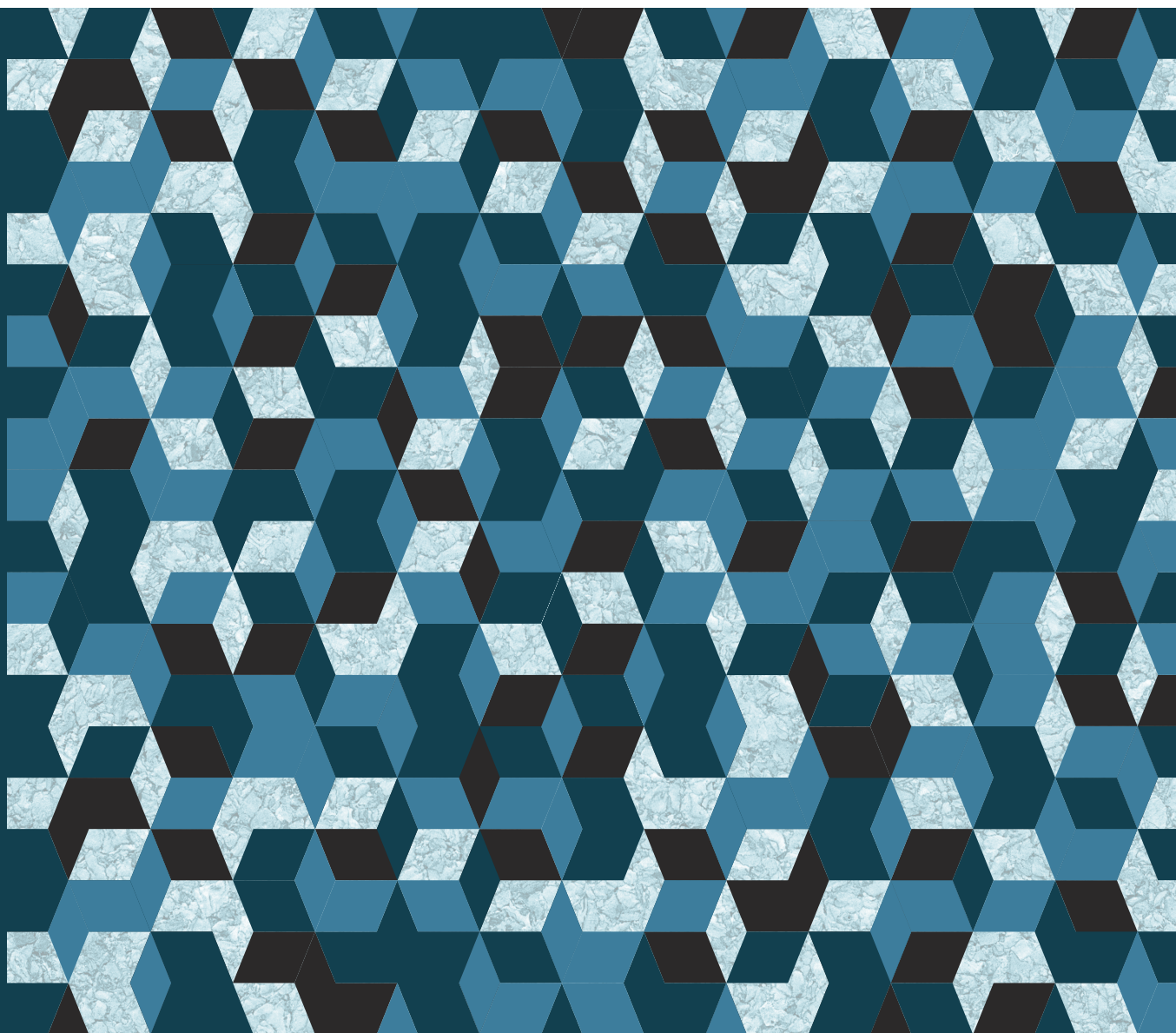BANCO DE PORTUGAL
EUROSYSTEM

Economic Bulletin

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I
Projections for the Portuguese economy: 2017-19

Projections for the Portuguese economy: 2017-19

1. Introduction

The projections for the Portuguese economy point to a continued economic activity recovery over the 2017-19 period, at a faster pace than in the past few years. Gross Domestic Product (GDP) is projected to record annual average increases of 2.5 per cent in 2017, 2.0 per cent in 2018 and 1.8 per cent in 2019 (Table 1). At the end of the projection horizon, GDP is expected to slightly exceed that observed before the international financial crisis in 2008. Moreover, the growth pace over the projection horizon is expected to be higher than that of the euro area, according to the projections recently published by the European Central Bank (ECB).[1] GDP growth over the projection horizon is revised upwards compared with the March projections, reflecting the remarkable dynamics of exports and investment.

This projection incorporates the Eurosystem staff projection exercise recently published by the ECB. According to the projection assumptions, the international environment of the Portuguese economy is expected to remain favourable, with an acceleration of external demand for Portuguese goods and services in 2017 and the maintenance of robust growth over the 2018-19 period, albeit lower than before the international financial crisis (Box 1: 'Projection assumptions'). Monetary and financial conditions are projected to remain broadly stable over the projection horizon, while commodity prices, in particular oil prices, are expected to record a marked increase in 2017 and stabilise somewhat, on average, over the 2018-19 period.

Table 1 • Projections of Banco de Portugal for 2017-2019 | Annual rate of change, in percentage

	Weights 2016	EB June 2017				Projection March 2017			
		2016	2017 [(p)]	2018 [(p)]	2019 [(p)]	2016	2017 [(p)]	2018 [(p)]	2019 [(p)]
Gross domestic product	100.0	1.4	2.5	2.0	1.8	1.4	1.8	1.7	1.6
Private consumption	65.8	2.3	2.3	1.7	1.7	2.3	2.1	1.4	1.4
Public consumption	18.0	0.5	0.4	0.6	0.3	0.8	0.2	0.5	0.2
Gross fixed capital formation	14.8	-0.1	8.8	5.3	5.5	-0.3	6.8	5.0	4.8
Domestic demand	98.8	1.5	2.6	2.2	2.1	1.5	2.5	1.8	1.7
Exports	40.3	4.4	9.6	6.8	4.8	4.4	6.0	4.8	4.5
Imports	39.1	4.4	9.5	6.9	5.2	4.4	7.3	4.8	4.7
Contribution to GDP growth, net of imports (in p.p.) [(a)]									
Domestic demand		0.5	0.8	0.8	0.8	0.5	0.8	0.7	0.7
Exports		0.9	1.8	1.2	0.9	0.9	1.0	0.9	0.9
Employment [(b)]		1.6	2.4	1.3	1.3	1.6	1.6	1.0	1.1
Unemployment rate		11.1	9.4	8.2	7.0	11.1	9.9	9.0	7.9
Current plus capital account (% of GDP)		1.7	2.1	2.4	2.4	1.7	1.0	1.1	1.2
Trade balance (% of GDP)		2.2	2.0	2.2	2.0	2.2	1.4	1.3	1.4
Harmonized index of consumer prices		0.6	1.6	1.4	1.5	0.6	1.6	1.5	1.5

Sources: Statistics Portugal and Banco de Portugal.

Notes: (p) – projected, (p.p.) – 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. For more information, see the Box entitled 'The role of domestic demand and exports in economic activity developments in Portugal', in the June 2014 issue of the *Economic Bulletin*. (b) Total employment, in number of persons according to the national accounts concept.

In this favourable outlook, exports are projected to accelerate strongly in 2017 and to maintain a robust growth in 2018-19, reflecting the acceleration of external demand and significant additional gains in exports market share. In 2019, the level of goods and services exports is projected to stand approximately 65 per cent above the level recorded in 2008.

The acceleration of activity in 2017 should be underpinned by a rebound in Gross Fixed Capital Formation (GFCF), reflecting the maintenance of a strong growth in business investment and a marked recovery in public and residential investment. In 2018-19, projections point to a continued robust growth of GFCF, in particular of its business component, amid the maintenance of stable monetary and financial conditions and favourable prospects for overall demand. In turn, private consumption growth is expected to be slightly lower than GDP growth over the projection horizon, reflecting moderate growth of real wages and the need to continue the process to reduce the households' indebtedness level.

Developments in activity should be followed by improving labour market conditions, with continued employment growth and the maintenance of a declining trend in the unemployment rate. In turn, the inflation rate is expected to stand at 1.6 per cent in 2017 and stabilise at around 1.5 per cent in 2018-19, reflecting the assumptions for developments in oil prices and a gradual acceleration of non-energy prices over the projection horizon. Projections for inflation are virtually in line with those for the euro area as a whole.

The projected economic growth pattern – in which exports and GFCF appear as the most dynamic components of GDP – is consistent with a more sustained recovery of the Portuguese economy, since it takes place amid the maintenance of fundamental macroeconomic balances. The Portuguese economy is expected to strengthen its external net lending position, thus allowing the continuation of the gradual reduction of the external indebtedness levels, over the projection horizon.

2. Recent information

The projections for the Portuguese economy presented in this Bulletin incorporate the information available until 22 May 2017 and the technical assumptions behind the Eurosystem staff projection exercise published by the ECB on 8 June (Box 1: 'Projection assumptions').

In 2016 GDP continued to show moderate growth in real terms, decelerating slightly from the previous year (1.4 per cent, down from 1.6 per cent in 2015). This slight slowdown in economic activity reflected less favourable developments in investment, in particular a fall in GFCF in construction, and a deceleration in exports of goods and services excluding tourism. Considering the intra-annual developments of GDP, a very sharp acceleration pattern was observed in the second half of the year, with year-on-year growth of 1.9 per cent, up from 1.0 per cent in the first half of 2016. The higher growth in the second semester was seen across all expenditure components, with the exception of public consumption (Chart 2.1).

Strong acceleration of economic activity in the first quarter of 2017

In the first quarter of 2017, according to the flash estimate released by Statistics Portugal (Instituto Nacional de Estatística - INE), GDP increased by 2.8 per cent year-on-year, enhancing the acceleration pattern started in the third quarter of 2016. Compared with the previous quarter, economic activity grew 1.0 per cent (Chart 2.2). Over the past few quarters, economic activity in Portugal has been more buoyant than in the euro area, in terms of both quarter-on-quarter and year-on-year rates of change (Chart 2.3).

Quarterly National Accounts for the first quarter of 2017 were released only after the cut-off date of this Bulletin, and therefore this data was
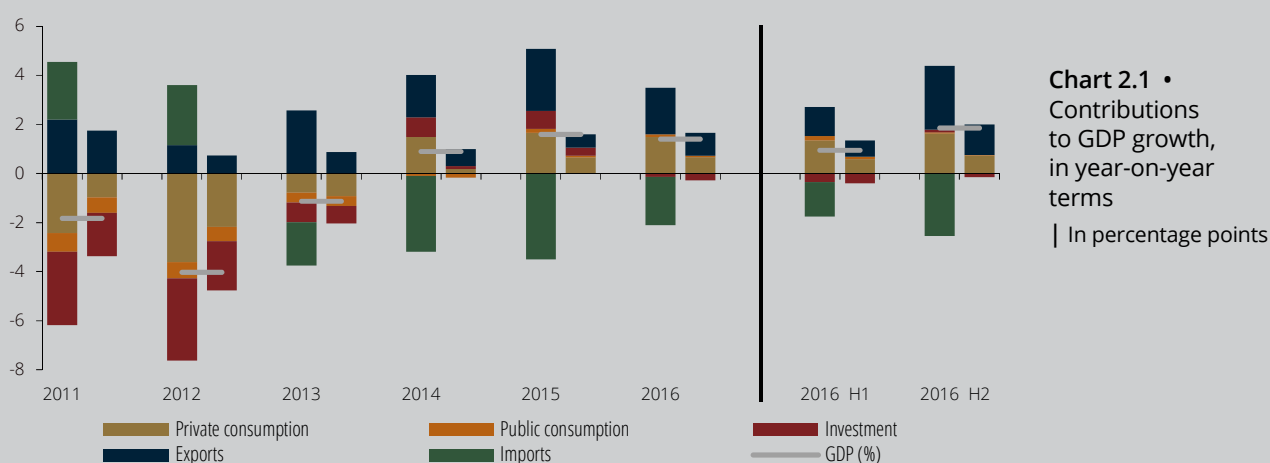
not incorporated in this projection. Nevertheless, the assessment based on short-term indicators available until the cut-off date carried out in this projection exercise is in line with the information later disclosed by INE.

The GDP expansion is corroborated by most short-term indicators, which point to a favourable performance of the Portuguese economy in the first quarter. For instance, economic sentiment indicator improved further in the last two quarters, reflecting increased confidence among economic agents, in particular consumers and businessmen of the manufacturing and construction sectors (Chart 2.4).

Slowdown in private consumption and higher GFCF buoyancy

Against a background of increasing disposable income, more favourable labour market conditions

Chart 2.1 • Contributions to GDP growth, in year-on-year terms

| In percentage points

Private consumption Public consumption Investment Exports Imports GDP (%)

Sources: Statistics Portugal and Banco de Portugal.

Notes: For each year, the left side bar refers to gross contributions from each GDP component and the right side bar refers to the corresponding net contributions. 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 2005. For more information, see the Box entitled 'The role of domestic demand and exports in economic activity developments in Portugal', in the June 2014 issue of the *Economic Bulletin*.

Chart 2.2 • Gross domestic product | Real rate of change, in percentage

Quarter-on-quarter change   Year-on-year change

Source: Statistics Portugal.

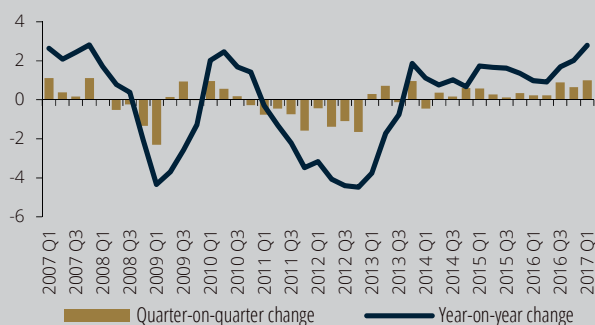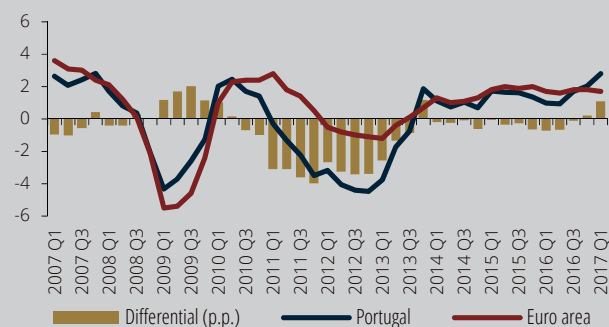**Chart 2.3 •** Gross domestic product in Portugal and in the euro area, in real terms | Year-on-year rate of change, in percentage

Differential (p.p.)   Portugal   Euro area

Sources: Eurostat and Statistics Portugal.

Note: p.p. – percentage points.

and persistence of consumer confidence at historically high levels, private consumption continued to growth strongly in the first quarter of 2017, albeit less markedly than in the previous quarter.

This year-on-year slowdown reflected, to a large extent, the smaller growth of private consumption of vehicles, in line with the developments in sales of passenger cars (Chart 2.5). Note that developments in the acquisition of these motor vehicles were affected by effects related to front-loaded purchases before the entry into force of the State Budgets in April 2016 and January 2017. Moreover, the gradual deceleration pattern arises after a period of high growth rates of change, amid a rebound in the stock of cars (which recorded very sharp falls in 2011 and 2012) (Box 2: 'An analysis of developments in the stock of consumer durable goods in Portugal').

According to the short-term indicators, the private consumption of durable goods excluding vehicles recorded a further significant rise, after close-to-zero rates of change since the third quarter of 2015, while the consumption of non-durable goods and services continued

to record robust growth, albeit lower than in the previous quarter.

In turn, GFCF was strongly buoyant in the first quarter of 2017, and more dynamic than in the previous quarter. These developments, in year-on-year terms, reflected the acceleration of GFCF in construction and, to a lesser extent, of GFCF in machinery and other equipment. On the other hand, GFCF in transport equipment decelerated according to the monthly indicators available for the first quarter.

The growth of GFCF in construction in the first quarter of 2017 is in line with the strong increase in cement sales from the domestic market, partially associated with an increase in activities related to the renewal of buildings, in a context of more favourable weather conditions and consecutive improvements in confidence in construction. A similar performance was seen in the construction production index, whose recovery expanded to both the civil engineering works and the construction of buildings components (Chart 2.6). The information relating to public works tenders and contracts awarded also confirms the recovery in

Chart 2.4 • Confidence indicators | Deviations from the average over the last 10 years
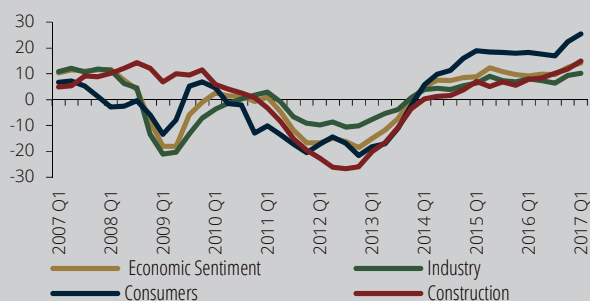
Source: European Commission.

Chart 2.5 • Private consumption of automotive vehicles, in real terms | Thousands of vehicles and year-on-year rates of change, in percentage
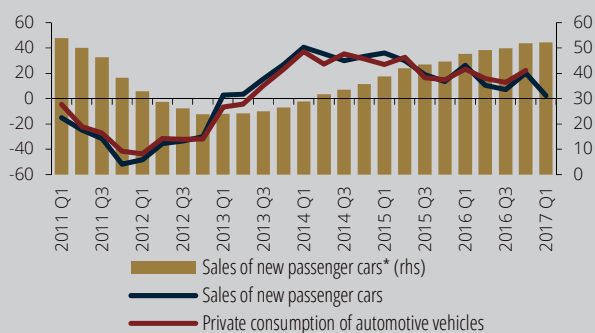
Sources: ACAP, Statistics Portugal and Banco de Portugal.

Notes: * – Four-quarter moving averages. The series for sales of new passenger cars is not calendar and seasonal effects adjusted.

this sector, which seems to be partly associated with a normalisation in the distribution of European funds in the context of the Portugal 2020 programme. Turning to GFCF in machinery and equipment, the maintenance of robust growth in the first quarter is in line with short-term developments in machinery imports, which accelerated further, in year-on-year terms, after increases of around 11 per cent throughout the second half of 2016 (Chart 2.7).

Strong acceleration of exports

In the first quarter of 2017, exports in volume recorded significant growth, in year-on-year terms, above that of the previous quarter and that estimated for external demand, with additional market share gains.

The short-term indicators for international trade, available only in nominal terms, allow for a more disaggregated analysis. However, it should be kept in mind that these series are affected by calendar effects, whose impact was positive in the

first quarter.[2] Additionally, the deflator for exports of goods and services increased, in year-on-year terms, in the first quarter, in contrast to the falls recorded since 2013.

In year-on-year terms, the performance of nominal exports of goods reflected, to a large extent, the acceleration of goods exports excluding fuel, whose developments were relatively widespread, both by country of destination and type of good (Chart 2.8). Regarding the nominal exports of services, the year-on-year acceleration was common to intra- and extra-EU markets and reflected the higher growth of the component of services excluding tourism, in particular transport services. The tourism component remained highly buoyant, with only a slight deceleration, year-on-year, compared with the fourth quarter of 2016 (Chart 2.9).

Finally, imports in volume also recorded an acceleration in the first quarter of 2017, although lower than that of exports. In view of developments estimated for overall demand weighted by import contents, the evolution of imports fell short of the average patterns, reflecting in part

Chart 2.6 • GFCF in construction, in real terms | Year-on-year rate of change, in percentage
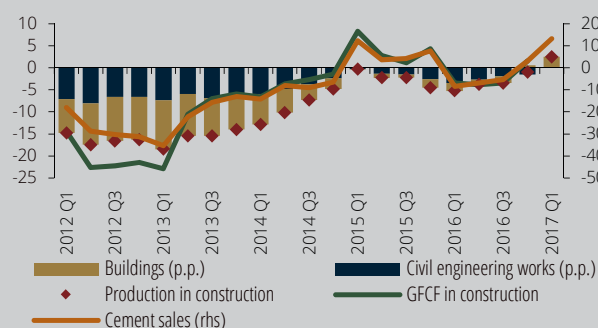
Sources: Cimpor, Statistics Portugal, Secil and Banco de Portugal.

Notes: p.p. – percentage points. The columns refer to contributions from each component to the year on year rate of change of the index of production in construction. The series for cement sales is calendar and seasonal effects adjusted.
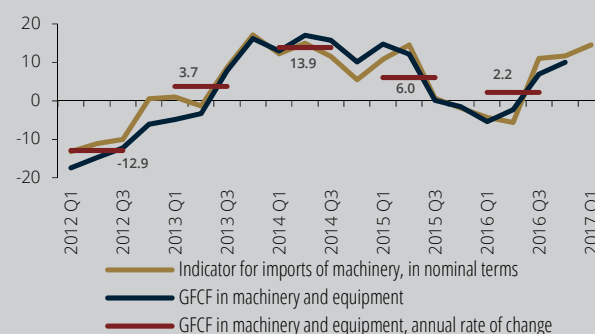
Chart 2.7 • GFCF in machinery and equipment, in real terms | Year-on-year rate of change, in percentage

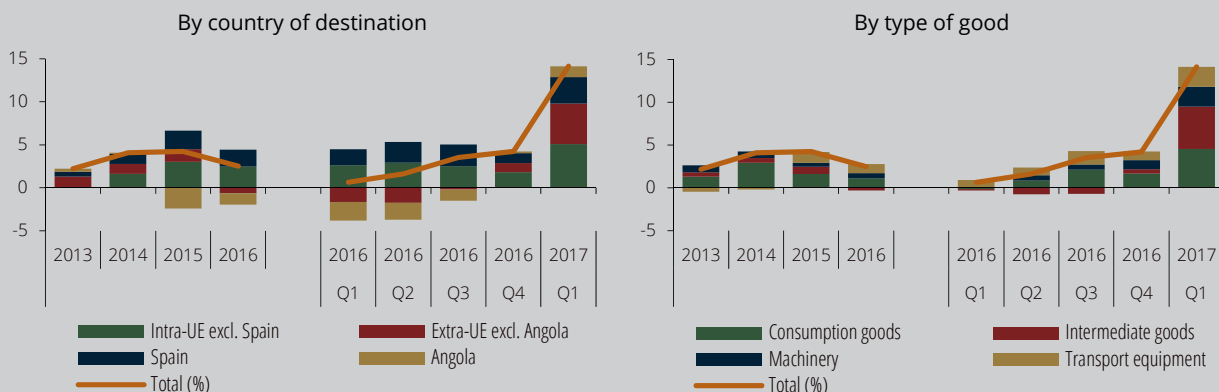Sources: Statistics Portugal and Banco de Portugal.

the performance of the energy goods component. These developments led to a negative contribution of the change in inventories to GDP.

