

## QUARTERLY REPORT ON THE SPANISH ECONOMY



## Editorial

**The world economy has lost steam in the final stretch of the year, mainly as a result of the adverse impact on activity of the war in Ukraine, high inflation and the monetary policy response to persistently rising prices.** That said, in a setting characterised by extraordinary uncertainty and multiple simultaneous adverse shocks, global economic activity seems to have shown considerable resilience in recent months. The factors behind this resilience appear to have included, among others, considerable labour market buoyancy in many of the main world economies and the fiscal measures deployed by the various national authorities in response to the energy crisis and rising inflation.

**In recent months, the slowdown in world economic activity has contributed to some easing of the inflationary pressures stemming from commodity price developments.** The prices of metal and food commodities have mostly tended to decline during the autumn months. As for energy commodities, the price of oil also fell during this period, while there were very pronounced falls in gas prices on European markets at the beginning of the autumn (when temperatures were relatively high for the time of year). In more recent weeks, however, the increase in demand for gas (and less favourable meteorological conditions) has led to a further rise in gas prices, showing once again how volatile they are.

**The easing of energy commodity prices has begun to be passed through to the energy component of consumer prices, although this process has been markedly uneven across countries.** The pass-through of the fluctuations in the wholesale prices of energy commodities to the energy component of consumer prices has generally been very uneven across countries. Among other reasons, this has been attributable to differences in the national regulation of energy markets and in the nature and forcefulness of the measures recently deployed by the authorities of each country to mitigate price increases. In this respect, the growth rates of the energy component of consumer prices have moderated appreciably in recent months in countries such as the United States and Spain. By contrast, they have moderated less in many other euro area economies, where the pass-through to retail energy prices of past rises in wholesale energy (and especially gas) prices is still not complete.

**Despite the recent slowdown in the energy component of consumer prices, underlying inflation remains at very high levels in the main world economies and signs of a slowdown in this item are still very incipient.** Also, the growth rate of food prices has generally continued to climb in recent months. Among the components of underlying inflation, the developments in the prices of non-energy industrial goods and services have recently shown signs of stabilising in many economies, partly as a result of the gradual easing of global production and logistics chain bottlenecks. However, the pass-through of past increases in the prices of energy and other imported inputs to the prices of these products is probably still not complete, so that it will continue to exert some upward pressure on such

prices in the short term. The higher wage demands recently discernible at international level also appear to be contributing to these inflationary pressures, although very unevenly across countries, essentially as a result of differences in labour market tightness and the prevalence of wage indexation mechanisms.

**In the light of these developments, the world's main central banks (including the European Central Bank) have in recent meetings (many of which were held in mid-December) reaffirmed that they intend to continue tightening their monetary policy over the coming months.** Their aim is to bring inflation rates back down to levels compatible with monetary policy objectives in the medium term and to avoid a de-anchoring of economic agents' medium-term inflation expectations that could damage growth prospects very severely and persistently.

**As in recent months, international financial markets proved to be highly sensitive to these monetary policy decisions, in this case reacting with share price falls and bond yield increases.** In fact, the prices of the main financial assets have in recent months displayed considerable volatility and have reacted relatively strongly to any development (in activity or price indicators, or in the communication of the central banks themselves) that might entail a change in the rate at which the main central banks are tightening their monetary policy. All this has generally been compatible with international capital markets operating in a relatively orderly fashion, although there have been some disruptive episodes and significant tightening in certain market segments and geographical areas.

**In Spain, the buoyancy of economic activity in the final stretch of the year appears to have been similar to that in Q3.** In line with global and European developments, the weakness of Spanish economic growth in Q4 appears to be explained essentially by heightened uncertainty, the deterioration in agents' confidence, inflationary pressures and tightening financial conditions. That said, aggregate economic activity in Spain has been buoyed, to some extent, by the continuing favourable labour market developments and the fiscal impulse deployed over the last few months. Moreover, across productive sectors, industrial production has been relatively stable, partly as a consequence of the considerable order backlog that built up when global production and supply chain bottlenecks were at their most severe.

**The weakness of consumption is one of the main factors behind the modest GDP growth projected for Q4.** In the current quarter, household spending is showing some weakness, with the disappearance of a large part of the stimulus to consumption (especially of tourism, leisure and hospitality-related services) arising from the practically complete removal of the restrictions associated with the pandemic during the first half of the year. Among other factors, this appears to be related to the loss of household purchasing power caused by the surge in prices (relative to that in incomes) and in interest rates (essentially for households paying interest on debt at variable rates). Also, against a background of declining confidence indicators and elevated uncertainty, the stock of savings built up during the pandemic appears to be barely contributing to aggregate household spending.

**Since the summer, the rate of change of consumer prices, as measured by the HICP, has fallen substantially.** Specifically, inflation fell by 4 percentage points between July and

November, mainly as a consequence of the slowdown in energy prices. Also contributing to the fall in the headline inflation rate has been a slight decline in the core component, although this still remains very high (4%). In this respect, inflationary pressures are still very widespread in the consumer goods and services basket, and the increases in the prices of energy and other imported inputs over the last few quarters do not yet appear to have been fully passed through to the final prices of many products. Against this background, it seems likely that underlying inflation rates will remain above 2% for a prolonged period.

**In a highly uncertain macro-financial and geopolitical situation, the macroeconomic projections for Spain presented in Box 1 of this report envisage GDP growth rates of 4.6% in 2022, 1.3% in 2023, 2.7% in 2024, and 2.1% in 2025.** According to these projections, economic activity will remain significantly weak in 2023 Q1, as a result of the same factors that have weighed on GDP growth in the second half of 2022. From 2023 Q2, however, economic growth is projected to strengthen progressively as, inter alia, agents' real incomes improve (due to the gradual decline in inflationary pressures), external markets recover and Next Generation EU investment projects are rolled out.

**Within the framework of this projections exercise, the headline inflation rate is expected to slow from 8.4% in 2022 to 4.9% in 2023, to 3.6% in 2024 and to 1.8% in 2025.** This path will be heavily conditioned by energy price developments over the coming quarters (which will in turn depend on a variety of factors, such as the course of the war in Ukraine, the temperatures experienced in Europe over the next two winters and the buoyancy of the Chinese economy), and also by the duration, design and forcefulness of current and future measures deployed to mitigate rising energy prices. One of the assumptions underlying these projections is that the pass-through of the cost and price increases observed over the past year and a half to wages and the other prices in the economy will remain moderate.

## Report

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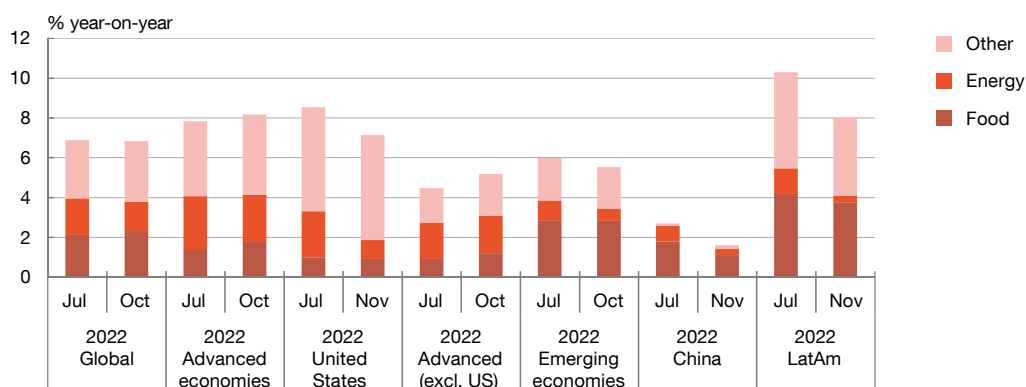
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## 1 Inflation remains high worldwide, albeit with incipient signs of moderation in some areas ...

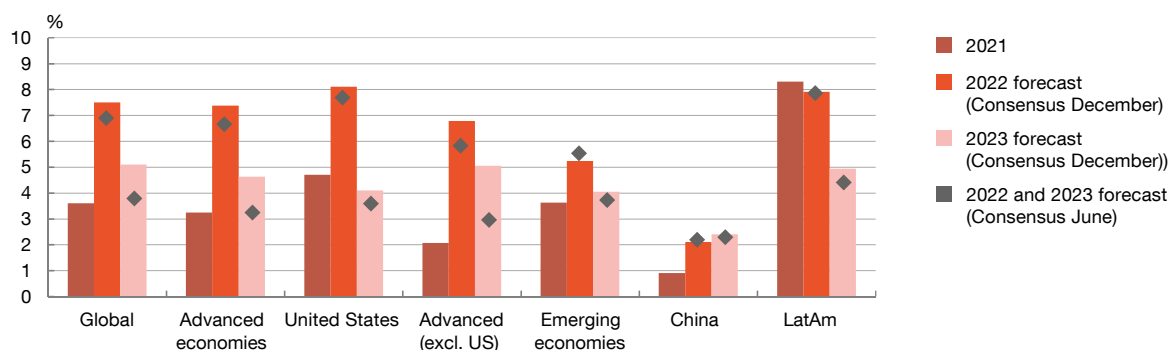
- In recent months, the year-on-year rate of growth of consumer prices has slowed in the United States, from 9.1% in June to 7.1% in November, and the underlying inflation rate has dipped, from 6.7% to 6% (see Chart 1.a). Inflation has also moderated in Latin America, standing at 8.4% on average in October, and in China, which saw inflation of 1.6% in November.
- By contrast, in advanced economies other than the United States, signs of inflationary pressures easing are only perceptible at the very front end of the production process – particularly in producer prices – and, in general, the rate of growth of consumer prices has continued to gather pace. Indeed, the main driver of the latest increases in global inflation forecasts for 2023 has been the upward revised inflation outlook in these economies for the coming quarters (see Chart 1.b).

Chart 1

### 1.a Recent developments in inflation rates and their contribution by geographical area (a)



### 1.b Inflation forecasts by geographical area (b)



**SOURCES:** National statistics, Consensus Forecasts and Refinitiv.

**a** The advanced economies aggregate comprises 13 geographical areas: Euro area, United States, United Kingdom, Canada, Czech Republic, Denmark, Iceland, Israel, Japan, Norway, South Korea, Sweden and Switzerland. The emerging economies aggregate comprises 13 economies from Asia, eastern Europe and Latin America: China, India, Indonesia, Malaysia, Thailand, Hungary, Poland, Russia, Brazil, Chile, Colombia, Mexico and Peru.

**b** Consensus Forecasts (bars denote December, diamonds denote June).

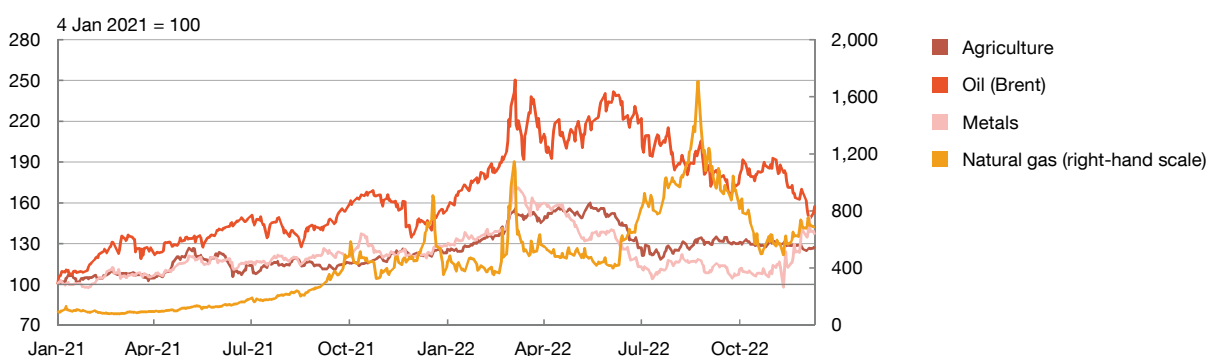


## 2 ... partly as a result of the slowdown in commodity prices and some easing of global supply chain bottlenecks

- In recent months, the main energy commodity prices – especially gas and oil prices – have fallen considerably, while metal and agricultural commodity prices have held quite steady, after peaking in 2022 Q1 (see Chart 2.a).
- Meanwhile, the bottlenecks that have been disrupting global supply chains virtually since the onset of the COVID-19 pandemic have eased and this also appears to have contributed recently to a degree of moderation in inflationary pressures, especially in the case of industrial goods (see Chart 2.b).

Chart 2

### 2.a Recent commodity price moves



### 2.b Supply bottleneck text analysis index. Banco de España text indicators (a)



SOURCES: Refinitiv and Banco de España.

a The text indicator is constructed drawing on newspaper articles in the United States, China and the main euro area economies (Spain, Italy, France and Germany) and records how often they mention supply chain problems. See Burriel, Kataryniuk, Moreno and Viani (2022), "A new supply bottleneck index based on newspaper data", *Working Paper*, Banco de España, forthcoming.



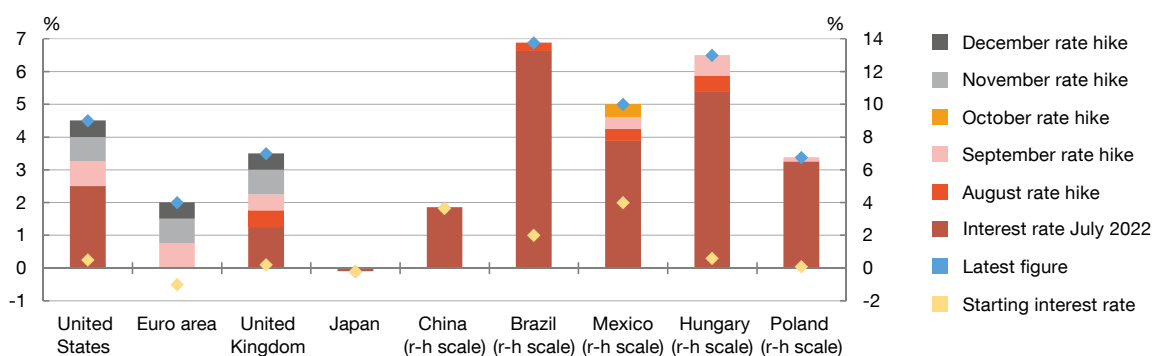


### 3 The global monetary policy stance has continued to tighten in recent months ...

- At their latest meetings, the central banks of the main developed economies have again raised their key policy rates in response to persistently high inflationary pressures. Thus, for instance, the US Federal Reserve raised its policy rate by 75 basis points (bp) in November and by 50 bp in December, to a target range of 4.25-4.5%. These rate hikes are identical to those approved in December, at their last two meetings of the year, by the Bank of England, which raised its base rate to 3.5%, and the European Central Bank (ECB), **which upped its deposit facility rate to 2%** (see Chart 3.a). All these decisions have been accompanied by other measures announced or implemented by the central banks, for instance regarding reducing their balance sheets.
- In contrast to this monetary policy momentum, which has been extremely widespread across the main advanced and emerging economies, the central banks of both Japan and China have held their interest rates unchanged in recent months, with the Chinese central bank even using its credit facility to inject liquidity into the financial system in October.

Chart 3

#### 3.a Policy interest rates



SOURCES: National central banks and Refinitiv.



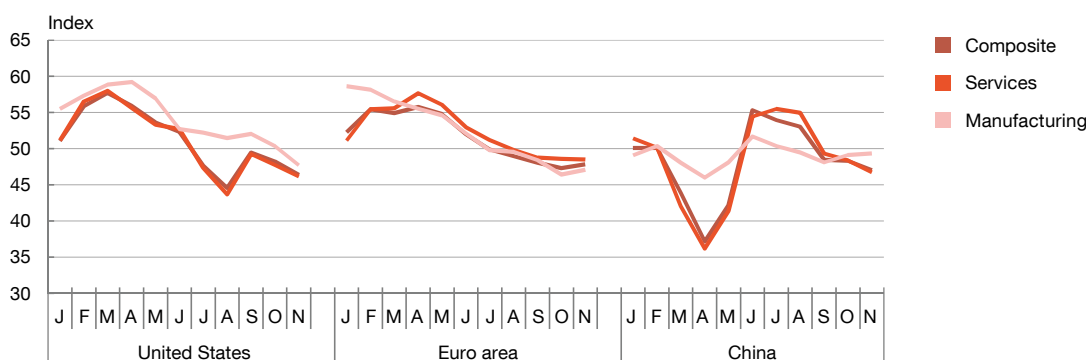
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## 4 ... while clear signs have emerged of a global economic slowdown

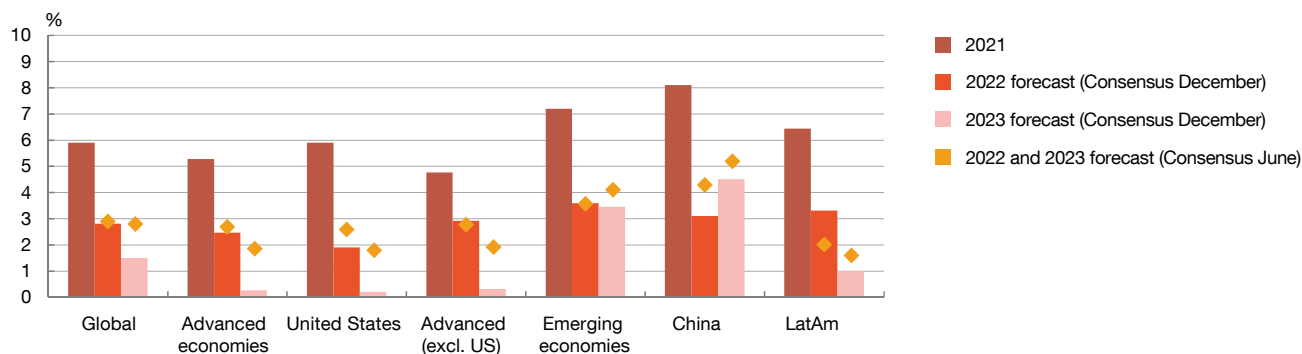
- Against a highly uncertain macro-financial and geopolitical backdrop, the persistent inflationary pressures and consequent monetary policy tightening have given rise, in recent months, to clear signs of slowdown in global economic activity.
- These signs have been particularly evident in many of the confidence indicators published (see Chart 4.a) and also in various real estate activity indicators in systemic economies such as the United States and China.
- Consistent with these developments, in the most recent period, global growth prospects for 2023 have been revised down significantly (see Chart 4.b), especially for the main advanced economies, some of which could even contract in 2023.

Chart 4

### 4.a PMIs in 2022



### 4.b GDP growth forecasts for 2022 and 2023 by geographical area (a)



SOURCES: Bloomberg, Consensus Forecasts and S&P Global.

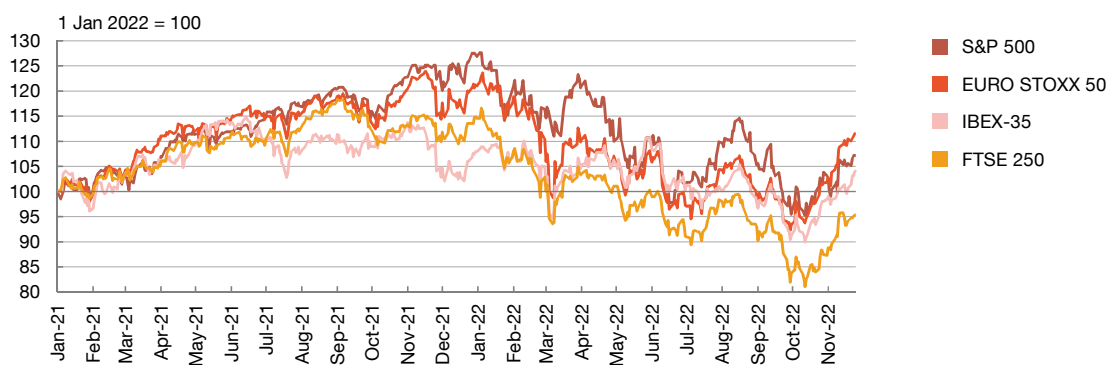
a Consensus Forecasts (bars denote December, diamonds denote June). The advanced economies aggregate comprises 13 geographical areas: Euro area, United States, United Kingdom, Canada, Czech Republic, Denmark, Iceland, Israel, Japan, Norway, South Korea, Sweden and Switzerland. The emerging economies aggregate comprises 13 economies from Asia, eastern Europe and Latin America: China, India, Indonesia, Malaysia, Thailand, Hungary, Poland, Russia, Brazil, Chile, Colombia, Mexico and Peru.

## 5 Meanwhile the financial markets, which have seen some episodes of extreme volatility, appear to be discounting a faster-than-expected reversal of global monetary policy tightening in the coming months

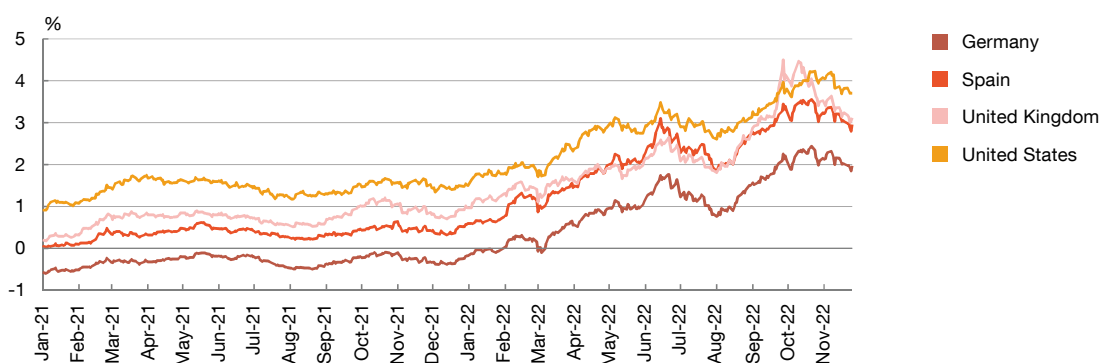
- Among other developments, evidence of a slowdown in global economic activity, the incipient signs of easing inflation rates in some of the main world economies, and even the messages conveyed by certain central banks have, since early November, led international capital market investors to envisage a sooner-than-expected reversal in policy rate rises.
- Largely as a result of this, and of improved corporate profit expectations, since late October the main global stock market indexes have rallied (see Chart 5.a) and higher-rated long-term sovereign debt yields have fallen slightly below the levels observed in late September (see Chart 5.b).
- Meanwhile in Europe, long-term sovereign spreads over the German benchmark have narrowed so far in Q4, to 108 bp in Spain and, more markedly, to 206 bp in Greece and to 207 bp in Italy.
- Moreover, since late September, the euro has appreciated against the dollar, but has depreciated against the pound sterling, almost fully reversing the appreciation observed in the previous quarter.

