REPORT ON THE MACROECONOMIC FORECASTS IN THE DRAFT GENERAL STATE BUDGETS FOR 2019

REPORT 2/19

CONTENTS

EXECUTIVE SUMMARY

The Independent Authority for Fiscal Responsibility (AIReF) endorses the forecasts of the Government's macroeconomic scenario included in the Draft General State Budgets (GSB) for 2019. AIReF assesses as prudent the Government's macroeconomic scenario, based on the exogenous assumptions and the defined policies.

The assumptions that reflect the risks stemming from the external environment are considered plausible. The basic assumptions regarding the main partners growth, oil price evolution and interest rates expectations, underlying the macroeconomic scenario of the GSB for 2019, are considered plausible overall, in light of the latest forecasts from international agencies and market trends.

The upward revision of 0.1% in the euro area growth for both 2018 and 2019 with respect to the Draft Budgetary Plan (DBP) could be optimistic, taking into account the downward revision of growth, both global and of the euro zone, contained in the latest forecasts from international agencies such as the European Central Bank and the European Commission.

Oil price expectations are revised markedly downward, reflecting the recent trend in the crude oil price and falling below international agencies' forecasts, but above the expectations of the futures markets.

Finally, long-term interest-rate assumptions are considered prudent, maintaining a positive differential with respect to the market expectations inherent to the forward yield curve.

Growth composition is considered reasonable, supported by a contribution of domestic demand in line with the two previous years, but with a slightly negative contribution from the external sector. Although somewhat more contained than in 2018, expected activity growth by AIReF for 2019 will continue to be supported by domestic demand, whose dynamism will be driven mainly by the favourable evolution of investment, both productive and in construction. The downward revision of the external sector contribution, largely conditioned by the negative surprises from the latest quarterly data, is also in line with AIReF's internal forecasting models.

From the analysis of the policy measures included in the GSB for 2019, AIReF estimates a neutral impact on economic growth, with some minor adjustments in relation to the DBP due to an implementation delay or a change in their

scope. In a previous report, AIReF made its own estimate of the macroeconomic impact of the different measures included in the 2019. A comparison of the relevant macroeconomic measures included then with those presented in the GSB for 2019 reveals minimal differences.

In line with its budgetary assessment, the impact of the measures that will take effect in the middle of the year is adjusted downwards, essentially the new taxes ("Tobin tax" and "Google tax") and the increase in the Hydrocarbons tax.

There have been two main changes in the evaluation of the measures related to Social Security whose macroeconomic impact is neutralised. On the one hand, the Special Regime of Self-Employed Workers (RETA) was excluded from the increase in the minimum contribution bases. On the other hand, the mandatory nature of the contribution for professional contingencies among the self-employed was extended and the minimum rate of contribution for Occupational Accidents was increased. These minor changes have been transferred to the macroeconomic scenario through various channels: greater job creation and, consequently, a higher private consumption, a slight upward revision in productive investment and a less dynamic evolution of prices.

In the short term, risks are identified arising from a lower world growth and the main trading partners of the Spanish economy. A lower world growth would imply a lower contribution of external demand. In the short term, there are two main sources of risk, both on the external side. On the one hand, the intensification of protectionist tensions, associated with lower growth in some of the main players in world trade such as China, may cause an additional drop in world trade and, with that, in Spanish exports. On the other hand, at European level, there are specific risks linked to Brexit and the situation in Italy. The departure of the United Kingdom from the European Union, initially scheduled for March 2019, is at one of the most sensitive moments since the referendum in 2016, due to the British Parliament's rejection of the agreement negotiated between the Government of the United Kingdom and the European Union. To this, we must add the uncertainty in the markets linked to the political and institutional evolution in Italy. Both risks deserve special attention and monitoring due to their possible short-term impact.

In order to make more transparent and efficient the endorsement process of the macroeconomic scenario, AIReF recommends to the Government to regulate the flow and schedule the exchange of information through a formal agreement or Memorandum of Understanding. This is in line with the usual practices in neighbouring countries in order to optimize the interaction and information flow between the Government and the National Independent Fiscal Institution.

In addition, AIReF reiterates two suggestions for best practice to the Government. First, integrate the key elements of the forecasts into a simplified framework of National Accounts, establishing a relationship between economic activity, demand and expenditure, on the one hand, and income flows and financing needs on the other. Second, expand the information on the methodologies, assumptions and relevant parameters underlying the forecasts, in line with the provisions of Directive 2011/85 on National Budgetary Frameworks and of article 29 of the Organic Law on Budgetary Stability and Financial Sustainability (LOEPySF).

1. INTRODUCTION

In its report from last October, AIReF endorsed as prudent the macroeconomic scenario accompanying the Draft Budgetary Plan for 2019. The Macroeconomic Forecasts associated with the Draft Budgetary Plan (DBP) for 2019 presented by the Government in October 2018, were endorsed as prudent by AIReF. The external assumptions that supported the official macroeconomic scenario is considered feasible in relation to the most recent forecasts of international agencies and the expected developments in commodities and debt markets, reflecting risks arising from the balanced external environment. Furthermore, the composition of growth via its different components was considered plausible, mainly supported by resilient domestic demand and a neutral contribution from the external sector. Finally, the macroeconomic impact of the economic and budgetary policy measures included in the DBP 2019 was assessed as feasible, being neutral in real terms and positive in nominal terms.

The presentation of the Draft General State Budgets (GSB) for 2017 implies the requirement for AIReF to submit a further report, after an interval of three months, on the official Government forecasts for 2019. The exceptional circumstances of the budgetary calendar entailed the extension of the GSB for the third consecutive year, as envisaged in article 134.4 of the Spanish Constitution. The GSB for 2019 were presented before Spanish Parliament on 14 January 2019. As provided for in the Organic Law creating the AIReF, the macroeconomic forecasts accompanying the Draft GSB for 2019 should include a report by the Authority stating its endorsement of said forecasts. The present report fulfils the mentioned mandate.

The macroeconomic forecasts are analysed according to a dual approach, analysing ex-ante the realism of the forecasts in the Draft GSB for 2019 and comparing ex-post the official forecasting errors in the most recent period with the years preceding the existence of AIReF. As in previous editions, this report consists of two main sections. First, the forecasts for 2019 (Section 2) are analysed in detail, including a balance of risks. Second, the errors in the forecasts of previous years are evaluated (Section 3). Finally, Section 4 provides an overview of the findings and conclusions drawn from this assessment, and Section 5 offers recommendations and suggestions for best practice.

2. MACROECONOMIC FORECASTS FOR 2019

2.1. Forecast analysis criteria

The aim of subjecting the Government's forecasts to analysis ex-ante is to assess whether they are realistic, and whether they define the most likely macroeconomic scenario or one that is more prudent. To see if the official forecasts are realistic, these are compared against those of other private and public institutions and with the confidence intervals derived from the AIReF's own tools. To assess whether the Government's scenario or one that is more prudent is the most likely, given the information available, the methods, parameters and assumptions underpinning the forecasts are revised, as far as the available information allows, and a check is made to determine whether the most updated information is used.

An analysis is conducted to establish how realistic the forecasts are for each variable, using models that establish a statistical relationship between the different variables and with behavioural equation models that relate each variable to their fundamental determinants. These partial results on the plausibility of the forecast for each variable are subsequently integrated into an aggregated macroeconomic scenario, guaranteeing the internal consistency of the set of related variables in National Accounts, as well as any risks that exist in that scenario.

An overall assessment of the results of these comparative checks alongside the evaluation of the balance of risks considered will conclude whether or the macroeconomic scenario included in the Draft Budgets or a more prudent one is considered the most likely. The materialisation of some of the risks identified in the baseline scenario, which are detrimental to economic activity and to the correction of existing imbalances, would contribute to the classification as most prudent.

2.2. General observations regarding the Government's scenario

The forecasts of the Government's macroeconomic scenario for 2019 use the most updated short-term information from economic indicators and the most recent National Accounts data available on the date of submitting the scenario, including the latest quarterly National Accounts update for the third quarter, published in late December. These feature as the main change in the updated macroeconomic outlook with respect to the baseline scenario for the DBP for 2019.

The information accompanying the official macroeconomic forecasts is insufficient. The information received by AIReF does not provide for an explicit separation between the macroeconomic outlook for 2019 with no policy change and the detailed, separate assessment of the macroeconomic impact of the measures included in the Draft GSB. This lack of information and transparency hinders the analysis and assessment of the macroeconomic forecasts. It is necessary to regulate the flow and calendar of information exchange in line with the practices already in place in neighbouring countries. For this reason, AIReF makes a recommendation in this regard to the Ministry of Finance and the Ministry of Economy and Entrepreneurship. Basic assumptions

The tail winds that support the growth of the Spanish economy maintain their traction in 2019. Although it is expected that in the medium term the stimuli that have sustained growth in recent years will tend to disappear, in the short term they remain a significant factor.

The forecasts regarding the price of crude oil anticipate that 2019 will be in line with the year-end values for 2018, around 55-60 $ per Brent barrel, significantly below the 2018 prices (which reached 85$ after the summer).

Secondly, the global economic context and, in particular in the eurozone, seems to point towards an upward movement in debt interest rates later than anticipated in 2018.

Finally, external demand from the main trading partners has not fallen significantly despite the geopolitical tensions that have been reflected in world trade. The growth forecasts in the eurozone remains at rates close to 2%, with slight downward revisions in the latest updates.

The basic hypotheses underlying the macroeconomic scenario of the Draft GSB for 2019 are deemed feasible. This scenario presents assumptions compatible with the most recent forecasts of the European Commission and other international agencies. Furthermore, it is in line with the latest evolution

of the commodity and debt markets (see table A2 in the annex). With regard to the scenario contained in the DBP 2019, which the Government sent to the European Commission on October 15, the external assumptions have generally undergone few revisions, with which the feasibility diagnosis is maintained in this report.

The trajectory of the oil price forecast by the Government has been revised downward, reflecting the most recent developments, but is slightly above the expectations of the oil futures markets. Oil prices have shown great volatility throughout 2018, peaking at $86 per barrel in October. However, it has progressively fallen to $60 per barrel. The increase in production in Russia, Saudi Arabia and the United States, the exceptions to the sanctions granted by the United States to eight countries to continue their imports of crude oil from Iran and doubts about the evolution of economic growth and the growth of world trade has limited the demand for crude oil. However, OPEC's December agreement to cut production by 1.2 million barrels per day, the instability of certain producing countries such as Libya and Venezuela and the application of sanctions to Iran may generate new tensions in the prices of oil in 2019, although market expectations expect 2019 to be in line with the final months of 2018. The Government's forecast for 2019 (65 dollars per barrel) is above the expectations of the oil futures market and the most recent forecasts of international agencies such as the IMF, which point to a price of 60 dollars per barrel in 2019.

The Government has revised the growth of the main trading partners upwards, which contrasts with the downward revisions of the main international agencies. In the forecasts of the DBP 2019, the Government has revised the growth of the euro area upwards by 0.1% in both 2018 and 2019. This assumption can be considered optimistic, considering the downward revision of global growth and growth of the euro zone contained in international agencies' latest forecasts. In its autumn forecasts the European Commission revised global growth downward (-0.2 p.p. in 2018 and -0.4 p.p. in 2019) and the growth of the euro area (-0.2 p.p. in 2018 and -0.1 p.p. in 2019). Other agencies such as the ECB (-0.2 p.p. in 2019) or the IMF (-0.2 in 2018 and 2019) have also reduced their growth forecasts for the global economy and the euro area.[1]

The Government's hypotheses regarding short-term rates and the performance of government debt securities are at prudent levels, slightly above market expectations. The profile forecasted in the macroeconomic

---

[1]It should be noted that the European Commission's global growth forecast, on which the macroeconomic scenario of the Draft GSB for 2019 is based, is more optimistic than that of the ECB that the Government used as a reference in the DBP 2019.

scenario for the interest rate of Spain's 10-year government debt shows a value of 1.6% in 2018 and an increase to 1.8% in 2019. This profile is the same as that envisaged in the macroeconomic scenario of the DBP 2019 and is slightly above the implicit returns in the futures markets. In addition, the Government, like the ECB, expects short-term interest rates to remain in negative territory in the next two years. In this sense, the gradual standardisation of monetary policy can cause rates to rise in the medium term.

Finally, expectations regarding the evolution of the exchange rate included in the government's scenario anticipate a stabilisation of the euro-dollar exchange rate, in line with the ECB. Depreciation against the dollar has been observed in the second half of 2018, mainly due to the different pace of standardisation of monetary policy with respect to other advanced economies. However, the ECB has raised its forecast of appreciation of the euro's nominal effective exchange rate by 5.2% in 2018 and forecasts that in 2019 the exchange rate will remain constant.

