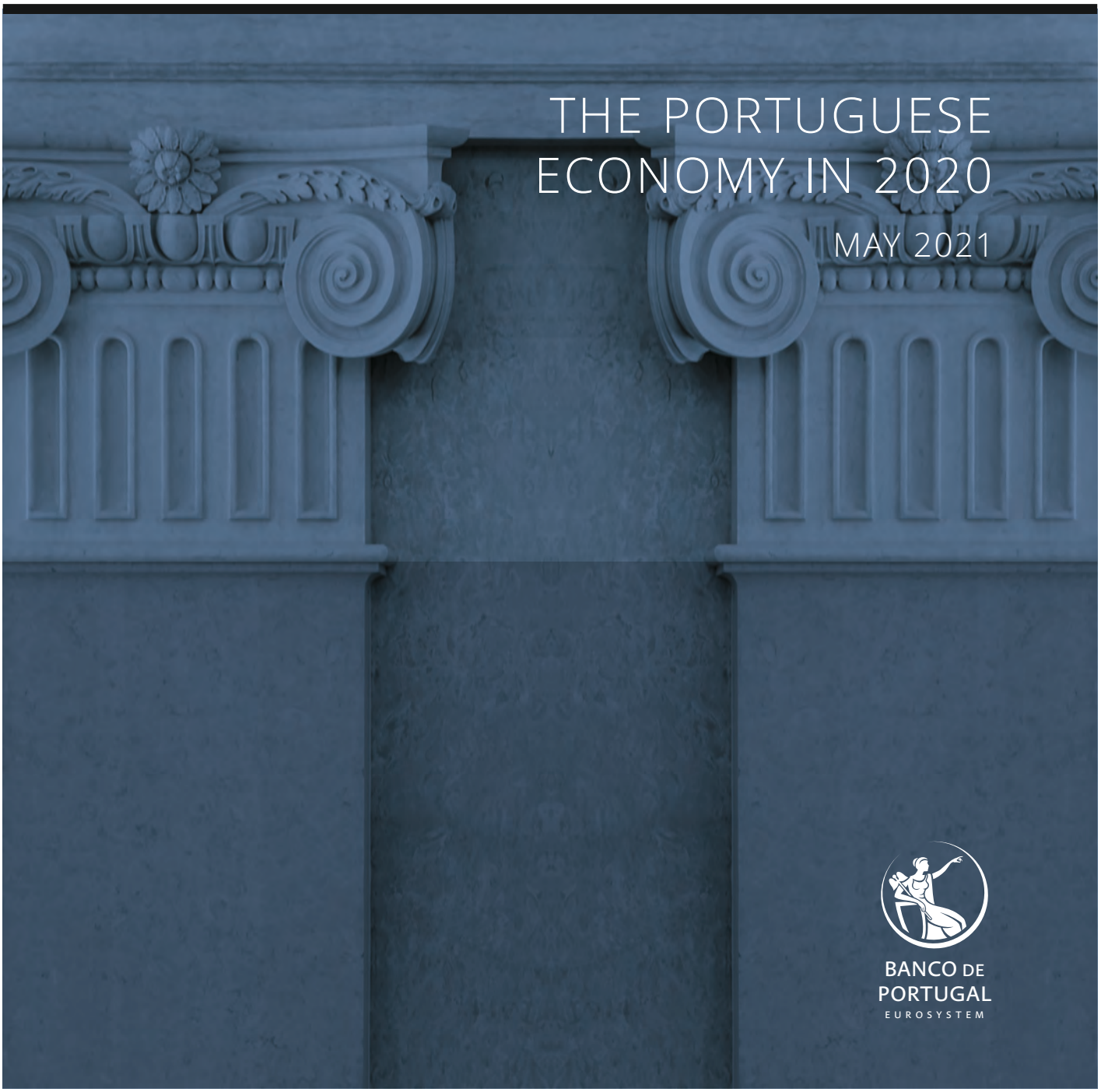
ECONOMIC BULLETIN



THE PORTUGUESE ECONOMY IN 2020

MAY 2021

BANCO DE PORTUGAL
EUROSYSTEM

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1 Overview

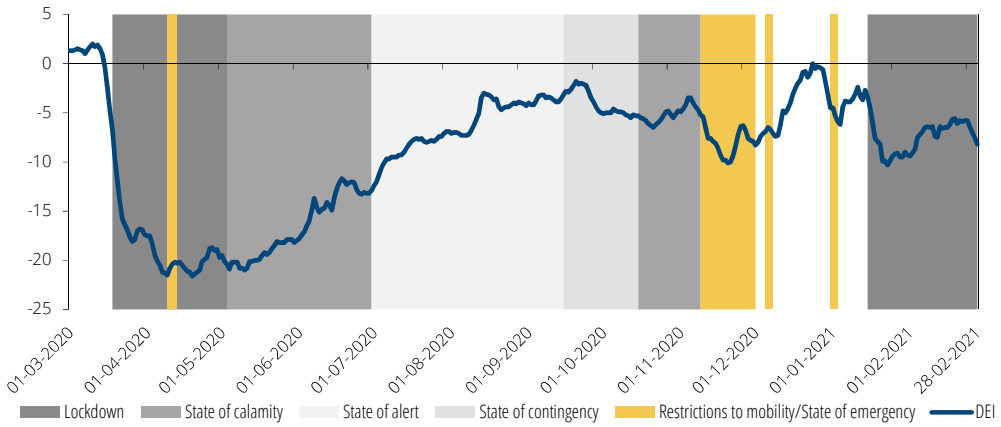
2020 was marked by the shock of the COVID-19 pandemic. The outbreak of the novel coronavirus (COVID-19), which originated in China at the end of 2019, spread rapidly and led to a global public health crisis. On 11 March 2020, the World Health Organisation declared COVID-19 a pandemic.

In Portugal, after seven years of consecutive growth, official estimates point to a drop in activity of 7.6% in 2020, deeper than the 6.8% drop in the euro area, mainly reflecting greater exposure to tourism. The Portuguese economy was affected by simultaneous supply and demand disruptions. On the supply side, the suspension of a number of activities, the partial or total closure of firms and the closure of borders led to disruptions in production and distribution chains. On the demand side, the contraction in external demand was particularly important, especially in tourism, and, to a lesser extent, the drop in private consumption induced by fears of contagion, containment measures and high uncertainty. Following a contraction in the second quarter, goods exports recovered in the second half of the year and gained market share. In turn, at the end of the year, tourism exports were still 60% below the level recorded at the end of 2019. In contrast to previous recessions, investment was robust, particularly in construction. Gross fixed capital formation (GFCF) in machinery and equipment and transport equipment declined; more negative developments in the latter component are partly related to the drop in tourism.

Activity showed a marked intra-annual profile, constrained by developments in the pandemic and lockdown measures. The sharpest fall in activity was observed during the first lockdown (Chart I.1.1). In contrast, when public health conditions improved and restrictions eased, activity rebounded quickly, although only partially. Activity was more buoyant in the third quarter and the end of the year.

The maintenance of favourable financing conditions and support measures to firms and households mitigated the impact of the pandemic shock. Among direct measures, subsidies to firms – namely the simplified layoff and the extraordinary incentive for the normalisation of activity – and the deferral of tax obligations were particularly important. The accommodative monetary policy of the European Central Bank helped maintain favourable financing conditions for Portuguese banks and their transmission to the economy.

Chart I.1.1 • Daily Economic Indicator (DEI) | Year-on-year percentage change



Sources: Banco de Portugal and legislation. | Notes: DEI is normalized so that its quarterly value has the same mean and standard deviation of the GDP quarterly year-on-year change over the last years. The data correspond to weekly moving averages. For further details, see Lourenço and Rua (2020), "The DEI: tracking economic activity daily during the lockdown", Banco de Portugal *Working Paper* No 13 and Lourenço and Rua (2021), "The Daily Economic Indicator: tracking economic activity daily during the lockdown", *Economic Modelling (forthcoming)*.

State-guaranteed credit lines and the moratorium regime enabled corporations to meet liquidity needs. Around 40% of new loans of over one year to corporations were granted under the public guarantee regime either to meet immediate liquidity needs or build up reserves. The moratorium regime, promptly introduced in March 2020, made it possible to suspend the payment of instalments or defer credit to be paid at the end of the contract. Loans under moratoria reached 33% of the value of loans in the second quarter and this ratio remained unchanged until the end of the year.

Lending to corporations accelerated over the course of the year. The increase in new loans, mostly granted by resident institutions, and the moratorium regime led to an increase in corporations indebtedness ratio to 134.4% of GDP, i.e. 6.2 percentage points (p.p.) more than at the end of 2019, and below the euro area average (144.6% of GDP, following an increase of 10.7 p.p.).

Loans to households slowed down in the second quarter, but grew in 2020 mainly due to the housing segment. New loans for house purchase declined in the first half of the year, but increased in the second half, while credit in this segment accelerated in the year as a whole. The fall in repayments following the start of the pandemic also contributed to these developments. In turn, consumer credit decelerated over the course of 2020, reflecting a contraction in private consumption of durable and current non-food goods and tighter credit standards.

The household indebtedness ratio increased by 0.5 p.p. to 93.1% of disposable income, but the credit moratoria mitigated households' debt service. At the end of the year, loans under moratoria covered 16.1% of the amount of loans to households (17.8% in the housing segment and 11.6% in credit for consumption and other purposes). Between March and December 2020, the value of instalments postponed under the moratorium regime accounted for 0.7% of the household disposable income.

General government interest expenditure declined for the sixth year in a row. With the exception of issuances at the start of the pandemic crisis, the downward trend in interest rates on new issuances continued. In the bond market, spreads narrowed, in particular at the longer end of the yield curve. The public debt ratio increased by 16.8 p.p. to 133.6% of GDP at the end of the year. In the euro area, this ratio rose by 14.1 p.p. to 98% of GDP. In Portugal, a budgetary deficit of 5.7% of GDP, an accumulation of deposits of 4.6% of GDP and a 7.6% contraction in GDP were the main factors behind this increase.

The income loss in the economy was very heterogeneous across institutional sectors and highly concentrated in the general government. National disposable income fell by 4.3% in nominal terms. The general government sector bore approximately 85% of this loss via automatic stabilisers and discretionary support measures equivalent to 3% of GDP. For corporations, these measures did not offset all the business losses and their gross disposable income fell by 11.4%. For households, disposable income increased by 1%, with similar contributions from compensation of employees and from social benefits and other current transfers.

The household savings rate reached 12.8% of disposable income, its highest level since 2002. Subdued growth in disposable income, together with the sharp fall in private consumption, implied an increase of 5.7 p.p. in the household savings rate. This reflects a cautious behaviour of households amid uncertainty and involuntary saving due to restrictions on consumption.

The impact of the pandemic on firms differed widely across sectors of activity. The decline in production in arts and recreation, trade, accommodation and food, transportation and storage,

and professional services exceeded 12.5% in volume. These sectors were the ones that saw the highest increase in the use of credit and benefited the most from support measures. In contrast, production grew in construction or information and communication activities. Manufacturing recorded a higher initial fall in gross value added (GVA) than services, but recovered more rapidly in the second half of the year.

Employment safeguards helped contain the decline in employment at 2%, less than a third of the 6.4% drop in GVA. However, the number of actual hours worked experienced an unprecedented fall (9.2%), which resulted in an increase in productivity per hour worked. Among the measures aimed at preserving employment, the simplified layoff was particularly important, covering approximately 25% of employees. For the self-employed and family workers, the fall in employment and hours worked was more pronounced, in particular in sectors more exposed to the crisis and for younger individuals with lower qualifications. In contrast, there was an increase in the number of workers with open-ended contracts, aged 45 and over, and with tertiary education. Given the increase in inactivity, the unemployment rate rose by only 0.3 p.p. to 6.8%, but the labour underutilisation rate, a broader measure of the slack in the labour market, increased by 1.2 p.p. to 13.9%.

Average compensation per worker increased by 3% in 2020. This resulted from the composition effect usually observed in recessive periods – with sharper drops in employment for less skilled workers with lower wages – and from the increase in the national minimum wage. Conversely, discretionary measures supporting employment and increased flexibility in employment contracts between firms and workers preserved employment, but led to a decline in compensations.

The pandemic context was also marked by a drop in inflation. The inflation rate declined to -0.1% (0.3% in 2019), mainly reflecting developments in energy and services prices. Only food prices rose sharply, owing to increased demand, supply disruptions and an increase in the international prices of these commodities.

The Portuguese economy's net lending declined. The current and capital accounts balance stood at 0.1% of GDP (1.2% in 2019). The deficit of external trade in goods declined to 6% of GDP. In contrast, developments in tourism and international transport resulted into a decline in the surplus in the services account and led to a current account deficit of 1.2% of GDP, in contrast to the average surplus of 0.5% observed in 2018 and 2019. In turn, the capital account balance increased to 1.3% of GDP, owing to inflows of European Union funds. At the end of 2020, Portugal's international investment position remained practically unchanged in nominal terms, but deteriorated as a percentage of GDP to -105.4% (-100.5% in 2019).

2 External environment

Global economic activity experienced a sharp and synchronised contraction of 3.3% induced by the COVID-19 pandemic, unprecedented in the period since the Second World War (Table I.2.1).

Table I.2.1 • Gross domestic product | Year-on-year rate of change, percentage

	2016	2017	2018	2019	2020
World	3.3	3.8	3.6	2.8	-3.3
Advanced economies	1.8	2.5	2.3	1.6	-4.7
United States	1.7	2.3	3.0	2.2	-3.5
Japan	0.7	1.7	0.6	0.3	-4.9
Euro area	1.8	2.7	1.9	1.3	-6.8
Germany	2.1	2.9	1.3	0.6	-5.3
France	1.0	2.4	1.8	1.5	-8.2
Italy	1.4	1.7	0.8	0.3	-8.9
Spain	3.0	3.0	2.4	2.0	-10.8
United Kingdom	1.7	1.7	1.3	1.4	-9.8
Emerging Market and Developing Economies	4.5	4.8	4.5	3.6	-2.2
Emerging and Developing Europe	1.9	4.1	3.4	2.4	-2.0
Russia	0.2	1.8	2.8	2.0	-3.1
Emerging and Developing Asia	6.8	6.6	6.4	5.3	-1.0
China	6.9	6.9	6.7	5.8	2.3
India	8.3	6.8	6.5	4.0	-8.0
Latin America and the Caribbean	-0.6	1.3	1.2	0.2	-7.0
Brazil	-3.3	1.3	1.8	1.4	-4.1
Middle East and Central Asia	4.7	2.5	2.0	1.4	-2.9
Sub-Saharan Africa	1.5	3.1	3.2	3.2	-1.9

Sources: Eurostat, IMF and Refinitiv.

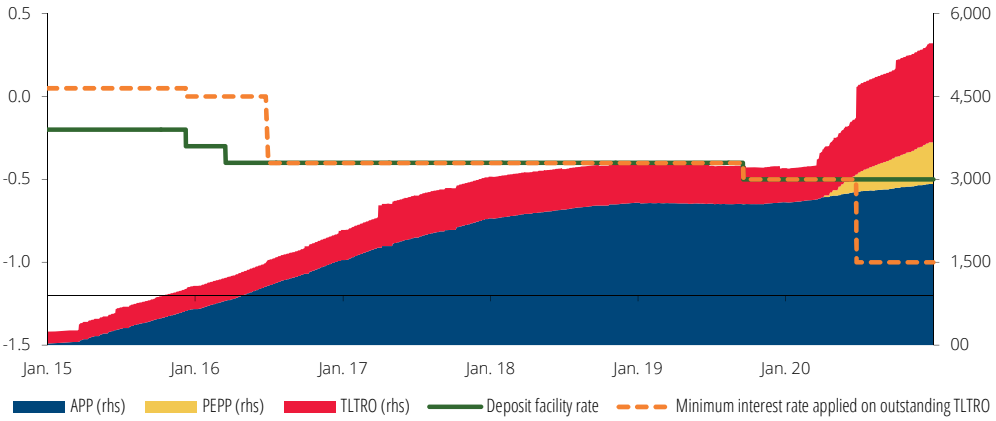
The response of economic policies in most countries mitigated the effects of the pandemic shock. The measures taken by monetary, supervisory and fiscal authorities contained the economic effects of the shock and paved the way for the recovery in activity.

The decisions of monetary and supervisory authorities prevented disruptions in financial markets and supported lending to the economy. In some cases, the reductions in official interest rates, asset purchases and liquidity-providing operations were coordinated among central banks. Supervisory authorities eased the regulatory framework, including compliance with capital and liquidity requirements and the prudential and accounting treatment of loans under moratoria.

The European Central Bank (ECB) maintained a negative policy rate, increased the amounts and flexibility of its asset purchases and provided ample liquidity to the banking system under very attractive conditions (Chart I.2.1). In March, the asset purchase programme (APP) was expanded with a temporary envelope of €120 billion until the end of the year and a new temporary pandemic emergency purchase programme (PEPP) was created, to be conducted in a flexible manner over time, across asset classes and among jurisdictions. The PEPP was designed to stave off risks to the transmission of monetary policy and increase the degree of monetary accommodation. The initial PEPP envelope and maturity (€750 billion, at least until December 2020) were expanded in June and December (to €1,850 billion, at least until March 2022). In December, it was announced that the envelope might not be used in its entirety depending on the financing conditions prevailing in the euro area.

To ensure ample liquidity to euro area banks, the ECB decided to: (i) recalibrate the targeted longer-term refinancing operations (TLTRO III), (ii) offer additional non-targeted longer-term refinancing operations, including a new series of pandemic emergency longer-term refinancing operations (PELTROs) and (iii) temporarily relax the eligibility criteria and risk control measures applied to collateral. The cost of funding of the TLTRO III may go as low as 50 basis points (b.p.) below the deposit facility rate in the period between June 2020 and June 2022. The amounts allotted in the TLTRO III operations in 2020 totalled €1,648 billion, 80% of which in the operation conducted in June.

Chart I.2.1 • ECB monetary policy: interest rates, asset purchase programmes and TLTRO
| Per cent and billion euros



Source: ECB.

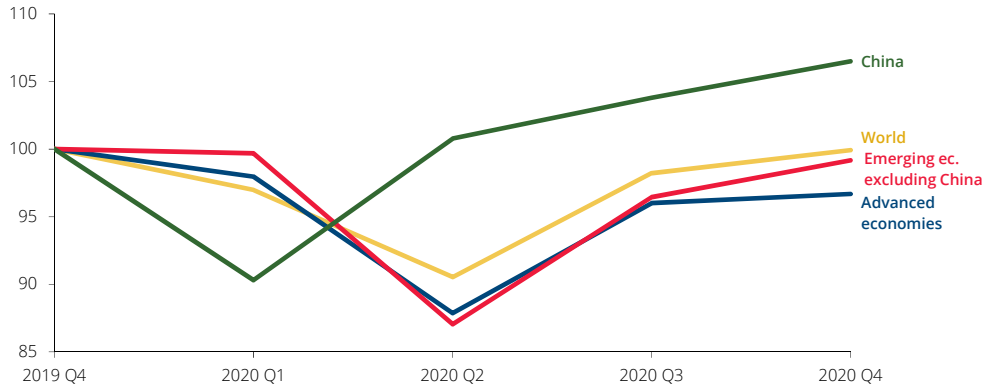
National and supranational fiscal policy measures ensured the functioning of health systems and safeguarded the productive capacity and income of households. In April, the European Union announced a set of measures to an amount of approximately 4% of GDP, including health spending, financing through the European Investment Bank focusing on small and medium-sized enterprises and an instrument for temporary Support to mitigate Unemployment Risks in an Emergency (SURE). In July, a temporary recovery instrument, the Next Generation EU, was agreed, to the amount of €750 billion (approximately 6% of the EU's GDP), which for the most part corresponds to the Recovery and Resilience Facility. The governments of euro area countries adopted discretionary stimulus measures totalling around 4% of the euro area's GDP. In addition, the State guarantees announced, which are contingent liabilities, accounted for approximately 17% of the euro area's GDP.

Global activity recorded an unprecedented contraction in the first half of 2020 and recovered in the second half. Economies were affected unequally, partly reflecting developments in the pandemic and the severity of related containment measures. While the Chinese economy was affected at the start of the year and began recovering in the second quarter, the shock had a greater impact on the other countries from March onwards (Chart I.2.2). The second half of the year was characterised by a recovery.

Activity in the euro area declined by 6.8% in 2020. Following the quarter-on-quarter falls in GDP in the first two quarters (3.8% and 11.6% respectively), the economy rebounded in the third quarter (12.5%) and recorded a new fall in the fourth quarter (0.7%). At the end of 2020, GDP stood approximately 5% below its pre-pandemic level. The contraction in activity was broadly based across sectors, but more marked in services more reliant on person-to-person contact

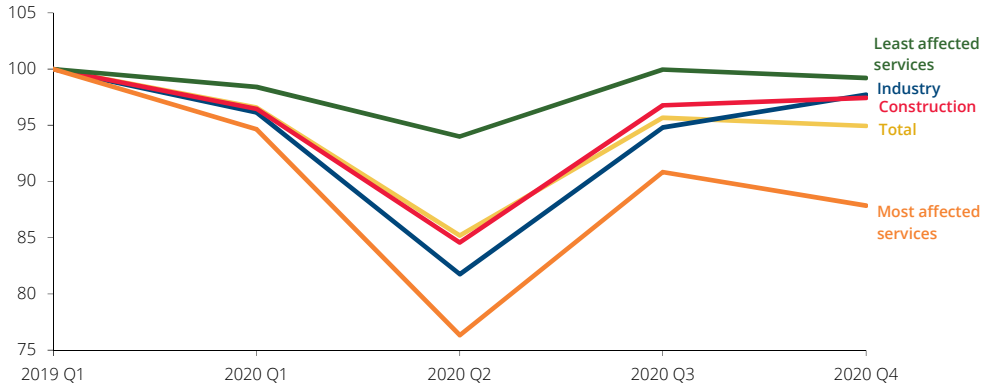
(Chart I.2.3). Private consumption experienced an unprecedented decline, which was higher than that of GDP (8.1%). The economic impact of the pandemic was mixed across euro area countries, reflecting differences in their exposure to the sectors most affected by social distancing, the intensity of the pandemic crisis and the support measures adopted. The contraction in activity in Spain, Italy and France was more pronounced than in Germany (an annual average rate of change of -10.8%, -8.9%, -8.2% and -5.3% respectively).

Chart I.2.2 • GDP in major countries | Index 2019 Q4 = 100



Source: Refinitiv (Banco de Portugal calculations).

Chart I.2.3 • GVA by sector in the euro area | Index 2019 Q4 = 100



Source: Eurostat (Banco de Portugal calculations). | Note: Most affected services by the pandemic include arts and recreation, trade, food services and accommodation, transportation and storage and activities provided to firms.

The pandemic crisis had a negative impact on the labour markets of the main advanced economies, the nature and magnitude of which reflected the support measures adopted. While in the United States support measures strengthened social protection during unemployment, preserving employment flexibility, the euro area mostly adopted measures to support job retention. As a consequence, employment declined less and the number of hours per worker declined more in the euro area than in the United States. Hours worked decreased by 8% and employment recorded a contraction of 1.6% in the euro area (5.4% and 6.2%, respectively, in the United States).

Global trade declined by 8.5% in 2020, but less than during the global financial crisis (10.4%). In the first half of the year, trade was affected by a drop in global demand and by constraints in

production and supply chains across countries. The rebound in the second half reflected the composition of the pick-up in activity, which was swifter in manufacturing (Chart I.2.3). At the end of the year, global trade in goods was already above the levels seen at the end of 2019. Trade in services was particularly affected, especially due to the collapse in tourism.

External demand for Portuguese goods and services declined by 12.3% in 2020. Imports from Spain and the United Kingdom (trading partners with shares of 19.7% and 9.4% in Portuguese exports) fell by 15.8% and 17.8% respectively (Table I.2.2). At the end of 2020, the United Kingdom and the EU finalised the Trade and Cooperation Agreement, which should mitigate the impact of Brexit on the trade relations between the United Kingdom and Portugal.

Table I.2.2 • External demand for Portuguese goods and services | Year-on-year rate of change, percentage

	Weights [c]	2016	2017	2018	2019	2020
External demand of goods and services (ECB) [a]	100	2.9	4.8	4.0	1.6	-12.3
Intra euro area external demand	57.7	3.4	5.8	3.7	2.3	-12.2
Imports:						
Spain	19.7	2.6	6.8	4.2	0.7	-15.8
France	12.7	3.0	4.7	3.1	2.6	-11.5
Germany	10.9	4.4	5.8	3.8	2.6	-9.0
Italy	3.3	4.1	6.6	2.8	-0.5	-13.1
Extra euro area external demand	42.3	2.4	3.4	4.4	0.8	-12.4
Imports:						
United Kingdom	9.4	3.9	2.6	2.7	2.7	-17.8
United States	6.0	1.7	4.7	4.1	1.1	-9.3
China	2.6	-10.4	7.2	7.0	1.1	-13.8
Brazil	1.8	4.0	6.7	6.1	-1.6	-1.8
External demand of goods (CPB) [a] [b]		2.5	3.4	1.6	0.1	-9.2
World trade of goods and services (IMF)		2.3	5.6	3.9	0.9	-8.5
World imports of goods (CPB)		1.6	5.2	3.9	-0.3	-5.5

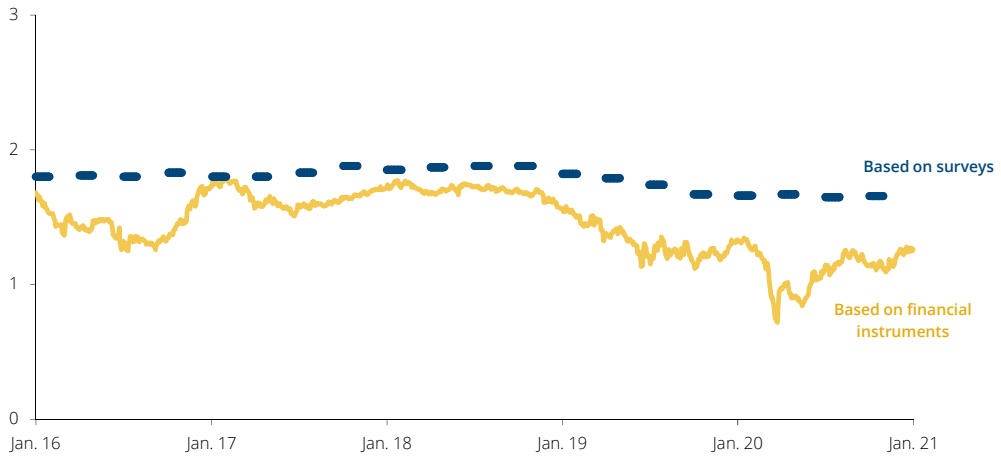
Sources: ECB, CBP Netherlands Bureau for Economics Analysis, IMF and Refinitiv (Banco de Portugal calculations). | Notes: (a) Computed by the ECB as the weighted average of imports volumes of the main trading partners of Portugal. Each country/region is weighted by its share in Portuguese exports (goods and services in case of the ECB and goods in case of the CBP). Each country/region is weighted by its share in Portuguese exports. (b) Available countries in the CBP database, representing around 90% of Portuguese exports in 2020. (c) Average weights over the period 2016-18.

The crisis implied a sharp drop in oil prices in international markets, but the prices of food and agricultural commodities increased. The price of Brent oil dropped to below USD 20 per barrel in April, the lowest in nearly two decades, but reached approximately USD 50 per barrel at the end of the year. In annual average terms, the price of Brent oil declined by 34%. The prices of food and agricultural commodities (assessed by the index of the Hamburg Institute of International Economics – HWWI, in USD) increased by 8% and 6% respectively. The price of industrial metals also rose sharply in the second half of the year. The price of precious metals increased over the course of the year.

Inflation decreased in the main advanced economies. Although the pandemic crisis originated negative shocks on supply and demand, the effects of the fall in demand were predominant in the euro area and inflation dropped by 0.9 p.p. in 2020 to 0.3% (Box 1). Services inflation dropped by 0.5 p.p. to 1% and energy inflation fell by 8 p.p. to -6.8%. Longer-term inflation expectations

remained low in 2020, although expectations implied in financial instruments recovered over the course of the year from the low levels observed in March (Chart I.2.4).

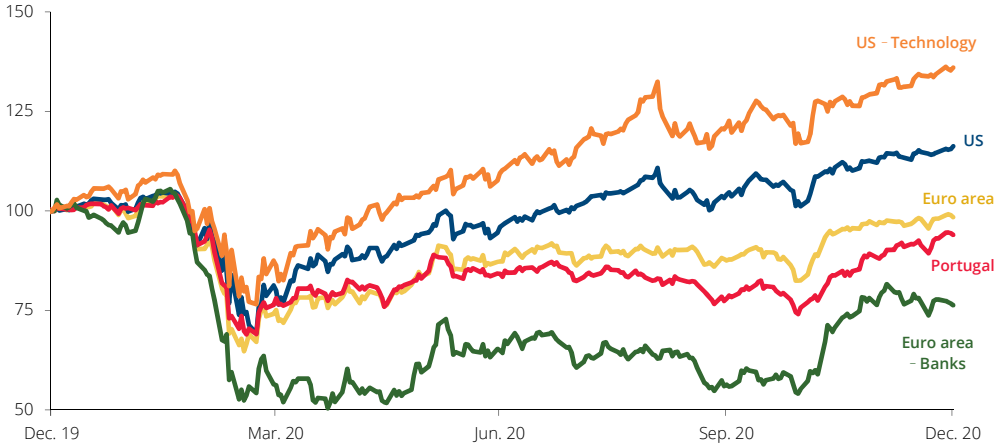
Chart I.2.4 • Long term inflation expectations in the euro area | Per cent



Sources: ECB and Refinitiv (Banco de Portugal calculations). | Note: Expectations for average inflation rates based on inflation swaps (5 year period 5-years ahead) and private analysts expectations of the ECB Survey of Professional Forecasters (in the horizon of 4/5 years).