Chart 5

### 5.a Stock market indices



### 5.b 10-year sovereign debt yields



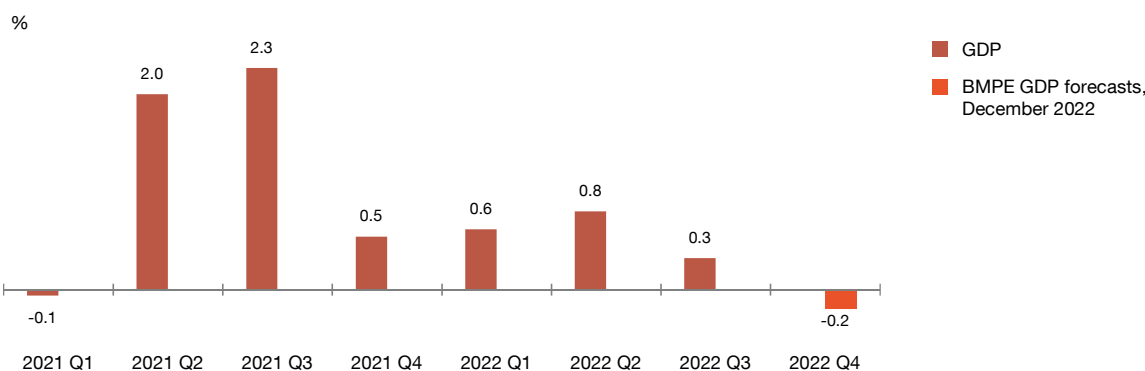
SOURCE: Refinitiv Datastream.

## 6 The growth outlook for the euro area has continued to worsen ...

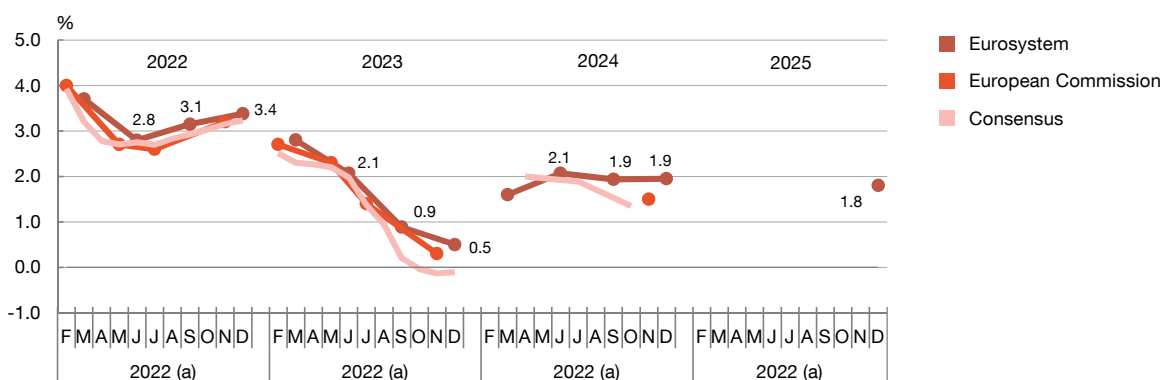
- GDP growth in the euro area slowed significantly in Q3, among other factors on account of the persistent surge in inflation (which has eroded households' purchasing power), the high prevailing uncertainty (which has undermined economic agents' confidence), the tightening of financial conditions and the weakness of the external environment (see Chart 6.a).
- These factors are expected to continue to weigh on economic momentum in the euro area in the coming quarters. According to the Eurosystem's December projections, this could result in a contraction in GDP in Q4.
- In this setting, the Eurosystem's December projection exercise has revised the growth forecast for euro area GDP for 2023 down to 0.5%, compared with the 0.9% expected in September. The growth forecast for 2024 remains at 1.9%, while the forecast for 2025 has been set at 1.8% (see Chart 6.b). The downward revision for 2023 reflects the poorer future outlook both for domestic and external demand.

Chart 6

6.a Euro area GDP growth path (quarterly rate of change)



6.b Euro area GDP growth forecasts



**SOURCES:** European Commission, Consensus Economics, Eurosystem and Eurostat.

**a** The letters refer to the months of 2022, between February and December, when the respective forecasts were published.

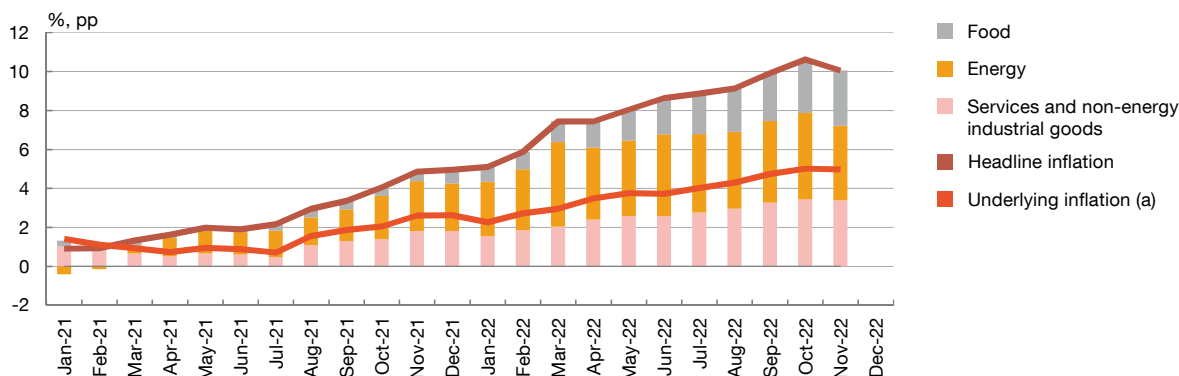


## 7 ... while inflationary pressures remain high

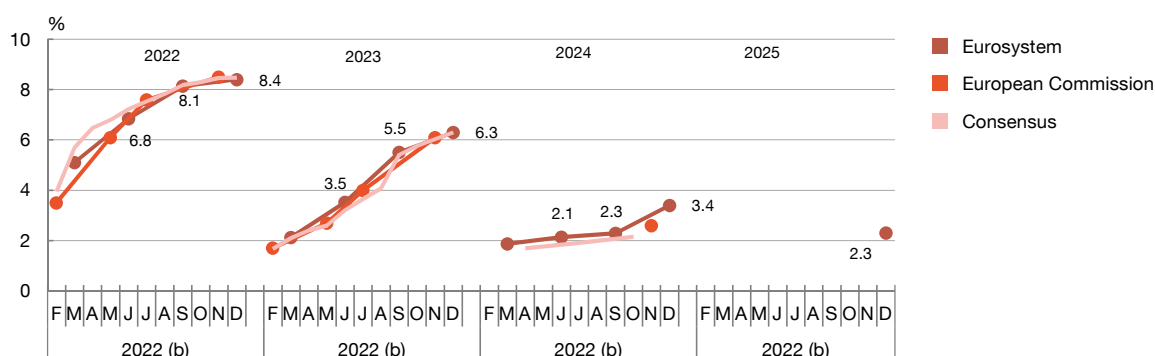
- Euro area inflation stood at 10.1% in November, just 0.5 percentage points (pp) below its record high in October. Inflationary pressures remain broad based, with a high contribution from the energy component (despite its slowdown in November), the food component and also underlying inflation (whose year-on-year rate of growth has held at 5%) (see Chart 7.a).
- In the Eurosystem's December projection exercise the inflation rate has been revised up in the baseline scenario. Specifically, inflation is expected to average 8.4% in 2022 and to stand at 6.3% in 2023, declining thereafter to 3.4% in 2024 and 2.3% in 2025 (see Chart 7.b).
- These figures represent an upward revision of 0.3 pp for 2022, 0.8 pp for 2023 and 1.1 pp for 2024 compared with the September forecast, and this **despite the drop in commodity prices and the easing of the supply chain problems, the expected moderation in GDP and the government measures taken to contain consumer energy prices.**
- The higher inflationary pressures are largely explained by the fact that the inflation rates observed in recent months have been higher than expected, and the expectation that future wage growth in the euro area may be somewhat sharper than anticipated a few months ago.

Chart 7

7.a Euro area inflation and contribution of components



7.b Euro area inflation forecasts



SOURCES: European Commission, Consensus Economics, Eurosystem and Eurostat.

a Headline HICP excluding energy and food.

b The letters refer to the months of 2022, between February and December, when the respective forecasts were published.

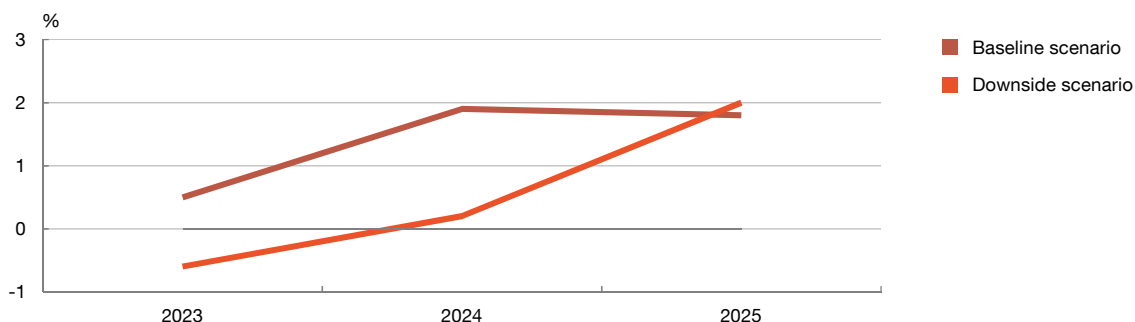


## 8 The risks to the euro area growth forecasts remain on the downside, and those to the inflation forecasts on the upside

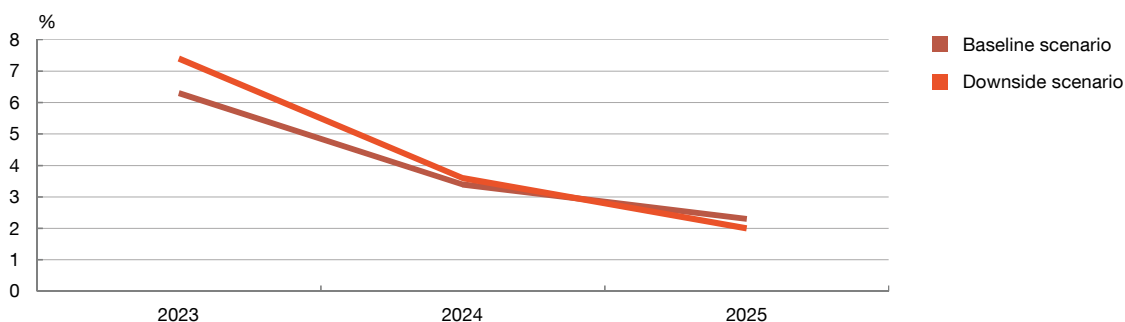
- The war in Ukraine and possible energy supply disruptions in the main European economies<sup>1</sup> are the principal downside risks to the euro area growth outlook.
- The inflation risks are mainly on the upside, relating to possible further increases in commodity prices, a potential deanchoring of inflation expectations and higher-than-expected wage growth. However, there are also downside risks to the inflation outlook, mainly lower commodity prices or the extension of the fiscal measures designed to limit consumer energy prices.
- In this setting, the Eurosystem's December projection exercise includes not only a baseline but also a downside scenario that envisages a complete cut-off of Russian gas and two successive cold winters. Under this scenario, euro area GDP is markedly weaker than in the baseline scenario and contracts in 2023. Inflation is temporarily higher – especially in 2023 owing to higher commodity prices – but is subject to downward pressure – as a result of falling demand – and stands at 2% in 2025 (see Charts 8.a and 8.b).

Chart 8

8.a Eurosystem GDP growth outlook for the euro area, December 2022. Baseline and downside scenarios



8.b Eurosystem inflation forecasts for the euro area, December 2022. Baseline and downside scenarios



SOURCE: Eurosystem.



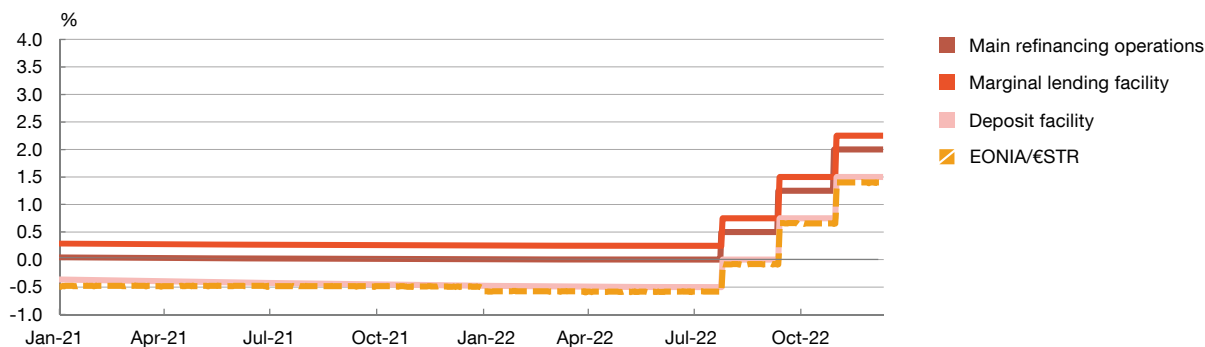
<sup>1</sup> For more details, see [Box 2](#).

## 9 The ECB has again raised its key interest rates and, based on the inflation forecasts, expects to see further rate rises at coming meetings

- Against a backdrop of high inflationary pressures, in recent months the ECB's Governing Council has continued the monetary policy normalisation that it began in late 2021.
- Specifically, at its latest monetary policy meeting in mid-December, the Governing Council raised its key interest rates by 50 bp,<sup>2</sup> taking the deposit facility rate to 2%, a cumulative increase of 250 bp since July (see Chart 9.a).
- Based on the substantial upward revision to the inflation outlook, the Governing Council considers that interest rates will still have to rise significantly at a steady pace to reach levels that are sufficiently restrictive to ensure a timely return of inflation to the ECB's 2% medium-term target.
- The Governing Council also announced that, from March 2023, the Eurosystem will not reinvest all of the principal payments from maturing securities acquired under the asset purchase programme (APP). Accordingly, this portfolio will decline, by some €15 billion per month on average, up to the end of 2023 Q2 when the pace of this process will be reassessed.

Chart 9

### 9.a Key ECB interest rates and EONIA/€STR



SOURCES: Banco de España and Refinitiv Datastream.

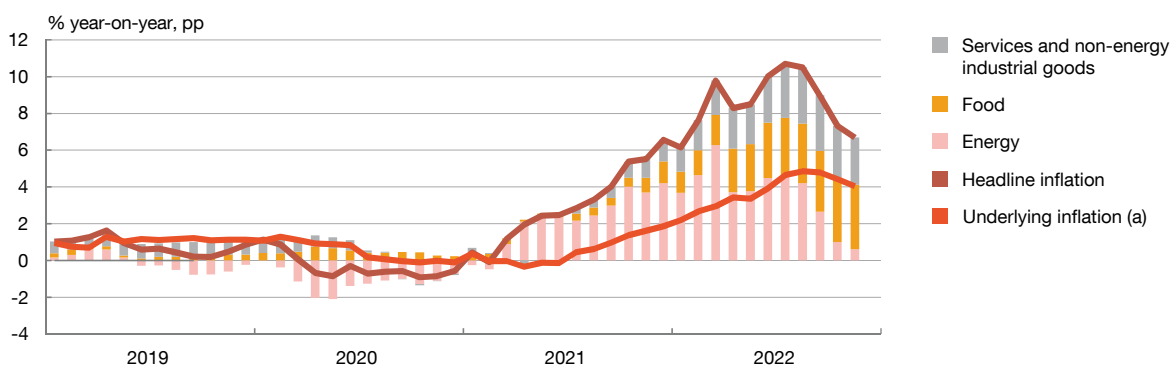
<sup>2</sup> With effect from 21 December 2022.

## 10 In Spain, the moderation in headline inflation owes chiefly to the deceleration of the energy component ...

- Headline inflation in Spain has slowed in recent months, down from the July peak of 10.7% to 6.7% in November. This has primarily been attributable to **lower energy prices**, as food prices have continued to accelerate, albeit at a progressively slower pace, to a year-on-year growth rate of 14% in November (see Chart 10.a).
- The recent deceleration of energy prices is mainly explained by the month-on-month decreases in the prices of electricity (due to the lower price of the gas used in its generation) and of heating and vehicle fuels (in line with the decline in oil prices).
- Underlying inflation has also slowed in recent months, from 4.6% in July to 4% in November, owing chiefly to the deceleration of services prices. The slowdown in these prices seems to have partly stemmed from the measures taken by the authorities to make public transport cheaper and cap rent increases, which are estimated to have lowered the headline inflation rate for November by approximately 0.3 pp.<sup>3</sup>

Chart 10

10.a Inflation in Spain: change and contribution of components



SOURCES: Eurostat and Banco de España.

a Headline HICP excluding energy and food.



<sup>3</sup> Overall, the measures rolled out by the authorities to tackle the energy crisis and the spike in prices are estimated to have helped reduce the headline inflation rate in November by around 2 pp. The bulk of this reduction appears to be associated with the impact of the measures related to the discount on fuel prices, the cap on the increase in the cost of gas in the regulated rate for small natural gas consumers, and the reduction in the VAT rate on gas from 21% to 5%.

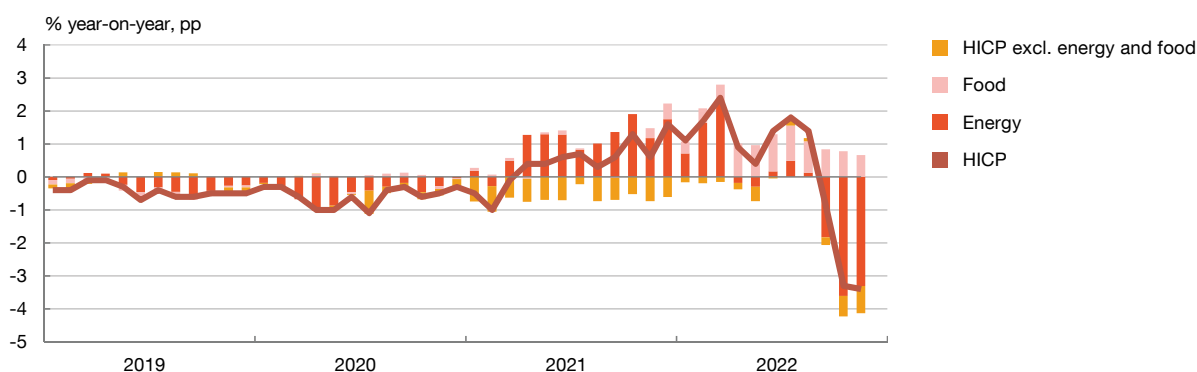


## 11 ... while the inflation differential vis-à-vis the euro area stands at an all-time low

- The moderation in the rate of growth of prices observed in Spain in recent months has stood in contrast to the continuing uptick in inflation in the euro area as a whole. This has prompted a significant narrowing in the inflation differential between Spain and the euro area, which reached an all-time low of -3.4 pp in November (see Chart 11.a).
- This gap is, for the most part, attributable to the differences in retail electricity price formation between Spain and the euro area. Specifically, the prevalence of dynamic pricing<sup>4</sup> in retail contracts in Spain means that wholesale market price fluctuations are passed through swiftly to consumer prices, whereas in most euro area countries this occurs with a greater time lag. Hence the positive inflation differential between Spain and the euro area that was observed during much of 2021 (when wholesale prices rose) and the negative gap at present (when decreases in wholesale prices predominate).
- Looking beyond energy prices, the underlying inflation differential between Spain and the euro area was also negative in November, standing at -1 pp. This was in part due to the recent easing in tourism-related prices in Spain – compared with the spike observed in the euro area as a whole – and to the impact of the measures rolled out in Spain to make public transport cheaper.
- Conversely, food prices have risen more sharply in Spain than in the euro area since late 2021, resulting in a positive differential in this component, although this has narrowed in recent months.

Chart 11

11.a Contributions to the inflation differential between Spain and the euro area



SOURCES: Eurostat and Banco de España.



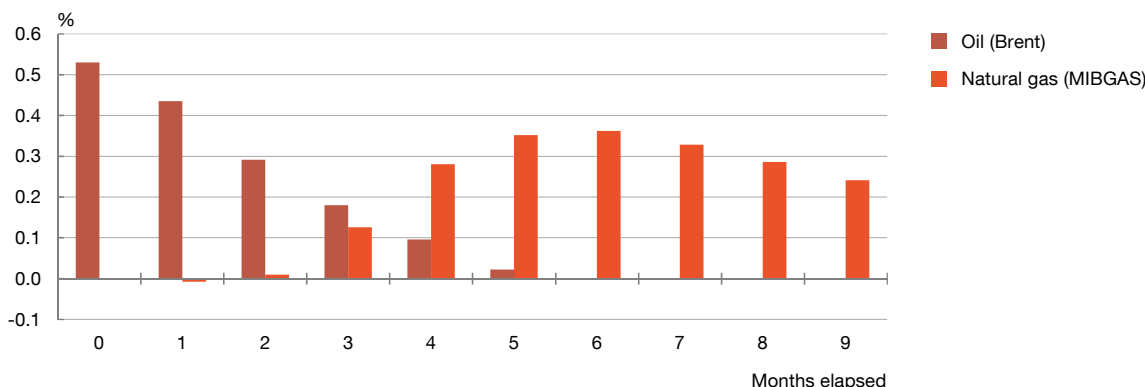
4 In Spain, the regulated rate for small consumers (known as PVPC by its Spanish acronym) is considered to be a “dynamic pricing” rate, insofar as the retail price responds immediately to changes in wholesale market prices. For further details, see M. Pacce, I. Sánchez and M. Suárez-Varela (2021), “Recent developments in Spanish retail electricity prices: the role played by the cost of CO<sub>2</sub> emission allowances and higher gas prices”, *Occasional Paper* No 2120, Banco de España.

