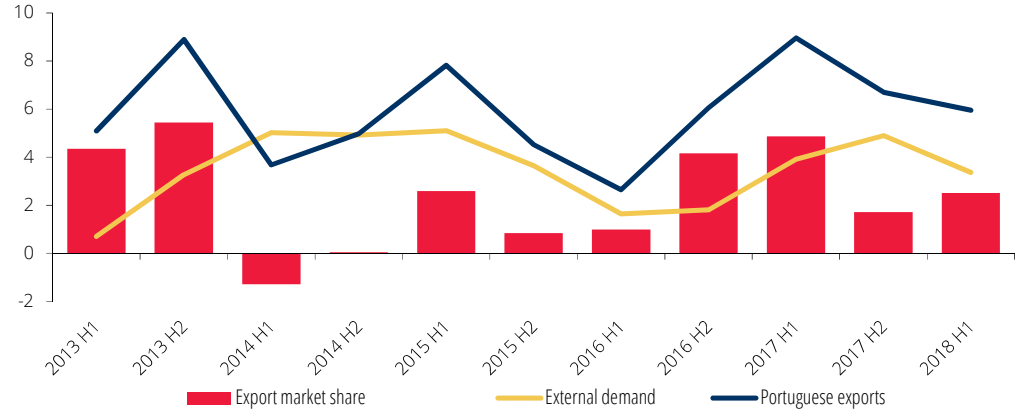
Developments in Portuguese exports in the first half of 2018 were in line with the deceleration of external demand for Portuguese goods and services. Portuguese exporters of goods and services

continued to gain external market share, but less than in 2017 (Chart I.6.13). In nominal terms, the market share gain in the first half of 2018 largely reflects gains in tourism and, in terms of intra-EU trade in goods, in car exports.[55]

Imports moved in line with the trend of domestic demand and exports, decelerating from 7.9% growth in the second half of 2017 to 6.4% in the first half of 2018 (Chart I.6.14). This extended to the goods and services components, though it was sharper for the latter.

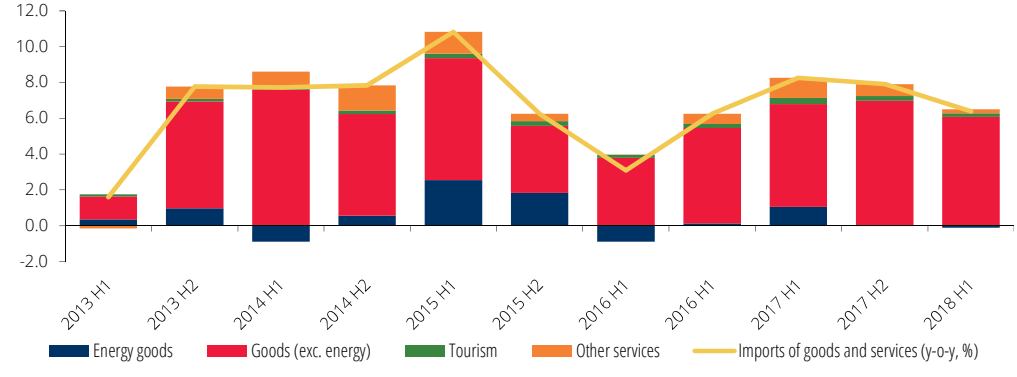
Regarding imports of goods, and according to nominal data from international trade, the robust growth of imports in the first half of the year reflected the strong momentum of imports of capital goods (up by 9.9% up in the first half of 2018) and intermediate goods (7.2% year-on-year rate of change for the same period), with imports of consumer goods growing less than total imports (5.1%) (Chart I.6.15). The increase in imports of capital goods is related to the buoyancy of the GFCF in machinery and equipment.

Chart I.6.13 • Exports of goods and services, external demand and market share | Year-on-year rate of change, in percentage



Source: European Central Bank and Statistics Portugal (Banco de Portugal calculations).

Chart I.6.14 • Contributions to the real growth rate of imports of goods and services | Year-on-year rate of change, in percentage, and contributions, in percentage points

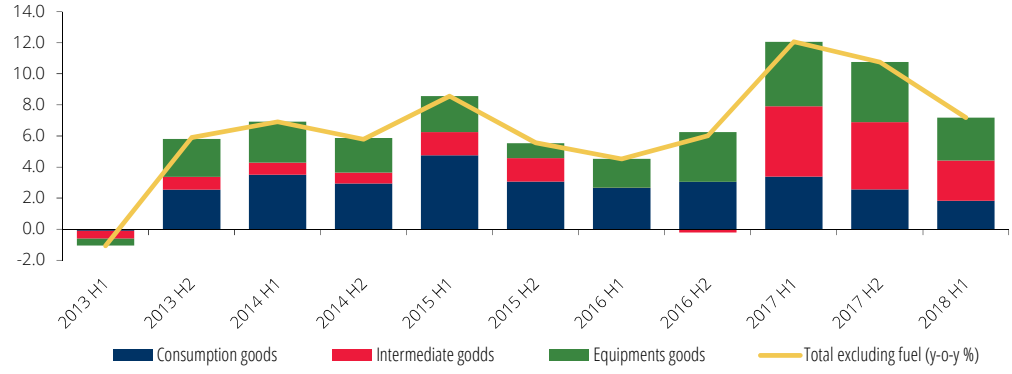


Sources: Statistics Portugal (Banco de Portugal calculations).

55. For the detailed methodology underlying the market share calculations, see Box 9 – 'Recent developments in the market share of Portuguese exports of non-fuel goods in the European Union', *Economic Bulletin of Banco de Portugal, October 2017.*

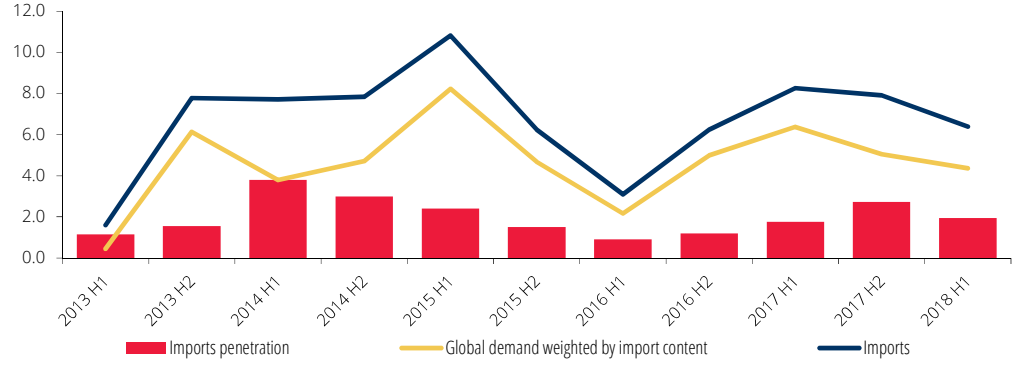
Import growth continued to surpass overall demand weighted by import content, as has been observed since 2013, leading to a new increase in import penetration, albeit smaller than in the previous half-year (Chart I.6.16). This evolution is common in recovery phases of the cycle, reflecting a high historical short-term elasticity of imports against weighted overall demand.

Chart I.6.15 • Contributions of the main types of goods to the nominal change of imports of goods excluding fuel | Year-on-year rate of change, in percentage, and contributions, in percentage points



Sources: Statistics Portugal (Banco de Portugal calculations).

Chart I.6.16 • Imports of goods and services, weighted global demand and import penetration | Year-on-year rate of change, in percentage



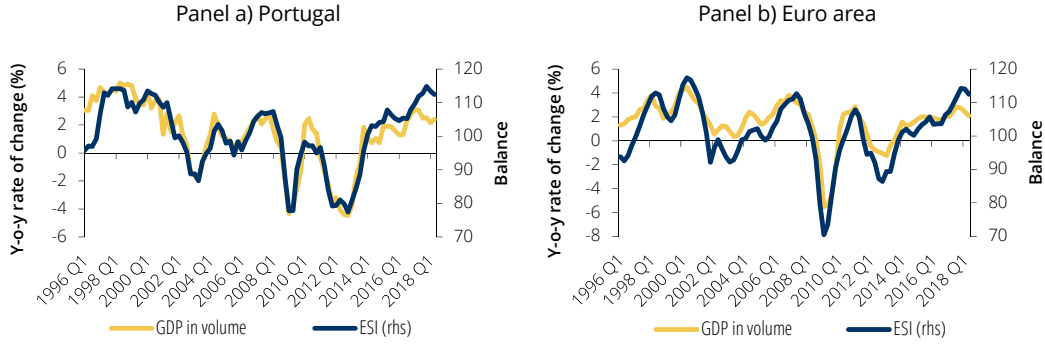
Sources: Statistics Portugal (Banco de Portugal calculations).

Box 8 • Indicators of cyclical developments for the Portuguese economy

The assessment of business cycle developments in real time is key when gauging growth and inflation prospects. In this context, tools must be developed to visualise and analyse cyclical developments in economies.

This box focuses on a tool for viewing and assess cyclical developments in the Portuguese economy on the basis of a methodology proposed by Gayer (2010)[56] and used by the European Commission (EC). The indicators of cyclical developments presented here are based on the business and consumer surveys released by the EC, which provide an assessment at aggregate and sectoral level (including manufacturing, services, retail trade and construction, in addition to consumers). In particular, the economic sentiment indicator is used, as it sums up a range of sectoral developments and helps to monitor economic activity (Chart C8.1).

Chart C8.1 • GDP and Economic Sentiment Indicator | Year-on-year rate of change in percentage and balance



Sources: European Commission and Statistics Portugal. | Note: last observation – 2018 Q2.

Survey data released by the European Commission on a monthly basis feature important properties when analysing the business cycle. Chart C8.1 features two panels (panel a) for Portugal and panel b) for the euro area), which show that there is a 90% correlation between the economic sentiment indicator and the GDP growth rate in volume, for the period under review. As such, these indicators provide a credible picture of the current state of the economy and signal turning points throughout the business cycle. However, over the most recent period, the statistical correlation between the economic sentiment indicator and GDP has weakened. Another advantage of these data is the fact that it is readily available, as survey results are published even before the end of the reference period. Given the forward-looking nature of some questions, these indicators provide timely information on economic developments. Finally, as these series are not subject to revisions, real time reliability is assured.

The methodology used here consists in the graphic display of the level of a smoothed indicator against its month-on-month change. The smoothing aims to eliminate very short-term fluctuations and, for that purpose, a Hodrick-Prescott (HP) filter is used,[57] with series being subsequently standardised in order to obtain a mean equal to zero and a unitary standard deviation. The standardised levels of indicators are represented on the vertical axis and their month-on-month changes on the horizontal axis, which yields a distribution of indicators over time counterclockwise in a circular motion in each

56. See Gayer, C. (2010) Report: The Economic Climate Tracer – A tool to visualise the cyclical stance of the economy using survey data, available at http://www.oecd.org/sdd/leading-indicators/39578745.pdf.

57. The smoothing parameter (lambda) is 69, which corresponds to the elimination of fluctuations for a period of less than 18 months.

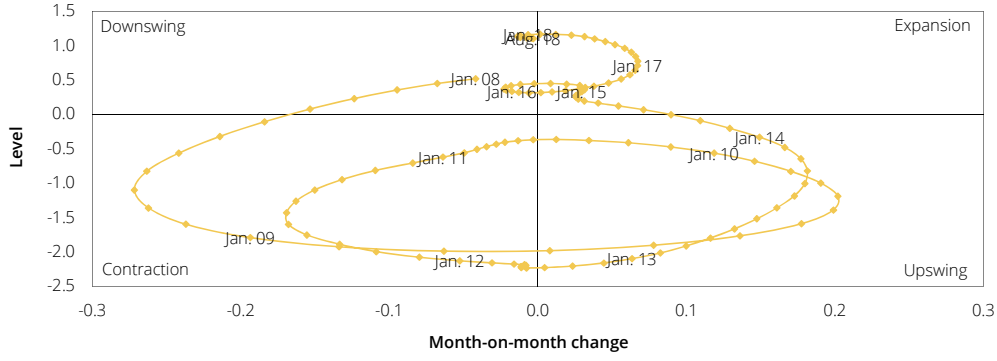
quadrant of the chart.[58] Looking at the four quadrants, we can link the distribution of indicators over time with the several phases of the business cycle:

- 1st quadrant (expansion): when the level of the indicator is above average and still on the rise;
- 2nd quadrant (downswing): when the level of the indicator is above average but is moving down;
- 3rd quadrant (contraction): when the level of the indicator is below average and still moving down;
- 4th quadrant (upswing): when the level of the indicator is below average but is on the rise.

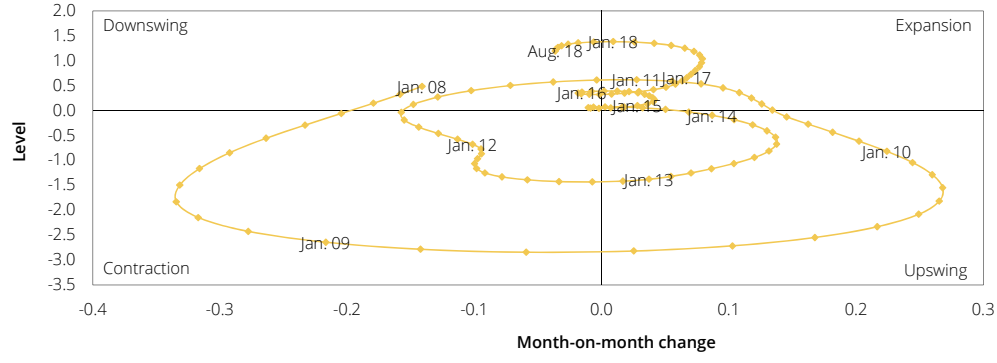
Chart C8.2 illustrates cyclical movements for Portugal and the euro area, on the basis of the economic sentiment indicator, and summarises developments in the various sectors of activity and for consumers. To ease viewing over time, developments are illustrated only for the period between January 2008 and August 2018.[59] The analysis immediately displays when the indicator is above/below its long-term average (vertical axis) and to what extent short-term developments point to an increase/decrease (horizontal axis).

Chart C8.2 • Economic climate tracers in Portugal and in the euro area | ESI, Jan-08 to Aug-18

Panel a) Portugal



Panel b) Euro area



Sources: European Commission and Banco de Portugal calculations.