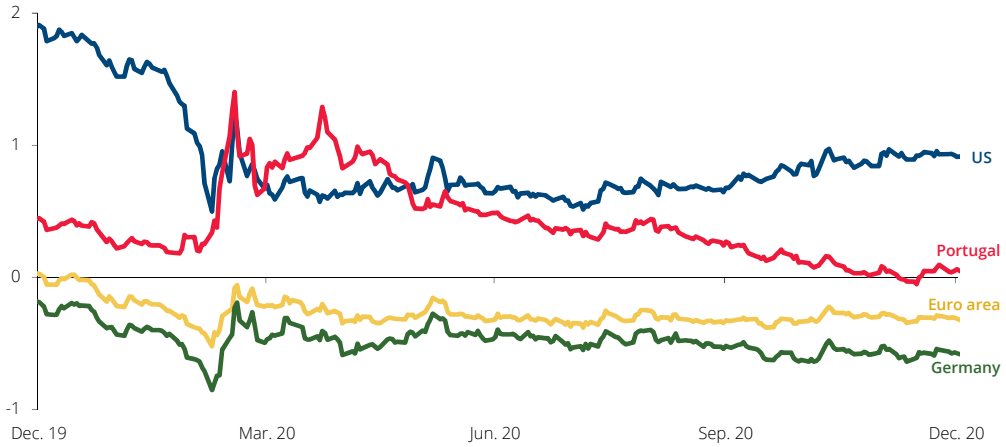
Financial conditions remained favourable. Following an abrupt fall in equity prices in mid-March, with volatility reaching record highs, the main stock markets experienced increases amid a more favourable outlook for activity and encouraging news regarding vaccines at the end of the year. A number of countries and sectors enjoyed significant gains when comparing year-ends, in particular the United States and technology sectors (Charts I.2.5). Government bond yields recorded a downward trend against a background of risk aversion and strengthening of the accommodative monetary policy stance. In the euro area, after the tensions observed in March, there was a fall in the risk-free interest rate and the spreads of government bond yields across jurisdictions (Chart I.2.6). In foreign exchange markets, the euro fell to a record low against the USD dollar in March, but appreciated thereafter. In nominal effective terms, the euro appreciated by 7.2% compared to the end of 2019.

Chart I.2.5 • Stock market indexes | Index, 31 december 2019 = 100



Sources: ECB and Refinitiv.

Chart I.2.6 • 10-year risk free interest rates (OIS) and sovereign bonds | Per cent



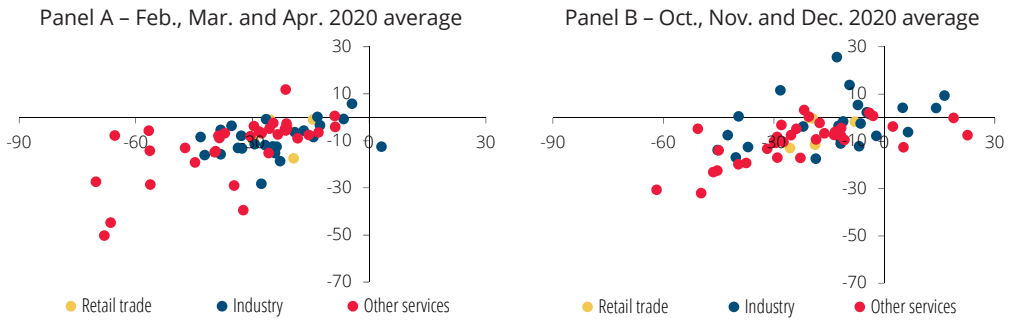
Sources: ECB and Refinitiv. | Note: OIS (Overnight Index Swaps).

Box 1 • Developments in inflation and the pandemic: demand shocks versus supply shocks

The pandemic crisis generated supply and demand shocks, with opposite sign impacts on inflation. The reduction in social interaction, whether voluntary or as a result of containment measures, coupled with increased uncertainty, led to lower demand for goods and services. This may have induced firms to lower prices. The mandatory shutdown of some activities and the closing of borders led to disruptions in production and distribution chains, which tended to decrease supply and raise prices. Adapting the functioning of businesses to the pandemic context may also have led to the pass-through of higher costs to final prices.

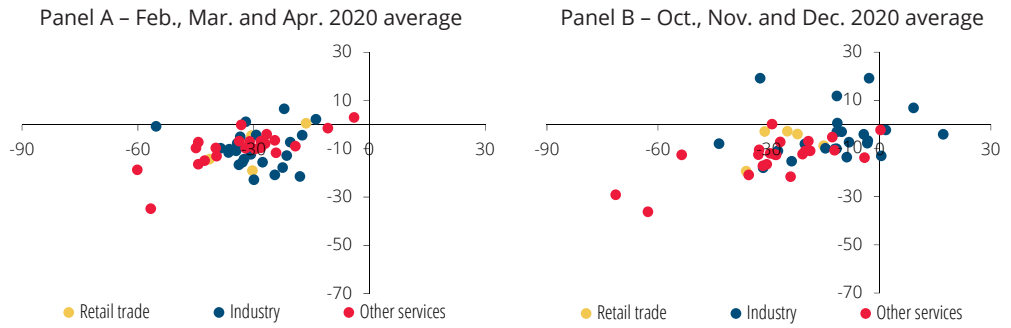
An analysis based on business survey results suggests that demand shocks were dominant in most sectors of activity in Portugal and the euro area. The European Commission's monthly surveys allow for the analysis of firms' expectations about developments in demand and prices. The analysis suggests a predominance of demand shocks (identified by a change of identical sign in price and demand expectations) in the period from February to April, with negative expectations for both demand and price developments relative to the average over the two previous years. In the fourth quarter, these shocks appear to have had a less significant impact, in particular on industry (Charts C1.1 and C1.2).

Chart C1.1 • European Commission surveys for Portugal – deviations from the 2018/2019 average | X-axis – Evolution of demand expected over the next 3 months; Y-axis – Selling price expectations over the next 3 months



Source: European Commission (Banco de Portugal calculations). | Note: Each point represents a subsector at the most disaggregated level available (63 subsectors in total).

Chart C1.2 • European Commission surveys for the euro area – deviations from the 2018/2019 average | X-axis – Evolution of demand expected over the next 3 months; Y-axis – Selling price expectations over the next 3 months

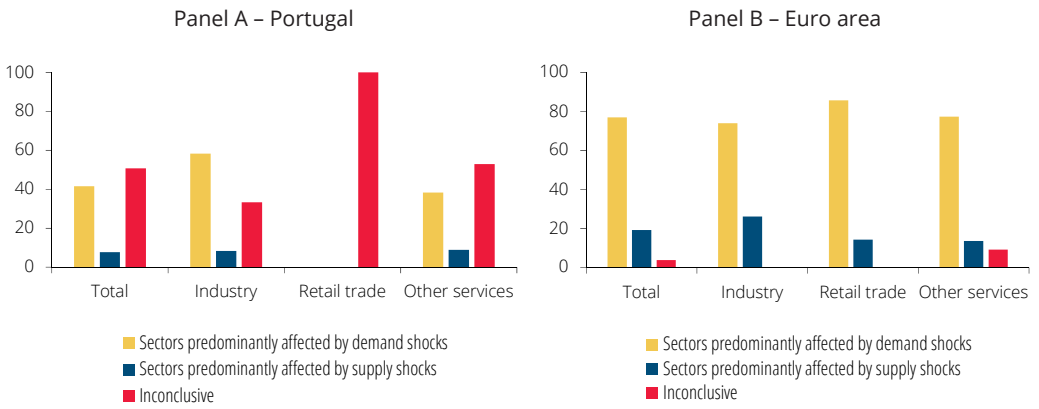


Source: European Commission (Banco de Portugal calculations). | Note: Each point represents a subsector at the most disaggregated level available (50 subsectors in total).

These results were also assessed through the econometric approach of Shapiro (2020a, 2020b).[1] Seemingly Unrelated Regression (SUR) models were estimated for prices and quantities in each of the sub-sectors. The agreement of the impact of the crisis months on price and demand expectations is analysed. If the impact on the two variables has the same sign, we conclude that demand shocks prevail.

Econometric results were clearer about the prevalence of demand shocks in the euro area (Chart C1.3). For Portugal, the share of sub-sectors where there was no predominance of demand or supply shocks (inconclusive) was higher than in the euro area.

Chart C1.3 • Sectors predominantly affected by supply and demand shocks | Percentage of total for each sector

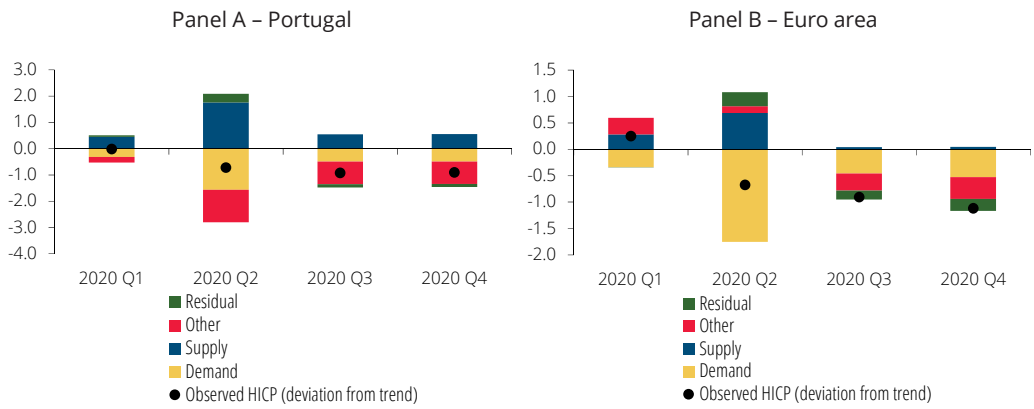


Source: European Commission (Banco de Portugal calculations). | Notes: The classification on which shock is dominant in each subsector depends on the sign of the coefficient in each equation associated with a dummy variable, equal to one between February and April 2020. If the sign associated with the pandemic event is concordant in the equation of prices and quantities and significant, we are facing a demand shock, otherwise the onset of the pandemic in this sector was characterized by a supply shock. In case of non-significance, the prevailing shock is indeterminate. We chose to include in this class only the subsectors whose response to the pandemic shock is not significant at 5% in the quantities equation, since in the case of prices the overwhelming majority of coefficients are non-significant (possibly due to greater rigidity in the response to the shock). Considering a significance level of 10%, the results hold. The result of a predominance of demand shocks is confirmed by the results of BVAR (Bayesian Vector Autoregressive) models, which add to the SUR equations lags of both dependent variables.

An analysis at aggregate level supports the conclusions for the euro area, but points to balanced demand and supply effects for Portugal. This issue was also analysed using a BVAR estimated with sign restrictions based on an approach proposed by the ECB (2021b)[2] where the strategy for identifying demand and supply shocks used in this box was maintained. The results suggest significant impacts of demand shocks in the second quarter, but also important supply shocks (which were stronger than in the past). These were particularly relevant in Portugal, with a magnitude close to that of demand shocks. Both types of shock progressively lost importance in the following quarters (Chart C1.4).

1. Shapiro, A. H. (2020a), "A Simple Framework to Monitor Inflation", *Working Paper Series* 2020-29, Federal Reserve Bank of San Francisco. Shapiro, A. H. (2020b), "Monitoring the Inflationary Effects of COVID-19," *FRBSF Economic Letter* Vol. 2020(24), Federal Reserve Bank of San Francisco, pp. 1-6, August.
2. Bobasu, A., Crucil, L., Dieppe, A. and Tirpák, M. (2021), "Pandemic-induced constraints and inflation in advanced economies," Boxes of the *Economic Bulletin*, European Central Bank, Vol. 1.

Chart C1.4 • Historical decomposition of the HICP on the basis of a BVAR model



Sources: Banco de Portugal, ECB and Statistics Portugal. | Notes: The BVAR model contains the quarterly log levels of GDP, HICP and oil prices in euros and the level of the short-term interest rate (3-month Euribor). A set of identifying signal constraints standard in the literature was used: a demand shock moves prices and output in the same direction, while a supply shock moves them in opposite directions. An oil price shock increases inflation and decreases GDP, but oil prices do not react to interest rate shocks. Tighter monetary policy reduces GDP and HICP. The restrictions apply to the contemporaneous impact of the shocks. The "other" shock includes the monetary policy shock and the oil price shock. The residual reflects the fact that the contributions do not sum exactly because they are based on the median value of the shocks. A Normal-Wishart prior was considered, with the following parameterization: λ_1=0.05, λ_2=0.5, λ_3=1, λ_4=100, λ_5=0.001 and λ_6=1 and λ_7=0.0001, 2000 iterations and burn-in of 1000. The model was estimated from 2002 to 2019, thus excluding 2020 in order to avoid the perturbations to the estimation of the model created by the pandemic. The estimation was done with the Matlab BEAR toolbox (Dieppe, A., Legrand, R. and van Roye, B., "The BEAR toolbox", *Working Paper Series*, No 1934, ECB, July 2016). A special thank you note to the authors of BCE (2021a), for sharing some of the code underlying their paper.

3 Financing conditions

The ECB's accommodative monetary policy helped to maintain favourable financing conditions for Portuguese banks. The liabilities of resident banks increased throughout the year, reaching a year-on-year rate of change of 8.3% in December (Table I.3.1). Non-financial private sector deposits and central bank funding made a contribution of 5.5 p.p. and 4 p.p. respectively. The partial replacement of market financing by targeted longer-term refinancing operations (TLTRO III) helped to improve banks' financing conditions.

Table I.3.1 • Contributions to the year-on-year rate of change of resident banks' liabilities | Percentage and percentage points

	2018 Q4	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4
Liabilities (yoy)	1.5	0.9	2.6	6.3	6.0	8.3
Non-financial private sector deposits	2.7	2.7	3.4	4.8	4.8	5.5
Interbank liabilities	1.6	0.3	0.8	-0.3	-0.9	-1.1
Central bank funding	-0.8	-0.6	0.2	3.4	3.7	4.0
Debt securities	-0.1	0.7	0.9	1.6	1.2	0.9
Other liabilities	-1.9	-2.3	-2.7	-3.3	-2.8	-1.0
Memo:						
Bank deposits (annual rate of change)						
Households – Portugal	3.8	3.7	5.0	6.2	7.0	8.1
Households – Euro area	4.2	5.3	5.1	6.2	6.7	7.6
Non-financial corporations – Portugal	7.4	11.1	11.5	19.0	17.5	18.0
Non-financial corporations – Euro area	3.8	6.0	8.9	17.5	19.6	19.1

Sources: Banco de Portugal and ECB.

The increase in household deposits reflected the increase in precautionary saving and the involuntary savings stemming from the constraints imposed by the self-isolation duty for the general population. The acceleration in credit granted to corporations and the issuance of debt securities were accompanied by an increase in deposits in this sector. Banks' favourable financing conditions, complemented by policies to support firms and households, enabled them to respond to the rise in credit demand and ensure the financing of the economy with broadly favourable interest rates, despite the increase in credit risk.

Interest rates on new loans to households remained low. In December, the average annual percentage rate of charge (APRC) on new loans for housing and consumption was at its lowest levels in Portugal (1.9% and 8.4%, compared to 1.6% and 5.7% in the euro area) (Table I.3.2). Despite the severe impact of the pandemic on economic activity, the spreads on new loans have not changed.

New loans to households for house purchase increased in the second half of 2020, following a decrease in the first half of the year. This decrease, particularly in the second quarter, reflected the decline in demand for housing loans and tighter credit standards (Chart I.3.1 – Panel A). In the second half of the year, new loans increased, registering a historical high since 2008 in the fourth quarter (Box 2). The increase in new loans for house purchase was accompanied by an increase in the value of transactions of housing units, with the share of transactions financed by new loans remaining close to that of the last four years (around 43%) (Table I.3.3). House prices decelerated but still grew by 8.6% year on year in the fourth quarter.

New loans to households for consumption and other purposes fell sharply in the second quarter of 2020 and recovered partially in the second half of the year. The decrease in loans for consumption and other purposes reflected lower demand and tighter credit standards stemming from a higher perception of risks associated with the general economic situation and

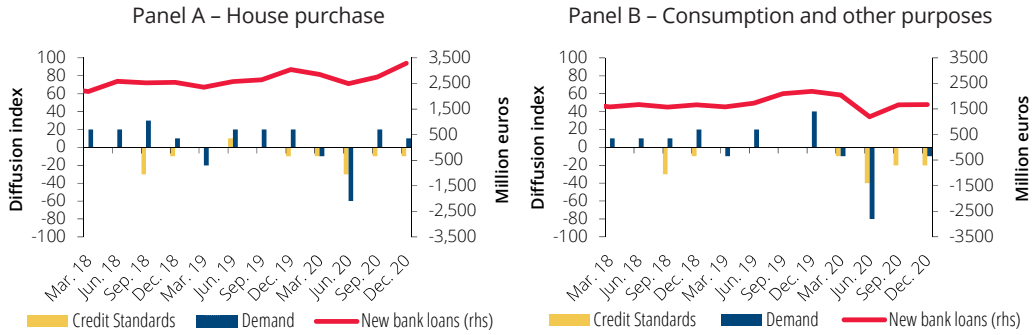
outlook (Chart I.3.1 – Panel B). This decrease was higher than in private consumption, implying a reduction in the share of consumption excluding food expenditures financed through credit (from 6% in 2019 to 4.6% in 2020).

Table I.3.2 • Interest rates on new loans to households for house purchase and consumption | Percentage and percentage points

	Dec. 19	Mar. 20	Jun. 20	Sep. 20	Dez. 20
Annual percentage rate of charge (APRC) (%)					
Loans for house purchase					
Portugal	2.0	2.0	2.2	2.1	1.9
Euro area	1.8	1.7	1.7	1.7	1.6
Loans for consumption					
Portugal	8.8	8.8	9.0	8.9	8.4
Euro area	5.9	5.9	5.6	5.8	5.7
Spread (difference between the APRC and the benchmark interest rates) (pp)					
Portugal					
Loans for house purchase	2.3	2.3	2.4	2.5	2.4
Loans for consumption	9.0	9.1	9.3	9.3	8.9

Sources: Banco de Portugal and ECB. | Notes: The annual percentage rate of charge (APRC) is the total cost of the loan for the borrower, including interest and other (related) charges. The spread is a weighted average of the difference between the APRC and the interest rate used as a benchmark for each interest rate fixation period. The benchmark interest rates are the 6-month Euribor (fixation period below 1 year), 1-year Euribor (fixation period between 1 and 5 years) and the 5-year swap rate (fixation period above 5 years).

Chart I.3.1 • New loans to households granted by resident banks and loan demand and supply



Source: Banco de Portugal. | Notes: The diffusion index ranges from -100 to 100, where 0 corresponds to "unchanged". In the case of credit standards the chart presents the additive inverse of the diffusion index. Values higher (lower) than zero mean less (more) restrictive credit standards and an increase (decrease) in loan demand.

Household bank debt increased by 1.5% from the end of 2019. The acceleration in housing loans – which in December registered the highest annual rate of change since 2011 (2%) – contributed to this increase (Table I.3.3). Consumer credit decreased from 8.3% in 2019 to 0.6% in 2020. Household indebtedness, measured by the ratio of loans to (unadjusted) disposable income, stood at 93.1%, 0.5 p.p. higher than in 2019. In the euro area, household indebtedness stood at 97.6%, 2.5 p.p. higher than in 2019.

Credit moratoria helped to alleviate households' debt servicing costs. The share of loans to households covered by a moratorium increased between March and June and remained stable in the second half of the year. In December, 16.1% of the amount of loans to households were covered by a moratorium (Table I.3.3). By credit purpose, this share was 17.8% for the housing

segment and 11.6% for consumption and other purposes (personal loans, car loans and debt consolidation). Between March and December, the total of deferred instalments under a moratorium amounted to 0.7% of households' disposable income in 2020.

Table I.3.3 • Bank loans to households: rates of change and new loans

	% of total credit in Dec. 19	Dec. 19	Mar. 20	Jun. 20	Sep. 20	Dec. 20
Annual rate of change						
Total	100.0	1.1	1.2	1.1	1.4	1.5
House purchase	78.1	0.1	0.4	0.9	1.4	2.0
Consumption	16.2	8.3	7.6	4.6	2.7	0.6
Other purposes	5.7	-1.4	-3.7	-4.2	-2.4	-1.7
New loans (million euros)						
Total	–	5232	4895	3693	4416	4960
House purchase	–	3046	2848	2493	2756	3292
Consumption	–	1497	1349	722	1152	1107
Other purposes	–	689	698	478	508	560
Loans under moratoria	–	–	1.1	16.6	17.1	16.2
House purchase (% of the segment)	–	–	1.2	17.8	18.5	17.8
New loans for house purchase/Transactions	–	41.5	42.4	43.6	43.6	43.5
New loans for consumption/Private consumption (excluding food expenditures)	–	6.0	5.5	3.4	4.9	4.6
New loans for consumption (excluding used cars) /Private consumption (excluding food expenditures)	–	4.1	3.7	2.1	2.9	2.9
Memo:						
ARC of bank loans – Euro area	–	3.6	3.4	3.1	3.2	3.1

Sources: Banco de Portugal, ECB and Statistics Portugal. | Notes: Annual rates of change are based on the relation between end-of-month outstanding amounts (adjusted for securitisation operations and sales of credit portfolios) and monthly transactions. Monthly transactions correspond to the difference in the end-of-month outstanding amounts adjusted for reclassifications, write-offs/write-downs, exchange rate and price revaluations, and any other price variations that do not correspond to financial transactions. New bank loans correspond to the 3-month accumulated amounts. Credit for consumption does not include revolving credit (credit cards, credit lines, current bank accounts and overdraft facilities), as this corresponds to ceilings rather than drawn amounts. The indicator that excludes credit for the acquisition of used cars is also reported, given that these acquisitions are not fully accounted for in private consumption.

In December 2020, default on loans no longer covered by a moratorium was lower in the housing segment than in the consumption segment. In the housing segment, 5% of total loans covered by a moratorium between March and December 2020 were no longer covered by a moratorium at the end of the year. The non-performing ratio, which also includes situations where banks consider that there is some likelihood that the debtor will not comply with the payment plan, was 1.7% for these loans, slightly lower than the average in the housing segment (2.3%). This is because most of these loans are no longer covered by a moratorium by the debtor's decision, and it is consistent with the low default rates for housing loans even in times of crisis. As for consumer credit, the share of loans that ceased to be covered by a moratorium was 25% and the non-performing ratio on these loans was 8.7%, 3 p.p. higher than the average in the consumption segment.

Interest rates on new loans to non-financial corporations remained at record lows. The ECB's ample liquidity provision and the State-guaranteed credit lines contributed to a reduction of 10 basis points on interest rates on new loans relative to the end of 2019 (2% compared to 2.1%) (Table I.3.4). However, banks have reported tighter credit standards for firms since the second quarter, mainly for long-term loans. This tightening reflected the perception of risks associated with the situation and outlook of specific sectors of activity or firms and, to a lesser extent, risks associated with the general economic situation and outlook. In the euro area, interest rates remained stable, and banks reported slightly tighter credit standards to firms in the second half of the year.

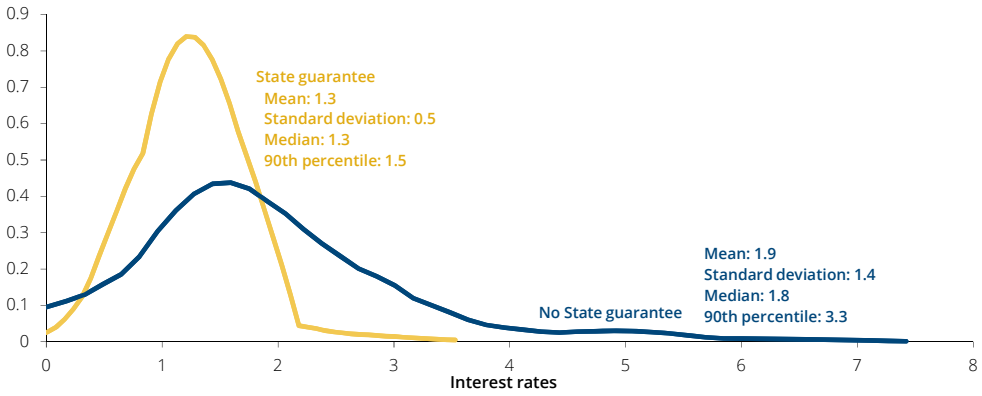
Table I.3.4 • Interest rates on new loans granted by resident banks to non-financial corporations | Percentage

	Dec. 19	Mar. 20	Jun. 20	Sep. 20	Dec. 20
Interest rates on new loans					
Portugal	2,1	2,1	1,8	2,0	2,0
Euro area	1,4	1,3	1,4	1,4	1,4

Sources: Banco de Portugal and ECB. | Note: The interest rate is the annualised agreed rate (AAR).

State-guaranteed loans helped to reduce the cost of financing of corporations. In the economic support lines associated with COVID-19, financing granted by banks has a State guarantee of up to 90% of the loan amount for micro and small enterprises and 80% for medium-sized enterprises. These loans can have a maturity of up to six years and a grace period of up to 18 months, with maximum spreads and fixed mutual guarantee fees depending on the maturity of the operation. On average, the interest rates on these loans are 0.6 p.p. lower and 0.9 p.p. less dispersed, reflecting the decrease in credit risk taken by banks and the eligibility criteria for access to guarantees (Chart I.3.2).

Chart I.3.2 • Interest rates on new loans granted by resident banks to non-financial corporations with agreed maturity above one year | Density



Source: Banco de Portugal. | Note: Interest rates are weighted by loan amounts. The sample excludes public corporations and non-profit private corporations.

Bank loans to corporations increased by 9.7% in December 2020. The acceleration in the lending volume throughout the year reflected an increase in credit demand to cope with a decline in regular liquidity flows due to a sharp fall in activity (Table I.3.5). Loans grew by 6.5% in the euro area.

The acceleration of bank loans was most pronounced in the accommodation and food services sector (25.3% in 2020 compared to 2.3% in 2019) (Table I.3.5). Firms in these sectors also benefited more from the moratoria and State-guaranteed credit lines (Table I.3.6). Notably, loans granted to small and micro enterprises grew more than 13% (Table I.3.5). Bank loans continued to be mainly granted to lower-risk firms (Z-score below the median). In December 2020, 67.8% of loans were granted to lower-risk firms, compared with 65.6% in the same period of the previous year.

Around one-third of loans to corporations benefited from a moratorium at the end of the year. Under the credit moratorium implemented in March, firms were able to request the suspension of the payment of instalments and the deferral of credit to be paid at the end of the contract for a period equal to the duration of the moratoria. The use of moratoria was most pronounced between April and June, with the share of loans covered by a moratorium remaining stable in the

second half of the year (Table I.3.6). This share is higher in the accommodation and food services sector (57%).

Table I.3.5 • Bank loans to non-financial corporations: rates of change and new loans

	% of total credit in Dec. 2019	Dec. 19	Mar. 20	Jun. 20	Sep. 20	Dec. 20
Annual rate of change	–	0.4	1.7	5.6	8.4	9.7
Non-financial corporations						
of which: Size class:						
Very small firms	30.1	6.2	5.3	10.8	15.6	14.0
Small firms	23.9	-1.1	0.2	8.7	11.7	13.4
Medium firms	24.4	-1.9	-1.0	4.3	5.8	6.2
Large firms	17.7	-3.1	1.8	-3.5	-0.8	3.8
of which: Sector of economic activity:						
Manufacturing	18.3	0.2	0.5	5.0	8.6	9.6
Construction and real estate activities	23.9	1.8	0.6	3.5	4.6	5.5
Trade	17.2	2.2	3.4	8.2	8.8	9.6
Transportation and storage	7.5	-9.3	-10.9	-9.2	-3.8	0.4
Accommodation and food services	7.4	2.3	2.8	18.9	24.9	25.3
Professional and administrative activities	10.6	1.1	2.3	5.8	5.4	6.4
Year-on-year rate of change						
of which: Firm's credit risk profile:						
Credit risk below the median	47.0	4.1	2.6	10.9	11.4	11.3
Credit risk above the median	37.7	-3.2	-3.0	1.2	2.2	4.7
New loans with agreed maturity above one year (million euros)						
Non-financial corporations	-	4,699	3,927	7,863	4,018	2,941
Sector of economic activity						
Manufacturing	-	778	699	1,897	818	460
Construction and real estate activities	-	1,570	1,109	1,303	1,225	897
Trade	-	570	618	1,700	663	470
Transports and storage	-	308	275	310	141	142
Accommodation and food services	-	387	297	961	230	174
Professional and administrative activities	-	446	352	819	339	256
Memo:						
Annual rate of change – Euro area	–	2.6	4.9	6.5	6.5	6.5

Sources: Banco de Portugal and ECB. | Annual rates of change are based on the relation between end-of-month outstanding amounts (adjusted for securitisation operations) and monthly transactions. Monthly transactions correspond to the difference in the end-of-month outstanding amounts adjusted for reclassifications, write-offs/write-downs, exchange rate and price revaluations, and any other price variations that do not correspond to financial transactions. Whenever relevant, figures are additionally adjusted for sales of credit portfolios. New bank loans correspond to the 3-month accumulated amounts. The risk assesment is based on Antunes, Gonçalves and Prego (2016) "Firm default probabilities revisited", *Banco de Portugal Economic Studies*, Vol. 2, No 2, April 2016. The year-on-year rate of change is based on a constant sample of firms. Firms with high (low) risk are those with a z-score above (below) the median. The remaining loans by credit risk profile correspond to firms with no rating or in default.

Table I.3.6 • Bank loans granted to non-financial corporations under moratoria | Percentage

	Mar. 20	Jun. 20	Sep. 20	Dec. 20
Loans under moratoria (% of the credit segment)				
Non-financial corporations	3.3	32.5	34.1	33.6
Size class:				
Small and medium-sized	3.2	32.6	33.9	33.3
Sector of economic activity:				
Manufacturing	3.4	31.7	33.8	33.3
Construction and real estate activities	2.2	31.5	33.4	33.0
Trade	4.8	25.7	26.0	24.8
Transportation and storage	2.4	30.5	29.7	29.3
Accommodation and food services	5.6	56.0	57.6	57.2
Other services	2.9	35.4	37.8	37.2

Source: Banco de Portugal. | Note: The other services sector is comprised of corporations with main activity classified in the NACE sections J to S, except L.

Corporations that did not benefit from moratoria or loans secured by State guarantees reduced their credit the most. These firms made a contribution of -3.5 p.p. to the overall rate of change of 4.7% (Table I.3.8). The dynamism of loans stemmed mainly from the behaviour of firms that remained in the credit market (intensive margin), particularly as a result of the increase in total loans by corporations accessing State-guaranteed loans and the effect of moratoria on the reduction in repayments. The contribution of firms entering and leaving the credit market (extensive margin) remained positive.