## 12 Nevertheless, inflation rates will foreseeably remain at relatively high levels for several quarters ...

- According to recent studies published by the Banco de España, fluctuations in energy and non-energy commodity prices pass through to producer prices and final consumer prices gradually over time and take several quarters to pass through in full.<sup>5</sup>
- For instance, fluctuations in wholesale natural gas prices only begin to be reflected in industrial prices three months later, and their effects are highly persistent, both in absolute terms and compared with the impact of oil price fluctuations (see Chart 12.a), especially for intermediate goods industries that produce key inputs for many other industries.<sup>6</sup>
- Given this situation, in the latest edition of the Banco de España Business Activity Survey (EBAE by its Spanish acronym), respondent firms reported that they expected to continue passing on at least part of the cost increases they had already borne to the selling price of their products.<sup>7</sup>

Chart 12

12.a Impact of energy prices on industrial prices (a)



SOURCE: Banco de España.

a Estimated impact of a 100% increase in the price of Brent oil or the MIBGAS index on the month-on-month rate of growth in the producer price index, excluding energy, after the number of months indicated.



5 For an analysis of the pass-through of wholesale natural gas prices to consumer prices, see L. López, S. Párraga and D. Santabábara (2022), "The pass-through of higher natural gas prices to inflation in the euro area and in Spain", Box 4, "Quarterly report on the Spanish economy", *Economic Bulletin* 3/2022, Banco de España.

6 See Box 3 for more details.

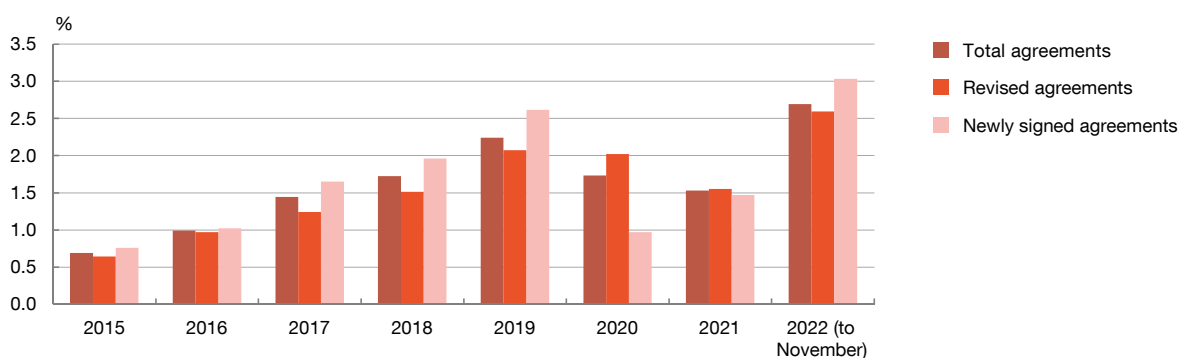
7 See M. Izquierdo (2022), "Encuesta a las empresas españolas sobre la evolución de su actividad: cuarto trimestre de 2022", *Notas Económicas, Boletín Económico* 4/2022, Banco de España.

### 13 ... against a backdrop in which there are as yet no signs of significant second-round effects through wages ...

- On collective bargaining agreements data to November, the increase in wage rates in 2022 remains relatively contained at 2.7% (see Chart 13.a). Most of these agreements, covering around 8 million workers, had been signed in previous years. However, even in the newly signed agreements in 2022, which cover slightly over 1.8 million workers, the wage settlements continue to be around 3%.
- In principle, this wage moderation seems to be holding unchanged for next year. Thus, drawing on the partial information available for 2023 on the collective bargaining agreements that will be in force next year,<sup>8</sup> the wage settlements being negotiated are in line with those agreed for 2022. However, the information also shows a further increase in the prevalence of indexation clauses, with over 40% of the (as yet few) agreements for 2023 including such clauses, compared with 22.6% in 2022.
- By economic activity, wage settlements in 2022 are proving somewhat higher in the services sectors where employment has fared better since the onset of the pandemic.

Chart 13

#### 13.a Wage settlements



SOURCE: Ministerio de Trabajo y Economía Social.



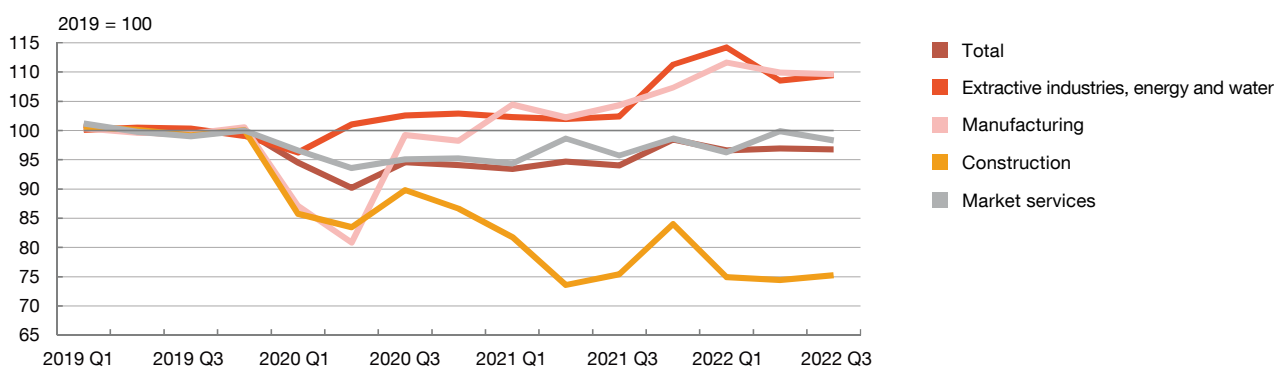
<sup>8</sup> On the basis of a perusal of the collective bargaining agreements registered to October 2022 at <https://expinterweb.mites.gob.es/regcon/> (available in Spanish only). For more details on this exercise, see M. Izquierdo and I. Soler (2022), "An initial analysis of the impact of inflation on collective bargaining in 2022", Box 6, "Quarterly report on the Spanish economy", *Economic Bulletin* 1/2022, Banco de España.

## 14 ... or through profit margins in aggregate terms

- In the first three quarters of 2022, the ratio of gross operating surplus (GOS) to gross value added (GVA) of the total economy held steady, above its 2021 level but still below its pre-pandemic levels (see Chart 14.a).
- However, this aggregate performance masks notable cross-sector and cross-firm heterogeneity. For example, the sectoral information in the National Accounts shows that profit margins performed more dynamically in manufacturing, extractive industries, energy and water, in contrast to the weakness in construction.
- The Banco de España's Central Balance Sheet Data Office Quarterly Survey also points to the existence of considerable cross-firm heterogeneity in the performance of profit margins, even within the same sector. Specifically, an analysis of the operating margin on sales<sup>9</sup> suggests that, for those firms that are more export oriented or that had higher margins at the outset, margins have mostly narrowed since 2021. Conversely, firms in a more vulnerable financial position – owing to higher debt or lower interest coverage ratios – are more likely to have increased their margins.<sup>10</sup>

Chart 14

14.a Profit share (a)



SOURCE: INE.

a Profit share is defined here as the ratio of GOS to GVA of each sector. GOS is calculated as GVA less compensation per employee. This measure of GOS does not exclude net taxes on production and imports.



<sup>9</sup> Calculated as gross operating profit to turnover.

<sup>10</sup> For further details on the heterogeneity of profit margin developments at firm level, see A. Menéndez and M. Mulino (2022), "Economic and financial performance of Spanish firms in 2021 and in the first three quarters of 2022 according to the Central Balance Sheet Data Office", Analytical Articles, *Economic Bulletin* 4/2022, Banco de España.

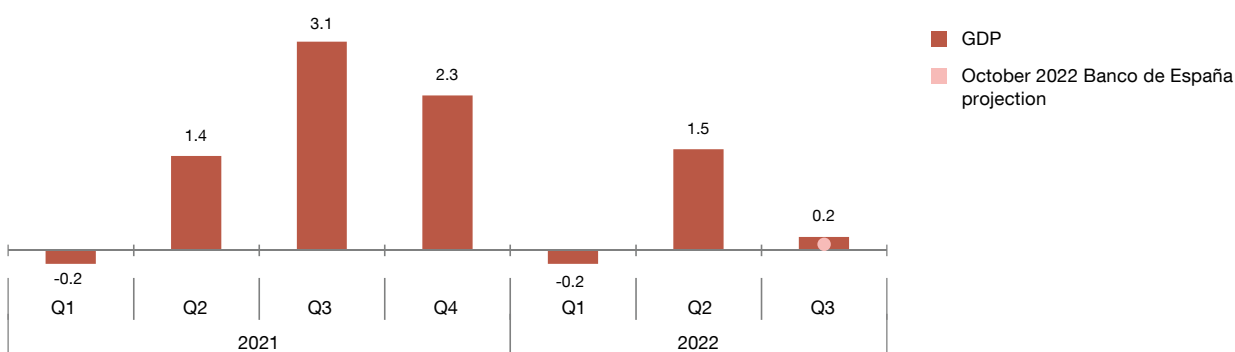
## 15 In line with expectations, GDP slowed down significantly in Q3

- Spanish GDP rose by 0.2% quarter-on-quarter in 2022 Q3, well below the 1.5% growth observed in Q2, but in line with the 0.1% forecast in the Banco de España's October projection exercise<sup>11</sup> (see Chart 15.a).
- The growth in household consumption (1.1%) and in investment in capital goods (1.3%) made notable contributions to activity growth in Q3, whereas the contribution of external demand was negative, on account of the strength of imports, which increased by 3.7%.
- On the supply side, the highest output growth was in market services, particularly leisure- and hospitality-related sectors, while the performance of the primary, industrial and construction sectors was weaker, owing in part to their greater exposure to higher energy costs.
- Nevertheless, Spanish GDP in 2022 Q3 was still 2 pp lower than at end-2019. By contrast, euro area GDP was already 2 pp above its pre-pandemic level.

Chart 15

### 15.a Spanish GDP

Quarter-on-quarter rate of change, %



SOURCES: Banco de España and INE.

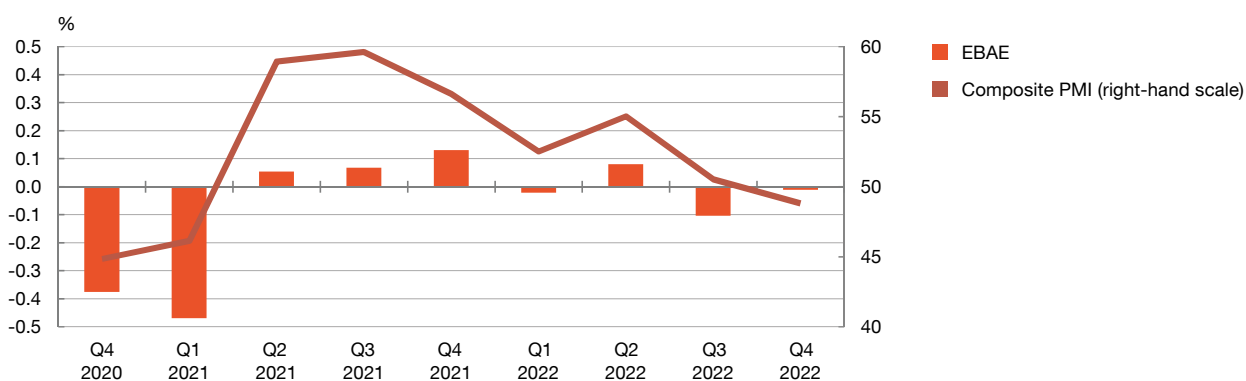
<sup>11</sup> See “Macroeconomic projections for the Spanish economy (2022-2024)”, Box 1, “Quarterly report on the Spanish economy”, *Economic Bulletin* 3/2022, Banco de España.

## 16 The indicators available for Q4 suggest that economic activity momentum in the quarter remained on a par with that recorded in Q3

- An overall analysis of the various indicators (including employment, consumption, output and confidence indicators) that provide partial, and as yet incomplete, information on how activity has developed in 2022 Q4 suggests that, between October and December, Spanish GDP could increase quarter-on-quarter by 0.1%. Nonetheless, this growth rate can only be estimated with considerable uncertainty.<sup>12</sup>
- The available indicators notably include, for instance, the Banco de España Business Activity Survey (EBAE), which indicates that, in aggregate terms, firms' turnover in Q4 remained virtually unchanged from Q3 (see Chart 16.a), albeit with significant cross-sector heterogeneity.<sup>13</sup>
- Meanwhile, over recent months, other confidence indicators (e.g. PMIs) have remained at very low levels or have continued declining with respect to the previous quarter (see Chart 16.a), albeit with a slight upturn in the November composite PMI.

Chart 16

16.a Turnover according to the EBAE and the composite PMI (a) (b)



SOURCES: EBAE and IHS Markit.

- a The qualitative responses from the EBAE are converted into a numerical scale as follows: significant decrease = -2; slight decrease = -1; stable = 0; slight increase = 1; significant increase = 2.
- b The composite PMI is the average of October and November.



<sup>12</sup> See [Box 1](#) for more details.

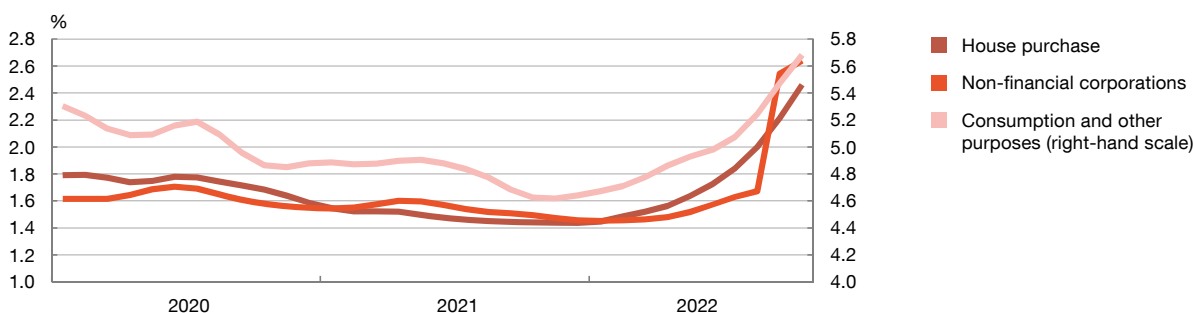
<sup>13</sup> For more details, see M. Izquierdo (2022), "Encuesta a las empresas españolas sobre la evolución de su actividad: cuarto trimestre de 2022", *Notas Económicas, Boletín Económico 4/2022*, Banco de España.

## 17 While financial conditions in Spain have continued to tighten, there has not yet been a contraction in the volume of new lending

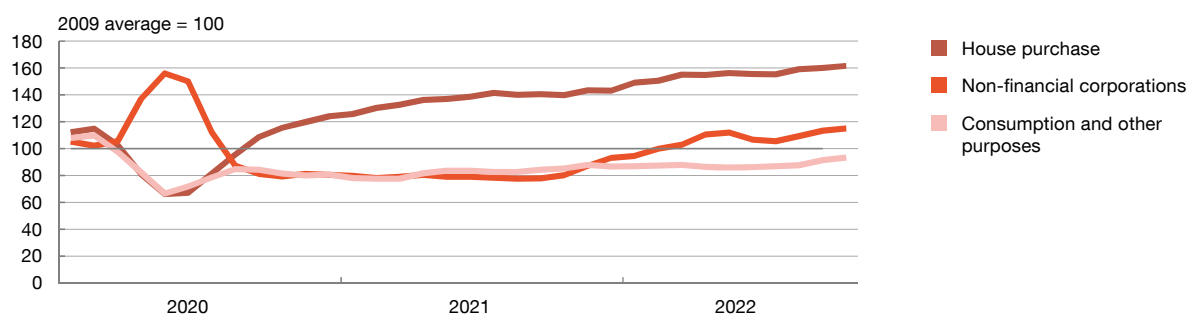
- The pass-through of higher market interest rates to the cost of new bank loans has gathered pace across all segments in recent months (see Chart 17.a).
- In the case of loans to households for house purchase and loans to non-financial corporations, interest rates are now at levels similar to those of the euro area.
- Moreover, the Spanish Bank Lending Survey reveals a tightening of credit standards across the board in Q3, particularly (to a degree not seen since 2008) in the loans to households for house purchase segment. Financial institutions expect the supply of credit to contract further in Q4, along with a fall in demand across all segments.
- In any event, to date this tightening of financial conditions has not led to a contraction in the volume of new lending to households and firms (see Chart 17.b.).

Chart 17

17.a Cost of new bank lending (a)



17.b New lending: 3-month cumulative seasonally-adjusted flows (b)



SOURCE: Banco de España.

- a** Bank interest rates are narrowly defined effective rates (NDER), i.e. they exclude related costs, such as repayment insurance premiums and fees. They are also cycle-trend rates, i.e. they are adjusted seasonally and for the irregular component (small changes in the series with no recognisable pattern in terms of periodicity or trend).
- b** The bank financing series include financing granted by credit institutions and by specialised lending institutions. Average of the last three months.

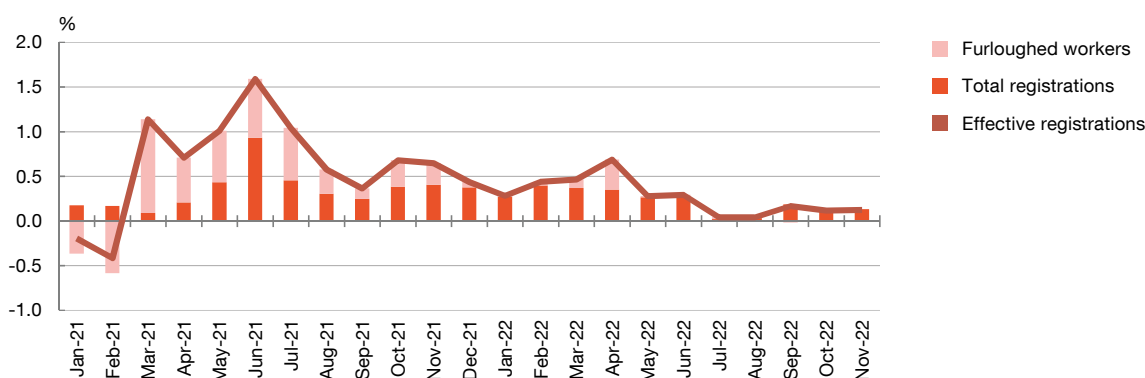


## 18 Employment has held relatively steady in 2022 Q4 and the temporary employment ratio has continued to fall

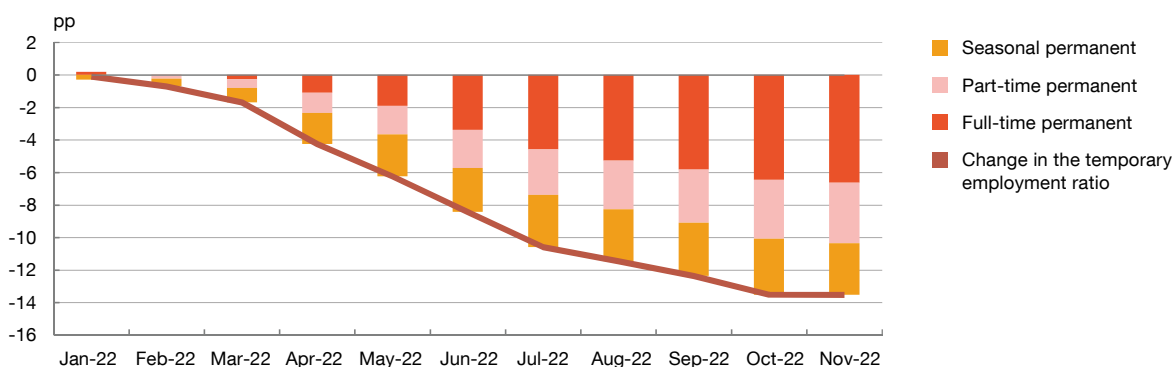
- Social security registrations grew 0.1% month-on-month in November in seasonally adjusted terms, in line with the October rate of growth, suggesting that employment growth in Q4 will be similar to that observed in Q3 (see Chart 18.a).
- By economic activity, employment rose in construction and held steady in market services in the first two months of the quarter, whereas social security registrations dropped off in industry and, in particular, in agriculture.
- Over this period, employment growth remained concentrated on new social security registrations with a permanent contract, up 23.8% in November compared with the same month last year. By contrast, there was a 42.3% fall in new registrations with a temporary contract. Thus, the temporary employment ratio fell by 13.5 pp with respect to November 2021. Of this decrease, 6.6 pp can be attributed to the increase in full-time permanent workers, 3.7 pp to the rise in part-time permanent workers and 3.2 pp to the increase in permanent seasonal workers (see Chart 18.b).

Chart 18

18.a Total social security registrations, furloughed workers and effective social security registrations (a)



18.b Year-on-year change in the temporary employment ratio and contributions by type of permanent contract



SOURCES: Ministerio de Inclusión, Seguridad Social y Migraciones and Banco de España.

a Seasonally adjusted monthly rate.