58. Levels are represented on the vertical axis and month-on-month changes are represented on the horizontal axis due to the fact that, in this manner, movements along the vertical axis correspond to the distribution of indicators over time. On the other hand, the peaks/troughs in the business cycle are shown in the top/lower center of the diagram, respectively.

59. For the purpose of smoothing indicators using an HP filter, the sample period starts in January 1998, after which all sectoral indicators and underlying questions are available.

Panel a) shows cyclical developments in Portugal and the fact that the indicator went through all quadrants almost continuously in the period under review. In early 2008, the indicator was in the downswing quadrant, later on moving to the contraction quadrant in the course of 2009, when there was a marked contraction in Portugal's economic activity. In the period 2010-13, the indicator switched between the third and fourth quadrants (upswing, contraction, upswing), reflecting the emerging recovery from recession stemming from the international financial crisis, which was interrupted by a new recession period against the backdrop of the euro area sovereign debt crisis and subsequent recovery. In 2014 the indicator moved into the expansion quadrant. The indicator has remained in that quadrant since then, save for a brief stay in the downswing quadrant between 2015 and 2016. However, since early 2018, the indicator has been in the downswing quadrant.

Panel b) illustrates cyclical developments in the euro area economic sentiment indicator, which are broadly in line with those for Portugal, except for the period 2010-11.

Turning to the Portuguese economy, Chart C8.3 depicts sectoral cyclical developments, showing that in the course of 2018, the consumer confidence indicator – panel a) – and all sectoral indicators except construction confidence – panels b) to d) – started to move towards the downswing quadrant. The construction confidence indicator – panel e) – is still in the expansion quadrant, which suggests continued momentum in the sector following a long period of structural adjustment.

As a robustness test, an alternative economic sentiment indicator was compiled on the basis of factor models[60] using all survey questions, regardless of their (non-)inclusion in the compilation of sectoral confidence indicators. Chart C8.4 illustrates cyclical developments in this alternative indicator,[61] which are consistent with the aforementioned cyclical developments in the economic sentiment indicator not based on factor models.

Overall, cyclical movements in indicators for the most recent period confirm that the Portuguese economy decelerated in the first half of 2018. In the euro area, the indications are similar. However, the deceleration is slight and indicators suggest that the pace of growth remains robust and above the long-term average.

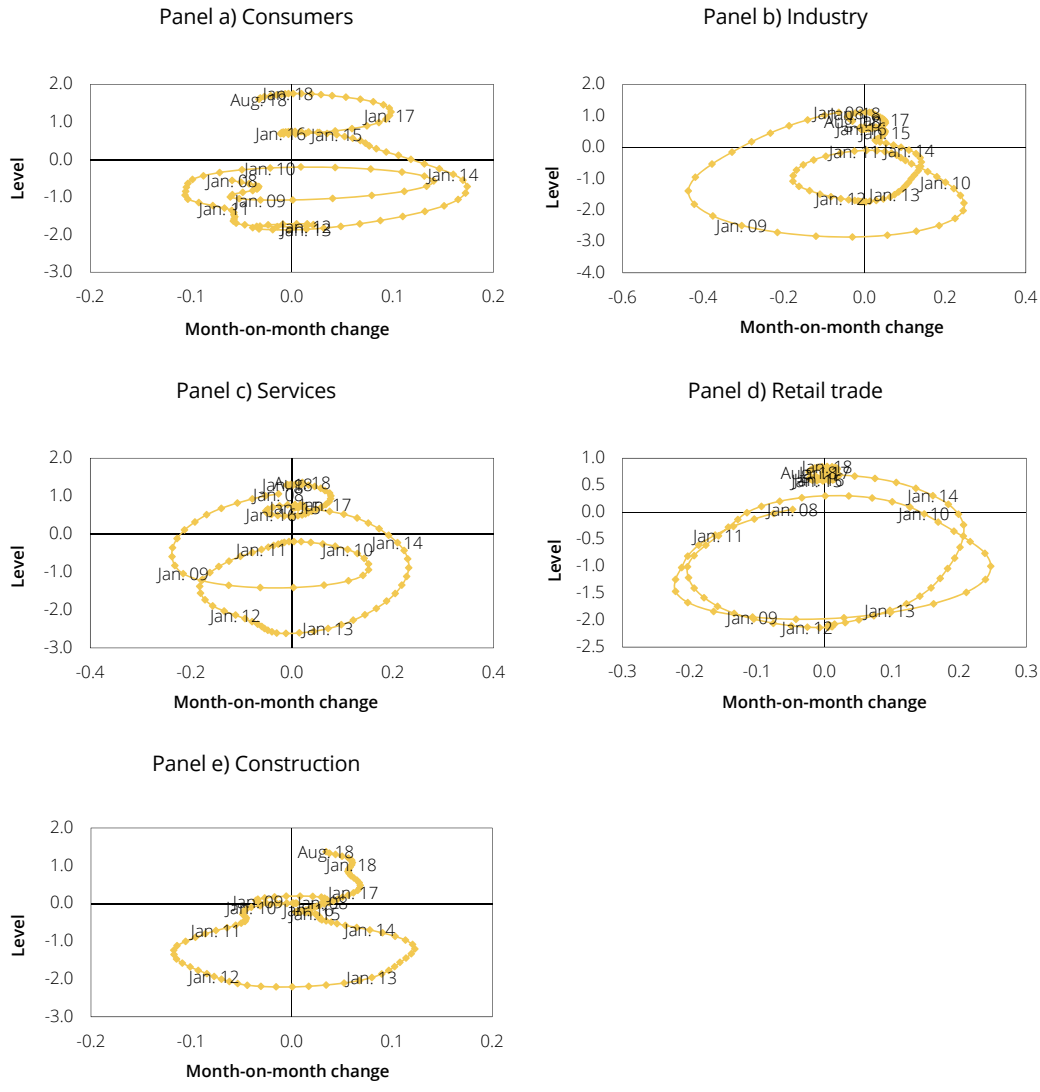
Finally, it is important to highlight that the statistical correlation between the economic sentiment indicator and GDP has deteriorated recently – in the case of Portugal since 2014, and in the euro area since 2017 – which suggests that particular caution is required when interpreting these indicators as measures for monitoring activity and cyclical developments. Furthermore, the tools presented here do not always result in a continuous movement of the indicators across the four quadrants and thus do not allow to infer about the dating of the business cycle in Portugal or the euro area.[62]

60. For a discussion about this class of models, see, for instance, Stock, J. H. and M. Watson (1998) 'Diffusion Indexes', *Working Paper No 6702*, National Bureau of Economic Research.

61. The results obtained using factor models for the indicators compiled on the basis of the five sectoral indicators or only on the basis of the questions included are qualitatively identical.

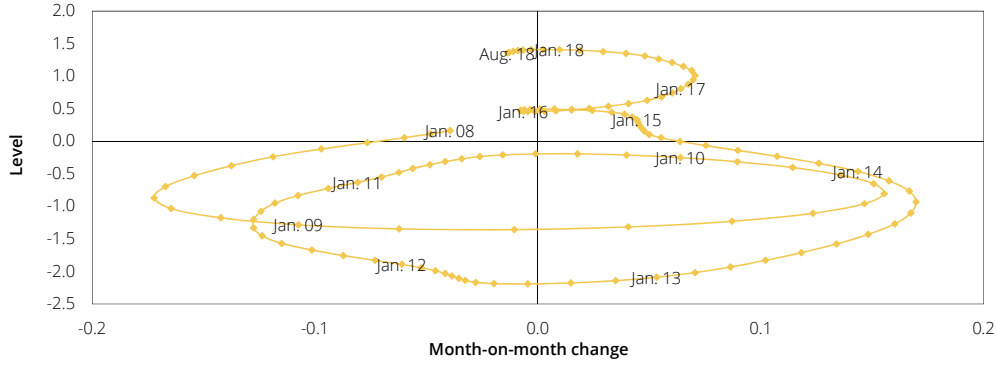
62. For more details, see Rua, A. (2017) 'Dating the Portuguese business cycle', *Banco de Portugal Economic Studies*, Vol. 3, No 1, 43-58, Banco de Portugal, for Portugal, and the website https://cepr.org/content/euro-area-business-cycle-dating-committee for the euro area.

Chart C8.3 • Economic climate tracers in Portugal | Jan-08 to Aug-18



Sources: European Commission and Banco de Portugal calculations.

Chart C8.4 • Economic climate tracer in Portugal based on a factor model | ESI, Jan-08 to Aug-18



Sources: European Commission and Banco de Portugal calculations.

7 Prices

Consumer prices decelerated in the first half of 2018

The inflation rate in Portugal, as measured by the year-on-year rate of change in the Harmonised Index of Consumer Prices (HICP), stood at 1.1% in the first half of 2018 (Table I.7.1). This represents a decrease of 0.5 p.p. from the previous year and of 0.4 p.p. from the previous half-year. Excluding unprocessed food and energy, the inflation rate was also down, standing at 0.9% in the first half of 2018 (which compares with 1.3% in 2017 and 1.5% in the previous half-year). In the first half as a whole, the deceleration in prices was broad based – exception made to energy – but was mainly brought on by the behaviour of services prices.

Table I.7.1 • HICP – Main components | As a percentage

	Weights 2017	Annual rate of change			Year-on-year rate of change		
		2015	2016	2017	17 H1	17 H2	18 H1
Total	100.0	0.5	0.6	1.6	1.6	1.5	1.1
Total excluding energy	92.0	0.8	0.9	1.4	1.3	1.4	0.8
Total excluding unprocessed food and energy	82.0	0.7	0.8	1.3	1.1	1.5	0.9
Goods	57.9	-0.1	0.0	0.9	1.1	0.6	0.3
Food	23.1	1.5	0.8	1.7	2.0	1.5	1.0
Unprocessed food	10.0	1.9	1.6	1.8	2.8	0.8	0.3
Processed food	13.1	1.2	0.3	1.6	1.3	2.0	1.5
Industrial	34.8	-1.3	-0.7	0.3	0.5	0.1	-0.1
Non-energy	26.8	-0.7	-0.3	-0.8	-0.7	-0.8	-1.2
Energy	8.0	-3.7	-1.8	3.7	4.4	3.0	3.5
Services	42.1	1.4	1.5	2.5	2.2	2.8	2.0
Memo items:							
Contribution of administered prices (in p.p.)	–	0.1	0.1	0.1	0.2	0.2	0.2
Contribution of taxes (in p.p.)	–	0.2	-0.1	-0.2	-0.6	0.1	0.0
CPI	–	0.5	0.6	1.4	1.4	1.3	0.9
HICP – Euro area	–	0.0	0.2	1.5	1.6	1.4	1.5

Sources: Eurostat and Statistics Portugal.

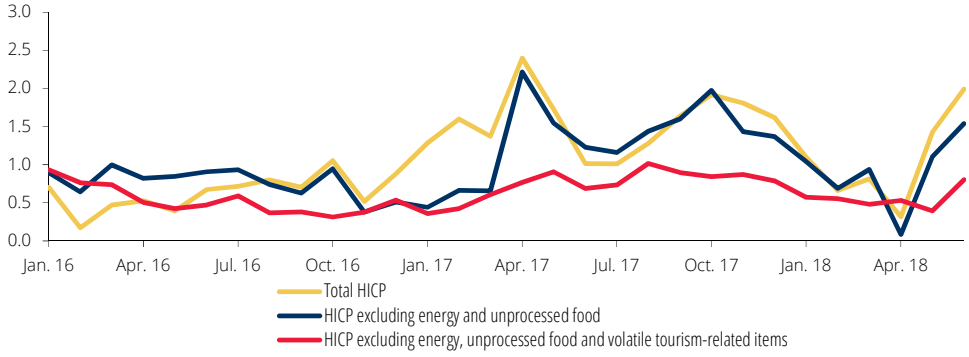
From a monthly point of view, the year-on-year rate of change in the HICP recorded high volatility in the first half of 2018, in connection with energy prices on the one hand and, on the other hand, with the base effect associated to the services component, mainly concerning accommodation and passenger transportation by air services. For this period of time the year-on-year rate of change in the HICP reached its lowest at 0.3% in April and its highest at 2% in June. However, excluding prices for energy, unprocessed food and volatile tourism-related items, the HICP showed year-on-year changes relatively stable, within a range between 0.4% and 0.8% (Chart I.7.1).

Lower external inflationary pressures

The contribution from external inflationary pressures went down in the first half of the year. The deflator of imports of goods excluding energy decreased in this period – after an increase in 2017 – partly reflecting the appreciation of the euro (Chart I.7.2). This will have especially influenced

consumer prices for non-energy industrial goods, given their higher import content. Prices for this aggregate recorded a larger reduction in the first half of the year, compared with the second half of 2017 (-1.2% and -0.8%, respectively).

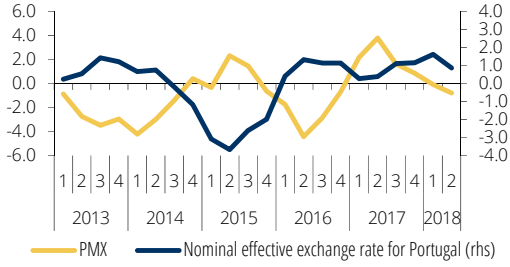
Chart I.7.1 • HICP in Portugal | Year-on-year rate of change, in percentage



Sources: Statistics Portugal and Banco de Portugal calculations. | Notes: The volatile tourism-related items include accommodation services (weight of 8.5% in the services aggregate and of 3.6% in the total HICP), passenger transportation by air (1.6% vs. 0.7%) and package holidays (1% vs. 0.4%).

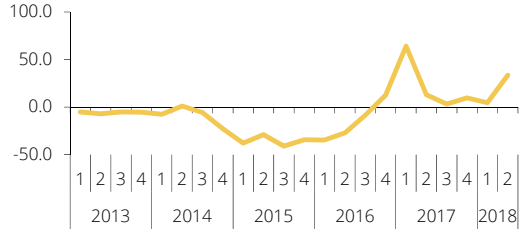
Conversely, after a slight deceleration in the first quarter of 2018, oil prices in euro accelerated significantly throughout the second quarter (Chart I.7.3). This translated into a moderate increase in consumer prices for energy until March and into an acceleration afterwards. Regarding the half year, prices for this aggregate rose by 3.5% year-on-year, which compares with a 3% increase in the second half of 2017.