Favourable developments persist in the labour market

As to developments in the labour market, the monthly information disclosed for the first quarter

of 2017 points to a strong increase in employment (3.3 per cent, year-on-year), reflecting positive developments in self-employment and employees, and a reduction in the unemployment rate to 9.9 per cent (Chart 2.10). However, the employed population level remains far lower than before 2008.

Chart 2.8 • Nominal exports of goods excluding fuel | Contributions to the year-on-year rate of change, in percentage points

By country of destination

By type of good

Intra-UE excl. Spain   Extra-UE excl. Angola
Spain   Angola
Total (%)

Consumption goods   Intermediate goods
Machinery   Transport equipment
Total (%)

Source: Statistics Portugal.

Chart 2.9 • Nominal exports of services | Contributions to the year-on-year rate of change, in percentage points

Travel   Transport
Other services   Total (%)
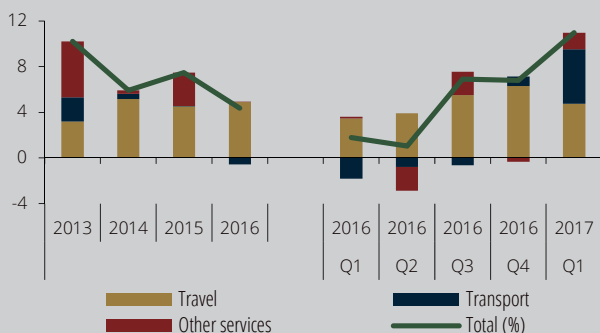
Source: Banco de Portugal.

Chart 2.10 • Employment and unemployment rate | Level and year-on-year rate of change, in percentage

Employment (monthly estimates)
Employment (QNA)
Unemployment rate (%) (rhs)
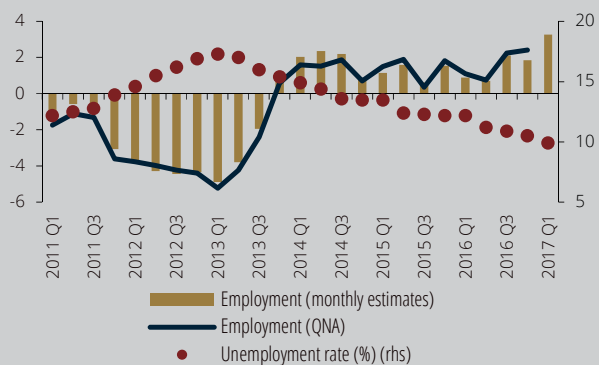
Source: Statistics Portugal (QNA and Monthly Employment and Unemployment Estimates).

Box 1 | Projection assumptions

The projections for the Portuguese economy released in this Bulletin are part of the Eurosystem's projection exercise published on 8 June, and therefore the implicit assumptions are the same. Table 1 summarises the main technical assumptions, which incorporate information available up to 16 May in the case of oil prices, interest rates and exchange rate and up to 22 May for the remaining of indicators.

As regards the international environment, current assumptions point to a gradual acceleration of global economic activity over the projection horizon, similar to the one anticipated in March. Compared to the same projection exercise, GDP growth in the euro area was revised slightly upwards in the 2017-19 period. In turn, the expected growth of world trade remains robust, presenting an upward revision over the projection horizon, particularly in 2017. In this context, the average growth of external demand for Portuguese goods and services is expected to be around 4 per cent in the 2017-19 period, above that recorded in 2016 and in line with that projected for world trade. Growth of imports from the euro area is expected to show a downward trend over the projection horizon, remaining however above the demand growth from extra-EU markets. Compared to the March exercise, only the upward revision of assumptions for external demand in 2017 is highlighted.

In line with technical assumptions of the last Eurosystem's projection exercise, the projection now released by Banco de Portugal implies a 17 per cent increase in oil prices in dollars in 2017, after consecutive falls since 2013. For the following years, technical assumptions assume a stabilisation of the price of Brent oil at around USD 51 per barrel. Compared to the previous projection exercise, the oil prices in dollars were revised downwards, with special reference to the revision of the rate of change for 2017 by around -10 percentage points. The revision of the oil prices in euros was more pronounced, given the slight upward revision of assumptions for the euro-dollar exchange rate.

After the euro appreciation in 2016, a positive, but close to zero, change in effective exchange rate is projected for 2017, in annual average terms, leading to an upward revision *vis-à-vis* the assumption considered in March (in which a depreciation was anticipated). Reflecting the accommodative monetary policy stance, the short term interest rate may remain slightly negative (although with an upward profile) over the projection horizon, at levels similar to those implied in the March exercise. On the other hand, the implicit interest rate in public debt was revised downwards, and a declining trajectory is now anticipated for the 2017-19 period.

The assumptions regarding public finance variables, which are in line with the rules used in the context of the Eurosystem's projection exercise, incorporate all the policy measures presented up to the cut-off date for data that were specified with sufficient detail. Compared with the projections published in March, the consideration of the measures included in the update of the Stability Programme for 2017-21 that meet such criteria did not have a significant impact on the projections.

Forecasts for public consumption, in real terms, continue to point to rather contained growth over the projection horizon, mainly as a result of the assumption of a stabilisation in the number of public employees at the level recorded at the end of 2016. Moreover, projections point to continued moderate growth of the acquisition of goods and services, partly resulting from a cut in expenditure associated with public-private partnerships in the road transport sector, with a particularly significant impact in 2019. Real growth projected for public consumption is lower in 2017,

as a result of the cut in the number of hours worked in mid-2016. As regards developments in the public consumption deflator, there were no significant changes from the previous projection, with special reference in 2017 to the remaining effect of the gradual reversal of wage cuts in 2016.

Turning to public investment, the assumption of a strong acceleration in this component in 2017 (even excluding the extraordinary effects due to the sale of military equipment) is maintained, followed by developments mostly in line with nominal GDP in 2018 and 2019.

Table 1 • Projection assumptions

		EB June 2017				Projections March 2017			
		2016	2017	2018	2019	2016	2017	2018	2019
International environment									
World GDP	yoy	3.0	3.3	3.6	3.5	2.9	3.3	3.5	3.6
World trade	yoy	1.5	4.5	3.9	4.0	1.7	3.5	3.9	3.9
External demand	yoy	1.7	4.5	3.9	4.0	2.0	4.0	4.0	4.0
Oil prices in dollars	aav	44.0	51.6	51.4	51.5	44.0	56.4	56.5	55.9
Oil prices in euros	aav	39.8	47.6	47.0	47.1	39.8	52.7	52.8	52.3
Monetary and financial conditions									
Short-term interest rate (3-month EURIBOR)	%	-0.3	-0.3	-0.2	0.0	-0.3	-0.3	-0.2	0.0
Implicit interest rate in public debt	%	3.3	3.2	3.1	3.1	3.3	3.3	3.3	3.3
Effective exchange rate index	yoy	2.6	0.3	0.4	0.0	2.6	-0.6	0.0	0.0
Euro-dollar exchange rate	aav	1.11	1.08	1.09	1.09	1.11	1.07	1.07	1.07

Sources: ECB, Bloomberg, Thomson Reuters and Banco de Portugal.

Notes: yoy – year-on-year rate of change, 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. Assumptions for the long-term interest rate on Portuguese public debt are based on an assumption for the implicit rate, which includes an assumption for the interest rate associated with new issuances.

3. Demand, supply and external accounts

Recovery in economic activity

The Portuguese economy is expected to remain on a recovery path over the projection horizon, with GDP growing by 2.5 per cent in 2017, 2.0 per cent in 2018 and 1.8 per cent in 2019. The recovery in economic activity is mostly sustained by buoyant exports – reflecting a favourable external economic and financial environment and continued market share gains – and a recovery in investment, which will continue to benefit from ongoing stable monetary and financial conditions and favourable prospects for developments in overall demand.

Taking into account contributions net of imports (i.e., deducting from each component an estimate of associated imports), growth in economic activity over the projection horizon is expected to reflect a higher contribution from exports than from domestic demand (Chart 3.1). By the end of the projection horizon, real output is expected to stand for the first time above the level seen before the international financial crisis, which shows how severe the shocks to the Portuguese economy were and how gradual the subsequent recovery has been. GDP growth in Portugal is expected to be higher than projected for the euro area as a whole, slightly reversing the negative differential accumulated in the past few years (Chart 3.2).

In sectoral terms, projections point to a broadly-based recovery in economic activity across the main sectors, reflecting growth in domestic and external demand, amid an improvement in confidence in all sectors of the economy. The recovery in economic activity that began in mid-2013 has largely been supported by growth in services, in particular tourism-related services, and, albeit to a smaller extent, by the industrial sector. These features are expected to continue over the projection horizon. As regards construction sector, after a protracted period of successive declines in activity, growth is expected to be strong in 2017 and more mitigated over the rest of the projection horizon.

Developments in the labour market are expected to be favourable over the projection horizon. Consequently, after employment grew by 1.6 per cent in 2016, reflecting to a large extent an increase in sectors exposed to international competition, it is again expected to grow in
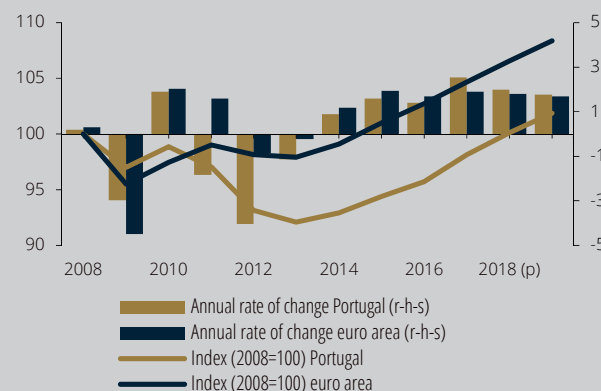
Chart 3.1 • Gross and net contributions to GDP growth | In percentage points

Private consumption   Public consumption
Investment   Exports
Imports   GDP (in percentage)
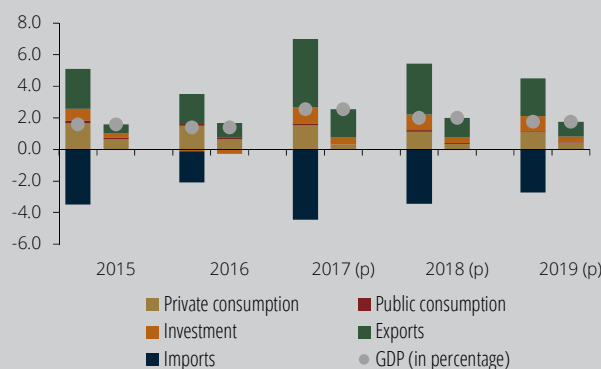
Sources: Statistics Portugal and Banco de Portugal.

Notes: (p) – projected. For each year, the left-hand bar refers to gross contributions from each GDP component and the right-hand bar to contributions adjusted by the import content.

Chart 3.2 • GDP in Portugal and in the euro area | In percentage and index (2008=100)

Annual rate of change Portugal (r-h-s)
Annual rate of change euro area (r-h-s)
Index (2008=100) Portugal
Index (2008=100) euro area

Sources: Statistics Portugal and Banco de Portugal.

Notes: (p) – projected.

2017, by 2.4 per cent. In the 2018-19 period, employment is projected to post average annual growth of 1.3 per cent, fairly in line with its historical relationship with economic activity. Employment growth over the projection horizon reflects developments in employment in the private sector, as employment in the public sector is expected to remain stable.

The unemployment rate is projected to remain on a downward path over the projection horizon, reaching 7 per cent in 2019, which corresponds to the average figures observed since the start of the euro area up to the international financial crisis. Over the projection horizon, the labour force is assumed to stabilise somewhat, after a period of continued declines during the 2011-16 period, which reflects the current demographic and migration trends, as well as a gradual increase in the retirement age.

Despite favourable developments projected for employment, at the end of the projection horizon, the level of employment is expected to stand at levels still below those of the period immediately before the international financial crisis in 2008 (a decline of around 176,000 workers) (Chart 3.3). In turn, in 2019 the unemployment rate is expected to stand below the level seen before the crisis, amid the continued declines in the labour force of the past few years.

Developments in economic activity and employment over the current recovery phase have resulted in a very weak dynamics in apparent labour productivity, which implies growth below that seen in previous economic recoveries (Chart 3.4). This profile has been broadly-based across many advanced economies, including the euro area. Over the projection horizon, labour productivity is anticipated to maintain a weak dynamics, virtually stagnate in 2017, and post an average annual growth of around 0.6 per cent in the 2018-19 period.

The reasons behind the decline in apparent labour productivity in the current recovery phase are complex, and may be related to changes in the productive structure and a context where the capital per worker in the Portuguese economy remains low, after several years of falls in investment. In particular, the strong decline in investment in the 2009-13 period, and its impact on the adoption of new technologies and productive processes, may have affected efficiency gains in a relatively broadly based manner across sectors. Indeed, in international comparisons, Portugal has a level of capital per worker considerably below that of the euro area average (Box 5.1: 'Capital per worker and productivity' in the May 2017 issue of the *Economic Bulletin*).

Chart 3.5 presents a breakdown of growth which points to developments in *per capita* GDP over the projection horizon being explained to a large extent by the contribution made by the labour input (1 p.p. on average in the 2017-19 period). The contribution made by the capital input is expected to be almost nil over the projection horizon, similarly to the 2011-16 period, given that, despite its recovery, investment is expected to remain at levels which only offset capital depreciation. This limits a stronger momentum in potential output, given that it is through capital that new technologies are incorporated into the productive process. In turn, human capital accumulation, measured by the average number of school years attended by the labour force, is expected to make a positive contribution to growth (0.5 p.p. on average), as observed in the past, amid a continued improvement in the skills of the working age population. Lastly, *per capita* GDP growth in the 2017-19 period is expected to benefit from a positive contribution from total factor productivity (0.5 p.p. on average), in the context of an ongoing process of improvement in the allocation of resources in the economy. This growth in total factor productivity is in contrast with the fall observed, on average, since 1999.

## Ongoing recovery in domestic demand, with a recomposition favourable to investment

As regards developments in domestic demand components, private consumption is expected

to grow on average slightly below economic activity over the projection horizon. In 2019 developments projected for private consumption point to the level of consumption standing slightly above that seen before the international financial crisis (Chart 3.6).

In 2017 growth in private consumption is projected to be similar to that of the previous year,

2.3 per cent, in the context of a continued accommodative monetary policy by the ECB and a considerable improvement in consumer confidence, which has remained at historically high levels in the past few quarters. Developments in private consumption show both an acceleration in the consumption of current goods and services and a slight deceleration in the consumption of durable goods (Chart 3.7).

Chart 3.3 • Employment and unemployment | In thousands of employees and in percentage

Unemployment rate (r-h-s) — Employment (n. employees)
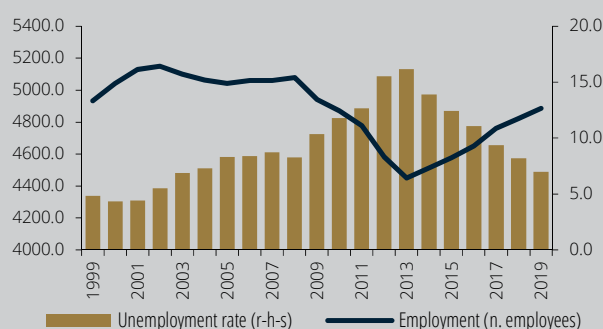
Sources: Statistics Portugal and Banco de Portugal.

Notes: (p) – projected. Total employment, in number of persons according to the national accounts concept.

Chart 3.4 • Developments in labour productivity in different economic recoveries | Index T=100
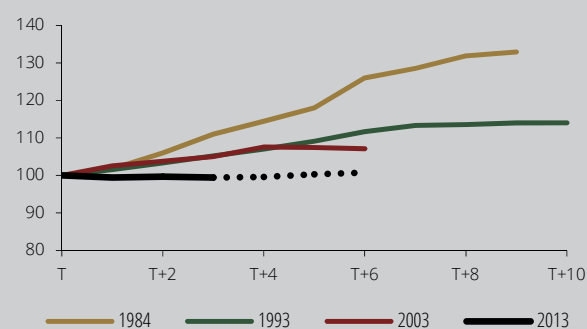
1984 — 1993 — 2003 — 2013

Sources: Statistics Portugal and Banco de Portugal.

Notes: The economic recoveries considered were determined on the basis of the Portuguese business cycle and started (T) in 1984, 1993, 2003 and 2013. The 2009 recovery was not considered due to its limited duration. The dotted line corresponds to the projection period.

Chart 3.5 • Breakdown of the growth in real GDP *per capita* | Contributions in percentage points

■ Capital stock *per capita*   ■ Employment *per capita*   ■ Total factor productivity   ■ Human capital   ● GDP *per capita*

Sources: Barro and Lee (2013), Quadros de Pessoal, Statistics Portugal and Banco de Portugal.

Notes: The growth accounting exercise of GDP *per capita* is based on a Cobb-Douglas production function. The measures of human capital were constructed from the data of Barro and Lee (2013) 'A new data set of educational attainment in the world, 1950-2010', *Journal of Development Economics 104*, pp. 184-198. For Portugal, these series were annualized and extended using the profile of the average years of education of employment of Quadros de Pessoal (until 2012) and of the Labour Force Survey of INE.

As regards the consumption of current goods and services, growth in this aggregate is expected to be fairly in line with real disposable income, in the context of improving labour market conditions and moderate growth in real wages. Also relevant were the 5.1 per cent increase in minimum wages at the start of 2017 and the continuation of a number of income reinstatement measures included in the State Budget. In turn, a deceleration in the consumption of durable goods occurs after very significant increases in recent years, partly associated with purchases that had been postponed during the economic recession (Box 2: 'An analysis of developments in the stock of consumer durable goods in Portugal').

In 2018 and 2019, private consumption is expected to decelerate to 1.7 per cent, reflecting developments in households' real disposable income, in a context of annual growth of 1.3 per cent in employment and limited increases in real wages due to small productivity gains. The deceleration projected for private consumption comprises a deceleration in both durables and non-durables, with the share of durable goods in GDP expected to stabilise in the 2017-19 period. Developments projected for private consumption and disposable income imply a relative

stabilisation in the savings rate, at around 4 per cent. Household indebtedness as a percentage of disposable income is expected to continue to decline, albeit at a slower pace, standing in 2019 at a level approximately 25 p.p. below that of 2008, a key feature of the adjustment process in the Portuguese economy.

After virtually stabilising in 2016, affected by the very marked decline in public investment, GFCF is projected to strongly recover over the projection horizon, growing by 8.8 per cent in 2017 and slightly above 5 per cent in the 2018-19 period (Chart 3.8). At the end of the projection horizon, as a ratio of GDP, total GFCF is expected to remain considerably below the average observed since the start of the euro area, and is projected in 2019 to account for around two thirds of the figure recorded in 2000. To a large extent, this drop reflects a strong structural adjustment in public and residential investment (Chart 3.9).

Following a growth rate of 7.1 per cent in 2016, corporate GFCF is expected to increase by 7.6 per cent in 2017 and above 6 per cent in the 2018-19 period. Developments in corporate GFCF reflect positive expectations for overall demand and continued favourable financing conditions. Developments in this component also reflect the
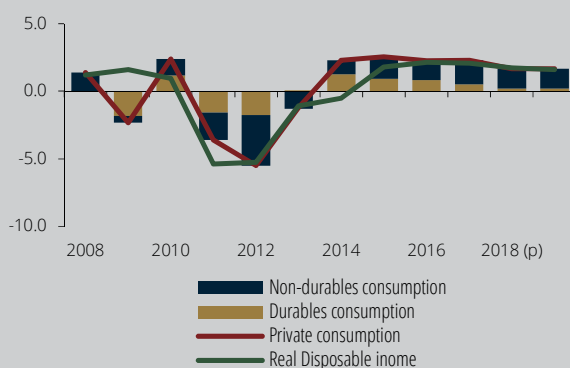
Chart 3.6 • GDP breakdow | Index 2008=100
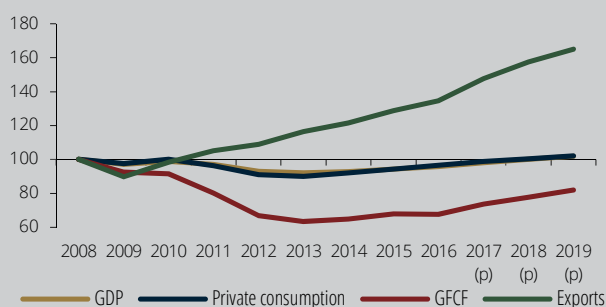
Sources: Statistics Portugal and Banco de Portugal.

Note: (p) – projected.

Chart 3.7 • Consumption and disposable income | In percentage and in percentage points

Sources: Statistics Portugal and Banco de Portugal.

Note: (p) – projected.

need for capital stock replacement, following substantial falls in investment in the 2009-13 period. Current projections also incorporate information on investments in large-scale infrastructures scheduled to take place in the 2017-19 period. In addition, over the projection horizon, both private and public investment are expected to benefit from the normalisation of financing allocated through European funds, which is expected to occur after the initial transition stage to the Portugal 2020 programme. The share of corporate GFCF in GDP is expected to increase over the projection horizon, to a level close to the average observed before the international financial crisis (1999-2008) (Chart 3.9).

In 2017 residential GFCF is expected to grow by 9.2 per cent, reflecting to a large extent the intra-annual profile of 2016, marked by a strong acceleration in the last quarter. The strong recovery projected for residential GFCF in 2017 is also associated with a number of factors. In addition to continued favourable financing conditions and an improving labour market, the contribution of investment related to tourism and to an increase in demand from non-residents is also relevant. In recent years, housing prices have increased – particularly in urban areas, a pattern also seen in other European countries – which

also reflects a recovery in the real estate market. According to Statistics Portugal's House Price Index, in 2016 these prices increased by 7.1 per cent, after average annual growth of close to 4 per cent in the 2014-15 period, standing close to the level seen in 2008. For the 2018-19 period, more moderate growth is projected for residential investment, compatible with a stabilisation of around 2.8 per cent in the residential GFCF to GDP ratio, after a prolonged period of declines in this ratio, observed since 2000.