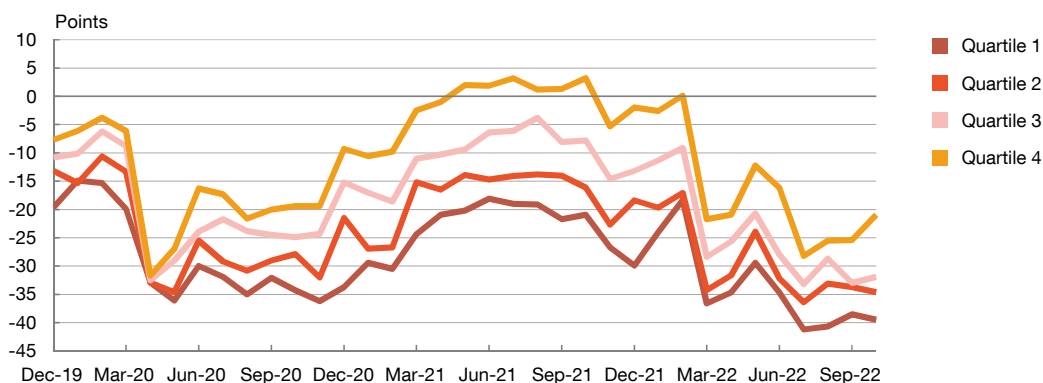


## 19 In recent months, consumption appears to have been weighed down by inflationary pressures and high uncertainty ...

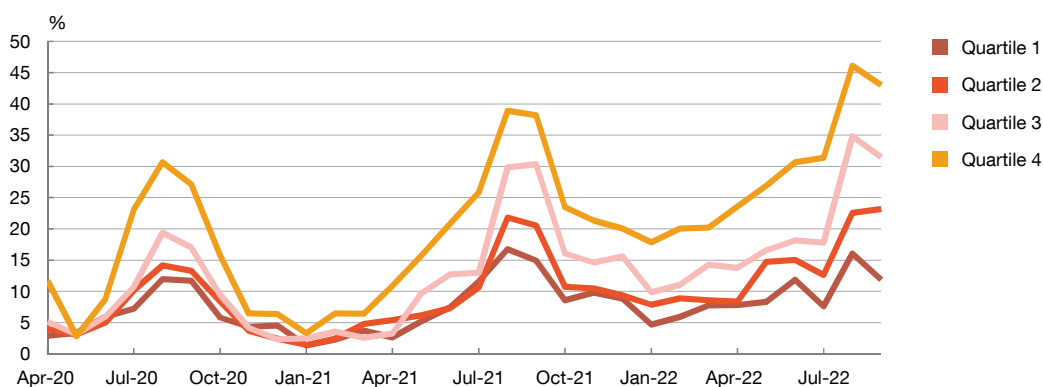
- Growth in consumption appears to have slowed between September and December, in a context marked by high inflation (which eats into households' purchasing power), high uncertainty, the tightening of financial conditions and very low confidence levels, particularly among lower-income households (see Chart 19.a).
- The slowdown in household spending appears to be borne out, at least partially, by slower spending on services and, in particular, on leisure and hospitality, which, while still on the rise, appears to have lost momentum since Q3 when it was notably robust in the case of higher-income households (see Chart 19.b).<sup>14</sup>
- Meanwhile, spending on goods appears to have performed somewhat better in the final stretch of the year, based on the partial information available (which includes private vehicle registrations up to November and the performance of the retail trade index up to October).

Chart 19

19.a Consumer confidence by income quartile



19.b Proportion of households reporting holiday expenditure in the last month



SOURCES: European Commission and Consumer Expectations Survey (ECB).



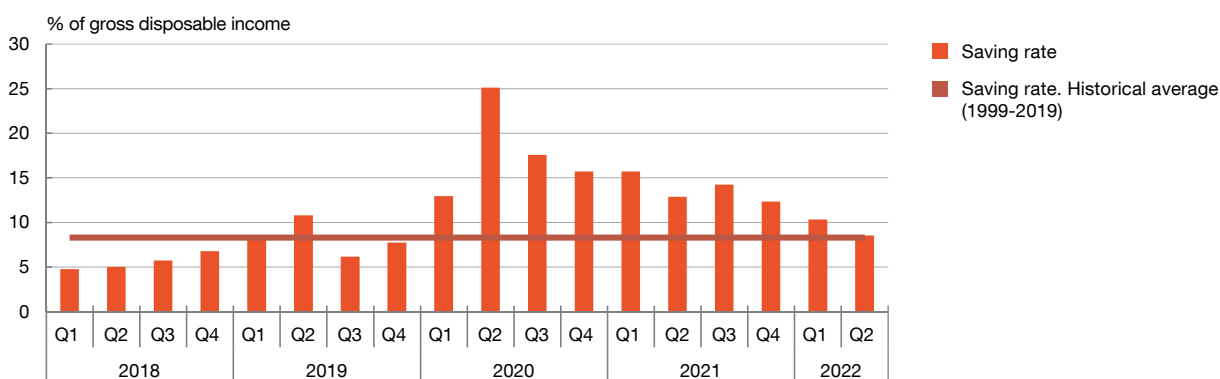
<sup>14</sup> Moreover, household spending decisions could also be influenced by the weather conditions over the coming months (for more details, see Box 4 of this report).

## 20 ... while the household saving rate has declined in recent quarters

- Indeed, since the all-time high reached in 2020 Q2 (25.1%), the household saving rate has been on a clear downward path, standing at 8.5% in 2022 Q2, very close to its historical average of 8.3% (see Chart 20.a).
- This trend in the saving rate (which, moreover, would be consistent with the fact that Spanish households have yet to spend most of the savings they built up at the start of the pandemic)<sup>15</sup> has without doubt been influenced on the one hand by greater uncertainty and on the other by rising prices. Furthermore, both the recent buoyancy of the labour market and the **fall in the temporary employment** ratio may also have had an impact.

Chart 20

20.a Household and NPISH saving rate (a)



SOURCES: INE and Banco de España.

a NPISH refers to non-profit institutions serving households.



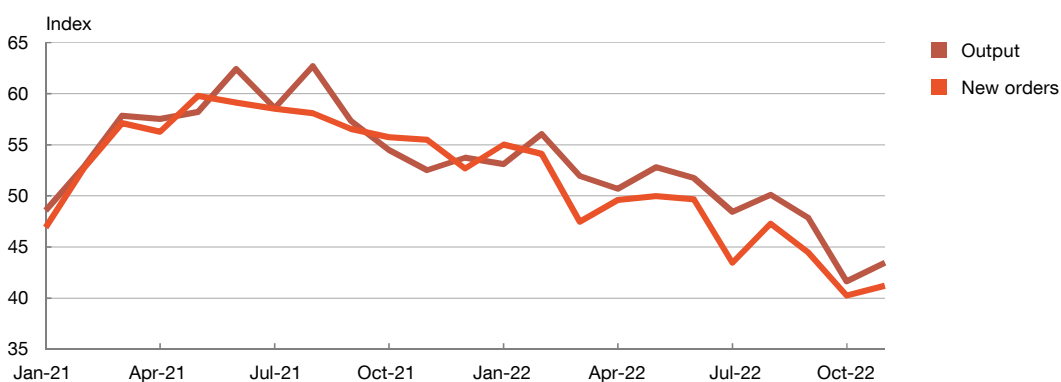
<sup>15</sup> For more details on how Spanish households appear to have used these savings, see [Box 5](#) of this report.

## 21 The latest indicators suggest that business investment has lost momentum in recent months

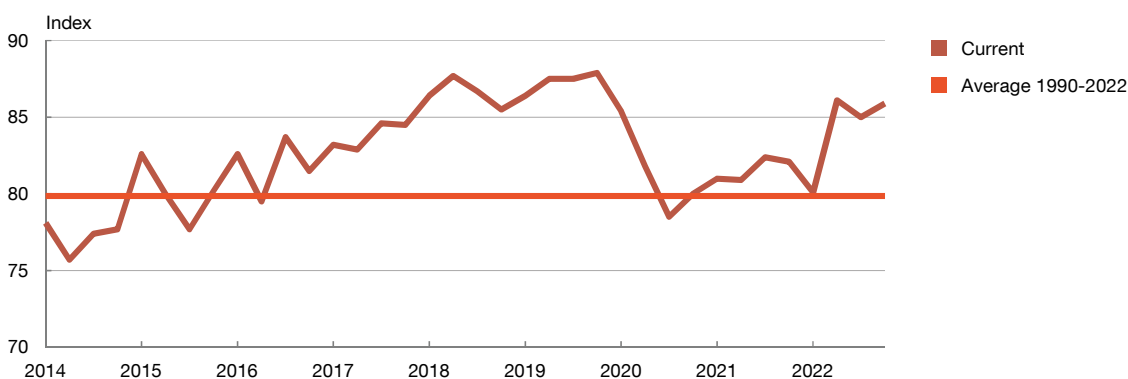
- The poor recent performance of the PMI indicators – consistent with the current high uncertainty, the decline in confidence, **global economic weakness** and the tightening of financial conditions – suggests that business investment has slackened in the short term (see Chart 21.a).
- However, on a broader time scale, the roll-out of the NGEU-related projects and the gradual improvement in the factors that have limited economic activity in recent months should be conducive to greater business investment, especially considering the already high level of productive capacity utilisation in the capital goods industry (see Chart 21.b).

Chart 21

### 21.a Manufacturing PMIs



### 21.b Productive capacity utilisation in the capital goods industry



SOURCES: S&P Global and European Commission.

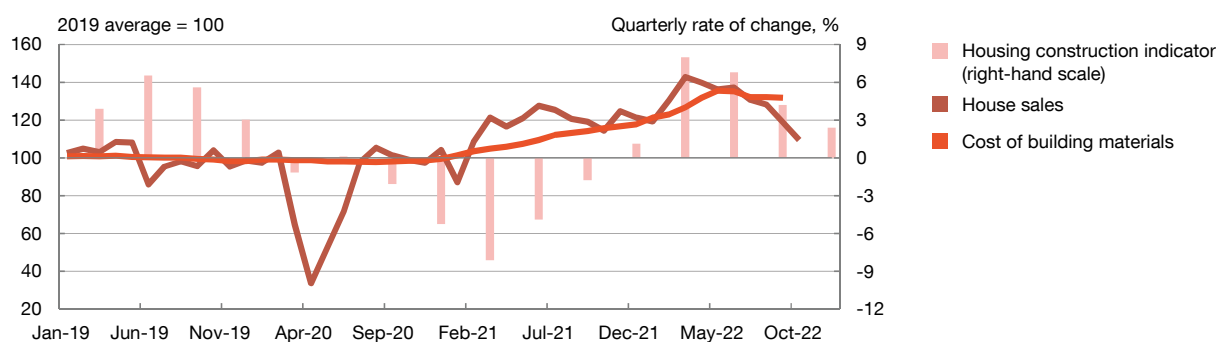


## 22 Housing investment is expected to continue to decelerate in Q4, although prices appear to be displaying some downward stickiness

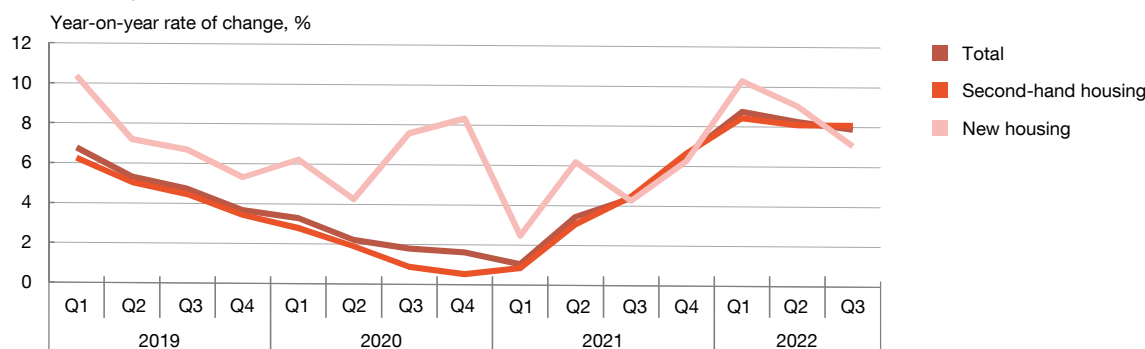
- The main housing investment indicators point to a continuation of the weakness observed in this demand component in recent quarters. In particular, housing construction indicators and house sales have both declined since Q2 (see Chart 22.a).
- In any event, despite slowing recently, house sales are still relatively high, well above their pre-pandemic level. If the pattern persists, this apparent demand strength<sup>16</sup> could shore up house prices to some extent in the short term.
- Indeed, the rate of growth of house prices has moderated slightly year-on-year, from 8% in Q2 to 7.6% in Q3, with a somewhat more marked slowdown in the new housing segment (see Chart 22.b).

Chart 22

22.a Housing construction indicator, house sales and cost of building materials (a)



22.b House prices



SOURCES: Banco de España, Centro de Información Estadística del Notariado, INE and Ministerio de Transportes, Movilidad y Agenda Urbana.

a Seasonally adjusted series for house sales. The latest observed data correspond to October 2022 for house sales and September 2022 for construction costs. For the housing construction indicator, the time frame considered is three months from issue of the building permit to the construction start date, and 18 months thereafter for the construction work; the latest data for this quarterly indicator correspond to 2022 Q4.



<sup>16</sup> For more details on the possible factors behind a stronger recovery in housing demand than in housing supply in the wake of the pandemic, see L. San Juan (2023), “El desajuste entre la demanda y la oferta de vivienda y su relación con los precios”, forthcoming.

## 23 The negative contribution of net exports to output growth appears to have eased in Q4, offsetting the slowdown in the contribution of domestic demand

- Amid flagging domestic demand, the slowdown in goods imports in the closing months of the year appears to have been more pronounced than the deceleration in exports. For instance, the slowdown in purchases as per the PMI indicators for October and November, which was more marked than that observed in export order books, points in this direction.
- International tourism is expected to have continued to recover in Q4, although the pace of convergence towards pre-pandemic levels seems to have slackened somewhat compared with previous quarters.<sup>17</sup>
- In any event, the contribution of net external demand to GDP growth has increased in the closing months of the year, although it remains slightly negative (see Chart 23.a), owing to the relative strength of Spanish imports on account of Spain's greater economic dynamism – throughout 2022, including the final stretch of the year – compared with the rest of the euro area, especially in the case of industries with more import content.

Chart 23

23.a Contribution of net external demand to quarterly GDP growth



SOURCES: INE and Banco de España.

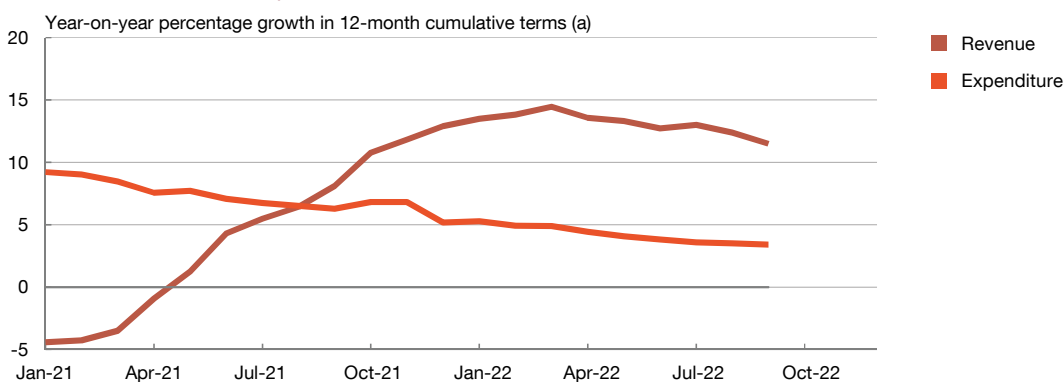
<sup>17</sup> See C. García, A. Gómez and C. Martín (2022), “La recuperación del turismo internacional en España tras la pandemia”, forthcoming.

## 24 Underpinned by continued strong public revenue, the general government deficit for 2022 could be smaller than envisaged in the draft budgetary plan

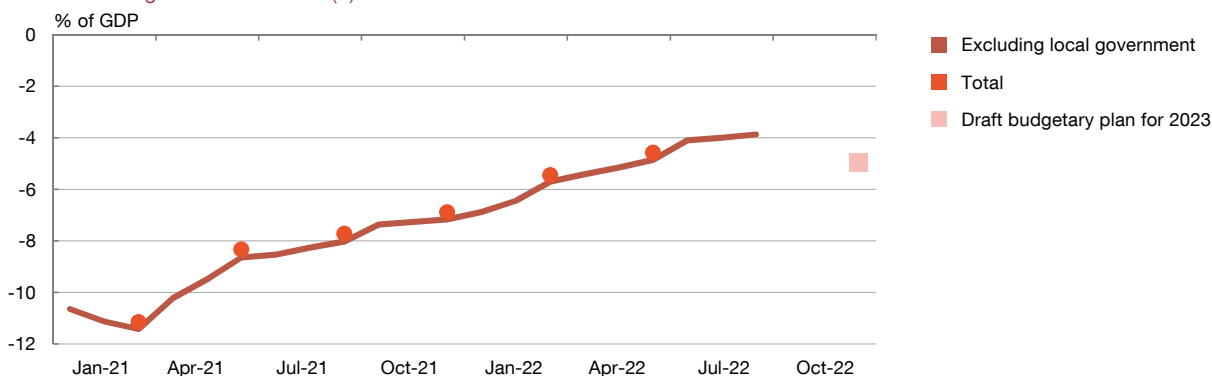
- Despite decelerating slightly in August and September, the year-on-year rate of growth of tax revenue remains high, far outpacing the rate of growth of expenditure (see Chart 24.a).<sup>18</sup>
- Although an increasingly large share of this increase in tax revenue seems to be related to growth in prices and wages, some 20% of the higher tax revenue in 2022 H1 cannot be explained by the traditional determinants, raising some doubt as to whether some of this additional revenue is structural or temporary.
- In any event, in September, the general government deficit excluding local government stood at -3.9% of GDP in 12-month cumulative terms. This is 3 pp below the end-2021 figure and is also 1.1 pp below the benchmark set in the draft budgetary plan (see Chart 24.b).

Chart 24

### 24.a Public revenue and expenditure



### 24.b General government deficit (b)



SOURCES: Banco de España and IGAE.

a The general government aggregate, excluding both local government and transfers between different tiers of general government. Adjusted data, distributing over the full year the impact of measures, expenditure and revenue (observed and expected) that are concentrated in specific months of the year.

b The National Audit Office (IGAE) only provides information on the overall general government sector on a quarterly basis.



<sup>18</sup> In October, the Spanish Tax Agency's cash data also reflect high tax revenue growth (17% year-on-year in comparable terms), with a 29% increase in the second partial corporate income tax payment.

## 25 In an extraordinarily uncertain setting, the Banco de España's latest macroeconomic projections revise GDP growth upwards in the second half of 2022 and downwards in early 2023, by very small margins in both cases

- Box 1 of this report describes the key features of the Banco de España's latest macroeconomic projections for the Spanish economy over the horizon 2022-2025.
- Under the assumptions of the exercise, Spanish GDP is projected to grow by 4.6%, 1.3%, 2.7% and 2.1% in 2022, 2023, 2024 and 2025, respectively. In comparison with those published in October, the current projections involve a slight upward revision to GDP growth in 2022, of 0.1 pp, essentially as a result of stronger growth in the second half of the year than was projected in October. However, the growth projected for 2023 has been revised slightly downwards (by 0.1 pp) to 1.3%, mainly on account of the deterioration in the external environment. Average GDP growth in 2024 has also been revised downwards, by 0.2 pp to 2.7%, essentially as a result of the assumption regarding the extension to 2023 of some of the measures introduced in 2022 to reduce the impact of the energy crisis. The withdrawal of these measures at the beginning of 2024 has a small negative impact on activity that year.
- The rate of growth of prices has been revised downwards for 2022 and 2023, and upwards for 2024, with respect to the projections in October. In particular, average inflation is expected to be 8.4% in 2022 and to moderate over the projection horizon, to 4.9% in 2023, 3.6% in 2024 and 1.8% in 2025. The revision in 2022 is mainly attributable to recent downward surprises, while those in 2023 and 2024 are essentially due to the assumption regarding the extension of some of the measures to reduce the impact of the energy crisis to 2023, and their subsequent withdrawal in 2024.
- In the short term, the risks to the growth projections are mainly tilted to the downside, while for the inflation projections upside risks predominate. Towards the end of the projection horizon the risks are broadly balanced.

Figure 1

	2022	2023	2024	2025
GDP	<b>4.6%</b> ↑ 0.1 pp	<b>1.3%</b> ↓ 0.1 pp	<b>2.7%</b> ↓ 0.2 pp	<b>2.1%</b>
Inflation	<b>8.4%</b> ↓ 0.3 pp	<b>4.9%</b> ↓ 0.7 pp	<b>3.6%</b> ↑ 1.7 pp	<b>1.8%</b>

SOURCE: Banco de España.

## Boxes

### Contents

**Box 1. Macroeconomic projections for the Spanish economy (2022-2025): the Banco de España's contribution to the Eurosystem's December 2022 joint forecasting exercise**

The Banco de España's latest macroeconomic projections revise GDP growth upwards in 2022 H2 and downwards at the beginning of 2023, by very small margins in both cases. The rate of growth of prices has been revised downwards in 2022 and 2023, and upwards in 2024, with respect to the projections in October. The risks to the projections, which are subject to an extraordinary degree of uncertainty, are tilted to the downside for activity and to the upside for inflation, and are broadly balanced towards the end of the projection horizon.

**Box 2. The EU economies' natural gas inventories in 2022 and 2023 under two hypothetical scenarios**

In recent months EU countries have significantly reduced their dependence on Russian gas imports. This has allowed them to increase the level of their gas inventories to multi-year highs. However, considerable uncertainty persists as to whether gas supplies to the EU will be fully assured in the next two winters, although this risk would be low in Spain.

**Box 3. The asymmetric response of producer prices to rising oil and gas prices**

In recent quarters, producer prices have risen considerably in Spain, although their behaviour has displayed significant heterogeneity across the various manufacturing sub-sectors. This heterogeneity may be explained by the fact that the pass-through of an increase in energy prices to producer prices also varies notably depending on the sub-sector involved, largely as a consequence of differences in the energy dependence of each sector. For manufacturing as a whole, fluctuations in oil prices are almost immediately passed through to producer prices, while this pass-through is slower and more persistent in the case of natural gas.

**Box 4. Potential sensitivity of natural gas and electricity consumption in Spain to different weather scenarios in winter 2022-2023**

Temperature fluctuation is a key driver of Spanish households' and SMEs' demand for energy (natural gas and electricity). The change in energy consumption patterns observed in recent months could reduce natural gas consumption in Spain by up to 10% year-on-year, if the winter of 2022-2023 proves as mild as last winter. However, if the 2022-2023 winter is as cold as that of 2004-2005, natural gas consumption in the country could rise by around 25% on the preceding year.

**Box 5. Impact on recent and expected consumption patterns of the savings accumulated by households during the pandemic**

On the results of the Consumer Expectations Survey, just 15% of the households that saved during the pandemic have subsequently used those savings to finance their spending. These households' consumption appears to have grown more than that of other households, although the impact on aggregate consumption would be modest. The spending expectations of households that saved during the pandemic are very similar to those of other households, suggesting that the savings built up during the pandemic will not provide a significant boost to aggregate consumption in the coming quarters.



## Box 1

## MACROECONOMIC PROJECTIONS FOR THE SPANISH ECONOMY (2022-2025): THE BANCO DE ESPAÑA'S CONTRIBUTION TO THE EUROSISTEM'S DECEMBER 2022 JOINT FORECASTING EXERCISE

This box describes the key features of the most recent update to the Banco de España's macroeconomic projections for the Spanish economy. Under the assumptions of the exercise, Spanish GDP is projected to grow by 4.6%, 1.3%, 2.7% and 2.1% in 2022, 2023, 2024 and 2025, respectively (see Table 1).<sup>1</sup> Headline inflation is projected to decelerate from an average of 8.4% in 2022 to 4.9% in 2023, 3.6% in 2024 and 1.8% in 2025, and underlying inflation from 3.8% this year to 3.4% next year, 2.2% in 2024 and 1.8% in 2025. The cut-off date for the projections is 30 November 2022.