Chart I.7.2 • Import prices excluding energy goods and nominal effective exchange rate for Portugal | Year-on-year rate of change, in percentage



Sources: ECB and Banco de Portugal calculations. | Notes: i) PMX – import prices excluding energy goods; ii) positive changes in the exchange rate correspond to an appreciation of the euro.

Chart I.7.3 • Oil price in euros | Year-on-year rate of change, in percentage

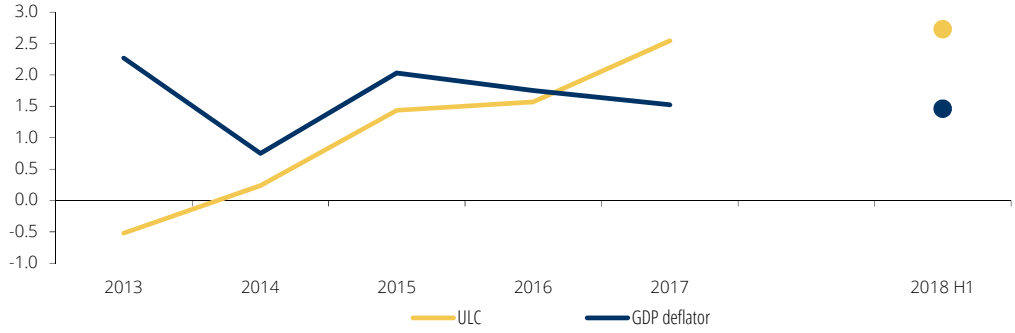


Sources: Bloomberg and ECB.

Domestic inflationary pressures increased reflecting developments in wages

In the first half of 2018 there were signs of an increase in domestic inflationary pressures, with wage indicators pointing towards an acceleration in the first half of the year (Chapter 5). As the evolution of productivity per employee remained weak, unit labour costs also accelerated in the first half of the year (Chart I.7.4). On the other hand, the GDP deflator remained unchanged in that period *versus* 2017, standing at 1.5%.

Chart I.7.4 • Unit labour costs and GDP deflator | Annual rate of change, in percentage

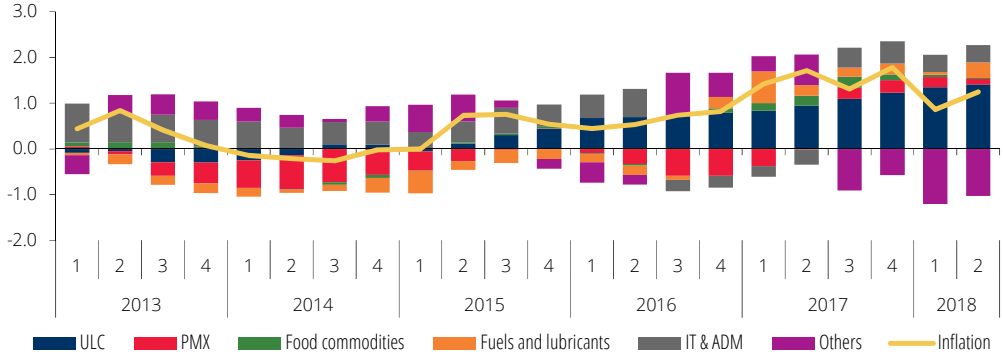


Sources: Statistics Portugal, Eurostat and Banco de Portugal. | Notes: i) ULC – unit labour costs in the private sector; ii) figures for 2018 H1 correspond to a year-on-year rate of change.

Decomposition of inflation according to the MIMO model

Chart I.7.5 breaks down the year-on-year inflation rate into the contribution from the main HICP determinants according to Banco de Portugal's model of analysis and projection of inflation, MIMO.[63] The analysis suggests that labour costs have exerted a positive and growing pressure on prices since 2015. Pressures associated to non-energy import prices declined throughout the first half of 2018. This notwithstanding, the 'Others' item – which includes unidentified factors that can influence inflation developments – made a significant negative contribution since the second half of 2017, which deepened in the first half of 2018. In addition to the contribution from idiosyncratic volatility factors associated to prices for tourism services, this item may be capturing the impact of a likely narrowing of corporate profit margins.

Chart I.7.5 • Breakdown of HICP inflation according to the MIMO model | Contributions, in percentage points



Sources: Eurostat and Banco de Portugal. | Notas: ULC – unit labour costs; PMX – import prices excluding energy goods; IT – indirect taxation; ADM – administered prices. Indirect taxation on fuels is included under the IT & ADM heading.

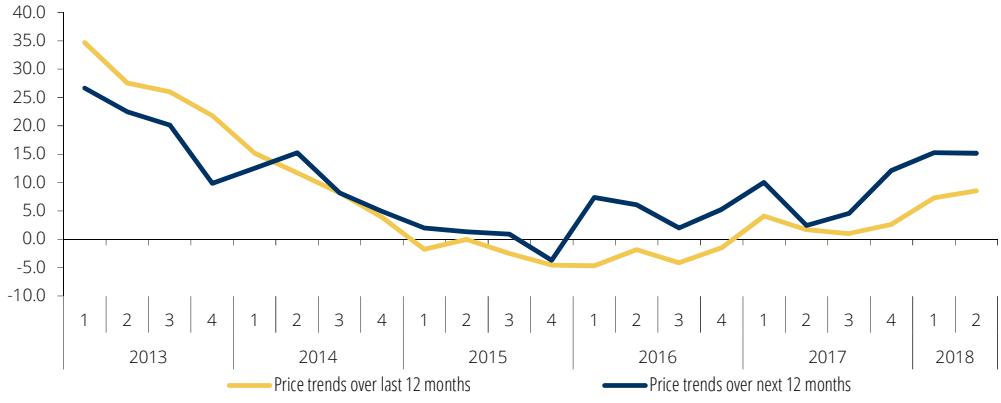
Inflation expectations for Portugal remained contained

Inflation expectations may affect the behaviour of inflation through their impact on price and wage setting. The latest Consensus Economics inflation forecasts point towards an average inflation of 1.3% in Portugal in 2018, lower than the 1.5% forecast for the euro area.

63. MIMO refers to Monthly Inflation Model. For more details, see 'MIMO – A Monthly Inflation Model', *Economic Bulletin Winter 2007, Banco de Portugal.*

This expectation of a moderate increase in prices is also corroborated by other qualitative indicators, such as the question included in the European Commission's consumer survey on price trends over the next 12 months, which stabilised in the second quarter of 2018, after an increase from the second half of 2017 onwards (Chart I.7.6).

Chart I.7.6 • Price trends over last/next 12 months | Balance

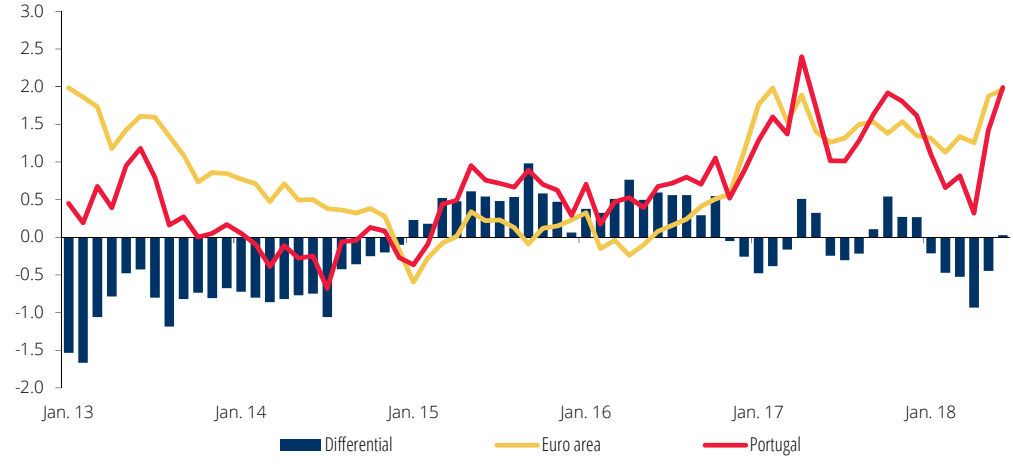


Source: European Commission.

The differential between the inflation rate in Portugal and the euro area became negative, after being virtually nil in 2017

The inflation rate in Portugal was lower than that of the euro area – which also experienced some volatility in the first half of the year (Chapter 2) – translating into a negative differential (-0.4 p.p.), which contrasts with the virtually nil differential recorded in 2017. The inflation differential between Portugal and the euro area was negative every month of the first half-year except for June, when it became nil (Chart I.7.7).

Chart I.7.7 • Inflation in Portugal and in the euro area | Year-on-year rate of change, in percentage

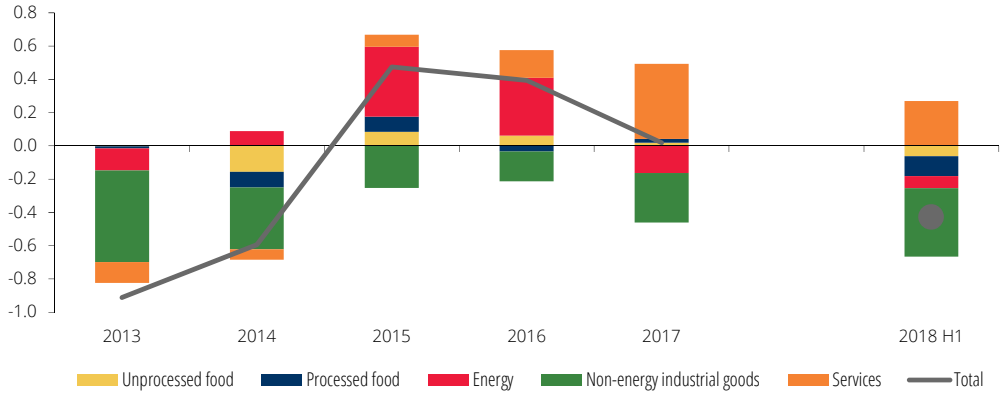


Sources: Eurostat and Statistics Portugal.

As regards the main HICP aggregates, going from a nil differential in 2017 to a negative one in the first half of 2018 is largely explained by a less positive contribution from the services differential and a more negative contribution from non-energy industrial goods (Chart I.7.8).

Overall, inflation developments in Portugal reflect the existence of inflation expectations anchored in the euro area as a whole, which translates into a very low dispersion of inflation across member countries (Chapter 2).

Chart I.7.8 • Inflation differential between Portugal and the euro area | Contributions, in percentage points



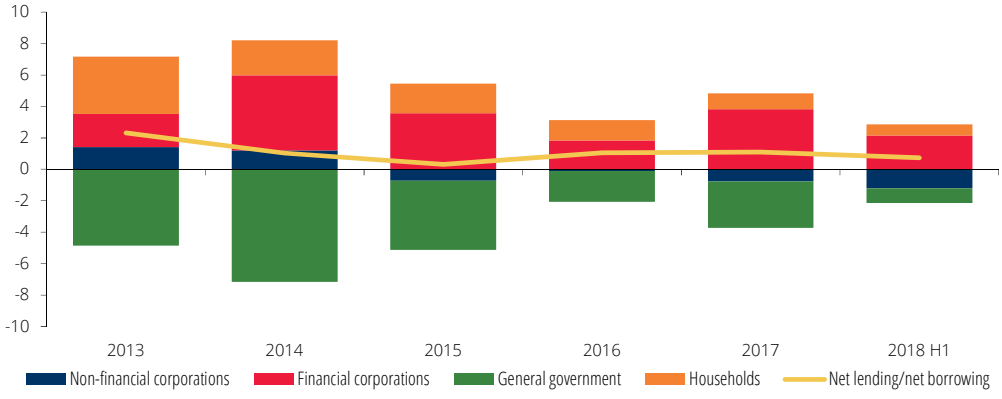
Sources: Eurostat and Statistics Portugal.

8 Balance of payments

The economy's net lending capacity declined in the year ending in the first half of 2018

According to the quarterly sector accounts, in the year ending in the first half of 2018, the Portuguese economy's net lending capacity was 0.7% of GDP, 0.4 p.p. lower than 2017 (Chart I.8.1). This outcome reflected the increase in investment and the decrease in saving as a proportion of GDP (Charts I.8.2 and I.8.3).

Chart I.8.1 • Breakdown of the net lending/net borrowing of the economy | Percentage of GDP



Source: Statistics Portugal. | Note: figures for 2018 H1 correspond to the year ending in the second quarter of 2018.

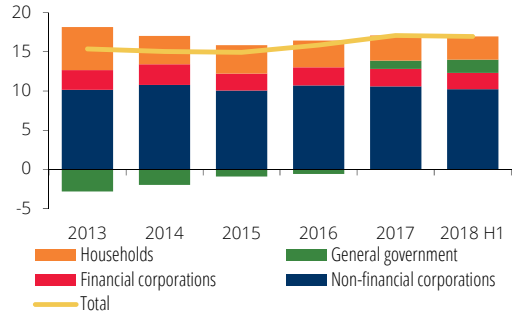
Non-financial corporations increased their net borrowing to 1.2% of GDP in the year ending in the first half (0.8% in 2017). These developments were associated with slight growth in nominal investment in this sector as a proportion of GDP, while saving fell.

The reduction in households' net lending, from 1% of GDP in 2017 to 0.7% in the year ending in the first half of 2018, reflected the developments of current saving, which fell from 3.2% to 3% of GDP. Households' investment remained stable at 3.6% of GDP.

In the case of the financial and general government sectors, their balances over this period were influenced by non-recurring operations between these sectors that increased the financial sector's net lending and intensified general government's net borrowing.[64] Excluding the effect of these operations, the financial sector's net lending was relatively stable, while general government's net borrowing continued to fall (Chapter 4).

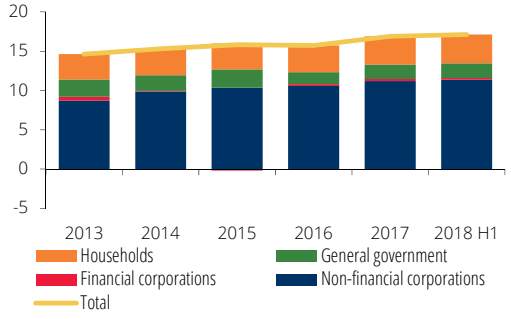
64. These operations include the recapitalisation of CGD in the first quarter of 2017 and the Resolution Fund's capital increase of Novo Banco in the second quarter of 2018.

Chart I.8.2 • Relative importance of institutional sectors in savings | Percentage of GDP



Source: Statistics Portugal. | Note: figures for 2018 H1 correspond to the year ending in the second quarter of 2018.