Public GFCF is expected to grow markedly in 2017, following a very steep decline in 2016. Since 2008, the share of public GFCF in GDP has been declining, reaching a minimum of less than 2 per cent in 2016, around half the figure for 2008. For the 2018-19 period, public investment is projected to post average growth in line with GDP.

Exports accelerate, amid an improved international environment

Amid an improved international environment, particularly an increase in external demand for Portuguese goods and services, and taking into
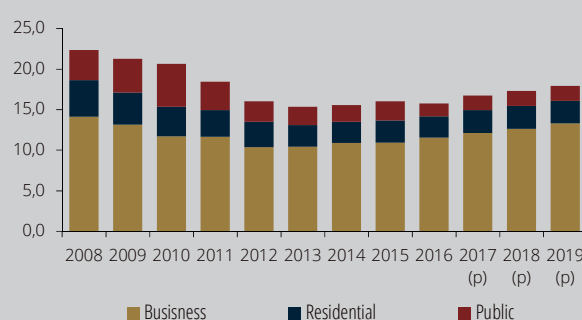
Chart 3.8 • Breakdown of GFCF by institutional sectors | Index 2008=100
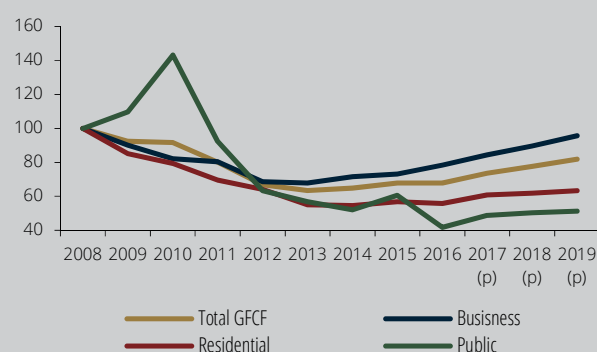
Sources: Statistics Portugal and Banco de Portugal.

Note: (p) – projected.

Chart 3.9 • Gross Fixed Capital Formation | In percentage of GDP

Sources: Statistics Portugal and Banco de Portugal.

Note: (p) – projected.

account the information already available for the first months of the year, exports of goods and services are projected to accelerate markedly in 2017, reaching an average annual growth of 9.6 per cent (4.4 per cent in 2016). For the 2018-19 period, exports are expected to continue to grow strongly, with growth rates of 6.8 and 4.8 per cent respectively (Chart 3.10). As regards the projection for 2017, it should be mentioned the clearly upward path in exports of both goods and services throughout 2016, with a positive impact on the average annual rate of change for 2017, and the very marked growth observed in the first quarter of this year. In 2017 exports of goods are also expected to benefit from the unwinding of a number of negative temporary effects associated with reduced production in industrial plants of the automotive and energy sectors in 2016, and from the recovery in exports to Angola. Exports are also expected to benefit from an expected increase in the productive capacity of an automotive plant at the end of 2017 and throughout 2018.

Tourism exports are expected to remain highly dynamic over the projection horizon. In 2017 data on important events at an international scale taking place in Portugal was incorporated, with a positive impact on exports. Tourism exports grew considerably above total exports in recent years, standing, in 2016, roughly 60 per cent above the level observed in 2008 in real terms (Chart 3.11).

For 2017, the market share of Portuguese exporters is expected to increase by around 5 p.p., clearly above the gains observed in previous years. For 2018 and 2019, additional gains of around 3.5 p.p. are expected for both years as a whole.

Imports of goods and services are expected to grow by 9.5 per cent in 2017, after 4.4 per cent in 2016, and to decelerate over the projection horizon to 5.2 per cent in 2019. These developments are broadly in line with overall demand weighted by import content, taking into account average patterns observed in the past (Chart 3.12). In 2017 import growth reflects the lagged effects of the strong increase observed in the last quarter of 2016 and buoyant growth in a number of overall demand components, particularly business investment and exports of goods.

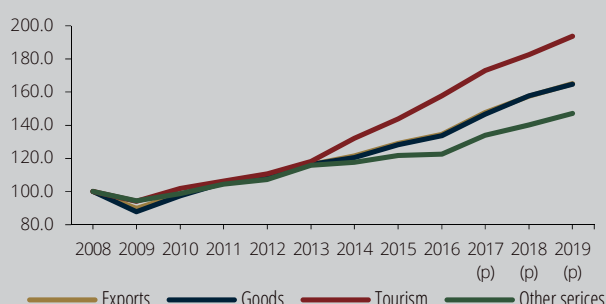Very dynamic developments in exports and imports over the projection horizon are expected

Chart 3.10 • Exports and external demand
| Annual rate of change, in percentage
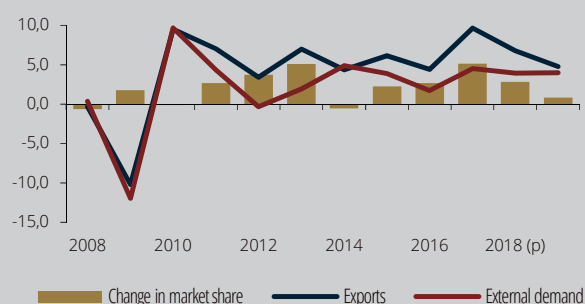
Sources: Statistics Portugal and Banco de Portugal.

Note: (p) – projected.

Chart 3.11 • Exports of goods and services
| Index (2008=100)

Sources: Statistics Portugal and Banco de Portugal.
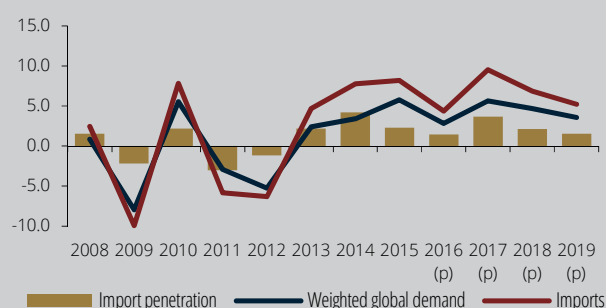
Notes: (p) – projected.

to strengthen the degree of internationalisation of the Portuguese economy, resulting in an increase in trade openness – measured as the share of the sum of exports and imports in GDP, in nominal terms – from 72 per cent in 2008 to 79 per cent in 2016 and 93 per cent in 2019 (Box 3: 'Trade openness of the Portuguese economy: recent developments and outlook').

The positive performance of exports in recent years is structural in nature, supported by a corporate restructuring that began before the international financial crisis. This momentum in exports was not supported by price-competitiveness gains (Box 6.1: 'Developments in unit values of Portuguese goods exports', in the May 2017 issue of the *Economic Bulletin*). It should be mentioned that since 2011, around half of the cumulative growth in exports of goods and services reflected market share gains (Chart 3.10). Developments in exports of goods and services have been one of the most important aspects of the adjustment process in the Portuguese economy, favouring a strong shift of productive resources towards sectors that are more exposed to international competition.

Continued net lending over the projection horizon

Current projections point to an increase in the net lending position of the Portuguese economy in the 2017-19 period, measured by the combined current and capital account balance. Nevertheless, this increase reflects mixed dynamics among sectors, namely when a comparison is carried out on the net lending of households and non-financial corporations (Special issue: 'Saving and investment dynamics of Portuguese enterprises'). The combined current and capital account balance stood at 1.7 per cent of GDP in 2016, and is expected to increase to 2.1 per cent of GDP in 2017 and 2.4 per cent of GDP in the 2018-19 period. The increase observed in the current and capital account surplus reflects a relative stabilisation in the goods and services account balance, at around 2.2 per cent of GDP, and more favourable developments in other components, within a context of continued low interest rates and normalisation in the distribution of funds under the current European funding programme. The relative stabilisation of the goods and services account balance is the result of the effect of a negative change in terms of
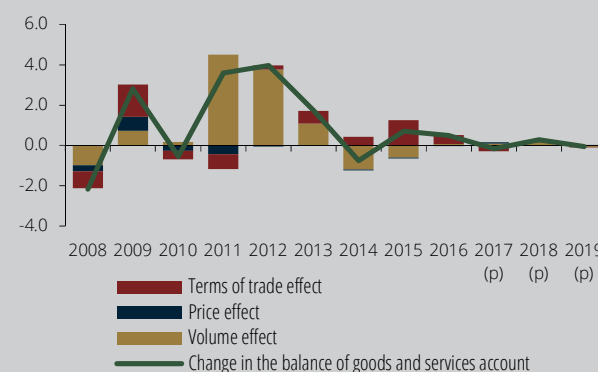
Chart 3.12 • Imports and import-content weighted overall demand | In percentage

Sources: Statistics Portugal and Banco de Portugal.

Notes: (p) – projected.

Chart 3.13 • Decomposition of the change in the balance of goods and services account | Percentage of GDP

Sources: Statistics Portugal and Banco de Portugal.

Notes: (p) – projected. For a more details on the methodology used, see Box 4.2 'Change in the goods account balance in the first half of 2012', *Economic Bulletin* Banco de Portugal, Autumn 2012.

trade, reflecting an increase in oil prices in 2017, and a positive volume effect in 2017 and 2018 (Chart 3.13). Favourable developments have been observed in terms of trade since 2012 (only partly resulting from oil prices), which have made a significant contribution to the improvement in the goods and services account balance and consequently to the external adjustment of the Portuguese economy.

Upward revision of GDP growth over the projection horizon

Compared with the projections published by Banco de Portugal in March, GDP growth was revised upwards by 0.7 p.p. in 2017, 0.3 p.p. in 2018 and 0.2 p.p. in 2019. The revision in 2017 resulted to a large extent from the incorporation of the flash estimate released by Statistics Portugal for the first quarter of the year. The projection published in this issue implies an upward revision of all GDP components in 2017, namely exports, particularly goods and services excluding tourism. In addition, GFCF showed a more favourable behaviour than expected in the first quarter of the year, in particular the construction component. Private consumption also grew slightly more, as a result of a revision of both the durable goods component and the current goods and services component.

Revisions for 2018 and 2019 are the result of increased growth in all demand components. The revision of goods exports was particularly relevant, reflecting the aforementioned incorporation of data on an increase in the productive capacity of an important automotive plant. In addition, private consumption was revised upwards, owing to developments in households' real disposable income, within the context of a higher improvement than previously projected in labour market conditions and a gradual increase in the growth outlook for the Portuguese economy.

4. Prices and wages

Inflation measured by the rate of change in the Harmonised Index of Consumer Prices (HICP) is expected to stand at 1.6 per cent in 2017, 1.4 per cent in 2018 and 1.5 per cent in 2019. Compared to the March projections, inflation remains virtually unchanged, although with a downward revision in the energy component in 2017 and 2018 – reflecting the update of technical assumptions (Box 1: 'Projection assumptions') – offset in 2017 by a higher growth of services and non-energy prices.

In comparison with the projections for the euro area released by the ECB on 8 June, inflation in Portugal is expected to stand close to inflation in the euro area over the projection horizon, with a virtually nil differential, on average, in the 2017-19 period (Chart 4.1).

The increase in inflation projected for 2017 both for Portugal and the euro area is in line with the consecutive upward revisions of inflation forecasts released by Consensus Economics, which in Portugal's case are, however, still below the projections presented in this Bulletin (Chart 4.2).

Relatively stable inflation over the projection horizon

After an increase of 0.6 per cent in 2016, consumer prices are expected to grow around 1.5 per cent over the projection horizon. However, distinct paths are anticipated for the energy and non-energy components (Chart 4.3). In particular, energy prices should increase in 2017, after a long period of consecutive falls, stabilising in 2018-19, in line with technical assumptions for oil prices (Box 1: 'Projection assumptions'). These expected developments imply nil contributions of this component in 2018-19, after a positive contribution in 2017, conditioning the inflation profile in Portugal over the projection horizon.

In an environment of economic recovery at domestic and external level, gradual increases

in nominal wages per employee, and maintenance of an accommodative monetary policy by the ECB, inflation excluding energy is expected to rise in 2017 (1.4 per cent, after 0.9 per cent in 2016) and to exhibit a slightly upward profile in the two following years (Chart 4.4). Import prices excluding energy in the 2017-19 period should keep an average growth rate close to 2 per cent. The export deflator should also interrupt the downward trend observed since 2013 (annual rate of change of -1.3 per cent, in average, between 2013 and 2016), recording positive developments from 2017 onwards. Overall, the terms of trade should deteriorate by 0.2 p.p. on average over the projection horizon, in contrast to the gains recorded up to 2016.

Relatively steady growth in GDP deflator

The GDP deflator is expected to increase at a relatively steady pace, close to that observed in 2016, i.e. around 1.6 per cent over the projection horizon. In a context of an improved labour market situation, nominal wages per employee should accelerate gradually between 2017 and 2019. However, in annual average terms,

the growth of this variable is likely to stand only slightly above the inflation projection, reflecting low productivity gains. Unit labour costs for the total economy are projected to decelerate over the projection horizon.

5. Uncertainty and risks

The projections presented in this Bulletin represent the most likely scenario, based on the set of assumptions included in 'Box 1: Projection assumptions'. Should these assumptions fail to materialise, or should events occur that due to their idiosyncratic nature were not considered in the projections, there will be a series of risks and uncertainties. The quantified analysis of the risks and uncertainty surrounding the projection is presented in this section.

Balanced risks in the short term and downside risks in the medium term for economic activity. Balanced risks for prices

Risk and uncertainty factors may be identified over the projection horizon, stemming from both the international environment and domestic
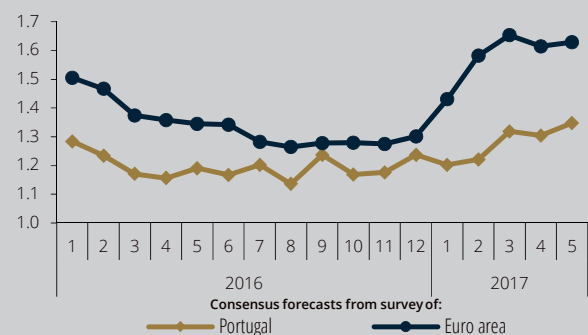
Chart 4.1 • Harmonised index of consumer prices in Portugal and in the euro area | Annual rate of change, in percentage
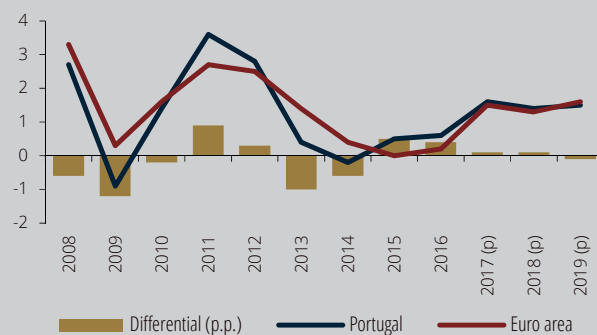
Sources: BCE, Eurostat and Banco de Portugal.

Note: (p) – projected.

Chart 4.2 • Inflation forecasts for 2017 for Portugal and the euro area | In percentage

Source: Consensus Economics.

factors. At international level, account is taken of downside risks associated with (i) a reinforcement of protectionist policies in the United States and globally, with negative consequences for international trade and world growth in the medium term, particularly in the euro area, (ii) higher oil prices than those considered in the projection, linked to a faster rebalancing than anticipated in oil supply and (iii) the possibility of an intensification of tensions in European financial markets. At the domestic level, downside risks were identified associated with (iv) possible adverse developments (related to (iii) above) and (v) the possibility

of a need for additional fiscal consolidation measures with a view to complying with the objectives undertaken in the medium term (Box 4: 'Medium-term fiscal outlook').

In turn, upside risks were identified associated with (i) stronger growth in the short term, particularly of corporate investment, in line with recent developments in the economic sentiment indicators observed not only in Portugal, but also in other advanced economies, (ii) a more positive outlook for the real estate market and (iii) a stronger than anticipated recovery of public investment, after a fall of more than 30 per cent in 2016.

Table 5.1 • Risk factors – Probability of an outcome below the implicit in the projections | In percentage

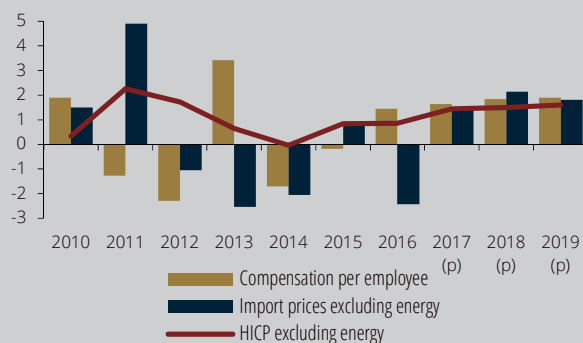|	2017	2018	2019
Underlying variables			
External demand	50	55	55
Public consumption	55	60	60
Endogenous variables			
GFCF	45	50	50

Source: Banco de Portugal.

Chart 4.3 • Harmonised index of consumer prices | Contributions to the annual rate of change, in percentage points
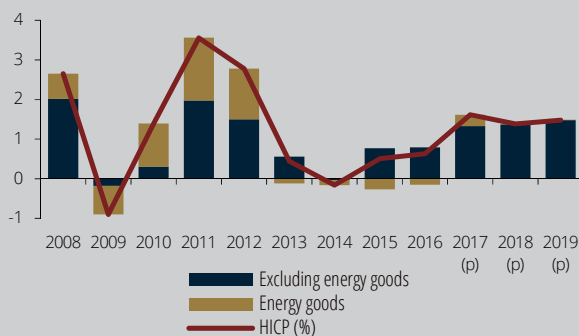
Sources: Eurostat and Banco de Portugal.

Note: (p) – projected.

Chart 4.4 • HICP excluding energy | Annual rate of change, in percentage

Sources: Statistics Portugal and Banco de Portugal.

Note: (p) – projected.

Table 5.2 • Probability of an outcome below the projections | In percentage

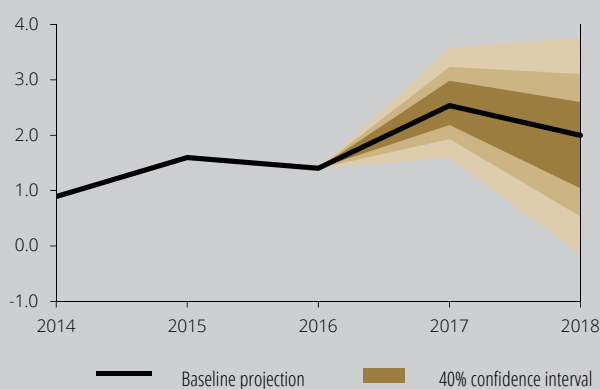|	Weights	2017	2018	2019
Gross domestic product	100	48	56	56
Private consumption	66	48	51	53
GFCF	15	43	51	54
Exports	40	49	54	55
Imports	39	46	53	55
HICP		52	53	53

Source: Banco de Portugal.

The series of risks identified above translates into a 55 per cent probability of external demand in 2018 and 2019 being more unfavourable than that considered in the projection presented in this Bulletin. Public consumption also recorded a downside risk, with a 55 per cent probability in 2017 and 60 per cent in 2018 and 2019, while investment presented an upside risk, with a probability of 55 per cent in 2017 (Table 5.1).

The combination of the above risk factors implies balanced risks in the short term and slightly downward risks in the medium term for real GDP growth. Risks for inflation are broadly balanced over the projection horizon (Table 5.2, Chart 5.1 and Chart 5.2).

6. Conclusions

This Bulletin presents an update of macroeconomic projections for the 2017-19 period, with an upward revision for economic growth over the whole projection horizon. This revision partly reflects the set of recent information which proved to be systematically more

Chart 5.1 • Gross domestic product | Rate of change, in percentage

Chart 5.2 • Harmonized index of consumer prices | Rate of change, in percentage

Baseline projection　　40% confidence interval　　60% confidence interval　　80% confidence interval
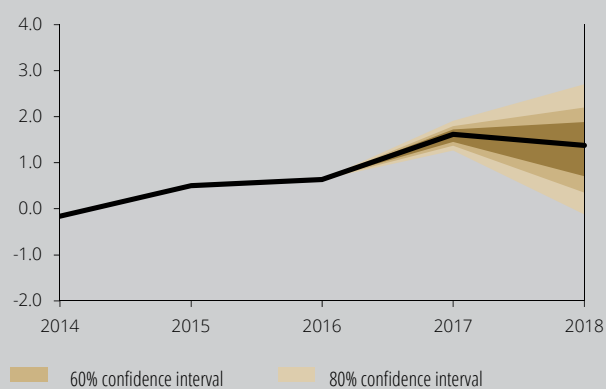
Source: Banco de Portugal.

favourable than previously projected. Underlying the recovery in economic activity is the high dynamics of exports and business investment, accompanied by a rise in employment in the private sector and the ongoing reduction of the unemployment rate. This profile is consistent with the maintenance of fundamental macroeconomic balances, especially the Portuguese economy's external surplus. Hence, the projected economic growth pattern presents characteristics that are consistent with a sustained recovery of the Portuguese economy. The growth pace over the projection horizon is expected to be higher than the euro area's, given the projections recently released by the ECB, which leads to a restart of the real convergence process, interrupted since the start of the 2000s.

In spite of the macroeconomic adjustment capacity shown by the Portuguese economy over the past few years and the sectoral restructuring supported by the dynamics of corporate internationalisation, there are still important restraints to long-term growth, including the high level of indebtedness of the various economic sectors, the low level of productive capital per employee, unfavourable demographic developments, and a high level of long-term unemployment.

In this context, it is important to further the directing of resources to more productive enterprises with greater exposure to international competition, by increasing incentives to innovation, factor mobility and investment in physical and human capital, thus paving the way for a sustained increase in the economy's productivity and growth potential. In addition, the maintenance of a foreseeable institutional and tax framework will contribute to preserve investor confidence and ensure an environment conducive to investment. The effort to reduce the private sector's high level of indebtedness should continue – now in a more favourable environment in terms of the evolution of disposable income and nominal GDP – reducing

the vulnerability of the Portuguese economy to adverse shocks. Moreover, it is important that a sustained reduction of public indebtedness is achieved, which requires the maintenance of the fiscal consolidation effort, after the exit from the excessive deficit procedure (Box 5: 'Fiscal rules in the preventive arm of the Stability and Growth Pact'). The temporary nature of the current extended set of non-standard monetary policy measures in the euro area and the persistence of downside risks to activity in the medium term reinforce the importance and urgency of structural progress in these different dimensions.