About 40% of the new loans were secured by a State guarantee. These credit lines were particularly important for firms from the sectors most affected by the pandemic and with a lower credit risk before the pandemic (Table I.3.7). According to *Bank Lending Survey* results, these loans were aimed at addressing immediate liquidity needs and, to a lesser extent, the build-up of liquidity buffers. In three sectors, State-guaranteed loans accounted for more than half of new loans: accommodation and food services (57%), trade (52%) and manufacturing (52%).

Table I.3.7 • Loans granted with a State guarantee by corporations' sector of economic activity (2020) | Percentage of the amount

	State guarantee	No State guarantee
Non-financial corporations	41.8	58.2
Sector of economic activity		
Accommodation and food services	57.3	42.7
Manufacturing	51.9	48.1
Trade	51.8	48.2
Transportation	39.9	60.1
Professional and administrative activities	35.2	64.8
Other	33.0	67.0
Construction and real estate activities	19.8	80.2

Source: Banco de Portugal. | Notes: Central credit registry data. The sample consists of loans granted to private non-financial corporations in 2020. The NACE sections are: I (Accommodation and food services); M and N (Administrative, professional, scientific and technical activities); G (Trade); F and L (Construction and real estate activities); C (Manufacturing); H (Transportation); A, B, D, E, J, K, O, P, Q, R, S, T and U (Others).

Table I.3.8 • Loans granted by resident financial institutions to private non-financial corporations by credit market participation | Year-on-year rate of change in percentage and contributions in percentage points

	Dec. 19	Mar. 20	Jun. 20	Sep. 20	Dec. 20
Year-on-year rate of change (%)	-1.8	-4.3	1.5	2.9	4.7
Contributions (pp)					
Intensive margin	-3.0	-4.9	1.0	2.6	4.1
No moratoria and no State guarantee	-4.6	-5.8	-4.6	-4.1	-3.5
With moratoria and no State guarantee	-0.3	-0.5	-0.4	-0.3	0.1
With State guarantee and no moratoria	0.3	0.3	2.0	2.4	2.8
With moratoria and State guarantee	1.6	1.2	4.1	4.6	4.8
Extensive margin	1.2	0.6	0.5	0.3	0.6
Entrants in the credit market	4.4	4.3	4.7	4.6	3.8
Exits from the credit market	-3.3	-3.7	-4.2	-4.3	-3.2

Source: Banco de Portugal. | Notes: The intensive margin refers to firms that stayed in the credit market and the extensive margin refers to entrants and exits from the credit market. Entrants are the firms with credit in the reference period but without credit in the same period of the previous year, exits are the firms without credit in the reference period but with credit in the same period of the previous year, and stayers are the firms with credit in the reference period as well as in the same period of the previous year. Year-on-year rates of change are based on end of-month outstanding amounts with no adjustments for sales of credit portfolios, reclassifications, write-offs, and exchange rate and price revaluations.

Banks were the financing sector that contributed the most to the increase in loans to corporations. In December, the resident sector made a contribution of 3.3 p.p. to the rate of change of 2% in total credit (loans, securities and trade credit) to firms (Table I.3.9). This mainly stemmed from the behaviour of resident banks, which registered a year-on-year rate of change of 9.1%. Credit granted by the non-resident sector decreased by 3.8%. Developments in external financing are strongly influenced by financial transactions of large firms or smaller firms belonging to economic groups.

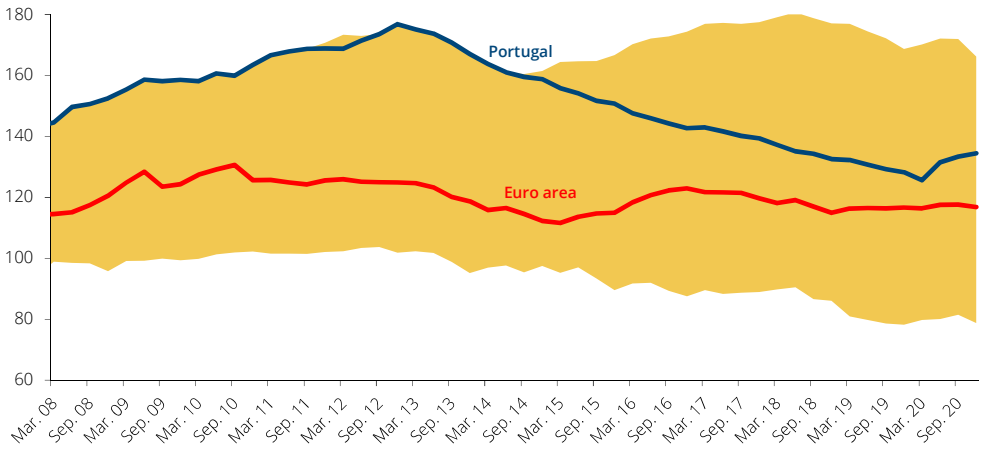
Table I.3.9 • Year-on-year rate of change of total credit granted to non-financial corporations by financing sector | Percentage

	% of credit in 2019 Q4	2018 Q4	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4
Year-on-year rate of change	–	-0.1	0.8	-0.5	2.4	2.2	2.0
Resident institutions	64.0	-2.4	-2.6	-3.0	1.6	3.4	5.2
of which: Banks	40.7	-3.3	-2.9	-0.7	2.4	4.7	9.1
Non-resident institutions	36.0	4.9	7.4	4.3	4.0	-0.2	-3.8

Source: Banco de Portugal. | Notes: Total credit includes loans, debt securities and trade credit (trade credit between resident non-financial corporations is excluded). Year-on-year rates of change are based on end-of-month outstanding amounts with no adjustments for sales of credit portfolios, reclassifications, write-offs, exchange rate and price revaluations.

Corporate indebtedness increased by 8.8 p.p. between the second and fourth quarters of 2020. After a downward trend, firm indebtedness increased from 125.6% of GDP in the second quarter to 134.4% of GDP in the fourth quarter, reflecting the use of credit to respond to increased liquidity needs (Chart I.3.3). Despite this increase, indebtedness remained relatively close to the euro area median (116.8% of GDP).

Chart I.3.3 • Debt of non-financial corporations | Percentage of GDP



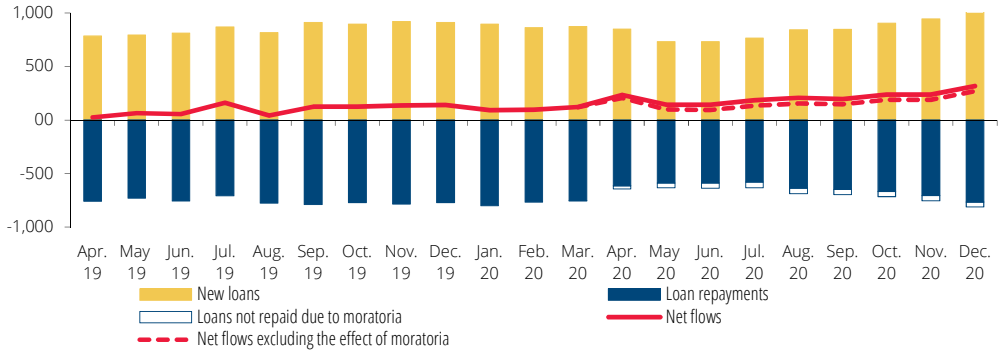
Source: Banco de Portugal and Eurostat. | Notes: Non-financial corporations debt is comprised of loans, debt securities, and trade credits (non-consolidated). Euro area figures correspond to the median of the 19 euro area countries, excluding Luxembourg and Ireland. The shaded area represents the interquartile range of the debt ratios of the 17 euro area countries included in the analysis.

Box 2 • Changes in lending flows for house purchase

Housing loans accelerated in 2020, despite lower growth in households' disposable income and uncertainty about the macroeconomic outlook. With the aim of better understanding the factors underlying this buoyancy, lending flows for house purchase are analysed on the basis of the microeconomic data of the Central Credit Register (CCR) of the Banco de Portugal.

New loans and repayments declined at the beginning of the pandemic, but rebounded in the second half of the year, especially for the former. In December 2020 the total amount of new loans was greater than in the period prior to the pandemic, keeping pace with developments in the value of housing transactions, while repayments were at the same level (Chart C2.1).

Chart C2.1 • Loans to households for house purchase: monthly net flows decomposition
| 3-month median, EUR million



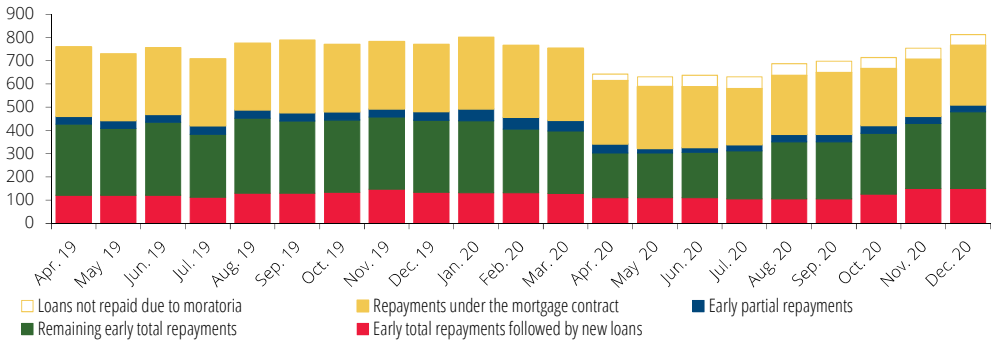
Source: Banco de Portugal (CCR). | Notes: Loan repayments are calculated as the difference between the outstanding amounts of each loan in two consecutive months. Net flows correspond to the difference between the total amount of new loans and loan repayments. For the calculation of loans not repaid due to moratoria it was assumed that in the months of capital grace period due to moratoria the repayment of capital in the absence of moratoria would have been equal to the median value of the monthly change of the outstanding amount of that loan in the three months before the beginning of the moratoria. In the graph, loan repayments are presented with negative values. The 3-month median was used to eliminate the influence of extreme values resulting from the use of microeconomic data.

The moratoria reduced repayments after the pandemic started. Moratoria were introduced at the end of March and the share of the total amount of covered housing loans increased from 13% in April to around 18% from July onwards. The debtors concerned could choose to interrupt payments of principal and/or interest. Almost all loans under a moratorium were covered by a grace period for principal. In the absence of other changes, had these loans continued to be repaid as foreseen in the agreement, total repayments would have been 6% higher in the period between March and December and, in December, would have been higher than before the pandemic.

Even adjusting for the effect of the moratoria, the total amount of housing loans increased in the course of 2020 and accelerated in the second half of the year. Net flows of housing loans (i.e. the difference between the total amount of new loans and repayments) adjusted for the effect of moratoria always remained positive and showed an upward trend in the second half of the year, standing in December above the flows observed before the pandemic (Chart C2.1).

The reduction in repayments in the first months of the pandemic was also driven by early repayments, which recovered in the second half of the year. These developments were seen in partial repayments, early total repayments followed by new loans and in other total early repayments (Chart C2.2). The latter contributed the most to the evolution of repayments due to significant variations and their high share (around 40% of total repayments).

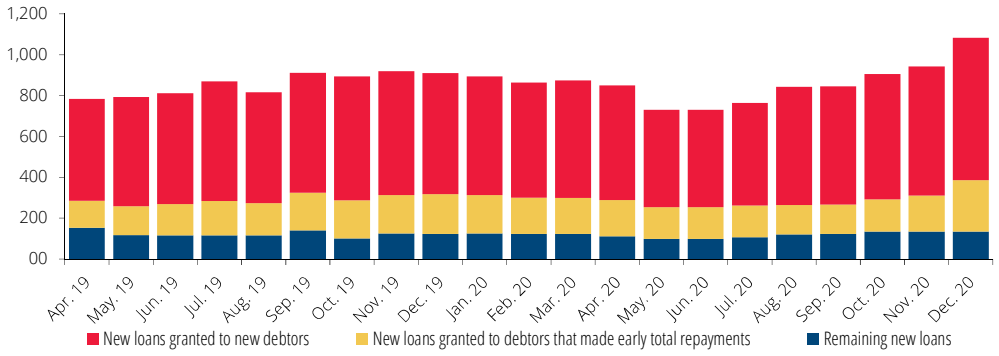
Chart C2.2 • Decomposition of the monthly amount of repayments of loans for house purchase | 3-month median, EUR million



Source: Banco de Portugal (CCR). | Notes: Loan repayments are calculated as the difference between the outstanding amounts of each loan in two consecutive months. It was assumed that there is an early loan repayment when the value of the repayment is twelve times larger than the installment and that there is a repayment under the mortgage contract when the repayment amount is lower. Under these criteria, early repayment amounts of low magnitudes are not considered and therefore, early repayments can be underestimated. Nevertheless, this allows the analysis to be focused on early repayments of a substantial magnitude. Early total repayments followed by new loans for house purchase correspond to loan repayments made by debtors that were granted a new loan for house purchase in the month of the repayment or in the 3-month neighbourhood. The 3-month median was used to eliminate the influence of extreme values resulting from the use of microeconomic data.

After a reduction in the first half of the year, the buoyancy of new loans was linked to new debtors and debtors who already had loans. Around 65% of new loans were granted to debtors who did not previously have another housing loan. The amount of these loans declined at the beginning of the pandemic, but picked up from July onwards, ending the fourth quarter above pre-pandemic levels (Chart C2.3). New loans to debtors who already had loans behaved in the same way.

Chart C2.3 • Decomposition of new loans for house purchase | 3-month median, EUR million



Source: Banco de Portugal (CCR). | Notes: New loans granted to debtors that made early repayments corresponds to new loans of debtors that made repayments in the loans for house purchase in the month of the new loan or in the 3-month neighbourhood. New loans granted to new debtors corresponds to loans of debtors that do not have any loan for house purchase in the four months before the new loan was granted. The 3-month median was used to eliminate the influence of extreme values resulting from the use of microeconomic data.

Changes in new loans and early repayments are linked to the evolution of the pandemic. Restrictions on mobility and the normal functioning of activity, as well as fears of contagion and high uncertainty were accompanied by a strong reduction in lending flows for house purchase in the second quarter of 2020. In this period, household deposits accelerated significantly and their saving rate peaked. In this context, some households appeared to have postponed house purchase decisions or early loan repayments, preferring to hold more liquid assets. As of the third quarter, an improvement in the health situation and a recovery in activity led to an increase in flows associated with housing loans.

4 Public finances

The general government deficit stood at 5.7% of GDP, following a 0.1% surplus in the previous year. The 5.9 p.p. change in the primary balance from a 3.0% surplus to a 2.8% deficit, was slightly greater than in the overall balance due to the reduction in interest expenditure as a ratio to GDP. The budget deficit was below that of the euro area as a whole (7.2% of GDP), with the difference being more significant when considering the primary deficit (5.7% of GDP).

The observed deficit was below official estimates. In the 2020 supplementary State budget and the 2021 State budget, deficit targets stood at 6.3% and 7.3% of GDP respectively. The rate of change in primary expenditure was only 1 p.p. higher than expected, and the most significant differences stemmed from a percentage reduction in tax and contributory revenue that was lower than estimated by approximately 4 p.p.

Table I.4.1 • Main fiscal indicators | In percentage of GDP

	2016	2017	2018	2019	2020	2020-19 change	2020-19 change excluding COVID-19 measures
Overall balance	-1.9	-3.0	-0.3	0.1	-5.7	-5.8	-2.7
Interest expenditure	4.1	3.8	3.4	3.0	2.9	-0.1	-0.1
Primary balance	2.2	0.8	3.0	3.0	-2.8	-5.9	-2.8
Structural indicators (in percentage of potential GDP) [a]							
Structural balance	-1.1	-0.8	-0.5	-0.5	-2.6	-2.1	0.7
Structural primary balance	2.9	2.9	2.9	2.5	0.1	-2.5	0.4
Structural revenue	42.5	42.4	42.9	42.6	42.5	-0.1	0.2
Structural primary expenditure	39.6	39.5	39.9	40.1	42.4	2.3	-0.2
Public debt	131.5	126.1	121.5	116.8	133.6	16.8	
Change in public debt (in pp)	0.3	-5.4	-4.7	-4.6	16.8		
(-) Primary balance	-2.2	-0.8	-3.0	-3.0	2.8		
Differential between the effects of interest and of GDP growth	-0.6	-2.6	-2.3	-2.0	9.5		
Deficit-debt adjustments	3.2	-2.0	0.7	0.4	4.5		
Memo:							
Temporary measures [b]	0.4	-2.0	-0.5	-0.5	-0.6	-0.1	
Public debt net of general government deposits	119.5	116.0	113.4	110.1	121.8	11.7	

Source: Statistics Portugal (Banco de Portugal calculations). | Notes: (a) Structural figures are adjusted for the cycle and the effects of temporary measures. The cyclical components and temporary measures are gauged by Banco de Portugal in line with the methodology and definitions adopted in the ESCB. For further details, see Braz et al. (2019), "The new ESCB methodology for the calculation of cyclically adjusted budget balances: an application to the Portuguese case", *Banco de Portugal Economic Studies*, Vol. V, No 2, 2019.(b) For 2020 the temporary measures considered include the capital injection from Fundo de Resolução in Novo Banco, the court decision which determined the retroactive payments of holiday supplements to Polícia de Segurança Pública and Guarda Nacional Republicana and an additional amount recovered from the BPP guarantee. The details related to measures considered between 2016 and 2019 were detailed in previous publications.

Fiscal policy was expansionary and countercyclical. According to estimates by Banco de Portugal, there was a very negative change in the output gap (-7.3 p.p.) and thus in the cyclical component of the budget balance (-3.6 p.p.). According to this estimate, more than half of the change in the budget balance in 2020 was associated with developments in the business cycle. Estimates of the variables in structural terms are particularly uncertain at times of sudden changes in the business cycle and are based on historical elasticities that do not consider the specificities of the current

crisis. The temporary measures, with a focus on the capital injections into Novo Banco, did not significantly impact the change in the balance, as their size was similar to that of the previous year. The deterioration in the structural primary balance, the indicator used to measure the fiscal policy stance, reached 2.5 p.p. Note, however, that the measures taken in the context of the pandemic are not classified as temporary under the Eurosystem definition, even if they are transitory in nature.

Following the pandemic crisis, Portugal adopted new fiscal measures estimated at around 3% of GDP. Measures with an impact on the disposable income of other institutional sectors amounted to 1.9% of GDP, most notably the "simplified layoff" (1.0% of GDP, together with the support for progressive resumption and the extraordinary incentive to support the normalisation of economic activity). Other measures that impacted the budget balance included State aid to TAP (0.6% of GDP) and expenditure on health, including personal protective equipment for various government services (0.4% of GDP). Adjusted for the impact of these measures, the structural primary balance increased by 0.4 p.p., with similar contributions from revenue and primary expenditure (Table I.4.1). The total amount of measures does not include loans granted with a State guarantee, with their ratio to GDP increasing from 0.4% in 2019 to 3.5%. These guarantees are contingent liabilities with no immediate effect on the budget balance, although they pose a budgetary risk to the extent that they are triggered in subsequent years.

Total revenue decreased by 5% in 2020, mainly due to the effect of automatic stabilisers. Thus, the structural revenue ratio to potential GDP adjusted for measures linked to the pandemic crisis remained broadly stable. When adjusted for the effect of the business cycle and the policy measures implemented, tax and contributory revenue increased by 1 p.p. through developments in personal income tax and social contributions, in a context in which compensation of employees exhibited a strong resilience to the fall in GDP (Box 3) (Chart I.4.1).

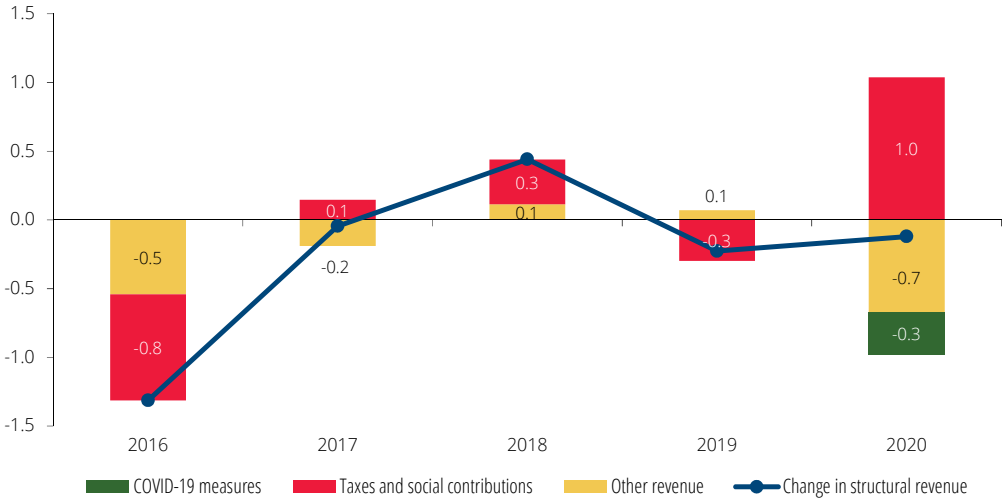
The other (non-tax and non-contributory) revenue adjusted for the impact of the recovery of BPP's guarantee in 2019 and 2020 and the revenue from European funds associated with the measures to fight the pandemic led to a decrease of 0.7 p.p. in structural revenue. The components with a more significant contribution to these developments were sales (-0.5 p.p.), strongly affected by the reduction in the provision of public services in a pandemic context and, to a lesser extent, dividends received by the general government (-0.1 p.p.). The effect of the pandemic was particularly significant on transport-related revenue (-0.2% of GDP); however, it was broadly based across various general government sectors, in particular court fees, health fees applied by the National Health Service (NHS) and fees charged by the government agency for registries and notary (*Instituto dos Registos e Notariado*).

Primary expenditure grew by 9%, corresponding to 2.6%, excluding the impact of temporary measures and measures adopted during the crisis. Excluding not only these measures but also the effect of the business cycle on unemployment benefits, primary expenditure as a ratio of potential GDP declined by 0.2 p.p. Intermediate consumption and benefits in kind made the largest contribution to this reduction (Chart I.4.2).

Intermediate consumption and social benefits in kind varied by 1.4% and -1.5% respectively, despite considerable pressure in the health sector. Developments in these items were offset by savings resulting from restrictions on the operation of various public services and the use of teleworking, although these were smaller than the abovementioned reduction in sales and other current revenues. Despite the increase in health expenditure, the reduction in regular activity was

significant, particularly in hospital care, which may put additional pressure on expenditure in the coming years. The need to recover activity that was not carried out or that was carried out under adverse conditions may also arise in other government areas, such as education and justice.

Chart I.4.1 • Contributions for the change in structural revenue | Percentage points of potential GDP



Source: Statistics Portugal (Banco de Portugal calculations).

Staff costs increased by 3.7%, a slight acceleration from 2019. The number of civil servants grew by 2.2% and average wages increased namely due to higher spending with overtime payments and other allowances in the fight against the pandemic and the gradual unfreezing of careers, which ended in December 2019.

Social benefits in cash, excluding crisis-response measures, made a contribution of 0.2 p.p. to improving the structural budget balance. Unemployment benefits adjusted for the effects of the business cycle and measures implemented in the context of the crisis partly explain this result. Given the implementation of employment-support measures, the increase by more than 25% in the number of people receiving unemployment benefits was lower than expected from the usual relationship of the output gap to this expenditure item. Expenditure on old-age and survivors' pensions grew by 3.0%, due to a 0.9% increase in the number of pensioners, the application of the pension indexation formula (around 0.6% on average) and extraordinary increases of the lowest pensions. The remaining social benefits in cash grew by 3.9%, including the rise in payments linked to sickness and quarantine benefits, as well as the reinforcement of other social benefits.

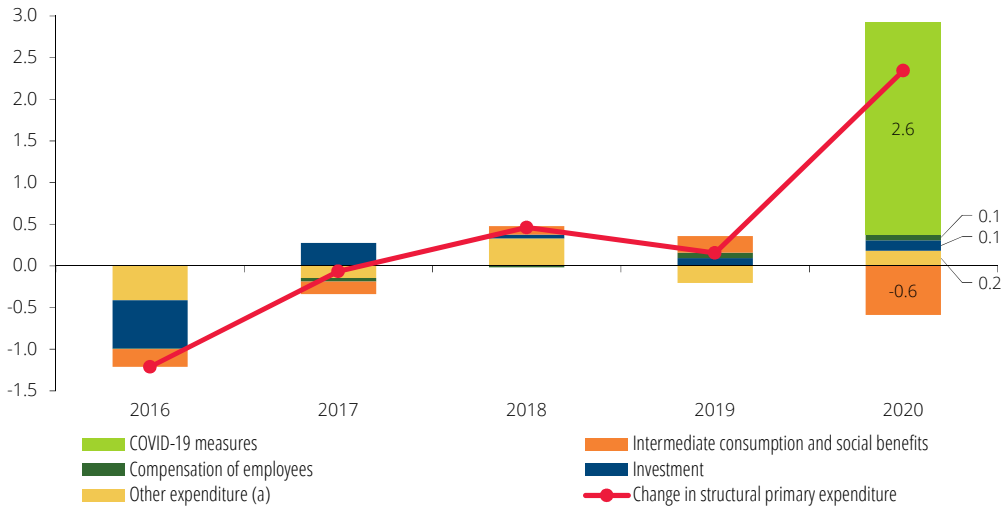
Expenditure on subsidies to corporations as a ratio of potential GDP increased by 1.3 p.p. This item includes the "simplified layoff", the support for progressive resumption, the extraordinary incentive to support the normalisation of economic activity, the support for the self-employed and the "Apoiar" programme; the latter being financed by revenue from European funds. The exemption from social contributions in association with these measures was also registered under subsidies. These measures explain almost all the change in this item.

Other current expenditure grew by 9.2%, corresponding to 2.9% when adjusted for crisis-response measures. This growth was linked to developments in the Portuguese contribution to the European Union budget, which increased by almost 17%.

Public investment increased by 11.0%, corresponding to a 0.2 p.p. rise as a percentage of potential GDP and an acceleration from growth of 5.9% in 2019. This acceleration is compatible with the final phase of the programming periods for European funds. The increase in investment in the health and transport sectors was noteworthy.

The ratio of other capital expenditure adjusted for temporary measures to potential GDP increased by 0.7 p.p, mainly due to the recording under this item of expenditure on the State loan to TAP and the provision of a guarantee to SATA, with an impact of 0.6 p.p. The conversion of deferred tax assets (DTA), with an impact of 0.1 p.p. of potential GDP, was also recorded under other capital expenditure.

Chart I.4.2 • Contributions for the change in structural primary expenditure | Percentage points of potencial GDP



Sources: Statistics Portugal (Banco de Portugal calculations). | Notes: (a) Other primary expenditure includes subsidies and other current and capital expenditure.

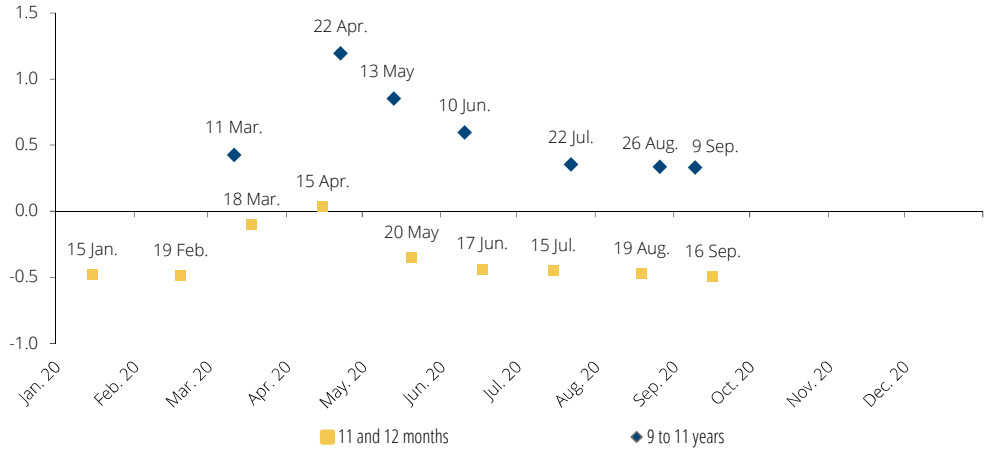
The debt servicing costs decreased for the sixth year in a row. The decline in interest expenditure by 8.6% occurred against a backdrop of an increase in the public debt stock and a decline in the implicit interest rate on debt from 2.5% in 2019 to 2.2%. With the exception of issues at the start of the pandemic crisis, the downward trend observed in rates on new issuances continued, following developments in the sovereign debt market. On average, the interest rate on one-year Treasury bill auctions was -0.4%, stabilising compared with the previous year, and the rate in Treasury bonds auctions with an approximate maturity of 10 years stood at 0.6%, lower than in 2019 (0.8%) (Chart I.4.3). The disbursement of €3 billion from the European instrument for temporary Support to mitigate Unemployment Risks in an Emergency (SURE) increased the Government's funding at the end of the year.

The public debt ratio increased from 116.8% of GDP in 2019 to 133.6%. Debt net of deposits increased by 11.7 p.p. as the share of general government deposits in GDP increased by 5.0 p.p. (Table I.4.1). In the euro area, the increase in the public debt ratio was also significant in 2020 (14.2 p.p.), reaching 98% of GDP.

In 2020 the increase in the debt ratio was higher than the budget deficit due to a contraction in GDP, with a 6.6 p.p. contribution, and to deficit-debt adjustments of 4.5% of GDP (Table I.4.1).

These adjustments included the abovementioned deposit accumulation (4.6% of GDP) and time lags between cash and national accounting recordings, notably the difference between paid and accrued interest, taxes recorded on an accrual basis and pension expenditure associated with past transfers of pension funds (0.6% of GDP). The issuance of debt above nominal value mitigated these effects (-1.0% of GDP).