Chart I.8.3 • Relative importance of institutional sectors in investment | Percentage of GDP



Source: Statistics Portugal. | Note: figures for 2018 H1 correspond to the year ending in the second quarter of 2018.

Deficit in the current and capital account increased in the first half of 2018, reflecting larger deficits in the goods account and primary income account

In the first half of 2018, the current and capital account showed a deficit of 1.7% of GDP, 0.8 p.p. higher year-on-year (Table 8.1).[65] Over the last few years, the combined current and capital account has presented deficits in the first half of the year and surpluses in the second half, as a result of seasonality of the operations.

Table I.8.1 • Balance of payments | Percentage of GDP

	2014	2015	2016	2017	2017 H1	2018 H1
Current and capital accounts	1.4	1.3	1.6	1.4	-0.9	-1.7
Current account	0.1	0.1	0.6	0.5	-1.6	-2.4
Goods and services account	1.1	1.7	2.0	1.8	0.6	0.2
Goods	-5.5	-5.3	-5.2	-6.2	-5.8	-6.7
Energy	-3.6	-2.4	-1.7	-2.1	-1.4	-1.9
Other goods	-1.9	-2.9	-3.4	-4.1	-4.4	-4.8
Services	6.6	7.0	7.2	8.0	6.4	6.8
of which:						
Travel and tourism	4.1	4.4	4.7	5.6	4.1	4.7
Primary income account	-2.0	-2.4	-2.3	-2.5	-3.3	-3.7
Secondary income account	0.9	0.9	0.9	1.1	1.0	1.0
of which:						
Emigrants/immigrants remittances	1.5	1.6	1.5	1.6	1.5	1.5
Capital account	1.3	1.2	1.0	0.9	0.8	0.7
Financial account	1.6	1.3	1.6	1.6	-1.3	-1.4
Errors and omissions	0.2	0.0	0.0	0.2	-0.4	0.3

Sources: Statistics Portugal and Banco de Portugal.

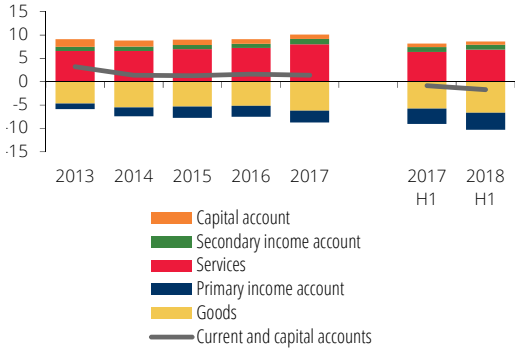
The current and capital account deficit increased essentially as a result of the behaviour of the goods account – whose deficit went from 5.8% of GDP in the first half of 2017 to 6.7% of GDP

65. The combined current and capital account calculated on balance of payments statistics may differ from net lending calculated from a national accounts basis due to methodological differences between the two. This is the case in particular for the different statistical treatment of operations between non-residents and certain special purpose entities located in the free trade zone of Madeira.

in the first half of 2018 – and the primary income account, where the deficit increased 0.4 p.p. of GDP year-on-year, to 3.7%. In contrast, the services account surplus increased (by 0.4 p.p., to 6.8% of GDP) (Chart I.8.4). The secondary income account balance remained unchanged while the capital account declined slightly.

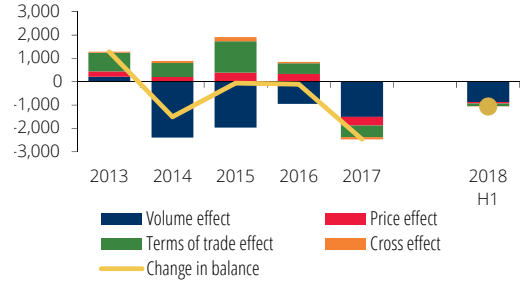
The increase in the goods account deficit essentially reflected the stronger growth in volume of imports compared to exports (Chart I.8.5). Both the energy and the non-energy components contributed similarly to the increase in the goods account deficit (Chart I.8.6). Regarding the deficit of the energy goods' component, it is worth mentioning the contribution from the oil price increase in the second quarter of 2018 (Chapter 7).

Chart I.8.4 • Decomposition of the current and capital account balance | Percentage of GDP



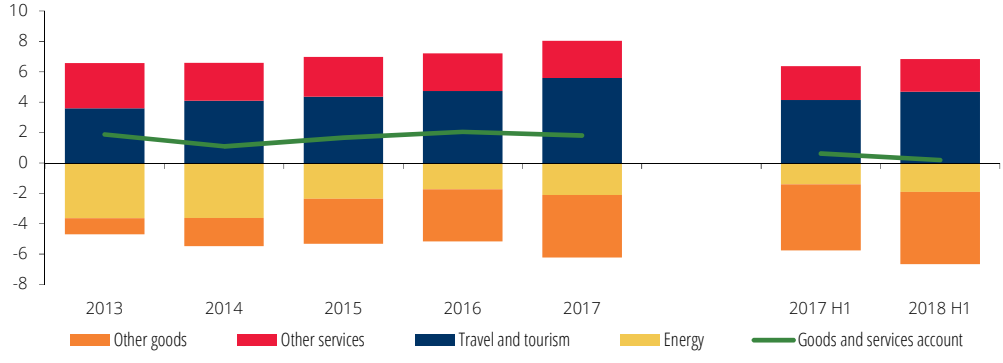
Source: Statistics Portugal.

Chart I.8.5 • Decomposition of the change in the goods account balance | EUR million



Sources: Statistics Portugal and Banco de Portugal. | Note: year-on-year figures are considered for 2018 H1.

Chart I.8.6 • Decomposition of the goods and services account balance | Percentage of GDP



Sources: Statistics Portugal and Banco de Portugal.

The improvement in the services account balance reflected the positive contribution from travel and tourism, while the non-tourism services account surplus remained at 2.1% of GDP (Chart I.8.6). Travel and tourism's surplus increased 0.6 p.p., to 4.7% of GDP, as a result of exports growing faster than imports (13.9% and 7.4% respectively). Nevertheless, tourism revenue slowed in the first half of the year after the very strong growth of 2017. However, Portuguese tourism exports recorded a new increase in market share in the first half of 2018 (Chapter 6).

The primary income account deficit increased 0.4 p.p. year-on-year as a result both of the reduction in income received and the increase in income paid abroad.[66] In particular, direct investment income posted a larger deficit, associated with the greater payment of dividends abroad and the reduction of dividends received.

The secondary account balance, which records most of the current transfers to and from abroad (including the EU and emigrants'/immigrants' remittances), stabilised at 1% of GDP in the first half of the year. The balance of emigrants'/immigrants' remittances also stabilised at 1.5% of GDP.

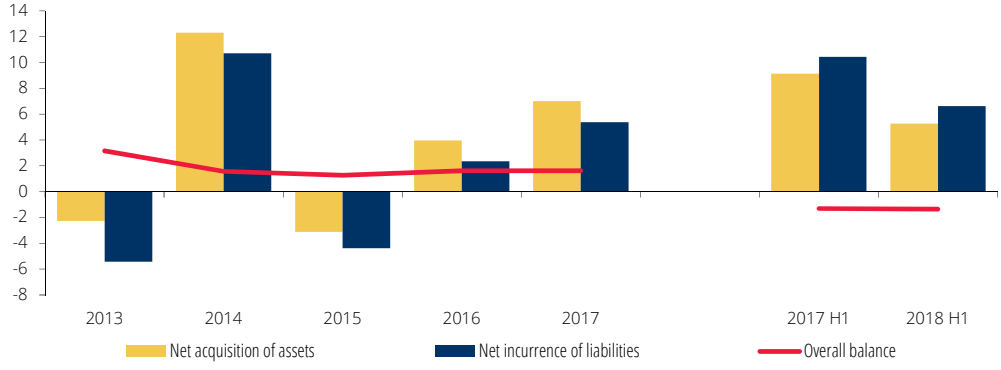
Lastly, revenues from EU funds, classified in the primary, secondary and capital income account, remained at a level similar to that of the same period last year (1.3% of GDP).

Net external borrowing continued but with different behaviour across institutional sectors

In terms of the financial account, in the first half of 2018, the Portuguese economy's external borrowing exceeded the acquisition of assets by non-residents (6.6% and 5.3% of GDP respectively). Thus, the Portuguese economy was a net receiver of funds, as had been the case in the first half of 2017, despite a reduction in both flows (Chart I.8.7).

In the first half of this year, developments in the financial account were characterised by a change in the profile of the institutional sectors that invested and were financed abroad, with a reduction in Banco de Portugal's financial transactions and an increase in the role of financial intermediation by Other Monetary Financial Institutions (OMFIs) (Charts I.8.8 and I.8.9). Non-financial corporations reduced their external financing, while general government received marginally positive external financing.

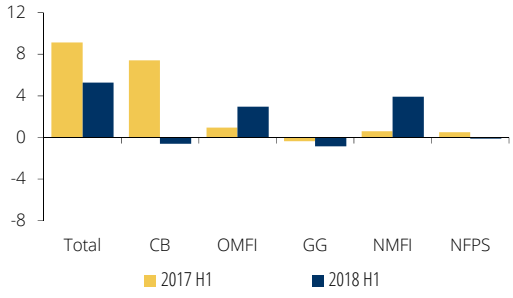
Chart I.8.7 • Net change in financial assets and liabilities and overall financial account balance | Percentage of GDP



Sources: Statistics Portugal and Banco de Portugal.

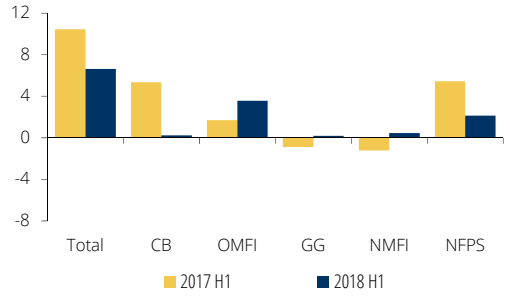
66. Strictly speaking, balance of payments statistics are prepared according to the change of ownership principle or the accruals principle. Under this, the income account does not only record income received and paid, but also income receivable and payable, even where they are as yet unpaid. To simplify the terminology, received and paid are the terms used.

Chart I.8.8 • Net acquisition of assets (1)
| Percentage of GDP



Sources: Statistics Portugal and Banco de Portugal. | Note: (1) The net acquisition of assets corresponds to purchases minus sales of foreign assets by residents. A plus sign denotes a net outflow of funds from the Portuguese economy.

Chart I.8.9 • Net incurrence of liabilities (2)
| Percentage of GDP



Sources: Statistics Portugal and Banco de Portugal. | Note: (2) The net incurrence of liabilities corresponds to the increase less redemptions of national liabilities with non-residents entities. A plus sign corresponds to a net inflow of funds in the Portuguese economy.

In the first half of 2018, Banco de Portugal divested external assets worth 0.6% of GDP, while in the same period a year earlier it had made purchases equivalent to 7.4% of GDP. This divestment involved the net sale of securities issued by non-resident entities classified under portfolio investment and, more importantly, under foreign reserves. On the financing side, Banco de Portugal's external liabilities increased by 0.2% of GDP, in contrast to that observed in the first half of 2017, when financing from abroad reached 5.4% of GDP.

The OMFIs increased both their external assets and external liabilities. On the asset side, they carried out net purchases of long-term debt securities issued by non-residents (to a value of 4.7% of GDP in the first half of 2018, compared to 0.8% in the same period a year before). Offsetting this was their reduced position in deposits held in non-resident banks, as well as their investments in firms under a direct investment relationship. In regard to external liabilities, the OMFIs obtained more external funds (equivalent to 3.6% of GDP in the first half of 2018, *versus* 1.7% of GDP in the same period a year before). These funds were obtained as deposits, while there was a repayment of direct investment liabilities, as well as, of a considerable sum of long-term debt securities in the non-resident portfolio.

Non-financial corporations reduced their external financing to 2.1% of GDP in the first half of 2018, compared to 5.5% of GDP in the same period a year before, which reflected in the developments of the direct investment and portfolio investment components. In terms of the first of these components, non-financial corporations obtained lower financing from non-resident entities under a direct investment relationship, while the second component reflected a net repayment of debt securities owned by non-residents. In the case of direct investment, real estate purchasing by non-residents continued to increase.[67]

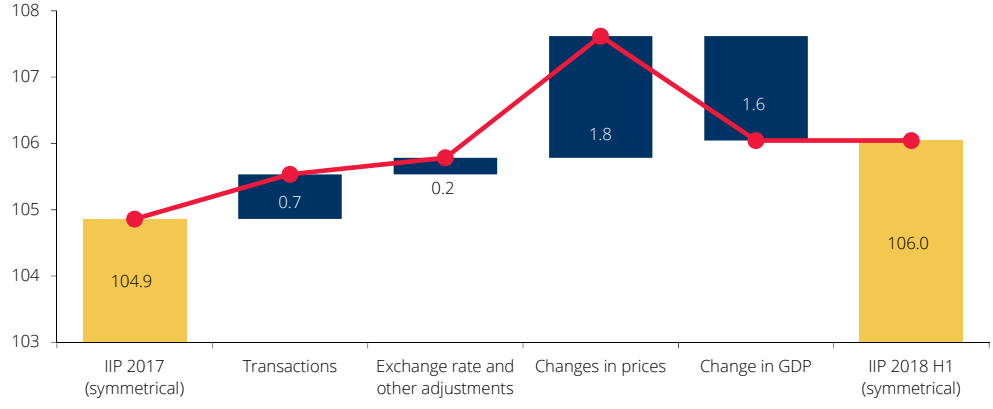
67. For a more detailed analysis of these kinds of transactions, see Box 7.1, 'Real estate investment in Portugal by non-residents,' pp. 87-88, *Economic Bulletin*, May 2016, Banco de Portugal.

Furthermore, general government obtained marginally positive financing (0.2% of GDP) when in the same period a year before they had reduced their external liabilities (by 0.9% of GDP). This inflow resulted from the placement of Treasury bills with non-resident entities that more than offset the repayments of Treasury bonds and the IMF loan. The amount repaid on the IMF[68] loan was lower than that repaid in the same period a year before, as the amount outstanding is declining.