Box 2 | An analysis of developments in the stock of consumer durable goods in Portugal

Durable goods consumption decisions involve a long time horizon, given that, by definition, durable goods provide a flow of services over time. An analysis of developments in the consumption of durable goods should therefore be complemented by an analysis of their stock, which stems from consumption in previous periods. This is particularly relevant in periods of strong contraction and expansion in the consumption of durable goods, as has been the case in Portugal in the past few years. Indeed, from 2009 to 2012 the consumption of durable goods declined by around 40 per cent, followed by growth of around 47 per cent.

This box presents a set of estimates of the stock of durable goods in the Portuguese economy in the recent past. This type of estimates should take into account the depreciation of the stock, i.e. they should consider that the flow of utility provided by a given durable good decreases over time. The analysis was carried out separately for cars (which accounted for 57 per cent of the consumption of durable goods in 2016) and for other durable goods (*inter alia*, household items, computers), owing to their specific features.

The stock of durable goods net of depreciation (S_t) is calculated as:

$$S_t = S_{t-1} + C_t - D_t \qquad (1)$$

where:

C_t = Consumption (purchase) of durable goods in period t;

D_t = Depreciation of durable goods in period t (this component also takes into account durable goods that are discarded).

This analysis used the perpetual inventory method,[3] according to which the stock of durable goods net of depreciation may be described as:

$$S_t = \sum_{j=0}^{L} C_{t-j} g_{t-j} \left(1 - \delta_j\right) \qquad (2)$$

where:

g_{t-j} is the proportion of goods purchased in period t-j and still in use in period t;

L=$2n$ is the maximum service life of goods, where n is the average service life;

δ_j is the depreciation rate j periods after the good was purchased.

According to equation (2), the stock of durable goods corresponds to the sum of flows that provide services in a given moment, calculated according to their economic value (i.e. net of depreciation). To perform this calculation, both the survival function (g_{t-j}) and the average service life of the goods must be established. As regards the survival function, the most common option in the literature was used, which assumes that the consumption flow in its entirety provides services over the average service life, and is subsequently discarded in its entirety. Therefore, g_{t-j}=1 for j≤n and 0 thereafter. As regards depreciation, the straight-line method is used, i.e. the rate of depreciation is constant over the average service life of the good and equal to *1/n.*

As regards the average service life of durable goods, this analysis considers the assumptions of several international organisations. In particular, on the basis of information from the US Bureau

of Economic Analysis,[4] durable non-automotive goods are considered to have an average service life of 10 years, except for computers, which are assumed to have an average service life of 5 years.[5] As a result of these assumptions, durable non-automotive goods are considered to have an average service life of 7 years. An average service life of 10 years was assumed for cars,[6] although there is evidence of a slight increase in the average service life of light passenger motor vehicles since the financial crisis.[7]

Given the uncertainty in determining the service life and its potential variability over time, the stock for each subcomponent was also calculated for a margin of ±4 years around the central assumption. Up to the start of the 2000s, these different assumptions do not have a significant impact on the profile of the stock, but thereafter lead to more significant divergences, given that the sharpest declines in flows were observed during this period.

The results of the exercise are shown in Charts 1 and 2, which include the stock corresponding to the central assumption for the average service life, and the maximum and minimum stock calculated with the set of alternative assumptions that are considered. The consumption flows considered are from the National Accounts.[8] For cars, the stock has been falling since 2002, particularly sharply from 2012 to 2015. In 2016, according to the estimates of this box, the stock of cars is around 40 per cent below the maximum level in the period under review. Current projections imply a recovery path in the next few years, but to levels still markedly below those seen at the start of the previous decade. The minimum value in the range generated by the set of assumptions considered for the average service life coincides with the central 10-year assumption at the end of the projection horizon. This is the result of the very strong recovery in car sales in the latest period. This implies that, for stocks calculated on the basis of a shorter service life, the impact of lower flows observed during the crisis disappears more rapidly and the more recent flows increase the stock relatively more than under the central assumption.

In the case of durable non-automotive goods, an overall upward trend was observed in the stock up to 2011 and a cumulative fall in the subsequent period, which was nevertheless much smaller
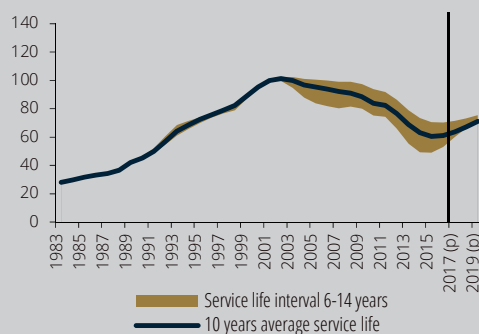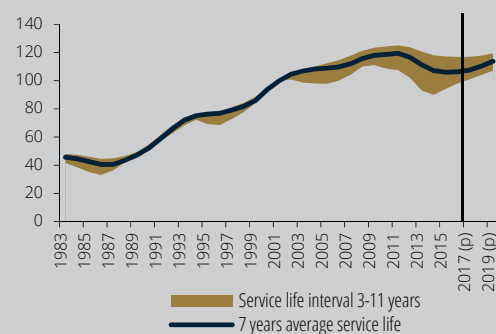

Chart 1 • Stock of cars | Index 2001=100

Service life interval 6-14 years
10 years average service life

Chart 2 • Stock of durables excluding cars | Index 2001=100

Service life interval 3-11 years
7 years average service life

Sources: Statistics Portugal and Banco de Portugal.

Notes: Due to volatility in consumption flows over time, the maximum and minimum values in the ranges do not always correspond to the same assumption for the average service life. The vertical line defines the start of the projection period.

than in the case of cars. At the end of the projection horizon, the level of the stock of cars (for an average service life of 10 years) is estimated to stand close to the levels observed in 2012, but still significantly below the level seen in 2008. In contrast, in the case of durable non-automotive goods, the stock level is expected to stand close to that observed in 2008.

Chart 3 shows an estimate for durable goods as a whole, obtained through the same methodology used for the components, assuming an average service life of 9 years, i.e. a weighted average of the assumptions for the service life of the automotive and non-automotive components. The result is similar to that obtained through the indirect method, i.e. by adding the stocks of cars and durable goods excluding cars obtained previously. This stock remained relatively stable from 2001 to the start of the sovereign debt crisis, and declined after that. In 2016 the stock posted a slight recovery, which should become more pronounced over the projection horizon.

The increase in the stock of durable goods implicit in the current projection takes place in the context of planned expenditure which had been postponed during the crisis period (pent-up-demand),[9] in particular in the case of cars. At the end of the projection horizon, the stock of durable goods is projected to stand at levels clearly below those seen before the international financial crisis.

In this respect, it is also important to assess the equilibrium level for the stock of durable goods in the future. This question is difficult to answer – and is not addressed in this box – given that this equilibrium level varies over time and is influenced by structural factors, such as a need for household deleveraging, a trend reduction in population and the birth rate,[10] and cyclical factors that may constrain developments in stocks in the short and medium term. Prominent among these are developments in expectations about permanent income, financing conditions and relative prices for durable goods. This uncertainty reinforces the importance of continuous monitoring of developments in the consumption of durable goods, in a joint analysis of both flows and stocks.

Chart 3 • Stock of durables | Index 2001=100
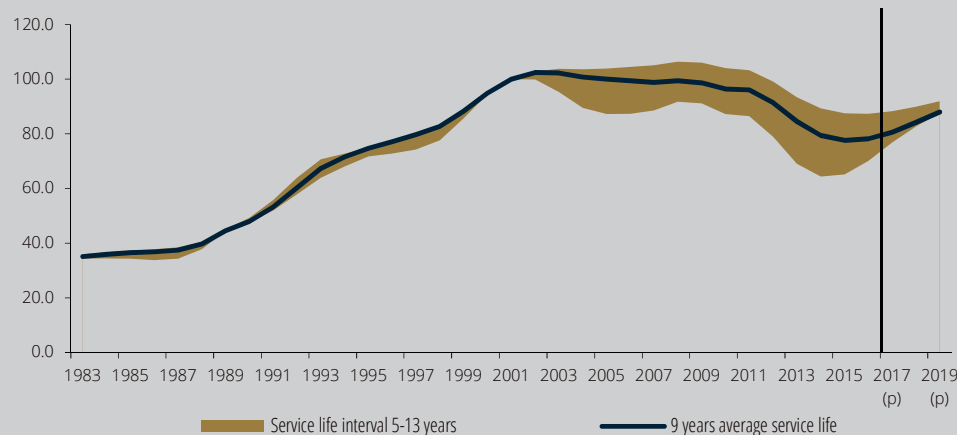
Sources: Statistics Portugal and Banco de Portugal.

Notes: Due to volatility in consumption flows over time, the maximum and minimum values in the range do not always correspond to the same assumption for average service life. The vertical line defines the start of the projection period.

Box 3 | Trade openness of the Portuguese economy: recent developments and outlook

Trade openness is an indicator measuring the intensity of a country's international trade links, calculated as the sum of exports and imports as a percentage of GDP. Since 2009, the degree of openness of the Portuguese economy has shown a markedly upward profile, and this trend is expected to continue over the projection horizon (Chart 1). This box describes recent developments in this indicator over a longer period and assesses empirically, for the Portuguese case, the importance of a number of factors determining the degree of trade integration of economies.

Portugal has made considerable progress in its participation in world trade since the mid-1970s, with the degree of openness in the Portuguese economy (measured in nominal terms) increasing from around 40 per cent in 1977 to nearly 80 per cent in 2016.[11] Developments in the indicator over this period reflect structural transformations and macroeconomic developments in Portugal, as well as substantial changes in the international context. In particular, there has been a gradual liberalisation of Portuguese international trade (with the accession to the European Economic Community in 1986 being a particular milestone), a decline in transport and communication costs, a greater variety of tradable goods and services demanded by consumers and an increasing participation in global value chains.[12] Chart 1 also illustrates the increase of the growth trend in the period following the international financial crisis.

An analysis of developments in the two trade flows comprising the trade openness shows that, from 2009 to 2016, exports' share of GDP increased by 13 p.p. in nominal terms, while the share of imports increased by around 5 p.p. (Chart 2). The performance of exports is to a large extent associated with the gradual reorientation of domestic inputs to the production of goods and services tradable abroad, a key feature of the adjustment of the Portuguese economy. At import level, a strong decline was seen in the 2011-12 period, mirroring the contraction of domestic demand during the Economic and Financial Assistance Programme. The recovery that followed has proceeded at a pace comparable to that of exports.

The upward trend in the degree of openness of the Portuguese economy over the last few decades mostly reflects developments in the trade of goods (Chart 3). Services' share of international trade
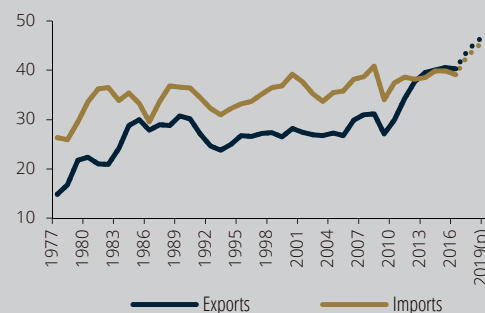

Chart 1 • Trade openness in the Portuguese economy | In percentage
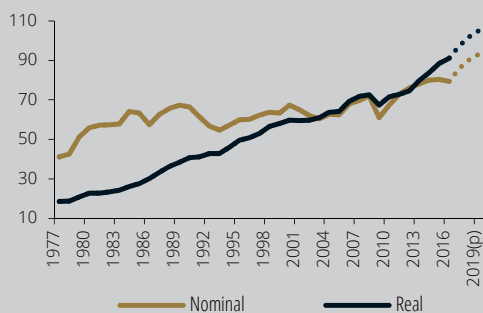
Sources: Statistics Portugal and Banco de Portugal.

Note: (p) – projected.

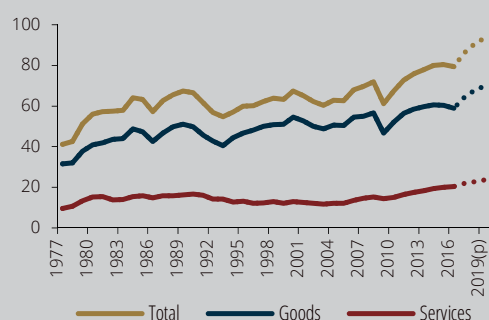**Chart 2 •** Share of exports and imports in GDP, in nominal terms | In percentage

Sources: Statistics Portugal and Banco de Portugal.

Note: (p) – projected.

has evolved more slowly, owing to the fact that most services continue to be less tradable than goods, despite the progress made due to advances in information and communication technology, the reduction in political and economic barriers and the liberalisation of specific markets. However, trade in services – both in tourism and other services – has helped increase the growing trend in the degree of openness seen in the post-2008 period (Chart 4). The behaviour of tourism exports in the last three years, with average annual growth of more than 10 per cent, was particularly significant.

Despite the upward trend, an international comparison shows that the trade openness of the Portuguese economy, assessed at current prices, stood below the median and the average for OECD countries in 2015 (Chart 5). Trade's share of GDP for Portugal was 80 per cent, compared with an 85 per cent median and a 104 per cent average for OECD countries. The progress toward

Chart 3 • Breakdown of trade openness – goods *vs.* services, in nominal terms | In percentage

Sources: Statistics Portugal and Banco de Portugal.

Note: (p) – projected.

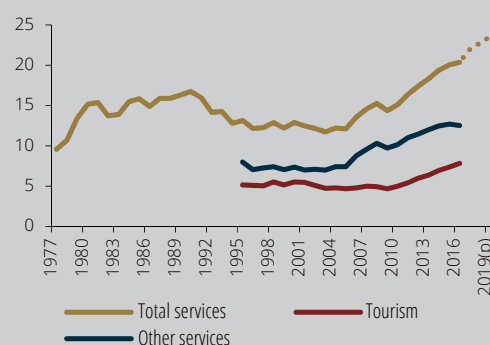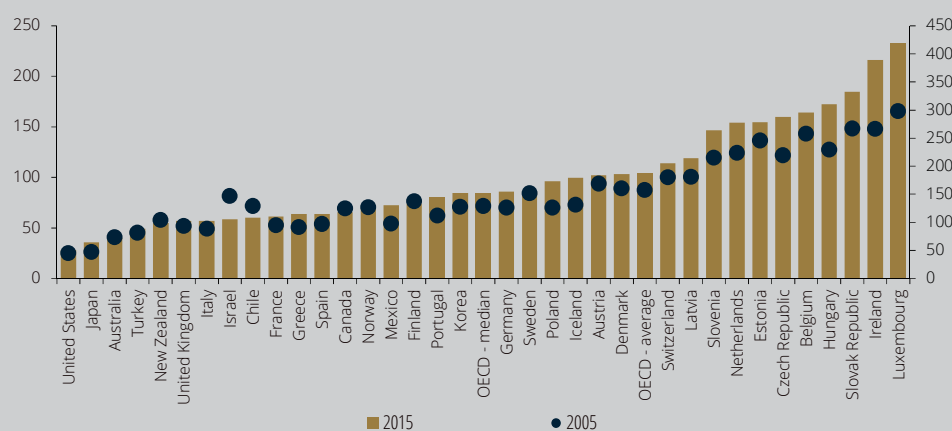**Chart 4 •** Trade openness in services, in nominal terms | In percentage

Sources: Statistics Portugal and Banco de Portugal.

Note: (p) – projected.

Chart 5 • Trade openness in OECD countries, in nominal terms | In percentage

Sources: OECD and Banco de Portugal.

Note: The values for Luxembourg are in the right-hand scale.

greater trade integration recorded in the Portuguese economy from 2005 to 2015 was also observed in most OECD economies, with the average for this group of countries increasing similarly during this period.

In this comparative analysis, it is important to take into account that there are characteristics and factors determining a priori a higher or lower propensity for trade integration on the part of a country. Indeed, the set of countries with a higher or lower degree of openness is relatively constant over time. The literature suggests that the trade openness of a country is influenced inter alia by the degree of liberalisation of its trade policy (determined by the existence of obstacles to trade, including tariffs and legal barriers), its size (measured by the population and/or total area) and its economic location (i.e. its geographical remoteness in relation to economies that have a large weight on the world economy). Overall, countries which are larger, geographically more remote or that have more restrictive trade policies tend to be more closed. Several authors also mention a positive relationship between the level of economic development (typically measured by GDP *per capita*) and the degree of openness.[13]

Another key factor that influences the trade openness of an economy is its level of integration in global production chains. A country's presence in these chains involves imports of intermediate goods (parts and components), which are subsequently used to make other products and reexported, thereby substantially increasing the country's volume of trade. Although the strong expansion in world trade in the last few decades is to a large extent associated with growth in these global value chains, an assessment of their impact on the degree of openness is difficult due to the scarcity of sufficiently long and comprehensive indicators for the level of economies' participation in these chains.

Table 1 shows a comparison of the trade openness of Portugal and the median value for the group of the 35 OECD countries, as well as of indicators measuring the factors mentioned above. In the 2010-14 period, Portugal placed 20th in the ranking on the degree of openness among OECD countries, which makes it a relatively closed economy. Compared with the OECD median, Portugal has a smaller geographical area,a trade policy slightly more liberal, and a very similar population level. These factors would lead us to expect a degree of openness of the Portuguese economy above the OECD median. However, Portugal also has a more unfavourable economic location and a lower GDP *per capita* than the sample's median, which might justify a relatively smaller degree of openness.

Table 1 • Comparisson between Portugal and OECD countries | 2010-14 average

	Trade openness (%)	Area (km²)	Population (million)	Economic location (km)	Trade policy	GDP *per capita* (PPP)
Portugal	74.8	92,214	10.5	6,282	8.0	26,419
OECD – median	83.9	131,960	10.5	5,802	7.9	35,725
Portugal's rank	20	14	17	26	15	26

Sources: CEPII, Fraser Institute, IMF, United Nations, OECD, World Bank and Banco de Portugal.

Notes: PPP – Purchasing power parity. To determinate Portugal's rank, we considered the following options: (i) for area, population and economic location, countries were sorted in an ascending order (given the negative correlation between these variables and trade openness); (ii) for trade openess, trade policy and GDP *per capita*, countries were sorted in a descending order. The trade policy variable is scored between 0 and 10, with higher scores indicating greater liberalisation. The economic location indicator corresponds, for each country, to the weighted-average of the distances between that country and all their possible trade partners.

The relation between the degree of openness and the factors mentioned above may be assessed through simple regressions using data for a sample of countries over several decades. These

regressions should be interpreted as an attempt to identify the variables that correlate the most with a country's trade openness, under the following specification:[14]

$$Trade\ openness_{it}$$
$$= \beta_1 + \beta_2 population_{it} + \beta_3 area_{it} + \beta_4 location_{it} + \beta_5 GDPpc_{it} \qquad (1)$$
$$+ \beta_6 policy_{it} + \varepsilon_{it}$$

In the estimation of the equation, two samples were considered for the 1980-2014 period: the first only includes OECD countries (i = 1,..., 35), while the second contains a set of 120 countries (i=1, ..., 120).[15] In the time dimension (t), the sample was divided into 5-year sets, considering as observations the average of each variable in each of the periods (pooled cross-section).[16] The regressions incorporate time dummies for each subperiod.

The results of the estimations show that the factors analysed explain a substantial share of the change in the degree of openness between economies, and their estimated coefficients show, in general, the expected sign. Indeed, considering the results for both regressions, coefficients associated with geographical area, population and economic location are negative and the coefficient for the degree of liberalisation of the trade policy is positive (Table 2). The coefficients for these variables are also statistically significant. As regards GDP *per capita*, its coefficient is not statistically relevant in the regression using the entire sample, and has an opposite sign to that expected in the regression with the smaller sample.[17] The coefficients for time dummies (not shown in Table 2) are statistically significant for more recent periods and increase over time, in line with the increasing trend in trade openness observed in most economies. These dummies are likely to capture the impact of important omitted variables, in particular growth in global value chains. According to a decomposition analysis, the most relevant indicators explaining the differences in the degree of openness are indicators relating to economic location and population.

Table 2 • Estimation results from trade openness equation

	Parameter estimates				
	Area	Population	GDP *per capita*	Economic location	Trade policy
OECD (35 countries)	-0.08***	-0.14***	-0.18***	-0.39***	0.11***
	Adjusted R²: 0.76			Number of observations: 220	
Entire sample (120 countries)	-0.05***	-0.14***	0.02	-0.22***	0.04***
	Adjusted R²: 0.62			Number of observations: 764	

Notes: This table presents the parameter estimates for equation (1). Significance at the 1, 5 and 10 per cent levels is denoted by ***, ** and *, respectively. Data sources are described in note 15.

The results of the estimation may be used to assess whether a country's degree of openness is above or below expectations, despite some uncertainty surrounding the estimates resulting from the regressions. Applying this exercise to Portugal, estimates from the equations point to a trade openness ranging from 90 to 100 per cent for the Portuguese economy in the 2010-14 period. These figures stand significantly above the observed ratio of around 75 per cent. This analysis thus suggests that there is margin for a continued increase in the degree of openness of the Portuguese economy, in line with the projections for the 2017-19 period.

Box 4 | Medium-term fiscal outlook

The Government presented at the end of April the updated Stability Programme for the 2017-21 period (SP 2017-21), maintaining the main fiscal strategy lines outlined in previous documents. As far as 2017 is concerned, this document made a slight downward revision of the official target for the fiscal deficit, from 1.6 to 1.5 per cent of GDP. The fiscal strategy for this year, as set out in the State Budget for 2017 (SB 2017), has not been changed, and the slight revision of the target may be accounted for by the effects of a better budget execution in 2016 than previously forecasted.[18]

Taking into consideration the most recent estimate for 2017, the Government anticipates a reduction of the fiscal deficit by 0.5 p.p. of GDP, in a context where the effect associated with the 2016 temporary measures[19] (0.3 p.p.) is offset by the positive impact of the forecasted economic activity acceleration (-0.3 p.p.). Also excluding revenue associated with the recovery of the guarantee granted by the State, which was executed at the time of the resolution of Banco Privado Português (0.2 per cent of GDP), classified as a temporary measure, the forecasted change in the structural balance for 2017 in the SP 2017-21 is 0.3 p.p. of GDP (Chart 1). This change is similar to that recalculated by the Commission based on the SB 2017, but lower than the convergence towards the medium-term objective (MTO) foreseen in the Stability and Growth Pact for a country under the preventive arm, with a debt ratio above 60 per cent of GDP and under normal cyclical conditions, which should be higher than 0.5 p.p. of GDP[20] (Table 1).