### Activity

The growth rate of activity eased substantially in 2022 Q3. According to the flash estimates published by the National Statistics Institute (INE), GDP rose by 0.2% quarter-on-quarter in this period, well below the 1.5% growth observed in Q2 but in line with the 0.1% forecast by the Banco de España in its October projections.<sup>2</sup> This slowdown in activity resulted primarily from the confluence of a range of interrelated adverse factors of an essentially global nature that had a negative impact on economic agents' decisions both in Spain and in most other European countries. These factors included not least the energy crisis (and the uncertainty about possible interruptions in supply for some economies), the high and

persistent rates of inflation, the resulting monetary policy tightening by the world's main central banks and the widespread downturn in confidence. Moreover, the slowdown in the pace of Spanish output growth during Q3 was also attributable to the smaller boost from the sectors most affected by the health crisis, which had seen a strong improvement in Q2 on account of the lifting of virtually all the pandemic containment measures.

In a setting in which the above factors have continued to considerably constrain activity, Spanish household and business confidence seems to have been further eroded in the final stretch of the year, judging by the adverse developments in some qualitative indicators, while financial conditions have continued to tighten. However, on social security registrations data, employment growth in Q4 has been similar to in Q3, with permanent hires accounting for a growing share of the total. These labour market developments appear to be underpinning private consumption, which, while still markedly weak (owing to the notable erosion of household purchasing power, among other factors), seems to have remained moderately buoyant in the last few months of the year. Along these same lines, according to the results of the latest edition of the Banco de España Business Activity Survey (EBAE), business turnover levels have held somewhat stable in Q4, albeit with marked cross-sector heterogeneity.<sup>3</sup>

Table 1  
Macroeconomic projections for the Spanish economy (a)

Annual rate of change (%)

	GDP				HICP				HICP excluding energy and food				Unemployment rate (% of labour force) (b)			
	2022	2023	2024	2025	2022	2023	2024	2025	2022	2023	2024	2025	2022	2023	2024	2025
December 2022	4.6	1.3	2.7	2.1	8.4	4.9	3.6	1.8	3.8	3.4	2.2	1.8	12.8	12.9	12.2	12.0
October 2022	4.5	1.4	2.9	—	8.7	5.6	1.9	—	3.9	3.5	2.1	—	12.8	12.9	12.4	—

SOURCES: Banco de España and INE.

NOTE: Latest QNA figure published: 2022 Q3.

a Projections cut-off date: 30 November 2022.

b Annual average.

- 1 Compared with the projections published on 5 October, the current projections incorporate the new information that has become available since then. This includes, in particular, the flash Quarterly National Accounts (QNA) estimate for Q3 and the changes in the technical assumptions underlying developments in the different key variables in the exercise (see Table 2). The projection horizon in this exercise includes 2025 for the first time.
- 2 See "Macroeconomic projections for the Spanish economy (2022-2024)", Box 1, "Quarterly report on the Spanish economy", *Economic Bulletin* 3/2022, Banco de España.
- 3 See M. Izquierdo (2022), "Encuesta a las empresas españolas sobre la evolución de su actividad: cuarto trimestre de 2022", *Notas Económicas, Boletín Económico* 4/2022, Banco de España.

## Box 1

**MACROECONOMIC PROJECTIONS FOR THE SPANISH ECONOMY (2022-2025): THE BANCO DE ESPAÑA'S CONTRIBUTION TO THE EUROSISTEM'S DECEMBER 2022 JOINT FORECASTING EXERCISE (cont'd)**

Overall, subject to all the caveats arising from the fact that the information available is still incomplete, quarter-on-quarter GDP growth in Q4 is estimated at 0.1%. As in Q3, the contribution of domestic demand to this growth appears to have been positive and higher, in absolute terms, than the negative contribution of the net external balance.

In 2023 Q1 the dynamics of Spanish economic activity are expected to remain considerably weak, insofar as the outlook for the start of next year is one of continuing high inflationary pressures, a further tightening of financial conditions, persistent relatively low confidence levels and lacklustre global economic activity, especially in Europe. Conversely, the measures rolled out by the authorities to tackle the energy crisis and the spike in inflation are expected to provide some support for activity in the early months of next year.

These projections include three key assumptions for 2023 Q1 which are also relevant to the behaviour of activity and prices over the rest of the projection horizon.

First, looking to the coming months, it is assumed that commodity prices – about which much uncertainty persists – will perform in line with futures market prices. In particular, in the case of gas, Iberian Gas Market (MIBGAS) futures prices are assumed to be the most likely scenario for the future developments in gas prices.<sup>4</sup> In this respect, it is worth noting that gas prices for 2023 on the futures markets are currently just over a third lower than those envisaged in the last projection exercise, published in October.<sup>5</sup> Meanwhile, the assumptions about the oil price in dollar, again obtained drawing on the futures markets, result in a downward trajectory over the projection horizon, albeit at somewhat higher levels than those envisaged in early October.<sup>6</sup>

Second, in a particularly uncertain economic and geopolitical environment, it is assumed that over the coming months Spanish households will make relatively limited use of the large savings accumulated during the health crisis (mainly by higher income households), which will not provide a significant boost to aggregate spending levels.<sup>7</sup>

Third, certain assumptions have been made regarding the duration of the government measures rolled out in 2022 to counter the effects of the energy crisis on households and firms and, in particular, to compensate these agents for the spike in prices. With inflationary pressures expected to remain relatively high in 2023, and in the absence of an official decision in this respect, this projection exercise considers in its baseline scenario that several of the measures due to expire, in principle, on 31 December 2022 will be extended throughout 2023.

The measures currently in force can be classified into four categories according to their official duration and the assumptions made about their possible extension (Figure 1 shows those that have a direct impact on the HICP and specifies the differences between the assumptions made in this respect in the current exercise and in the October projections):

- (a) *Measures approved until 31 December 2022, which, it is assumed, will be extended for one year until 31 December 2023:* the tax rate reductions in the electricity bill (from 21% to 5% in the case of VAT and from 5.1% to 0.5% in the case of the excise duty on electricity), a reduction in the VAT rate on natural gas from 21% to 5%, the suspension of the tax on electricity generation, a butane gas price freeze, the State subsidy for public transport season tickets, a

4 Specifically, gas prices on futures markets are taken up to the one-year term. Thereafter, prices are considered not very representative, owing to limited market liquidity, and therefore it has been decided to keep the price of this commodity constant at the futures price for December 2023 until the end of the projection horizon. The electricity price trajectory, meanwhile, is obtained from a formula that approximates the technical efficiency of electricity generation from gas with currently existing technology. Also, the cost of CO<sub>2</sub> emission allowances is included. Finally, the calculation of the electricity price trajectory takes into account the mechanism to cap the price of gas until May 2023.

5 As in the rest of Europe, the price of gas in the Iberian market has declined considerably – and exhibited high volatility – since the cut-off date for the previous projections. For instance, in November the price of gas was 60% below that expected in the October projection exercise. This has been driven by the reduction in gas consumption, stemming in part from the mild temperatures observed in the first half of the quarter, which has mitigated the concerns in Europe about whether gas supplies will suffice to meet demand. For more details on these potential supply problems, see I. Alonso, L. López, D. Santabábara and M. Suárez-Varela (2022), “The EU economies’ natural gas inventories in 2022 and 2023 under two hypothetical scenarios”, Box 2, “Quarterly report on the Spanish economy”, *Economic Bulletin 4/2022*, Banco de España.

6 Oil prices have not been significantly affected by the entry into force on 5 December of two measures concerning the seaborne trade of Russian oil: the price cap at \$60 per barrel agreed by the G7 and the ban on EU imports of Russian oil.

7 See C. Martínez-Carrascal (2022), “Impact on recent and expected consumption patterns of the savings accumulated by households during the pandemic”, Box 5, “Quarterly report on the Spanish economy”, *Economic Bulletin 4/2022*, Banco de España.

## Box 1

**MACROECONOMIC PROJECTIONS FOR THE SPANISH ECONOMY (2022-2025): THE BANCO DE ESPAÑA'S CONTRIBUTION TO THE EUROSISTEM'S DECEMBER 2022 JOINT FORECASTING EXERCISE (cont'd)**

temporary 15% increase in non-contributory pensions and a 2% cap on rent increases. Hereafter, the public measures in category (a) are referred to as “extended measures”.

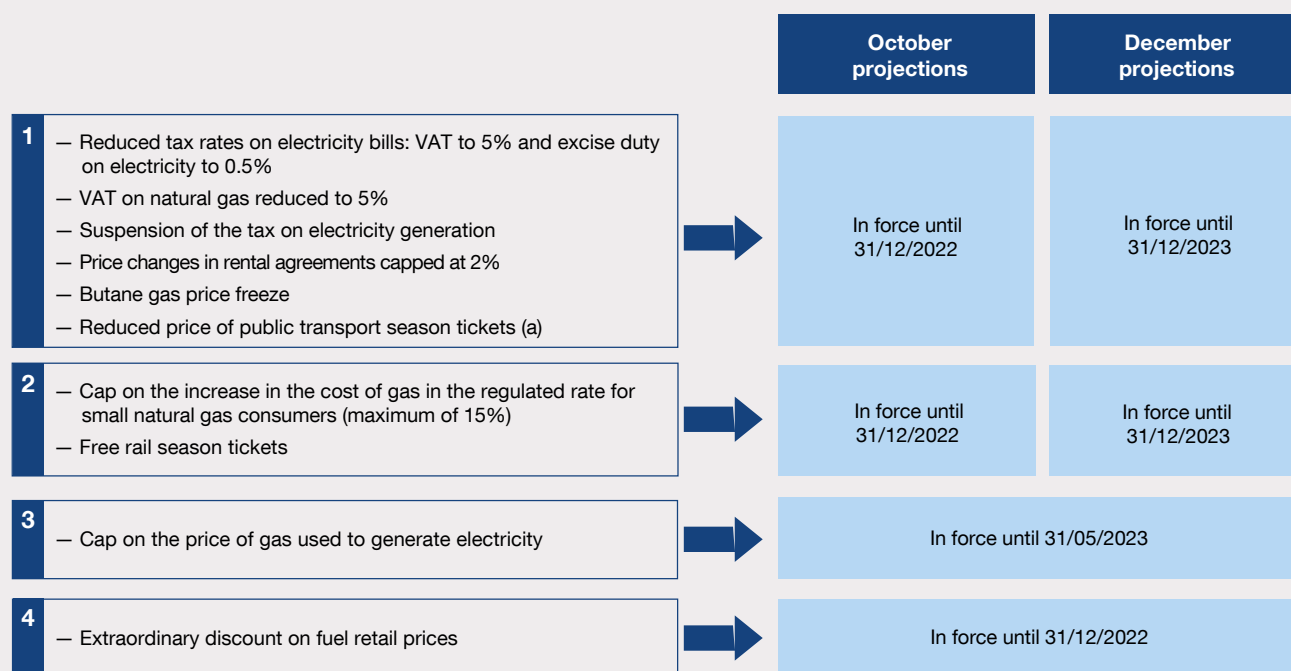
- (b) *Measures initially approved until 31 December 2022 which have already been officially extended for a further year, until 31 December 2023, or whose extension is envisaged in the State Budget currently before Parliament:* the introduction of a 15% cap on the increase in the cost of gas in the regulated rate for small natural gas consumers and free suburban rail passes.
- (c) *Measure approved until 31 May 2023 which, in principle, cannot be extended:* a mechanism to cap the price of gas used to generate electricity.
- (d) *Measures initially approved until 31 December 2022, which the baseline scenario assumes will not be extended:* an extraordinary and temporary discount on the retail price of fuel and other spending measures

to compensate for inflation whose extension is not assumed given the lack of detailed information.<sup>8</sup>

Therefore, the baseline scenario assumes that the duration of the measures in categories (b), (c) and (d) coincides with that officially approved. Conversely, it is assumed that, in the case of the “extended measures”, the duration is different to the officially approved term and that they would remain in force for the whole of 2023. Extending these support measures for households and firms will contribute in the coming year to sustaining activity and containing inflationary pressures, albeit at the expense of having the opposite effect in 2024 and, naturally, of slightly deteriorating public finances.

Beyond 2023 Q1, activity will regain increasing momentum from spring onwards, fuelled by a combination of factors. These include the gradual easing of energy market tensions and inflationary pressures (which will bring with it a progressive recovery in domestic agents' real incomes and confidence and stronger external demand), the ongoing

Figure 1  
Assumptions regarding the duration of the measures directly affecting inflation taken by the authorities to mitigate the increase in energy prices



SOURCE: Banco de España.

a It is assumed that only the portion financed by the central government is extended.

<sup>8</sup> These are the aid to firms in the most affected sectors, the €200 grant for lower-income households, the complementary grant for students and the additional transport subsidies from regional governments.

## Box 1

### MACROECONOMIC PROJECTIONS FOR THE SPANISH ECONOMY (2022-2025): THE BANCO DE ESPAÑA'S CONTRIBUTION TO THE EUROSISTEM'S DECEMBER 2022 JOINT FORECASTING EXERCISE (cont'd)

roll-out of Next Generation EU (NGEU) funds<sup>9</sup> and the gradual resolution of the global supply chain disruptions.

In annual average terms, GDP will grow by 4.6% in 2022 (see Table 1 and Chart 1). This notable output growth is mainly the result of developments up to 2022 Q2, since, as mentioned above, activity has shown considerable weakness in 2022 H2. Such sluggishness, which will extend into the start of next year, will result in GDP growth for 2023 as a whole moderating significantly, to 1.3%, although it will gradually improve as the year progresses. In turn, this gradual increase in output growth will lead it to stand at 2.7% in 2024, in annual average terms. Thereafter, once the main economic consequences of the war in Ukraine have been overcome, the pace of GDP growth will soften, approaching that of potential output, thus bringing the average growth rate for 2025 to 2.1%. Under the projected trajectory, Spanish GDP will return to pre-pandemic levels in late 2023 or early 2024 (see Chart 2).

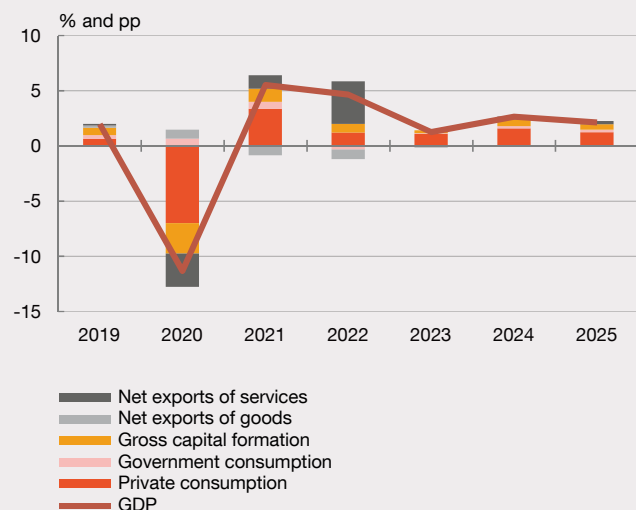
As compared with those published in October, the current projections revise up GDP growth for 2022 by 0.1 pp (see Table 3). This revision is the result of activity in the second half

of the year performing somewhat more favourably than projected in October.<sup>10</sup> Meanwhile, growth for 2023 is now 0.1 pp lower than anticipated at the time. This is the net result of various factors operating in opposite directions. On the one hand, GDP growth in 2022 H2 has been stronger than projected in October, and this has a certain positive carry-over effect on annual output growth in 2023. Moreover, the new assumptions about the measures to alleviate the effects of inflation (i.e. those already announced and those projected to be extended) add 0.4 pp to GDP growth for next year. On the other hand, the changes in the other assumptions underlying the projections, which point particularly to a notable worsening in external markets, lead, in net terms, to a slight downward revision of GDP growth for next year. Average output growth in 2024 is also revised down by 0.2 pp. This revision owes mainly to the assumption about the “extended measures”, whose withdrawal in early 2024 would have a small negative impact on activity in that year.<sup>11</sup>

#### Prices and costs

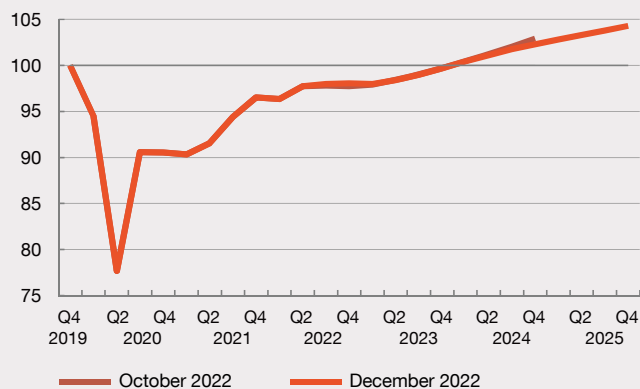
The pace of consumer price growth, as measured by the HICP, has moderated significantly in recent months. Thus,

Chart 1  
GDP growth and contributions of main components



SOURCES: INE and Banco de España.

Chart 2  
Real GDP. 2019 Q4 = 100



9 The information available suggests that the implementation of projects associated with the NGEU's Recovery and Resilience Facility (RRF) is proceeding as anticipated in the October projections. See the Annex for more details.

10 In particular, as noted above, the flash QNA estimate for Q3 reflects somewhat higher output growth than was estimated in the October projection exercise.

11 Strictly speaking, these effects owe not only to the measures whose extension has been assumed but is not official (category (a) in Figure 1) but also to those whose extension is already official (category (b) in Figure 1).

## Box 1

**MACROECONOMIC PROJECTIONS FOR THE SPANISH ECONOMY (2022-2025): THE BANCO DE ESPAÑA'S CONTRIBUTION TO THE EUROSISTEM'S DECEMBER 2022 JOINT FORECASTING EXERCISE (cont'd)**

after reaching 10.7% in July, headline inflation gradually declined to 6.7% in November. This lower year-on-year growth mainly reflects the recent fall in energy prices, which has affected both electricity and heating and vehicle fuels. Underlying inflation has also slowed in recent months (from 4.9% in August to 4% in November), although this was mainly due to temporary factors.<sup>12</sup> By contrast, food prices have continued to accelerate in the most recent period, albeit at a slower pace than at the beginning of the year.

Headline HICP is expected to gradually ease from its current levels over the projection horizon. In particular, it is projected to fall from 8.4% in 2022 to 4.9% in 2023, 3.6% in 2024 and 1.8% in 2025 (see Chart 3). The reduction in consumer price growth rates is expected to be initially determined by the energy component, whose further

slowdown would primarily be due to two factors. The first of these would be the emergence of negative base effects in the short term, as the year-on-year price growth is calculated relative to 2022 levels, which were very high due to the intensification of the energy crisis at that time. The second would be the expected decline in energy commodity prices, as indicated by their prices on the futures markets, which will translate into further reductions in the prices of fuel and, given the retail market pricing system, of electricity.

It will take somewhat longer for the pace of the food price increases to moderate and for underlying inflation to resume a downward trajectory, given that the recent increase in costs has not yet been fully passed through to the prices of all consumer goods and services (see Chart 4). In any event, the completion of this pass-through

Table 2  
International environment and monetary and financial conditions (a)

Annual rate of change (%), unless otherwise indicated

	December 2022 projections					Difference between the current projections and the October 2022 projections (b)		
	2021	2022	2023	2024	2025	2022	2023	2024
Spain's export markets (c)	9.9	7.7	2.1	3.0	3.1	1.4	-0.4	-0.1
Oil price in dollars/barrel (level)	71.1	104.6	86.4	79.7	76.0	1.7	6.9	5.5
Monetary and financial conditions								
Dollar/euro exchange rate (level)	1.18	1.05	1.03	1.03	1.03	0.01	0.05	0.05
Nominal effective exchange rate against non-euro area countries (d) (2000 = 100)	120.7	111.9	111.2	111.2	111.2	0.6	3.9	3.9
Short-term interest rates (3-month EURIBOR. Level) (e)	-0.5	0.3	2.9	2.7	2.5	0.0	0.0	-0.2
Long-term interest rates (10-year Spanish government bond yield. Level) (e)	0.3	2.2	2.9	3.1	3.2	0.0	-0.5	-0.5

**SOURCES:** ECB and Banco de España.

- a** Cut-off date for assumptions: 28 November 2022 for Spain's export markets and 24 November 2022 for all other variables. Figures expressed as levels are annual averages; the figures expressed as rates are calculated on the basis of the related annual averages.
- b** The differences are in rates for export markets, in levels for oil prices, the dollar/euro exchange rate and the nominal effective exchange rate and in percentage points for interest rates.
- c** The assumptions regarding the behaviour of Spain's export markets presented in the table are obtained from the *December 2022 Eurosystem staff macroeconomic projections for the euro area*.
- d** A positive percentage change in the nominal effective exchange rate denotes an appreciation of the euro.
- e** For the projection period, the figures in the table are technical assumptions, prepared following the Eurosystem's methodology. These assumptions are based on futures market prices or on proxies thereof and should not be interpreted as a Eurosystem prediction as to the course of these variables.

<sup>12</sup> Specifically, the administrative measures to make public transport cheaper and impose a cap on rent increases have reduced the rate of growth of services prices, with an impact of around 0.3 pp on the underlying inflation rate between July and November.

## Box 1

**MACROECONOMIC PROJECTIONS FOR THE SPANISH ECONOMY (2022-2025): THE BANCO DE ESPAÑA'S CONTRIBUTION TO THE EUROSISTEM'S DECEMBER 2022 JOINT FORECASTING EXERCISE (cont'd)**

and, in the case of food commodities, the materialisation of the downward price trajectories anticipated by the futures markets will result in the prices of the non-energy components also contributing to a retreat in inflation over the projection horizon. In particular, in annual average terms, underlying inflation is expected to ease from 3.8% this year to 3.4% in 2023, 2.2% in 2024 and 1.8% in 2025. The factors contributing to this decline include the progressive fading of the global supply chain disruptions and the gradual impact of the normalisation and subsequent tightening of monetary policy.

In any event, these projections rest on two very important assumptions. First, it is assumed that, while still

incomplete, a substantial portion of the feed-through of past cost increases to final selling prices has already taken place. Second, in line with the evidence available to date, it is assumed that no significant second-round effects – via either profit margins or wages – emerge over the projection horizon that might trigger feedback loops from the current inflationary pressures.