Chart I.4.3 • Yields on Treasury bills and bonds issued in 2020 | In percentage



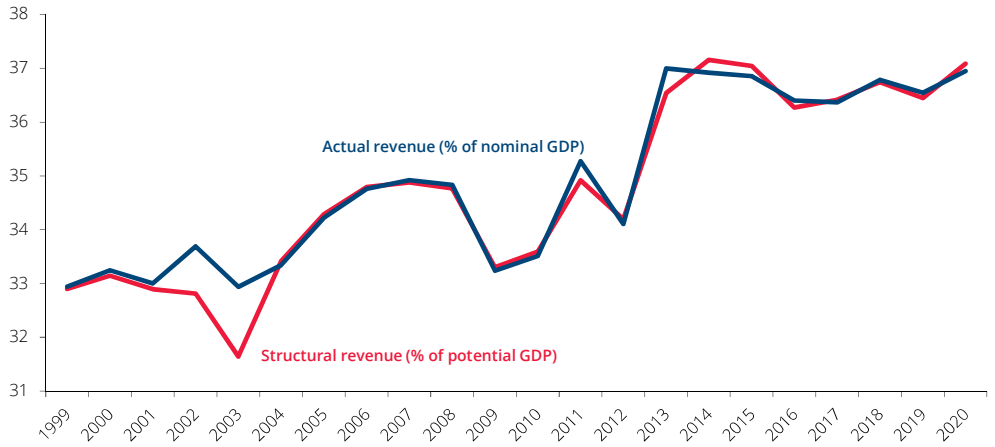
Source: IGCP. | Note: The chart presents the auction date next to each observation.

Box 3 • Structural developments in tax and contributory revenue

Actual and structural revenue from taxes and social contributions increased in 2020 as a ratio to GDP, despite a significant decrease in total collection. This contrasts with developments observed in the recessions of 2003, 2009 and 2012 (Chart C3.1). Measures to support households and firms activated during this crisis sustained the macroeconomic bases of key taxes and social contributions. For example, the collection of the personal income tax (PIT), one of the main taxes, increased despite the severity of the economic crisis.

The concept of structural tax revenue should be understood as the component of actual revenue that does not stem from the cyclical influence of GDP. Based on the methodology adopted in the Eurosystem, it is possible to break down the structural changes in tax revenue into the impact of (i) tax policy measures (excluding temporary measures); (ii) the fiscal drag (associated with PIT progressivity); (iii) the composition effect resulting from the difference between the behaviour of the macroeconomic bases and what would have been expected given the respective elasticities with respect to the output gap.[3]

Chart C3.1 • Revenue from taxes and social contributions

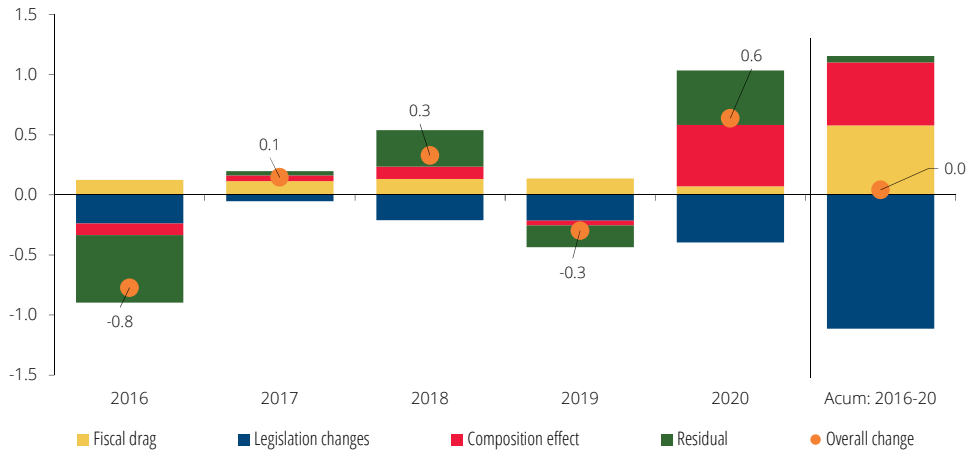


Source: Statistics Portugal (Banco de Portugal calculations).

In structural terms, revenue from taxes and social contributions increased by 0.6 p.p. of potential GDP, despite the contribution of tax measures to a reduction in the collection. The possibility of a partial suspension of corporate income tax (CIT) prepayments and the suspension of tax and contributory enforcement procedures reduced the collection by 0.4 p.p. of GDP (Chart C3.2). Conversely, the structural increase in tax and contributory revenue was almost exclusively due to positive composition effects associated with the increase in the tax bases of PIT and social contributions. This was in line with developments observed in recent years. In cumulative terms, a nil change in structural tax revenue has been recorded since 2016, reflecting, on the one hand, a reduction of 1.1 p.p. justified by policy measures and, on the other hand, a similar increase explained by the growth of macroeconomic bases above that of GDP, in particular as regards the wage bill.

3. Braz et al. (2019), "The new ESCB methodology for the calculation of cyclically adjusted budget balances: an application to the Portuguese case", *Economic Studies*, Banco de Portugal, Vol. V – No 2, April.

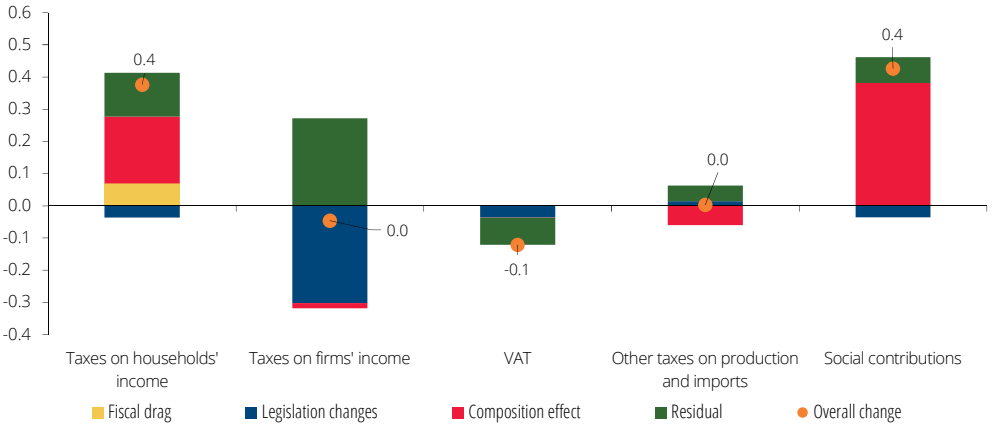
Chart C3.2 • Breakdown of the structural change in total taxes and social contributions | In percentage points of potential GDP



Source: Statistics Portugal (Banco de Portugal calculations). | Note: The residual captures any determinant of the evolution of structural tax revenue that is not included in the remaining components.

The structural increase in tax and contributory revenue reflected the growth in household income tax collection and social contributions. In both cases, the increase in structural revenue was 0.4 p.p. of potential GDP (Chart C3.3). Tax policy measures had a negligible impact on collection, with the main contribution to revenue growth coming from composition effects. This component captures the fact that the wage bill evolved more favourably than would have been implied by historical elasticities with respect to GDP, reflecting the effect of measures that mitigated the impact of the pandemic on the labour market. The estimated (theoretical) impact of elasticity on PIT revenue, which captures tax progressivity, was also positive. The reduction in PIT refunds (-5.5%) combined with the increase in billing notes (by 10.1%) contributed to the rise in tax revenue and this effect is captured in the residual component.

Chart C3.3 • Breakdown of the structural change in revenue from taxes and social contributions in 2020 | In percentage points of potential GDP



Source: Statistics Portugal (Banco de Portugal calculations). | Note: The residual captures any determinant of the evolution of structural tax revenue that is not included in the remaining components. Part of the residual of social contributions reflects the actual and imputed social contributions referring to the civil servents' regime, both of which are also recorded on the expenditure side.

The structural revenue from CIT remained broadly unchanged as a ratio to potential GDP. In actual terms, CIT collection decreased by 17.1%, closely following the base and elasticities considered in the methodology. The possibility of suspending the first two prepayments aligned payments to firms' results. In its absence, large refunds would have been recorded in the third prepayment in December. Thus, the identification of this effect as a tax policy measure captured the size of the adjustment in prepayments. The residual component, in turn, almost fully cancelled this effect, reflecting the fact that actual CIT collection was in line with macroeconomic developments.

Structural revenue from indirect taxes decreased slightly. The structural decline by 0.1 p.p. in VAT revenue was mainly caused by a smaller reduction in refunds than in gross revenue. This effect is captured in the residual component. Underlying the relative stability of the other indirect taxes to potential GDP were two small symmetric contributions. On the one hand, the negative composition effect stemmed from the larger fall in consumed quantities compared to what was expected given the change in the output gap. On the other hand, the positive residual component reflected, among other effects, increased revenue from the auctioning of carbon allowances and some resilience in the revenue from the Municipal Tax on Real Estate (IMI).

5 Economic activity

The evolution of the Portuguese economy was seriously constrained by the COVID-19 pandemic and the measures adopted to contain it. According to official estimates, GDP fell by 7.6% compared to 2019, to a larger extent than estimated for the euro area (-6.8%) (Table I.5.1). In a general equilibrium analysis, developments in macroeconomic aggregates in 2020 were impacted by disruptions in demand and supply (Box 4). On the expenditure side, the drop in economic activity was mainly due to the behaviour of exports (-18.6%), in particular services, and private consumption (-5.9%).

Table I.5.1 • GDP and its main components | Year-on-year percentage change, unless otherwise stated

	% of GDP in 2019	Annual percentage change			Year-on-year percentage change				
		2018	2019	2020	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4
GDP	100.0	2.8	2.5	-7.6	2.6	-2.2	-16.4	-5.6	-6.1
Domestic demand	99.6	3.2	2.8	-4.6	1.2	-0.7	-11.9	-3.5	-2.6
Private consumption	63.8	2.6	2.6	-5.9	2.5	-0.4	-14.4	-4.0	-4.7
Public consumption	16.8	0.6	0.7	0.4	1.7	0.1	-4.0	2.7	2.8
Investment	18.9	7.8	5.4	-4.9	-3.6	-2.4	-10.0	-7.1	0.1
GFCF	18.2	6.2	5.4	-1.9	2.6	-0.3	-8.5	0.7	0.3
Change in inventories [a]	0.8	0.3	0.0	-0.6	-1.1	-0.4	-0.3	-1.5	0.0
Exports	43.5	4.1	3.9	-18.6	6.7	-5.3	-39.2	-16.0	-14.4
Imports	43.2	5.0	4.7	-12.0	3.4	-1.8	-29.1	-11.1	-6.5
Contribution to GDP growth, net of imports [b]:									
Domestic demand		1.8	1.6	-2.3	1.2	-0.4	-6.5	-0.9	-1.5
Exports		1.1	0.9	-5.2	1.4	-1.8	-9.9	-4.7	-4.6
Memo item:									
GDP – euro area		1.9	1.3	-6.8	1.0	-3.3	-14.6	-4.2	-4.9
GDP – change over the previous year:									
Portugal					0.7	-4.0	-14.0	13.4	0.2
Euro area					0.1	-3.8	-11.6	12.5	-0.7

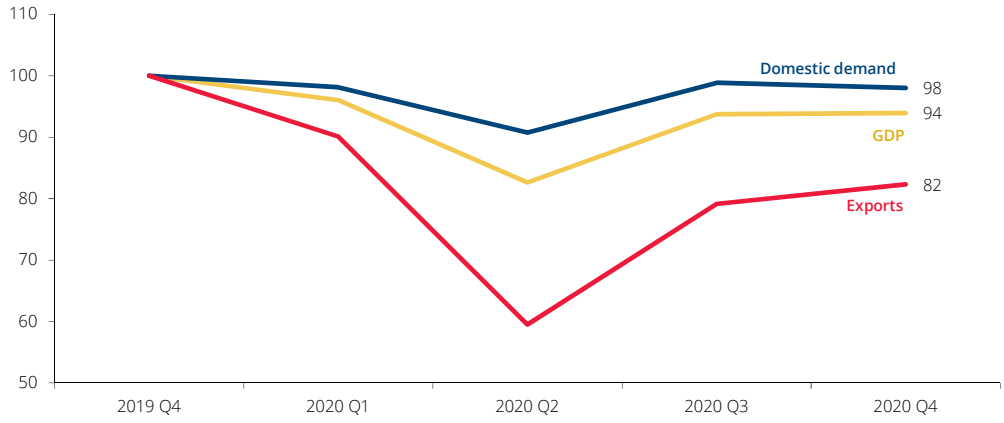
Sources: Eurostat and Statistics Portugal (Banco de Portugal calculations). | Notes: (a) Includes acquisitions less disposals of valuables and it is expressed in percentage point contributions to the annual percentage change of real GDP. (b) Percentage point contributions net of imports to the annual percentage change of real GDP. Demand aggregates net of imports are obtained by subtracting an estimate of imports needed to meet each component. The computation of the import content was based on data for 2017. For more information on the methodology, see Box 4 "Update of the import content of global demand for the Portuguese economy" in the March 2019 issue of the *Economic Bulletin*.

Activity showed a marked quarterly profile. After quarter-on-quarter falls of 4% and 14% in the first and second quarters, the economy recovered vigorously, growing by 13.4% in the third quarter (Chart I.5.1). In the fourth quarter, the recovery came close to a standstill (quarter-on--quarter rate of change of 0.2%). At the end of the year, economic activity stood around 6% below pre-pandemic levels. Looking at the expenditure aggregates net of import content, domestic demand recovered almost entirely, standing 2% below its end-2019 level, unlike exports, which remained 18% lower at the end of the year.

Developments in private consumption differed by type of expenditure. Consumption of durables decreased by 7.6% (a 1.7% increase in 2019). After a sharp fall in the second quarter,

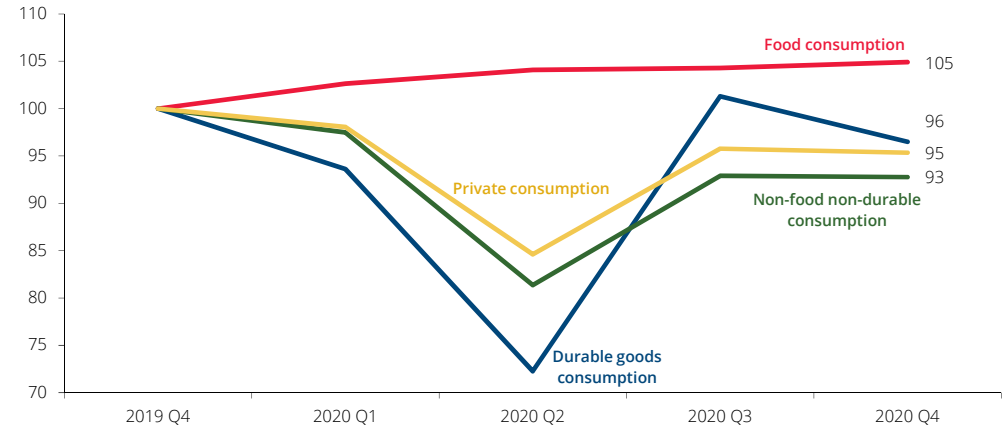
the third quarter saw a recovery to pre-pandemic levels, which was interrupted at the end of the year (Chart I.5.2). This recovery is linked to the purchase of information and communication technology equipment, office supplies and other household goods. Non-food non-durable consumption fell by an unprecedented 8.3%. Restrictions on mobility and on the normal functioning of activities, together with fears of contagion, impacted in particular the consumption of services requiring greater personal interaction. By contrast, food consumption increased by 4.7% (1.8% in 2019), reflecting restaurants' long periods of closure.

Chart I.5.1 • GDP, domestic demand and exports | Index, 2019 Q4 = 100



Source: Statistics Portugal (Banco de Portugal calculations). | Note: Aggregates net of import content.

Chart I.5.2 • Private consumption and its components | Index, 2019 Q4 = 100



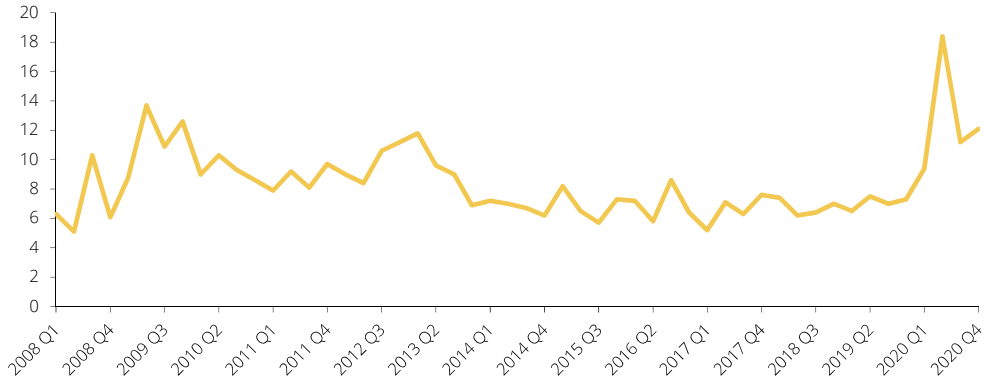
Source: Statistics Portugal.

The crisis was characterised by a sharp increase in the households' savings rate to 12.8% of disposable income, its highest level since 2002. This increase was much higher than in the last two crises and shows a precautionary behaviour of households. The increase also reflected involuntary savings due to limitations on consumption and the difficulty of replacing the most affected type of expenditure. In the second quarter, the savings rate rose to 18.4% (Chart I.5.3). A decrease was observed in the second half of the year, but the rate remained well above the levels observed

in recent years. Data on purchases with bank cards show that high-consumption individuals cut their expenses more markedly, therefore the accumulation of savings was more pronounced in this group.

Households' saving was sustained by a 1% growth in nominal disposable income. Wages and social benefits and other current transfers contributed to this development to a similar extent. Income preservation reflected the functioning of automatic stabilisers and, in particular, measures taken to protect employment and strengthen social support (Box 5).

Chart I.5.3 • Households' savings rate | Percentage of disposable income



Source: Statistics Portugal. | Note: Seasonally and calendar effects adjusted data.

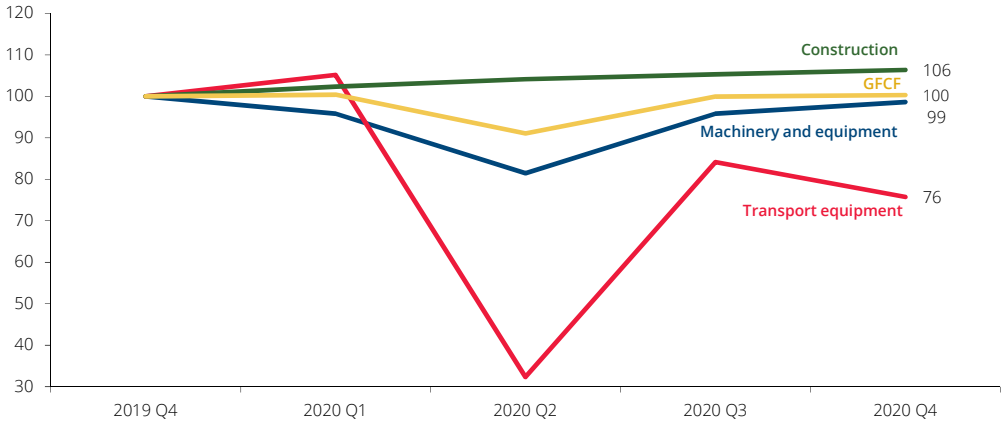
Public consumption grew by 0.4%, after a 0.7% increase in 2019. In response to the crisis, the net expenditure on goods and services accelerated due to higher health expenditure and lower revenues from the sale of goods and services. However, there was a reduction in expenditure linked to limitations in the functioning of public services. Despite the increase in the number of general government employees, the fall in hours worked during lockdown periods significantly reduced the volume of this component, leading to an increase in the respective deflator.

Unlike previous recessions, GFCF decreased less than GDP (1.9%), with construction being particularly resilient.[4] This is a remarkable feature of the current crisis, in which Portugal stands out in the euro area as a whole and which should be taken into account in the analysis of the recovery process. The share of GFCF in GDP, at constant prices, increased to 18.8% (17.7% in 2019). Even excluding the construction component, this share remained almost unchanged, at 9%. GFCF in construction increased by 4.7% (7.2% in 2019). Apart from the fact that the containment measures did not impose the suspension of construction works, the dynamism of construction is explained by the flow of new projects, in particular in residential real estate and major infrastructure works. Domestic and international demand in the residential component remained sustained. New loans for house purchase increased and foreign direct investment in real estate continued to grow strongly (8.2% compared with 10% in 2019). The non-residential construction component remained dynamic, supported by large ongoing public works and developments in tenders and contracts awarded.

4. See Section 3 of Part I of the December 2020 issue of the *Economic Bulletin* for a comparative analysis of developments in activity and key macroeconomic aggregates with previous recession periods.

GFCF fell by 6.7% in machinery and equipment and by 27.2% in transport equipment (4.3% and -1.7% respectively in 2019). After the fall in the first half of the year, a recovery was observed in both cases. This was less pronounced in transport equipment, which, at the end of 2020, was still around 25% below pre-pandemic levels (Chart I.5.4). Conversely, the machinery and equipment component recovered almost completely. Heightened uncertainty appears to have delayed investment decisions, with the more negative evolution of the transport equipment component being partly linked to the drop in tourism activity. However, factors such as the perception of the pandemic shock as temporary, the measures supporting the financial situation of firms, the availability of credit at low interest rates and with State guarantees or the investment needed for working remotely are expected to have contributed to underpinning investment.

Chart I.5.4 • GFCF and its main components | Index, 2019 Q4 = 100



Source: Statistics Portugal.

External trade flows fell sharply. Among expenditure aggregates, exports experienced the largest decrease over the year (18.6%). In the goods component, the fall stood at 7.6%, below that observed in 2009 (12.3%). The recovery was very rapid throughout the year, keeping pace with developments in world trade in goods (Chart I.5.5). In services, the 37.1% drop has no historical precedent and the recovery remained very incomplete at the end of the year. Constraints on international travel led to a drastic reduction in tourism flows, with a severe impact on exports of services.

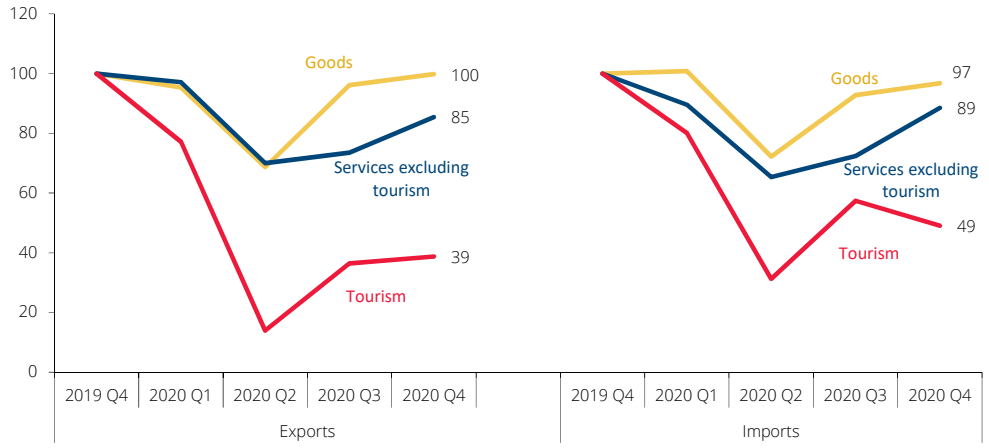
Exports of goods gained market share in external markets. This gain stood around 1% in 2020 (Chart I.5.6). In the EU markets, a detailed analysis of the performance of nominal exports of goods shows that the market share gain resulted from the contributions of food products, ores and base metals and machinery and electrical appliances. By geographic market, there were market share gains in trade with Spain and France.

The 12% drop in imports was smaller than that of exports and was supported by less negative developments in services due to the lower share of tourism in this flow. The reduction in imports reflected developments in global demand weighted by import content. The elasticity of imports to global demand was lower than the historical average, which tends to happen during recession periods, pointing to greater rigidity of imports.

Gross value added (GVA) fell by 6.4%, with differentiated impacts across sectors of activity. The contraction in GVA was larger in industry (7.6%) than in services (6.6%), but intra-annual

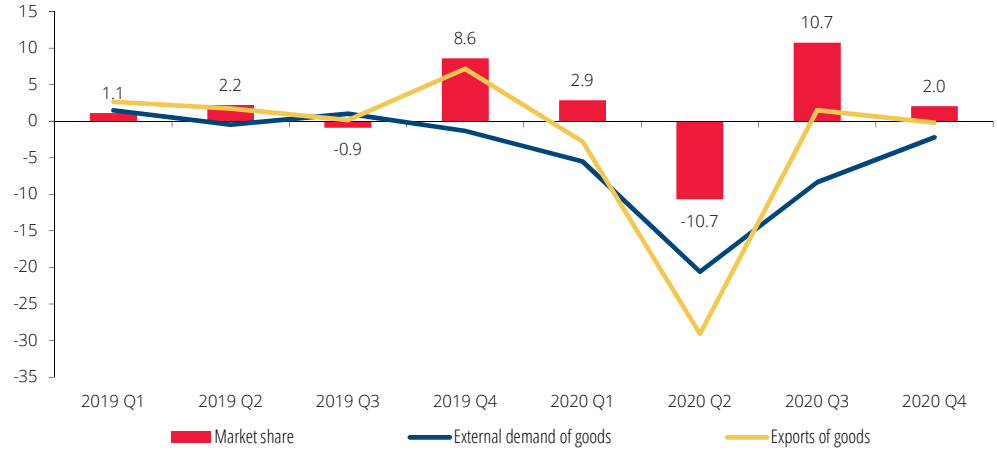
developments show a slower recovery in services (Table I.5.2). Falls of this magnitude are usual in recessionary periods in industry, but in services they were unprecedented over the last 25 years. In the construction sector, GVA increased by 3.2% (5.1% in 2019), accelerating throughout the year. The discrepancy between the reduction in GVA and GDP reflected developments in taxes net of subsidies on products, which fell by 15% in volume, following a 3.2% growth in 2019.

Chart I.5.5 • International trade flows | Index, 2019 Q4 = 100



Source: Statistics Portugal.

Chart I.5.6 • Exports of goods, external demand and market share | Year-on-year percentage change and percentage points



Sources: CPB Netherlands Bureau for Economic Policy Analysis and Statistics Portugal (Banco de Portugal calculations). | Notes: The external demand for goods addressed to Portuguese exporters was calculated by weighting the growth of imports from trading partners by their weight in Portuguese exports. The countries considered correspond to those available in the database of the CPB Netherlands Bureau for Economic Policy Analysis, which represented about 90% of Portuguese exports in 2020.

The subsectors of services most dependent on personal contact were the most affected. The fall in GVA was most significant in arts, entertainment and recreation (20.3%), trade, accommodation and food, transportation and storage, and professional services (decreases of around 12.5%) (Chart I.5.7). At the end of the year, the recovery of these subsectors remained very

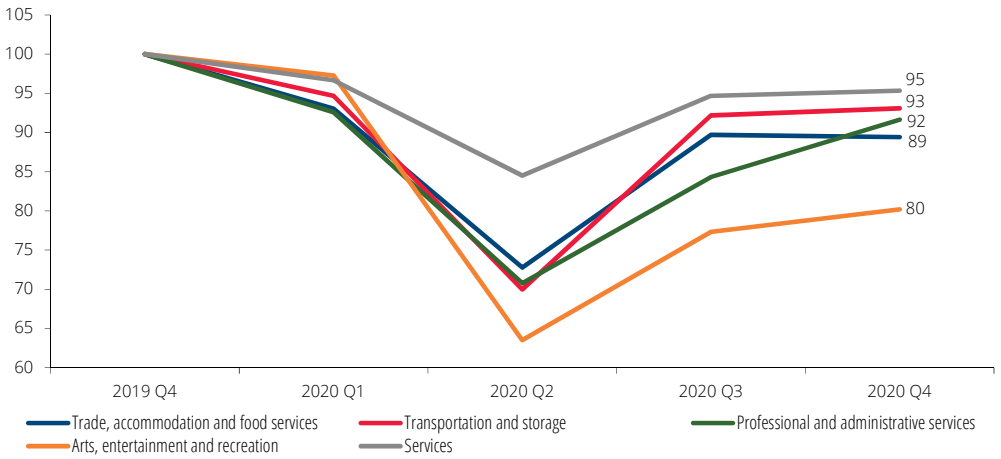
incomplete, especially in the arts, entertainment and recreation subsector, where the level of GVA was around 80% of that observed at the end of 2019. By contrast, the dynamism of GVA in information and communication activities and construction and the resilience of real estate activities and rentals were noteworthy (growth of 3.9%, 3.2% and 0.7% respectively).

Table I.5.2 • Total GVA and subsectors

	% of GVA in 2019	Annual percentage change			Year-on-year percentage change				
		2018	2019	2020	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4
GVA	100.0	2.7	2.4	-6.4	2.2	-2.2	-14.9	-4.6	-4.0
Agriculture, forestry and fishing	2.4	-1.1	3.4	-9.0	1.5	-5.4	-9.1	-10.9	-10.8
Industry (except construction)	17.5	4.5	-0.8	-7.6	-1.7	-4.3	-20.9	-3.1	-2.3
Construction	4.3	3.6	5.1	3.2	3.0	0.5	3.9	4.1	4.5
Services	75.8	2.3	3.0	-6.6	3.2	-1.7	-14.7	-5.2	-4.7
Trade, accommodation and food services	19.6	2.5	4.6	-12.7	4.5	-4.4	-26.0	-9.6	-10.6
Transportation and storage	4.9	3.1	5.1	-12.5	4.4	-4.2	-30.4	-8.5	-6.9
Information and communication activities	3.6	5.2	5.5	3.9	4.3	3.1	0.5	5.2	6.7
Financial activities	4.9	2.0	1.1	-2.1	1.6	-0.7	-2.4	-2.9	-2.6
Real estate activities	12.4	0.8	1.1	0.7	1.1	0.9	0.7	0.6	0.6
Professional services	8.2	6.6	4.7	-12.8	6.0	-2.3	-26.7	-13.8	-8.4
Public administration, education and health	19.2	1.0	1.1	-1.4	1.7	-0.7	-5.6	0.4	0.3
Arts, entertainment and recreation	3.0	1.1	3.8	-20.3	3.9	-1.6	-36.4	-23.1	-19.8
Memo item:									
GVA – euro area		1.9	1.3	-6.7	0.9	-2.9	-14.6	-4.3	-5.1

Sources: Eurostat and Statistics Portugal. | Note: The NACE sections presented are: A (Agriculture, forestry and fishing); B to E (Industry except construction); F (Construction); G and I (Trade, accommodation and food services); H (Transportation and storage); J (Information and communication activities); K (Financial activities); L (Real estate activities); M and N (Professional and administrative activities); O to Q (Public administration, education and health); R to U (Arts, entertainment and recreation).