Table 1 • Main fiscal indicators in national accounts | As a percentage of GDP

	Statistics Portugal	SP 2017-21							SB 2017		
	2016	2017	Change: 2016-17 (a)	2018	2019	2020	2021	Change: 2017-21 (a)	2016	2017	Change: 2016-17 (a)
Total Revenue	43.1	43.3	0.2	43.0	42.9	42.8	42.9	-0.4	43.6	44.1	0.5
Taxes on income and wealth	10.3	10.1	-0.2	9.9	9.8	9.7	9.6	-0.5	10.2	10.2	-0.1
Taxes on production and imports	14.7	14.8	0.1	14.8	14.7	14.7	14.6	-0.3	14.8	14.8	0.0
Social contributions	11.7	11.8	0.1	11.7	11.8	11.8	11.7	0.0	11.6	11.7	0.0
Other current revenue	5.8	6.0	0.1	6.1	6.1	6.0	6.0	0.0	6.0	6.5	0.5
Capital revenue	0.5	0.7	0.2	0.5	0.6	0.6	1.0	0.3	1.0	1.0	0.0
Total expenditure	45.1	44.8	-0.3	44.0	43.2	42.4	41.7	-3.1	46.1	45.7	-0.4
Social payments	18.9	18.7	-0.3	18.4	18.2	17.9	17.7	-0.9	19.0	18.7	-0.3
Subsidies	0.6	0.5	0.0	0.5	0.5	0.5	0.5	0.0	0.6	0.6	0.0
Compensation of employees	11.3	11.1	-0.2	10.8	10.6	10.3	10.0	-1.1	11.2	11.0	-0.2
Intermediate consumption	5.7	5.6	-0.1	5.4	5.2	5.1	5.0	-0.6	5.7	5.6	-0.1
Interest	4.2	4.2	-0.1	4.0	3.9	3.8	3.6	-0.6	4.3	4.3	0.0
Other current expenditure	2.4	2.3	-0.1	2.2	2.2	2.2	2.2	-0.2	2.9	2.9	0.0
Investment	1.5	2.0	0.5	2.1	2.1	2.1	2.1	0.1	1.9	2.2	0.3
Other capital expenditure	0.5	0.4	0.0	0.5	0.5	0.5	0.4	0.0	0.6	0.4	-0.2
Overall balance	-2.0	-1.5	0.5	-1.0	-0.3	0.4	1.3	2.8	-2.4	-1.6	0.9
Structural balance (b) (in percentage of potential GDP)	–	-1.7	0.3	-1.1	-0.5	0.0	0.3	2.0	-1.7	-1.1	0.6
change (b)	–	0.3	–	0.6	0.6	0.5	0.3	–	0.2	0.6	–
Public debt	130.4	127.9	-2.5	124.2	120.0	117.6	109.4	-18.4	129.7	128.3	-1.4

Sources: Statistics Portugal, Ministry of Finance and Banco de Portugal.

Notes: (a) In p.p. (b) The structural balance corresponds to the cyclically adjusted balance and excludes temporary measures calculated by the Ministry of Finance, according to European Commission methodology. The change in the structural balance implied in the SB 2017 was recalculated by the European Commission to 0 p.p. in 2016 and 0.3 p.p. in 2017.

In terms of composition, according to the SP 2017-21, the reduction of the fiscal deficit as a percentage of GDP in 2017 (0.5 p.p.) stems from similar contributions from the decline of primary expenditure (0.2 p.p.) and the increase in revenue (0.2 p.p.), also benefiting by 0.1 p.p. from the reduction of interest expenditure.[21]

The increase in revenue stems from the evolution of revenue not related to taxes or social contributions, which is forecasted to increase by 0.3 p.p. of GDP (0.2 p.p. excluding temporary measures). In turn, the Government envisages the stabilisation of total revenue from taxes and social contributions as a percentage of GDP (which corresponds to a 0.2 p.p. recovery excluding the temporary effect of PERES – the special programme for the settlement of overdue tax and social contributions). It is important to highlight that the macroeconomic scenario considered in the SP 2017-21 points to the maintenance of robust growth of the macroeconomic bases for the main taxes in 2017, and the most relevant policy measures with an impact on this year's execution have an overall neutral effect on revenue.[22]

With regard to primary expenditure, social payments and compensation of employees contribute 0.5 p.p. to the reduction of the expenditure-to-GDP ratio. This development is a projected notwithstanding the remaining effect of the gradual reinstatement of wages over the course of 2016 and the changes in social payments[23] that, as a whole, are likely to exert pressure for an increase in expenditure by about 0.3 p.p. of GDP. In addition, this estimate assumes a reduction of intermediate consumption and other current expenditure as a ratio of GDP (-0.2 p.p.). In contrast, investment is forecasted to contribute 0.5 p.p. of GDP to an increase in expenditure, an effect that is fully comprised in 2017.[24]

The available information on the budget execution in public accounts only covers the first four months of the year, and it is not possible to identify relevant deviations from the budget. However, the very significant increase in the amount of expenditure in the form of provisions, reserves and spending appropriations in 2016 was not reversed in 2017. This hinders the identification of potential deviations in budget execution (see the box 'Analysis of deviations in budget execution in 2016', published in the May 2017 issue of the *Economic Bulletin*). In addition, the European Commission's spring projections released on 11 May place the fiscal deficit at 1.8 per cent of GDP in 2017, i.e. 0.3 p.p. above the official target. Moreover, there is uncertainty as to the statistical recording of the impact of the recapitalisation of Caixa Geral de Depósitos.

The fiscal strategy set out in the SP 2017-21 for the coming years assumes that the MTO for the structural balance (0.25 per cent of GDP) will be reached in 2021, benefiting from annual changes generally in line with the minimum required in European rules (0.6 p.p.). The path set out for the overall balance as a percentage of GDP is reflected on a cumulative improvement of 2.8 p.p. between 2017 and 2021, while the structural balance is expected to improve by 2.0 p.p. This difference is chiefly accounted for by a change in the cyclical component that, considering the macroeconomic scenario outlined in this document, will contribute 0.6 p.p. of GDP to the improvement in the budget balance. In addition, the change in the effect of temporary measures benefits the balance by 0.2 p.p. of GDP, given that the base effect of 2017 (0.2 p.p.) is more than offset by the extraordinary revenue considered in 2021, related to the refund by the European Financial Stability Facility of amounts paid by Portugal (0.4 p.p.) (Chart 2).

With regard to the fiscal policy measures presented for the period after 2017, the SP 2017-21 is quite similar to that presented in the previous update in April 2016. With regard to consolidation measures, on the revenue side, indirect taxes increases projected for 2018 and 2019 (with a cumulative impact of 0.1 p.p. of GDP) are worth highlighting. On the expenditure side, the programme foresees a gradual unfreezing of intermediate consumption excluding public-private partnerships and other current expenditure. These items are expected to record growth rates below nominal GDP over

the whole projection horizon (with a contribution of 0.6 p.p. of GDP). This programme also foresees measures that reduce the budget balance by 0.4 p.p. of GDP, namely a reduction in personal income tax for low incomes, and the public employment policy, which assumes the gradual unfreezing of career progression, only partially offset by a hiring freeze. Also taking into account that the measures already approved in the SB 2017 and with effect on the 2018 execution[25] penalise the budget balance (-0.2 p.p. of GDP), the net effect of the permanent measures forecasted for the 2018-21 period is essentially nil (+0.1 p.p. of GDP).[26] Hence, as in previous documents, measures ensuring the improvement of the fiscal balance are not sufficiently specified,[27] which poses a certain degree of uncertainty with regard to the conduct of fiscal policy in the next few years.

The change forecasted for interest expenditure makes a significant contribution to the reduction of the fiscal deficit between 2016 and 2021 (0.6 p.p. of GDP), facilitating compliance with the commitments set out for the structural overall balance. The breakdown of this contribution points to a negligible effect associated with the evolution foreseen for interest rates (price effect), with the expected reduction stemming essentially from the impact related to the debt stock (volume effect) (Chart 3). Taking into consideration the uncertainty associated with developments in financial markets, the sensitivity analysis included in the SP 2017-21 estimates that a 1 p.p. increase[28] in market financing interest rates will have an impact of 0.5 of GDP on interest expenditure in 2021. This shock would nevertheless allow this variable to contribute 0.1 p.p. to the improvement in the budget balance. In fact, the transmission of a possible shock in markets to interest expenditure is quite gradual (Chart 4), given that general government debt with a residual maturity of up to one year corresponded at the end of 2016 to around 20% of total debt and that, of the remaining debt, only approximately 1/5 had a variable interest rate[29]

The SP 2017-21 foresees a substantial reduction of the public debt ratio from 130.3 per cent at the end of 2016 to 109.4 per cent at the end of the period under review. This reduction is mainly accounted for by growing primary surpluses, in a context where the difference between the interest rate on public debt and nominal GDP growth makes a slight contribution to the decline in the public debt ratio in the projection horizon (Chart 5). Although significant deficit-debt adjustments are considered in the last two years of the projection,[30] the cumulative effect of this component over the period is not relevant.

Chart 1 • Breakdown of the change in the budget balance forecast for 2017 | Percentage points of GDP
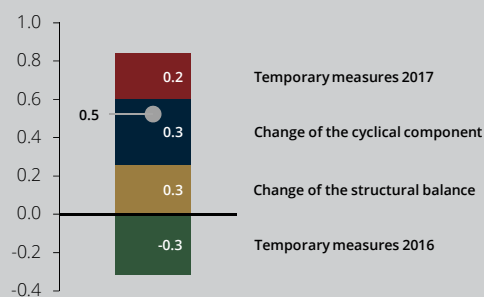
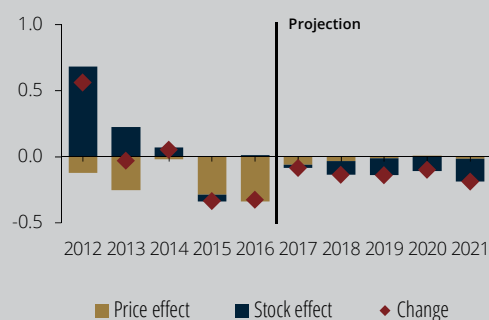Sources: Statistics Portugal and Ministry of Finance.

Chart 2 • Breakdown of the change in the budget balance forecast for 2018-21 | Percentage points of GDP
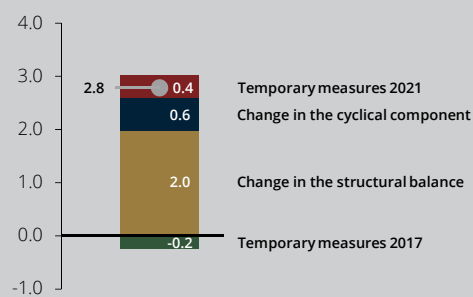
Source: Ministry of Finance.

In sum, the SP 2017-21 sets out fiscal targets that are consistent with compliance with European commitments. This, along with the economic growth anticipated in this document,[31] would make it possible to considerably reduce the debt ratio. However, it is important to stress that, as in previous documents, the SP 2017-21 does not detail the policy measures needed to achieve the objectives set out. This contributes to a greater divergence between the projections of the SP 2017-21 and the European Commission ones regarding the budget balance in 2018 (0.6 p.p. of GDP) compared to 2017 (0.3 p.p. of GDP). A more detailed explanation of the measures to be implemented in the next few years would make it possible to increase tax predictability and reinforce confidence in the ability of the country to pursue the consolidation effort necessary for a sustained reduction of the public debt ratio.
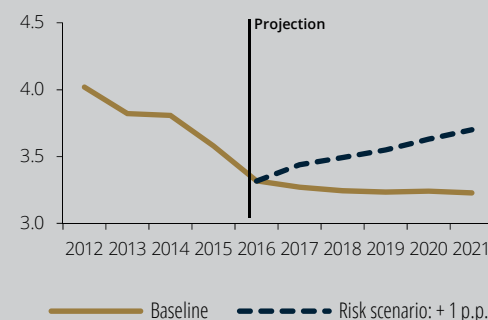
Chart 3 • Breakdown of the evolution of interest expenditure | As a percentage of GDP

Sources: Statistics Portugal, Ministry of Finance and Banco de Portugal.

Note: The price effect results from the difference between the interest rates implied in public debt (average stock) in the year under review and the previous year, multiplied by the change in the average stock of debt as a percentage of GDP.

Chart 4 • Impact of a rise in market rates on the interest rate implied in debt (average stock) | In per cent

Sources: Statistics Portugal, Ministry of Finance and Banco de Portugal.

Chart 5 • Breakdown of the change in the public debt ratio 2017-21 | As a percentage of GDP
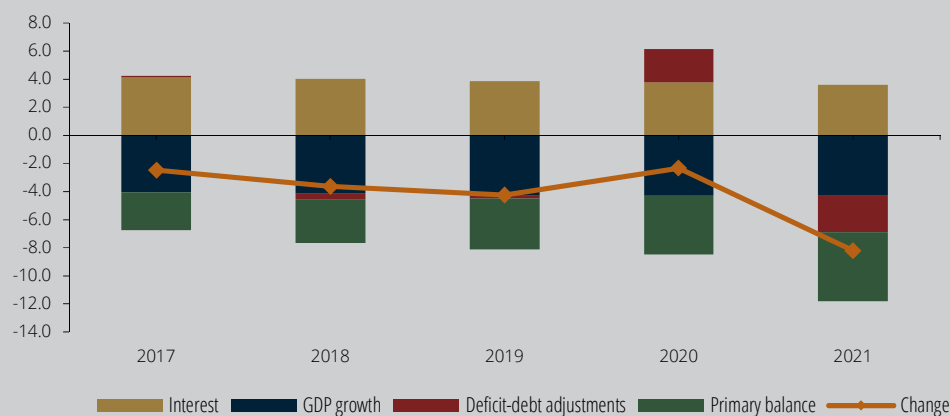
Source: Ministry of Finance.

Box 5 | Fiscal rules in the preventive arm of the Stability and Growth Pact

Within the framework of the fiscal surveillance rules agreed on at European level, Portugal is under an excessive deficit procedure (EDP) since 2009, and therefore the rules applied were those set out within the scope of the corrective arm of the Stability and Growth Pact (SGP).[32] Over the course of the past year, 2016 was established as the deadline for correcting the excessive deficit.[33] On 16 June 2017, upon recommendation from the European Commission, the Council of the European Union decided to close this procedure. Hence, the Portuguese fiscal situation will be analysed in accordance with the rules relating to the preventive arm of the SGP, which apply to countries with fiscal developments compatible with the observance of the limits of 3 per cent of GDP for the fiscal deficit and 60 per cent for the public debt ratio. Fiscal rules in the preventive arm have undergone substantial changes in the past few years and this box summarises the main rules currently in force.[34]

With regard to the budget balance, the specific rules of the preventive arm are set out in terms of the structural budget balance, i.e. adjusted for the effects of the economic cycle and the impact of temporary measures. Each country is responsible for establishing the medium-term objective (MTO) for the structural balance and should ensure an adequate convergence towards that value on an annual basis. This objective should at least be as demanding as the minimum MTO proposed by the European Commission, whose calculation methodology takes into account an extended set of indicators that include past volatility and the outlook for GDP growth, projections for ageing costs in the long term, and the debt ratio.[35] Currently, the MTO for Portugal corresponds to a structural overall balance of 0.25 per cent of GDP, i.e. similar to the minimum proposed by the Commission. In addition, the required annual pace of convergence towards this objective depends, as shown in table 1, on the economy's cyclical conditions (as measured by real GDP growth and the output gap), the debt ratio and the existence of a high risk of fiscal sustainability in the medium term.[36]

The matrix in table 1 was introduced by a Commission communication on the use of flexibility within the existing rules of the SGP, which also set out the possibility of a temporary deviation from convergence towards the MTO under exceptional conditions stemming from expenditure on public investment or the implementation of structural reforms. However, eligibility for the use of these flexibility clauses is conditional on a significant set of rules.

These rules include the maintenance of a safety margin *vis-à-vis* a fiscal deficit of 3 per cent, which materialises in a minimum requirement for the structural balance, as well as the definition of a maximum distance to the MTO of 1.5 per cent of GDP. In addition, the maximum deviation from the convergence path of the structural balance towards the MTO as a result of the activation of each clause is 0.5 per cent of GDP, and their joint implementation cannot result in a deviation of more than 0.75 per cent of GDP. Specifically, the investment clause cannot be used if, according to the matrix in table 1, the economy's cyclical condition is classified as normal or good. In the current environment, the application of this matrix to Portugal would correspond to a required annual improvement in the structural balance of more than 0.5 per cent of GDP.

In parallel with the requirements for the budget balance, Member States also have to comply with the expenditure benchmark, which aims to ensure that the growth of this aggregate, when excluding the impact of discretionary measures on the revenue side, evolves more or less in line with potential economic growth.

The assessment of the compliance with this rule is not based on the evolution of public expenditure as a whole, but rather on a modified expenditure aggregate, taking into account the average amount of public investment not financed by European funds in the year under review and in the previous three years, in replacement of the level forecasted for the respective year, and excluding interest expenditure, the cyclical component of unemployment benefits and expenditure fully matched by the European Union funds. The real growth[37] of this modified expenditure aggregate, less the effect of discretionary measures on the revenue side, should thus be lower than the average growth of potential GDP,[38] corrected to take into account the adjustment required for the structural balance in its path of convergence towards the MTO.[39] According to the recent assessment of the Portuguese Stability Programme released by the European Commission, the change in the modified expenditure should not exceed, in real terms, -1.4 per cent in 2017.[40]

Table 1 • Annual adjustment of the structural balance for the MTO under the preventive arm of the Pact

	Condition	Required annual fiscal adjustment (p.p. of GDP)	
		Debt < 60% and no sustainability risk	Debt > 60% or sustainability risk
Exceptionally bad times	Real GDP growth < 0% or output gap < -4%	No adjustment needed	
Very bad times	-4% ≤ output gap < -3%	0	0.25
Bad times	-3% ≤ output gap < -1.5%	0 if growth below potential, 0.25 if above	0.25 if growth below potential, 0.5 if above
Normal times	-1,5% ≤ output gap < 1.5%	0.5	> 0.5
Good times	output gap ≥ 1.5%	0.5 if growth below potential, ≥ 0.75 if above	≥ 0.75 if growth below potential, ≥ 1 if above

Source: European Commission.

The assessment of compliance with the requirements for convergence of the structural balance towards the MTO and with the expenditure benchmark is made on a joint basis. In particular, the deviation from the MTO or from the adequate path towards it may be considered significant or not, based on two conditions. The first is that the deviation of the structural balance from the recommended adjustment path is at least 0.5 per cent in only one year, or at least 0.25 per cent of GDP on average in two consecutive years. The second condition is that non-compliance with the above-mentioned expenditure benchmark has a negative impact on the balance of at least 0.5 p.p. of GDP in only one year, or cumulatively in two consecutive years. In conclusion, there is a significant deviation when these two conditions are observed, or only one occurs and the overall appraisal also shows limited compliance with the other. Following identification of a significant deviation, a warning may be issued and in extreme cases sanctions may be applied.

Finally, a country under the preventive arm must also comply with the debt rule. In this regard, Member States with a public debt ratio above 60 per cent of GDP must ensure convergence towards this reference value at a satisfactory pace. The adequate path assumes that the differential of the debt ratio in relation to the limit decreases over the course of three years at an

average rate of 1/20 a year. For Member States that were under the corrective arm at the time this rule was approved in November 2011, a three-year transition period was granted after the correction of this situation, which means that the evolution of debt when the EDP was in force will not be considered. In the three years following the correction of the excessive deficit situation, Member States must respect a minimum linear structural adjustment that ensures compliance with the debt criterion at the end of the transition period. Quite simply, and as an illustration, the application of this criterion to a country with a public deficit ratio of 130 per cent of GDP implies an annual reduction of the ratio in the early years of between 3 and 3.5 p.p.[41]

It is clear that the complexity of the current set of rules is very high, compromising the ability of different economic agents to understand these rules and also hindering decision-making both at domestic and European levels. However, conducting a fiscal policy that ensures the sustainability of public finances is crucial to ensure a stable macroeconomic framework that promotes economic growth in the long term. In this context, it is unequivocally important to pursue a fiscal policy that is consistent with compliance with the rules defined at the European level.

Notes

1. The June 2017 Eurosystem staff macroeconomic projections for the euro area, published on 8 June 2017, foresee euro area GDP increasing by 1.9 per cent in 2017, by 1.8 per cent in 2018 and by 1.7 per cent in 2019.

2. According to an estimate computed by Banco de Portugal, the impact of calendar and seasonal effects on the year-on-year rate of change of nominal exports of goods in the first quarter of 2017 hovered around 3 percentage points. Note that Quarterly National Accounts series are adjusted for calendar and seasonal effects.

3. This is the most common methodology in the literature. For more details on this methodology and recommendations for its implementation in accordance with the ESA 2010, see 'Computing capital stock in the Belgian national accounts according to the ESA 2010', National Bank of Belgium.

4. U.S. Department of Commerce. Bureau of Economic Analysis. 'Fixed Assets and Consumer Durable Goods in the United States', 1925–99. Washington, DC: U.S. Government Printing Office, September, 2003.

5. See reference in note 3.

6. Overall, estimates for OECD countries vary from 6 to 10 years (Meinen, G., Verbiest, P., and Wolf, P. D. (1998), 'Perpetual inventory method. Service lives, Discard patterns and Depreciation methods', CBS Statistics Netherlands).

7. ACAP, 'Estatísticas do Setor Automóvel' (in Portuguese only), 2015 issue.

8. To calculate private consumption of cars flows, part of the sales of light passenger vehicles is not taken into account (those sold for the purpose of car rental) and a fraction of the sales of light commercial vehicles is included. In addition, national accounts take into account quality effects, i.e. the distribution of the sales between higher and lower segments.

9. The pent-up-demand phenomenon refers to potential growth in expenditure on durable consumer goods which results in a recovery following a period of recession when this type of expenditure was postponed.

10. In the case of motor vehicles, the density (number of vehicles per 1,000 inhabitants) in Portugal stands at levels clearly below the European Union average, including countries with a comparable size. Consequently, incentives might still exist to increase the car fleet. In turn, developed countries seem to be coming close to a saturation point in the car market. ('The end of the road: Has the developed world reached 'peak car'?', Schroders Talking point, January 2015. 'Seeing the back of the car', *The Economist*, September 2012.)

11. Usually, the degree of openness is shown in nominal terms. The measure is consequently affected by developments in relative prices of exports, imports and domestic production, which in turn are influenced by factors such as changes in prices for international commodities, the exchange rate regime and the profile of domestic inflation. In a time series analysis, it might be more appropriate to consider the measure in real terms. However, given that conclusions do not differ in qualitative terms by using nominal or real data, this box has opted for an analysis in nominal terms.