2.3.   GDP and the composition of demand

2.3.1.   Recent developments and scenario for 2019

The latest short-term information shows a faster pace of economic growth in the current quarter. Since the publication of the Report on the Macroeconomic Forecasts of the DBP 2019 in autumn, the expectations on the evolution of the Spanish economy in the medium term have remained relatively stable and even somewhat more favourable in the short term. The latest short-term data made available in the last three months show a sign of acceleration in the Spanish economy (see Figure 1).[2] Among these the most outstanding positive surprise has been the favourable behaviour of affiliation.

GRÁFICO 1.   THERMOMETER FOR THE SPANISH ECONOMY, GROWTH SURPRISES

Nota: valores positivos (negativos) indican una sorpresa positiva (negativa) respecto a las previsiones de crecimiento intertrimestral del PIB en tiempo real.
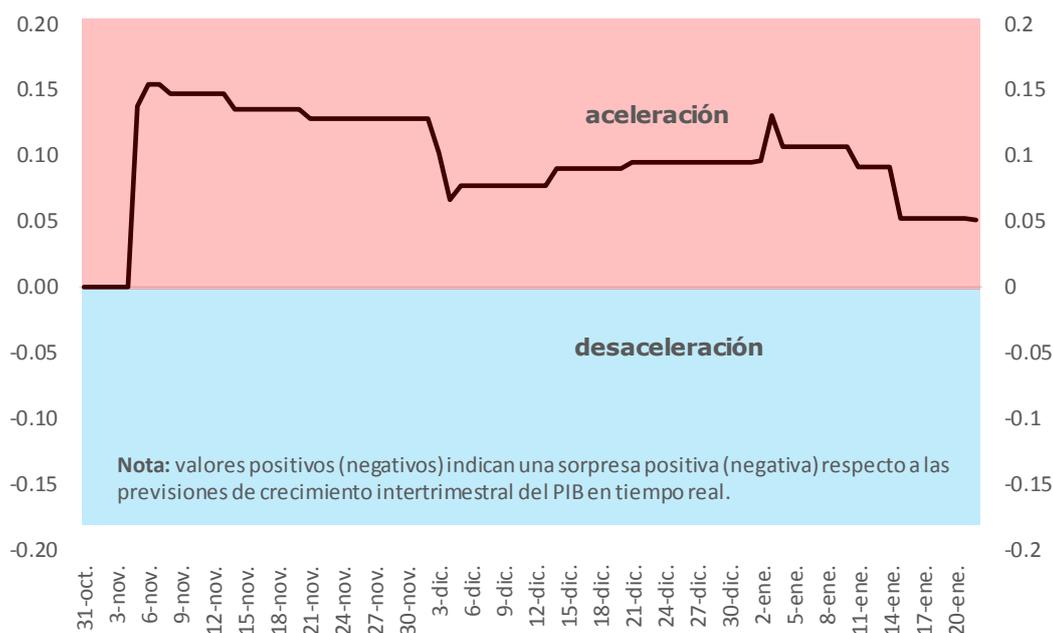
Source: AIReF

---

[2] See the Thermometer for the Spanish Economy, published by AIReF on its web page that lists the surprises recorded in the economic growth forecasts.

The most recent short-term information points to a growth rate for 2019 similar to that of 2018. The real-time GDP forecast indicates quarter-on-quarter growth of 0.7% for both the fourth quarter of 2018 and the first of 2019, creating a significant spillover effect for the inertial GDP evolution for the present year as a whole.[3] In year-on-year terms, these rates translate into growth of 2.4% and 2.6% respectively. When observing the series in quarterly frequency, as shown in Figure 2, a consolidation of year-on-year growth of around 2.5% can be observed since the beginning of 2018. With this, the baseline forecast for the evolution of GDP in 2018 stands at 2.5% and 2.4% for 2019.

GRÁFICO 2.   EVOLUTION OF REAL GDP (YEAR-ON-YEAR RATES FROM QUARTERLY DATA)
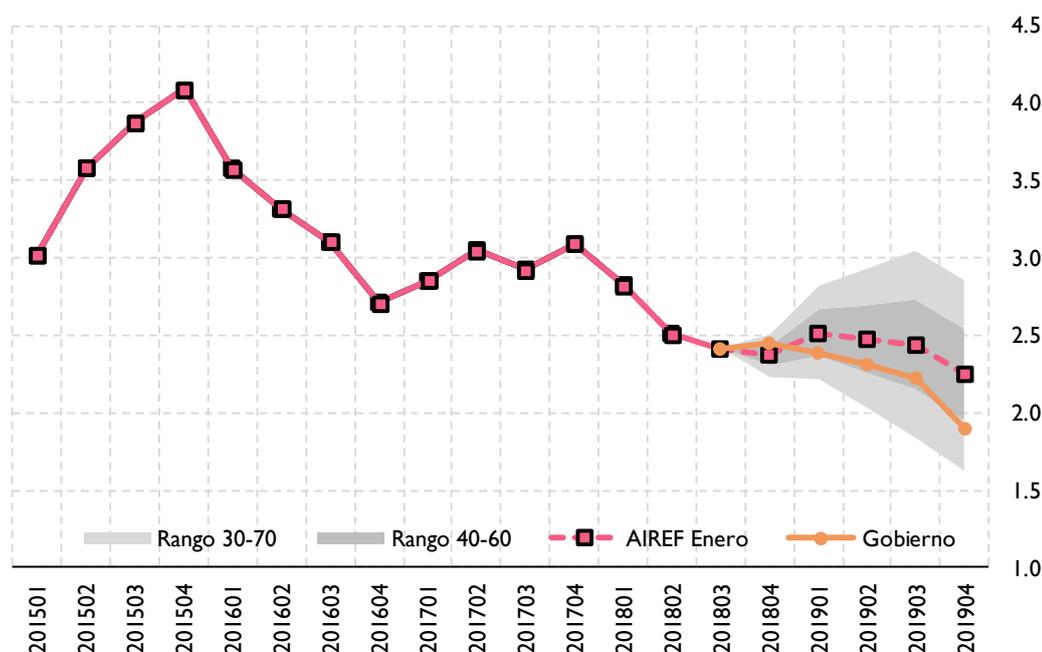
Source: AIReF

---

[3] By way of example, quarter-on-quarter rates for 2018 Q4 and 2019 Q1 of 0.1 and 0.2% lower, respectively, than forecasted by MIPred, would represent an 0.3% decrease over the average growth of 2019.

The evolution foreseen for 2019 is based on an improvement in the contribution of domestic demand, together with a consolidation of a negative contribution of external demand.

For private consumption, after the negative surprise of the second quarter, a recovery of quarter-on-quarter growth in the third quarter has been confirmed, which is expected to continue for the coming quarters, based on the margin offered by its fundamental determinants and economic policy measures that support the evolution of household disposable income. Its annual growth in 2018 is expected to be 2.4% and 2.2% in 2019.

For its part, public consumption will continue to evolve positively, but below aggregate growth, with rates close to 2% in 2018 and 1.5% in 2019. Productive capital formation will maintain its dynamism, although it has substantially reduced its progress in the third quarter, with year-on-year rates of over 8% expected for both the final stretch of 2018 and the beginning of 2019. The support of domestic demand and the maintenance of good financing conditions and the use of self-financing shown by companies are a support for its growth.

Thanks to the recovery of the residential segment supported by the maintenance of favourable credit conditions, investment in construction will continue to record progress around 5% in 2019.

The expected year-on-year growth for exports in the coming quarters is reduced after surprisingly contractionary data for the third quarter of 2018, standing at around 2% for the whole of 2018 and with a modest rebound in 2019 due to a slight gain in the market shares for Spain and the end of the exchange rate appreciation process.

For imports, the situation is similar, although a greater growth is expected, around 3 to 4%. In this way, a contribution from the external sector to negative aggregate growth is expected.

On the side of prices, the GDP deflator is projected to increase by 1.7% in 2019, implying a slight downward revision in line with the observed decrease in the price of oil. With respect to the inertial scenario forecast by AIReF in October 2018, the expected price of the Brent barrel for 2019 in the futures market has been revised substantially downwards by almost 20%. As a result, the projection for 2019 of the GDP deflator has been corrected downwards by 0.2 percentage points (from 1.9%), explaining most of the revision for the components of domestic demand. In this way, the 2019 deflator projections for private consumption and, to a lesser extent, public consumption have decreased, by 0.5 and 0.1 percentage points, respectively. For its part, the projection of the deflator of investment in construction has also been revised

downwards substantially (-1.3 percentage points) with respect to October 2018, in line with more contained dynamics of the real estate market.

A less intensive growth in employment and a more favourable evolution of wages is expected in the labour market in 2019. In the labour context, AIReF anticipates employment growth of close to 2.5% in 2018, in line with the growth of activity and maintaining contained productivity figures. For 2019, growth is expected to be less intensive in employment, with variation rates slightly above 2%, assuming a small negative impact of the economic policy measures already foreseen in the DBP 2019. However, at the same time the unemployment rate would be reaching its level of long-term equilibrium, therefore it is expected that there will be upward wage pressure on certain activity sectors. Along the same lines, it is projected that both the increase in the minimum wage and the wage of public employees will be partially transferred to the rest of the economy's wages (as has been observed on recent occasions). As a result, it is expected that in 2019 compensation per employee will grow above consumer prices (2.7% vs. 1.2%), thus continuing with the process of recovery of the purchasing power of wages.

MACROECONOMIC IMPACT OF THE MEASURES

In its report on the DBP 2019, AIReF assessed the macroeconomic impact of the measures included therein as neutral in real terms, and positive in nominal terms, **with risks beyond 2019**. In the simulations carried out, the different measures had effects on activity that offset each other, with a neutral final impact on real GDP[4]. There was a composition effect on the different components of demand, observing: (i) a slight rise in private consumption due to the predominant income effect on the fall in employment; (ii) a drop in investment due to the worsening of the gross operating surplus and the rise in labour costs; (iii) drop in exports due to a loss of price-competitiveness stemming from the rise in prices and wages; and (iv) slight drop in employment, largely associated with the rise in the minimum wage. The greater uncertainty relating to the impact of the effects is transferred to the medium term, beyond 2019, since there could be additional accumulated negative impacts, particularly on employment and investment.

---

[4] The following measures were simulated: (i) changes in the Corporate Income Tax; (ii) increase of the Minimum Wage; (iii) Tax on Financial Transactions; (iv) Tax on certain Digital Services; (v) Green Taxation; (vi) Increase in the Personal Income Tax rate on high earnings; (vii) Increase in Public Expenditure (transfers to households); (viii) Increase in the Maximum Contribution Base.

For the preparation of this report, AIReF did not have the Government's inertial macroeconomic scenario or a separate quantification of the impact of the measures adopted or planned at its disposal. As indicated above, the information received by AIReF did not include a separation between the inertial or "no policy change" scenario and the scenario with the measures incorporated. Nor was a separate quantification of the macroeconomic impact of the measures on GDP or its components received. For this reason, AIReF initially carried out an assessment based exclusively on external assumptions, without considering any additional measures.[5] Subsequently, once the detail of the GSB 2019 was known, the analysis and assessment of the Government's macroeconomic scenario was completed, attempting maintain coherence and connection between the macroeconomic scenario and the presented budgetary scenario.

Having analysed the measures included in the GSB for 2019, AIReF maintains the impact assessment included in the DBP 2019, with some minor adjustments due to a later entry into force or a change in the scope thereof. In its report on the Budgetary Lines of the General Government, AIReF made its own estimate of the macroeconomic impact of the different measures included in the DBP 2019. [6] A comparison of the relevant macroeconomic measures included with those present in the GSB for 2019 reveals minimal differences. Firstly, in line with its budgetary assessment, the impact of the measures that will take effect in the middle of the year is adjusted downwards, essentially the new taxes ("Tobin tax" and "Google tax") and the increase in the tax on Hydrocarbons. Secondly, there have been two main changes in the valuation of the measures related to Social Security, whose macro impact is neutralised. The exclusion of the RETA (Special Regime for Self-Employed Workers) from the increase in the minimum contribution bases, on the one hand, and the mandatory nature of the contribution for professional contingencies in the contributions of the self-employed and the increase in the minimum contribution rate for this contingency, on the other. These small adjustments in the valuation of the measures have been transferred to the macro scenario in different ways: greater job creation and, consequently, greater private consumption, a slight upward revision in productive investment and a less dynamic evolution of prices.[7]

---

[5] See executive summary here.