The recent moderation in price growth has been more intense than envisaged in the October projections. As a result, the current projections have a more favourable starting point than the last projection exercise. This new starting point, together with the assumption regarding the “extended measures”,<sup>13</sup> reduces the average inflation rate

Table 3  
Projections for the main macroeconomic aggregates of the Spanish economy (a)

Annual rate of change in volume terms (%) and % of GDP

	December 2022 projections					October 2022 projections		
	2021	2022	2023	2024	2025	2022	2023	2024
GDP	5.5	4.6	1.3	2.7	2.1	4.5	1.4	2.9
Private consumption	6.0	2.1	1.9	2.8	2.1	1.6	1.3	3.2
Government consumption	2.9	-1.6	0.3	0.9	1.2	-1.5	0.0	0.9
Gross fixed capital formation	0.9	5.2	1.6	3.0	2.3	4.7	1.7	2.6
Exports of goods and services	14.4	18.0	3.8	3.0	3.1	17.5	4.0	3.1
Imports of goods and services	13.9	9.7	4.3	2.5	2.9	8.2	3.1	2.4
Domestic demand (contribution to growth)	5.2	1.6	1.4	2.4	1.9	1.1	0.9	2.5
Net external demand (contribution to growth)	0.3	3.0	-0.1	0.3	0.2	3.4	0.5	0.4
Nominal GDP	7.9	8.5	5.8	5.9	4.4	8.1	5.9	5.6
GDP deflator	2.3	3.6	4.5	3.2	2.2	3.5	4.5	2.6
HICP	3.0	8.4	4.9	3.6	1.8	8.7	5.6	1.9
HICP excluding energy and food	0.6	3.8	3.4	2.2	1.8	3.9	3.5	2.1
Employment (hours)	7.2	4.1	0.5	1.6	1.1	4.0	0.8	2.5
Unemployment rate (% of labour force). Annual average	14.8	12.8	12.9	12.2	12.0	12.8	12.9	12.4
Net lending (+)/net borrowing (-) of the nation (% of GDP)	1.9	2.4	2.1	2.4	2.3	2.6	2.7	3.4
General government net lending (+)/net borrowing (-) (% of GDP)	-6.9	-4.2	-4.1	-3.7	-4.5	-4.3	-4.0	-4.3
General government debt (% of GDP)	118.3	113.1	110.6	108.8	109.8	113.3	110.7	109.9

**SOURCES:** Banco de España and INE.

NOTE: Latest QNA figure published: 2022 Q3.

a Projections cut-off date: 30 November 2022.

<sup>13</sup> Along with the effects of the measures whose extension is already official (category (b) in Figure 1).



## Box 1

**MACROECONOMIC PROJECTIONS FOR THE SPANISH ECONOMY (2022-2025): THE BANCO DE ESPAÑA'S CONTRIBUTION TO THE EUROSISTEM'S DECEMBER 2022 JOINT FORECASTING EXERCISE (cont'd)**

projected for 2023 by 1.2 pp compared with the October projections (see Table 1). However, this downward revision is partially mitigated by the impact of the new information that has become available, which entails an effect in the opposite direction of 0.5 pp, as a result of a set of factors that include food prices surprising on the upside and the anticipated steepening of the energy price curve, partially offset by the recent negative surprises in some components. Meanwhile, the projected inflation rate for 2024 is revised up from that envisaged in the October projection exercise, chiefly due to the assumption that the measures deployed by the authorities to combat the effects of the energy crisis and the increase in prices will expire at end-2023. In the case of underlying inflation, the revisions (which are very minor: 0.1 pp for each of the three years in the period 2022-2024) primarily owe to the changes in the assumptions regarding the duration of the public transport subsidy.

**Risks**

In the short term, the risks to the growth projections are mainly tilted to the downside, while for the inflation projections

upside risks predominate. However, towards the end of the projection horizon the risks are broadly balanced.

The main sources of uncertainty are linked to the course of the war in Ukraine and, in particular, to the materialisation of energy market developments that differ significantly from those envisaged in the baseline scenario of these projections. In the gas market, which is subject to a particularly high level of uncertainty, potential disruptions – whether favourable or adverse – over the coming quarters could have a considerable impact on both gas and electricity prices, and, potentially, also on the volume of gas available in relation to demand. In particular, an adverse disruption of this nature might considerably dampen economic growth and hamper the correction of the current high rates of inflation, leading to a further tightening of monetary policy at the global level.<sup>14</sup>

Other elements of risk notably include the uncertainty regarding the buoyancy of global economic activity in the near term, a time horizon in which some of the main global economies, such as the United States and the euro area as a whole, could fall into recession, while others, such as China,

Chart 3  
Contributions to HICP growth by component

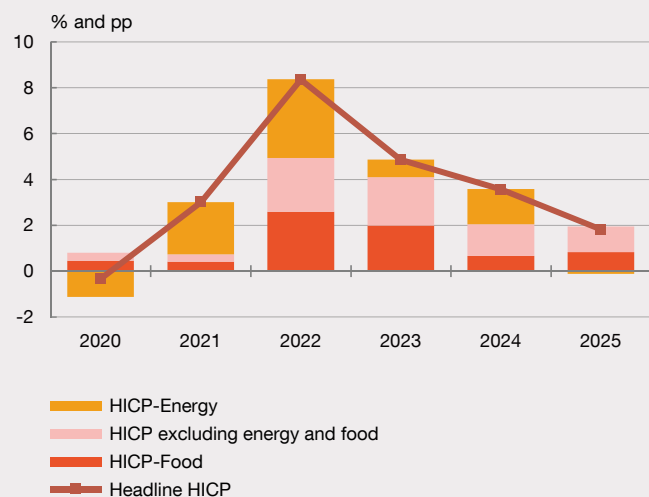
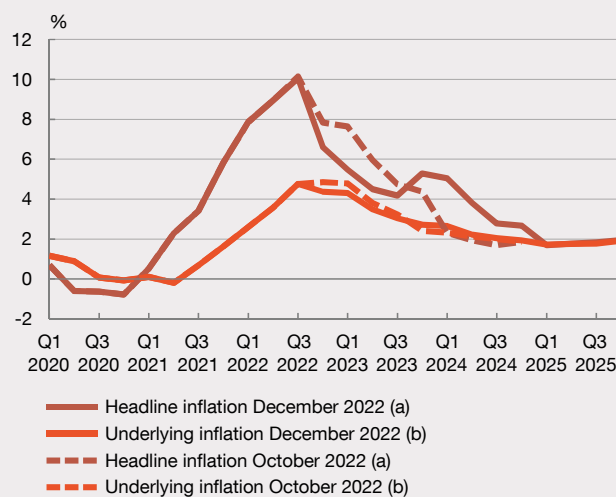


Chart 4  
Headline and underlying inflation



SOURCES: Banco de España and INE.

- a Measured by the HICP.  
b Measured by the HICP excluding energy and food.

14 For an analysis of the sensitivity of GDP and of inflation in Spain to changes in the gas price path, see "Macroeconomic projections for the Spanish economy (2022-2024)", Box 1, "Quarterly Report on the Spanish Economy", *Economic Bulletin* 3/2022, Banco de España.

## Box 1

**MAGROECONOMIC PROJECTIONS FOR THE SPANISH ECONOMY (2022-2025): THE BANCO DE ESPAÑA'S CONTRIBUTION TO THE EUROSISTEM'S DECEMBER 2022 JOINT FORECASTING EXERCISE (cont'd)**

face significant macro-financial imbalances. In a situation as complex as the present one, it is also very difficult to pinpoint how severely the global process of monetary policy tightening – which has taken place with unusual speed and synchronicity over the last few quarters – could affect the main macroeconomic aggregates, the stability of the financial system overall, and the financial situation and spending capacity of households and firms – especially those with floating-rate debt, which are the majority in Spain.

At a more domestic level, the projections are also subject to additional risk factors. In particular, there is considerable uncertainty surrounding (i) possible future developments in the Spanish labour market, as employment, which tends to respond with a certain lag to aggregate economic developments, may well continue to surprise on the upside or begin to show starker signs of weakness than envisaged in the baseline scenario, (ii) how the household saving rate will perform over the projection horizon – which depends, among many other factors, on developments in aggregate levels of uncertainty and household confidence –, and (iii) the pace at which the investment projects under the NGEU programme filter through to the economy, along with their capacity to boost the country's potential growth.

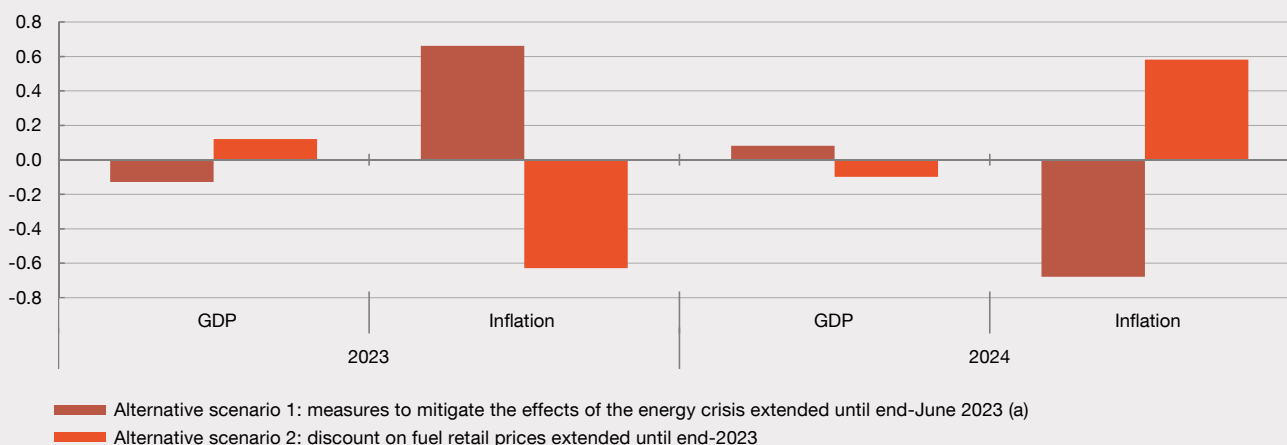
There is also a high level of uncertainty over the possible extension to 2023 of some of the public policy measures

that were deployed in recent quarters (and remain in force in the final stretch of 2022) to compensate various groups for the increase in prices, particularly energy prices. This uncertainty relates both to the “extended measures”, i.e. those for which the baseline scenario assumes an extension to 2023 will be approved (category (a) in the above classification) and to the measures presently in force which, it is assumed, will not be extended (category (d)).

Given this uncertainty, this projection exercise includes a sensitivity analysis for the possibility that the “extended measures” are indeed extended beyond 31 December 2022 but only to 30 June 2023 (alternative scenario 1), and that the current fuel price subsidies are extended to 31 December 2023 (alternative scenario 2) (see Chart 5). According to these simulations, if the support measures considered were extended only to 30 June 2023 rather than until the end of next year, average inflation in 2023 would be 0.7 pp higher than under the baseline scenario, while GDP growth would be 0.1 pp lower. Meanwhile, a hypothetical extension of the fuel price discount to end-2023 would reduce average inflation for that year by 0.6 pp as compared with the baseline scenario, but would increase it by the same amount in 2024. Conversely, it would increase GDP growth by 0.1 pp in 2023 and reduce it by 0.1 pp in 2024.

Chart 5

Differences vs the baseline scenario in 2023 and 2024 due to the fiscal policy measures. GDP growth and inflation



SOURCE: Banco de España.

a The measures considered are the reduced tax rates on electricity bills (VAT from 10% to 5% and the excise duty on electricity from 5.1% to 0.5%), the reduced rate of VAT on natural gas (from 21% to 5%), the suspension of the tax on electricity generation, the butane gas price freeze, the State-level reduction on the price of public transport season tickets and the 2% cap on changes in rent prices.



## Box 1

**MACROECONOMIC PROJECTIONS FOR THE SPANISH ECONOMY (2022-2025): THE BANCO DE ESPAÑA'S CONTRIBUTION TO THE EUROSISTEM'S DECEMBER 2022 JOINT FORECASTING EXERCISE (cont'd)****ANNEX****Assumptions underlying the projections**

The technical assumptions include considerably lower wholesale gas and electricity prices and slightly higher oil prices than in the October projections. Projected interest rates are now somewhat lower than those expected in October and the euro exchange rate is slightly higher. The growth rate of export markets has been revised downwards in 2023 and, to a lesser extent, in 2024, as a result of the deterioration in the global economic outlook (see Table 2).

In the fiscal policy arena, there have been numerous legislative developments since the last projections. First, Royal Decree-Law 18/2022 of 18 October 2022 contains several measures that, overall, raise government expenditure for 2022 by 0.3 pp of GDP.<sup>15</sup> The new projections also incorporate the Draft State and Social Security Budget for 2023 (Draft Budget for 2023), with net increases in expenditure and receipts, which are more quantitatively significant on the spending side.<sup>16</sup> Leaving the Draft Budget for 2023 to one side, a recently approved parliamentary amendment resulted in the projected annual tax revenue from the temporary tax on energy utilities being re-estimated at around €1 billion in 2023 and 2024 (half the amount estimated in the October projections). Lastly, the latest projections take into account the new temporary wealth tax, which is currently before the Spanish parliament and seeks to raise €1.5 billion in 2023 and 2024. Given the temporary nature of the latter two taxes, their positive impact on tax revenues in the next two years disappears in 2025.

There is also a high level of uncertainty over the possible extension to 2023 of some of the public policy measures rolled out in recent quarters to compensate various groups for the increase in prices – particularly energy prices – and that remain in force in the final stretch of 2022.

In the absence of an official decision in this respect, and amid expectations for inflationary pressures to remain relatively high at least in 2023, the baseline scenario of this projection

exercise assumes that certain measures entailing a budgetary cost that officially expire (on the information available at the cut-off date for this report) on 31 December 2022 will be extended to 31 December 2023. These measures include lower energy taxes, higher temporary spending on non-contributory pension benefits and the State subsidy for public transport season tickets.<sup>17</sup> Overall, this would have an estimated budgetary cost of approximately 0.5 pp of GDP. In any event, as detailed in the Risks section of the main text, this projection exercise includes, as a sensitivity analysis, the possibility of these measures indeed being extended beyond 31 December 2022, but only up to 30 June 2023 (see Chart 5).

In addition, given the low probability of them being extended under their current conditions, the baseline scenario does not include a hypothetical extension of the other spending measures, which include the fuel price subsidies currently in force, scheduled to expire on 31 December of this year. Similarly, the sensitivity analysis in the main text considers the possibility of these specific subsidies being extended to 31 December 2023.

All of the legislative changes considered would result in higher budget deficits in 2022, 2023 and 2024 than in the October projections. The largest revision would be in 2023, given the assumption about the extension of the measures in force in 2022.

However, the worsening of the general government balance stemming from the legislative changes is expected to be offset by the recent (more-favourable-than-projected) budget execution developments and by the assumption, introduced in the new projection exercise, that the positive gap between actual tax revenues and those based on their historical relationship with macroeconomic variables will correct more gradually than expected in October.

The fiscal projections are based on the usual technical assumptions, which include pensions being indexed to the CPI, interest payments moving in line with the market

15 These measures include an additional 1.5% rise in public sector wages in 2022, the assumption by the central government of the cost of the caps on the increase in the regulated rate for small natural gas consumers and of the greater flexibility in energy supply agreements, and the higher social rebate on heating.

16 Defence spending is expected to gradually increase over several years to a final amount of €2 billion in 2024 and then hold at that level thereafter. In addition, the projections include the extension until end-2023 of the discount on suburban rail transport managed by the central government (initially scheduled to expire on 31 December 2022) and the preliminary agreement reached in parliament for a 15% increase in 2023 in non-contributory pension benefits (the same as in 2022). On the revenue side, the changes included in the Draft Budget for 2023 have a relatively small net impact, as the measures raising tax receipts (such as the increase in the maximum social security contribution base and the temporary cap on corporate income tax relief for subsidiaries' losses) are offset by others that lower them (such as the personal income tax cuts for low incomes).

17 In other words, the measures with a budgetary cost in category (a) of the above-mentioned classification.

## Box 1

### MACROECONOMIC PROJECTIONS FOR THE SPANISH ECONOMY (2022-2025): THE BANCO DE ESPAÑA'S CONTRIBUTION TO THE EUROSISTEM'S DECEMBER 2022 JOINT FORECASTING EXERCISE (cont'd)

interest rate and government debt trajectories, and the “no-policy-change” growth in the discretionary items.

The latest available information on the pace of execution of the Recovery, Transformation and Resilience Plan (RTRP) does not differ significantly from the amounts envisaged in October. Accordingly, the estimated spending trajectory is very similar to that projected then. Specifically, general government spending charged to the programmes supported by the Plan will rise significantly in 2022 and continue growing, albeit to a lesser degree, in the following two years. After peaking in 2024, the annual outlay will start to fall in 2025.

Overall, once the impact of the European funds is taken into account, the fiscal policy stance, measured by the change in the structural balance, will be expansionary in the period 2022-2025.<sup>18</sup> The phasing-out of the public support measures implemented in response to the pandemic and the fall-out from the war in Ukraine, together with the discretionary increases in revenues, will tend to have a contractionary impact on the economy. However, this would be more than offset by the expansionary effect of the RTRP-related spending, pension benefits increasing in line with the CPI and an expected minor reversal in the upside surprises in tax revenues in the period 2020-2022.

Figure 2  
Summary of the macroeconomic projections for the Spanish economy (2022-2025)

	2022	2023	2024	2025	MAIN REASONS FOR THE REVISION (with respect to the October projections)
GDP	<b>4.6%</b> <hr/> ↑ 0.1 pp	<b>1.3%</b> <hr/> ↓ 0.1 pp	<b>2.7%</b> <hr/> ↓ 0.2 pp	<b>2.1%</b>	<ul style="list-style-type: none"> <li>• GDP growth in 2022 is revised upwards slightly due to stronger-than-expected growth in the second half of the year</li> <li>• By contrast, the growth projected for 2023 is revised downwards slightly due to the deterioration in the external environment and despite the effect of opposite sign stemming from the extension to 2023 of some of the measures in force in 2022 to mitigate the impact of the energy crisis. The withdrawal of these measures in early 2024 has a small negative impact on activity, resulting in a slight downward revision to average output growth in that year</li> <li>• Inflation is revised downwards in 2022, due to the recent downside surprises in the data, and in 2023, on account of the new assumption about the extension to 2023 of some of the measures, the withdrawal of which in 2024 results in an upward revision to inflation in that year</li> </ul>
Inflation	<b>8.4%</b> <hr/> ↓ 0.3 pp	<b>4.9%</b> <hr/> ↓ 0.7 pp	<b>3.6%</b> <hr/> ↑ 1.7 pp	<b>1.8%</b>	<b>MAIN SOURCES OF UNCERTAINTY</b> <ul style="list-style-type: none"> <li>• Geopolitical tensions and energy market developments</li> <li>• Time frame of the measures adopted to contain the impact on inflation of rising energy costs</li> <li>• The macroeconomic impact of the global process of monetary policy tightening</li> <li>• The potential impact of uncertainty and confidence on agents' consumption and saving decisions</li> <li>• How activity fares in Spain's main trading partners, which may entail significant disruptions in the short term</li> <li>• The possibility, amid more persistent inflation, of second-round effects on inflation</li> </ul>

SOURCE: Banco de España.

<sup>18</sup> The RTRP funds do not affect the Spanish budget deficit, as they allow for a higher level of spending without the corresponding funds needing to be sourced from resident agents. As a result, they entail an expansionary impulse that does not result in a change in the structural balance.

## Box 2

**THE EU ECONOMIES' NATURAL GAS INVENTORIES IN 2022 AND 2023 UNDER TWO HYPOTHETICAL SCENARIOS**

Irma Alonso, Lucía López, Daniel Santabárbara and Marta Suárez-Varela

Since the start of the war in Ukraine, Russian gas supplies to the European Union (EU) – which in 2021 accounted for 40% of all EU gas imports – have fallen by almost 80%. This has posed a considerable challenge for the European economies, which have had to contend with an extraordinary surge in gas prices – even though they have declined in recent months (see Chart 1) – and to roll out a wide range of measures that seek to quickly reduce the bloc's dependence on Russian natural gas imports, which greatly varies from country to country (see Chart 2).

In recent months EU countries have broadly demonstrated a relatively high capacity to reduce their dependence on Russian gas imports, which has allowed them to increase the level of their gas inventories to multi-year highs (see Chart 3). This has essentially been possible through two channels. First, by increasing pipeline gas imports (mainly from Norway, North Africa and Azerbaijan) and making greater use of liquefied natural gas (LNG), imported primarily from the United States, Qatar and Nigeria. Second, by reducing gas consumption. Indeed, since the start of the war in Ukraine, gas consumption has fallen by 11% in the EU as a whole relative to the average of the past few years, although this reduction has been remarkably uneven across countries, agents and sectors (see Chart 4).

Although the European economies' responsiveness to the energy crisis has been admirable so far, considerable uncertainty persists as to whether gas supplies to the EU will be fully assured, not only during the winter of 2022-2023 but also in the winter of 2023-2024.<sup>1</sup> Among other factors, this will depend on how European demand for energy adapts in the coming quarters, the ability to tap into new supply sources, the weather and the degree of solidarity between the different EU countries.

In this respect it should be noted that, although the current energy crisis constitutes a common shock for the entire EU, it is having vastly asymmetrical impacts on the individual Member States. Moreover, the ability to mitigate these asymmetries in the short term is relatively limited, considering the few existing interconnections between the different European energy markets at present. For example, given the current level of energy interconnections, countries such as Spain, which have a considerable regasification capacity and little exposure to Russian gas flows, have very limited scope to export gas to other central European countries such as Germany, which is highly exposed to Russian gas and has little regasification capacity in the short term.