Chart I.5.7 • GVA of the services subsectors most affected by the pandemic | Index, 2019 Q4 = 100



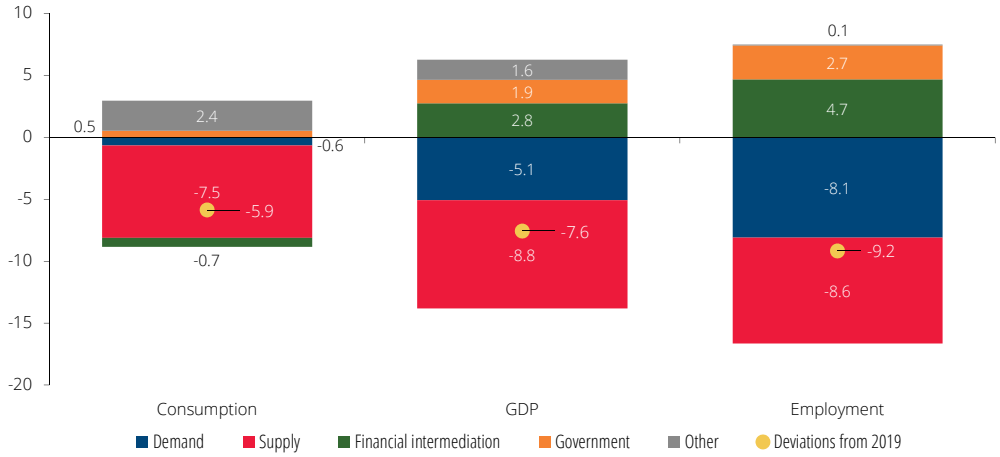
Sources: Eurostat and Statistics Portugal. | Note: The services subsectors most affected by the pandemic considered correspond to those where the drop in GVA in volume in 2020 was over 10%.

Box 4 • GDP, private consumption and employment: a general equilibrium perspective

In light of the general equilibrium PESSOA model, the box identifies the contributions of the main determinants of GDP, private consumption and employment. Such determinants are grouped into five categories: supply, demand, government, financial intermediation, and a residual aggregate.

In 2020, developments in macroeconomic aggregates were predominantly marked by disruptions in supply and, to a lesser extent, demand (Chart C4.1). Economic policy decisions, reflected in the contributions of government and financial intermediation, mitigated the negative impact of pandemic shocks, notably on GDP and employment.

Chart C4.1 • GDP, consumption and employment | Annual rate of change in 2020 in percentage and contributions in percentage points



Source: Banco de Portugal. | Notes: "Supply" is dominated by a factor shared by both Portugal and the euro area, and corresponds to temporary shocks on the growth rate of technology. "Demand" reflects mainly the effect of external demand on domestic activity. Employment is measured in hours worked. For more details, see Box 3 "A general equilibrium view on GDP projections" of the *Economic Bulletin* of June 2020.

The contribution of supply to developments in GDP, private consumption and employment reflected a drop in total productivity on a global scale. This effect, shared by Portugal and the euro area, mirrored the global nature of the crisis and represents a lower overall productive capacity. This was the result of the partial or total closure of firms or the inability to maintain pre-crisis levels of (labour and capital) efficiency.

Developments in demand were driven by lower foreign demand. Lower demand targeted to Portuguese producers led to very negative developments in exports, especially tourism, and triggered a decrease in production and hours worked.

Discretionary fiscal policy partly offset the negative effects of supply and demand disruptions. In the model, the relaxation of fiscal rules in the context of the pandemic led to higher domestic demand compared to the resulting equilibrium if the rules had been applied. The measures adopted contributed to maintain employment levels and other productive factors that were key for an economic recovery.

Financial intermediation shocks created more favourable financial conditions than would have been expected given the economic environment. The decrease in firms' equity was lower

than expected given the economic context. The stability of interest rate differentials did not reflect the increase in bankruptcy risk associated with higher leveraging. The ECB's accommodative monetary policy stance and continued historically low interest rates, together with public measures – State guarantees or moratoria – enabled highly favourable financing conditions. This environment created the conditions for greater use of credit than expected given the economic developments. The increase in indebtedness was not proportionally passed through to interest expenditure paid by non-financial corporations. Developments in equity and credit enabled firms to finance higher levels of capital than those expected considering the fall in economic activity, limiting the impact on production and employment.

Box 5 • Loss of national income: breakdown by institutional sector

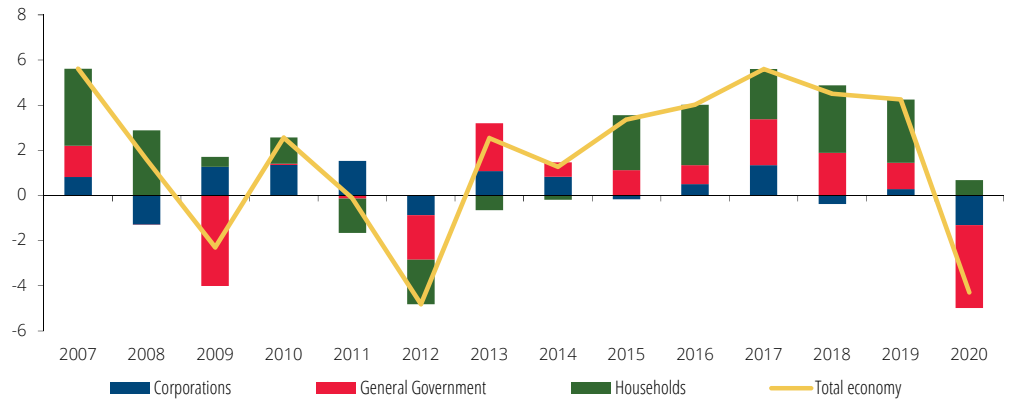
The loss of income in the Portuguese economy was mitigated by the effect of automatic stabilisers and the implementation of support measures. The 4.3% fall in the economy's gross disposable income, in nominal terms, was distributed differently across the institutional sectors: households, corporations and general government. Of particular note is the role of fiscal measures implemented in containing the multiplier effects of the pandemic shock on households and corporations.

About 85% of the national income loss was borne by the general government. This is a much higher percentage than the weight of this sector in gross national disposable income over the past five years. In this period, on average, general government income corresponded to 18% of national income, households had around 70% and corporations 12%. The general government share in the income loss of 2020 was similar to that observed in the 2009 economic and financial crisis but far exceeded that observed during the sovereign debt crisis in 2012 (Chart C5.1 and Table C5.1).

The different developments in this sector´s income should be seen against the background of the different nature of the crises. The pandemic was an exogenous shock to the economy, whereas the previous crisis was rooted in macroeconomic imbalances that had built up. Moreover, the starting point in this crisis was a balanced budget. The impact of the discretionary measures adopted on household and corporate income was 1.9% of national disposable income. These measures, the automatic stabilisers and other discretionary measures without direct impact on disposable income contributed to a 5.8 p.p. deterioration in the budget balance.

The discretionary measures were mostly aimed at corporations but have not fully offset business losses. The gross disposable income of corporations dropped by 11.4% in 2020, following an increase of around 15% in cumulative terms over the previous four years (Table C5.1). Discretionary measures to support the sector accounted for 1.7% of national income and around 15% of the sector's income, the highest weight being associated with subsidies to firms – namely the "simplified layoff" and the extraordinary incentive to support the normalisation of economic activity – and the suspension of corporate income tax prepayments. The operating margin of corporations fell by 13.5%, with the decrease in activity and the maintenance of the payroll, which represents the largest portion of costs. In assessing the shock as temporary, firms adjusted employment less steeply, avoiding redundancy and subsequent recruitment costs.

Chart C5.1 • Gross disposable income of total economy and contributions of institutional sectors, in nominal terms | Annual growth rate in percentage and contributions in percentage points



Source: Statistics Portugal (Banco de Portugal calculations). | Notes: In National Accounts, gross national disposable income corresponds to the sum of the gross disposable income of the institutional sectors (balance between revenues and expenditures), which is used to finance final consumption (of households and general government) and investment (of all the agents). The country's gross disposable income excluding the balances of current transfers and of primary income with non-residents is equal to GDP. In 2020, the nominal change of GDP was -5.4%.

Table C5.1 • National accounts by institutional sector, in nominal terms

			General Government	Corporations	Of which: NFC	Households	Total economy
Gross disposable income (GDI)	% total GDI	2019	19.6	11.5	9.3	68.9	100.0
		2020	16.6	10.7	8.7	72.7	100.0
	gr %	2019	6.0	2.5	-0.9	4.1	4.3
		2020	-18.7	-11.4	-10.3	1.0	-4.3
Consumption	gr %	2019	3.4	–	–	3.6	3.5
		2020	5.2	–	–	-5.0	-2.9
Saving	% GDP	2019	2.7	11.5	9.3	4.9	19.1
		2020	-2.0	10.7	8.8	9.4	18.1
Investment	% GDP	2019	1.9	13.0	12.8	4.1	18.9
		2020	2.2	12.6	12.3	4.3	19.1
Capital transfers and acquisitions less disposals of non-produced assets	% GDP	2019	-0.7	0.9	0.3	0.7	0.8
		2020	-1.5	1.8	1.2	0.9	1.2
Net lending (+) /Net borrowing (-)	% GDP	2019	0.1	-0.6	-3.2	1.5	1.0
		2020	-5.7	-0.1	-2.4	5.9	0.1
Memo item:							
COVID-19 discretionary measures with impact on the disposable income of other sectors	% total GDI	2020	-1.9	1.7		0.4	

Sources: Statistics Portugal (Banco de Portugal calculations) and Ministry of Finance. | Notes: In National Accounts, gross disposable income corresponds to the overall balance between revenues and expenditures of the institutional sectors, which is used for final consumption (of households and general government) and investment (of all agents). NFC – Non financial corporations. In the case of corporations, disposable income is obtained as the sum of the operating surplus – which is the difference between GVA and compensation of employees, plus the subsidies on production net of taxes – with the balances of property income and other current transfers and social benefits and contributions and taxes on income. The COVID-19 discretionary measures with impact on the other sectors' disposable income include measures financed by European funds that don't have an impact in the disposable income of general government.

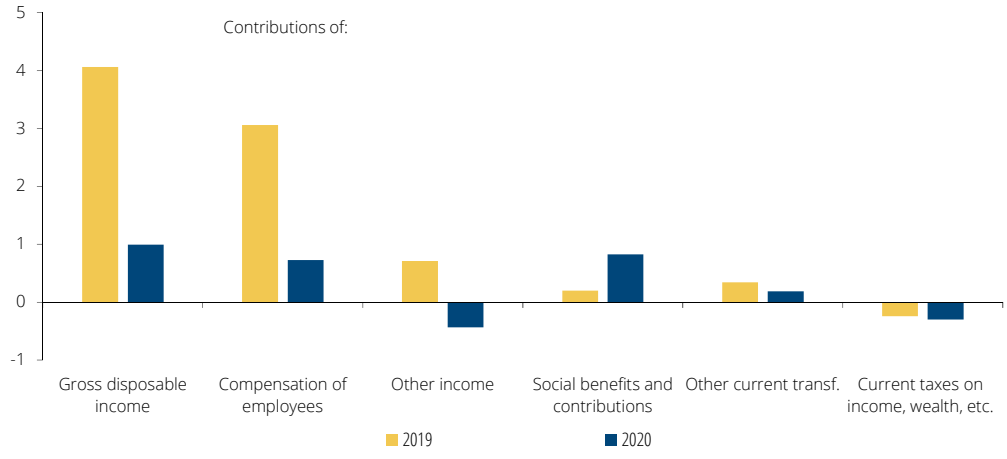
The decrease in corporate savings was accompanied by an 8.5% fall in corporate investment and an increase in the net balance of capital transfers, and therefore the borrowing needs of the sector declined. This reflected, in particular, developments in non-financial corporations, with borrowing needs increasing from 3.2% of GDP in 2019 to 2.4% of GDP in 2020. With favourable financing

conditions, non-financial corporations increased their indebtedness by borrowing from banks and issuing debt securities. Reflecting a higher preference for liquidity, a large part of the funds obtained by corporations was channelled to deposits, which increased from 2.1% of GDP in 2019 to 3.8%.

The resilience of household disposable income largely mirrors the direct impact of measures to support households and the indirect impact of support to corporations to safeguard employment and wages. Nominal household disposable income grew by 1% (4.1% in 2019) (Chart C5.2). Direct support, which only includes transfers made directly from the State to households following legislative changes, represented 0.4% of national income. This adds to the usual contribution of automatic stabilisers, which operate by reducing taxes and contributions paid and increasing unemployment-related benefits. Household disposable income also benefited from wage growth (1.1%), despite job loss (1.7%). It should be noted that the analysis focuses on aggregate sector developments that comprise very heterogeneous individual situations.

Despite the increase in disposable income, households sharply reduced their consumer spending in a context of greater uncertainty and consumption constraints. This resulted in a sharp increase in the savings rate to 12.8% of disposable income (7.1% in 2019). Despite the slight increase in investment as a percentage of GDP, net lending of this sector was much higher than in the previous year (5.9% of GDP, after 1.5% of GDP in 2019). These funds were mostly directed to deposits, which reached 6.2% of GDP (2.8% of GDP in 2019).

Chart C5.2 • Gross disposable income of households and main contributions | Annual growth rate in percentage and contributions in percentage points



Source: Statistics Portugal (Banco de Portugal calculations). | Note: Other income includes the operating surplus of the entrepeneurs (mixed income) and net property income.

6 Labour market

The pandemic crisis has had effects on the labour market that differ greatly from those of the most recent crises. Developments in employment (-2%) and unemployment (3.8%) were very subdued compared to the fall in economic activity and contrasted strongly with the decrease of approximately 11% in the number of hours actually worked. This development was linked to measures to support firms, which led to a reduction in working hours or even the total suspension of work without loss of employment. The impact of the pandemic shock on the labour market was asymmetric, favouring workers on contracts of over one year, in contrast to the previous crisis.

Measures to support businesses and workers helped to mitigate the fall in employment. After a significant drop at the beginning of the pandemic crisis, employment showed a gradual and incomplete recovery in the second half of the year (Table I.6.1). About 115,000 employers had submitted simplified layoff applications by the end of July 2020 encompassing a potential universe of 1,367,000 workers. Of these, the salaries of around 900,000 workers were supported, the equivalent of about 25% of the employment recorded with Social Security. The results of the Fast and Exceptional Enterprise Survey - COVID-19 (COVID-IREE) of July 2020 indicate that, in the absence of the simplified layoff, the 3.6% reduction in employment recorded at the time would have risen to 8%.

Table I.6.1 • Employment

	Thousand individuals		Annual percentage change		Year-on-year percentage change				
	2019	2020	2019	2020	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4
Total	4,913	4,814	1.0	-2.0	0.5	-0.3	-3.8	-3.0	-1.0
By situation in the profession									
Employees	4,085	4,011	0.7	-1.8	0.6	0.3	-3.6	-3.0	-0.9
Self-employed	810	789	2.6	-2.7	0.3	-2.2	-4.2	-3.7	-0.7
Family workers	18	15	-12.9	-17.0	-12.3	-34.3	-22.0	23.0	-24.9
By type of contract									
Open-ended contracts	3,236	3,298	2.2	1.9	2.6	3.1	1.2	0.9	2.5
Fixed-term contracts	719	596	-3.5	-17.1	-3.7	-11.2	-20.9	-18.9	-17.5
Service providers	130	117	-11.1	-10.3	-19.6	-4.7	-26.0	-13.0	2.2
By duration									
Full-time	4,405	4,341	1.1	-1.5	0.9	0.6	-2.8	-3.2	-0.4
Part-time	508	473	-0.6	-6.8	-3.1	-7.4	-12.1	-1.0	-6.5
By age group									
From 15 to 24 years old	305	256	3.0	-16.1	1.3	-3.8	-18.6	-23.2	-18.4
From 25 to 34 years old	936	900	-0.5	-3.8	-1.7	-2.2	-7.1	-5.1	-0.8
From 35 to 44 years old	1,292	1,240	-0.8	-4.1	-1.8	-2.3	-4.5	-5.2	-4.3
From 45 to 54 years old	1,269	1,297	1.4	2.2	3.5	3.1	1.1	2.6	1.9
More than 54 years old	1,110	1,121	3.3	1.0	1.6	0.9	-1.7	0.6	4.1
By schooling level									
Up to Basic education – 3rd cycle	2,134	1,963	-4.5	-8.0	-3.5	-3.8	-10.0	-9.3	-8.9
Secondary education	1,405	1,401	5.7	-0.3	5.4	4.0	-0.3	-2.6	-2.1
Tertiary education	1,368	1,450	5.2	6.0	1.8	1.3	2.6	7.2	12.9

Source: Statistics Portugal – Labour Force Survey (Banco de Portugal calculations).

There was an increase in the number of workers on open-ended contracts with more than 12 months, workers over 45 and with secondary education. By contrast, the number of

workers on fixed-term part-time jobs, workers aged between 15 and 24 and with upper-secondary schooling fell by between 7% and 17%.

The fall in employment was most pronounced in the sectors most affected by lockdown and social distancing measures. On average, employment stabilised in the other sectors (Table I.6.2).

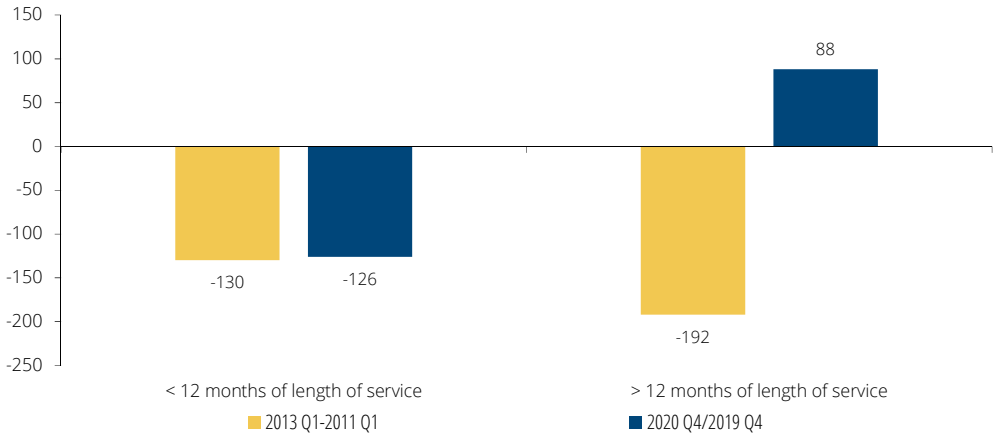
Table I.6.2 • Employment by activity sector

	Thousand individuals		Annual percentage change		Year-on-year percentage change				
	2019	2020	2019	2020	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4
Total	4,952	4,866	0.8	-1.7	0.2	-0.4	-3.4	-2.5	-0.6
Agriculture, forestry and fishing	389	383	-7.5	-1.5	-9.8	-8.2	-3.7	-1.3	7.8
Industry except construction	838	822	0.1	-2.0	-1.0	-1.8	-3.4	-2.4	-0.2
Construction	305	306	0.9	0.5	0.5	-0.4	-1.3	2.8	0.9
Services	3,420	3,354	2.0	-1.9	1.7	0.9	-3.6	-3.2	-1.8
Trade, accommodation and food services	1,296	1,236	1.4	-4.6	1.0	0.4	-6.1	-6.0	-6.6
Transportation and information and communication	110	116	6.5	5.8	5.3	2.9	3.1	6.1	11.0
Financial and insurance services	84	84	1.6	0.2	1.0	-1.0	-1.5	-0.8	3.9
Real estate activities and rentals	41	39	5.3	-5.1	5.3	-1.1	-5.2	-7.5	-6.5
Services provided to corporations	589	567	1.5	-3.8	1.2	0.2	-8.1	-6.5	-0.6
General government, education and health	1,021	1,035	2.1	1.3	2.0	1.5	0.6	1.1	2.0
Arts, entertainment and recreation; other services	280	278	3.2	-0.6	3.1	2.2	-0.5	-2.3	-1.8
Most affected sectors	2,165	2,081	1.7	-3.9	1.3	0.6	-6.0	-5.7	-4.4
Least affected sectors	2,787	2,785	0.1	-0.1	-0.7	-1.2	-1.5	-0.1	2.3

Source: Eurostat – National Accounts (Banco de Portugal calculations). | Notes: The NACE sections presented are: A (Agriculture, forestry and fishing); B-E (Industry except construction); F (Construction); G-I (Trade, accommodation and food services); H and J (Transportation and information and communication); K (Financial and insurance services); L (Real estate activities and rentals); M and N (Services provided to corporations); O-Q (General government, education and health); R-U (Arts, entertainment and recreation). The sectors most affected by the pandemic are those which recorded real GVA decreases in 2020 larger than 10% (NACE sections: G-I, M and N, R-U). The values for total employment differ from Statistics Portugal - Labour Force Survey, reflecting the different sources of information.

The pandemic crisis has disproportionately affected workers hired within the previous year. On the contrary, the number of employees with contracts with over 12 months has increased. This profile of change in employment by seniority in the firm contrasted with the previous crisis, where both segments recorded a similar fall in employment (Chart I.6.1).

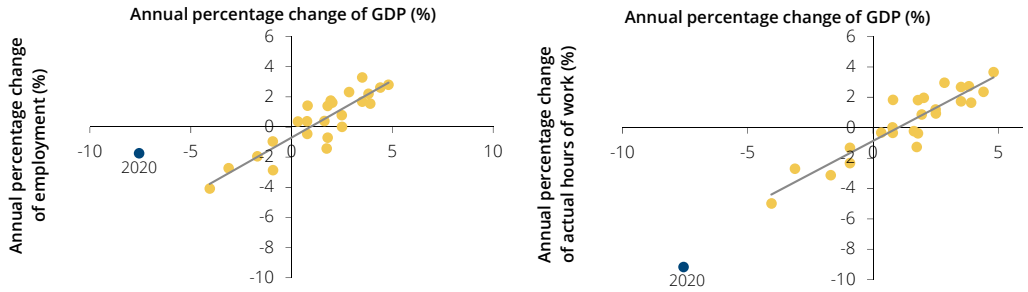
Chart I.6.1 • Variation of employment by length of service | Thousands of individuals



Source: Statistics Portugal – Labour Force Survey (Banco de Portugal calculations).

The reduction in hours actually worked was caused by an increase in the employed population absent from work. This unprecedented increase in the population absent from work was the result of reduced activity and measures implemented in response to the pandemic crisis – simplified layoff, providing assistance to family members, preventive isolation – as well as those absent due to illness. Against this background, developments in hours worked better reflected the economic downturn following the pandemic shock (Chart I.6.2).

Chart I.6.2 • Variation of employment, actual hours of work and GDP in Portugal from 1995 to 2020 | Annual percentage change



Source: Eurostat – National Accounts (Banco de Portugal calculations). | Note: The blue lines are the fitted linear regression lines of the two variables represented in each Chart, excluding 2020 from the sample.

Labour productivity, as measured by hours worked, grew by 1.9%. This was largely due to the hourly productivity increase in services, particularly trade, transport, accommodation and food activities, as well as in construction (Table I.6.3).

Table I.6.3 • Sectoral contributions to the GVA per hour of work annual rate of change | Percentage and percentage points

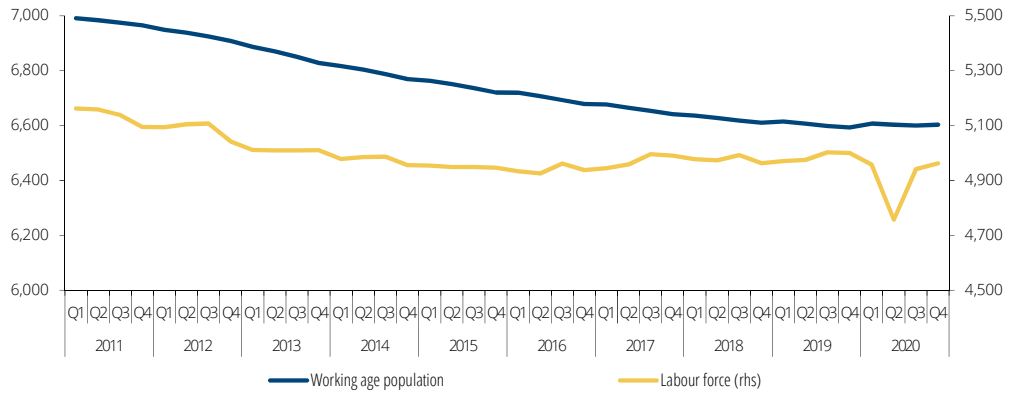
								Memo:
	2015	2016	2017	2018	2019	2020	2014-2020	2008-2013
Whole economy (exc. public administration and real estate activities, growth rate, percentage)	-0.6	-0.2	0.7	0.2	2.0	1.9	3.0	12.3
Within-sector contributions (in p.p.):								
Agriculture, forestry and fishing	0.2	0.1	0.2	0.0	0.3	-0.2	0.7	1.0
Industry (except construction)	0.0	-0.1	0.3	0.4	0.1	-0.4	0.6	2.5
Construction	-0.1	0.1	0.1	-0.1	0.1	0.8	0.6	0.7
Trade, accommodation and food services	-0.2	-0.3	-0.1	-0.3	1.1	2.0	1.5	5.6
Other services	-0.9	-0.3	-0.1	0.2	0.2	-0.2	-2.2	-0.6
Within-sector contribution	-0.9	-0.5	0.4	0.2	1.8	2.0	1.2	9.1
Inter-sectoral contribution	0.3	0.4	0.3	0.0	0.2	-0.1	1.8	3.3

Source: INE – National Accounts and Eurostat (Banco de Portugal calculations). | Notes: The sectors "Real estate activities and rentals" and "General government, education and health" were excluded from the analysis of the GVA per hour of work, considering that the way GVA is calculated in these sectors implies that their productivity does not have economic meaning (in the first case, GVA is distorted by imputed rents; in the second, the GVA calculation for non-market services is based on wages). The calculation of the within-sector component assumes that employment share measured in hours of work remains constant between periods, such that only the change in productivity of each sector is assessed. In turn, the calculation of the inter-sectoral component assumes that productivity does not change, isolating changes due to the effect of employment flows between sectors measured in hours of work. For a more detailed description of the methodology used to compute the sectoral contributions, see the Box 6 in the *Economic Bulletin* of October 2017. The changes between 2014 and 2020 and between 2008 and 2013 are cumulative rates of change.

The labour force decreased by 1.7% on average per year while the working-age population stabilised. The pandemic crisis has interrupted the recovery path followed by the labour force

since 2017 against a background of shrinking working-age population (Chart I.6.3). In 2020 developments in the labour force had a marked quarterly profile. The first general lockdown resulted in a very significant increase in the inactive population (according to the International Labour Organisation's classification criteria), which was almost reversed in the second half of the year. In the last quarter, the labour force fell by 0.75% compared with the same period a year earlier.

Chart I.6.3 • Working age population and labour force (15 to 64 years old) | Thousands of individuals



Source: Statistics Portugal – Labour Force Survey (Banco de Portugal calculations).

As usual in recessionary periods, the change in the unemployment rate was lower than that in labour underutilisation, reflecting the increase in the inactive population. However, in 2020 the lower sensitivity of the unemployment rate to developments in economic activity became more pronounced. The number of unemployed increased by 3.4% compared to 2019 to around 350,000 individuals (Table I.6.4).

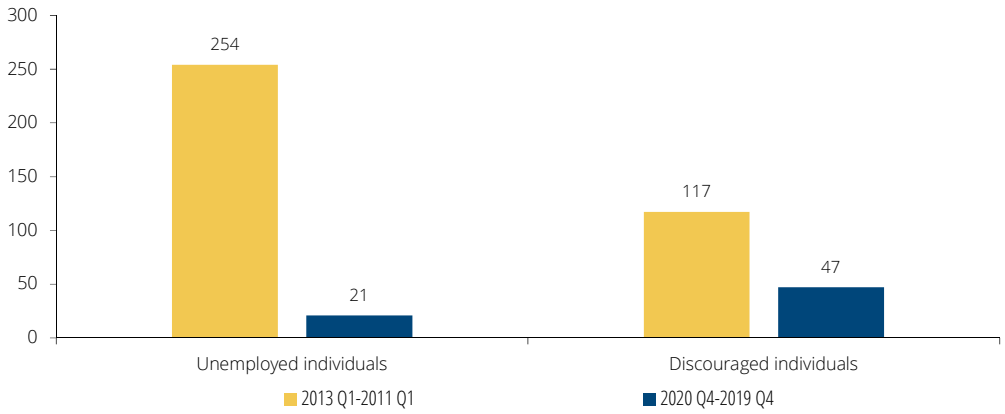
Table I.6.4 • Unemployment and labour underutilisation | Year-on-year percentage change, unless otherwise stated

	Thousands of individuals		Percentage		Percentage				
	2019	2020	2019	2020	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4
Total unemployment	339.5	350.9	-7.2	3.4	0.9	-1.6	-15.2	24.9	5.9
Unemployment rate (percentage of labour force)	–	–	6.5	6.8	6.7	6.7	5.6	7.8	7.1
Unemployment registered in job centres	310.9	390.2	-11.4	25.5	-8.4	3.0	36.4	35.7	29.3
Labour underutilisation	690.0	751.9	-7.2	9.0	-5.0	-5.8	10.7	21.9	10.7
Labour underutilisation rate [a] (percentage of labour force)	–	–	12.7	13.9	12.5	12.9	14.0	14.9	13.8
Discouraged individuals	167.5	226.0	-9.3	34.9	-18.7	-6.0	85.6	29.8	32.2

Sources: Employment and Professional Training Institute and Statistics Portugal – Labour Force Survey (Banco de Portugal calculations). | Notes: (a) The labour underutilisation rate aggregates the unemployed population, involuntary part-time workers, individuals seeking work but not immediately available and individuals available to work but not seeking. To compute the labour underutilisation rate, the labour force also includes these inactive individuals.

The increase in the labour underutilisation rate from 12.7% in 2019 to 13.9% was higher than that observed in the unemployment rate, driven by the significant growth in the number of discouraged inactive individuals (34.9%). Nevertheless, this evolution puts the underutilisation rate at 2018 figures and lower than in previous crises. Unemployment increased less than in the previous crisis, reflecting employment support measures, especially the simplified layoff (Chart I.6.4).