12. For a more in-depth analysis, see '*The Portuguese economy in the context of economic, financial and monetary integration*' (2009), chapter 5 'A portrait of Portuguese international trade', and Amador, J. and R. Stehrer (2014), 'Portuguese Exports in the Global Value Chains', *Economic Bulletin*, Banco de Portugal, April.

13. This relation results from the fact that a significant part of international trade is intra-industry – where countries import and export varieties of the same good – and this type of trade is larger for higher income levels (which lead to more diversified demand, i.e. a 'love for variety').

14. This approach is similar to that of Guttmann and Richards (2006), 'Trade Openness: An Australian Perspective', *Australian Economic Papers*, Volume 45, Issue 3, September. It is important to note that the nature of the variables considered may imply the existence of endogeneity in the regressions.

15. The 120 countries considered in the larger sample were those for which sufficiently long series exist/may be construed for all variables from the selected databases. The *Fraser Institute* is the source for the trade liberalisation indicator. Data used to calculate the degree of openness and the geographical area per country were taken from the World Bank's World Development Indicators database, while the population series, *GDP per capita* in PPP and GDP used in the calculation of the economic location variable were taken from the *IMF's World Economic Outlook database*. Distances between countries are available in the CEPII database. The economic location indicator was calculated using the methodology proposed by Guttmann and Richards (2006), corresponding, for country i, to the average of the distance between this country and each of its potential trade partners ($j \in J$, where J includes every country in the world) weighted by the share of the GDP of country j in world GDP excluding the GDP of country i. Distances considered correspond to the *Great World Circle Distance* between the capitals of the two countries in question. For shares, GDP at current prices measured at market exchange rates was considered. All variables were considered in logarithms with the exception of the degree of trade liberalisation.

16. Data were considered in averages for 5-year subperiods in order to control for the variability in annual trade data. In addition to pooled cross-section regressions, seven cross-section equations were estimated using average data for each 5-year subperiod.

17. The negative sign in the regression for the OECD sample suggests that countries with larger GDP *per capita* tend to have a lower trade openness, which contradicts the idea that more developed economies trade more. Other authors found similar results.

18. Excluding the Government's estimate of the temporary effect associated with PERES, the 2016 fiscal deficit stood 0.2 p.p. below the projection included in the SB 2017.

19. In this box, reference to effects of temporary measures correspond to the value assumed by the Government, which in 2016 differs slightly from that identified by Banco de Portugal based on Eurosystem's guidelines. For further details on the impact of temporary measures considered by Banco de Portugal, see the chapter 'Fiscal policy and situation', in the May 2017 issue of the *Economic Bulletin*.

20. This value is also compatible with the May 2016 Country Specific Recommendations.

21. In terms of composition, the reduction of the deficit foreseen in the SP 2017-21 differs considerably from that in the SB 2017.

22. Based on official estimates, the joint impact on the 2017 execution of the reduction in the personal income tax surcharge and in VAT applied to a number of restaurant services is similar to the opposite sign effect associated with the set of measures to raise local property taxes, taxes on oil products and taxes on alcohol and alcoholic beverages.

23. In addition to the measures with an impact on pension expenditure, the creation of a new social benefit for inclusion of disabled people and an increase in the transfers to families with children are also being considered.

24. This implies a growth rate above 25 per cent, even excluding the extraordinary effect associated with the recording of the delivery of military equipment, which was particularly high in 2016.

25. The following measures were considered: elimination of the surcharge, the extraordinary updating of pensions, and the reinforcement of the social benefit for inclusion of disabled people.

26. The quantifications referred to in this paragraph include all structural measures presented in tables II.2.2 and II.2.3 of the SB 2017-21 with an impact on the primary balance, except from those related to structural funds, which have approximately a neutral effect on the balance.

27. This view was also expressed by the Portuguese Public Finance Council in its report No 4/2017.

28. The sensitivity analysis was conducted on interest within the State sub-sector. For further details on this exercise's assumptions, see SP 2017-21, chapter III.2.2.

29. According to the concept used by the ECB within the scope of the *Government Finance Statistics*.

30. Deficit-debt adjustments for 2020 and 2021 are justified by the Government chiefly as a result of the forecast of a significant accumulation of deposits in 2020, followed by the use of the accumulated amount to address the high concentration of debt to be repaid in the first half of 2021.

31. Projections for real GDP growth published by Banco de Portugal in this bulletin are higher than those included in the SP 2017-21 for 2017 and 2018, although lower for 2019.

32. For an analysis focusing on the corrective arm of the SGP, see box 4.1 'The corrective arm of the Stability and Growth Pact and its application to Portugal' in the October 2016 issue of the *Economic Bulletin*.

33. Initially, the Council had defined 2013 as the deadline for correcting the excessive deficit situation. This deadline was consecutively postponed to 2014, 2015 and, last year, to 2016. For more details, please refer to the European Commission's recommendation COM (2017) 530 of 22 May 2017.

34. For an in-depth description of the fiscal surveillance rules in force, see European Commission (2017), 'Vade Mecum on the Stability and Growth Pact', *European Economy, Institutional Paper 52*, March.

35. For a reference to the last update of the minimum MTO applicable to Portugal, see box 4.2 'Update of minimum medium-term objectives for the period 2017-2019: the Portuguese case' in the October 2016 issue of the *Economic Bulletin*.

36. The assessment of sustainability risks in the medium term that is relevant in this context is supported by the calculation of the S1 indicator within the scope of the *Sustainability Report* published by the European Commission every three years.

37. From 2017 onwards (with effect on the analyses for 2018 and beyond), the reference rates and expenditure aggregates considered by the Commission are set out in nominal terms.

38. The average growth in question is calculated by taking into account European Commission estimates for the annual average growth of potential GDP in 10 years between $t-5$ and $t+4$.

39. This correction equals the change required for the structural balance (in p.p. of GDP), divided by the ratio of primary expenditure to GDP.

40. This value essentially stems from the correction associated to the adjustment required for the structural balance, insofar as average real growth of potential GDP between 2010 and 2020 is close to zero, according to European Commission estimates.

41. In practice, the implementation of this rule is far more complex taking into account, inter alia, expected developments for the debt ratio and the economy's cyclical conditions.

II
Special issue

Saving and investment dynamics
of Portuguese firms

Saving and investment dynamics of Portuguese firms

1. Introduction

In most countries, most of the time, households contribute significantly to aggregate saving in the economy. By contrast, the role of channelling resources to investment is essentially performed by non-financial corporations. Corporate investment in productive assets is therefore not only funded by their internal generation and accumulation of resources (i.e. their saving), but also by external resources – chiefly bank loans and debt securities– which in turn result from the intermediation of saving from the other sectors in the economy.

However, surprisingly, this paradigm has undergone a structural change recently in many countries. Generally, non-financial corporations as a whole have switched from being financed in net terms by the other institutional sectors (domestic and non-domestic) to a situation where they are financing the other sectors. This change has chiefly been driven by an increase in corporate saving, i.e. the part of profits that is retained in the firm and not distributed to owners and shareholders in the form of dividends. The change is also due to a modification of the assets and liabilities structure of non-financial corporations. In some cases, the growth in the corporate saving rate reflects an increase in cash holdings, while in others it also reflects a reduction in firms' indebtedness.

These dynamics have also been seen in Portugal, where the contraction in household saving has contrasted with a significant increase in corporate saving. Where has this change come from? Is this just a consequence of Portuguese non-financial corporations deleveraging, or is it the result of firms' accumulation of financial resources? Is this accumulation the result of precautionary saving, in a context of increasingly restricted access to external financing and of a higher cost of external versus internal financing, or does it reflect the absence of investment opportunities?

The literature has tried to answer some of these questions. This Special issue starts by presenting some results from the literature contextualising the analysis of corporate saving in Portugal (Section 2). To answer the above questions, this Special issue looks in detail at information on Portuguese non-financial corporations over the last decade. First, the national account aggregates are analysed, showing how saving, investment and indebtedness have developed across institutional sectors (Section 3). This analysis sheds light on the interaction between the different sectors (households, corporations, the general government and the financial sector), while also offering comparisons with the dynamics observed in other countries.

The second part of the analysis uses microeconomic information at firm level (Section 4). This analysis offers more direct answers to some of the questions raised above. A comparison of small and large, and new and mature firms, both with and without financing restrictions and with high and low profitability levels, offers insights into what drives the changes in corporate saving and investment dynamics of the last few years. Thus, exploiting the heterogeneity of Portuguese firms allows the identification of the firms that are contributing (positively or negatively) to corporate saving and investment. This heterogeneity is assessed at different moments in time, to show which firms contributed the most to the recent expansion of saving and investment.

Together these analyses help to identify the moment when the change in the Portuguese

economy took place, how this process has developed and who the main actors of this change are.

2. Why do firms save? Some results from literature

Why do firms save? In a simplified macroeconomic model of the economy, households are usually the agents responsible for saving. Firms use the resources accumulated by the households to invest in productive assets. These resources are channelled between households and firms through the financial system, which receives deposits from households and grants credit to firms. In reality, these functions are not exclusive of each sector and households also invest (for example when they buy a house or when they use resources to launch a start-up) and firms also save. Corporate saving results from the accumulation of undistributed profits. When a firm generates profits, it can distribute them among owners or shareholders (or other stakeholders such as the company staff for example) or it may retain them, increasing their equity, and thereby reducing their dependence on external financing.

Which factors influence firms' decisions to distribute or retain profits? The classical theorem of the irrelevance of the capital structure proposed by Modigliani and Miller (1958, 1963) tells us that firms should be indifferent between financing through debt or equity. However, this theorem is only valid in a theoretical environment, in which there are no frictions or restrictions, which is a long way from the environment in which the firms actually make their decisions. A very important factor in this choice is, for example, taxation. Graham (1996, 2000) shows that firms benefit from having some financial debt, as the payment of debt and its associated costs reduces taxable profits. In a recent article, Armenter and Hnatkovska (2017) challenge this perspective and argue that these tax benefits associated with debt may in truth incentivise firms to boost their saving, increasing

the financial assets they hold. Under this model, firms' incentives to save essentially come from classical precautionary motives. Firms save to reduce their future dependence on access to external financing. This mechanism for accumulating resources is more relevant for firms with substantial indebtedness i.e. highly dependent on external financing. Thus, despite the tax benefits associated with the issuance of debt, highly indebted firms may prefer to increase their retention of earnings, reducing their vulnerability regarding access to external financing.

There are other articles which discuss the relevance of corporate saving associated with precautionary motives, along with consideration of other mechanisms. For example, Hennessy and Whited (2007) discuss the relevance of the difference between external and internal financing costs for investment decisions, dividend distribution, indebtedness and default for firms of different size classes. Boileau and Moyen (2009) discuss the relative importance of the precautionary motive and the liquidity motive to explain the rising trend in retention of liquid assets. In turn, Shourideh and Zetlin-Jones (2012) consider a model in which saving affects the future profits of the firm through potential lower restrictions on collateral and guarantees required in future periods.

Aside from the precautionary motive, there are other reasons justifying firms' need to save. For example, firms may accumulate resources to deal with uncertainty and volatility in income generation (Zhao, 2015). Competition could also play a key role, particularly in a context of restrictions on access to financing. For Morellec *et al.* (2013) and Della Seta (2013), competition increases the risk that a firm may have to resort to external financing in unfavourable conditions, affecting its saving and liquidity accumulation decisions. This may be particularly important in sectors with more competition and more innovation simultaneously (Lyandres and Palazzo, 2016). In turn, Riddick and Whited

(2009) show that uncertainty over firms' income has a greater effect on its saving decisions than restrictions on access to external financing.

3. An aggregate perspective: who saves and who invests in the economy

Data from the national accounts gives a comprehensive picture of the saving, investment and financing flows between the various types of agents that operate in the economy. These agents are categorised by institutional sector in the national accounts into households, financial and non-financial corporations and general government. For each of the institutional sectors:

Investment – Saving =
Net borrowing requirement   (1)
/ Net lending capacity

In aggregate terms, households generally save more than they invest and have a net lending capacity; non-financial corporations invest more than they save and have a net borrowing requirement; financial corporations overall carry out an intermediation function for the financing flows between the other sectors; and the general government has a net lending capacity in some economies and a net borrowing requirement in others. These features vary with certain institutional characteristics and change with developments in the economic cycle and structural changes.

If the domestic economic agents do not save enough to finance investment, the economy has to finance itself abroad. This was the Portuguese economy's case before the crisis. In this period, the economy systematically presented considerable net borrowing requirements which were matched by the deterioration of the external accounts. From 2013, the increase in domestic saving and the intensification of the falling trend in investment led to a slightly positive net lending capacity in the economy.

Chen *et al.* (2017) use national accounts data of a broad set of countries and show that the composition of investment among the various sectors has remained relatively stable over time, in contrast to the composition of saving. According to the information analysed by these authors, corporate saving increased from a level below 10 per cent of global GDP at the start of the 1980s to about 15 per cent in the last decade. While at the start of the period analysed most investment was financed by household saving, currently around two-thirds of global investment is financed by corporate saving.

One of the goals of this Special issue is to assess whether these stylised facts observed at the global level are also true for Portugal. In the period since the international financial crisis, household saving in the euro area has fallen, accompanied by an increase in corporate saving (Chart 3.1A). These trends were also observed in Portugal, even more sharply, though at levels below the euro area average (Chart 3.1B). These developments highlighted the difference between the saving rates in Portugal and in the euro area, which is particularly evident in the case of household saving.[1] These differences are more striking when comparing the shares of households and non-financial corporations in total saving. Currently, in Portugal, corporate saving accounts for nearly 70 per cent of total saving and household saving only 20 per cent, which compares to similar shares, at around 45 per cent, in the early 2000s (Chart 3.2). These divergent developments are due to common factors that led to a transfer of saving from the household sector to the corporate sector, such as the slight reduction in wages as a percentage of GDP, but also the greater retention of firms' profits (Chart 3.3).

As documented in Chen *et al.* (2017) for the world economy, the composition of investment across institutional sectors in the euro area has remained relatively stable over time (Chart 3.4A). By contrast, investment in Portugal

Chart 3.1 • Saving by institutional sector | Percentage of GDP

A – Euro area

B – Portugal

Source: Eurostat.
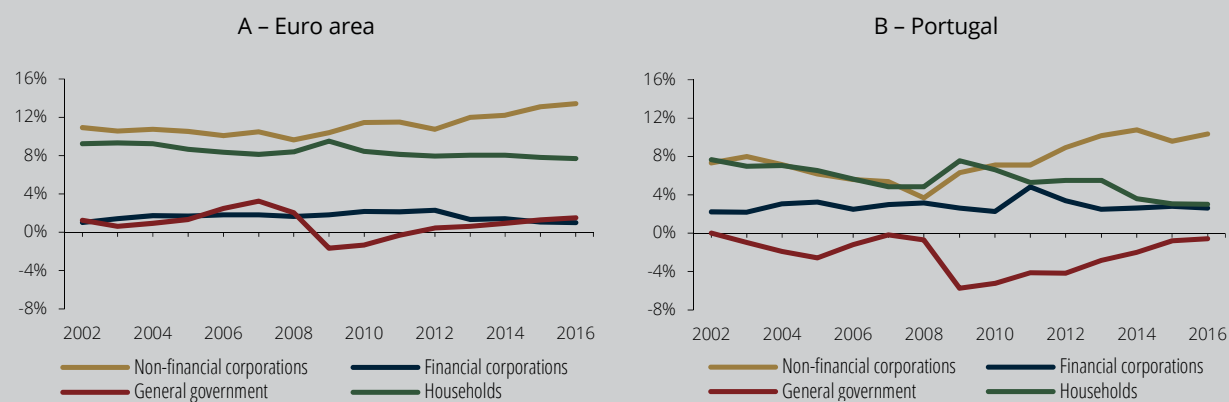
Chart 3.2 •
Saving of
non-financial
corporations and
households in
Portugal and the
Euro area
| Percentage of total

Source: Eurostat.
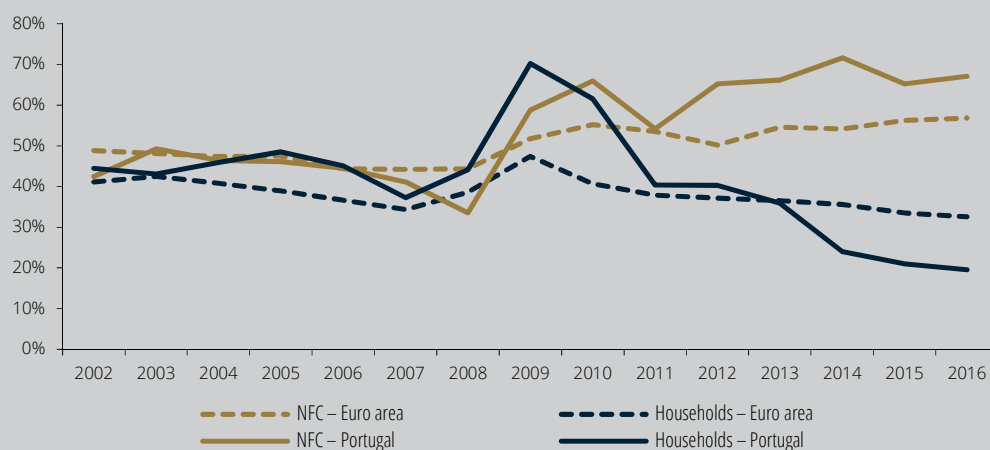
Chart 3.3 •
Decomposition
of savings of
non-financial
corporations
| Percentage of GDP

Source: INE.
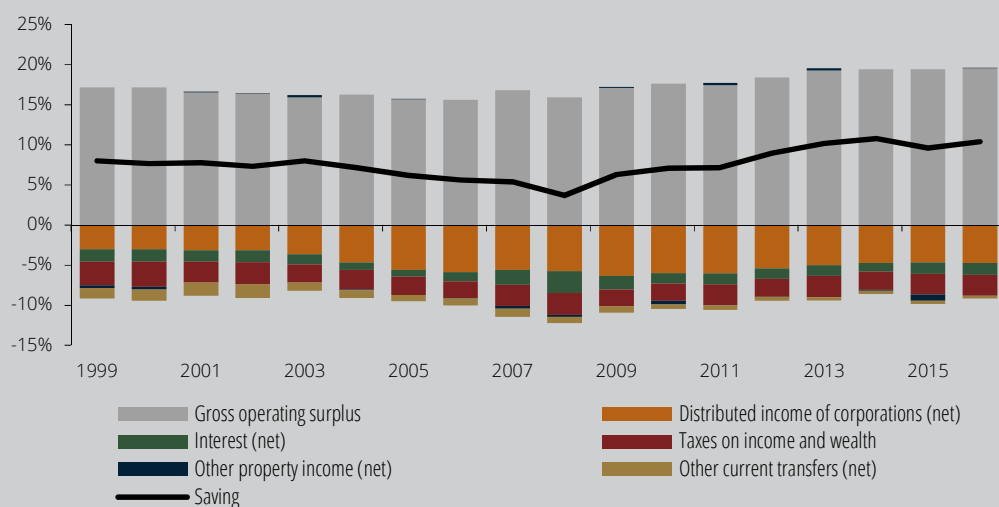
has been below the levels seen before the financial crisis across all the sectors of the economy (Chart 3.4B).

The investment and saving dynamics for the various institutional sectors over the last decade has led to a change in net lending or net borrowing positions in the economy. In the euro area, the economy's net lending or borrowing position has evolved in parallel with that of non-financial corporations (Chart 3.5A). Non-financial corporations consistently became a lending sector in the economy from 2009 and the economy as a whole presents a net lending

capacity of nearly 4 per cent of GDP in 2016. Developments in Portugal show a similar pattern, although with wider fluctuations (Chart 3.5B). From 2013, non-financial corporations have also presented a positive net lending position, compatible with a slight increase in investment over the last few years.

Also, a more detailed analysis of the national account data for the non-financial corporations sector shows that the financing of corporate investment by the other sectors was fully replaced by internal financing, which may reflect a significant change in the relative cost

Chart 3.4 • Investment by institutional sector | Percentage of GDP

A – Euro area

B – Portugal
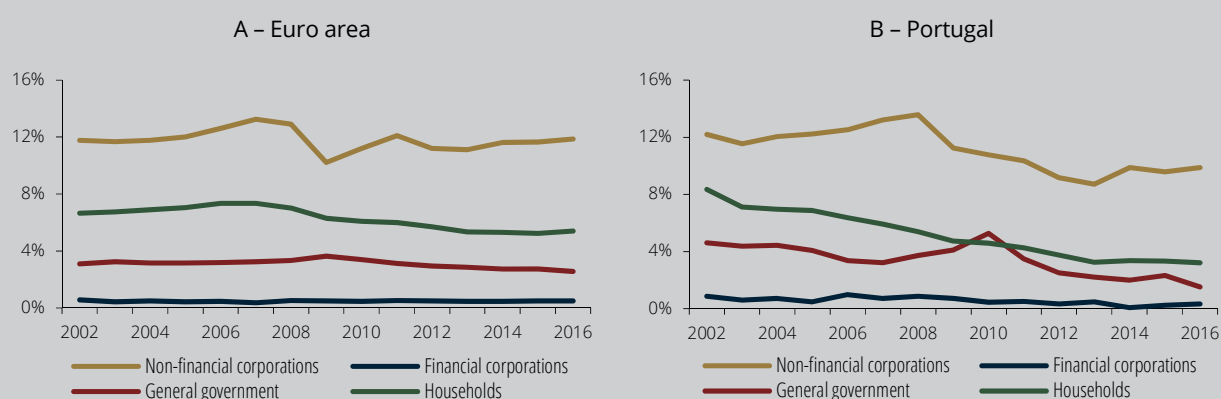
Source: Eurostat.