[6] The economic impact of the new measures is essentially transmitted through the accounts of households and companies, finally affecting the different demand components, as can be seen in Figure 5.

[7] For more details on the impact assessment, see section 7 of the Report on the main budgetary lines of the Public Administrations, 2019.

EVALUATION OF THE OFFICIAL SCENARIO

In this section emphasis has been placed on the differences shown between the information submitted for the current Draft GSB for 2019 and the scenario submitted last October by the Government for the DBP 2019, endorsed by AIReF. For this purpose, a comparison of the Government's complete scenario is presented in Table C.2 of the Annex.

The starting point of the official scenario has not changed, with an expected growth for 2018 of 2.6%, although there are differences in the final composition of growth. For 2018, the real GDP growth forecasted by the Government in its October report has not been amended (2.6%), although there are differences in the final composition of growth. The contribution from domestic demand has been amended upwards (2.9 p.p. compared to 2.7 p.p.), but it has been offset by a more negative contribution from the external sector (-0.3 p.p. compared to -0.1 p.p.). Broken down into components, the greatest revision has occurred in Gross Capital Formation (0.4 p.p. upwards), especially productive investment, whose estimated growth stands at 6.3%, against the previous 5.5%. On the other hand, within the External Sector, exports have gone in the opposite direction, therefore their growth forecast has been cut by 0.8 p.p. (to 2.4%), while imports have been cut by 0.5 p.p. (3.5%).

For 2019, the official forecast is revised 0.1% downwards, to a growth of 2.2%, which is considered prudent considering the intervals foreseen by AIReF. Given the latest short-term information available and in light of the external assumptions envisaged by the Government, which allude to an improvement in GDP growth in the euro area and a drop in oil prices, the downward revision of growth for 2019, to 2.2%, places it in the bottom interval of the panel of the main analysts of the Spanish economy (see figure panel G.2). In addition, these forecasts also appear prudent considering the models used by AIReF, in the bottom area of the 40th distribution percentile (see figure panel G.1).

GRÁFICO 3.   OFFICIAL PROJECTION OF REAL GDP AND AIREF'S CONFIDENCE INTERVALS (% VAR, VOLUME)
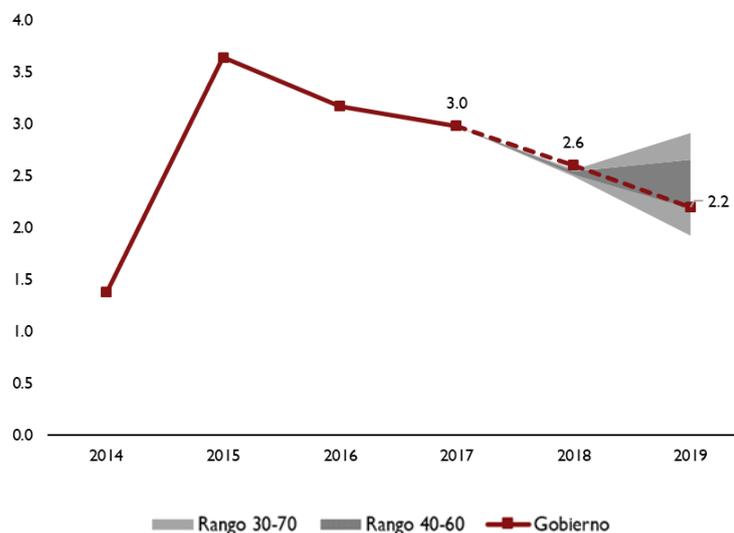

Among the components of Domestic Demand, the Private Consumption foreseen by the Government has undergone a notable downward revision, to 1.7%, outside the range of professional forecasts and in the lower part of AIReF's interval. The forecasts included in the GSB for 2019 for private consumption have been revised downwards by 0.2% since the DBP 2019 and anticipate a significant deceleration with respect to 2018 (1.7% in 2019 compared to 2.3% in 2018). This view seems moderate, falling below the interquartile range of professional forecasts, as well as in the lower region of AIReF's interval.

The deceleration of consumption rests on the assumption that, after reaching historical lows, households will tend to raise their savings rate. However, against this moderate view, the sound financial position of households, the prevalence of the supply of credit under advantageous conditions and the increase in real wages will be driving forces of Private Consumption. This increase in real wages will come hand in hand with the growth of nominal wages (agreed increase in public wages, increase in the minimum wage, etc.) and the moderation over the CPI that will lead to lower oil prices. The support measures for disposable income approved for 2019 (increase in the minimum wage, updating of pensions, public wages) will also support a more dynamic

evolution of consumption, by prevailing over a potential negative impact on employment (stemming from, for example, the higher minimum wage).[8]

GRÁFICO 4. OFFICIAL PRIVATE CONSUMPTION FORECAST AND CONFIDENCE INTERVALS (% VAR. VOLUME)
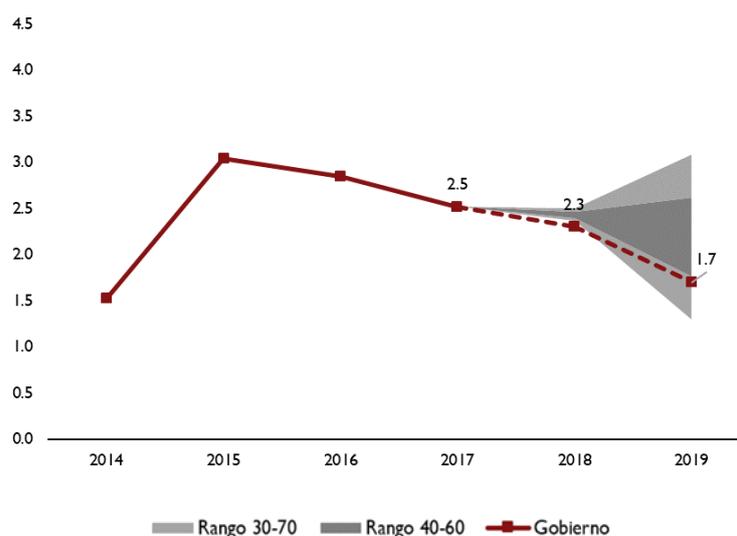
The Government decreases the forecast of Public Consumption in volume for 2019, from 1.7% to 1.4%, in line with AIReF's forecasts. For its part, AIReF has revised its forecast upwards in view of the favourable data for the third quarter of 2018, changing it from 1.4% in October to 1.5% today, 0.1% above the Government's forecast. In both cases, the forecast is slightly below the first quartile of the panel of analysts, a circumstance that is particularly significant given the optimistic bias identified in previous reports in the ex-post analysis.

---

[8] For more details on the impact of the increase in the minimum wage, see Annex 2 of the Report on the main budgetary lines of the public administrations here.

On the other hand, the forecast for aggregate Investment has not changed and last October the Government placed the growth of GFCF at 4.3% in 2019, placing itself in the upper part of the professional forecasts interval, as well as AIReF's forecasts. Broken down by components, investment in construction is revised half a point downwards with respect to the DBP 2019, although it will maintain an important dynamism, growing at 4.5%. This evolution is in line with AIReF's forecasts, which foresee a continued growth of the residential segment due to the maintenance of low interest rates and the growth of employment, and the support of the public sector through the new measures envisaged in the GSB. The Government's estimate is also at the centre of the range of professional forecasts. Conversely, Productive Investment is amended 0.6% upwards. In light of AIReF's own forecasts, the Government's predicted variation rates are considered somewhat optimistic, although feasible. The sound financial position of the business sector, together with the persistence of very favourable financial conditions, support the dynamism in the investment figures. In any case, the progression of Productive Investment could be slowed beyond 2019 due to the combined effect of the moderation in final demand and a potential increase of uncertainty linked to trade tensions.

GRÁFICO 6. OFFICIAL INVESTMENT FORECAST AND CONFIDENCE INTERVALS
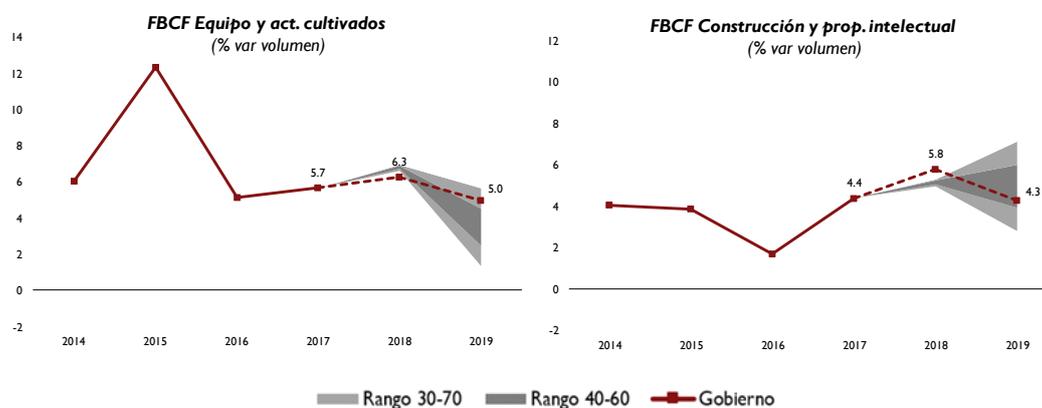
The contribution to growth of the External Sector has been corrected slightly downwards with respect to the previous forecast and is in line with that foreseen by AIReF's models. The expected evolution of Exports and Imports are revised markedly downwards, conditioned by the disappointing data published by the Quarterly National Accounts for the third quarter, since the assumptions about the behaviour of global trade or foreign export markets have not been significantly altered. Both estimates are considered likely in light of AIReF's models, although they stand in the lower region of the forecasting intervals, a situation similar to that found when compared with the panel of analysts. In any case, Exports will increase their growth with respect to 2018, essentially based on the slight market share gains for Spain and in the finalisation of the exchange rate appreciation process. This increase in exports will also have a carryover effect on the increase in final import demand.

GRÁFICO 7. OFFICIAL EXPORTS AND IMPORTS FORECAST AND CONFIDENCE INTERVALS
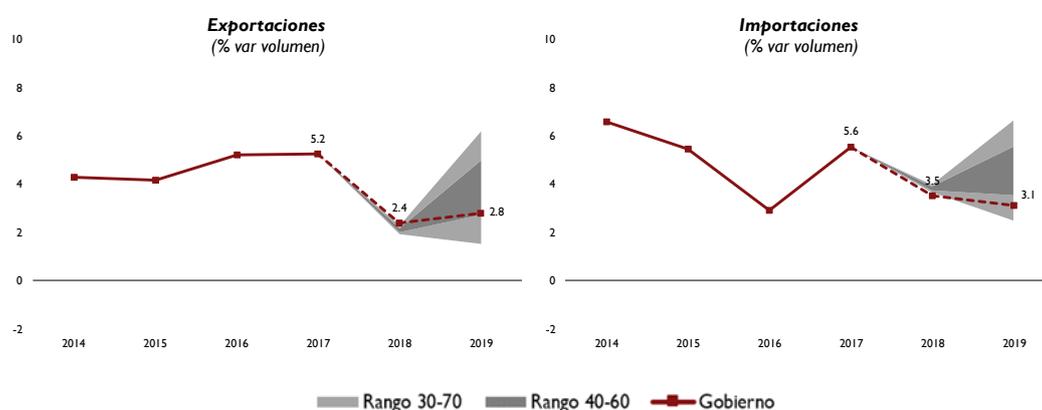
The Government has cut the employment forecasts for 2019 by 0.2%, falling below the consensus and in the lower region of AIReF's forecasting interval. In

this sense, the greater revision of employment compared with that of GDP will cause productivity per employee to be modified upward and return to stand at around 0.4%, after virtually stagnating in 2018. In light of this employment dynamic and the positive but contained evolution of the active population, the unemployment rate expected by the Government (14%) is considered likely. This evolution would continue to be consistent with the existence of an excess supply in the labour market and a high employment-GDP elasticity.