Developments in the international investment position determined by falling asset prices and net external borrowing

In the first half of 2018, the international investment position (IIP) stood at -106% of GDP, more negative than the level at the end of 2017, of -104.9% of GDP (Chart I.8.10). Key drivers of this evolution were the price variations, influenced by a depreciation of assets and the valorisation of resident entities' liabilities (-1.8 p.p. of GDP). There was also a contribution from the net funds raised from non-residents and exchange rate variations and other adjustments. In contrast, the growth of nominal GDP contributed to a less negative IIP as a percentage of GDP, by 1.6 p.p..

Chart I.8.10 • Change in international investment position | Percentage of GDP



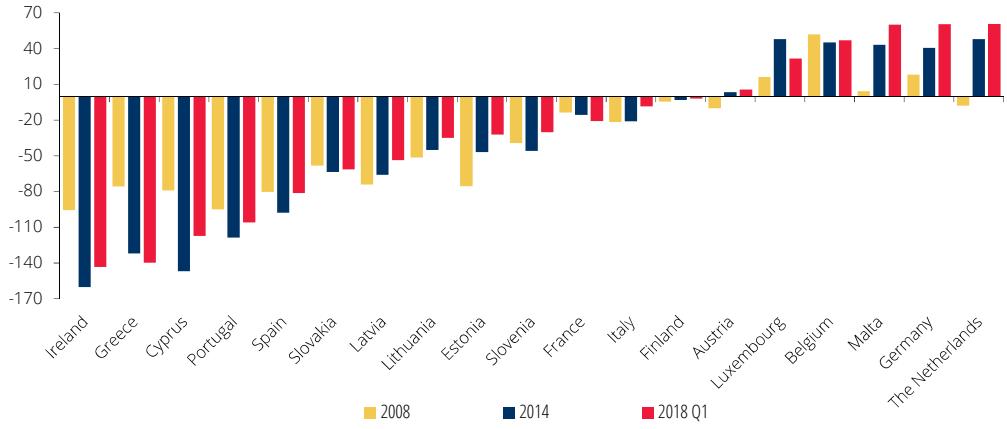
Sources: Statistics Portugal and Banco de Portugal.

Despite the Portuguese economy having been in a net lending position since 2012, the reduction in net debtor international investment – which reached a high in 2014 (at 118.6% of GDP) – has been relatively slow. The Portuguese economy's external indebtedness remains at very high levels in historical terms and in comparison to other euro area countries. In the first quarter of 2018, Portugal had the third highest net external debt[69] level of any euro area country and the fourth most negative IIP (Charts I.8.11 and I.8.12).

68. Including regular and early repayment components.

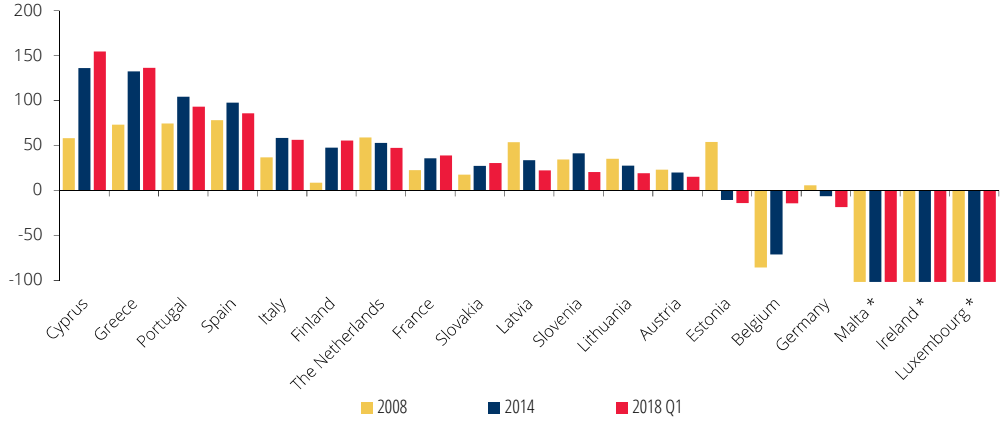
69. Net external debt is obtained by excluding from the IIP the asset and liability stocks of capital instruments, gold bullion and financial derivatives.

Chart I.8.11 • Cross-country comparison of the international investment position | Percentage of GDP



Sources: Eurostat and Statistics Portugal.

Chart I.8.12 • Cross-country comparison of the net external debt | Percentage of GDP



Sources: Eurostat and Statistics Portugal. | Note: figures for Malta, Ireland and Luxembourg are truncated from below due to the occurrence of high transactions. The figures for Malta correspond to -428.8%, -301.6% and -193.8% of GDP, respectively, for 2008, 2014 and 2018 Q1. For Ireland, the corresponding figures are -153.2%, -414.1% and -397.8% of GDP and for Luxembourg these amount to -2139.8%, -1997.1 and -2114.5% of GDP, in the same periods.

II Projections for the Portuguese economy in 2018

GDP slowdown in 2018

The projections produced by Banco de Portugal point to the continuation of the expansion of the Portuguese economy in 2018, although at a slower pace than in 2017. After real growth of 2.8% in 2017, GDP is projected to increase 2.3% in 2018 as a whole (Table 1), which is above the average of the estimates for potential output growth of the Portuguese economy. In intra-annual terms, GDP growth in the second half of the year should remain relatively stable (year-on-year rate of change of 2.2%).

Table 1 • Projections of Banco de Portugal for 2018 | Annual rate of change, in percentage (except otherwise indicated)

	Weights 2017	EB October 2018				EB June 2018	
		2017	2018 (p)	2018 H1	2018 H2 (p)	2017	2018 (p)
Gross domestic product	100.0	2.8	2.3	2.3	2.2	2.7	2.3
Private consumption	64.8	2.3	2.4	2.5	2.4	2.3	2.2
Public consumption	17.5	0.2	0.7	0.8	0.7	-0.2	0.8
Gross fixed capital formation	16.6	9.2	3.9	4.0	3.8	9.1	5.8
Domestic demand	99.2	3.0	2.4	2.6	2.2	2.8	2.5
Exports	42.7	7.8	5.0	6.0	4.0	7.8	5.5
Imports	41.9	8.1	5.1	6.4	3.8	7.9	5.7
Contribution to GDP growth, net of imports (in pp) (a)							
Domestic demand		1.3	1.2	1.2	1.2	1.2	1.1
Exports		1.5	1.1	1.1	1.1	1.5	1.2
Employment (b)		3.3	2.3			3.3	2.6
Unemployment rate		8.9	7.0			8.9	7.2
Current plus capital account (% of GDP)		1.4	1.4			1.4	1.8
Goods and services account (% of GDP)		1.8	1.3			1.8	0.9
Harmonised index of consumer prices		1.6	1.4			1.6	1.4

Sources: Banco de Portugal and Statistics Portugal. | Notes: (p) – projected, (pp) – percentage points. For each aggregate, this table shows the projection corresponding to the most likely value, conditional on the set of assumptions considered. (a) The demand aggregates net of imports are obtained by subtracting an estimate of the imports needed to meet each component. The calculation of import content was based on data for 2013. For more information, see the Box entitled 'The import content of global demand in Portugal', in the December 2017 issue of the *Economic Bulletin*. (b) Total employment, in number of persons, according to the national accounts concept.

Growth projected for the Portuguese economy in 2018 stands 0.3 p.p. above the figure released by the European Central Bank (ECB) for the euro area.[1] Thus, the process of real convergence with the euro area is expected to remain very gradual.

Projections for 2018 remain unchanged *vis-à-vis* the June issue of the *Economic Bulletin*. However, there are some revisions in the components, specifically a downward revision of the growth rate of GFCF and exports and an upward revision of the growth rate of private consumption.

1. September 2018 ECB staff macroeconomic projections for the euro area, available at https://www.ecb.europa.eu/pub/pdf/other/ecb.ecbstaffprojections201809.en.pdf?8bc12010f1ed3def5cf67b26433e7f6e

The decelerating profile of the economy reflects the lower impulse from external demand

The assumptions for the Portuguese economy remain broadly favourable in 2018, but entail a moderation of growth of world trade and of the external demand for Portuguese goods and services. Amid trade tensions at global level (Section I, Chapter 2), world trade increases by 4.5% in 2018, down from 5.2% in 2017, according to the assumptions of the projection exercise.[2] Similarly, the rate of change of external demand (i.e. the growth rate of imports from the main trade partners weighted by their share in Portuguese exports) decreases from 4.4% in 2017 to 3.3% in 2018 (Table 2). These dynamics were due, in particular, to the slowdown in intra-euro area imports. According to the projections produced by the ECB Staff, euro area activity will lose some momentum, with growth declining from 2.5% in 2017 to 2.0% in 2018. Compared with the June *Economic Bulletin*, there were downward revisions to world trade and external demand growth.

Table 2 • Projection assumptions

		EB October 2018		EB June 2018	
		2017	2018	2017	2018
International environment					
World GDP	tva	3.6	3.7	3.6	3.8
World trade	tva	5.2	4.5	5.1	5.1
External demand	tva	4.4	3.3	4.5	4.3
Oil prices in dollars	vma	54.4	71.5	54.4	74.5
Oil prices in euros	vma	48.2	60.7	48.2	62.2
Monetary and financial conditions					
Short-term interest rate (3-month EURIBOR)	%	-0.3	-0.3	-0.3	-0.3
Implicit interest rate in public debt	%	3.1	3.0	3.1	3.0
Effective exchange rate index	tva	2.4	2.3	2.4	2.1
Euro-dollar exchange rate	vma	1.13	1.18	1.13	1.20

Sources: ECB (Banco de Portugal calculations). | Notes: yoy – year-on-year rate of change, % – in percentage, aav – annual average value. An increase in the exchange rate corresponds to an appreciation of the euro. The technical assumption for bilateral exchange rates assumes that the average levels observed in the two weeks prior to the cut-off date will remain stable over the projection horizon. The technical assumption for oil prices is based on futures markets. Developments in the three-month Euribor rate are based on expectations implied in futures contracts. The implicit interest rate on public debt is computed as the ratio of interest expenditure for the year to the simple average of the stock of debt at the end of the same year and at the end of the preceding year. The implicit rate includes an assumption for the interest rate associated with new issuances.

Oil prices in US dollars increases by around 26% in annual average terms in 2018, to around USD 71 per barrel, according to the assumptions of the projection exercise. This level is slightly lower than that considered in the June *Economic Bulletin*. The effective exchange rate appreciation (*vis-à-vis* 19 trading partners) in 2018 is similar to that recorded in 2017. The monetary and financial environment remains benign – with no revisions from June – reflecting the maintenance of the accommodative stance of monetary policy in the euro area (Section I, Box 2) and the favourable financing conditions of economic agents.

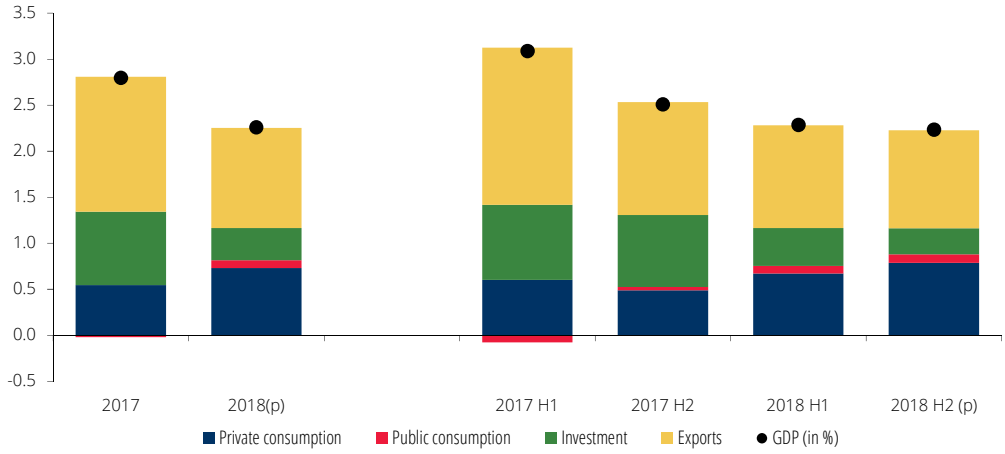
2. The current projection is based on data available up to 21 September and on the set of technical assumptions consistent with the ECB projection exercise released on 13 September. The cut-off date for the assumptions was 21 August.

Deceleration of exports and investment and acceleration of private consumption in 2018

The slowdown projected for GDP in 2018 results from the deceleration of exports and GFCF. In turn, private consumption growth is slightly higher than in 2017. The contribution (net of the respective import content) of exports to GDP growth declines from 1.5 p.p. in 2017 to 1.1 p.p. in 2018 (Chart 1). The contribution of domestic demand decreases slightly from 1.3 p.p. in 2017 to 1.2 p.p. in 2018. Projections point to a reduction of the contribution of investment and an increase in the contributions of private and public consumption.

For 2018 as a whole, private consumption is projected to increase by 2.4%, amid strong growth of real disposable income associated with buoyant job creation and a recovery in real wages (Section I, Chapter 6). The households' saving rate is projected to remain stable at historically low levels. The growth rate of current consumption is expected to increase slightly, while consumption of durable goods is expected to decelerate somewhat, while maintaining a growth pace above that of total private consumption. In intra-annual terms, private consumption growth is expected to decline slightly in the second half of the year.

Chart 1 • Net contributions to real GDP growth | In percentage points



Sources: Banco de Portugal and Statistics Portugal. | Notes: (p) – projected. The demand aggregates net of imports are obtained by subtracting an estimate of the imports needed to meet each component. The calculation of import content was based on data for 2013. For more information, see the Box entitled 'The import content of global demand in Portugal', in the december 2017 issue of the *Economic Bulletin*.

Turning to assumptions regarding public finances, public consumption should grow 0.7% in real terms in 2018. These developments assume the maintenance of the upward trend in public employment observed in the past few years.[3] In addition, expenditure in the acquisition of goods and services is expected to accelerate in 2018, reflecting to a large extent a temporary effect related to the 2017 wildfires. The assumption for public investment points to the maintenance of a significant growth pace in 2018, albeit lower than that considered in the official budgetary documents.

3. The public finances variables incorporate the measures specified with sufficient detail in official documents, following the rules used within the Eurosystem exercises. In addition to these measures, information available until the cut-off date for data on the budget execution and on developments in the number of civil servants has also been considered.