Chart 3.5 • Net borrowing/net lending by institutional sector | Percentage of GDP

A – Euro area

B – Portugal
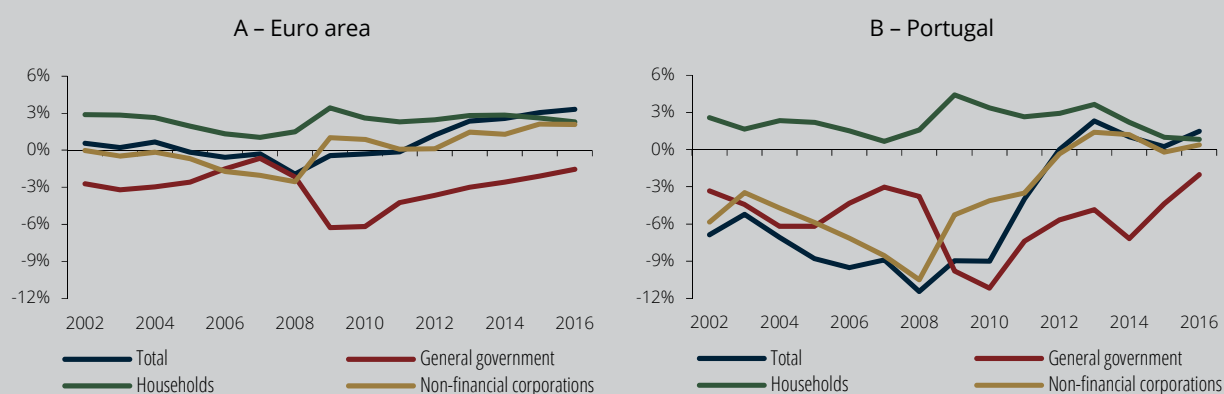
Source: Eurostat.

of indebtedness versus that of self-financing (Chart 3.6). This change is also reflected in a considerable change in terms of financial flows (Chart 3.7).

4. A microeconomic perspective: which firms save and which invest?

The analysis of microeconomic data at firm level provides answers to some of the questions raised by the analysis of aggregate data. Having shown that the increase in corporate saving seen in various countries has also taken place in Portugal, the presence of any heterogeneity in this process should be analysed. The increase in saving may be a general trend across Portuguese firms, or may be a particular feature of certain types of firms. Furthermore, the link between individual saving and investment decisions may only be understood by looking at micro level data.

Chen *et al.* (2017) also use microeconomic data to understand the origin of the increase in corporate

Chart 3.6 • Financing of investment of non-financial corporations in Portugal | Percentage of GDP
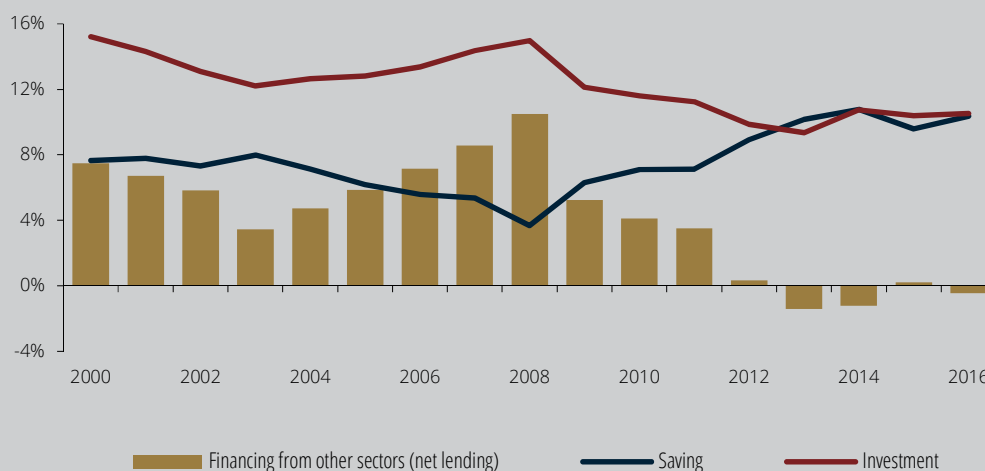
Source: INE.

Chart 3.7 • Change in financial assets and liabilities of non-financial corporations | Percentage of GDP

Source: INE and Banco de Portugal.

saving. Using data for listed firms from various countries, they conclude that this recent phenomenon is essentially associated with an increase in their profits, which allows internal resources to accumulate, avoiding recourse to external financing. According to these authors, the increase in corporate saving does not reflect changes in dividend policy or interest or tax payments. There are also no significant differences across firms of different age or different size.

In turn, based on data for US firms, Armenter and Hnatkovska (2017) find that 44 per cent of firms have a positive net position in financial assets, i.e. the level of financial assets accumulated exceeds the level of financial debt. The authors also note that the firms with more net financial assets have higher investment levels, more revenues and higher equity, and accumulate capital more quickly.

For Portugal, Banco de Portugal's Central Balance Sheet Database helps answer similar questions. This database contains annual accounting information for all Portuguese firms for the 2006 to 2015 period. This data may help to understand whether the aggregate 10-year trend in corporate saving reflects the behaviour of large or small firms or of young or mature firms for example. In addition it helps to investigate saving's destination , in particular whether the firms that save the most are also those that invest the most or those that accumulate more cash holdings, in this case with saving resulting mainly from precautionary motives.

In accounting terms, corporate saving generally corresponds to the profits that are not distributed, but are 'reinvested' in the firm. For the analysis presented in this Special issue, the saving of a firm i in a given year t is calculated as follows:[2]

Saving$_{it}$ = (Reserves$_{it+1}$ - Reserves$_{it}$) +

(Retained earnings$_{it+1}$ -

Retained earnings$_{it}$) +   (2)

Amortisations$_{it}$ + Other costs$_{it}$

Observations where saving levels as a percent of firm's assets were lower than the first or higher than the 99th percentile of the distribution were excluded from the data set, to prevent outliers distorting the analysis.

The charts presented in this section help answer the questions formulated above. The information is presented for three representative years: 2007, 2011 and 2014. The year 2007 gives the position before the start of the international financial crisis. The year 2011 shows the start of the adjustment period for the Portuguese economy, with the request for international financial assistance coming in April of that year. The year 2014 is the last year for which corporate saving may be analysed as it is calculated using information from the following fiscal year (as described in equation (2)).

4.1. Who are the savers?

The first question to be answered with these data relates to the analysis of saving's distribution. Do developments in aggregate saving reflect the behaviour of some firms or is it broadly based across the Portuguese economy?

Distribution of total saving by the quintiles of saving

Charts 4.1 and 4.2 help answer this question. These two charts define the five quintiles of the saving distribution.[3] Chart 4.1 presents the distribution of total saving by the different quintiles and Chart 4.2 complements that information, showing the average saving rate – defined as saving as a percentage of total assets – for the five saving distribution quintiles considered in the previous chart.[4] Information provided in Chart 4.1 shows that aggregate corporate saving in the Portuguese economy reflect saving made by a small number of firms. 20 per cent of the firms that save the most (fifth quintile) account for almost all the saving of Portuguese non-financial corporations. This means that the fifth quintile may represent saving by large firms, which save higher amounts. Moreover, some

firms show negative saving, which may be associated, for instance, with distribution in a certain fiscal year of profits accumulated in previous years.

Chart 4.2 complements this analysis. In this case, saving decisions are not as heterogeneous as suggested in Chart 4.1. Despite the fact that the firms that save the most are those with the highest saving rates, the other firms that save lower amounts in absolute terms, nevertheless save significant amounts, when assessed as a percentage of assets. Also, the trend of increasing saving is common across the three-fifths of firms that save the most.

Distribution of total saving by size class

Previous evidence suggests that the largest firms contribute the most to saving. Confirming this assumption, Charts 4.3 and 4.4 show the composition of saving and the saving rate, respectively, for the usual size classes: micro, small, medium-sized and large firms (definition based on criteria set out in EU's Recommendation 2003/361). Chart 4.3 shows that in fact large firms drive the aggregate developments of corporate saving. Saving by large firms represents more than 50 per cent of the total and saving by micro firms stands at slightly over 10 per cent. Large firms

not only save the most, but are also those whose saving rate has increased significantly and steadily over the period under review.

However, when considering the saving effort in relative terms for each firm, evaluating saving as a percentage of the firm's total assets, it is not as different among firms with different sizes. In 2014 there was a positive correlation between firm size and its saving rate which, however, was not evident in 2007. Therefore, while medium-sized and above all large firms have increased their saving rate over the last decade, smaller firms showed an opposite trend, being closer to the behaviour of Portuguese households.

In order to better understand the dynamics of distribution or retention of corporate profits, it is important to also analyse the distribution of profits (dividends).[5] Charts 4.5 and 4.6 show the distribution of dividends and the dividend/retained earnings ratio, respectively, for the different size classes. According to the information in these charts, large firms, which account for the largest share of saving, also create the highest amount of distributed profits. In turn, the dividend/retained earnings ratio is also much higher in large firms than in firms in the other size classes. From 2007 to 2011 the ratio did not

Chart 4.1 • Saving by quintiles of saving | Percentage of total
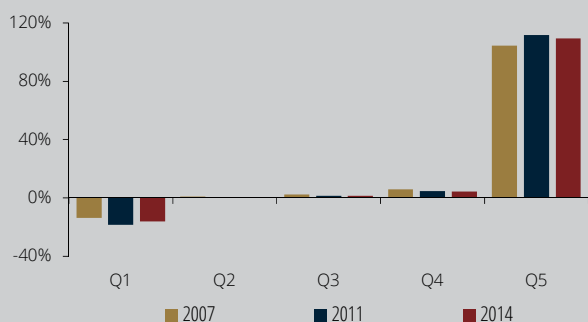
Source: Banco de Portugal.

Chart 4.2 • Saving rate by quintiles of saving | Percentage
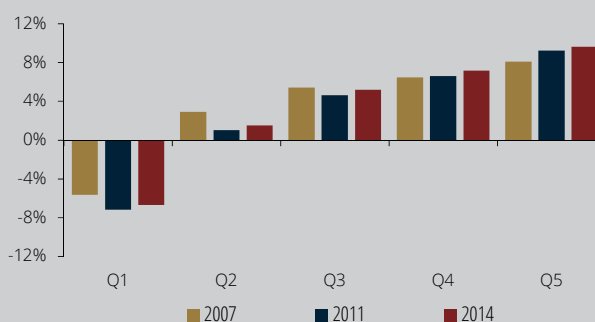
Source: Banco de Portugal.

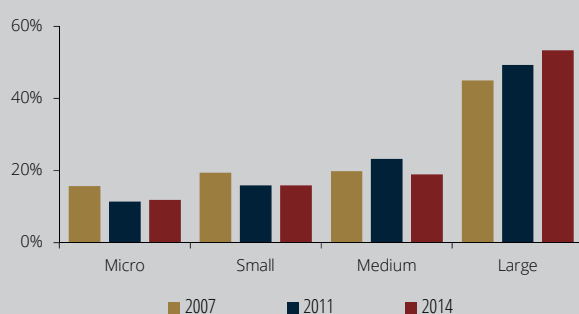Note: Weighted average of individual rates.

decline for large firms, as happened in the case of medium-sized firms. Evidence available suggests a slight change in the pattern of dividend distribution across all size classes in the most recent period. This evidence is consistent with results presented by Chen *et al.* (2017), suggesting that the overall increase in corporate saving is not due to a change in the dividend policy.

Distribution of total saving by age class

Another aspect that is worth exploring is the age of the firms. Are saving chiefly made by younger or by long established firms? Charts 4.7 and 4.8

present saving and the average saving rate of the firms in three groups, based on their age: young firms (established for less than 5 years), mature firms (established for more than 5 years and less than 20 years) and old firms (established for more than 20 years). These charts show that younger firms are those that contribute the least to aggregate saving, possibly reflecting their smaller size. However, in younger firms, the relative saving effort, as a percentage of their assets, is more significant, even though this pattern is not as clear in data for 2011. As these firms have potentially more growth and investment

Chart 4.3 • Saving by firm size | Percentage of total
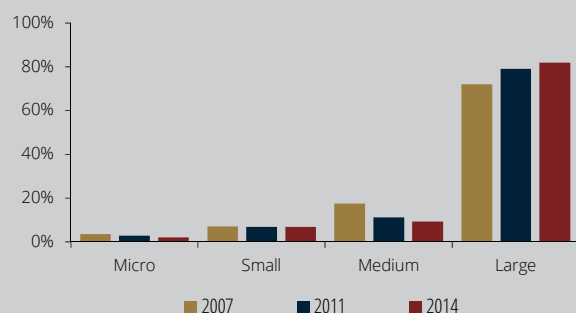

Source: Banco de Portugal.

Chart 4.4 • Saving rate by firm size | Percentage
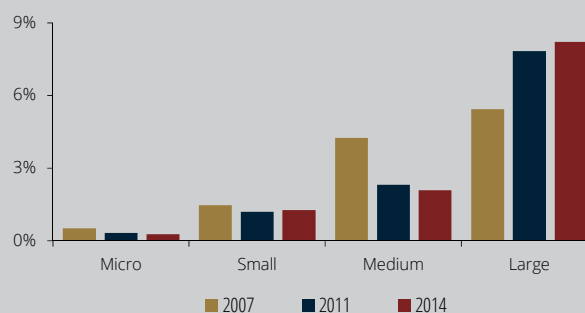

Source: Banco de Portugal.
Note: Weighted average of individual rates.

Chart 4.5 • Distributed profits by firm size | Percentage of total

Source: Banco de Portugal.

Chart 4.6 • Distributed profits as a percentage of profits | By firm size

Source: Banco de Portugal.
Note: Weighted average of individual rates.

opportunities, this reliance in internal financing is to be expected, chiefly taking into account that these firms usually face more restrictions in access to external financing (Beck *et al.*, 2006). Nevertheless, Chart 4.6 shows that older firms have contributed the most to the aggregate increase in corporate saving in the period under review, possibly reflecting their larger average size, even though the saving rate is relatively stable for these firms.

As regards dividend distribution by firm age, Charts 4.9 and 4.10 show that less young firms are those that contribute the most to total profit distribution and whose pattern has intensified in the most recent period. The ratio between dividends and retained earnings is also higher for older firms, even though the pattern has changed somewhat over time.

Relationship between saving, profitability and indebtedness level
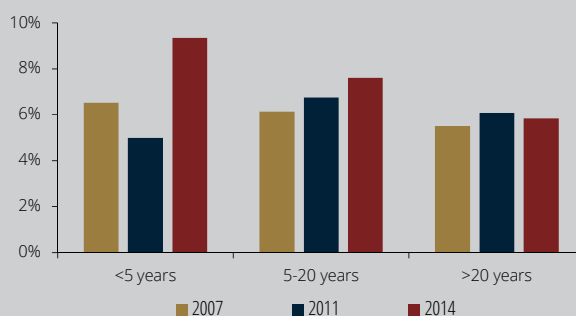
Corporate saving comprises undistributed profits. Therefore, a positive relationship between saving and profitability is expected. Charts 4.11

Chart 4.7 • Saving by firm age | Percentage of total
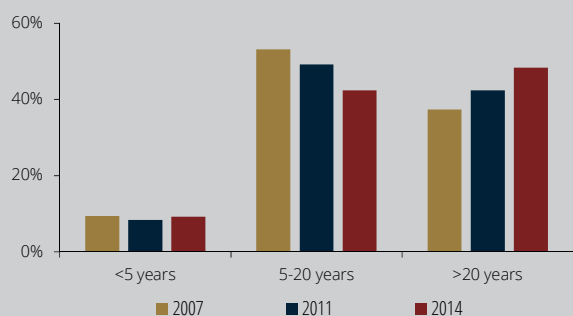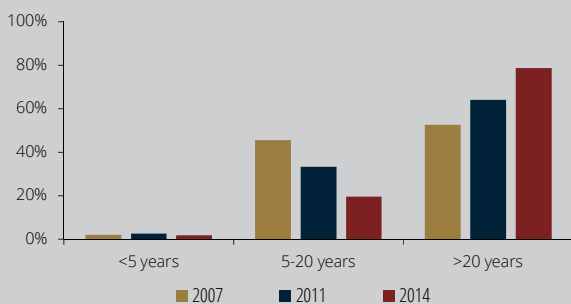

Source: Banco de Portugal.

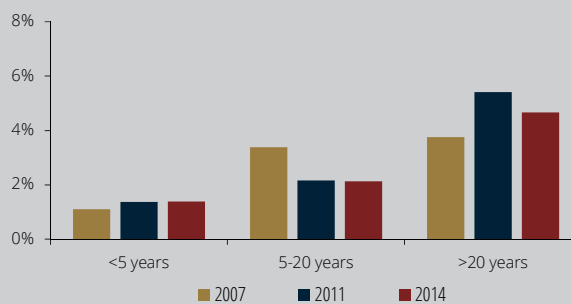**Chart 4.8 •** Saving rate by firm age | Percentage

Source: Banco de Portugal.
Note: Weighted average of individual rates.

Chart 4.9 • Distributed profits by firm age | Percentage of total

Source: Banco de Portugal.

Chart 4.10 • Distributed profits as a percentage of profits | By firm age
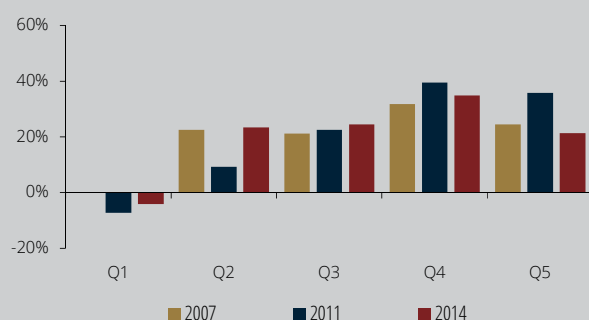

Source: Banco de Portugal.
Note: Weighted average of individual rates.

and 4.12 may be used to validate this assumption. Chart 4.11 presents the distribution of saving by profitability quintiles (defined as earnings before interest and taxes (EBIT) as a percentage of assets) and Chart 4.12 presents the average saving rate by profitability quintiles. According to Chart 4.11, the relation between saving and profitability seems to be positive, but not linear: firms in the quintile associated with higher profitability contribute less to aggregate saving than firms in the second, third and fourth quintiles. However, this may reflect that profitability is not linearly correlated to firm size, and

that more profitable firms are not necessarily the larger ones. The saving rate is nevertheless more significant for firms with higher profitability, as would be expected. This relation between saving and profitability has consolidated over the period under review.

Another relevant aspect is related to decisions regarding the firms' capital structure, in particular their indebtedness. Firms that save the most do accumulate more internal resources, reducing their dependence on external financing. If these relationships persist over time, a negative

Chart 4.11 • Saving by quintiles of profitability | Percentage of total
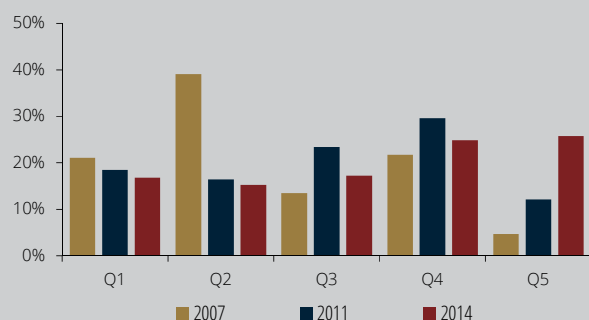

Source: Banco de Portugal.

Chart 4.12 • Saving rate by quintiles of profitability | Percentage
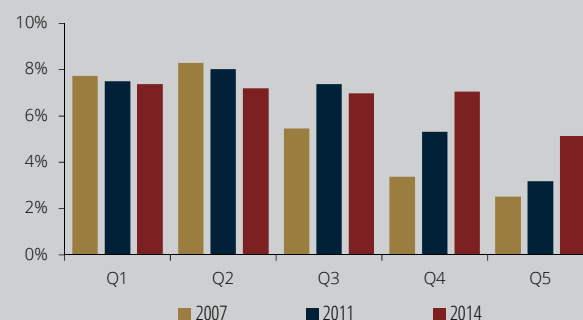

Source: Banco de Portugal.
Note: Weighted average of individual rates.

Chart 4.13 • Note: Weighted average of individual rates | Percentage of total

Source: Banco de Portugal.

Chart 4.14 • Saving rate by quintiles of the leverage ratio | Percentage

Source: Banco de Portugal.
Note: Weighted average of individual rates.

correlation between saving and indebtedness is expected. Charts 4.13 and 4.14 show saving and the saving rate, respectively, by quintiles of the indebtedness ratio (defined as financing obtained as a percentage of assets). This information shows above all a structural change over the period under review. Whereas in 2007 the least indebted firms were in fact those that saved the most (both in absolute terms and in terms of the saving rate), in 2014 this relation is less evident in the case of the saving rate and is even inverted in the case of saving distribution. This implies that the most indebted firms have significantly increased their saving efforts, accumulating internal resources, which has not happened in the case of less indebted firms. These developments are likely to reflect the deleveraging process under way in the Portuguese economy. The saving rate of the most indebted firms is nevertheless substantially lower than that of the firms in the other quintiles of the indebtedness ratio.

In order to better understand the relation between saving and firm size, it is possible to extend the analysis beyond the quintiles and deepen the exploitation of firm heterogeneity. This analysis is presented in the box 'Firm saving – an analysis based on longitudinal data', which replicates for Portuguese firms the analysis undertaken at the firm level by Chen *et al.* (2017). This analysis is intended to examine whether the overall increase in firm saving is mainly due to an increase in the saving rate in certain types of firms or whether it reflects a reallocation of market share in favour of types of firms with higher saving rates. The results of this analysis suggest that the rise in saving reflects mainly an increase in firm profits, and that the size and age of Portuguese firms are positively and significantly correlated with their saving. The results also suggest that the overall increase in saving is due to a rise in saving within groups of firms defined by their size and age, and do not reflect the reallocation of market share among firms of different size or age classes.

Box 1 | Firm saving – an analysis based on longitudinal data

This box considers data at firm level to address the extent to which saving developments are related to their accounting components and to firms' idiosyncratic characteristics. In particular, it is important to understand the cross-sectional saving pattern and the relationship with their accounting components. It is also important to understand how this pattern reflects differences among firms' characteristics, namely its size and age.

The analysis is broken down into three parts: the first part studies the extent to which the increase in saving reflects profit growth or developments in other factors such as distributed dividends, payment of interest and taxes; the second part examines the extent to which firm size and age account for the increase in saving; and finally, it analyses whether the increase in saving is due to its growth in a given group of firms (changes within industries) or to differences in the saving pattern among groups of firms with different characteristics and saving levels (changes between industries). The methodology considered in the analysis closely follows Chen *et al.* (2017).

Similarly to the distribution analysis, this box considers the accounting information reported by the Central Balance Sheet Database of Banco de Portugal. The measure of saving considered is gross saving defined by equation (2). Firm's gross profit is measured by EBITDA.[6]

Characterisation of the increase in saving with firm level data

The panels in Chart 1 show the dispersion and relationship between gross profit and each of its components: saving, distributed dividends, interest and taxes. The size of each circle corresponds to the average value of gross value added (GVA) of the firm over the period under review.