GRÁFICO 8.   **OFFICIAL EMPLOYMENT ETC FORECAST AND CONFIDENCE INTERVALS (% VAR)**
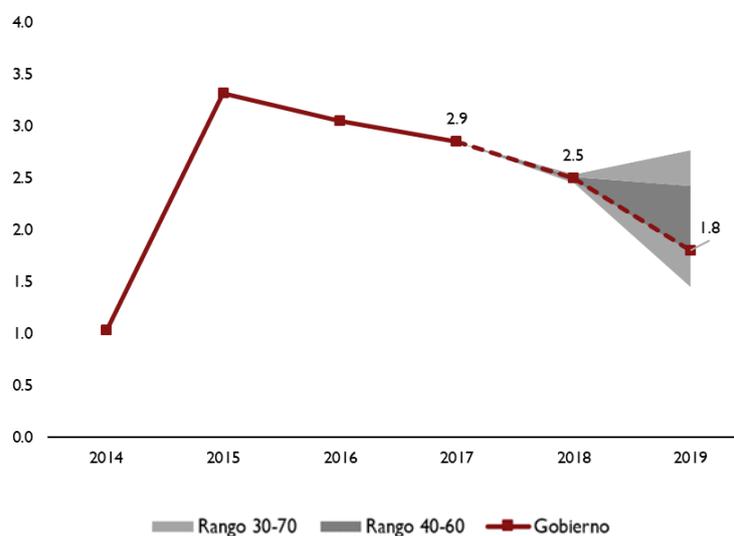
On the price side, the Government revises the GDP deflator 0.1% downwards (1.7%), which is very aligned with AIReF's forecast. Likewise, the Government revises the Private Consumption deflator significantly downwards, in line with the expected moderation of oil prices, as well as the Construction Investment deflator, linked to the expected lower growth in the price of housing.

AIReF forecasts higher growth in compensation per employee in 2018 and 2019 (compared to the Government's 1% for 2018 and 2% for 2019), centred on the fact that the increase in public wages is expected to concentrate significantly in the fourth quarter, as a result of the delay in the approval of the budgets and the retroactive effect since the beginning of the year of the implementation of said increase. The Government could think that there is no translation to the private sector of the increase in the public wage. This contrasts with the empirical evidence that suggests strong bidirectional links between public and private wages in Spain. Considered in conjunction with the expected evolution of the Private Consumption deflator, this implies a certain gain in purchasing power for workers.

GRÁFICO 9.   OFFICIAL PROJECTION OF GDP DEFLATOR AND INTERVALS (% VAR)
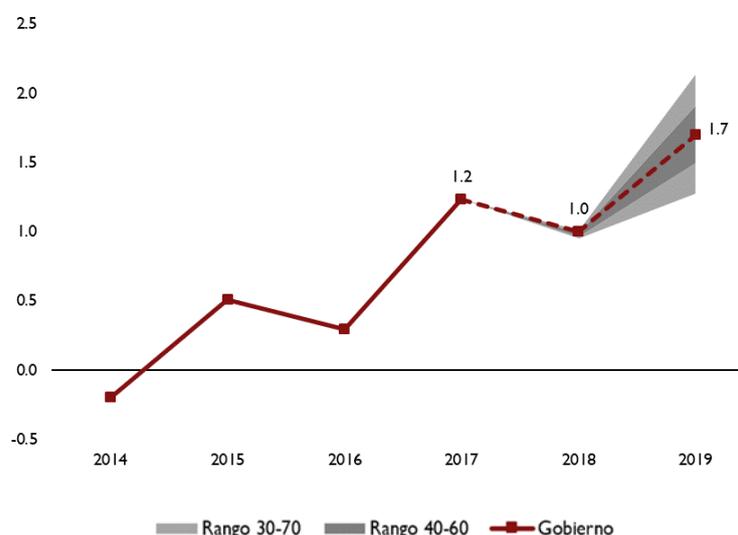
2.4.   Risks and uncertainties

The main short-term risks affect external demand and are derived from the global growth scenario and from the main trading partners of the Spanish economy. In the short term, there are two main sources of risk to growth, both on the side of external demand.

The intensification of protectionist tensions, associated with lower growth in some of the main players in world trade, such as China, may cause an additional drop in world trade and thus in Spanish exports. On the other hand,

at European level, there are specific risks linked to Brexit and the situation in Italy. The withdrawal of the United Kingdom from the European Union scheduled for the beginning of March 2019 is at one of the most delicate moments since the 2016 referendum, with the British Parliament rejecting the deal negotiated between the Government of the United Kingdom and the European Union. To this, we must add the uncertainty in the markets linked to the political and institutional evolution in Italy. Both risks deserve special attention because of the possible impact they could have in the short term.

RISKS ARISING FROM THE WITHDRAWAL OF THE UNITED KINGDOM FROM THE EUROPEAN UNION

One of the main risk factors in 2019 lies in "Brexit". The withdrawal of the United Kingdom from the European Union, with or without deal, is an unprecedented

and potentially highly disruptive situation for the United Kingdom and for its main trading partners.

Several studies have attempted to estimate the long-term impact on GDP, according to the agreement reached between the European Union and the United Kingdom. In general, in these analyses the impact is studied from several perspectives; an optimistic perspective, in which an agreement is reached that would grant the United Kingdom a status similar to that of the countries of the European Economic Area (EEA), which is opposed to a scenario without an agreement (Hard Brexit), in which trade relations with the EU are governed by the criteria of the World Trade Organization (WTO). On average, according to the type of final agreement reached, it is estimated that in 2030 the GDP of the United Kingdom would be between 2.4 and 4.4 p.p. lower than that which would have been recorded had Brexit not occurred. For the whole of the EU-27 the impact could be between 0.3 p.p. and 0.7 p.p. (see table 1). In particular, it is worth noting the estimate published by the Bank of England on November 28 last year in which the impact of a "no deal" scenario, as early as 2024, would be between 4.75 p.p. and 7.75 p.p. of GDP.

CUADRO 1. ESTIMATES OF IMPACT ON THE GDP OF 2030 FOR THE UNITED KINGDOM AND FOR THE EU-27

| | United Kingdom | | UE-27 | |
	Hard Brexit (WTO)	Optimist (EEA)	Hard Brexit (WTO)	Optimist (EEA)
Ottaviano	-2.6	-1.3	-0.3	-0.1
Aichele & Felbermayr	-2.3	-0.6	-0.3	-0.1
Bank of France	-2.9	-2.4		
CPB (2016)	-4.1	-3.4	-0.8	-0.6
Treasury RU	-7.5	-3.8	-	-
OECD	-7.7	-2.7	-0.8	-
IMF (2018)	-4.0	-	-1.5	-
Bank of England (2018)	-7.75 / -4.75*	+1.75*	-	-
Average	-4.4*	-2.4*	-0.7	-0.3

*Estimated impact until 2024. Due to lack of homogeneity with the rest of the studies, it is not included in the average.

Sources: European Parliament, Bank of England, Office for Budget Responsibility and International Monetary Fund

However, these studies also indicate that the potential impact of Brexit on the different EU countries could be very heterogeneous, depending on the degree of connection to the United Kingdom, whether through trade, financial or migratory flows or a combination of these.

Regarding the channel of trade flows, within the European Union, the high weight on the total exports of goods from Ireland, the Netherlands, Belgium and Spain to the United Kingdom is noteworthy. In the case of imports, approximately 30% of Irish imports originate in the United Kingdom, followed at a distance by the Netherlands and France (see Figure 10).

GRÁFICO 10. **EXPORTS AND IMPORTS OF GOODS AS% OF THE TOTAL OF EACH COUNTRY (AVERAGES BETWEEN JANUARY 2014 AND SEPTEMBER 2018)**
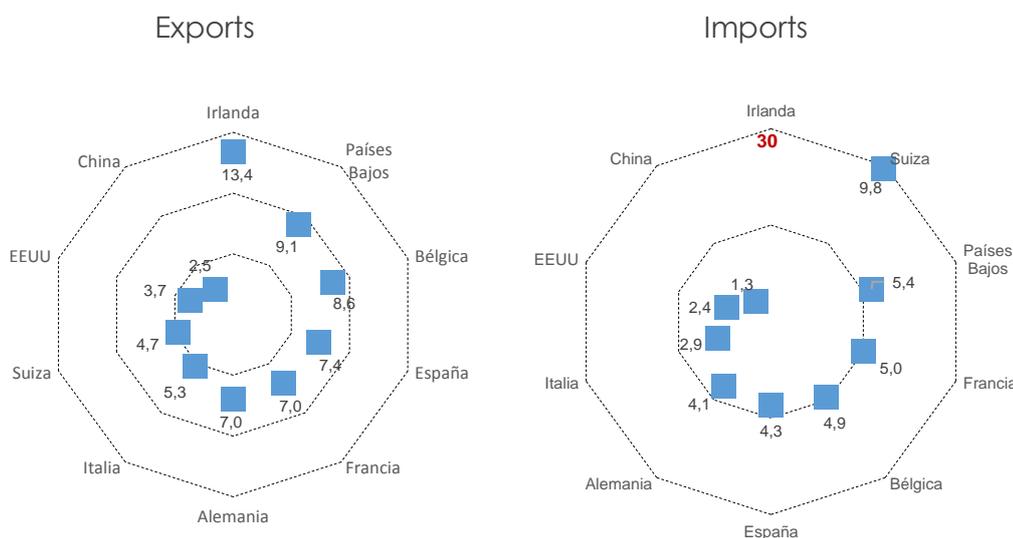
Source: AIReF's processing based on the International Monetary Fund.

As regards the assets of credit institutions vis-à-vis residents in the United Kingdom, among the countries of the European Union the interconnection between Spain and the United Kingdom is undoubtedly one of the strongest. Among the data prepared by the Bank for International Settlements, it is worth noting that practically 19% of the financial liabilities of residents in the United Kingdom towards the exterior are to Spanish financial institutions, followed by Germany - with 12.1% - and France -with 11.8% - (see Figure 11).

GRÁFICO 11. **FINANCIAL ASSETS OF CREDIT INSTITUTIONS VIS-À-VIS THE UNITED KINGDOM**
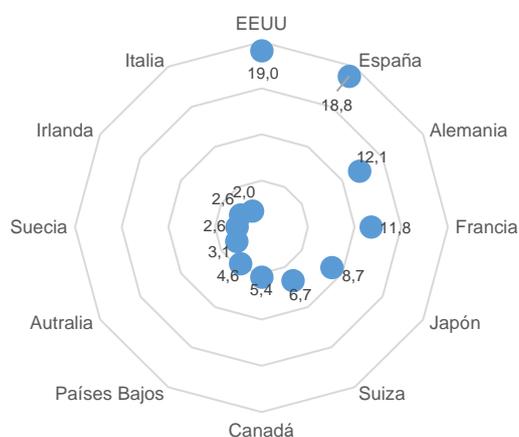
Source: AIReF's processing based on the Bank for International Settlements.

However, it is worth mentioning that this channel affects the work performed by investment companies, payment service providers, electronic money institutions, lenders and credit intermediaries. The wide variety and number of actors complicates the actions to mitigate the risks that are being adopted in Europe.

As a summary of the channels of sensitivity to the withdrawal of the United Kingdom, the Brexit Sensitivity Index (BSI[9]) attempts to summarise the degree of exposure of a list of economies. According to this index, the economies with the highest degree of exposure would be Ireland, Malta, Luxembourg and Switzerland. In the case of Spain, the transmission channels of direct investment and the channel of the financial sector stand out.

---

[9] "Who Has The Most To Lose From Brexit? Introducing The Brexit Sensitivity Index". S&P Global Ratings. June 2016.

GRÁFICO 12.   S&P GLOBAL RATINGS BREXIT SENSITIVITY INDEX FOR DIFFERENT COUNTRIES

■ Factor de Exportaciones   ■ Factor Financiero   ■ Factor de Inversión Directa   ■ Factor Migratorio
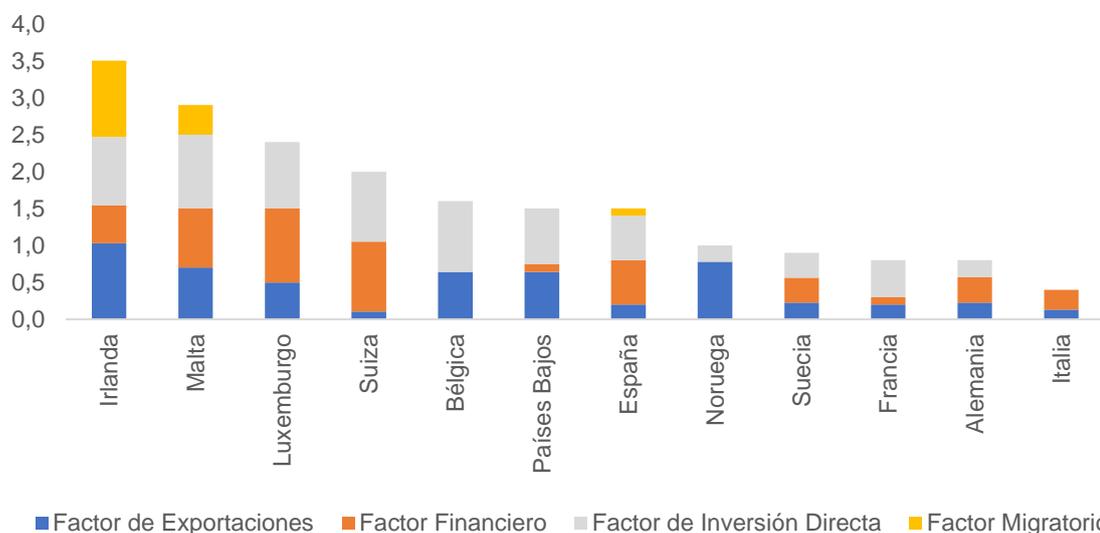
Source: AIReF's processing based on S&P Global Ratings.