After the high growth rate observed in 2017, GFCF is expected to slow down in 2018. For the year as a whole, projections point to a 3.9% growth (9.2% in 2017). These developments extend to the several types of investment. The deceleration projected for investment in construction in 2018, after strong growth in 2017 (8.3%), reflects in part the impact of the postponement of works in some large infrastructures. According to the projection, the growth rate of investment in machinery, equipment and transport material should remain significant, but lower than in 2017, amid expectations of more moderate growth of overall demand and higher uncertainty at a global level (Section I, Chapter 2). In intra-annual terms, total GFCF growth in the second half of the year is projected to be close to that registered in the first half.

According to the projection, exports decelerate in 2018 to 5.0% (7.8% in 2017). The dynamism of this aggregate continues to be higher than that of the external demand for Portuguese goods and services, translating into further market share gains in external markets. However, these gains are expected to be lower than in 2017 and more concentrated on some export markets, namely tourism and passenger cars. The slowdown in exports reflects developments in both goods and services; however, the tourism component is still projected to remain considerably buoyant. In terms of the intra-annual pattern, the deceleration seen in the first half of the year is projected to continue in the second half, reflecting the slowdown in tourism and other services and a sharp reduction in fuel exports, resulting from scheduled halts in major refineries.

The labour market situation continues to improve

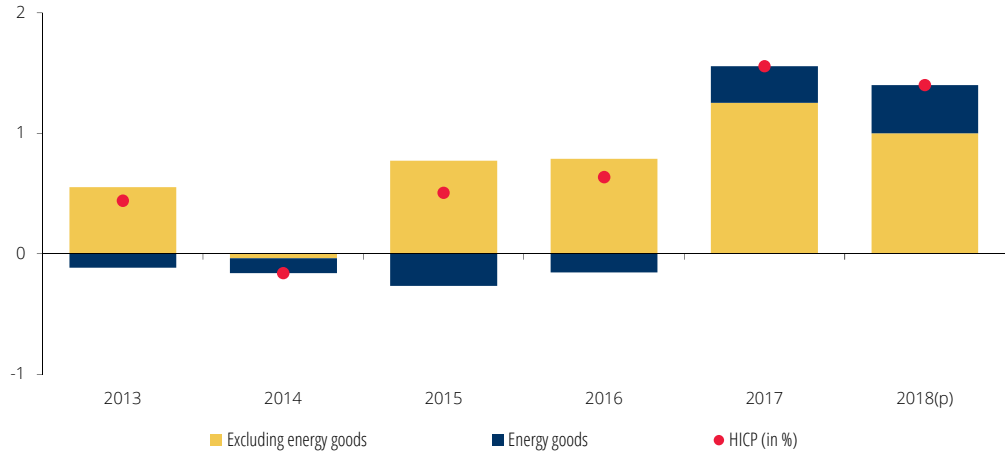
Developments projected for the labour market in 2018 are characterised by a rise in employment of 2.3%, 1.0 p.p. lower than in 2017. The unemployment rate is expected to continue on a downward trajectory, standing at 7.0% in 2018 as a whole (-1.9 p.p. compared with 2017). Wages are projected to accelerate, pressed by the declining unemployment rate, by the impact of the rise in the national minimum wage, and by the gradual unfreezing of career progressions in the general government.

Compared with the June *Economic Bulletin*, there was a downward revision in employment and in the unemployment rate, in the context of a downward revision of the participation rate.

Slight reduction of inflation in 2018

According to the projections, inflation, as measured by the rate of change in the HICP, should decline to 1.4% in 2018, 0.2 p.p. lower than in 2017. This figure is similar to that projected in the June issue of the *Economic Bulletin*. The deceleration in the pace of increase in prices reflects lower external inflationary pressures resulting from developments in import prices of goods excluding energy, despite an acceleration in oil prices. Higher domestic inflationary pressures resulting from the acceleration of wages are expected to be mitigated by developments in some volatile components related to tourism, as well as, by the evolution of profit margins (Section I, Chapter 7). Projections point to a rise in the contribution of the energy component and a decline in the contribution of the non-energy component to inflation in 2018 (Chart 2). The growth of prices projected for Portugal is 0.3 p.p. lower than the latest projections released by the ECB for the euro area.

Chart 2 • Harmonised index of consumer prices | Contributions to the annual rate of change, in percentage points



Sources: Banco de Portugal and Eurostat. | Note: (p) – projected.

Maintenance of the Portuguese economy's net lending

Finally, current projections point to the maintenance of the Portuguese economy's net lending, as measured by the current and capital account surplus, equivalent to 1.4% of GDP in 2018, similar to the figure for 2017. On the one hand, the goods and services account is projected to deteriorate. On the other hand, a rise in inflows of Community funds is projected – with a rebound expected in the second half of the year – while public debt interest payments are expected to decline. The current projection for the current and capital account is lower than that considered in the June *Economic Bulletin*, incorporating an upward revision of the goods and services surplus and a downward revision of the remaining accounts.

III Special issue

Reallocation of resources and total factor productivity in Portugal

Reallocation of resources and total factor productivity in Portugal

Introduction

Productivity is a measure of an economy's overall efficiency in regard to utilisation of its inputs, namely capital and labour. Greater efficiency directly and indirectly creates more wealth, as it allows a higher quantity of goods and services to be produced for the same input utilisation and, at the same time, frees up resources to make new products and provide new services. Productivity therefore plays a crucial role in improving well-being in society, especially over the long term.

The continuous increase of productivity has certainly contributed to global economic growth and consequently a substantial improvement in living conditions over the last few centuries. However, there is now evidence of a deceleration in global productivity, which, in the case of advanced economies, is thought to have begun at the turn of the century and to have worsened since the global financial crisis of 2008 (ECB, 2017; Adler et al., 2017; Duval, Hong and Timmer, 2017; OECD, 2015). According to Adler et al., (2017), in advanced economies, 'average total factor productivity growth has been nearly zero over the last 10 years, below any similar period in the last six decades.'

Many explanations have been put forward for this productivity deceleration, including causes of a more structural or long-term nature, and causes of a more cyclical or short-/medium-term nature, related to consequences of the global financial crisis beginning in 2008. The structural causes cited include the slowdown in innovation and in the diffusion of technology, the increase in the level of productive inefficiency (misallocation), the decline in input reallocation, the possibility of measurement errors (above all in the digital economy), the progressive ageing of the workforce, the slower accumulation of human capital and the slower growth of international trade (ECB, 2017; Adler et al., 2017; Byrne, Fernald and Reinsdorf, 2016; Decker, Haltiwanger, Jarmin and Miranda, 2018). The cited causes resulting from the global financial crisis with consequences for productivity growth generally include the weakness in aggregate demand, the difficulties in accessing credit and the political uncertainty that followed the sovereign debt crisis in the euro area (Adler et al., 2017; Duval, Hong and Timmer, 2017; ECB, 2017).

This Special Issue aims to quantify the contribution made by the reallocation of resources to the evolution of productivity in Portugal over the last decade (2006-2015), in this context of decelerating productivity at global level. Normally, productivity is researched from a macro point of view, by calculating and analysing productivity measures for the total economy or for activity sectors, taking as a reference the relevant appropriately defined aggregates (output, employment, capital stock, etc.). However, this type of approach does not analyse the role of the reallocation of inputs between firms. For this, microdata must be used. This Special Issue thus breaks the norm by using firm-level data to assess the contribution made by resource reallocation to aggregate productivity.

To quantify this reallocation effect, productivity is decomposed into the contributions made by various types of firms active in the economy. In each year, the firms that contributed to the economy's total output (or that of a given sector) may be grouped into three types: firms that began activity in that year (called 'new' or 'entrant' firms), firms that ceased activity in that year (called 'exiter' firms) and the rest, which are already active and survive to the next year (called 'incumbent' or 'surviving' firms). A given activity sector's productivity growth may be seen as the result of productivity efficiency gains within the surviving firms (within-firm effect), efficiency gains from the allocation of resources between these firms (between-firm effect) and also from improvement in the reallocation of resources through the entry and exit of the sector's firms. This Special Issue quantifies the contribution made by each of these effects to the evolution of productivity in Portugal, with a special focus on the role of the reallocation of inputs.

This Special Issue is structured as follows. The first part presents the productivity measure used in this exercise and its formula. The second part presents the data used, with a description of the main activity sectors analysed. The third and fourth parts present the empirical findings for Portugal, at aggregate and sectoral level, focusing on the contrast between the economy's tradable and non-tradable sectors and the role of resource reallocation in the behaviour of productivity. Lastly, the fifth part presents some final considerations.

The productivity measure used

There are many concepts of productivity, with the most common including output (measured by gross output or gross value added (GVA)) per unit of input, for example labour productivity and capital productivity, and output per unit of input bundle (which results from the combination of labour, capital and intermediate consumption). The latter concept is called multi-factor productivity or total factor productivity (TFP).

This Special Issue focuses on describing total factor produc tivity, corresponding to gross output per unit of input bundle. As an alternative to TFP, measured in gross output, a measure of TFP, calculated from the firm's GVA is often used. However, economic literature has tended to prefer the former, as it is a more relevant concept for firms' decisions in the profit-maximisation process and consequently the allocation of economic resources.

The definition and calculation of TFP assumes the existence of a production function, with parameters estimated from firm-level data. In this analysis, in line with the literature, it is assumed that the output of firm i in year t is well described by a Cobb-Douglas production function with three inputs:

$$Q_{it} = TFP_{it} K_{it}^{\alpha} L_{it}^{\beta} M_{it}^{\gamma}$$

where *Q* represents gross output in real terms, *K* represents real capital stock, *L* represents the number of workers and *M* represents intermediate consumption, also in real terms. The coefficients, α, β and γ represent the the elasticities of output with respect to the inputs.

According to this function, the TFP of firm *i* at time *t*, in natural logarithm (log) terms, may be calculated from the expression:

$$\ln TFP_{it} = \ln(Q_{it}/K_{it}^{\alpha} L_{it}^{\beta} M_{it}^{\gamma}) = \ln Q_{it} - \alpha \ln K_{it} - \beta \ln L_{it} - \gamma \ln M_{it}$$

where the term $K_{it}^{\alpha} L_{it}^{\beta} M_{it}^{\gamma}$ represents the input bundle that is used in the calculation of TFP_{it}.

Generally TFP is seen as a more relevant theoretical concept for productivity, as, in theory, it is exogenous to the utilisation of the inputs. Labour productivity for example, which is easier to calculate and understand, has the disadvantage of depending not only on the labour input, but also on other inputs, namely capital and intermediate consumption, which in certain circumstances makes its interpretation difficult. For example, labour productivity will be a biased indicator in the presence of an input substitution effect. Indeed, the production function above, assuming constant returns to scale ($\alpha + \beta + \gamma = 1$), may be written

$$\ln(Q_{it}/L_{it}) = \ln TFP_{it} + \alpha \ln(K_{it}/L_{it}) + \gamma \ln(M_{it}/L_{it})$$

which shows the relationship between the log of labour productivity, $\ln(Q_{it}/L_{it})$ and the log of total factor productivity, $\ln TFP_{it}$. From this equation it is easy to see that the relationship between labour productivity and TFP depends on the value of the ratios K_{it}/L_{it} and M_{it}/L_{it}. Between two firms with the same TFP, the more capital-intensive one, i.e. with a higher capital/labour ratio (holding all the rest constant), will have a higher labour productivity. This relationship also shows that alterations to labour productivity may arise from changes in TFP, but also from changes in the intensity of utilisation of the other inputs versus the labour input (per-worker capital or intermediate consumption).

Once estimates are obtained for firm-level productivities, the next step is to construct aggregate productivity measures. In line with the literature, for the purposes of this Special Issue, aggregate productivity – for the economy as a whole or for an activity sector at time *t* – is defined as a weighted mean of the productivities of the individual firms, p_{it}:

$$P_t = \sum_i \theta_{it} p_{it}$$

where the weights $\theta_{it} \geq 0$ sum to 1. Our variable of interest is the change in productivity over time, or, $\Delta P_t = P_t - P_{t-1}$. Note that the underlying productivity measure is defined in natural logs, such that P_t represents the log of aggregate productivity and p_{it} the log of the individual firm's productivity $(p_{it} = \ln TFP_{it})$, with ΔP_t a rate of change.[1]

In practice, a problem arises over how to choose the weights θ_{it} to be used in the aggregation. The literature has essentially used two types of weights to obtain aggregate TFP measures: gross output or GVA (real or nominal) (Baily, Hulten and Campbell, 1992; Foster, Haltiwanger and Krizan, 2001; Olley and Pakes, 1996; Griffin and Odaki, 2009; Hallward-Driemeir and Rijkers, 2013; Melitz and Polanec, 2015) and the input bundle, defined above (Liu and Tybout, 1996; Bartelsman and Dhrymes, 1998).

In this Special Issue, aggregate TFP will be obtained using the input bundle to determine the weights. The use of inputs to determine the weights instead of gross output (or GVA) has certain advantages. Firstly, in conceptual terms at least, the productivity measures obtained by aggregating individual productivities come closer to the productivity measures obtained from direct calculation using aggregate sectoral data. Secondly, it can be shown that the use of weights defined on gross

1. Defined in this way, the expression for average productivity is the log of a weighted geometric mean of the individual productivities. This fact complicates comparison with values obtained from other measures in the literature, which calculate the aggregate productivity from a weighted arithmetic mean, as variations in the two types of means may differ significantly.

output (or on GVA) gives rise to aggregate productivity measures where the individual productivities are weighted not only according to the size of the firm (measured by the quantity of inputs), but also the individual productivity itself. The result is that the firms with above-average productivity receive a proportionally higher weight and the firms with below-average productivity a proportionally lower weight than would result from the quantity of inputs used. This will tend to increase even further the contribution of the large firms, as empirical findings suggest that these tend to present individual productivities that on average are higher than those of small firms. Thirdly, and very importantly in the context of this Special Issue, the use of gross output (or GVA) to determine weights complicates interpretation of the between-firm effect in the Olley-Pakes decomposition analysed later. The undesired result in these circumstances is that the between-firm effect does not measure just the reallocation of inputs between firms, as the changes to the weights may result from changes in the individual productivities (which enter in the weights) and not from a reallocation of inputs between firms.