In this setting, this box seeks to assess the risk of a potential gas shortage for the various EU economies in the coming quarters. To this end, two hypothetical scenarios are considered, which assume a total cut-off of gas flows from Russia.<sup>2</sup> Both scenarios also factor in the solidarity agreements between certain European economies, whereby they commit to share their surplus gas. Consequently, for the purpose of this exercise, these economies are considered to be a single geographical area.<sup>3</sup>

A benign scenario assumes that Europe's demand for natural gas decreases, thanks to favourable weather and the fulfilment of the EU's consumption reduction targets,<sup>4</sup> and that the supply diversification plans announced by the Member States are realised.<sup>5</sup> Meanwhile, under an adverse scenario, it is assumed that the winters of 2022-2023 and 2023-2024 are colder than usual, entailing higher demand for gas.<sup>6</sup> At the same time, this scenario considers that only half of the gas consumption reduction observed in

- 1 This box considers a broad definition of "winter" that includes the period of peak gas consumption, which runs from November to April each year.
- 2 Both scenarios simulate the degree of gas market resilience for each EU economy up to May 2024, taking into account: (i) its level of inventories and storage capacity; (ii) the potential to import natural gas from sources other than Russia, which in turn calls for considering the extent of cross-border interconnections, the volume of gas imports and the capacity of the regasification plants; and (iii) its domestic gas production. Other assumptions considered in the exercise relate to the EU countries' access to LNG (regardless of price) and the stability of gas re-export patterns.
- 3 See Haas, Kozluk and Sarcina (2022), "Emergency plans and solidarity: Protecting Europe against a natural gas shortage" for details of the six existing bilateral solidarity agreements, which define three areas of solidarity: (i) Austria, Denmark and Germany; (ii) Estonia, Finland, Latvia and Lithuania; and (iii) Italy and Slovenia. Under these bilateral agreements, if one country has difficulties in securing gas supplies despite having already reduced consumption in its non-essential sectors, the other signatory economy commits to sharing its inventories, even if this means reducing gas consumption in its non-essential sectors.
- 4 It is assumed that consumption is reduced in accordance with the European Commission's targets (which include the application of varying country-specific exemptions and derogations) compared to the average consumption of the past five years.
- 5 The new LNG projects announced could raise the EU's supply capacity by 12.5% and 20% of its annual natural gas consumption by the end of 2023 and 2024, respectively. See Sgaravati, Tagliapietra and Trasi (2022), "National energy policy responses to the energy crisis".
- 6 In particular, it is assumed that the increase in gas consumption in November-April of 2022-2023 and 2023-2024 is equivalent to the maximum increase in consumption over that same period in the last five years.

Box 2

**THE EU ECONOMIES' NATURAL GAS INVENTORIES IN 2022 AND 2023 UNDER TWO HYPOTHETICAL SCENARIOS (cont'd)**

recent months is structural – with the rest having been due to short-term or circumstantial factors – and that the supply diversification plans are delayed by six months.

On these assumptions, of the main European economies, only Bulgaria and Belgium would be at risk of a shortage in the winter of 2022-2023 under the

benign scenario, unless they reduced their gas consumption more than assumed. In the winter of 2023-2024, only Bulgaria would continue to be exposed to this risk, as Belgium would be able to expand its LNG import capacity in 2023 (see Table 1). Under the adverse scenario, the risk of gas shortages this winter would be more pronounced in Bulgaria and Belgium,

Chart 1  
Wholesale natural gas prices in Europe



Chart 2  
Dependence on Russian natural gas, 2020 (a)

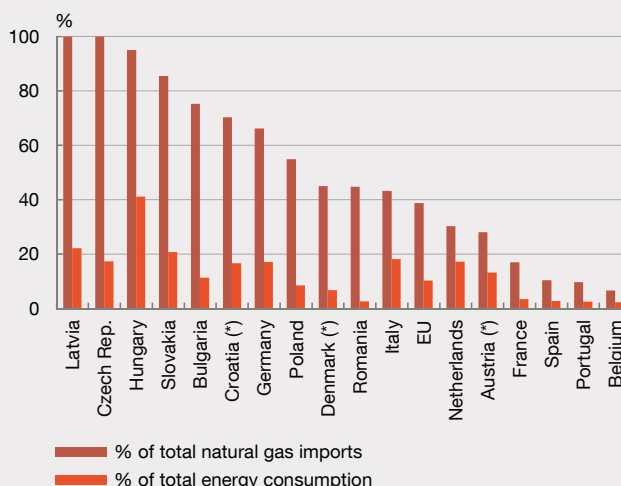


Chart 3  
Natural gas inventories

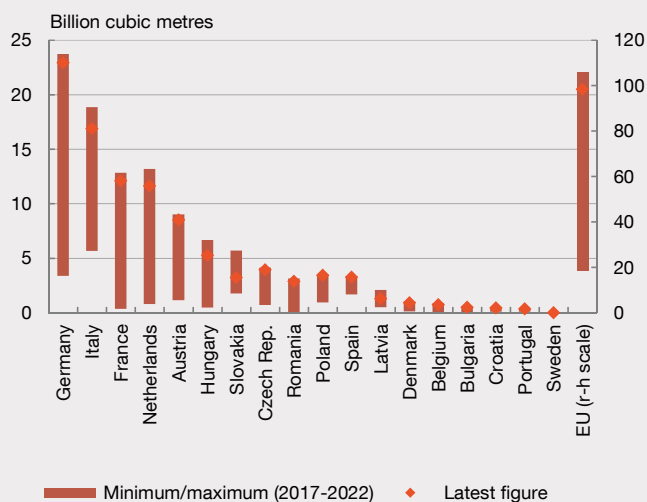
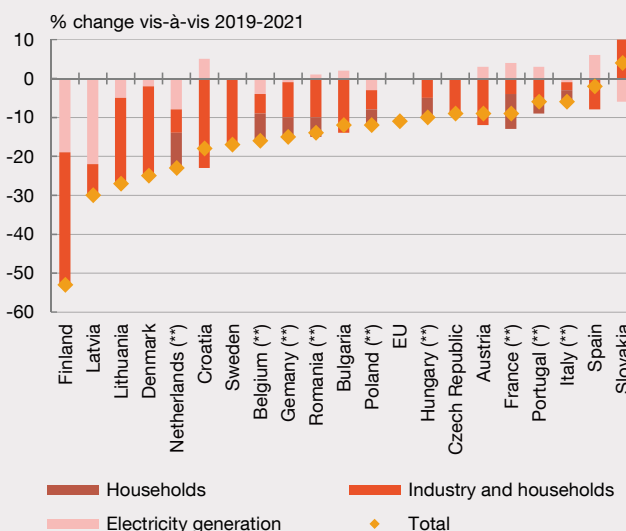


Chart 4  
Natural gas consumption, 2022 (b)



SOURCES: IEA, Bruegel, Eurostat, IMF and Gas Infrastructure Europe.

- a In the economies marked with an asterisk (\*), imports from Russia are imputed according to the Eurostat criteria set out in the document "Energy mix dependency imports".
- b Change with respect to the average consumption from January to November, broken down into electricity generation and households and industry using the estimates in *McWilliams and Zachmann (2022)*. In the countries marked with two asterisks (\*\*) information is available to break down consumption between industry and households.

## Box 2

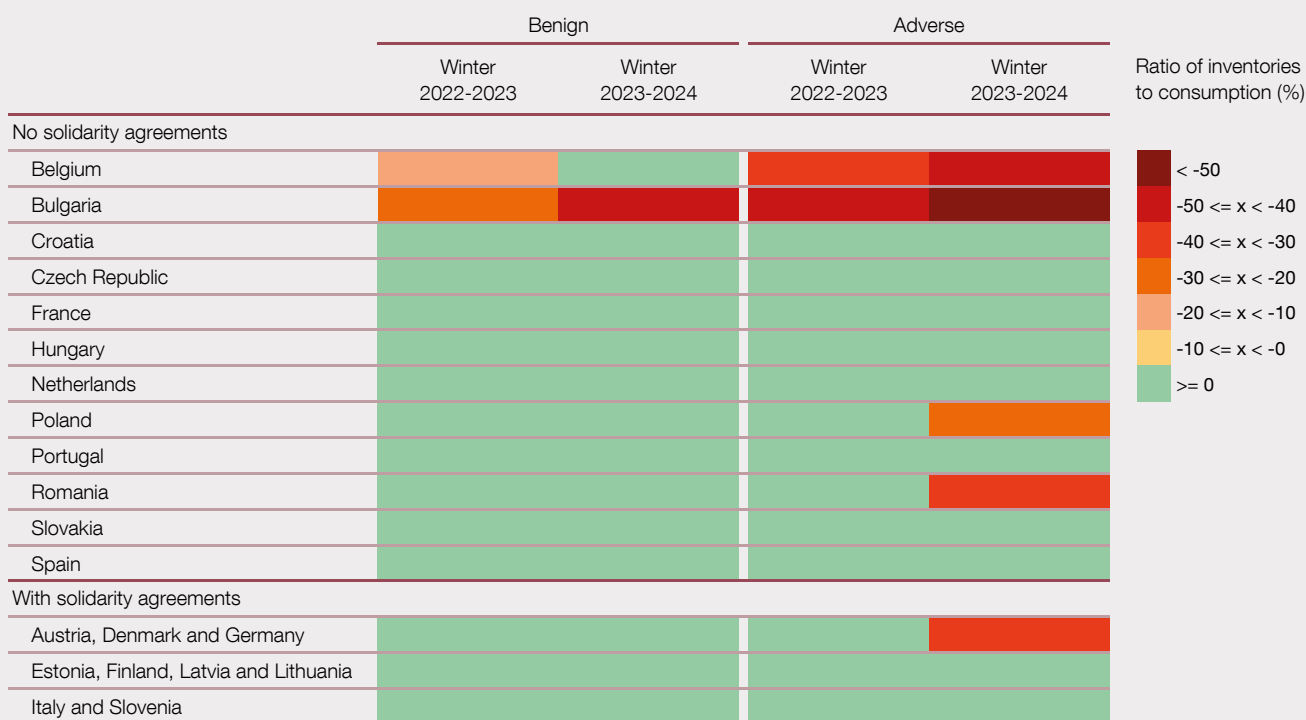
**THE EU ECONOMIES' NATURAL GAS INVENTORIES IN 2022 AND 2023 UNDER TWO HYPOTHETICAL SCENARIOS (cont'd)**

but no other economies would be affected. However, in the winter of 2023-2024, the risk of shortages would also spread to Romania, Poland and the area comprising Austria, Denmark and Germany. Spain would not be exposed to the risk of gas shortages under either of the hypothetical scenarios considered.

Against a backdrop of extraordinary uncertainty, it is essential that the simulations set out in this box be interpreted with due caution, as they only represent an initial tentative approximation of the possible future developments in gas supply and demand in the various EU economies, based on assumptions whose likelihood of materialisation is highly uncertain. In this respect, the

various recently published studies that have assessed the risk of possible future gas shortages in the EU do not offer a wholly uniform picture. For instance, in line with the findings presented in this box, the International Energy Agency notes that it would be very difficult to refill storages in the summer of 2023, which would lead to shortage risk scenarios in the winter of 2023-2024. Conversely, other organisations, including the OECD, suggest that a cold winter could lead to supply problems arising as early as in the winter of 2022-2023.<sup>7</sup> None of these studies covering the risks of shortages factors in the heterogeneity across EU countries. In the light of such differences, it is worth reiterating the need for due caution when interpreting the findings presented in this box.

Table 1  
Risk scenarios envisaging shortages in the EU during the winters of 2022-2023 and 2023-2024



**SOURCE:** Banco de España calculations.

**NOTE:** The data depicted in the risk map correspond to the minimum ratio of inventories to monthly consumption, as a percentage, in the winter months (November to April). The benign scenario assumes that demand for natural gas is contained, thanks to favourable weather conditions and the fulfilment of the European Commission's targets, and that the regasification and production projects announced are realised. Under the adverse scenario, consumption is higher owing to both winters being cold and to the fall in consumption being half that observed to date. Under this scenario, the supply-side projects are delayed by six months. Countries with signed solidarity agreements, committing to share their surplus gas, are grouped together. Those countries for which insufficient data are available are omitted.

<sup>7</sup> See International Energy Agency (2022), "Never Too Early to Prepare for Next Winter: Europe's Gas Balance for 2023-2024" and OECD (2022), "Paying the Price of War. OECD Economic Outlook, Interim Report September 2022".

## Box 3

**THE ASYMMETRIC RESPONSE OF PRODUCER PRICES TO RISING OIL AND GAS PRICES**

José Elías Gallegos y Javier Quintana

This early-release box was published on 16 December

A recent study by the Banco de España<sup>1</sup> analyses developments in Spain's manufacturing sector in recent quarters from the perspective of production. It reveals considerable heterogeneity in recent developments across Spain's manufacturing sub-sectors and suggests that this may be, at least in part, a consequence of the differences observed across sub-sectors in the intensity of their energy consumption and in their exposure to both the recovery in contact-intensive activities and global supply chain bottlenecks.

This box supplements that recent study by analysing producer prices in Spain. The aim is to ascertain whether there are significant differences in the behaviour of these prices across the main manufacturing sub-sectors and to determine the extent to which such differences may reflect sectoral asymmetries in the process of pass-through to producer prices of the pronounced fluctuations in oil and natural gas prices observed in recent quarters (see Chart 1).

According to the producer price index (PPI)<sup>2</sup> compiled by the Spanish National Statistics Institute (INE), producer prices in Spain (excluding energy) were 22% higher in October 2022 than in January 2021 (see Chart 2). However, both the magnitude and timing of this increase in producer prices have been very heterogeneous across the different manufacturing sub-sectors. In particular, in the sub-sectors producing intermediate goods, the rise in prices occurred earlier than in the other sub-sectors, and in recent months a slight moderation in this upward trend has even been observed. By contrast, in the case of the capital and consumer goods sub-sectors, the increase in prices began later and clear signs of moderation are not yet discernible.

This sectoral heterogeneity in producer price developments may reflect (as documented in the aforementioned study of the recent behaviour of industrial production by sub-sector)

the differing degree of exposure of the various manufacturing sub-sectors to the recovery in demand, global supply chain bottlenecks and higher energy prices. As far as the latter is concerned, a strong positive association is indeed observed between the rise in producer prices and each sub-sector's spending on energy commodities expressed as a percentage of the total value of its output (see Chart 3).<sup>3</sup> Also, in order to analyse differences in the timing of producer price developments, two econometric models<sup>4</sup> are estimated for each sub-sector, which relate producer price developments to those in oil and natural gas prices, respectively. The purpose of this exercise is to characterise the process by which oil and natural gas prices have historically been passed through to the producer prices of each industrial sub-sector.

Table 1 shows the estimated month-by-month response of producer prices in each sector of activity to an increase in oil (left-hand panel) and natural gas (right-hand panel) prices. As with the results obtained for industry as a whole, an increase in the oil price is almost immediately passed through to producer prices, while there is more of a delay in the case of natural gas. In particular, higher oil prices are reflected immediately in month-on-month producer prices, while a rise in wholesale natural gas prices begins to be reflected in producer prices in the third month after it takes place. Furthermore, in the case of oil, inflationary pressures on producer prices appear more short-lived, with effects deemed insignificant after the third month, while fluctuations in natural gas prices continue to be reflected in producer prices after as many as nine months.<sup>5</sup>

There are two main reasons that could explain why natural gas prices take longer to be passed through to producer prices than oil prices. The first is the greater relative importance of long-term contracts between companies and suppliers of energy inputs in the case of natural gas. The existence of these contracts appears to delay the

- 1 See "Manufacturing in Spain: recent developments", Box 2, "Quarterly Report on the Spanish Economy", *Economic Bulletin*, 3/2022, Banco de España.
- 2 The PPI reflects the ex-factory gate prices of manufacturing establishments, excluding transport and marketing costs, VAT and other indirect taxes.
- 3 This percentage includes both the sub-sector's direct spending on energy and its indirect spending through its purchases from suppliers. The *OECD Inter-Country Input-Output (ICIO) Tables* are used for this calculation.
- 4 The models are estimated using the local projections method of Ò. Jorda, "Estimation and inference of impulse responses by local projections", *American Economic Review*, 95(1), 2005, pp. 161-182. The sample spans from January 2016 to October 2022 and all the variables are included in terms of month-on-month changes.
- 5 This outcome appears to be consistent with the sustained increases seen in the pass-through of natural gas price movements to consumer prices. See, for example, "The pass-through of higher natural gas prices to inflation in the euro area and in Spain", Box 4, "Quarterly report on the Spanish economy", *Economic Bulletin*, 3/2022, Banco de España.



Box 3

**THE ASYMMETRIC RESPONSE OF PRODUCER PRICES TO RISING OIL AND GAS PRICES (cont'd)**

pass-through of fluctuations in wholesale gas prices to companies' production costs and, therefore, to the selling prices of their products.

The second reason is that, in most Spanish manufacturing sectors, the energy mix is skewed towards the direct consumption of oil products, which

Chart 1  
Oil and natural gas prices (a)

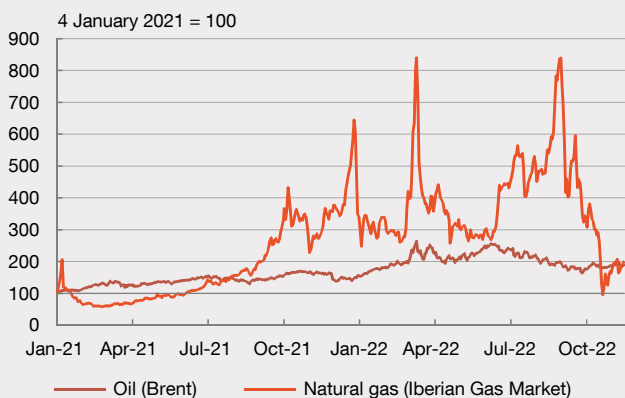


Chart 2  
Producer price index (b)

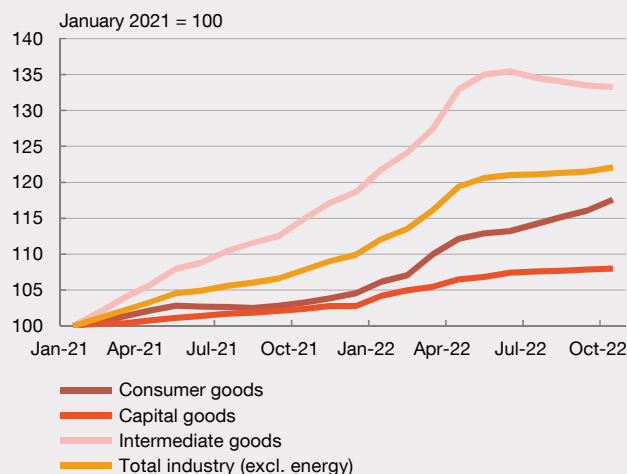


Chart 3  
Energy dependence and changes in producer prices (c)

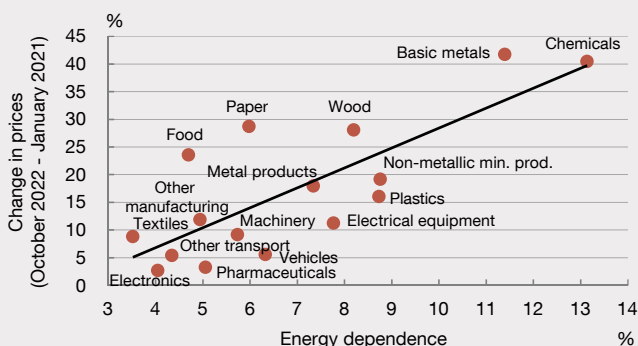
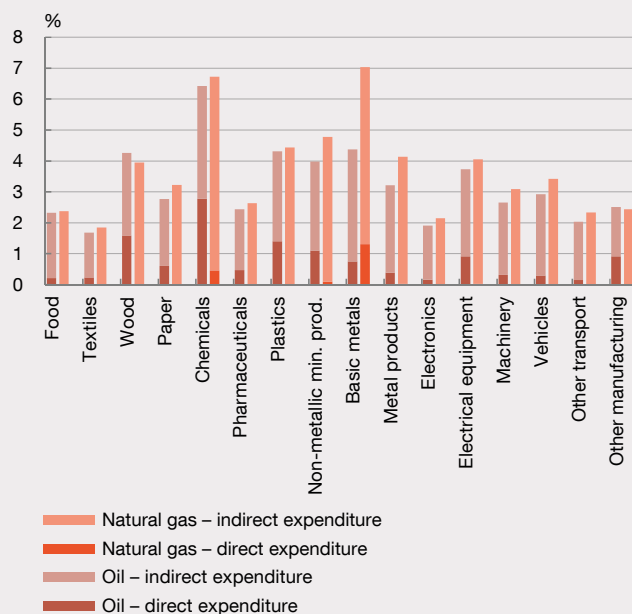


Chart 4  
Direct and indirect expenditure on energy commodities (d)



**SOURCES:** Federal Reserve Economic Data (FRED), Iberian Gas Market (MIBGAS), INE and Inter-Country Input-Output tables (ICIO-2018, OECD).

- a Change in the price of a barrel of Brent crude and in the MIBGAS index with respect to 4 January 2021.
- b Change in the level of the producer price index (PPI) according to the economic use of the goods between January 2021 and October 2022.
- c Total direct and indirect expenditure on oil and natural gas divided by the value of total output.
- d Direct expenditure on each commodity and expenditure included in purchases from other suppliers.

## Box 3

## THE ASYMMETRIC RESPONSE OF PRODUCER PRICES TO RISING OIL AND GAS PRICES (cont'd)

leads to a clear and direct transmission of oil price fluctuations to production costs. This is in contrast to natural gas prices, where the impact of increases on production costs is fundamentally indirect, inasmuch as inputs are used in manufacturing that originate in other sectors that do make heavy use of natural gas (see Chart 4). Indeed, the fact that natural gas accounts for a relatively high share of the energy mix in industries that produce intermediate goods, and particularly so in the cases of the manufacture of basic metals and chemical products, could help to explain the earlier and sharper reaction of producer prices in these sectors to

increases in the price of this input. This can be seen in the disaggregated results shown in Table 1.

In summary, this box demonstrates that, in recent quarters, producer prices have risen considerably in Spain, although their behaviour has displayed significant heterogeneity across the various manufacturing sub-sectors. This heterogeneity may be explained, in part, by the fact that the pass-through of an increase in energy prices – whether of oil and/or natural gas – to producer prices also varies notably depending on the sub-sector involved, largely as a consequence of asymmetries in their energy mix.