RISKS FROM THE DEVELOPMENTS IN ITALY

Following the Italian general elections of March 2018 there is a growing perception of economic policy uncertainty around Italy (see Figure 13). The expansive cut in the fiscal policy of the new government and the continuous discussions about the public deficit contained in the DBP 2019 generated a climate of insecurity that ended up affecting the short-term economic indicators for the Italian economy.

GRÁFICO 13.   STANDARDISED INDEX OF ECONOMIC POLICY UNCERTAINTY FOR EUROPE AND ITALY.
2009-2018 CYCLE-TREND

── Europa   ── Italia
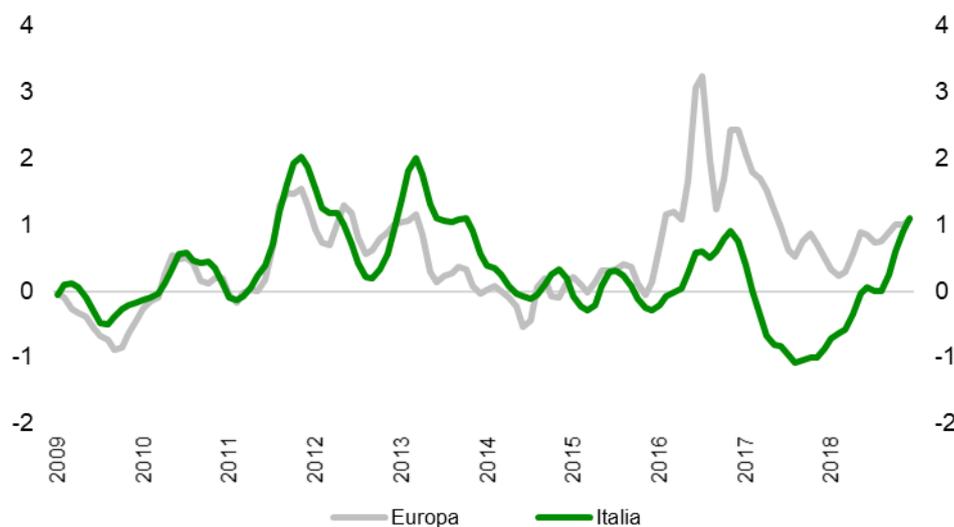
Source: AIReF's processing based on Federal Reserve Economic Data (FRED).

The greater uncertainty led to a deterioration in the markets' confidence in the sustainability of Italian debt and generated a growing concern about possible contagion to countries such as Spain. The greater uncertainty has been directly reflected in the evolution of the Italian financial markets and, especially, in the secondary government debt market. The risk premium of the Italian ten-year government debt against the German premium has returned to levels that have not been observed since 2013. As a result, since mid-2018 there has been growing concern about the risk of contagion to other financial assets and especially to other countries such as Spain.

Despite the initial fears, it seems that the markets have differentiated between Spanish and Italian assets, reducing the correlation between the assets issued by both treasuries. The secondary market of Spanish government debt has shown greater stability than initially anticipated by some analysts. As it has been possible to observe an increase in Italy's risk premium against Spain and Germany, it has also been possible to see a reduction in the correlation between the Italian ten-year government debt rates compared to the Spanish one. This seems to be connected with the growing divergence of the fundamentals and the economic-budgetary situation of Spain and Italy (see Figure 14).

The contagion between the Italian situation and the Spanish situation seems to have been contained also in terms of the evolution of the indicators of financial institutions. As in the sovereign debt markets, the main indicators related to financial institutions seem to reflect a relative disconnection between what happened in Italy during 2018 and what happened in Spain. Thus, the weighted differential of credit default swaps (CDS) of the main Spanish banks have followed divergent paths since May 2018 (see Figure 14).

This evolution is an exponent of the sudden changes in the perception of economic agents and, in general, regarding the evaluation of risks, are not uncommon and have a clearly binary nature. Although the contagion initially anticipated has not been observed to date, it must be remembered that, if these indicators exceed certain thresholds, the perception of risk could be significantly altered. This could have repercussions in the rapid transmission of shocks from Italy to other countries (and towards other types of financial assets).

GRÁFICO 14.   RISK PREMIUM AND CORRELATION BETWEEN ITALIAN AND SPANISH GOVERNMENT DEBT.

Italy's ten-year risk premium against Germany and Spain

Coefficient of Linear Correlation of the Variations in Ten-Year Government Debt Yields of Spain and Italy According to Time Window
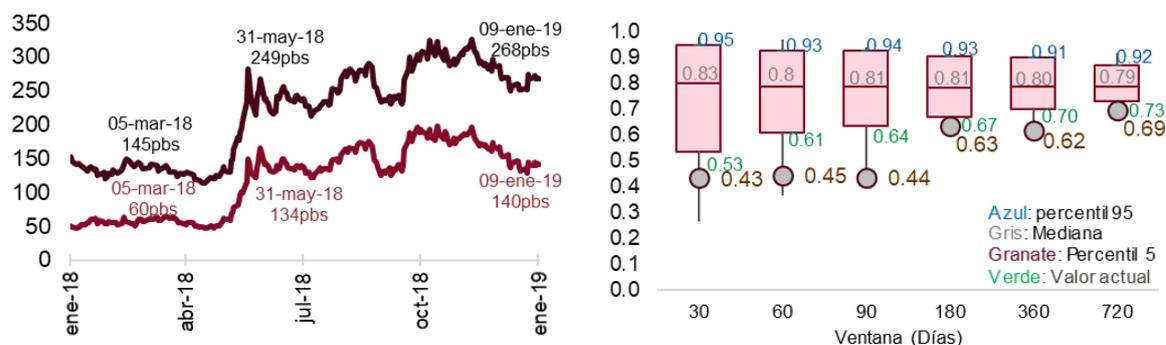
Source: Datastream and AIReF's processing.

GRÁFICO 15.   WEIGHTED DIFFERENTIAL OF CREDIT DEFAULT SWAPS OF THE MAIN SPANISH AND ITALIAN BANKS. IN BASIC POINTS.
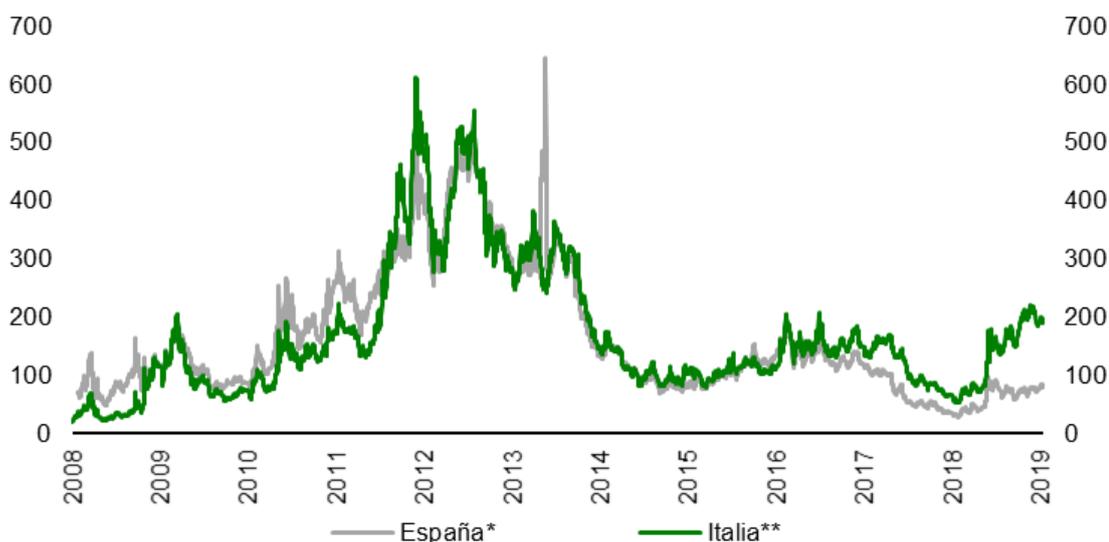
Source: Datastream and AIReF's processing.

* Spanish banks: Bankia, Bankinter, BBVA, Banco Sabadell and Banco Santander.

** Italian banks: Banca Intesa Sanpaolo, Banca Monte dei Paschi di Siena, Banco BPM, UBI Banca, Unicredit, Mediobanca.

3. EX-POST ANALYSIS

This exercise is separated from the traditional bias analysis in order to evaluate the evolution of the Government's accuracy in forecasting the main components of demand[10]. Given the short period after which AIReF has to prepare a report on the Government's macroeconomic scenario, this exercise differs from AIReF's traditional ex-post analysis in three aspects: 1) no comparison is made with the consensus forecasts of private or public analysts but between two periods of time- before and after AIReF's endorsement was required -, 2) no attempt is made to identify systematic errors in the same direction and 3) it is not intended as a basis for the formulation of future recommendations.

The set of forecasts analysed has been formulated during the autumn months of each year (e.g. in the autumn of 2014 the GSB for 2015 were presented). Specifically, the forecasting efficiency (accuracy and volatility) of the macroeconomic scenarios included in the GSB for 2010, 2011, 2013 and 2014 is compared against those analysed and endorsed by AIReF from the GSB for 2015 to the GSB for 2018.[11][12] The exercise is carried out from the analysis of the forecasting errors, which are defined as the predicted value less the observed value for each variable.

In general, the macroeconomic forecasts have become more cautious since AIReF's endorsement has been required. In relation to GDP growth, the average error observed in the forecasts for the current year is similar to that of the pre-AIReF period. However, in the case of the forecasts for the following year, the comparison implies that the Government has gone from

---

[10] The ex-post analysis of the forecasts of autumn 2014-2017 has been made in a recent AIReF report on the Main Budgetary Lines of the Public Administrations 2019.

[11] The macroeconomic forecasts of the GSB for 2012 are excluded from the analysis because they were formulated in April of that year and not with information available in the autumn of the previous year.

[12] The first publication of the annual National Accounts data of the INE (Spanish National Statistics Institute) was used for the calculation of the forecasting errors. In the case of the year 2018, for which information is not yet available, the figure considered as observed is the forecast for the current year included in the GSB for 2019.

overestimating growth by 0.1 p.p. each year, on average during the 2010-2014 period, to underestimating by 0.6 p.p. during the 2015 -2018 period (Table 2).

This result is due to a large extent to the change observed in the forecasts of gross capital formation and imports, which have gone from having an optimistic bias to a prudent one, and to a lesser extent to the accentuation of the prudent bias already observed in the private consumption forecasts. In the case of the unemployment rate forecasts for the following year, a similar behaviour is observed, going from an underestimation of approximately 1.1 p.p. to an overestimation of 0.4 p.p. These results should be qualified because the average cyclical position of both periods under analysis was different. While in the 2010-2014 period the economy was in a phase of recession, where the output gap widened year after year, the 2015-2018 period coincided with the economic recovery and the closing of the output gap.

However, in the specific case of public consumption, forecasts for the current year have become more optimistic. Since AIReF's endorsement has been required, the public consumption forecasts for the current year have gone from overestimating it by 0.5 p.p., on average each year, to overestimating it by approximately 0.6 p.p. This is especially noteworthy if the repeated recommendations that AIReF has made to the Government regarding the optimistic bias identified in the forecasts of said variable from the traditional ex-post analysis are taken into account. In the case of the forecasts for the following year, the average error is around an overestimation of 1.5 p.p., with no changes observed between the periods considered. On the other hand, the optimistic bias observed in the forecasts of the budgetary balance has decreased slightly since AIReF has undertaken monitoring, both in the forecasts for the current year and for the following year.