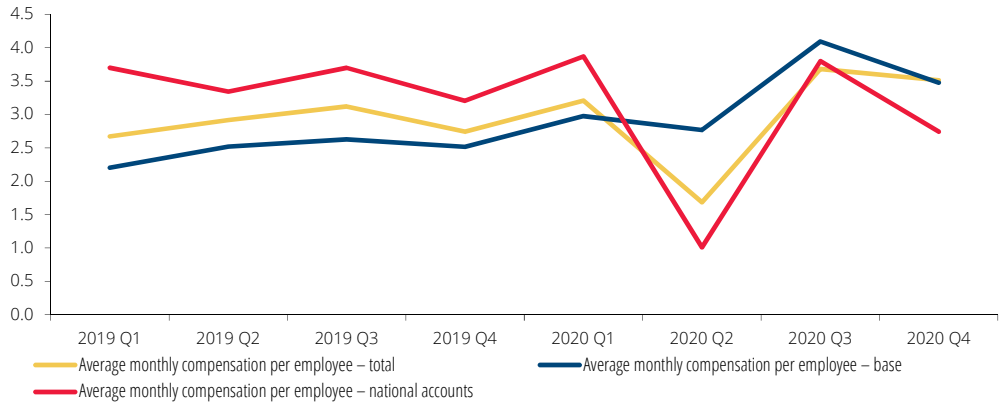
Chart I.6.4 • Variation of the number of unemployed and discouraged individuals | Thousands of individuals



Source: Statistics Portugal – Labour Force Survey (Banco de Portugal calculations).

Average compensation per employee increased by 3%, very close to that observed in 2019 (2.9%). Labour compensation developments were affected by policy measures with differentiated impacts on compensations. The minimum wage increased by 5.8% to €635. In turn, measures to support employment and labour income, such as the simplified layoff and the extraordinary support to the reduction of the economic activity of self-employed workers, safeguarded employment, but reduced wages. As with unemployment, average wages showed a subdued behaviour over the course of the cycle because of the composition effects that occur in employment. Nevertheless, moderate developments in employment compared to previous recessionary periods limited the impact of this factor.

Chart I.6.5 • Compensation per employee | Year-on-year percentage change

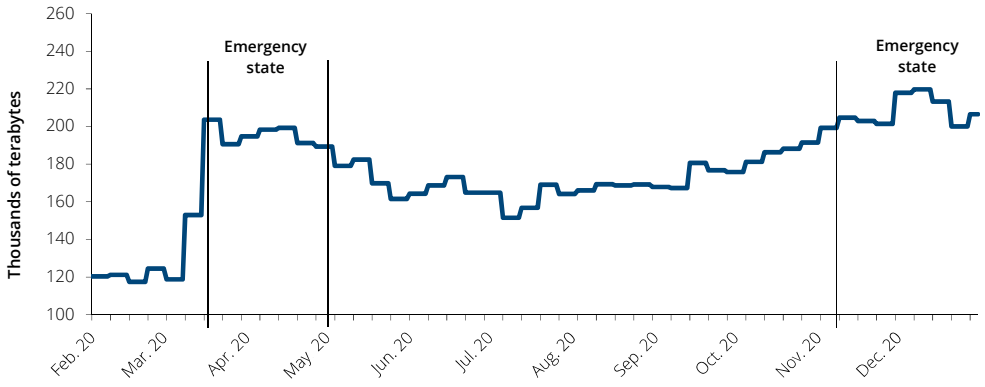


Sources: Eurostat and Statistics Portugal (Statslab). | Note: The information compiled by Statistics Portugal (total and base compensations per employee) includes the individuals under the Social Security scheme and the Caixa Geral de Aposentações – CGA (public employees' pension system) scheme.

Box 6 • The importance of digital technologies during the pandemic crisis

Digital technologies assumed a key role in the functioning of the economy and the society during the pandemic crisis. The use of communication networks and infrastructure boomed during the lockdown period. For example, fixed data traffic increased throughout 2020, particularly during the peak periods of the pandemic containment measures, growing by more than two thirds compared to the figure immediately before the pandemic (Chart C6.1). By allowing physical distancing, digital technologies have proven to be key to preserve part of the socio-economic system, particularly in education, health, entertainment and in maintaining contacts with friends and family. In counter cycle with economic activity, communication and information services showed GVA growth of 3.9% and employment growth of 5.8%.

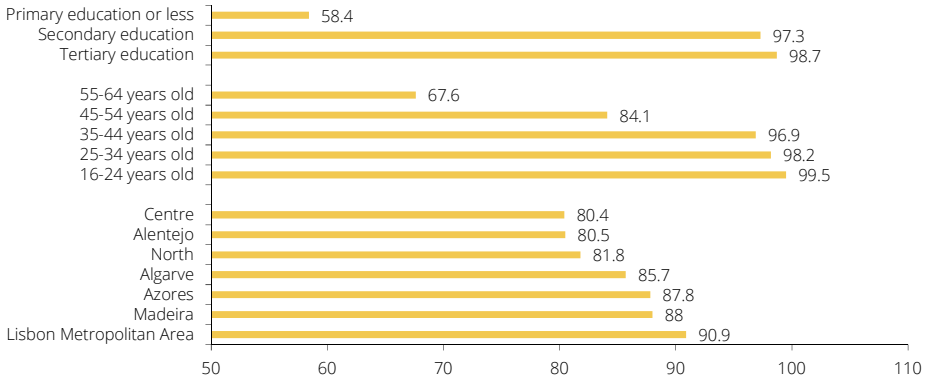
Chart C6.1 • Weekly traffic of mobile and fixed data since February 2020 | Weekly average values in thousands of terabytes



Source: ANACOM.

The importance of digital technologies during the pandemic crisis was mirrored in the increase in the working age population using the internet. In 2020, 78.3% of the resident working age population used the internet (75.3% in 2019 and 51.1% in 2010). Despite the upward trend, the percentage of internet users remained below the EU average, which was 86% in 2019 and 67% in 2010. On the other hand, asymmetries persist in the access of individuals to digital technologies by education, age group and spatial differentiation (Chart C6.2).

Chart C6.2 • Share of individuals with internet access in their residence by region, educational attainment and age | Percentage

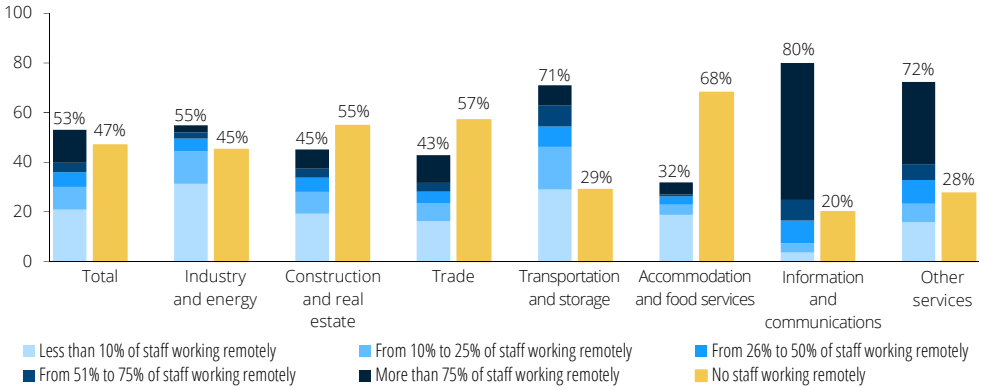


Source: Statistics Portugal.

Teaching-related activities showed the highest surge in internet usage. The percentage of internet users communicating with teachers or colleagues via learning portals stood at 30.8% (14.5% in 2019), while 18% of users attended online courses during the year (7.7% in 2019).

Teleworking was another area that contributed the most to the increased use of digital technologies. Teleworking is estimated to have covered around a quarter of employees in the second quarter, at the time of the first lockdown. In all sectors included in the COVID-IREE survey, teleworking was used by about half of the firms over the second quarter (Chart C6.3). These results are consistent with information from the Labour Force Survey ad hoc module, which shows that in the second quarter, 23.1% of the employed population was teleworking. Less restrictive containment measures reduced the percentage of employees teleworking in the third and fourth quarters to 14.2% and 12.3%.

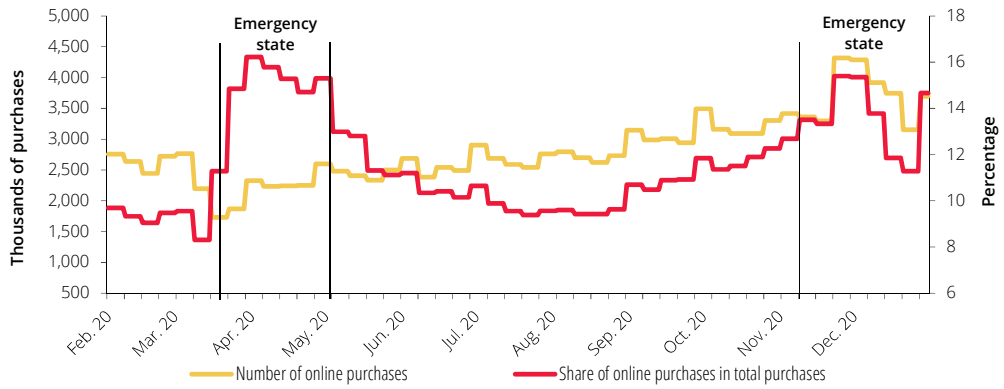
Chart C6.3 • Remote work in the second quarter of 2020 | Percentage



Source: COVID-IREE. | Note: For further details, see Manteu, C., N. Monteiro and A. Sequeira (2020), "The short-term impact of the COVID-19 pandemic on Portuguese companies", *Banco de Portugal Occasional paper* No 3.

E-commerce also soared, fuelled by the use of digital technologies. Online shopping experienced a sharp rise in total transactions (Chart C6.4). Compared to 2019, the number of online purchases grew by almost a third and by nearly 10% in value. The importance of e-commerce is also visible in the high percentage of people shopping online (44.5%, 7 p.p. above the 2019 figure). Despite this increase, Portugal is still below the European Union average in the percentage of the working age population shopping online (49% in 2019).

Chart C6.4 • Number of online purchases using the Multibanco network | Thousands and as a percentage of total purchases; weekly data



Source: SIBS.

7 Prices

The inflation rate stood at -0.1%, reflecting impacts of opposite signs of demand and supply shocks triggered by the pandemic. These shocks influenced developments in the inflation rate from the second quarter of 2020 onwards, with comparable effects (Box 1).

The pandemic led to changes in consumption baskets. The restrictions imposed and fears of infection had a differentiated impact on spending by type of goods and services. These changes in consumption baskets led to higher price increases in households belonging to the low consumption group, when compared to those in the high consumption group, in the year of 2020 (Box 7).

The 0.4 p.p. reduction in the inflation rate compared with the previous year reflected the contributions of non-food goods and services prices. There was a slowdown in services prices (from 1.1% to 0.4%) and a sharper fall in the prices of industrial goods, which extended to the energy and to the non-energy components (Table I.7.1). In the case of the energy component, developments largely reflected the sharp fall in oil prices in international markets (35.2% in euros).

Table I.7.1 • Harmonised Index of Consumer Prices and main components | Growth rate, percentage

	Weights 2020	Annual rate of change			Year-on-year rate of change				
		2018	2019	2020	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4
Total	100.0	1.2	0.3	-0.1	0.2	0.5	-0.2	-0.4	-0.4
Goods	56.4	0.5	-0.3	-0.6	-0.5	-0.1	-1.5	-0.2	-0.5
Food	22.6	1.0	0.6	1.8	0.5	1.0	2.6	1.9	1.8
Unprocessed food	6.2	1.3	0.2	5.0	0.4	2.4	6.4	6.0	5.2
Processed food	16.3	0.8	0.7	0.6	0.5	0.5	1.2	0.3	0.5
Industrial	33.8	0.2	-0.9	-2.2	-1.2	-0.9	-4.2	-1.6	-2.0
Non-energy	26.3	-1.1	-0.6	-1.3	-0.8	-1.2	-2.7	-0.5	-0.9
Energy	7.5	4.8	-1.7	-5.2	-2.5	0.2	-9.6	-5.5	-5.8
Services	43.6	2.1	1.1	0.4	1.1	1.3	1.5	-0.6	-0.4
Memo items:									
Total excluding energy	92.5	0.9	0.5	0.3	0.4	0.5	0.6	0.0	0.0
Total excluding food and energy	69.9	0.8	0.4	-0.2	0.4	0.4	-0.1	-0.6	-0.6
Total excluding food, energy and volatile tourism-related items	64.7	0.4	0.5	0.2	0.3	0.1	-0.4	0.6	0.4
Total excluding administered prices	88.1	1.1	0.3	-0.1	0.3	0.7	-0.1	-0.4	-0.6
CPI	–	1.0	0.3	0.0	0.3	0.4	-0.3	0.0	-0.2
HICP – euro area	–	1.8	1.2	0.3	1.0	1.1	0.2	0.0	-0.3

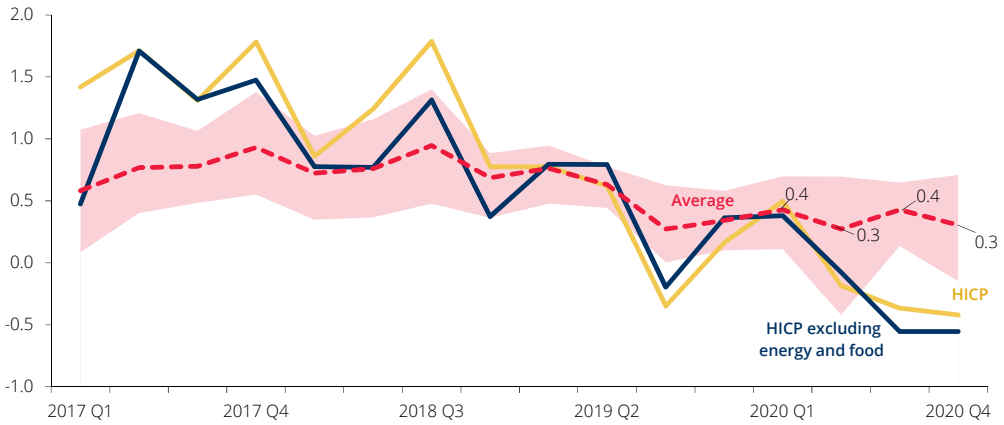
Sources: Eurostat and Statistics Portugal.

Food prices grew by 1.8%. The acceleration of 0.6 p.p. compared to 2019 reflected developments in unprocessed food prices, which rose by 7.5% in April and maintained high growth rates for the rest of the year. Demand linked to the replacement of restaurant services with home-made meals contributed to this increase, as did one-off supply disruptions and the rising in international food commodity prices in the second half of the year. The annual rate of change in the Harmonised Index of Consumer Prices (HICP) excluding energy and food stood at -0.2% (0.4% in 2019). The simple average of inflation trend measures points to the maintenance of positive underlying inflation rates, though below 1%, as in recent years (Chart I.7.1).

The change in consumer prices was more negative in the second half of the year, reflecting the evolution of services prices. The pandemic led to constraints in the collection of some prices

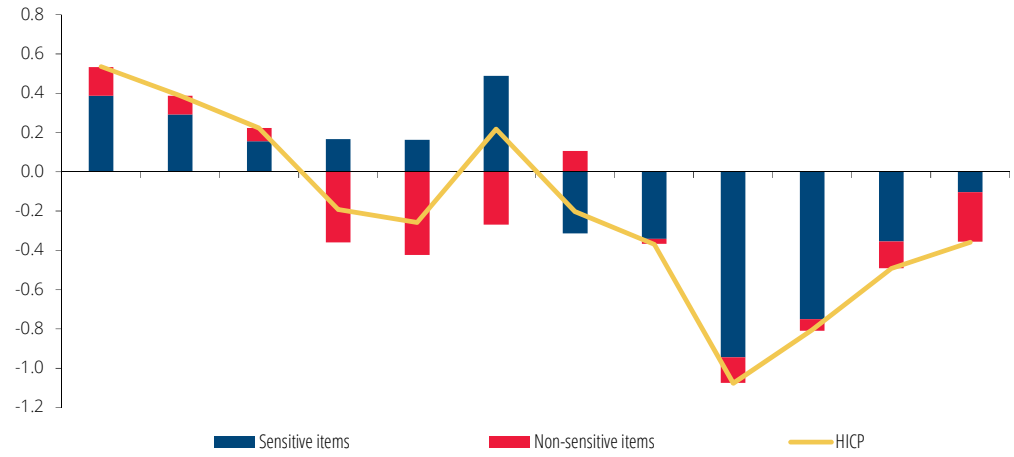
– mainly during the second quarter and affecting mostly the services component – that required imputing prices. In the second half of the year, prices of items considered sensitive to the pandemic shock, in particular those related to tourism activities, contributed the most to the decline in inflation excluding food and energy (Chart I.7.2).

Chart I.7.1 • HICP and underlying inflation measures | Year-on-year percentage change



Sources: Statistics Portugal (Banco de Portugal calculations). | Note: The shaded zone includes the following inflation measures: trimmed means at 5% and 12.5%, median, first principal component and HICP excluding food, energy and volatile components associated with tourism. The average is calculated as a simple average of these measures.

Chart I.7.2 • HICP and contributions from pandemic sensitive *versus* non-sensitive items | Year-on-year percentage change and percentage points

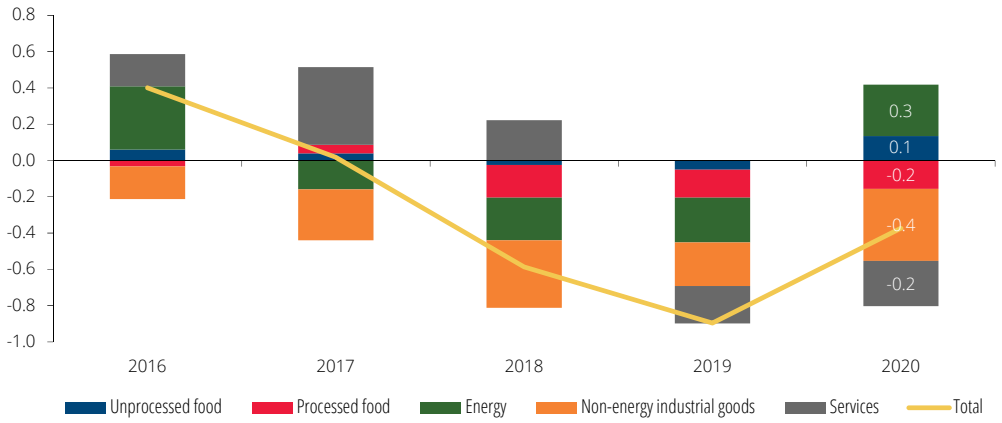


Sources: Eurostat and Statistics Portugal (Banco de Portugal calculations). | Notes: Following Shapiro's methodology (2020), items considered pandemic-sensitive are those for which the value of inflation, in the initial impact period of the pandemic, registered a statistically significant deviation from its average, over the last five years. This calculation was based on simple regressions, in which the inflation of each item was regressed on a dummy variable equal to 1 in the period from February to April. In the case of items severely affected by price imputation, the dummy considered takes value 1 in the months of March, July and August, with the months where price collection was made impossible being excluded from the analysis.

The inflation differential *vis-à-vis* the euro area stood at -0.4 p.p., after -0.9 p.p. in 2019. In the euro area, inflation decreased from 1.2% in 2019 to 0.3% in 2020. This decline was largely driven by falling energy prices, while also reflecting the slowdown in services prices in the second half

of the year. The largest contributions to the decline in the differential come from unprocessed food – which accelerated further in Portugal – and energy goods – with a smaller drop *vis-à-vis* the euro area (Chart I.7.3).

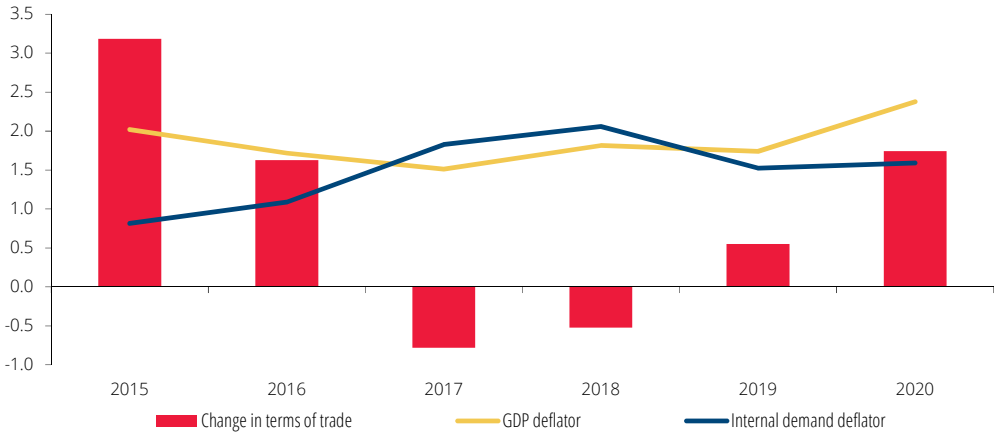
Chart I.7.3 • Inflation diferential between Portugal and the euro area | Percentage points



Sources: Eurostat and Statistics Portugal.

The GDP deflator increased by 2.4%, 0.7 p.p. more than in 2019, reflecting a higher gain in terms of trade. The 1.7% gain in terms of trade resulted from the fall in oil prices in euro. The acceleration of the GDP deflator was also, to a lesser extent, due to the contribution of the domestic demand deflator (Chart I.7.4). The higher growth in this deflator was associated with developments in the public consumption deflator, reflecting the reduction in hours worked without changing wages.

Chart I.7.4 • GDP deflator decomposition | Annual rate of change, percentage



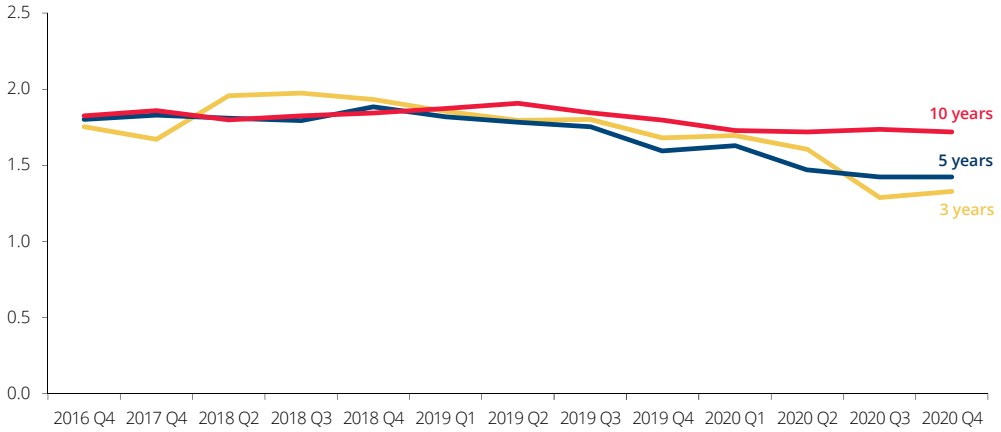
Sources: Statistics Portugal (Banco de Portugal calculations).

The private consumption deflator grew above consumer price indices. The difference between the change in the private consumption deflator (0.9%) and in the consumer price indices (HICP and CPI) was mainly explained by two factors: (i) the increase in rental prices (2.6%) and their

greater weight in the consumption deflator due to the accounting of imputed rents in consumption; (ii) the fact that national accounts considered weights in that year's consumption basket, implying a greater weight of food consumption, where prices increased sharply.

Long-term inflation expectations for Portugal remained broadly steady, with some downward revision for shorter horizons. Consensus Economics forecasts for inflation in Portugal over six to ten years remained relatively unchanged at around 1.7%. Forecasts over three and five years declined in the first half of the year (around -0.3 p.p.), stabilising at around 1.3-1.4% at the end of the year (Chart I.7.5). Similar developments in these expectations were observed in the euro area, with long-term inflation forecasts also relatively stable at around 1.8% (Section 2).

Chart I.7.5 • Inflation forecasts – Portugal | Percentage



Source: Consensus Economics. | Note: Until 2018 Q2, inflation forecasts were only released biannually. From 2018 Q2 onwards, the values are updated every quarter.

Box 7 • Inflation estimates by household expenditure quartiles

Inflation by consumption groups, which are defined by average expenditure, may differ reflecting differences in baskets consumed and also price developments. The consumer price index is a comprehensive measure of the change in the price of goods and services typically consumed by households. The pandemic and all the constraints associated with the consumption of several goods and services led to adjustments in the population's consumption baskets and to sharp changes in the prices of some components, impacting on the associated inflation. This box presents estimates of the relevant inflation for groups with different consumption levels over the past three years.

The available information enables to calculate inflation estimates for different consumption groups based on their expenditure structure. The weights obtained in the 2015 Household Expenditure Survey (Portuguese acronym: IDEF) were used for 2018 and 2019 inflation estimates. For 2020, in order to capture changes in the basket consumed, these weights were updated from national card payment data by consumption quartiles provided by SIBS (the Portuguese Interbank Services Company). Inflation estimates are presented for three consumer groups: high consumption – equivalent to IDEF's fourth expenditure quartile, which, according to SIBS' classification, corresponds to the fourth quartile of average expenditure per card at national level in the previous 12 months; medium consumption – corresponds to the third quartile in IDEF's and in SIBS's data; and low consumption – which aggregates the first and second quartiles in the IDEF's and in SIBS's data (i.e. they represent the half of the population with the lowest consumption).

Differences in the expenditure structure are concentrated on food, with a higher weight in the lower consumption group. As expected, weights obtained through the Household Expenditure Survey (IDEF) for total individuals are close to the 2020 Consumer Price Index (CPI) official weights. The breakdown of IDEF's expenditure into consumer groups makes it possible to identify differences in the corresponding baskets. For example, in the high consumption group, expenditure on food has a lower weight and the CPI classes related to services and transportation show a greater weight (Table C7.1).

Table C7.1 • Consumption baskets' structure, per consumption group and for the overall population (before and after weight adjustment) | Percentage

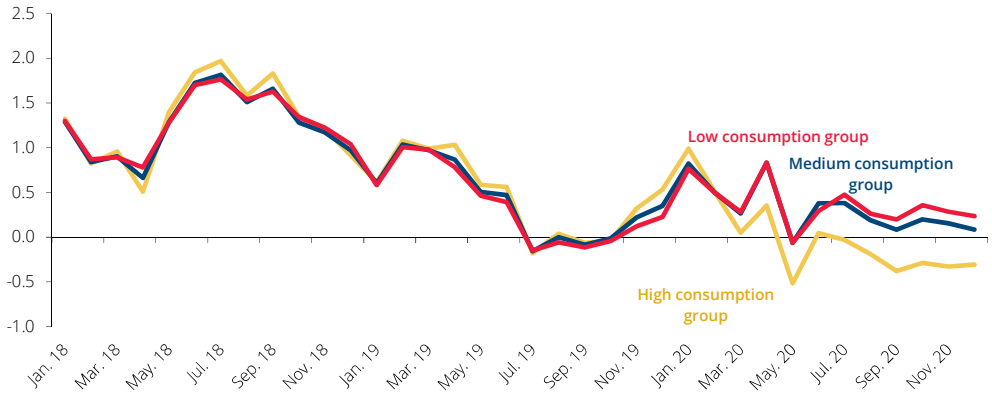
		High consumption group		Medium consumption group		Low consumption group		Total		CPI weights (Statistics Portugal)
		IDEF	Adjusted	IDEF	Adjusted	IDEF	Adjusted	IDEF	Adjusted	2020
Food and non-alcoholic beverages	C01	13.6	18.1	20.1	26.0	23.2	26.9	17.8	23.4	19.9
Alcoholic beverages, tobacco and narcotics	C02	1.7	1.5	2.4	2.0	2.2	1.3	2.0	1.6	3.7
Clothing and footwear	C03	5.2	3.6	4.0	2.7	3.1	2.0	4.3	2.9	7.1
Housing, water, elec., gas and others	C04	13.1	14.0	17.0	18.1	21.0	22.7	16.2	17.4	9.2
Household equipment, maintenance and others	C05	6.6	8.1	4.8	6.1	3.8	6.1	5.4	6.7	5.9
Health	C06	6.5	6.7	8.1	8.4	9.6	10.3	7.8	8.0	6.7
Transport	C07	21.7	20.3	15.4	13.1	13.0	11.2	17.8	15.9	16.3
Information and communication	C08	3.1	2.9	4.6	4.3	5.9	5.4	4.2	4.1	2.9
Recreation, sports and culture	C09	6.4	5.2	5.2	4.2	3.6	2.7	5.3	4.2	6.8
Education	C10	3.3	3.7	2.2	2.2	1.3	1.0	2.5	2.5	2.0
Restaurants and accommodation	C11	10.0	7.9	7.0	5.1	4.5	3.0	7.8	5.7	9.1
Other goods and services	C12	9.0	7.9	9.2	7.9	8.8	7.3	9.0	7.7	10.4

Sources: Statistics Portugal and SIBS (Banco de Portugal calculations). | Notes: The adjusted weights presented above correspond to the annual average of the monthly weights obtained for each class. To perform the weight adjustment of each COICOP class by consumer group, official CPI weights were proportionally adjusted based on the card expenditure ratio of the respective month of 2020 *vis-à-vis* 2019. Once the new weights were obtained, inflation estimates for 2020 were calculated. Inflation estimates were obtained by aggregating the CPI classes at the COICOP 1 level.

The change in the structure of expenditure generated by the pandemic raised the importance of food in all consumer groups. In contrast, the weight of transport and services-related classes dropped, a common feature across the groups. When updating the weights based on the card purchase structure, food still has the highest weight in the basket of the low consumption group. In the high consumption group, this class also recorded the highest increase in weight, however, transport remains the class with the greatest weight of all (Table C7.1).

Over 2020, prices increased more (or declined less) in the low consumption group. Inflation results for each of the three consumption groups were fairly close in 2018 and 2019. However, over 2020 estimates pointed to a higher price change for the low consumption group, compared to the high consumption one (Chart C7.1). In the year as a whole, the estimated change in CPI for the low consumption group was 0.3%, against a 0.0% estimate for the high consumption group (Table C7.2).

Chart C7.1 • Inflation estimates by consumption group | Year-on-year percentage change



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

Table C7.2 • Inflation estimates by consumption group | Annual rate of change, percentage

	High consumption group	Medium consumption group	Low consumption group
2018	1.3	1.3	1.3
2019	0.5	0.4	0.3
2020	0.0	0.3	0.3

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

The differences between estimated inflation for the different groups result mainly from differences in the weights of food and transport classes. The higher weight of food in the low consumption group, together with the strong acceleration in the price of these goods, explains the higher inflation estimate obtained for this group. In the high consumption group, this estimate is lower mainly due to the higher weight of the transport class, which includes fuels, where prices dropped significantly.