Chart 1 • Gross profit and saving
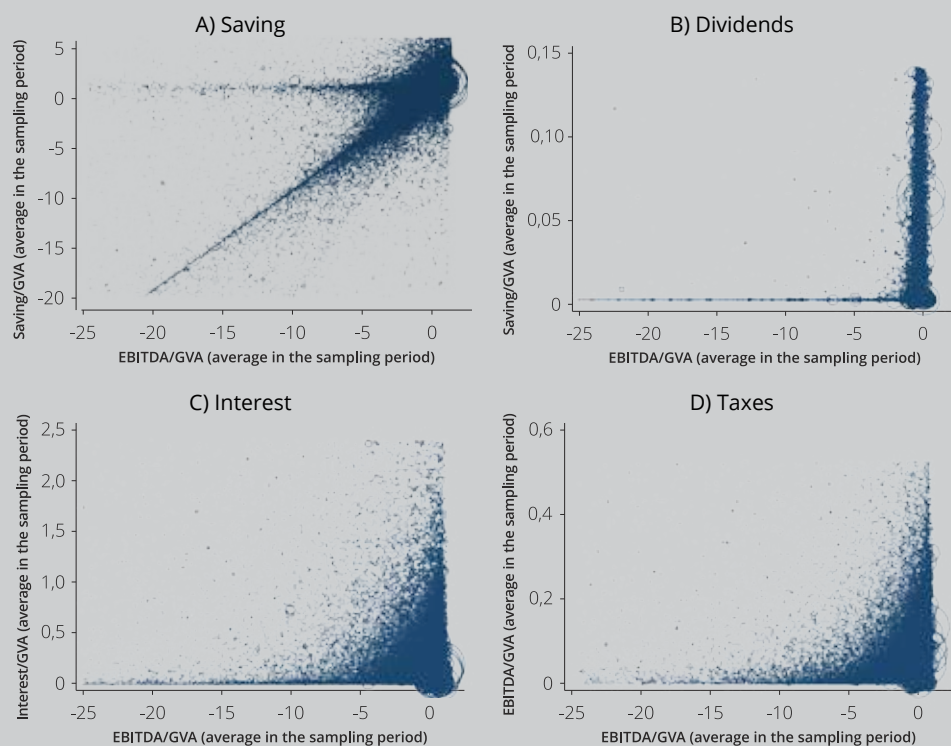
Source: Banco de Portugal.

Chart 1.A shows a strong correlation between the saving rate (measured by the saving/GVA ratio) and gross profit for the firm (as a ratio to GVA). The other panels suggest a weak correlation between distributed dividends, interest and taxes (as a ratio to GVA) and firm gross profit. Table 1 quantifies these relationships considering a simple regression of each component of gross profit (as a ratio to GVA) in gross profit, considering industry fixed effects.[7] The estimation is weighted by the firm's GVA and the results confirm the conclusions based on Chart 1. The coefficient estimated for the saving rate is 0.60, suggesting that a €1 rise in gross income is associated with a €0.60 rise in saving, ceteris paribus. The estimated effect of the tax/GVA ratio is not significant, which is not surprising, given that taxation   remained relatively stable in this period.

**Analysis of saving according to firm size and age**

Chart 2 presents the saving rate of the firm (measured by gross saving/GVA), according to the logarithm of its size and its age. Firm size is calculated as the average ratio between firm turnover and total turnover, and age is the average firm age over the sample period. The estimated coefficients are reported in table 2. The estimates suggest that the saving rate is positively associated with firm size, and show that a firm with twice the turnover (i.e. an increase of 0.69 logarithm points) has a saving rate, on average, 3.9 percentage points higher. The estimated coefficient for age suggests that the saving rate of a firm that is 10 years older is, on average, 3.2 percentage points higher, ceteris paribus. These results suggest that the saving rate of Portuguese firms depends to a large extent on their size and age, and contrast with the results reported by Chen *et al.* (2017).

Table 1 • Estimation results: Gross operating surplus and components[8]

	Saving/GVA	Dividends/GVA	Interest/GVA	Taxes/GVA
Gross operating surplus/ GVA	0.6021*** (0.0620)	0.0024*** (0.0008)	0.0376*** (0.0047)	0.0002 (0002)
Number of observations	382,853	444,788	330,540	372,270

Notes: *** means statistically significant at 1 per cent. The estimation controls for industry fixed effects. Robust standard errors clustered at industry level in parenthesis.

Chart 2 • Saving rate, firm's size and age
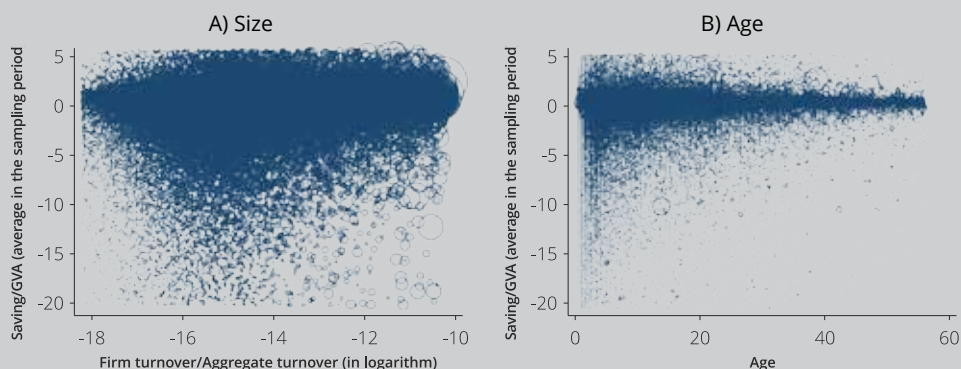
Source: Banco de Portugal.

Table 2 • Estimation results: Saving rate, size and firm age

	Saving/GVA	Saving/GVA
(log) Turnover	0.0568***	
	(0.0130)	
Age		0.0032**
		(0.0014)
Number of observations	377,974	380,500

Notes: *** and ** mean statistically significant at 1 and 5 per cent, respectively. The estimation controls for industry fixed effects. Robust standard errors clustered at industry level in parenthesis.

Within/between decomposition

This section considers the decomposition suggested by Chen *et al.* (2017) to analyse the extent to which a change in the corporate saving rate reflects a change within or between industries:

$$\Delta\left(\frac{GS_t}{GVA_t}\right) = \frac{1}{2}\sum_i (\omega_{it} + \omega_{it+1})\Delta\left(\frac{GS_{it}}{GVA_{it}}\right) + \frac{1}{2}\sum_i \left(\frac{GS_{it}}{GVA_{it}} + \frac{GS_{it-1}}{GVA_{it-1}}\right)\Delta\omega_{it}$$

$\qquad\qquad\qquad$ Within-group component $\qquad\qquad$ Between-group component

Where GS_{it} is the gross saving of firm i in period t, GVA_{it} is the gross value added of firm i in period t and ω_{it} is the share of firm i in total GVA in period t.

The groups of firms i are identified by the quartiles of size, age, and the union of the two. The results of this decomposition are presented in table 3. According to these results, the change in the saving rate is chiefly due to the within component, irrespective of whether the size, age or union of the two is considered in the definition of the groups. Therefore, an increase in corporate saving is chiefly explained by an increase in saving within these groups of firms, and does not reflect changes in the reallocation of GVA among groups.

Table 3 • Within and between decomposition of changes in saving rate

	Change 2006-2014		Cumulative annual changes	
	Within	Between	Within	Between
Size	1.590	0.248	1.532	0.307
Age	0.897	0.378	1.443	0.219
Size and age	6.904	0.223	6.727	0.400

Notes: Ratio between saving and GVA (in percentage points). The results under "Change between 2006-2014" correspond to the difference between the last and the first year of the sample period; the results under "Cumulative annual changes" were obtained with the accumulation of annual changes.

4.2. Where is saving channelled to?

After establishing that the increase in corporate saving in Portugal chiefly reflects the behaviour of some firms, namely the largest and older ones (although the growth trend of the saving rate is common to most firms), it is important to understand what firms do with such internally generated resources. In particular, it is important to figure out whether these funds are used to finance investment, as an alternative (or complement) to external financing, or whether they are accumulated as cash holdings, thus building precautionary saving. Charts 4.15 and 4.16 present the distribution of total investment made by firms and the ratio between investment and total assets for the five quintiles of saving, respectively. Investment is defined as the change in fixed assets from year *t* to year *t-1*, adjusted for depreciations. Similarly to saving, aggregate investment is explained by a small group of firms. Clearly, the firms that save the most are those that invest the most. However, firms in the first quintile of saving distribution, most of which record negative saving, contribute more significantly to investments than those in the intermediate quintiles. When considering firm size, evaluating the ratio between investment and assets, there is a non-linear ratio between investment and saving (Chart 4.16). When excluding firms

in the first saving quintile, which record negative or very small saving, but more significant investment flows than those in the intermediate quintiles, the relation between investment and saving in positive. Developments in the investment ratio over the period under review confirm the decreasing trend of investment observed in aggregate terms over this period, notwithstanding some slight positive developments between 2011 and 2014.

Charts 4.17 and 4.18 provide more information on the relation between saving and investment, but in this case evaluating the distribution of accumulated investment, i.e. of the stock of fixed assets, by the different saving quintiles. Overall the results are consistent with those relating to investment flows. There is a non-linear relationship between saving and fixed assets, the latter being more significant for the firms that save the most (fifth quintile) than for those that save the least (first quintile). Considering the ratio between fixed assets and total assets, there is a positive correlation between saving and the accumulation of fixed assets, excluding the firms in the first quintile of saving.
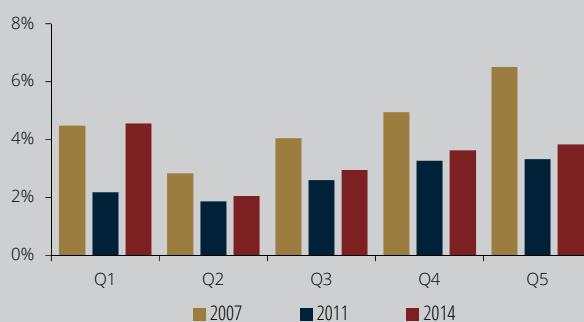
The accumulation of internal resources resulting from firm saving does not necessarily need to materialise into investment in fixed assets. In

Chart 4.15 • Investment by quintiles of saving | Percentage of total
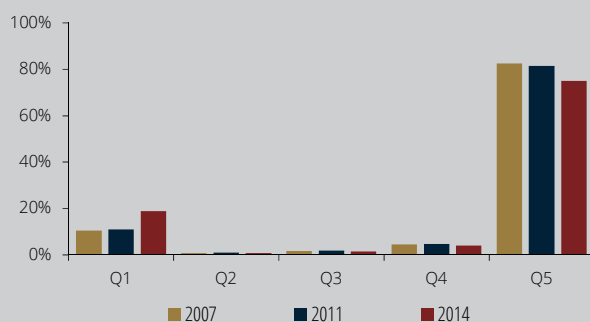
Source: Banco de Portugal.

Chart 4.16 • Investment as a percentage of assets | By quintiles of saving
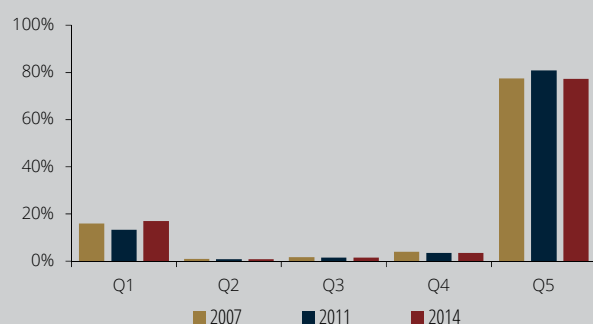
Source: Banco de Portugal.
Note: Weighted average of individual rates.

effect, international and national evidence indicates that over recent years the upward trend in firm saving went together with increasing cash holdings (Bates *et al.*, 2009, Farinha and Prego, 2014). Charts 4.19 and 4.20 present a breakdown of liquid assets and the ratio between cash holdings and total assets, by the quintiles of saving. According to the information provided in these charts, the firms that save the most are also those that accumulate more cash holdings, in absolute terms. When evaluating cash holdings as a percentage of total assets, however, (Chart 4.20) there is a non-linear relationship between saving and the accumulation of cash

holdings. The firms that accumulate more liquid assets are those that are at intermediate levels of saving distribution.

Reconciling these results with those of investment (Charts 4.15 and 4.16), the increase in Portuguese firms' saving seems to be more clearly associated with an expansion of investment than with an increase in precautionary saving, which is substantiated in an increase in cash holdings. In addition, Charts 4.13 and 4.14 also suggest that a significant share of the increase in saving is being directed to a decrease in indebtedness, in particular for the most indebted firms, which is consistent with convergence

Chart 4.17 • Fixed assets by quintiles of saving | Percentage of total
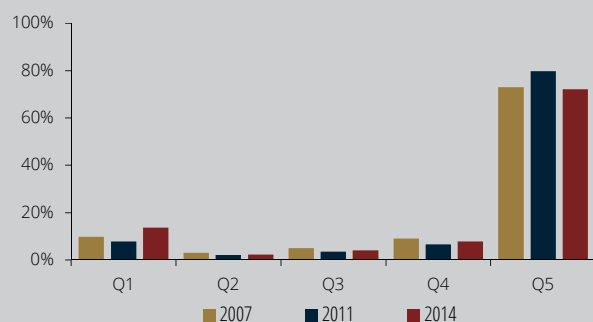

Source: Banco de Portugal.

Chart 4.18 • Fixed assets as a percentage of total assets | By quintiles of saving
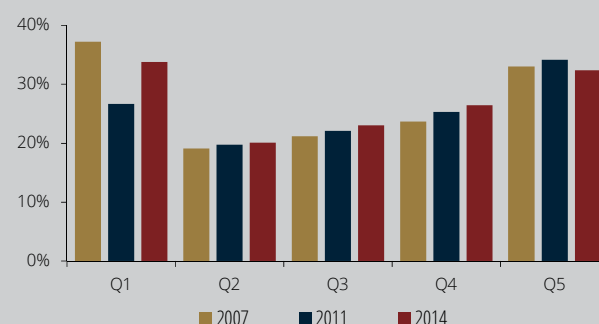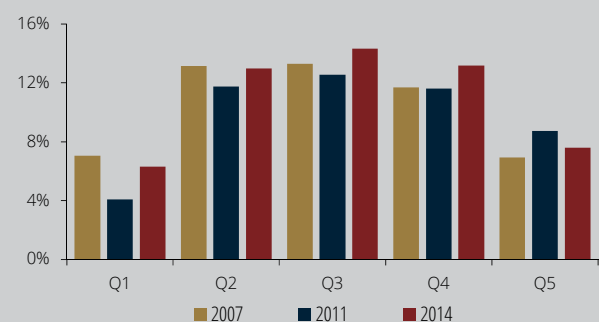

Source: Banco de Portugal.

Note: Weighted average of individual rates.

Chart 4.19 • Cash holdings by quintiles of saving | Percentage of total

Source: Banco de Portugal.

Chart 4.20 • Cash holdings as a percentage of total assets | By quintiles of saving

Source: Banco de Portugal.

Note: Weighted average of individual rates.

towards more balanced financial structures of Portuguese firms.

5. Some conclusions on saving developments in Portuguese firms

Developments in investment and saving in the different institutional sectors of the economy over the last decade have reflected a change in the relative position of the sectors as net lenders or net debtors. In Portugal, as in the euro area and other economies, firms have become net lenders. This is chiefly due to an increase in corporate saving, given that investment shows a more stable pattern when measured as a percentage of GDP.

The analysis of microeconomic data at firm level helps to improve the understanding of the sources of these trends in the case of Portugal:

- Aggregate developments in Portuguese firms' saving are chiefly associated with the behaviour of large firms, which save (increasingly) more, but it seems that there is no significant change in the pattern of profit distribution of these firms;

- There is also a positive relation between firm saving and age, although this is not as clear as in the case of size, chiefly due to the high heterogeneity in saving decisions by younger firms;

- The firms that generate more profits have also contributed more to saving developments, as would be expected;

- Finally, more indebted firms have significantly increased their saving effort. This increase in the accumulation of internal resources is consistent with the deleveraging process still under way in the Portuguese economy. These firms are converging gradually to a more balanced financing structure.

The analysis of microeconomic data at firm level also helps to identify the destination of the resources accumulated through retained earnings: in addition to reducing external indebtedness, they may essentially be directed to investment in fixed assets or accumulation of cash holdings, thus reflecting precautionary saving. According to the analysis made in this Special issue, the increase in saving is chiefly associated with a rise in investment. Since there may be some time lag between the accumulation of saving and the materialisation of the investment decisions, this ratio may result in positive developments in investment by Portuguese firms in the near future.

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Notes

1. The Special issue 'An interpretation of household saving rate developments in Portugal' of the *Economic Bulletin*, May 2016, presents an in-depth analysis of household saving rate developments.

2. The concept used is that of gross saving, which is closer to the concept used in the National Accounts.

3. The quintiles of a population, according to a given variable, correspond to five groups of 20 per cent of the population, and are formed by grouping the population in ascending order of that variable. Therefore, the first quintile of saving is formed by 20 per cent of the firms which save the least, successively until the fifth quintile.

4. The average saving rate is calculated as a weighted average of the individual saving rate (weights being total assets).

5. The dividends correspond to the item 'distribution of profits' when reporting the distribution of income. The amendments introduced in the accounting system in 2010 imply some loss of data comparability as regards dividends and therefore this limitation should be taken into account when analysing this variable.

6. EBITDA is the acronym for *earnings before interest, taxes, depreciation and amortisation*.

7. The sectors of economic activity are defined according to NACE second level.

8. In the case of the dividend/GVA ratio, the observations where the ratio is below the first percentile were not excluded, as it would imply excluding all observations where dividends are zero, which correspond to more than 95 per cent of the sample.
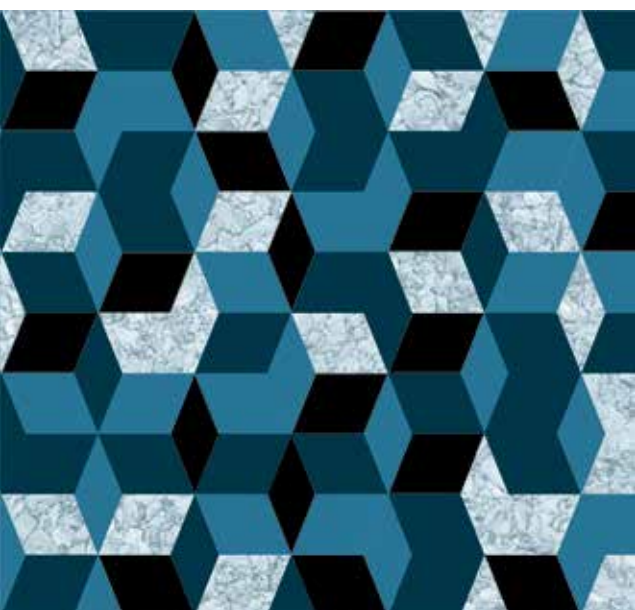
III
Series

Quarterly series for the Portuguese economy: 1977-2016

Annual series on household wealth: 1980-2016

Quarterly series for the Portuguese economy: 1977-2016

As in previous years, this section discloses the update of the quarterly long series for the Portuguese economy. These series are distributed in three blocks: expenditure, disposable income and labour market.

The dataset released in this Bulletin presents the same breakdown as the previous ones and includes, for the first time, quarterly figures for 2016.[1] The data is consistent with the latest version of the Quarterly National Accounts published by Statistics Portugal on 31 May 2017 and closely follows the methodological procedures described in detail in Cardoso and Sequeira (2015).[2]

As regards the main expenditure components, the series for the period from 1995 onwards match the quarterly data released by Statistics Portugal, both at current prices and in volume (chain-linked volume data with reference year 2011).

In turn, disposable income series are seasonally and calendar effects adjusted (whenever a seasonal pattern was identified), and for this reason, for the period from 1999 Q1 onwards, they may differ from the ones published by Statistics Portugal (in the Quarterly Sector Accounts).

In the labour market block, series are arranged according to two different measures: full-time equivalent (National Accounts concept) and thousands of individuals (Labour Force Survey concept). Note that the series measured in thousands of individuals, as well as the unemployment rate series, only differ from those published in the Labour Force Survey due to seasonal adjustments.

In general, seasonal adjustments were performed using the X13-ARIMA procedure (via the *JDemetra+* software).

Notes

1. Quarterly series for the 1977-2016 period are only available in electronic format on Banco de Portugal's webpage for this *Economic Bulletin*.

2. Cardoso, F. and Sequeira, A. (2015), *Quarterly series for the Portuguese economy: 1977-2014*, *Occasional Paper* No 1, Banco de Portugal.

Annual series on household wealth: 1980-2016

The annual series on household wealth, for the period from 1980 to 2016, correspond to an update of the estimates published in the *Economic Bulletin* of June 2016. These wealth estimates, published annually,[1] include the financial component (assets and liabilities) and housing (the main component of non-financial wealth). The concepts and methodology are identical to those described in Cardoso, Farinha and Lameira (2008).[2]

The financial series (assets and liabilities) presented here are consistent with the latest version of national financial accounts published by Banco de Portugal, which are available for the 1994-2016 period. The financial series for the period before 1994 were estimated using the implicit rates of change in the previous wealth series and obtained in accordance with the methodology described in detail in Cardoso and Cunha (2005).

The methodology used to estimate housing wealth is based on a method normally used to calculate capital stock estimates – the perpetual inventory method. This method involves, first, successively accumulating fixed capital investment (in this case, in housing), postulating reasonable hypotheses for its service life and depreciation method.

The series on housing wealth was adjusted, by benchmarking 2014 on an estimate for housing wealth, incorporating the value of household wealth in housing from the Eurostat database for that year. Estimates made available by Eurostat do not include the value of land underlying housing (which is included in the wealth series published here). That value was estimated for the year under review. In order to estimate the value of land, we considered the ratio defined for tax purposes (regarding housing evaluations for the IMI - municipal property tax), which corresponds to 25% of the housing overall value. The total value thus obtained is a one-off estimate of housing wealth for the year 2014, while the other years are calculated in compliance with rates of change implicit in the series updated with the usual methodology, based on long series of GFCF in housing. The long series of GFCF in housing used to calculate the respective housing stock include the latest national accounts data (for the 1995-2016 period).

Notes

1. The series are only available in electronic format on Banco de Portugal's website.

2. Cardoso, F., Farinha, L. and Lameira, R. (2008), *Household wealth in Portugal: revised series*, *Occasional Paper No 1*, Banco de Portugal. This publication corresponds to the revised series previously published in Cardoso, F. and Cunha, V. (2005) *Household wealth in Portugal: 1980-2004, Working Paper No 4*, Banco de Portugal, where the calculation methodology is described in more detail.