In terms of volatility, a substantial decrease was observed in the 2015-2018 period in the case of macroeconomic forecasts and, to a lesser extent, in the budgetary balance forecasts. Both the mean absolute error (MAE) and the observed root mean square error (RMSE) of the GDP forecasts are similar in the two periods under analysis (Figure 16). However, since AIReF has monitored the Government's macroeconomic forecasts, the volatility of the forecasting errors seems to have decreased by at least half in most of the individual components of aggregate demand, particularly in the case of Exports and Private consumption. This improvement is observed both in the forecasts for the current year and for the following year. In addition to the components of the macroeconomic scenario, there is also a reduction of more than half in the volatility of errors in forecasting the unemployment rate. On the fiscal side, the MAE and the RMSE of the forecasts of the ratio of the budgetary balance over GDP have also experienced a reduction since AIReF has carried out

monitoring, although this has been of lesser magnitude in the case of the forecasts for the following year.

CUADRO 2. AVERAGE ERROR OF THE MACROECONOMIC FORECASTS

		PIB	Consumo Privado	Consumo Público	FBCF	Expor	Impor	Tasa de paro	Deficit
t	*PGE 10-14*	0.1	-0.9	0.5	-0.1	-1.8	1.2	0.0	0.3
	PGE 15-18	0.0	0.0	-0.6	-0.2	0.5	-0.2	0.0	0.2
t+1	*PGE 10-14*	0.1	-0.3	-1.5	1.6	-4.3	-1.0	-1.1	1.6
	PGE 15-18	-0.6	-0.4	-1.5	-0.7	1.2	0.8	0.4	1.3
t y t+1	*PGE 10-14*	0.1	-0.6	-0.5	0.7	-3.1	0.1	-0.5	0.9
	PGE 15-18	-0.3	-0.2	-1.0	-0.4	0.8	0.2	0.2	0.7

GRÁFICO 16.   FORECASTING ERRORS YEAR T + 1

RMSE

Coefficient of variation
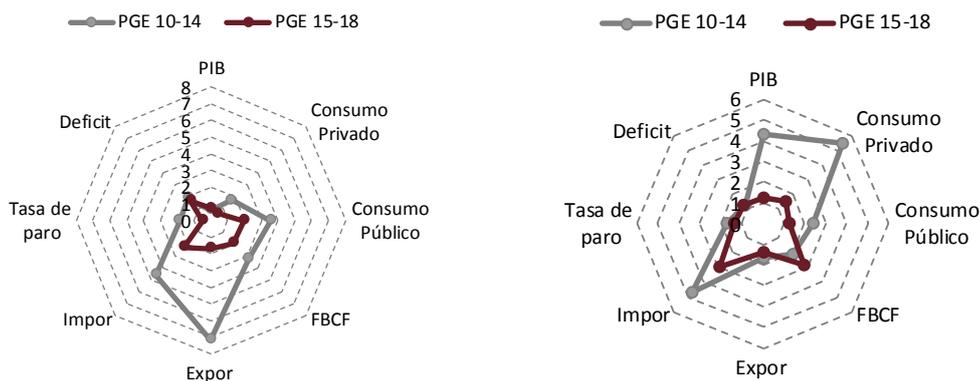
Source: AIReF's processing

4. CONCLUSIONS AND ENDORSEMENT

The Independent Authority for Fiscal Responsibility (AIReF) endorses the Government's macroeconomic forecasts included in the Draft GSB for 2019. AIReF considers the Government's macroeconomic scenario to be prudent overall, based on the exogenous assumptions considered and the policies included in the GSB for 2019.

The assumptions that reflect the risks stemming from the external environment are considered possible. The basic assumptions underlying the macroeconomic scenario of the GSB for 2019 are considered feasible overall, in light of the latest forecasts from international agencies and the evolution of the markets.

The upward revision of 0.1% in the growth of the euro area both in 2018 and in 2019 with respect to what was foreseen in the DBP 2019 can be considered optimistic, taking into account the downward revision of growth, both global and of the euro zone, contained in the latest forecasts from international agencies such as the European Central Bank and the European Commission.

Expectations about the evolution of the price of oil are revised markedly downward, reflecting the recent trend in the price of crude oil and falling below international agencies' forecasts, but above the price expectations of the futures markets.

Finally, the assumptions related to the long-term interest-rate yield curve are considered prudent, maintaining a positive differential with respect to the market expectations inherent to the forward curve.

The composition of growth is considered reasonable, supported by a contribution of domestic demand similar to that of the two preceding years, but with a slightly negative contribution from the external sector. Although somewhat more contained than in 2018, the growth of activity expected by AIReF for 2019 will continue to be supported by domestic demand, whose dynamism will be conditioned mainly by the favourable evolution of investment, both productive and in construction. The scenario presented by

the Government presents a reasonable composition, with the evolution of its main components in line with AIReF's internal forecasting models, particularly with regard to the downward revision of the contribution of the external sector, which is largely conditioned by the negative surprises reflected in the latest quarterly data.

In the short term, risks of a lower contribution of external demand stemming from global growth and growth of the main partners of the Spanish economy are identified. The intensification of protectionist tensions, associated with lower growth in some of the main players in world trade, such as China, may cause an additional drop in world trade and thus in Spanish exports.

At European level, there are specific risks linked to Brexit and the political situation in Italy. The withdrawal of the United Kingdom from the European Union scheduled for the beginning of March 2019 is at one of the most delicate moments since the 2016 referendum, with the British Parliament rejecting the deal negotiated between the Government of the United Kingdom and the European Union. To this, we must add the uncertainty in the markets linked to the political and institutional evolution in Italy. Both risks deserve special attention and monitoring due to their possible short-term impact.

5. RECOMMENDATIONS

In order to make the process of endorsement of the macroeconomic scenario more transparent and efficient, AIReF recommends that the Government:

1. **Regulate the flow and calendar of information exchange through an agreement or memorandum of understanding** for the process of endorsement of the macroeconomic scenario and evaluation of the Draft Budgets in line with the usual practices in neighbouring countries in the interaction between the government and the National Independent Fiscal Institution**.**

BACKGROUND

In previous reports, AIReF recommended that the Government accompany the macroeconomic scenario with an inertial or "no policy change" scenario and a separate quantification of the economic impact of the measures adopted or planned.[13]

To this recommendation, the Ministry of Economy initially responded with a commitment of partial compliance to include in estimates of real and nominal GDP growth in a "no policy change" scenario in future Draft GSBs. [14]

This proposal was viewed positively, although AIReF insisted on the need to have a complete inertial macroeconomic picture, accompanied by the quantified impact of the measures to facilitate the analysis of the scenario and the transmission channels of the measures, thus ensuring consistency between the macroeconomic scenario and the budgetary scenario.

In this Report on the macroeconomic forecasts in the Draft GSB for 2019, the Ministry of Economy has not provided a "no-policy change" macroeconomic

---

[13]This recommendation was included in the Report on the forecasts of the GSB for 2017 and was reiterated in the Report on the macroeconomic forecasts of the GSB for 2018.

[14] Follow-up to the AIReF recommendations by MINEICO

scenario, nor a reduced version (limited to real and nominal GDP growth), nor the estimated economic impact of the fiscal measures included by the Government, not complying with the commitment made in its response to AIReF.

In light of this repeated non-compliance and being aware that the flow of information necessary for AIReF to carry out a full assessment involves both the Ministry of Economy and the Ministry of Finance, AIReF considers the signing of an agreement between the three involved parties as a practical solution, in line with the best practices existing in neighbouring countries. Said agreement or Memorandum of Understanding should envisage critical aspects such as information exchange calendars or processes.

In addition, AIReF reiterates two suggestions for best practice in the area of transparency to the Government.

- First, integrate the key elements of the forecasts into a simplified framework of National Accounts, so that it is possible to establish the relationship between economic activity, demand and expenditure, on the one hand, and income flows and financing needs on the other.
- Second, expand the information on the methodologies, assumptions and relevant parameters underlying the forecasts, in line with the provisions of Directive 2011/85 on National Budgetary Frameworks and of article 29 of the Organic Law on Budgetary Stability and Financial Sustainability.

6. ANNEX: TABLES AND CHARTS

C.1 Basic hypotheses for the 2018-2019 scenario

Tasa anual en % y desviaciones en puntos porcentuales, salvo indicación en contrario

	2018	Δ Dic 19 - Oct 18	2019	Δ Dic 19 - Oct 18
Tipos de interés a corto plazo (euribor a tres meses)	-0.3	0.00	-0.2	0.00
Tipos de interés a largo (deuda pública a 10 años, España)	1.6	0.0	1.8	0.0
Tipo de cambio (dólares/euro)	1.18	0.00	1.15	0.01
Crecimiento del PIB Mundial, excluida la UE	3.9	0.0	3.7	0.0
Crecimiento del PIB de la zona euro	2.1	0.1	1.9	0.1
Mercados españoles de exportación	3.6	0.0	3.8	0.0
Precio del petróleo (Brent, dólares/barril) (a)	71.3	-2.86	65.0	-14.92
2018-2019 Previsión.				
(a) Diferencia respecto octubre en tasa de variación porcentual (no se muestran barras de gradación)				
Fuente: Ministerio de Economía, Industria y Competitividad: Proyecto de Plan Presupuestario 2019, octubre 2018, y comparación con el Informe de Situación de la Economía Española 2018, julio 2018.				

C.2 Government's macroeconomic forecasts for 2018-2019

	2017	2018	Δ Ene 19 - Oct 18		2019	Δ Ene 19 - Oct 18	
PIB	3.0	2.6	0.0		2.2	-0.1	
PIB a precios corrientes: miles de millones de euros	1,166.3	1,208.8	-3.0		1,255.3	-6.0	
PIB a precios corrientes: % variación	4.3	3.6	-0.3		3.8	-0.3	
COMPONENTES DE DEMANDA (% variación real)							
Gasto en consumo final nacional	2.4	2.2	0.0		1.7	-0.1	
- Gasto en consumo final nacional privado (a)	2.5	2.3	0.0		1.7	-0.2	
- Gasto en consumo final de las AA.PP.	1.9	1.9	0.0		1.4	-0.3	
Formación bruta de capital	5.4	5.5	0.4		4.3	0.0	
- Formación bruta de capital fijo	4.8	5.7	0.4		4.4	0.0	
Activos fijos materiales	5.1	6.1			4.7		
Construcción	4.6	6.0	0.2		4.5	-0.5	
Bienes de equipo y activos cultivados	5.7	6.3	0.8		5.0	0.6	
- Variación de existencias (contribución en p.p.)	0.1	0.0	0.0		0.0	0.0	
Demanda Nacional (contribución al crecimiento del PIB)	2.9	2.9	0.2		2.2	-0.1	
Exportación de bienes y servicios	5.2	2.4	-0.8		2.8	-0.6	
Importación de bienes y servicios	5.6	3.5	-0.5		3.1	-0.7	
Saldo exterior (contribución al crecimiento del PIB)	0.1	-0.3	-0.2		-0.1	-0.1	
PRECIOS (% variación)							
Deflactor del PIB	1.2	1.0	-0.3		1.7	-0.1	
Deflactor del gasto en consumo final privado	1.6	1.6	-0.1		1.1	-0.7	
COSTES LABORALES Y EMPLEO (% variación)							
Remuneración (coste laboral) por asalariado (c)	0.3	1.0	0.0		2.1	0.1	
Remuneración (coste laboral) total (c)	3.5	3.9	0.0		4.0	-0.2	
Empleo total (b)	2.9	2.5	0.0		1.8	-0.2	
Productividad por ocupado (b) (c)	0.1	0.1	0.0		0.3	0.0	
Coste Laboral Unitario (CLU) (c)	0.2	0.9	0.0		1.7	-0.1	
Pro memoria (datos EPA)							
Paro: % población activa	17.2	15.5	0.0		14.0	0.2	
SECTOR EXTERIOR (%PIB)							
Cap.(+) / Nec.(-) financiación frente resto del mundo	2.2	1.3	-0.2		1.2	-0.1	

2018-2019 Previsión

(a) Hogares e ISFLSH

(b) Empleo equivalente a tiempo completo

(c) Comparación respecto a APE 18 -21 (Abril 2018)

FUENTE: Ministerio de Economía y Competitividad

C.3 Forecasts by international agencies

(variación % sobre al año anterior, salvo indicación)