8 Balance of payments

The pandemic shock resulted in a deterioration in the external accounts of the Portuguese economy, but the balance remained positive in 2020. The current and capital account surplus decreased to 0.1% of GDP (1.2% in 2019). These developments were caused by the decline in the services account balance from 8.3% to 4.2% of GDP, with a 3.7 p.p. reduction in the surplus for travel and tourism. The balances of the other components of the current and capital account either improved or stabilised (Chart I.8.1).

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

	2016	2017	2018	2019	2020
Current and capital accounts	2.1	2.2	1.5	1.2	0.1
Current account	1.2	1.3	0.6	0.4	-1.2
Goods and services account	1.7	1.5	0.9	0.7	-1.8
Goods	-5.4	-6.8	-7.6	-7.6	-6.0
Energy	-1.7	-2.2	-2.5	-2.5	-1.7
Goods excluding energy	-3.6	-4.6	-5.1	-5.1	-4.3
Services	7.1	8.3	8.5	8.3	4.2
Travel and tourism	5.0	5.9	6.1	6.1	2.4
Other services	2.1	2.4	2.4	2.2	1.8
Primary income account	-2.3	-2.3	-2.4	-2.4	-1.5
Secondary income account	1.8	2.1	2.0	2.1	2.1
Capital account	0.9	0.9	1.0	0.8	1.3
Financial account	2.1	2.1	1.7	1.4	0.4
Errors and omissions	0.0	0.0	0.1	0.2	0.3

Sources: Statistics Portugal and Banco de Portugal.

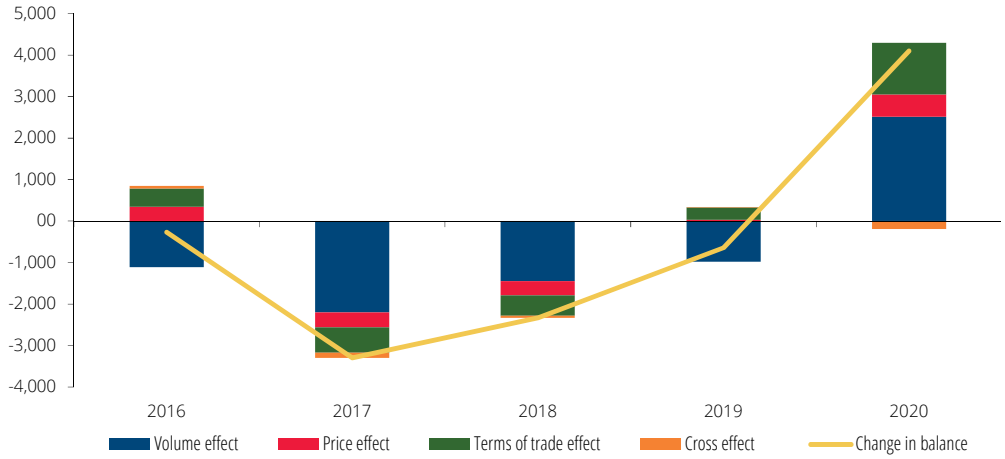
The deficit of external trade in goods narrowed to 6% of GDP from 7.6% in 2019. These developments were largely the result of a positive volume effect due to a sharper drop in imports than exports in real terms. The gains in terms of trade, associated with lower oil prices in international markets, also contributed to these developments (Chart I.8.1).

The surplus in trade flows of services declined, reflecting developments in tourism and international transport. These components were particularly affected by the restrictions on movement and the fears of contagion associated with the pandemic. The balance of travel and tourism declined by 3.7 p.p. to 2.4% of GDP and the balance of other services by 0.4 p.p. to 1.8% of GDP. The narrowing of the tourism surplus reflected the greater share of exports and their collapse (-57.6%), which was more significant than the decline in imports (46.1%). In other services, the decline in the transport surplus from 1.5% to 0.9% of GDP is the result, in particular, of the behaviour of the balance of passenger transport by air.

The primary income account deficit declined to 1.5% of GDP, reflecting lower dividends paid to non-residents. This 0.9 p.p. reduction largely reflected developments in the balance of direct investment income. The negative impact on the profits of Portuguese firms and on the distribution of dividends was reflected on the income paid to non-resident entities.

The secondary income account balance stabilised at 2.1% of GDP, with opposite developments in public and private transfers. Portugal's contribution to the EU budget was higher, and the balance of private transfers, in particular migrants' remittances, increased slightly. The larger migrants' remittances from the United Kingdom, the United States and Switzerland offset the increase in remittances to Brazil.

Chart I.8.1 • Decomposition of the change in goods account balance | Million of euros



Sources: Statistics Portugal and Banco de Portugal. | Notes: Note: A positive change (negative) implies an increase (decrease) in the overall balance of the goods account. The change in the overall balance of goods account can be decomposed in four effects: (i) volume effect – effect of the change in quantities imported and exported, $X_{t-1} \times vx_t - M_{t-1} \times vm_t$; (ii) price effect – effect of the average price growth of external trade, $X_{t-1} \times p_t - M_{t-1} \times p_t$; (iii) terms of trade effect – effect of the relative change in exports and imports prices, $X_{t-1} \times (px_t - p_t) - M_{t-1} \times (pm_t - p_t)$; (iv) cross effect – effect of the interaction between the change in quantities and in prices of exports and imports; The following notation applies: X_{t-1} e M_{t-1} are the exports and imports in year $t-1$ at current prices; vx_t and vm_t are the change rates in volume of exports and imports in t; px_t and pm_t are the change rates of exports and imports prices in t; p_t is the average change rate of the prices of external trade in year t $p_t = (px_t + pm_t)/2$.

The capital account balance increased by 0.5 p.p. to 1.3% of GDP due to increased inflows of ERDF and ESF funds. A base effect, stemming from the purchase of carbon dioxide allowances in 2019, also contributed to the increase in the capital account surplus.

The receipt of European funds increased by 0.7 p.p. to 2.4% of GDP. These inflows tend to increase at the final phase of EU funds programming periods.

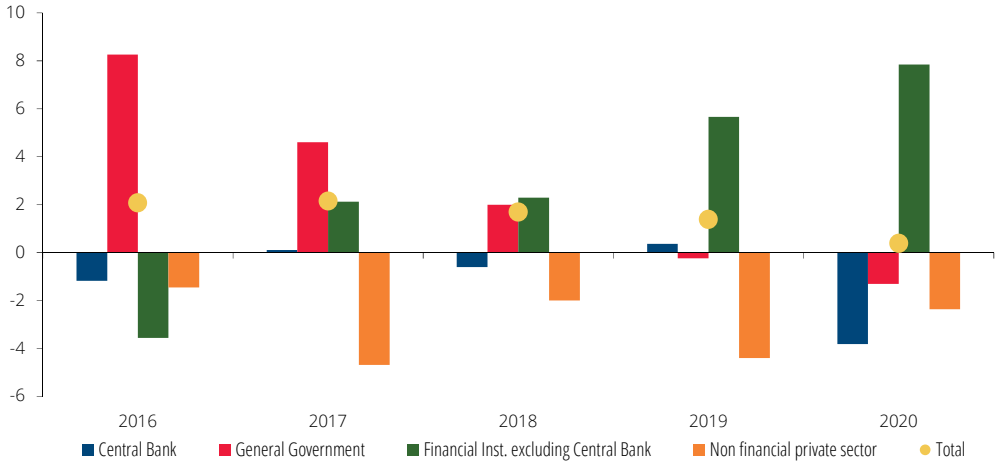
Through financial institutions, Portugal continued to invest in foreign assets in net terms. The financial account balance remained positive (0.4% of GDP), but was lower than in 2019 (1.4% of GDP) (Chart I.8.2). Financial institutions (excluding the central bank) were the only institutional sector to invest in foreign assets, in net terms, and to a higher amount than the previous year (7.9% of GDP, up from 5.7% in 2019). By financial instrument, the increase in investments attained 4.8% of GDP and reflected the continued purchases of government bonds issued by euro area countries. There was also an amortisation of external liabilities in this sector (of 3.1% of GDP) through the decrease in non-resident deposits and the amortisation of loans with the European Investment Bank.

External financing of the non-financial private sector declined by 2 p.p. to 2.4%. This funding continued to be largely channelled through net flows of foreign direct investment (1.8% of GDP). The real estate investment component remained relevant, accounting for 26% of inflows from foreign direct investment.

General government external indebtedness increased. The first disbursement of the loans obtained under the SURE instrument in December, amounting to 1.5% of GDP, greatly contributed to this. The net external financing obtained by the general government was 1.3% of GDP in 2020, after a relatively balanced position in the previous year and after four years of reduction in external indebtedness. Transactions in government bonds (portfolio investment) were not very significant

in net terms. This development was the result of two distinct movements: on the one hand, non--residents continued to invest in Portuguese Treasury bonds but, on the other hand, the Banco de Portugal increased the purchases of Portuguese government bonds held by non-resident investors. These purchases, made under the monetary policy asset purchase programmes, in turn led to an increase in Central Bank liabilities via TARGET.

Chart I.8.2 • Financial account balance, total and by institutional sector | Percentage of GDP



Sources: Statistics Portugal and Banco de Portugal. | Note: A positive (negative) signal corresponds to a net outflow (inflow) of funds in the Portuguese economy. The outflows of funds can occur by net acquisitions of external assets and redemptions in external liabilities. The inflows of funds correspond to sales of external assets or increase of liabilities held by non residents.

In 2020 the international investment position (IIP) worsened as a percentage of GDP. Although less negative by €1.6 billion, the IIP went from -100.5% of GDP in 2019 to -105.4% of GDP in 2020, mainly due to the fall in GDP.

II Special issues

The evolution of firms' liquidity during the pandemic

The impact of the pandemic on firms' equity

The evolution of firms' liquidity during the pandemic

The COVID-19 pandemic, an exogenous shock of high magnitude, has strongly affected Portuguese firms. The health response forced many firms to temporarily close their operations. The sharp drop in sales was not accompanied, in many cases, by a similar decline in spending due to a rigid cost structure. This situation represents a risk to liquidity and, ultimately, to firms' solvency.

This Special issue presents the contributions to the change in cash and bank deposits in 2020 of the firms present in the Quarterly Survey of Non-financial Corporations (ITENF, in its Portuguese acronym).

Firms' cash increased in 2020. This evolution reflected a significant drop in operating costs, in particular in supplies and external services, and in investment. Furthermore, there was an increase in credit, in a context where the government provided firms with support policies to facilitate bank lending and to alleviate the debt service effort. These developments offset the decrease in cash flows associated with the gross margin. The firms with the most significant increase in cash were the smallest, those least affected by the pandemic and those that applied to credit moratoria and State-guaranteed credit lines.

In order to perform this analysis, microdata from ITENF for around 2,400 firms are used, which includes accounting information from the Balance sheet and the Profit and loss statement up to the fourth quarter of 2020. The ITENF includes about 4000 corporations per quarter, but only firms that responded to the survey in the fourth quarters of 2018, 2019 and 2020 are subject to analysis. This may result in a coverage bias towards larger and better-performing corporations, but the ITENF is currently the only statistical source with 2020 accounting data. The ITENF sample base contains all active private non-financial corporations, with the exception of firms in agriculture, hunting, forestry and fishing activities. The ITENF sample under-represents smaller firms (Table 1), which typically show poorer financial indicators. This contributes to the fact that the sectoral distribution differs from the population of non-financial corporations. The ITENF has, in particular, a higher weight of the manufacturing sector and a lower weight of accommodation and food services, real estate activities and professional scientific and technical activities (Table 2).

Table 1 • Decomposition of the sample used by firm size | Percentage of the number of firms

	ITENF	Population
Micro	11.5	88.6
Small	23.3	9.6
Medium	37.5	1.5
Large	27.8	0.3

Source: Quarterly Survey of Non-financial Corporations – Statistics Portugal/Banco de Portugal. | Notes: The firm's classification follows the criteria of the European Commission Recommendation of 6 May 2003 on the definition of micro, small and medium-sized companies (2003/361/EC).

Change in firms' cash and bank deposits, hereinafter referred to as change in cash only, is usually broken down into three components: cash flow from operations (CFO), cash flow from investing (CFI) and cash flow from financing (CFF):

$$\Delta Cash_t = CFO_t + CFI_t + CFF_t$$

Table 2 • Decomposition of the sample used by sector of activity | Percentage of the number of firms

	ITENF	Population
Mining and quarrying	1.5	0.2
Manufacturing	36.4	9.7
Electricity and gas	3.5	0.3
Water supply, sewerage and waste management	4.1	0.2
Construction	6.7	11.0
Wholesale and retail trade	19.8	24.1
Transportation and storage	5.1	5.2
Accommodation and food service activities	3.0	10.3
Information and communication	3.9	3.1
Real estate activities	3.0	9.6
Professional scientific and technical activities	4.0	11.1
Administrative and support service activities	3.3	3.8
Education	1.4	1.3
Human health and social work activities	1.9	5.9
Arts, entertainment and recreation	1.7	2.0
Other service activities	0.8	2.2

Source: Quarterly Survey of Non-financial Corporations – Statistics Portugal/Banco de Portugal.

The ITENF has no information on the firm's cash flow statement, therefore each of these components was obtained indirectly from the Balance sheet and Profit and loss account.

Cash flows from operations result from the firm's business, namely from gross operating margin (Table 3), changes in working capital, cost of supplies and external services and employee expenses. Cash flow from operations also includes the following Balance sheet and Profit and loss account items: operating subsidies, income tax, variation in production, capitalised production, impairment losses, losses from changes in fair value, provisions, reversals, gains from changes in fair value, other income and gains and change in provisions.

Cash flows from investing include investment in fixed assets (Capex), interests and dividends earnings, and changes in other financial instruments (derivatives, financial instruments held for trading and other financial assets and liabilities).

Cash flows from financing include changes in debt to credit institutions and financial corporations, dividends paid to shareholders (net of capital injections), interest expenses, changes in other financing and changes shareholders assets/liabilities.

For a firm at a mature stage, cash typically increases via cash flows from operations and decreases with cash flows from investing and financing. This pattern reflects the generation of profits used to pay lenders and support investments. Even so, it is common for firms to offset temporary decreases in cash flows from operations with external financing, debt in particular, which is reflected in a positive contribution of cash flows associated with financing. This pattern is also common in younger firms or in those with large investment opportunities but are unable to internally generate the capital required to make these investments.

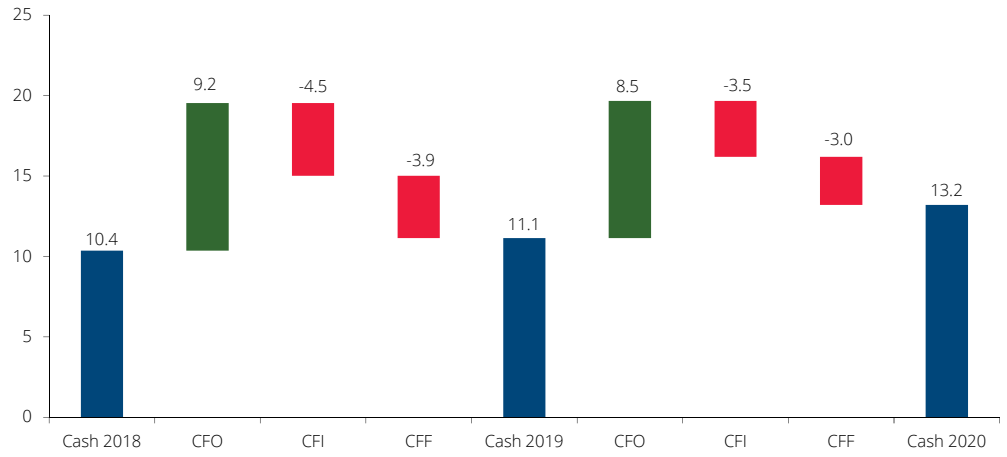
Chart 1 shows the breakdown of the annual change in the cash of firms. In 2019 and 2020, the cash-to-assets ratio of ITENF firms increased by 0.8 p.p. and 2.1 p.p. respectively, from 10.4% to 13.2% of the assets. This result remains unchanged even when a constant sample of firms over the three years of analysis is no longer considered. The higher increase in cash in 2020 resulted

from a less negative contribution of cash flow from investing and financing, which increased from -4.5% to -3.5% of assets and from -3.9% to -3% of assets. The lower contribution of investment flows is set in a context of uncertainty and contraction in demand, resulting in an aggregate contraction in investment in the Portuguese economy. The lower negative contribution of financing flows reflects the decline in debt servicing costs for firms that applied to credit moratoria and the increase in bank funding, partly State-guaranteed credit lines. In the opposite direction, the decrease in cash flow from operations, from 9.2% to 8.5% of assets, reflected the slowdown in economic activity.

Table 3 • Definitions of some of the variables used

Variable	Definition
Change in working capital	– Change in inventories – Change in accounts receivable – Change in other accounts receivable + Change in accounts payable + Change in other accounts payable – Deferred cost + Deferred income
Gross profit	+ Sales and services provided – Costs of goods sold and material consumed
Investment in fixed assets	– Change in investment assets – Expenses of depreciations and amortizations
Dividends net of capital injections	– Change in equity + Net income

Chart 1 • Contributions to the firms' annual change in cash | Percentage of assets



Source: Quarterly Survey of Non-financial Corporations – Statistics Portugal/Banco de Portugal. | Notes: The blue bars represent the cash amount at the end of the year. The green bars are positive flows (cash inflows) and the red bars are negative flows (cash outflows). The cash amount and flows are presented as a percentage of the average assets from 2018 to 2020. CFO corresponds to cash flow from operating activities, CFI to cash flow from investing and CFF to cash flow from financing activities. All values are calculated at the firm level and then a simple average is calculated.

On average, supplies and external services are the main expenditure item for firms analysed. In 2020, the contribution of gross margin to cash flow from operations dropped by 6.9 p.p. (Table 4). However, this drop was partially offset by a decrease in expenditure on supplies and external services (4.5 p.p.),

working capital (0.5 p.p.) and employee expenses (0.8 p.p.), and by an increase in operating subsidies (0.5 p.p.). This latter reflects the increase in State support, in particular the simplified layoff. The positive contribution of working capital is related to the decrease in inventories.

Cash flow from investing increased from -4.5% to -3.5% of assets between 2019 and 2020. Firms that are struggling to obtain credit could decrease the investment flows in order to offset the fall in cash flows from operations.

In 2020, the contribution of financing flows to the change in cash was less negative. This change resulted mainly from the increase in debt from financial corporations, having now a positive contribution to the change in cash. This evolution contrasts with the change in other financing, where a negative contribution is observed mainly as a result of the decline in loans from equity participants.

Table 4 • Cash flow decomposition | Percentage of assets

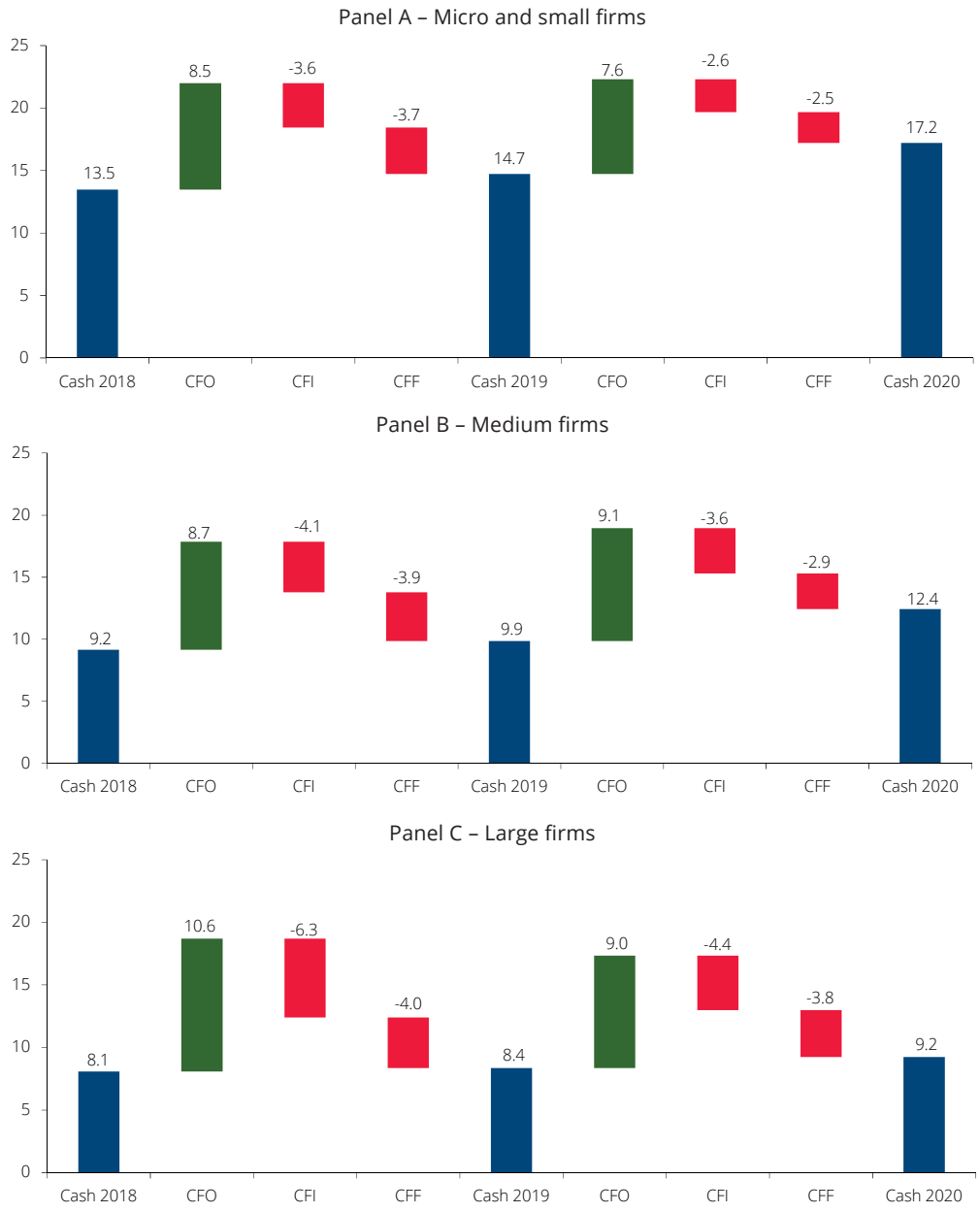
	2019	2020	Change
Cash flow from operating activities	**9.2**	**8.5**	**-0.6**
Gross profit	61.2	54.3	-6.9
Change in working capital	-0.3	0.2	0.5
Supplies and external services	-31.3	-26.8	4.5
Employee expenses	-21.7	-20.9	0.8
Operating subsidies	0.7	1.2	0.5
Others	0.6	0.5	-0.1
Cash flow from investing	**-4.5**	**-3.5**	**1.0**
Investment in fixed assets	-4.8	-3.7	1.1
Interests and dividends earnings	0.3	0.3	0.0
Changes in other financial instruments	0.0	0.0	0.0
Cash flow from financing activities	**-3.9**	**-3.0**	**0.9**
Dividends	-3.0	-2.7	0.3
Change in credit	-0.1	1.1	1.2
Change in other financing	0.0	-0.6	-0.6
Interest expenses	-0.8	-0.7	0.1
Change in shareholders assets/liabilities	0.0	-0.2	-0.2

Source: Quarterly Survey of Non-financial Corporations – Statistics Portugal/Banco de Portugal. | Notes: The "Others" component of cash flow from operating activities includes the current year income tax, variation in production, capitalized production, impairment losses, losses due to fair value reductions, provisions for the period, reversals, gains due to increases in fair value, other income and changes in provisions. Dividends to shareholders are net of capital injections. ITENF does not have information on the account "other comprehensive income" so the dividend amount presented does not take into account the change in this account. Typically, this account has annual variations of less than 0.25% of assets. Other financing includes financing obtained from securities markets, equity participants, subsidiaries, associates and joint ventures, and other financiers.

In order to assess differences in the adjustment to the crisis severity for firms with different cash management levels in the pre-crisis period and the role of support policies in promoting firms' liquidity, the analysis is complemented in detail by (i) size, (ii) exposure of the sector of activity to the pandemic crisis and (iii) use of State support (credit moratoria and State-guaranteed credit lines).

Chart 2 breaks down the change in cash for firms of different sizes: 823 micro and small firms (Panel A), 887 medium-sized firms (Panel B) and 658 large firms (Panel C). The weight of cash on firms' assets tends to shrink with their size, which reflects a greater management capacity and scale effects of large firms. In addition, large firms have a more diversified customer base, which makes them less exposed to adverse economic shocks, and find it easier to obtain financing. These features make size a relevant factor in characterising how firms reacted to the pandemic and how they managed liquidity.

Chart 2 • Contributions to the firms' annual change in cash by size | Percentage of assets



Source: Quarterly Survey of Non-financial Corporations – Statistics Portugal/Banco de Portugal. | Notes: The firm's classification follows the criteria of the European Commission Recommendation of 6 May 2003 on the definition of micro, small and medium-sized companies (2003/361/EC). The blue bars represent the cash amount at the end of the year. The green bars are positive flows (cash inflows) and the red bars are negative flows (cash outflows). The cash amount and flows are presented as a percentage of the average assets from 2018 to 2020. CFO corresponds to cash flow from operating activities, CFI to cash flow from investing and CFF to cash flow from financing activities. All values are calculated at the firm level and then a simple average is calculated.

Cash flow increased in all firms' dimensions, but the increase was less significant in large firms. The latter had more negative cash flows from investing and financing in 2019 and 2020. Large firms generate more cash flow from operations than smaller firms.

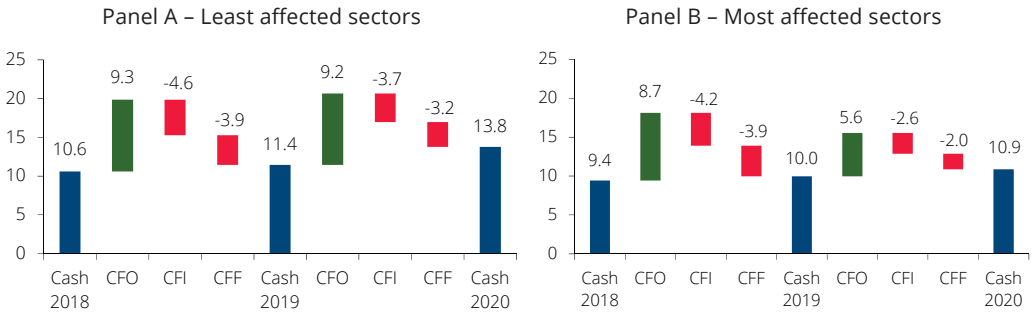
Cash flows from operations decreased further in large firms, mainly due to a smaller adjustment in costs with supplies and external services compared to micro and small firms and to a further

reduction in gross margin compared to medium-sized firms. There were significant decreases in gross margin in all sizes, but particularly in micro and small-sized firms. Cash flow from financing remained relatively stable in large firms and became significantly less negative in smaller firms. This evolution may reflect the fact that State-guaranteed credit lines are intended for SME.

Chart 3 breaks down the change in cash depending on whether firms belong to sectors less affected (Panel A) or more affected (Panel B) by the pandemic. In both cases there is an increase in cash, but more pronounced in the less affected sectors, reflecting a greater ability to generate cash flow from operations. Concurrently, a much smaller adjustment is observed in cash flows from investing and financing. This capacity generates resilience throughout the crisis, without jeopardising the precautionary and uncertain behaviour that is expressed in higher cash values at year-end.

Firms in the most affected sectors had a higher decrease in the positive contribution of cash flows from operations, as a result of a sharp decrease in gross margin (Table 5). This decrease was partly mitigated by the drop in supplies and external services, consistent with a sharp decline in the economic activity. Additionally, there was a significant increase in operating subsidies for these firms, through government support measures. It should be recalled that State subsidies to firms increased by about €2,700 million in 2020. These firms had also a further decline in negative contributions of cash flows from investing and financing. The drop in investment in these sectors and the demand for credit offset the drop in internal generation of cash flows from operations.

Chart 3 • Contributions to the firms' annual change in cash for the most and least affected sectors by the pandemic | Percentage of assets



Source: Quarterly Survey of Non-financial Corporations – Statistics Portugal/Banco de Portugal. | Notes: The sectors most affected by the pandemic are essentially retail trade and vehicles repair, accommodation and food services, air transport and storage, arts, entertainment and recreation activities. The blue bars represent the cash amount at the end of the year. The green bars are positive flows (cash inflows) and the red bars are negative flows (cash outflows). The cash amount and flows are presented as a percentage of the average assets from 2018 to 2020. CFO corresponds to cash flow from operating activities, CFI to cash flow from investing and CFF to cash flow from financing activities. All values are calculated at the firm level and then a simple average is calculated.

The year 2020 was marked by the implementation of important support policies. Chart 4 breaks down the change in cash by measures used to support corporate financing – credit moratoria on existing loans and State-guaranteed credit lines.

Cash increased considerably in all clusters of firms that made use of at least one of the support policies. This result highlights the importance of the role of this support to firms in the most intense periods of the pandemic crisis. These firms combine a sharp drop in cash flows from operations with a contribution of less negative (Panel A) or positive (Panel B and C) cash flows from financing.

These firms significantly increased their cash values at the end of the year despite their lower capacity to generate cash flow from operations. This behaviour contrasts with what happened in previous crises, where firms had not strengthened their liquidity position.