To reduce the impact of possible outliers on the productivity measures, the weights will be defined from the original variables' logs. In particular, to calculate average TFP, weights defined from the log of the input bundle are used. The log transformation has been suggested in the literature as an alternative to trimming or winsorising techniques to deal with the presence of outliers.[2] By allowing the outliers to remain in the data, the use of logs avoids the subjectivity involved in choosing trimming or winsorising thresholds. The log transformation has also been suggested as a way to correct right-skewed distributions (Osborne, 2002; Osborne and Overbay, 2004). The log transformation compresses the distribution of the weights around a 'typical' firm, decreasing the relative weight of the larger firms and increasing the relative weight of the smaller firms. In an economy with multiple very small firms and a few very large firms (i.e., a right-skewed distribution), this transformation prevents aggregate productivity from being completely dominated by a small number of very large firms. In sum, the use of weights defined on the log of the input bundle creates aggregate productivity measures that may be seen as representing the productivity behaviour of a 'typical' or 'representative' firm and that are robust to the presence of measurement errors or other outliers affecting the inputs (labour, capital or intermediate consumption).

The data

The empirical findings presented in this Special Issue were obtained from balance sheet data for Portuguese firms submitted to Banco de Portugal through the *Informação Empresarial Simplicada* for the period 2006-2015. This information has been collected since 2006 and covers almost all the non-financial Portuguese firms. This database allows us to calculate gross output, GVA, intermediate goods consumption, employment and capital stock for each firm. The data were cleaned before use, by excluding the firms that did not report positive values for some of these variables.

To obtain estimates for output and intermediate consumption in real terms, deflators defined at the industry level are used, with industries defined at the three-digit NACE code. For manufacturing, these price indexes were constructed based on disaggregated information from the industrial

2. In calculating a given statistic – a mean for example – for a variable, the trimming technique involves excluding a percentage of the highest and lowest observations, to prevent these outliers from affecting the final result. Winsorising meanwhile, instead of excluding the outliers, replaces them with a value equal to the value taken by the variable based on certain limits. Both of these require definition at the outset of the percentage of observations being excluded in the case of trimming, or being modified in the case of winsorising.

producer price index published by Statistics Portugal (INE). For the other industries, for which there are no specific price indexes available, alternative deflators were constructed from consumer price index items and from investment goods deflators. It should be noted that the use of common deflators by industries or sectors may have important implications for the productivity measures used in this Special Issue, which should be borne in mind when evaluating and interpreting some of the empirical findings presented (Box 1).

After excluding industries with fewer than 10 firms (to avoid estimation problems), 202 industries were identified – 16 for agriculture (including forestry, fishing and mining), 101 for manufacturing and 85 for services (including construction and utilities). The production function (above) was estimated for each of these industries, to calculate firm-level TFP.[3]

Table 1 • Relative importance of each sector in the dataset | Percentage

Sectors	2006			2010			2015		
	GO	GVA	Emp.	GO	GVA	Emp.	GO	GVA	Emp.
Agriculture	2.0	2.1	2.1	2.1	1.9	2.2	2.5	2.2	2.6
Manufacturing	32.9	25.6	27.9	31.5	23.1	24.0	34.8	25.1	24.4
Construction	15.0	11.5	13.2	13.9	10.3	12.4	7.6	7.0	8.7
Utilities	3.3	4.4	0.4	2.7	4.0	0.4	6.4	4.4	0.5
Services	46.8	56.4	56.3	49.9	60.6	61.0	48.6	61.4	63.8
Tradable services	10.3	10.3	8.8	11.8	12.1	9.9	12.4	13.4	10.7
Nontradable services	36.6	46.2	47.5	38.1	48.5	51.2	36.3	48.0	53.1

Note: Agriculture also includes forestry, fishing, mining and quarrying; the utilities sector includes eletricity, gas and water services.

Table 1 presents the relative importance of the main activity sectors in the database (agriculture, manufacturing, construction, utilities and services) in terms of gross output (GO), GVA and employment (emp.). Agriculture makes a small contribution to total employment and value added (around 2%), while manufacturing represents around 25% and the services sector around 60%.[4] Also the construction sector lost around 40% of its share of aggregate GVA between 2006 and 2015, as a result of the structural adjustment that took place in this sector, from the start of the century to recently. Table 1 also breaks down tradable and non-tradable services. Tradable services represent around 12% of total GVA and correspond to around 20% of the service sector.[5]

Decomposition of productivity by firm type

To identify the contributions to productivity made by the various types of firms, in line with the literature, the expression for aggregate productivity growth, presented above, is decomposed into the sum of contributions made by the three categories of firms identified in the data at a given

3. The coefficients (elasticities) of the production function were estimated using the Levinsohn-Petrin estimator (Levinsohn and Petrin, 2003), to account for endogeneity of the regressors (the inputs) and thereby to avoid inconsistency in the estimators.
4. According to information in the National Accounts, in 2010, agriculture, manufacturing and services contributed 2.3%, 13.8% and 73.8% to national GDP respectively. Therefore the database used in this Special Issue is biased towards manufacturing and against services, which is not surprising given that it does not include information on the public, financial and self-employed sectors.
5. The distinction between tradable and non-tradable services was made according to the criterion established in Amador and Soares (2012). Aside from manufacturing, the authors classified as tradable all the sectors (activity groups) for which the export-to-sales ratio was above 15%.

time: incumbent or surviving firms (firms present in the data at time t and *t-1*), new or entrant firms (firms that are in the data in *t*, but not in *t-1*) and exiter firms (firms that were in the data in *t-1* but not in *t*).

Although there are other decompositions available in the literature, in this Special Issue, for reasons which will be explained in more detail below, only the results from the so-called dynamic-Olley-Pakes decomposition, proposed by Melitz and Polanec (2015), will be presented and discussed. Let the three firm categories of survivors, entrants and exiters at time *t*, be represented by S_t, E_t and X_t respectively. If we use θ_{Rt} to denote the aggregate weight of category *R* and P_{Rt} to denote the mean productivity of the firms of the same category (*R* = S_t, E_t, X_t) the dynamic Olley-Pakes decomposition of productivity growth may be written as follows:

$$\Delta P_t = \Delta \overline{P_s} + \Delta Cov_s + \theta_{E,t}\left(P_{E,t} - P_{S,t}\right) + \theta_{X,t-1}(P_{S,t-1} - P_{X,t-1})$$

where $Cov_S = \sum_{i \in S}(\theta_{it} - \overline{\theta_S})(p_{it} - \overline{P_S})$, with $\overline{P_S} = (\frac{1}{N_s}) \sum_{i \in S} p_{it}$ and $\overline{\theta_S} = 1/N_s$, and N_s denoting the number of surviving firms. $\overline{P_S}$ represents the unweighted mean productivity of surviving firms and $\overline{\theta_S}$ the mean weight of these same firms.[6]

In this decomposition, the first two terms represent the contribution to the surviving firms' productivity growth and show that the variations in productivity over time for these types of firms are given by the sum of the change in the unweighted mean, $\Delta \overline{P_s}$ and the change in the 'covariance', ΔCov_s. In this way, the changes in surviving firms' productivity are decomposed into the sum of two components: one that captures shifts in the productivity distribution (changes in the unweighted mean), usually called the within-firm effect, and another that captures the reallocation of inputs between surviving firms (changes in the 'covariance'), usually called the between-firm effect. The within-firm effect may be seen as originating in innovation or creation of better and more efficient technologies, as well as in the adoption of new management practices by firms present in the sector. Naturally, innovation and the adoption of new techniques generally requires investments in capital (tangible and/or intangible). The between-firm effect in turn reflects the result of the reallocation of resources, namely capital and labour, from less productive to more productive firms in the sector.

The third and fourth terms of the decomposition represent the contributions to productivity growth made by new and exiter firms respectively. The contribution from new firms, $\theta_{E,t}\left(P_{E,t} - P_{S,t}\right)$, corresponds to the variation in aggregate productivity, ΔP_t, which results from adding or removing the group of new firms. Similarly, in the case of exiter firms' contribution. In this way, the new firms make a positive change to productivity if and only if they have higher productivity, $P_{E,t}$, than that of the surviving firms, in the same period in which the entry takes place (time *t*). In turn, the exiter firms make a positive change to productivity if and only if they have lower productivity, $P_{X,t-1}$, than that of the surviving firms, $P_{S,t-1}$, in the period in which the exit takes place (time t-1).[7]

6. Chapter 5 of this *Economic Bulletin* decomposes GVA per worker into intrasectoral and intersectoral contributions. It is analogous to a degree with the analysis of this Special Issue, but is nevertheless different, as it uses a different productivity measure and is based on aggregate data. This Special Issue, as has been said, researches the reallocation of resources, based on microdata and using total factor productivity, as a productivity measure.

7. Alternative decompositions can be found in the literature (Foster, Haltiwanger and Krizan, 2001; Griliches and Regev, 1995) which differ from the Olley--Pakes decomposition, not only in the way in which they divide the surviving firms' contribution into within- and between-firm effects, but also in the way in which they measure the contribution of the entries and exits. Therefore the results presented in this Special Issue, with regard to the contribution of the within- and between-firm effects and of the entries and exits, must be interpreted as dependent on the type of decomposition used.

The cumulative values for 2006-2015 of the contributions to TFP growth made by the three types of firms identified by the Olley-Pakes decomposition are in Table 2 (columns (2) and (6)) and Chart 1. Starting with the analysis of the surviving firms' productivity, we see that TFP behaves positively in manufacturing and non-tradable services, but very negatively in tradable services. A detailed analysis of annual performance shows that the significant difference in behaviour of the incumbent firms in tradable and non-tradable services derives above all from the way in which productivity in these two sectors evolved during the Portuguese sovereign debt crisis. Productivity in tradable services fell sharply between 2011 and 2013 (-8.1%), while in non-tradable services the fall was almost zero (-0.7%).

An important finding relates to the contribution of the entries (new firms) and exits (exiter firms). Total economy productivity over the 2006-2015 period is very negatively affected by the contribution of the entries and very positively affected by the contribution of the exits.[8] The fact that the new firms make a negative cumulative contribution and exiter firms a positive cumulative contribution means, given the dynamic Olley-Pakes decomposition, that the new and exiter firms are on average less productive than surviving firms.

Table 2 • Decomposition of aggregate productivity (accumulated contributions 2006-2015)

Sectors	Survivors			Entry	Exit	Net entry	Total reallocation	Total change
	Within	*Between*	Total					
(1)	(2)	(3)	(4)=(2)+(3)	(5)	(6)	(7)=(5)+(6)	(8)=(3)+(7)	(9)=(4)+(7)
Manufacturing	1.0	3.8	4.8	8.9	-6.6	2.4	6.2	7.2
Tradable services	-8.1	-1.7	-9.7	14.3	4.3	18.7	17.0	8.9
Nontradable services	3.8	-0.8	3.0	-26.8	18.6	-8.3	-9.1	-5.3
Total economy	0.5	-1.0	-0.5	-11.4	7.6	-3.8	-4.8	-4.3

Note: Total economy also includes agriculture and construction, mas excludes electricity, gas and water services.

This feature of exiter firms is in line with expectations: firms that leave the market are on average less productive than those that survive. However, there are situations in which the opposite may occur. Due to the existence of credit restrictions, many firms with high productivity may be obliged to close, especially in situations of financial crisis (Hallward-Driemeier and Rijkers, 2013; Eslava et al., 2015). The finding that the new firms are less productive on average than the incumbent firms, while seemingly unexpected, is relatively common in the empirical literature.[9] This exercise, like the great majority of similar exercises in the literature, uses deflators defined at the industry level. As mentioned in Box 1, this may lead to underestimation of new firms' productivity. For this

8. Preliminary exercises have shown that the productivity measure used in this Special Issue is very erratic in the utilities sector, presenting positive and negative annual variations beyond reasonable limits (for example, +37.4% in 2007 and -14.2% in 2015), thereby making meaningful analysis impossible. For this reason, in the analysis that follows, the Total economy aggregate, besides manufacturing and services, includes agriculture and construction, but excludes the utilities sector.

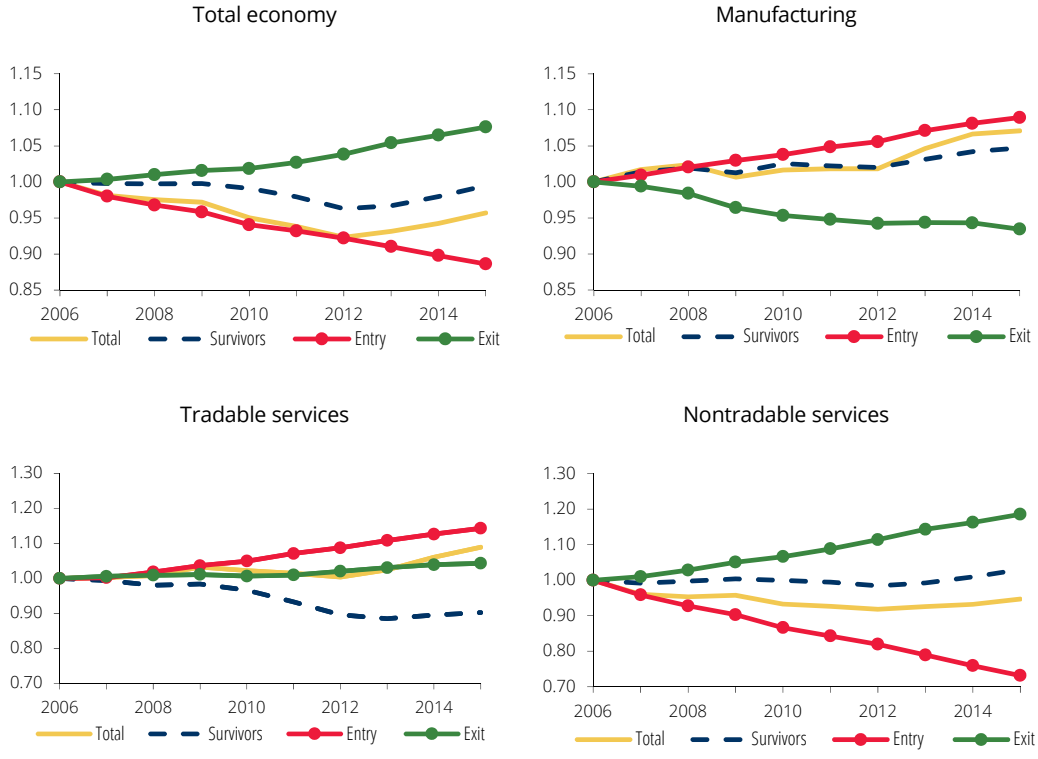
9. The empirical evidence on the contribution of entries and exits to productivity growth, available for other countries, is almost exclusively restricted to the manufacturing sector and changes with the productivity measure and the type of decomposition used. For example, Melitz and Polanec (2015) use data from manufacturing in Slovenia and obtain qualitatively similar results to those obtained for Portugal. When they use a TFP measure and the dynamic Olley-Pakes decomposition, the new and exiter firms are found to be on average more productive than the surviving firms. A similar result was obtained by Hallward-Driemeier and Rijkers (2013) for manufacturing in Indonesia. More recently, Foster, Grim and Haltiwanger (2016) used a TFP measure for manufacturing data from the USA and concluded that in contrast, new firms are on average less productive than incumbent firms.

reason, the evidence from this exercise, that for the total economy new firms are less productive on average than incumbent firms, must be treated with some caution.