		2017	2018	2019
BCE (**Diciembre 2018**)	PIB mundial (ex área del euro)	3.8	3.8	3.5
	PIB del área del euro	2.5	1.9	1.7
	Comercio Mundial (Importaciones de bienes y servicios ex. área del euro	4.6	5.1	3.5
	Precios del petróleo Brent (USD por barril)	54.4	71.8	67.5
	Euribor a tres meses (%)	-0.3	-0.3	-0.3
	Tipos de interés de la deuda pública del área del euro a 10 años (%)	1.0	1.1	1.4
	Tipo de cambio USD/EUR (nivel)	1.13	1.18	1.14
	Tipo de cambio efectivo nominal del euro	2.2	5.2	0.0
FMI (**WEO enero 2019**)	PIB mundial	3.7	3.7	3.5
	PIB del área del euro	2.4	1.8	1.6
	PIB de la UE(*)	2.7	2.2	2.0
	Comercio de bienes y servicios	5.2	4.0	4.0
	Precios del petróleo (USD por barril)	54.4	70.7	60.7
	Libor a seis meses (%) (Depósitos en $)	1.5	2.5	3.4
Comisión Europea (**Noviembre 2018**)	PIB mundial (excluyendo UE)	3.8	3.9	3.7
	PIB del área del euro	2.4	2.1	1.9
	PIB de la UE	2.4	2.1	1.9
	Importaciones mundiales de bienes y servicios (excluyendo UE)	5.2	4.2	3.7
OCDE (**Noviembre 2018, Economic Outloook**)	PIB OCDE	2.5	2.4	2.1
	PIB del área del euro	2.5	1.9	1.8
	Comercio de bienes y servicios de España	5.2	3.9	3.7
Expectativas de mercado (**Enero 2019**)	Tipos de interés a largo (deuda pública a 10 años, España)	1.6	1.4	1.6
	Precios del petróleo tipo Brent (USD por barril)	54.3	70.9	57.7

(*) WEO Octubre 2018
Nota: Fecha de cierre de evaluación AIReF: 10.01.2019

C.4 Forecasting biases 2014-2017

	Previsiones año anterior, para el año corriente		Previsiones año corriente, para el año corriente		Todas las previsiones	
	% Grande	% Grande e Injust.	% Grande	% Grande e Injust.	% Grande	% Grande e Injust.
PIB	25	-	50	-	38	-
Consumo Privado	75	33	75	-	75	17
Consumo Público	75	100	25	100	50	100
FBCF	50	50	75	67	63	60
Exportaciones	25	100	25	-	25	50
Importaciones	50	50	50	50	50	50
Paro	75	-	75	-	75	-
Déficit/PIB	75	67	50	50	63	60

Source: INE, MINEICO, FUNCAS and AIREF's estimates.

G.1   Forecasts for the Spanish economy 2018-2019

Producto Interior Bruto

Consumo Privado

Consumo Publico

Formación Bruta de Capital Fijo

Empleo

Exportaciones

Importaciones

Intervalo panelistas   Gobierno   Banco de España   FMI   CE   OCDE   Media panelistas
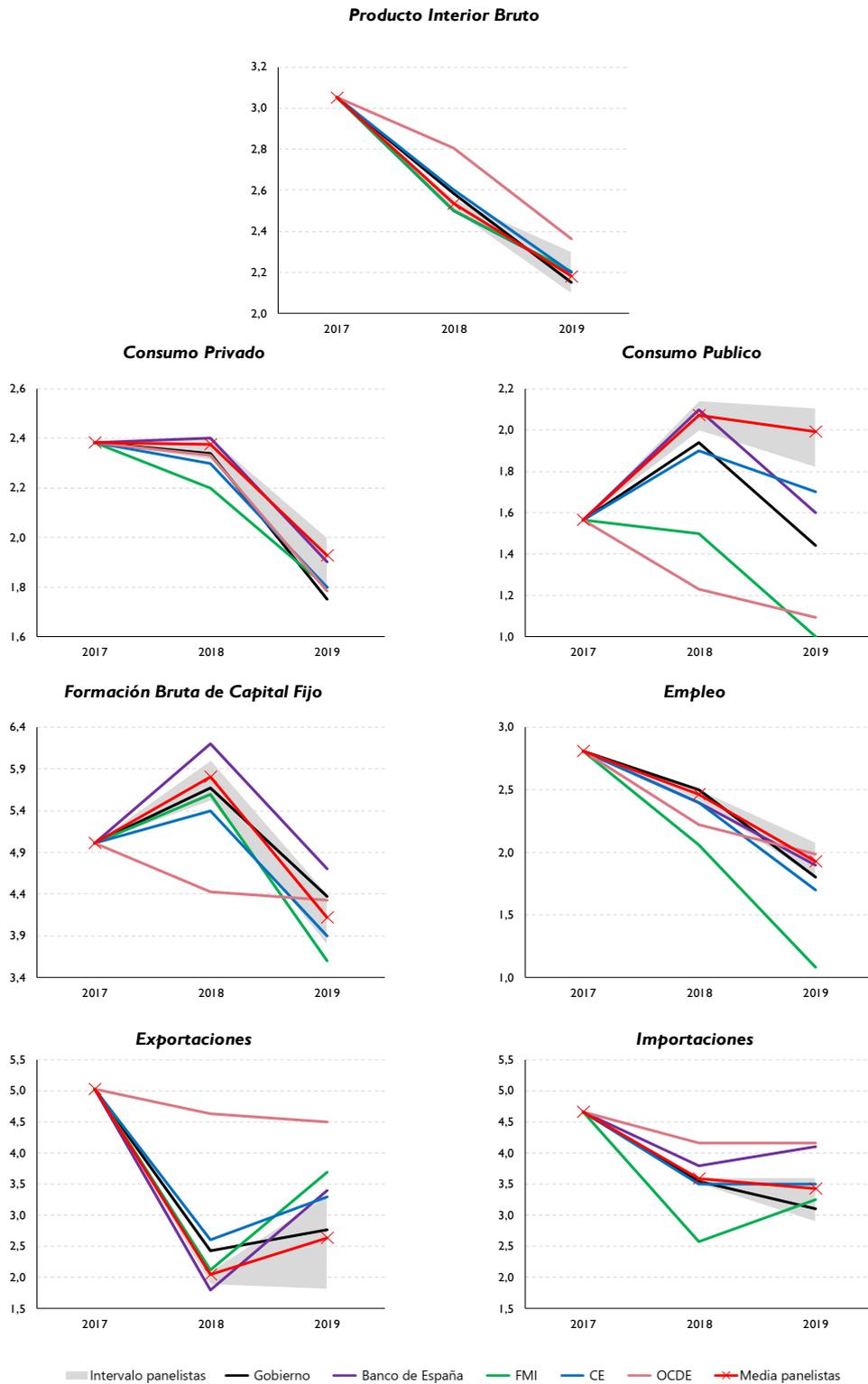
Sources: Own processing based on INE, FUNCAS, MINEICO and AIReF's estimates.

G2. Government's forecasts and AIReF's uncertainty ranges

Producto Interior Bruto
(% var volumen)

Empleo Total
(% var)

Consumo privado
(% var. volumen)

Consumo público
(% var volumen)

FBCF Equipo y act. cultivados
(% var volumen)

FBCF Construcción y prop. intelectual
(% var volumen)

Exportaciones
(% var volumen)

Importaciones
(% var volumen)

Rango 30-70   Rango 40-60   — Gobierno
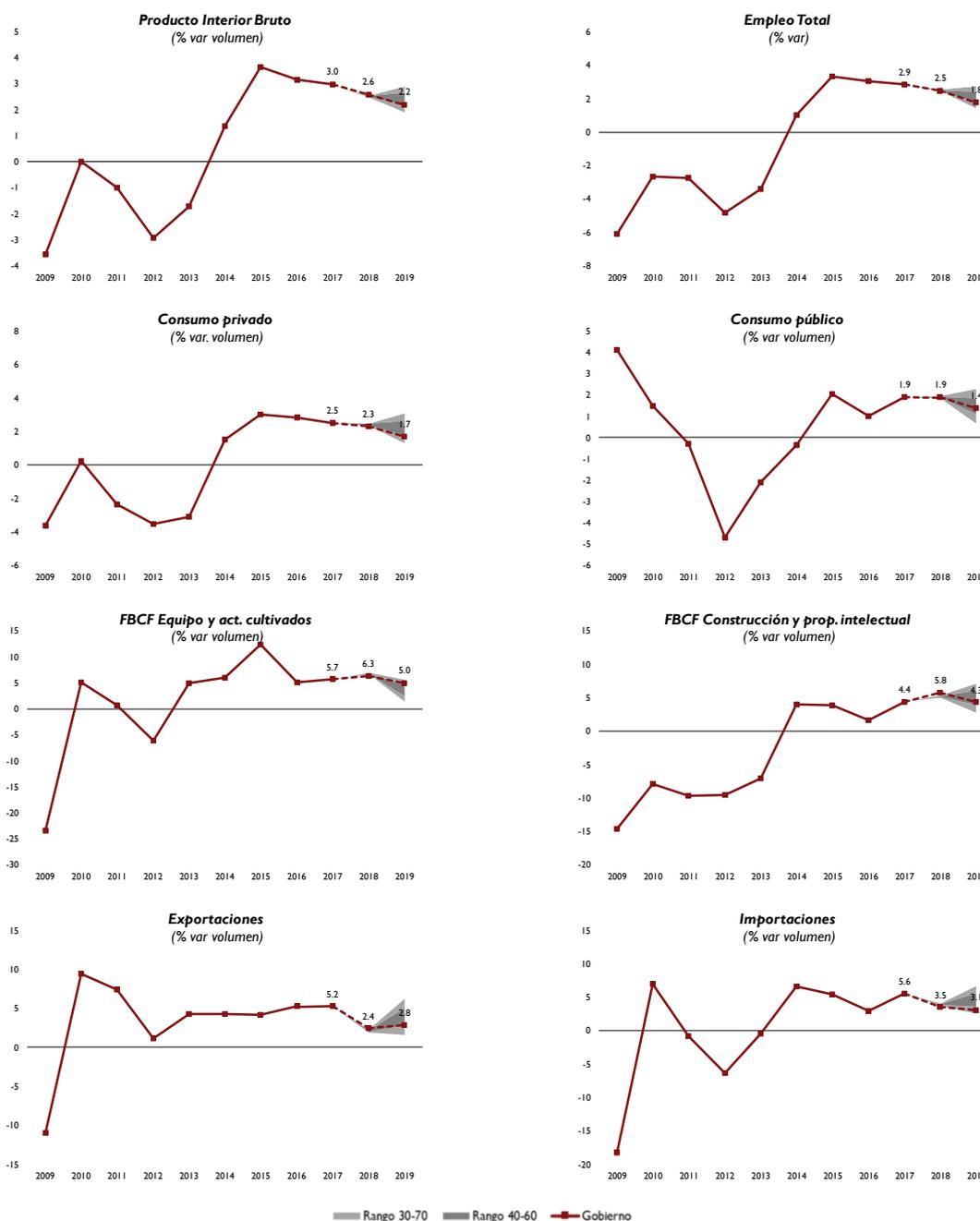
Sources: Own elaboration with data from INE, MINEICO and AIReF estimates.

7. METHODOLOGY ANNEX

For a Report on Macroeconomic Forecasts, a range of econometric tools have been used, covering a relatively broad methodological spectrum. This note provides a summary of their main characteristics with the aim of describing the methodology supporting the report.

The first section presents the uniequational structural models and their design methods. These models have served as a basis on which to examine the consistency of official forecasts for the behaviour of their macroeconomic determinants. The technique applied uses quarterly data and error correction models.

The second section describes the employee reduced-form multivariate model. This model shows the dynamics for the main aggregates for real activity in the macroeconomic outlook and allows quarterly confidence intervals for the envisaged trends in these aggregates, with very little a priori conditioning. The methodology is included in the autoregressive vector models with exogenous variables and also uses quarterly data.

The third and last section briefly details the dynamic factorial models used for short-term (2 quarters) forecasts of GDP and its components, that permit the impact of the present time information on said aggregates to be reflected.

7.1. Uniequational models

For a quantitative assessment founded on a structural formula suggested by economic theory, several behavioural equations have been used based on the representation of error correction. A simplified presentation using Excel spreadsheets is available on the AIReF website for use by analysts.

The general principle of this approach is, first, to define a behavioural relationship between a given variable and its determinants, as suggested in economic theory. This theoretical relationship is quantified by means of a linear relationship characterising the long-term behaviour between the variable that is being described and its conditioning factors. This equation defines what is known as the "equilibrium relationship", acting as point of

attraction toward which the variable under analysis should converge, but this is not always the case period for period. This deviation or error between the value compatible with the theoretical and the observed fundamentals mainly reflect shocks that distort long-term relations between the variable and its fundamental properties.