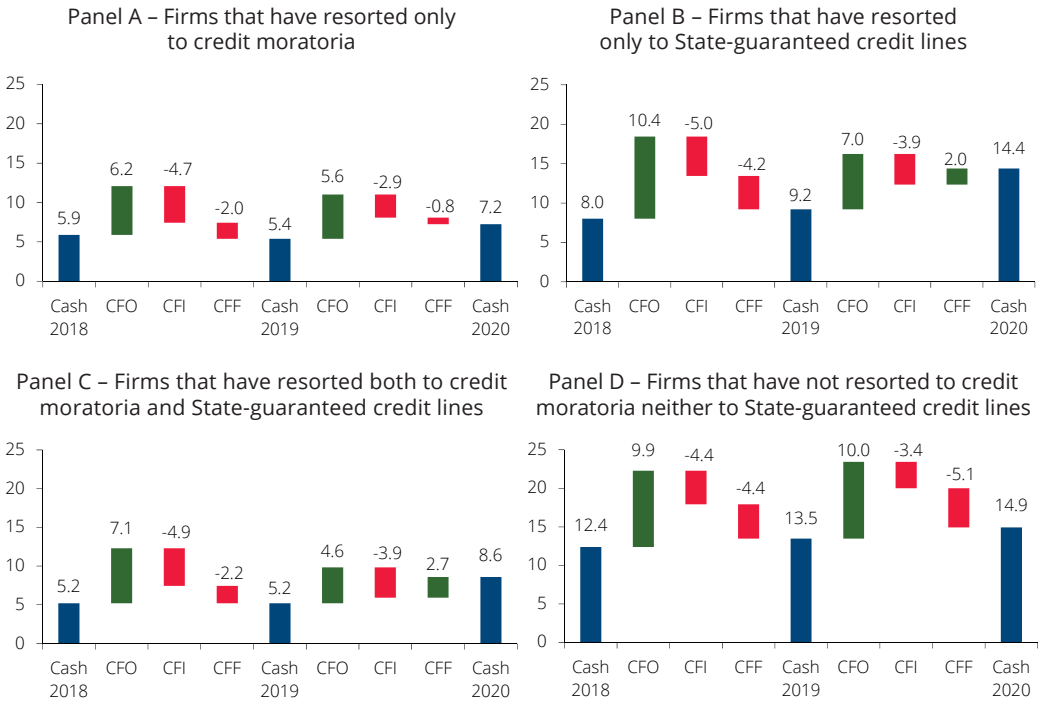
Table 5 • Cash flow decomposition for the most and least affected sectors by the pandemic | Percentage of assets

	Least affected sectors			Most affected sectors		
	2019	2020	Change	2019	2020	Change
Cash flow from operating activities	**9.3**	**9.2**	**-0.1**	**8.7**	**5.6**	**-3.1**
Gross profit	59.9	56.1	-3.8	66.6	47.1	-19.5
Change in working capital	-0.3	0.0	0.3	-0.2	1.3	1.5
Supplies and external services	-29.3	-26.6	2.7	-39.8	-28.1	11.8
Employee expenses	-22.0	-21.4	0.6	-20.7	-19.2	1.5
Operating subsidies	0.6	0.9	0.3	1.3	2.7	1.4
Others	0.4	0.2	-0.2	1.5	1.7	0.3
Cash flow from investing	**-4.6**	**-3.7**	**0.9**	**-4.2**	**-2.6**	**1.6**
Investment in fixed assets	-4.8	-3.9	0.9	-4.7	-3.0	1.7
Interests and dividends earnings	0.3	0.2	0.0	0.4	0.4	0.0
Changes in other financial instruments	0.0	0.0	0.0	0.1	-0.1	-0.2
Cash flow from financing activities	**-3.9**	**-3.2**	**0.6**	**-3.9**	**-2.0**	**1.9**
Dividends	-3.1	-2.9	0.2	-2.4	-1.6	0.8
Change in credit	0.0	1.1	1.2	-0.5	1.0	1.6
Change in other financing	-0.2	-0.7	-0.5	0.5	-0.3	-0.8
Interest expenses	-0.7	-0.6	0.1	-1.0	-0.9	0.1
Change in shareholders assets/liabilities	0.1	-0.2	-0.3	-0.5	-0.2	0.3

Source: Quarterly Survey of Non-financial Corporations – Statistics Portugal/Banco de Portugal. | Notes: The sectors most affected by the pandemic are essentially retail trade and vehicles repair, accommodation and food services, air transport and storage, arts, entertainment and recreation activities. The "Others" component of cash flow from operating activities includes the current year income tax, variation in production, capitalized production, impairment losses, losses due to fair value reductions, provisions for the period, reversals, gains due to increases in fair value, other income and changes in provisions. Dividends to shareholders are net of capital injections. ITENF does not have information on the account "other comprehensive income" so the dividend amount presented does not take into account the change in this account. Typically, this account has annual variations of less than 0.25% of assets. Other financing includes financing obtained from securities markets, equity participants, subsidiaries, associates and joint ventures, and other financiers.

Firms that have not applied to any support policies had larger amounts of cash at the end of 2018 and 2019, which may help to explain why they did not need to use any support policy made available (Panel D). These firms were also those that least increased cash values at the end of the year, which is justified not only by their looser starting position but also by the lack of a negative impact on cash flow from operations in these firms. The pattern of cash creation at the end of the year suggests that State support policies were mainly used by firms where slowdown was more pronounced. Cash flows from investing in firms that were granted support measures had an adjustment similar to that of firms that had not applied, which once again points to the mitigating effects of the measures. It should be recalled that gross fixed capital formation in Portugal fell by only 1.9%, the lowest fall across all the countries in the euro area. This performance would not have been possible without the ongoing improvement in the financial situation of firms in the run-up to the crisis, characterised by a fall in indebtedness and an increase in capital and solvency indicators. These developments were striking in small and medium-sized firms, precisely those that benefited from the support policies.

Chart 4 • Contributions to the firms' annual change in cash by support policies used | Percentage of assets



Source: Quarterly Survey of Non-financial Corporations – Statistics Portugal/Banco de Portugal. | Notes: The blue bars represent the cash amount at the end of the year. The green bars are positive flows (cash inflows) and the red bars are negative flows (cash outflows). The cash amount and flows are presented as a percentage of the average assets from 2018 to 2020. CFO corresponds to cash flow from operating activities, CFI to cash flow from investing and CFF to cash flow from financing activities. All values are calculated at the firm level and then a simple average is calculated.

The impact of the pandemic on firms' equity

In 2020 most Portuguese firms were affected by the pandemic. For some of them the impact was large, as they had to manage temporary closures or falls in activity due to public health restrictions. For others, the pandemic crisis was an opportunity for business growth. For the vast majority, there were changes in the demand for the goods and services they offered, in their management and internal organisation, or in their production chains and processes. In parallel, support measures were implemented to mitigate the effect of the liquidity shock and avoid the immediate insolvency of firms. Besides the monetary and prudential policy measures, these support measures encompassed the simplified furlough regime and the support for progressive resumption of activity, loan moratoria, the establishment of State-guaranteed credit lines and other fiscal support measures, such as the suspension of some tax obligations. These measures were taken to ensure that even the most affected firms would be able to withstand the liquidity shocks without compromising their future viability and without destroying jobs, as discussed in the Special issue "The evolution of firms' liquidity during the pandemic" in this Bulletin.

Although the measures adopted have made it possible to manage the liquidity shocks faced by firms, their persistence may result in the need to strengthen firms' equity. The capitalisation effort will be more important for firms that were financially fragile or particularly affected by falling sales. This Special issue presents an analysis of the impact of the pandemic on the net worth of Portuguese corporations until the end of 2021, based on an income simulation methodology.

Methodology and assumptions

This exercise assumes that a firm should strengthen its equity when its net worth turns negative, i.e. when the value of its assets becomes lower than the value of its liabilities. Ideally, this relation would be assessed by taking into account the valuation of the firm at market prices, this being the rationale behind the classical structural models of credit risk (such as Merton's model, 1974). However, such an approach would restrict the application of the exercise to listed firms. The limitation of the approach adopted in this Special issue is the possibility that the book value of firms may not reflect their intrinsic value. Moreover, there are situations where a firm may temporarily have negative equity, for example in the early years of its life or during its expansion periods. It should also be noted that some of the firms in this situation may belong to economic groups with positive net worth. Despite these restrictions, the criterion used is a simple way of assessing the ratio between the liabilities and the value of the firm. It should also be noted that positive equity is a condition to access various support measures created in the context of the pandemic crisis, such as some State-guaranteed credit lines. As this is a projection exercise of firms' results, it is important to note that the conclusions are sensitive to variations in the assumptions on shocks and revenue recovery paths, especially in a context of high uncertainty. Moreover, the exercise is anchored in accounting data that may not fully reflect the dynamics of firms and their economic environment.

The exercise is based on financial information available from the Quarterly Survey of Non-Financial Corporations (ITENF). This allows us to characterise firms before the outbreak of the pandemic, as well as to assess the evolution of their net worth throughout 2020. There are around 3,000 firms with information available at end-2019 and end-2020. Although this is the only source of statistical information with 2020 accounting data, there is some bias in coverage of larger and

better performing firms, as described in the Special issue "The evolution of firm's liquidity during the pandemic" in this Bulletin.

This bias in coverage is visible in the percentage of firms with negative equity. Based on the annual information from the Central Balance Sheet Database, which covers all non-financial private corporations, 26% of the firms would already have equity shortfalls in 2019 (the last year with information available in this database). While for some firms these would be the temporary situations referred to above, others would be undercapitalised as a reflection of the accumulation of losses over the years without any equity capital injection. According to the ITENF, only 4% of the firms were in such a situation in 2019.

This difference mainly reflects the fact that most of the firms with negative equity are micro firms. In 2019, 29% of micro firms in the Central Balance Sheet Database were in that situation, which compares with only 9% of small firms, 6% of medium-sized firms and 4% of large firms. In ITENF, these percentages are 9%, 5%, 3% and 2% respectively.

There are also differences across sectors of activity. For example, 42% of accommodation and food service firms had liabilities greater than assets by the end of 2019 (4% in ITENF). This means that this sector, particularly affected by the pandemic, was already characterised by a high number of firms with financial imbalances. However, the vast majority of these firms were micro firms.

Using information from the ITENF allows us to assess how firms' equity varied in 2020. To assess their capitalisation needs at the end of 2021, equity is assumed to vary according to the following rule:

$$Equity_t = Equity_{t-1} + Profit/loss_t$$

Profit/loss for the year is a function of the difference between revenues and costs. The possibility of profit distribution and capital injections in firms in 2021 is excluded. Therefore, the methodology underestimates the evolution of equity for firms with capital injections and overestimates the evolution for firms with dividend distribution. The exercise requires the estimation of revenues and costs over the projection horizon that may assume quite different dynamics. The methodology adopted is similar to that used in Carletti et al. (2020). Profit/loss for the year is calculated taking into account the following items:

$$Profit/loss_t = Income_t - COGS_t - SES_t - Laborcosts_t - Depreciation_t - Taxes_t - Interestpaid_t$$

where COGS corresponds to the costs of goods sold and materials consumed and SES to supplies and external services.

To assess the equity shortfall of firms in 2021, the dynamics of the exercise depend essentially on the evolution of income, i.e. the ability to generate cash flows. To anchor the estimates on the most recent information possible, the exercise is partially extended between December 2020 and February 2021 using information from the sectoral turnover indices released by Statistics Portugal to estimate the change in gross margin by sector of activity. It is assumed that the other costs remain unchanged from the values observed in December.

The component with the greatest uncertainty in the exercise relates to the projected trajectory between February and December 2021. The best data source with sectoral breakdown are the responses of firms to the Fast and Exceptional Enterprise Survey COVID-19 (COVID-IREE) conducted by Statistics Portugal and the Banco de Portugal. In the survey for the first half of February, firms were asked about their expectations regarding sales recovery timing. Against a background of effective control of the pandemic in 2021, 32% of firms expected their turnover to return to pre-pandemic levels, on average, in the following 10 months. However, there is a lot of heterogeneity

around this average figure. On top of that, 38% of firms should have already returned to their pre-pandemic level of activity and 30% do not know or do not expect to return to these levels. Considering 38 sectors of activity, the gross margin recovery path was estimated as the reverse of the accumulation of negative shocks over the expected months until each sector rebounds, which implies a linear path until the moment of recovery.

The remaining costs are assumed to remain at levels similar to those estimated in December 2020, with two exceptions that allow the effect of moratoria and the simplified furlough to be considered. First, firms under moratoria are assumed to pay no interest until September 2021. Firms without moratoria pay an average interest rate of 2.07% on total outstanding loans (average value in the Monetary and Financial Statistics of the Banco de Portugal in the reference period). Second, it is considered that firms with falls in sales of more than 40% may resort to furlough. The number of workers in the furlough scheme will be proportional to the fall in sales. A cut in staff costs is assumed to reflect the exemption from paying Social Security contributions and a 1/3 decrease in the remuneration to be paid, with the firm receiving additional financial support amounting to 70% of the remaining figure.

Results

Despite the magnitude of the shocks that affected firms in 2020, there was only a 1 p.p. increase in the percentage of firms with negative equity (from 4% to 5%), based on the information reported in ITENF (Table 1). Despite the decrease in gross margin, particularly expressive for firms in the sectors most affected by the pandemic, changes in the firms' cost structure and the use of support measures will have contributed to avoid a significant rise in the number of firms with lower capitalisation levels. Moreover, an important adjustment was also made in terms of capital injections and profit distribution containment. Without these capital injections (net of the distribution of dividends), the percentage of firms with negative equity in 2020 would be 6%.

The figures in the last column of Table 1 refer to the simulation based on the methodology described. Using the ITENF sample and in a scenario of no dividend distribution nor capital injections, it is estimated that at the end of 2021 around 6% of Portuguese firms may have negative equity, which represents a 2 p.p. increase from pre-pandemic figures.

Table 1 • Percentage of firms with negative equity

	ITENF 2019	ITENF 2020	Simulation 2021	Change 2019-2021 (pp)
Percentage of the number of firms	4%	5%	6%	2
Micro firms	9%	8%	10%	2
Small firms	5%	6%	6%	1
Medium firms	3%	4%	5%	2
Large firms	2%	4%	6%	4
Manufacturing	3%	3%	3%	1
Construction and real estate activities	8%	7%	8%	0
Trade	3%	4%	5%	1
Transportation	5%	7%	12%	6
Accommodation and food services	4%	16%	26%	22
Professional and administrative activities	4%	6%	8%	4
Others	6%	5%	7%	1

Source: Banco de Portugal. | Note: Variations may not correspond to the difference between columns due to rounding. The NACE sections presented are: C (Manufacturing); F and L (Construction and real estate activities); G (Trade); H (Transportation); I (Accommodation and food services); M and N (Professional and administrative activities); A, B, D, E, J, K, O, P, Q, R, S, T and U (Others).

It should be noted that these estimates are based on a scenario where no support measures are foreseen in addition to those currently in force, nor new capital injections in firms. On the other hand, they present only a partial view of the economy, given that the rebound in activity will be associated with the creation of new jobs in the sectors (and firms) least affected by the pandemic.

There are differences between micro, small, medium-sized and large firms, both in terms of their starting point and the effect of the pandemic. At the starting point, the end of 2019, it comes as no surprise that the proportion of firms with negative equity decreases with firm size. Nine per cent of micro firms were in this position, but only 5% of small, 3% of medium-sized and 2% of large firms (Table 1).

For micro firms, it is estimated a 2 p.p. increase in the percentage of firms whose losses put them with negative equity. This increase is estimated to be 1 p.p. for small firms, 2 p.p. for medium-sized firms and 4 p.p. for large firms. Still, at the end of 2021, the prevalence of firms with negative equity is estimated to remain higher in micro firms.

Given the heterogeneous way in which the pandemic affected different sectors of activity, the results of the estimation exercise are expected to be quite asymmetric. However, it should be noted that the starting points were already differentiated, varying in the ITENF between 3% in manufacturing and 8% in construction and real estate activities.

In terms of variation, the increase in firms with negative net worth, in 2020, was particularly expressive in accommodation and food services. Based on data reported in the ITENF, the percentage of accommodation and food services firms in this situation rose from 4% in 2019 to 16% in 2020. Firms in transportation and administrative, consultancy and support services also recorded a deterioration in their capitalisation, but of a much smaller magnitude (2 p.p. in both cases).

The simulation carried out for 2021 entails an increased sectoral heterogeneity. For firms in manufacturing, construction and trade sectors, there is no material deterioration in their net worth compared to that observed at the end of 2019. However, increases are more significant in other sectors. As in 2020, the most significant deterioration is expected to be concentrated in the accommodation and food services sector, with an estimated increase of 10 p.p. compared to end-2020. In the transportation sector the increase is expected to be 5 p.p. and for firms in administrative, consultancy and support services an increase of 2 p.p. is estimated. It should be noted that in 2021 potential effects of capital injections or dividend distribution are not considered.

Given the uncertainty underlying the exercise and the concepts used, estimates with alternative samples and methodologies are presented in Table 2.

Table 2 • Percentage of firms with negative equity – alternative samples and methodologies

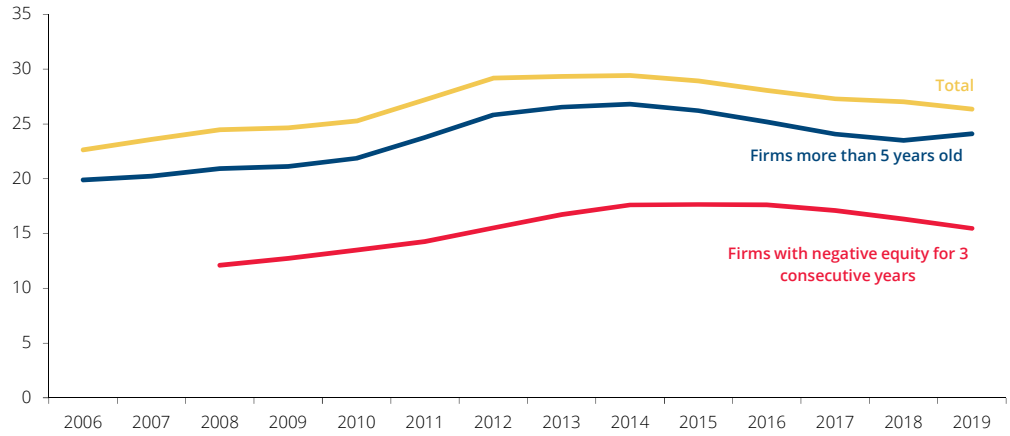
	ITENF 2019	ITENF 2020	Simulation 2021	Change 2019-2021 (pp)
Percentage of the number of firms	4%	5%	6%	2
Only firms with more than 5 years	4%	5%	6%	2
Only firms with positive equity in the last 5 years	0%	2%	3%	3
Only firms with bank loans in 2019	3%	4%	5%	3
Alternative methodology: Equity/Assets < 5%	7%	8%	9%	2
Alternative methodology: Equity/Assets < -5%	3%	4%	5%	2

Source: Banco de Portugal. | Note: Variations may not correspond to the difference between columns due to rounding. The NACE sections presented are: C (Manufacturing); F and L (Construction and real estate activities);); G (Trade); H (Transportation); I (Accommodation and food services); M and N (Professional and administrative activities); A, B, D, E, J, K, O, P, Q, R, S, T and U (Others).

When considering only firms established more than five years ago, firms that had a positive net worth in the past 5 years, or firms with bank loans in 2019, the increases over the horizon of analysis assume a very similar magnitude (between 2 and 3 p.p.).

Finally, it should be noted again that the fact that a firm is estimated to go into negative equity does not imply that the firm will go into insolvency or liquidation. This will only occur in a context where the firm is not viable and cannot increase its equity. Nevertheless, there is a strong positive correlation between the equity to assets ratio and its probability of insolvency. Almost half of the firms that close in a given year had negative equity in the previous year. However, as shown in Chart 1, many firms remain in business for several consecutive years with negative equity. In Merton's model (1974), if the asset valuation is in fact lower than the firm's debt, the firm becomes insolvent. As mentioned above, such a valuation entails the existence of information on the current market value of the firm. To consider the effect that potential asset under- or overvaluation may have on results in the year, Table 2 also assesses results for firms that have equity to assets ratio below 5% or -5% (instead of below zero as in the rest of the analysis). The increase in the percentage of firms in this situation is similar to that observed in previous exercises.

Chart 1 • Firms with negative equity | Percentage



Source: Banco de Portugal.

The results presented so far focus on the ITENF sample. However, as referred to above, it is important to complement this assessment with the results for the universe of Portuguese firms, based on information from the Central Balance Sheet Database. According to this information, the percentage of firms with negative equity reached record highs close to 30% during the sovereign debt crisis, having been decreasing since 2016 (Chart 1). Where only firms older than five years are considered, the percentage of firms in this situation is lower (24% in 2019). It should be noted that the existence of negative equity in accounting terms does not entail the closure of the firms' activity: at the end of 2019, 15% of the firms had negative equity for at least three years.

It is possible to carry out a similar simulation exercise, taking as a starting point the information from the 2019 Central Balance Sheet Database. Such an exercise helps to understand more globally the pressure that may have been put on the evolution of firms' capitalisation, in particular for smaller firms that are under-represented in the ITENF. However, it is an exercise with greater uncertainty, given that 2020 values are also estimated. This estimate is made by extrapolating the evolution observed in the ITENF for 60 clusters of firms, taking into account the following data: sector of activity (15 sectors), size (micro or small firm vs. medium or large firm) and corporate indebtedness (ratio between financial liabilities and total assets above or below 20%). The result of this simulation is shown in Table 3, which reproduces the various exercises developed above.

Without surprise, the results based on the set of firms in the Central Balance Sheet Database show a higher increase in firms with negative equity (6 p.p.), which is robust to the various simulation exercises. This increase is slightly lower than what was estimated for France, where a 7 p.p. increase in firms with negative equity between March and December 2020 is reported (Hadjibeyli et al., 2021).

Table 3 • Percentage of firms with negative equity without considering capital inflows and distribution of dividends – alternative samples and methodologies (Central Balance Sheet)

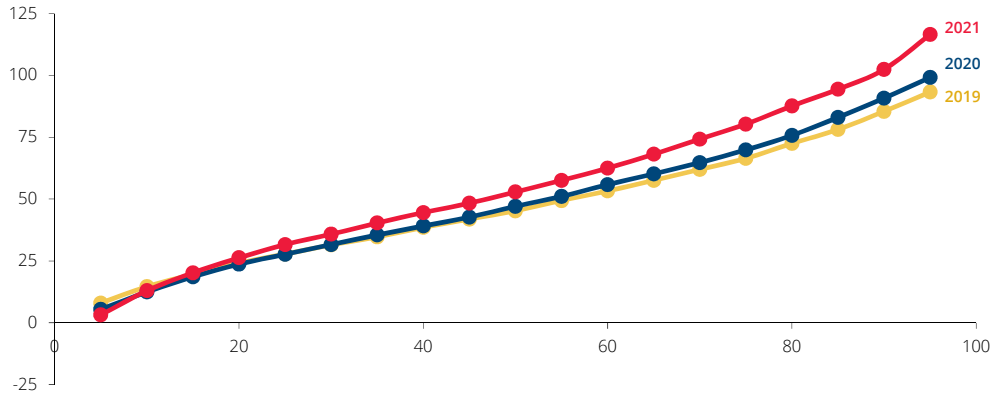
	Central Balance Sheet 2019	Simulation 2020	Simulation 2021	Change 2019-2021 (pp)
Percentage of the number of firms	26%	31%	33%	6
Only firms with more than 5 years	24%	28%	30%	6
Only firms with positive equity in the last 5 years	0%	3%	6%	6
Only firms with bank loans in 2019	17%	22%	24%	7
Alternative methodology: Equity/Assets < 5%	30%	33%	35%	5
Alternative methodology: Equity/Assets < -5%	24%	28%	30%	6

Source: Banco de Portugal. | Note: Variations may not correspond to the difference between columns due to rounding.

The results presented so far focus on the firms most negatively affected by the pandemic. Any of the scenarios considered and all the sizes analysed show an increase in the percentage of firms now having negative equity due to loss accumulation, ignoring potential capital injections by shareholders. These will tend to be the firms with more fragile starting points in terms of financial equilibrium or with particularly negative shocks during the pandemic. However, this does not mean that all firms are being negatively affected.

Chart 2 presents the distribution of equity as a percentage of assets by decile of this ratio (on the horizontal axis), based on the ITENF sample. Only firms with positive equity at the end of 2019 are considered in this chart. Estimates indicate that more than 80% of the firms will strengthen their equity by accumulating profit in 2021, in line with the recovery path projected for the Portuguese economy. However, this outcome is based on the assumption that no profits will be distributed and, therefore, represents an upper limit for the equity strengthening estimate.

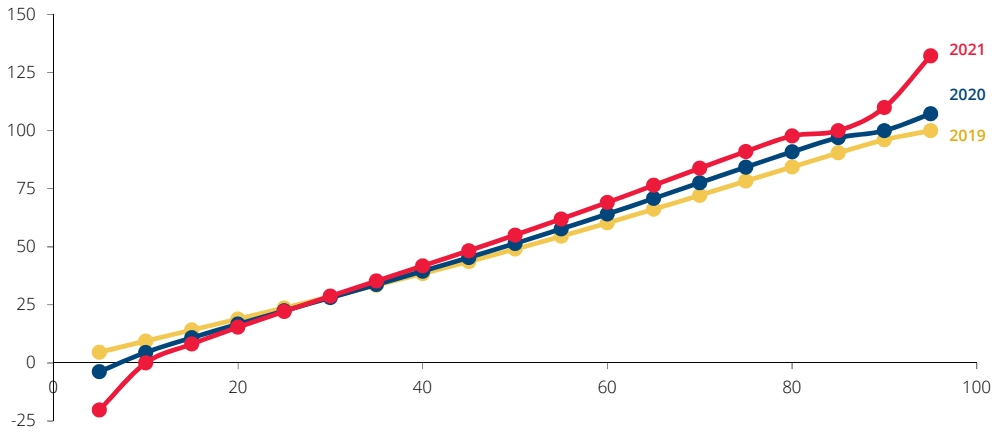
Chart 2 • Equity as a percentage of assets by percentile | Percentage



Source: Banco de Portugal. | Notes: The horizontal axis refers to the percentile of equity as a percentage of assets (from percentile 5 up to 95). The vertical axis refers to the value of equity as a percentage of assets for each percentile. Assets refer to 2019. Only firms with positive equity in 2019 are considered.

Chart 3 presents the same exercise for the Central Balance Sheet Database. In this case, it is estimated that more than two-thirds of the firms with positive equity in 2019 will strengthen their equity by accumulating profit in 2020 and, particularly, in 2021.

Chart 3 • Equity as a percentage of assets by percentile (Central Balance Sheet) | Percentage



Source: Banco de Portugal. | Notes: The horizontal axis refers to the percentile of equity as a percentage of assets (from percentile 5 up to 95). The vertical axis refers to the value of equity as a percentage of assets for each percentile. Assets refer to 2019. Only firms with positive equity in 2019 are considered.

To sum up, it is inevitable that a shock of the magnitude observed since the onset of the pandemic would negatively affect a significant portion of the firms, despite the wide range of support measures implemented. Some firms were already in a vulnerable situation by the end of 2019, and these may have been particularly affected. The incidence of firms with negative equity in accommodation and food services sectors before the pandemic, coupled with the particular severity of the shock, imply that some firms in this sector are likely to have equity shortfalls by the end of 2021. Transportation and administrative, consultancy and support service activities also underwent significant shocks. Most of the firms with fragile financial situations before the pandemic were micro firms.

The increase in the percentage of firms feeling pressure to tackle the possibility of having negative equity is clear from the results shown. For viable firms, a capitalisation effort will be inevitable. Debt accumulation does not allow financial imbalances to be addressed; on the contrary, it will tend to exacerbate them, unless the capacity to generate cash flow increases significantly. Therefore, savings accumulated by the private sector during the pandemic may contribute to this rebalancing, as well as fiscal support geared towards this purpose. Against this background, a key challenge is to assess the viability of firms, so as to optimise the allocation of resources in the Portuguese economy.

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III Series

Quarterly series for the Portuguese economy: 1977-2020

Annual series on household wealth: 1980-2020

Quarterly series for the Portuguese economy: 1977-2020

Every year the Banco de Portugal discloses the update of the quarterly long series for the Portuguese economy. These series are distributed in three blocks: expenditure, household disposable income and labour market.

The update released in this Bulletin maintains the same breakdown as the previous ones and includes, for the first time, quarterly figures for 2020. The data is consistent with the latest version of the Quarterly National Sector Accounts published by Statistics Portugal on 26 March 2021 and mainly follows the methodological procedures described in detail in Cardoso and Sequeira (2015).[1]

As regards the GDP and 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 2016).

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

In the labour market block, series are grouped according to two different measures: full-time equivalent (FTE, National Accounts concept) and thousands of individuals (Labour Force Survey concept). The FTE employment series correspond, in annual terms, to those released by Statistics Portugal since 1995. The series measured in thousands of individuals and the unemployment rate series only differ from those in the Labour Force Survey (version published by Statistics Portugal on 10 February 2021) due to seasonal adjustments.

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

These quarterly and annual series for the 1977-2020 period are available in electronic format on the Banco de Portugal's webpage for this *Economic Bulletin* and on BPstat | Statistics Online under the domains National accounts and Population and labour market.

1. 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: 1980-2020

The annual series on household wealth, for the period 1980-2020, correspond to an update of the estimates published in the *Economic Bulletin* of May last year. These wealth estimates, published annually, include the financial component (assets and liabilities) and housing (the main component of non-financial wealth). These series on household wealth are published in electronic format on the Banco de Portugal's webpage for this *Economic Bulletin* and on BPstat | Statistics Online under the domain National accounts, sub-domain Time-series for the Portuguese economy – Household wealth. The concepts and methodology are identical to those described in Cardoso, F., Farinha. L. and Lameira, R. (2008).[1]

The financial series (assets and liabilities) presented here are consistent with the latest version of national financial accounts published by the Banco de Portugal, which are available for the 1994-2020 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, F. and Cunha, V. (2005).

The methodology used to estimate housing wealth is based on a method normally utilised to calculate capital stock estimates – the perpetual inventory method. This method consists in 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 so as to incorporate for the 2000-2018 period the estimates of the housing capital stock, published by Statistics Portugal.[2] These estimates made available by Statistics Portugal do not include the underlying value of land, which is included in the wealth series published here. That value was estimated for the years under review based on the ratio set for tax purposes (namely, regarding housing evaluations for the municipal property tax), which corresponds to 25% of the housing overall value. The remaining years of the long series of housing wealth (for the 1980-1999 and 2019-2020 periods) were calculated based on the rates of change in the stock series obtained through the above mentioned methodology, based on long series of gross fixed capital formation (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 1995-2020 period).

1. 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.
2. Statistics Portugal published the capital stock accounts in November 2017 for the first time, available on the National Accounts area of its website. For further details, see: Statistics Portugal (2017), "Capital stock (Base 2011) 2000-2015", Press release of 24 November 2017.