Table 1  
The response of producer prices to changes in energy commodity prices

Months elapsed	Oil (Brent)										Natural gas (MIBGAS)									
	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9
Total (excl. energy)	0.5	0.4	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.4	0.3	0.3	0.2
Consumer goods																				
Food	0.0	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.4	0.4	0.4	0.3	0.3
Textiles	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.1
Pharmaceuticals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.0
Intermediate goods																				
Wood	0.5	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.3	0.2
Paper	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.4	0.4	0.4	0.4	0.3
Chemicals	3.3	2.3	1.4	0.9	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.7	0.9	1.0	1.1	1.1	0.9	0.5
Plastics	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.3	0.3	0.1
Non-metallic mineral products	0.5	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.3	0.4	0.3	0.2
Basic metals	2.4	1.9	1.3	0.8	0.6	0.4	0.2	0.0	0.0	0.0	0.0	0.4	0.6	0.7	1.1	1.4	1.4	1.1	0.7	0.3
Metal products	0.8	0.5	0.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.3	0.4	0.5	0.5	0.4	0.4
Capital goods																				
Electronics	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1
Electrical equipment	0.5	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.3	0.4	0.5	0.5	0.5	0.4
Machinery	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.2	0.1
Vehicles	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Other transport	0.0	0.0	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.6	0.4	0.3	0.1	0.1	0.2
Other manufacturing	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.2

**SOURCES:** Own calculations based on data from INE, Federal Reserve Economic Data (FRED) and Iberian Gas Market (MIBGAS).

**NOTES:** The table shows the change, in percentage points, in the month-on-month growth of producer prices in each sector as a consequence of a 100% increase in the price of a barrel of Brent crude (left-hand panel) or in the MIBGAS index (right-hand panel). Each column shows the estimated results of a regression of the month-on-month growth of the producer prices of each sector on the change in energy prices that took place a number of months earlier, as indicated by the number at the head of the column. The darker the cell shading the greater the estimated impact.



## Box 4

**POTENTIAL SENSITIVITY OF NATURAL GAS AND ELECTRICITY CONSUMPTION IN SPAIN TO DIFFERENT WEATHER SCENARIOS IN WINTER 2022-2023**

José Luis Herrera, Aitor Lacuesta and María de los Llanos Matea

This early-release box was published on 13 December

Winter 2021-2022 was the fourth warmest winter in Spain since 1961, according to the [Spanish Meteorological Agency](#) (AEMET, by its Spanish acronym). In particular, between 1 December 2021 and 28 February 2022 the average daily maximum temperature was 1.6 °C above the historical average (14.9%). By contrast, winter 2004-2005 was the fourth coldest winter since 1961, with the daily maximum temperature standing 1.3 °C below the historical average and 2.9 °C below that recorded in winter 2021-2022 (see Chart 1).

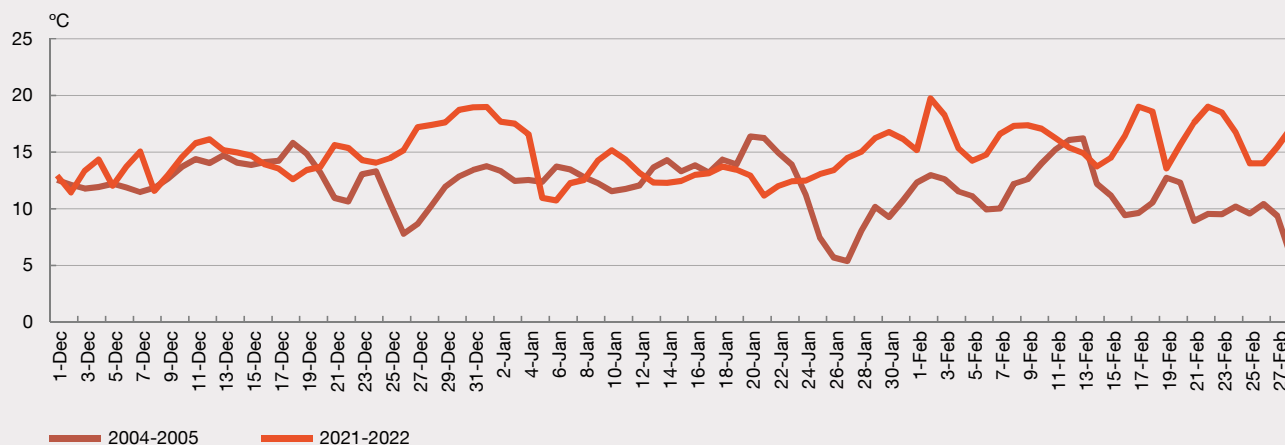
This box aims, first, to analyse the extent to which temperature fluctuation is a key driver of demand for energy in Spain. Second, against a backdrop in which international energy commodity markets are exposed to considerable volatility and there are doubts about the possibility of gas shortage problems arising in some European countries (mainly as a result of the Russian invasion of Ukraine),<sup>1</sup> this box tentatively considers Spanish households' and SMEs' energy consumption during winter 2022-2023 under different weather scenarios.

Charts 2 and 3 illustrate the relationship between Spanish household and SME demand for natural gas and electricity, respectively, and the daily maximum temperature. In light of this evidence, the sensitivity of demand for natural gas in Spain to temperature changes is clearly very different from that seen in the case of demand for electricity.

On one hand, the correlation between maximum temperature and natural gas consumption is very negative for low temperatures, but becomes non-significant for high temperatures (see Chart 2). In particular, for the same drop in temperature (for instance, of 1 °C), household and SME natural gas consumption increases appreciably when the daily maximum temperature is below approximately 20 °C, but barely changes when it is higher.

On the other, the correlation between electricity consumption<sup>2</sup> and maximum temperature has a U shape (see Chart 3). In other words, during the coldest months electricity consumption increases as the temperature drops (owing to the use of electric heating), whereas in

Chart 1  
Maximum winter temperatures



SOURCE: AEMET.

- 1 See Box 2 of this Report for more details.
- 2 To estimate electricity consumption by households and SMEs consuming less than 10 kW, Red Eléctrica ESIOS data on the operating hourly programme (P48) relating to regulated rate retailers (CUR, by their Spanish abbreviation) are used. The series can be affected not only by changes in consumption by point of supply –which is the subject of this box–, but also by changes in the number of households and SMEs with regulated rates. For this reason, regulated rate retailer consumption is divided by the number of supply points (monthly data provided by the Spanish National Securities Market Commission (CNMV, by its Spanish abbreviation) between January 2015 and August 2022) and is multiplied by the total number of supply points.

## Box 4

**POTENTIAL SENSITIVITY OF NATURAL GAS AND ELECTRICITY CONSUMPTION IN SPAIN TO DIFFERENT WEATHER SCENARIOS IN WINTER 2022-2023 (cont'd)**

the warmest months, temperature rises are what lead to greater consumption (owing to the use of air conditioning).

In any event, a comparison of Charts 2 and 3 shows that in the coldest months of the year, natural gas consumption is more sensitive than electricity consumption to temperature changes. This means that a drop in temperature causes a greater relative increase in natural gas consumption than in electricity consumption.

In the second part of this box, a model based on the methodology of [Bover et al \(2022\)](#) is considered in an attempt to estimate how the consumption of natural gas and electricity in Spain might change over the 2022-2023 winter in the face of different weather scenarios. Specifically, daily data on Spanish households' and SMEs' consumption of natural gas (between March 2019 and November 2022) and electricity (between January 2015 and August 2022) are used to estimate a logarithmic correlation between the levels of consumption of each of these energy inputs, the daily maximum temperature and its square root, and different configurations of calendar effects (year, month, day of the week and public holidays).

Once these models have been estimated, two alternative scenarios are envisaged in terms of possible temperature patterns over the 2022-2023 winter. First, a "warm winter" is considered, in which the temperature behaves much as it did in the 2021-2022 winter. Second, the temperatures recorded in the 2004-2005 winter are used by way of a "cold winter".

The results of this exercise suggest that, in a cold winter, the consumption of natural gas and electricity would be 32% and 7% higher, respectively, than would be the case in a warm winter. In other words, leaving to one side any other non-temperature-related factors that may have arisen over the past year, if the 2022-2023 winter is as cold as the 2004-2005 winter, Spanish households' and SMEs' consumption of natural gas and electricity could rise year-on-year by 32% and 7%, respectively.

In any event, when extrapolating these results to the 2022-2023 winter, regard should also be had to the potential impact on households' and SMEs' energy consumption decisions of both the Heating Energy Saving

Chart 2  
Household and SME demand for natural gas and daily maximum temperature (a)

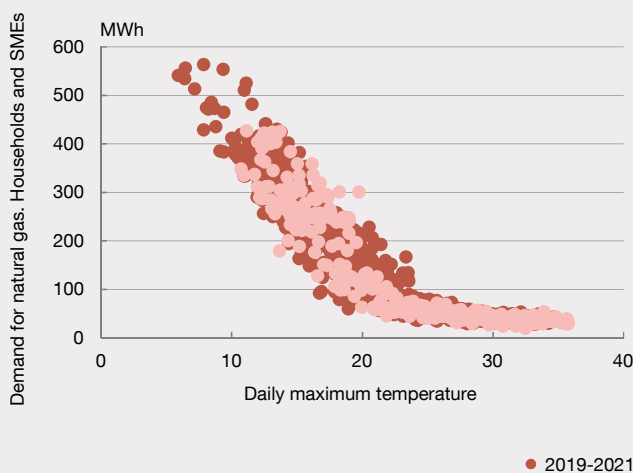
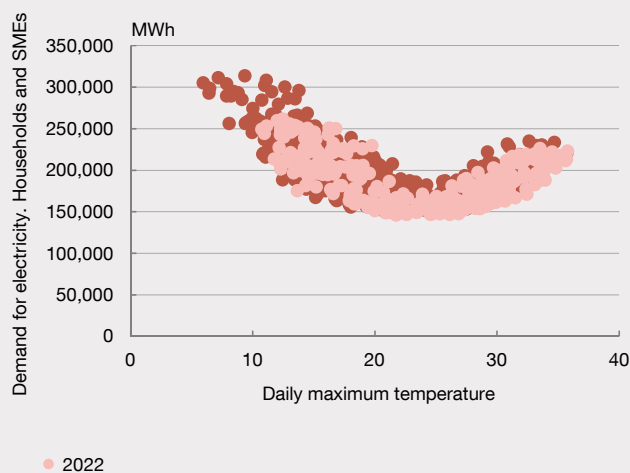


Chart 3  
Estimated household and SME demand for electricity and daily maximum temperature (b)



**SOURCES:** AEMET, Enagas, CNMV, Red Eléctrica ESIOS.

**a** Household, commercial and SME daily natural gas.

**b** Data obtained from the result of the operating hourly programme (P48) relating to regulated rate retailers (CUR) of Red Eléctrica ESIOS. These data are multiplied by the monthly data on supply points provided by the CNMC according to the formula  $CUR \times (1 + \text{free market supply points} / \text{regulated market supply points})$  to take into consideration possible changes in the number of households with different rates. Thus, it is assumed that regulated rate and free market consumers are consuming the same daily number of MWh.

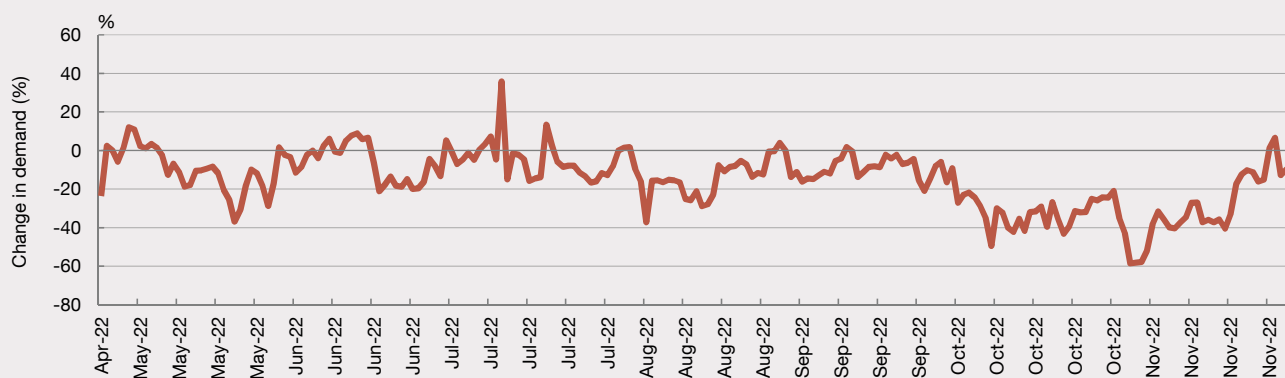
## Box 4

**POTENTIAL SENSITIVITY OF NATURAL GAS AND ELECTRICITY CONSUMPTION IN SPAIN TO DIFFERENT WEATHER SCENARIOS IN WINTER 2022-2023 (cont'd)**

and Management Emergency Action Plan approved in August<sup>3</sup> and the sharp rise in energy prices observed over the course of 2022. Indeed, compared with 2019-2021, the demand for natural gas<sup>4</sup> on the part of Spanish households and SMEs fell substantially during much of October and November 2022, a state of affairs that cannot be explained by the factors included in the model (see Chart 4)<sup>5</sup>.

If this recent change in energy consumption patterns persists, the consumption of natural gas in Spain could be reduced by 10% year-on-year over the 2022-2023 winter if the temperatures are the same as last winter. However, even if these recent changes in consumption patterns are factored in, the natural gas consumed in Spain could rise by around 25% on the preceding year if the 2022-2023 winter is as cold as the 2004-2005 winter.

Chart 4  
Estimated change in households' and SMEs' demand for natural gas (a)



**SOURCE:** Banco de España, drawing on data from AEMET and Enagas.

a Estimated daily household, commercial and SME consumption of natural gas as a percentage of the consumption observed between 2019 and 2021 and until 30 November, taking into account days of the week, months, years, public holidays and maximum temperatures. For further details, see [Bover et al. \(2022\)](#).

- 3 This plan sets out energy-saving recommendations and measures in different areas that are mandatory for some SMEs in certain sectors. For more details, see [Royal Decree-Law 14/2022](#).
- 4 This exercise did not include demand for electricity given the lack of information on changes in supply points in the most recent months with which to estimate households' and SMEs' consumption.
- 5 This chart shows the difference between the natural gas consumption observed in 2022 and the consumption forecast by a model correlating households' and SMEs' demand for gas with temperature patterns and various calendar effects over the period 2019-2021. Thus, by excluding the data on 2022 from this estimate, the role that some of the most recent developments (not included in the model) may have played in gas consumption in Spain can be approximated.

## Box 5

**IMPACT ON RECENT AND EXPECTED CONSUMPTION PATTERNS OF THE SAVINGS ACCUMULATED BY HOUSEHOLDS DURING THE PANDEMIC**

Carmen Martínez-Carrascal

This early-release box was published on 12 December

During the most acute stages of the COVID-19 pandemic, Spanish households accumulated a significant volume of savings, mainly as a consequence of the difficulties – in view of the relatively severe health restrictions in place – to consume some of the goods and, especially, services that formed part of their regular consumption basket. Thus, for example, according to [Cuenca et al. \(2021\)](#), between January and September 2020 Spanish households' savings amounted to almost 4 percentage points (pp) of GDP more than average savings in the first three quarters of the previous five years.

Since then, determining to what extent and at what pace Spanish households would draw on these accumulated savings to sustain or drive their spending has been one of the main sources of uncertainty when assessing the possible future momentum of aggregate consumption in Spain. All this, against an extraordinarily complex and changing backdrop in which other developments – such as the war in Ukraine and the consequent increase in uncertainty, soaring inflation and higher interest rates – have had a significant impact on households' saving and spending decisions.

In this setting, this box aims to address two relatively specific questions: first, to what extent the savings accumulated during the initial stages of the pandemic have driven consumption in Spain in recent quarters; and second, how these savings are likely to be used in the coming months. For this purpose, the information contained in the monthly Consumer Expectations Survey (CES)<sup>1</sup> published by the European Central Bank (ECB) is used. This survey includes questions on households' decisions and expectations as to their consumption and savings since early 2020.

In response to the first question, according to the CES, among Spanish households that were able to save during the initial stages of the pandemic (between January 2020 and March 2021), only a relatively small number report having used those savings to finance their spending

recently (between July 2021 and July 2022). Specifically, only 15% of the households that increased their savings during the health crisis have subsequently drawn on those savings. Indeed, recently, this use of accumulated savings appears to have enabled these households to maintain more dynamic consumption patterns than other households (see Chart 1).<sup>2</sup> Nevertheless, given the small size of this group of households, this does not appear to have driven up aggregate spending levels very significantly.

As regards the second question, the September 2022 CES shows that the households that had saved during the pandemic did not expect their consumption to gain more momentum over a one-year horizon than households that had not been able to save (see Chart 2). Thus, on this evidence, the excess savings accumulated during the pandemic, whose value in real terms will have decreased notably in recent months owing to rising prices, are not expected to provide a very significant boost to aggregate household consumption in the coming quarters.

Other factors also point in this direction. First, the excess savings accumulated during the pandemic are largely concentrated among high-income households, whose marginal propensity to consume is lower (see Chart 3).<sup>3</sup> Second, the considerable uncertainty clouding the current geopolitical and macro-financial situation appears to have led to an increase in precautionary saving, at least in the short term. In addition, the significant rise in the cost of debt observed in recent months might also encourage households to spend some of their accumulated savings on loan repayments rather than on consumption.

In short, the evidence presented in this box suggests that, so far, the use of the stock of savings built up by Spanish households at the start of the pandemic appears to have had a relatively modest impact on aggregate consumption patterns. Moreover, various factors suggest that, in the

1 For more details, see, for example, K. Bańkowska et al. (2021), "ECB Consumer Expectations Survey: an overview and first evaluation", *ECB Occasional Paper* No 287, and D. Georganakos and G. Kenny (2022), "Household spending and fiscal support during the COVID-19 pandemic: Insights from a new consumer survey", *Journal of Monetary Economics*, Vol. 129.

2 After controlling for different household characteristics, the average consumption growth of households that have recently drawn on their savings is found to be around 2 pp higher than that of other households that were able to save during the pandemic but have not subsequently used those savings, and their probability of holiday spending is estimated to be 5 pp higher.

3 According to the Spanish Living Conditions Survey (ECV, by its Spanish abbreviation), high-income households accounted for 59% of all households that had saved in a typical month in 2020.

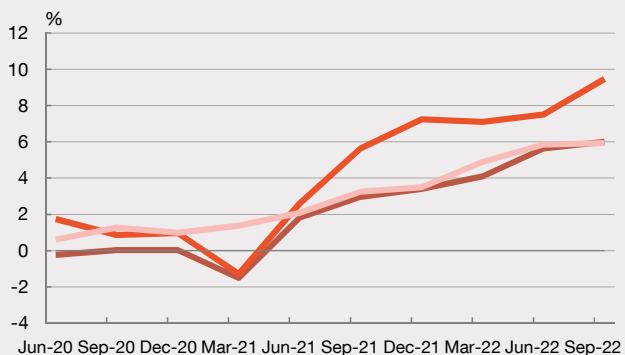
Box 5

**IMPACT ON RECENT AND EXPECTED CONSUMPTION PATTERNS OF THE SAVINGS ACCUMULATED BY HOUSEHOLDS DURING THE PANDEMIC (cont'd)**

coming quarters, those accumulated savings should not be expected to significantly drive up household spending in Spain. In any event, in light of the relatively small size of

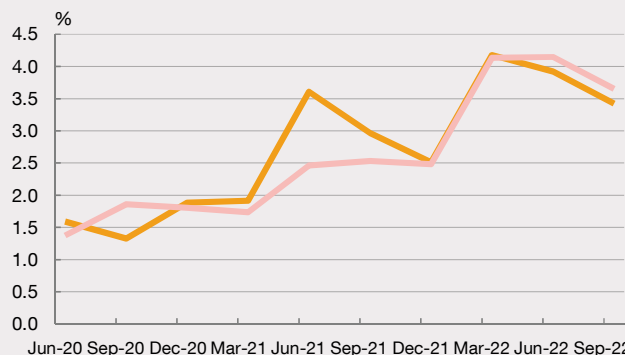
the sample used in this analysis and the various issues relating to its representativeness,<sup>4</sup> the evidence presented here should be treated with due caution.

**Chart 1**  
Nominal consumption growth compared with 12 months earlier. Quarterly average



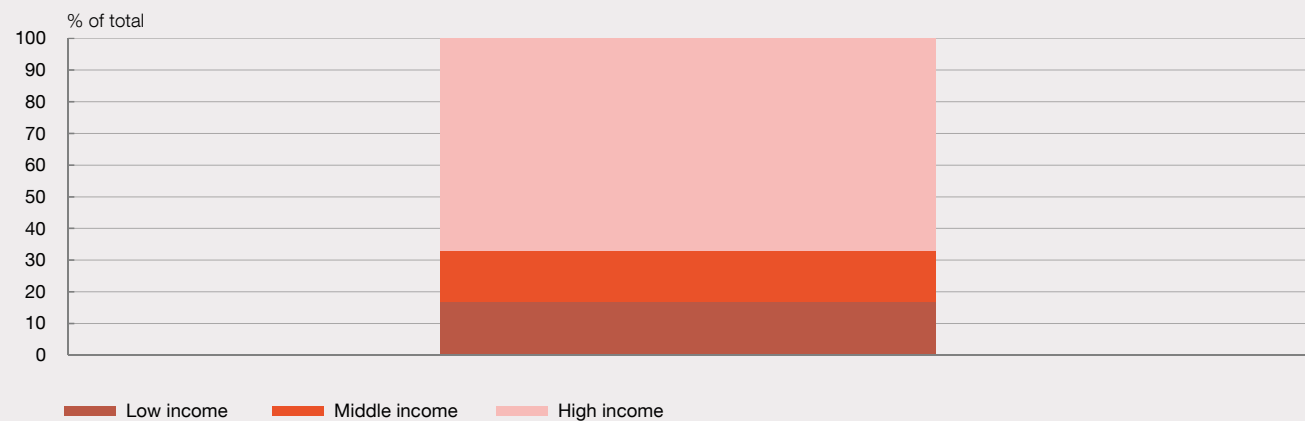
- Households that accumulated savings in 2020 and have not drawn on them
- Households that accumulated savings in 2020 and drew on them in July 2021-July 2022
- Other households

**Chart 2**  
Expected nominal consumption growth in next 12 months. Quarterly average



- Households that accumulated savings in 2020
- Other households

**Chart 3**  
Distribution by income group of households that accumulated savings between January 2020 and March 2021



- Low income
- Middle income
- High income

**SOURCES:** Consumer Expectations Survey (CES) and Banco de España calculations.

4 For example, while according to the CES 20% of Spanish households had saved between January 2020 and March 2021, according to the ECV, the percentage of households that had saved at the end of a typical month in 2020 was 41%.