The short-term dynamic, usually characterized by the trend in the quarterly growth rate, results from combining two elements. The first of these is the partial correction of the error arising in the long-term relationship. This adjustment quantifies the rhythm in which the variable closes the gap with the level compatible with its fundamentals in the long term. The second is a purely statistical, short-term dynamic that is complementary to the first and that defines the empirical relationship between the growth rates for the variable being described and the rates that apply to its determinants.

This equation, known as error correction, is supported by the econometric method known as co-integration analysis, that conducts comparative checks on any stable, well-defined long-term relationships for the quantification, in a second step, of the short-term dynamic.

Below is a brief description of the equations used herein: in all the equations, the frequency of observation was quarterly, the data were adjusted to seasonality and the calendar, and the sampling interval ranged from 1995:Q1 to the most recent quarter observed.

7.1.1.   Final household consumption

The equation describing the demand for final household expenditure considers that the trend depends on the gross real income available to households, their financial and real estate (taken separately) wealth, the unemployment rate, and the value of real credit available for consumer goods.

7.1.2.   Investment in fixed capital: capital assets

Companies are expected to determine their investment in capital goods according to the evolution of the aggregate demand, the envisaged profitability of their investment projects, the price of the labour factor, the user cost of capital and the use of the productive capacity. Aggregate demand is approximated in volume by means of the Gross Domestic Product. The expected profitability measure is determined from Tobin's Q, estimated as the quotient of the IBEX-35 over the productive capital stock. The price for the work factor will be given by the compensation per employee.

7.1.3. Fixed capital investment in construction

The determinants of gross fixed capital formation in construction included in this equation are the real available gross income, financial wealth and real estate wealth in the household sector, the flow of credit for housing purchase and refurbishing, relative prices of freehold property, deflated by the price index for expenditure in final household consumption and the construction sector confidence indicator.

7.1.4. Exports of goods and services.

The volume of exports in goods and services is set to depend on a variable that approximates external demand for goods and services, and on prices relative to exports of products that are substitutes for said goods, produced and exported by the rest of OECD countries.
The variable that approximates the external demand for goods and services is global trade in goods by volume, provided by the Dutch Central Planning Bureau (CPB). In addition, as a variable for relative prices, the competitiveness trend index is taken, calculated through a comparison of domestic consumer price indices with those of the OECD, adjusted for changes in nominal exchange rates.

7.1.5. Imports of goods and services

Demand for imports of goods and services is set to depend on the capacity for expenditure by the units residing within the economic domain, and on prices of imported goods in relation to their domestic substitutes. Thus, imported goods and services compete with those produced internally in the overall expenditure.

As the variable representing the demand for imported goods and services, an index is designed that ponders each component in the final demand (Consumption, Investment and Exports) according to the share of imports. The indicator applied for relative prices is the quotient of the deflator of imports and goods and services over the deflator of domestic demand.

7.2.   Reduced-form multivariate model

The Bayesian Vector of Autoregressions (BVAR) with exogenous variables was used for the assessment of the projections given in the macroeconomic outlook.

This type of models offers both flexibility and objectivity. Flexibility is achieved through allowing a high degree of adaptability to the dynamic observed. Objectivity is assured since, having determined the set of variables to model, estimates for the model parameters are conducted according to statistical, objective and replicable criteria.

The Bayesian component in the model has been incorporated to improve its predictive performance and captures purely statistical interactions of the variables with the dynamics, in part or in whole of the series analysed. Likewise, specifically included in this extra-sample information component are behavioural traits of the economy in the medium term.

In the BVAR model with exogenous variables, the level of any variable at a given moment is expressed by the linear combination of four parameters: lagged values of the variable itself (dynamic), offset values for the remaining variables involved in the model (crossed dynamic), contemporary values of exogenous variables, and a purely random innovation that captures any other aspect that is not attributable to the variables taken into account in the system.

The weight of each component is determined empirically by finding the best sampling fit and the Bayesian elements offset the effects of over-rating that may exist due to the high number of parameters being estimated.

Projecting the BVAR model forward gives both specific prediction values and their associated confidence intervals. In particular, the confidence intervals quantify the degree of uncertainty attributable to the predictions of different variables for different horizons.

The endogenous variables included in this model are: the GDP deflator, the GDP volume index, the full-time employment equivalent, real credit (financing to business and households deflated by the core CPI) and net incomes with cyclical sensitivity (defined as the sum of taxes on production and imports, current taxes on income and wealth and social contributions, from which unemployment benefits are deducted) as a percentage of GDP. The exogenous variables considered are: the exchange rate of the euro, the dollar price of oil, the EU GDP, interest rates (loans requested by companies of up to 1 million euros) and a constant term.

A secondary BVAR model is also used to represent the joint dynamic of five series that describe the breakdown of GDP from the viewpoint of demand. The variables studied are final consumption by households and not-for-profit institutions at the service of households (ISFLSH); consumption by Public Administrations; gross fixed capital formation; exports of gross fixed capital formation and imports of goods and services.

7.3. Dynamic Factor Models

For short-term (2 quarters) predictions of GDP and its main components of demand (private consumption, public consumption, investment in equipment, investment in construction, exports and imports of goods and services), dynamic factorial models are used, synthesized on the model known as MIPred. The joint estimates for GDP and its components provide a more comprehensive and detailed perspective of the economy, allowing the composition of growth to be identified, its external and domestic origins. These in turn lead to determining the composition of Final Consumption and Investment in Domestic Demand.

Technically, estimates are made in two stages:

In the first, GDP and each of its components are predicted independently, following the dynamic factorial model methodology for real time forecasting. Forecasts are based on a combination of short-term information, issued at different frequencies (quarterly and monthly), using the respective dynamic factorial models. This combination allows forecasts to be updated as new information becomes available for the indicators in the model, providing a real-time or permanently updated vision of the aggregate status of Spanish economy.

The methodology used in each of the models consists of the following stages:

1. Seasonal and calendar adjustments for all indicators in the system.

2. For quantitative indicators, the variation rates are calculated for the immediately preceding period, in order to obtain a short-term growth signal. Qualitative indicators are not transformed, as these offer an immediate (directional) interpretation of growth.

3. All the indicators, whether qualitative or quantitative, are typified rendering their mean as zero and their variance as one.

4. The series thus obtained are combined into a dynamic factorial model, breaking down its temporal evolution into a part attributed to elements that are common to all and another part that is specific to each.

5. The dynamic factorial model is represented in the space of states, combining a transition equation (that describes the system dynamic) and a measure equation (that defines the connection between the observed series and their underlying factors).

6. Estimates for the parameters in the model are made maximising their feasibility. Such maximisation takes into account both the presence of series with a different sampling frequency (monthly or quarterly) and asymmetrical series lengths among those included in the panel of data, either because they do not all commence at the same time or because they do not all end in the same period.

7. Having estimated the dynamic factorial model, its representation in the space of states permits, by means of Kalman filtering, both the forward projection of the series comprised in the model and the calculation of the typical deviations from said projections, thus obtaining a measure of the uncertainty surrounding them.

8. One of the series making up the set of series used is the aggregate, for which forecasts are obtained simultaneously with those of the remainder of indicators. In this manner, the internal consistency of forecasts is assured.

9. Whenever new data becomes available for any of the indicators in the model, the above steps are repeated, reviewing all forecasts depending on the sign and magnitude of the innovation. This continuous updating process defines the real-time nature of the system.

In the second stage, individual forecasts are reconciled with those for GDP, by means of the balancing method proposed by Van Der Ploeg (1982), in which individual forecasts are combined with the accounting restriction that establishes that GDP growth should be equal to the aggregation of contributions to its growth from its components. Final forecasts are the result of adjustments to the individual forecasts according to the discrepancies observed between the sum of the corresponding contributions to GDP growth, and GDP growth foreseen in its own model, bearing in mind the historical correlation among the series for contributions to growth. The initial forecasts are thus modified, taking into account their discrepancies when incorporating accounting restrictions. These discrepancies are weighted according to their precision, that is, inversely to the uncertainty associated with initial estimates.

This procedure has several desirable properties:

1. The greater the variance in the initial forecast, the greater the magnitude of the revisions, as an absolute value. In other words, the greater the uncertainty regarding the initial forecast, the greater the amount in the modification it may be subject to.

2. If a given preliminary estimate is considered to be known with absolute precision, no adjustments are made in the corresponding forecast.

3. When the historical correlation between two components is positive, their revisions are made in the same direction: both upward or both downward. If, on the contrary, they correlate negatively, adjustments will take opposite directions: one upward and the other downward, or vice-versa.

PRESIDENT OF THE INDEPENDENT AUTHORITY
FOR FISCAL RESPONSIBILITY

José Luis Escrivá

References

Baker, Scott R., Bloom, Nicholas, and Davis, Steven J. "Measuring Economic Policy Uncertainty." NBER Working Paper No.21633 (2015).

Baker, S.R., Bloom, N. and Davis, S.J. 2016). "Measuring Economic Policy Uncertainty," 10 March 2016.

BBVA Research (2016). "The uncertainty on economic policy in Spain: measurement and impact," Spanish situation, 1st Quarter.

Cuerpo, C., Geli, F. and Herrero, C. (2018): "Some Unpleasant Labour Arithmetic: A Tale of The Spanish 2012 Labour Market Reform", Economic Crisis and Structural Reforms in Southern Europe: Policy Lessons (Routledge Studies in the European Economy).

Cuevas, A. and Quilis, E. (2016): "BVARX Modelling of the Spanish Economy", Working Paper 16/01, AIReF.

Caves, A., Pérez-Quirós, G. and Quilis, E. (2016): "Integrated model of short-term forecasting of the Spanish economy (MIPred model)", Working Paper 15/04, AIReF.

European Central Bank (2016), "The impact of uncertainty on activity in the euro area", ECB, 19 December.

Estrada, A., Fernandez, J.L., Moral, E., and Regil, A.V. (2004): "A Quarterly Macro-econometric model of the Spanish Economy", Working Paper 0413, Bank of Spain.

Fernández-Villaverde, J., Guerron-Quintana, P., Kuester, K. and Rubio-Ramírez, J. (2015). Fiscal Volatility Shocks and Economic Activity," American Economic Review, Vol. 105, no. 11, November 2015.

Fernández-Villaverde (2016), Jesus and David Lopez Salido, "The costs of political uncertainty in Spain". Post Posted on 2 February in the blog "Nothing is free". http://nadaesgratis.es/fernandez-villaverde/los-costes-de-la-incertidumbre-politica-en-espana. Retrieved on 16 October 2017.

García, C., Gordo, E., Martínez-Marin, J., and Tello, P. (2009): "An update of the import and export features of the Spanish Economy", Occasional Document 0905, Bank of Spain.

Hurtado, S., Fernández, E., Ortega, E. and Urtasun, A. (2011): "New Update of the quarterly model of the Bank of Spain", Occasional Document 1106, Bank of Spain.

Hurtado, S., Manzano, P., Ortega, E. and Urtasun, A. (2014): "Update and re-estimation of the quarterly model of the Bank of Spain (MTBE)", Occasional Document 1403, Bank of Spain.

Litterman, R. (1984): "Specifying Vector Autoregressions for Macroeconomic Forecasting", Staff Report n. 92, Federal Reserve Bank of Minneapolis.

Losada, R. (2017): "What we mean when we speak of public consumption," Working Paper 2017/02, AIReF.

Meinen, Philipp and Oke Röhe, "On measuring uncertainty and its impact on investment: cross-country evidence from the euro area". Discussion Paper No 48/2016. Bundesbank.

Meucci, A. (2011): "A Short, Comprehensive, Practical Guide to COPULAS", *GARP Risk Professional*, p. 22-27.

Ortega, E., Burriel, P., Fernandez, J.L., Ferraz, E. and Hurtado, S. (2007) "Update of the quarterly model of the Bank of Spain", Working Paper 0717, Bank of Spain.

Posada, D., Urtasun, A. and Gonzalez, J. (2014): "An analysis of the recent behaviour of investment in equipment and its determinants", Bank of Spain, the *Economic Bulletin*, June 2014.

Sastre, L. (2005): "Simultaneity of exports and imports, curve J and condition of the Marshall-Lerner principle in Spain," *Spanish Business Information*, July-August 2005, No. 824.

Van der Ploeg, F. (1982): "Reliability and the Adjustment of Large Economic Accounting Matrices", Journal of the Royal Statistical Society, Series A, vol. 145, part 2, p. 169-194.

Villani, M. (2009): "Steady State Priors for Vector Autoregressions", *Journal of Applied Econometrics*, vol. 24, p. 630-650.