However, the analysis by activity sector shows significant differences in regard to the contribution of entries and exits. In manufacturing and tradable services, new firms are found to be more productive than incumbents, contributing positively to sectoral TFP growth. In contrast, new firms are found to be less productive than the incumbents in the non-tradable services sector, contributing negatively to productivity's behaviour in this sector.

Overall, the similarity of the role played by the new firms in manufacturing and tradable services is notable. These firms are found to be more productive than incumbents in these two sectors (which together represent almost all the economy's tradable sector), but less productive than the incumbents in the non-tradable sector (non-tradable services).[10] Also, exiter firms' contribution to TFP growth is clearly lower in the economy's tradable sector (positive, but clearly lower in the tradable services than in the non-tradable services and negative in manufacturing). The greater contribution made by entries and the lower contribution made by exits in the tradable sector may be associated with the greater (international) competition to which this sector is subject, thus requiring relatively higher levels of TFP to enter and survive in the sector.[11]

Chart 1 • Productivity decomposition by type of firm



Source: Banco de Portugal calculations.

10. This finding is also valid for the agricultural sector and the construction sector. In (tradable) agriculture, new firms appear to be more productive than incumbents, while in (non-tradable) construction they appear less productive than surviving firms (although only marginally).

11. In the tradable sector, firms' survival depends on the productivity of firms competing at global level, and not strictly national firms of the same sector.

The role of reallocation of inputs

The behaviour of aggregate productivity depends not only on technical progress, but also on the efficient use of inputs. For this reason, the importance of the reallocation of inputs to explain the behaviour of productivity has been debated widely in the literature. In particular, some recent literature suggests that the decline in the reallocation of inputs is important for explaining the slowdown in productivity since the start of this century (Foster et al., 2017) which, in turn, is likely to be due to the increase in the inputs' adjustment costs (Decker et al., 2017; Decker et al., 2018).

The total contribution to productivity growth resulting from the reallocation of inputs is generally understood as the sum of the contributions arising from the reallocation of inputs between incumbents and the contributions arising from the entry and exit of firms.

To measure the contribution of the reallocation of resources to productivity growth involving the incumbents, the literature usually refers to the 'between-firm' effect, calculated from the decompositions mentioned above.[12] However, the use of some of these decompositions to separate the survivors' contributions into within-firm and between-firm effects has been criticised due to the absence of an underlying theoretical model capable of explaining the dynamic of firms' growth, under the terms assumed by these decompositions. This criticism however does not apply to the Olley-Pakes decomposition, hence its utilisation in this Special Issue. As we have seen, this decomposition measures the between-firm effect through the covariance between firm productivity and size. Many theoretical models that assume the existence of heterogeneous firms conclude that the most productive firms use more resources (and produce more output), due to which, in a situation of optimal resource allocation, productivity and utilisation of inputs should be highly correlated. Thus, a less than perfect correlation between productivity and input utilisation may be seen as a sign of misallocation of resources between firms, due to the presence in the economy of idiosyncratic distortions or frictions, whose significance varies from firm to firm

Generally these theoretical results relate to effects in the covariance when the TFP is used as a productivity measure. However, Bartelsman, Haltiwanger and Scarpeta (2013) showed that under certain assumptions, this interpretation is also valid for the Olley-Pakes decomposition applied to the aggregate productivity measure used in this Special Issue (revenue productivity of the inputs, as explained in Box 1).[13]

An initial important point to note in Table 2 (column (3)) is that the cumulative contribution resulting from the reallocation of inputs between the survivors (between effect) is positive in manufacturing, but negative in the (tradable and non-tradable) services sector, with the result that its cumulative effect over the period is slightly negative for the total economy (-1.0%). In other words, TFP suggests that in manufacturing the most productive firms increased market share (measured in terms of inputs), with a corresponding increase in aggregate TFP, but that this did not happen in services.

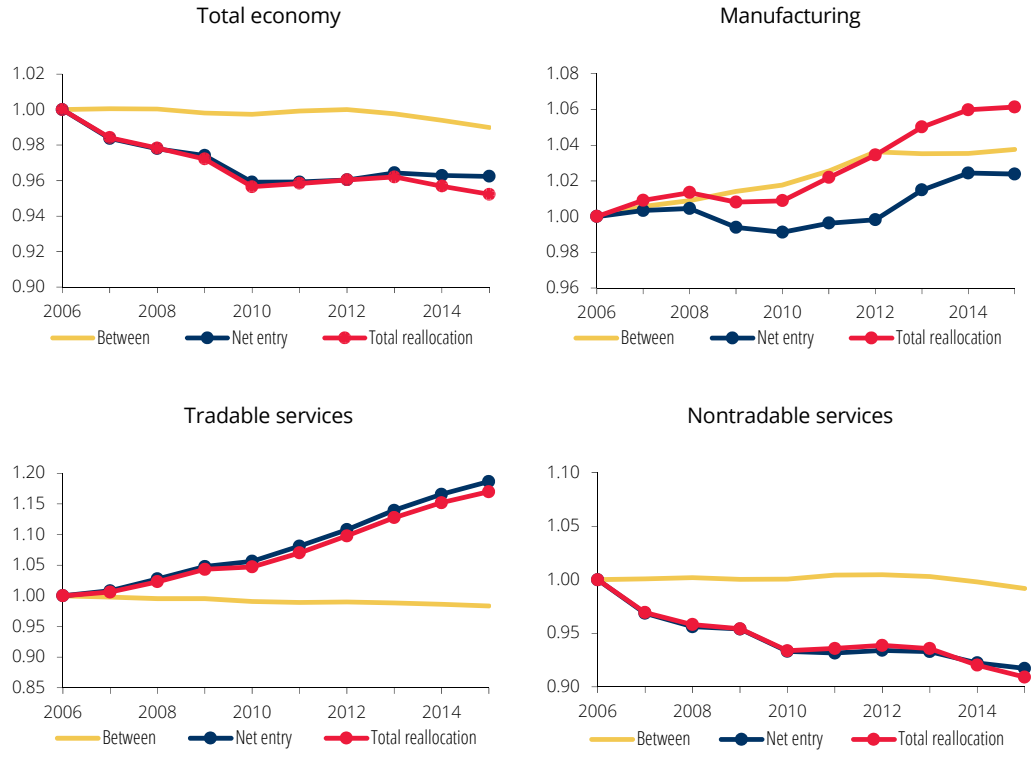
12. In particular, the Olley-Pakes decomposition has been widely used to study issues like the alterations in the resource allocation (Olley and Pakes, 1996), differences in productivity between countries (Bartelsman, Haltiwanger and Scarpeta, 2013), or effects of structural reform and liberalisation of trade on productivity and reallocation of resources (Eslava et al., 2004; Eslava et al., 2013; Andrews and Cingano, 2012). For the application of other decompositions, see Griffin and Odaki (2009), Hallward-Driemeier and Rijkers (2013), Foster, Haltiwanger and Krizan (2001).

13. This result is obtained by the authors in the context of a model that, besides idiosyncratic distortions, includes two important frictions: overhead labour and quasi-fixed capital. In this model, Bartelsman, Haltiwanger and Scarpeta (2013) showed that the covariance term of the Olley-Pakes decomposition declines with an increase in the dispersion of idiosyncratic distortions (increase in misallocation). This result is intuitive to a degree, as a greater dispersion of distortions involves a reduction in the covariance between TFP and the quantity of inputs used.

In regard to the contribution made by net entry of firms – the sum of the contributions of entries and exits (column (7) of Table 2) – as discussed in the previous section, this contribution to TFP growth in the tradable sector is positive (2.4 p.p. in manufacturing and 18.7 p.p. in tradable services), but negative in the non-tradable sector (-8.3 p.p.), in the latter case due to the entries' strongly negative contribution.

Chart 2 shows the evolution over time of these two contribution types, as well as their sum (total reallocation). Table 2 (column 8) and Chart 2 show that the total reallocation of resources – the sum of between-firm effects and the net entry of firms – had a clearly positive impact on productivity growth in the tradable sector (manufacturing and tradable services), but negative in non-tradable services. The negative evolution of total reallocation in this latter sector was responsible not only for the negative performance of productivity recorded in the sector itself (column (9) of Table 2), but also for the negative developments in total reallocation recorded for the economy as a whole (column (8) of the same table).

Chart 2 • Aggregate productivity – input reallocation



Source: Banco de Portugal calculations.

A second noteworthy finding shown by Chart 2 is that the contribution made by total resource reallocation accelerated (growing more in manufacturing and tradable services and slowing the decline in the non-tradable services sector) during the sovereign debt crisis in Portugal (2011-2013). This effect stemmed mainly from the net entry of firms, since the increase in the between-firm contribution was insignificant.

This increase in the contribution made by total input reallocation during the years of the crisis is in line with the idea that crises can have an accelerator effect on productivity (the 'cleansing'

effect), as they accelerate the creative destruction process through which the innovative and more productive firms force the less productive firms out of the market.[14] The fact that the reallocation effect has slowed or even declined after the crisis suggests that the increase in the intensity of the reallocation of inputs, or the cleansing effect, was only temporary, as might be expected.

Final considerations

This Special Issue uses microdata to quantify the contribution made by the reallocation of inputs to productivity growth in Portugal over the 2006-2015 period.

The behaviour of productivity in this period was driven largely by the contribution both of new firms starting activity in each year, and firms ceasing activity. New firms are found to be more productive than the incumbents in the economy's tradable sector (manufacturing and tradable services), contributing positively to productivity in this sector, but less productive than the surviving firms in the non-tradable sector (non-tradable services). In turn, the contribution to productivity made by the exiter firms is clearly lower in the tradable sector. The greater contribution made by entrants and the lower contribution made by exiters in the tradable sector may be associated with the greater international competition to which this sector is subject, thus requiring relatively higher productivity levels to enter and survive in the sector.

Overall, the total reallocation of resources taking place not only between surviving firms but also through firms' entries and exits had a clearly positive impact on productivity growth in the tradable sector (manufacturing and tradable services), but negative in non-tradable services. The negative performance of total reallocation in this latter sector alone explains the negative productivity growth in that sector, as well as the negative contribution made by total input reallocation recorded for the economy as a whole.

The contribution to the behaviour of productivity made by input reallocation increased during the sovereign debt crisis in Portugal (2011-2013), decelerating or even falling in subsequent years. The increased contribution of input reallocation during the years of the crisis is in line with the idea that crises may have a cleansing effect on productivity, by intensifying the reallocation process that, in these periods of added competition, leads more productive firms to increase their market share at the expense of less productive firms.

The findings outlined in this Special Issue, which highlight the difference between the economy's tradable and non-tradable sectors, suggest that the implementation of policies that increase competition in the non-tradable services sector may, in time, have significant implications for the sector's productivity growth, not only as a result of greater and better reallocation of resources between the incumbent firms, but also through firms' entry and exit processes.

This research, based on microdata, aims to be an initial approximation of the large trends in input reallocation in the three large activity sectors – manufacturing, tradable services and non-tradable services – which differ in their degree of exposure to international competition. The results obtained suggest that this analysis should be continued in the future, to include a breakdown by industry, in order to identify the drivers of the trends identified in this Special Issue.

14. This result is consistent with the evidence obtained recently by Dias and Marques (2018), who make a similar analysis of the reallocation of resources in Portugal during the sovereign debt crisis.

Box 1 • Quantity productivity versus revenue productivity

As firm-level prices are generally unobservable, each firm's output in real terms is obtained by deflating the nominal output of the firm using deflators defined at the industry or sector level. The implication is that the TFP measure obtained from the production function is a revenue productivity measure and not a physical or quantity productivity measure.

Revenue productivity, $TFPR_{it}$, is defined as the price times the quantity productivity, i.e., $TFPR_{it} = P_{it}TFP_{it}$ where P_{it} represents the firm-level output price. If we use a deflator defined at industry or sector level, $\overline{P}_t$, to deflate nominal output, instead of $\ln TFP_{it}$ in the production function, we obtain $\ln TFPR^{*}_{it} = \ln((P_{it}TFP_{it})/\overline{P}_t)$, which corresponds to revenue productivity up to a scalar, $\ln \overline{P}_t$, common to all the firms in the industry or sector.

If, within each industry or sector, the firms operate in an environment of differentiated products, there should be an inverse relationship between physical productivity (TFP) and the price set by the firm. In this case, our productivity measure obtained from the production function tends to underestimate the most productive firms' physical productivity, because these firms tend to set lower prices. A similar phenomenon may occur in the case of new firms. The evidence in the literature (Foster, Haltiwanger and Syverson, 2008) suggests that these tend to set lower prices than older firms. In this situation, the use of sectoral deflators understates new firms' real output relative to that of the incumbents and thereby may affect these firms' contribution to total productivity.

In other words, the TFP measure used in this Special Issue must be interpreted as a reflection not only of changes in technical efficiency, but also in other factors affecting firm-level prices, including demand-side alterations.

Another implication of using sectoral deflators may be seen in a monopolist competition setting, where output is given by a Cobb-Douglas production function with constant returns to scale, as in the model considered in Hsieh and Klenow (2009). In this case, changes in efficiency (i.e. changes in physical productivity, TFP) give rise to a proportional reduction in the output price and, in equilibrium, to equal revenue productivity (TFPR) for all the sector's firms. In such situations, differences in the TFPR between the firms of the same sector are a sign of misallocation of resources resulting from distortions in input prices and/or frictions, such as input adjustment costs or price rigidity in the product's market. Firms with higher TFPR are interpreted as facing higher distortions, so that changes in TFPR may result from alterations both in TFP and in distortions (or adjustment costs). These are important aspects that must be borne in mind when assessing and interpreting some of the findings presented in this Special Issue.

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