Box 5.2

IMPACT ON THE BANKING SECTOR OF HYPOTHETICAL ADVERSE OIL PRICE SCENARIOS

Recent military clashes in the Persian Gulf region and the Strait of Hormuz together with persistent geopolitical tensions in the area have given rise to high uncertainty around energy prices. Against this backdrop, it is important to assess the Spanish banking sector's resilience to potential adverse energy scenarios.

To this end, this box presents two hypothetical adverse scenarios based on extreme assumptions for energy prices and uses the Forward Looking Exercise for Spanish Banks (FLESB) model to assess their potential impact – through domestic business and domestic sovereign holdings – on the earnings and capital levels of the Spanish banking system.[1] These adverse scenarios are compared with a baseline scenario corresponding to that used in the December 2025 Banco de España forecasts (the latest prior to the outbreak of hostilities in the Persian Gulf).

These scenarios envisage severe assumptions consistent with other major crises of the second half of the 20th century. This provides useful insights for an initial quantification of the potential adverse effect of the rise in energy prices on Spanish banks through macroeconomic channels, rather than through their direct exposure to the region, which, as previously discussed (see Section 3.1), is limited.

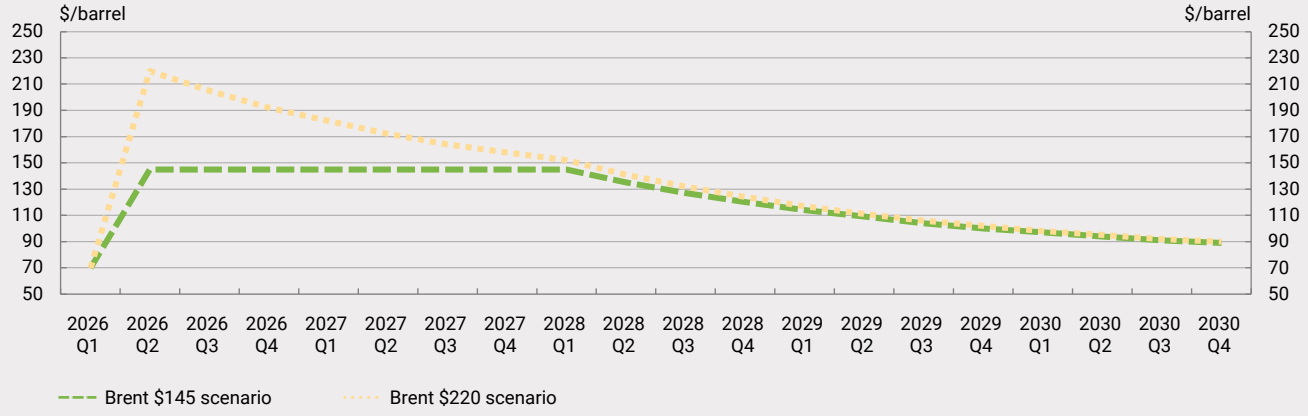
It should be noted that these exercises are not forecasts. Instead, they consider extreme, low-probability, but not implausible, hypothetical scenarios, with the aim of measuring the banking system's resilience, rather than predicting its most likely response to the current crisis.

Energy price scenarios

The starting point for the exercise is the preparation of two scenarios envisaging sharp increases in energy prices, which are detailed in Chart 1. Under the first one, referred to as the "Brent $145 scenario", crude oil prices double compared with pre-crisis levels and remain at $145 per barrel for two years. Based on the elasticity estimated by Caldara, Cavallo and Iacoviello (2019), this scenario entails a persistent 9% reduction in global oil supply,[2] somewhat larger than the 7.6% drop seen during the Gulf War in 1990.

The second scenario, called the "Brent $220 scenario", is even more adverse and also relatively persistent. Oil prices triple compared with the pre-war situation, reaching $220 per barrel in 2026 Q2 and then slowly falling to $150 at end-2027. According to the elasticity in Caldara, Cavallo and Iacoviello (2019), this more intense scenario would

Chart 1
Oil prices



SOURCE: Banco de España.

1 The FLESB is a top-down methodology, applying the same scenarios, assumptions and models consistently across all of the banks analysed. Its key features were described in the November 2013 *Financial Stability Report* (FSR). As a dynamic and constantly evolving framework, its main improvements and developments have been documented in subsequent editions of the FSR and other Banco de España publications.

2 Caldara, Cavallo and Iacoviello (2019) estimate an elasticity whereby prices increase by 7.5 percentage points for each percentage point reduction in supply, expressed in logarithmic terms.

entail a 14% reduction in global oil supply, in line with the cumulative reduction in supply during the second oil crisis (1979-83).[3] Both scenarios incorporate increases in the price of other energy inputs such as natural gas (whose supply has also been affected by the conflict), calculated in the same way, but using their own elasticities.

Other elements of the macro-financial scenarios

These energy price assumptions are translated into macroeconomic scenarios by using transfer functions to estimate the effect on headline inflation. The resulting paths for GDP, unemployment and the other macroeconomic variables needed to assess the impact on bank solvency are then simulated using the Quarterly Macroeconometric Model of the Banco de España (MTBE).

Under this macroeconomic model, an increase in energy prices drives up firms' production costs, which are passed through to the prices of their products. This sets in motion the main transmission channel, which operates through household demand: as higher prices erode real income, households scale back consumption and housing investment. This initial response by households then propagates to the remaining economic variables: firms face weaker demand and cut back on investment and employment, thereby amplifying the effects of the initial shock, while the public sector's automatic stabilisers (such as unemployment benefits) moderate these effects.[4] The model combines all these mechanisms in a context of general equilibrium.

The results obtained show that the oil price increases considered in the scenarios lead to a strong and rapid, but also temporary, surge in inflation. As shown in Chart 2, inflation reaches very high levels in 2026 (6.8% under the Brent $145 scenario and 9.5% under the Brent $220 scenario) but is much more moderate in 2027 (3.7% and 3%, respectively), because, even though oil prices remain at very high levels, they do not rise further and the second-round effects on other prices are limited.

However, the impact on activity is more persistent (Chart 3), since agents react to the prices rises with some delay, meaning that the effect on GDP growth peaks during the second year of the simulation. In 2026 growth slows down by 1 percentage point (pp) under the Brent $145 scenario and 1.7 pp under the Brent $220 scenario, falling from 2.3% under the baseline scenario to 1.3% and 0.6%, respectively. In 2027 there is zero growth under the Brent $145 scenario (-1.7 pp compared with the baseline scenario) and a contraction of 0.7% under the Brent $220 scenario (-2.4 pp compared with the baseline). In the latter case, the recession is shallow and short-lived, with growth resuming in the following years (which lie beyond the horizon of the exercise presented in this box). The effects on the unemployment rate are even more persistent, with levels reaching 11.7% under the Brent $145 scenario and 12.9% under the Brent $220 scenario (Chart 4).

Chart 5 shows that nominal growth in lending to households and firms, which holds relatively steady under the baseline scenario, slows substantially in the Brent $145 scenario and even turns negative in the Brent $220 scenario, in line with the slowdown in economic activity.

Given the highly inflationary nature of these scenarios both in Spain and in the euro area as a whole, they are accompanied by a monetary policy response involving significant increases in short-term interest rates (Chart 6).[5] Both scenarios also entail a rise in long-term rates (in line with that observed in the first few weeks after the start of the hostilities in Iran) and widespread corrections in asset prices, with lower growth in house prices and stock market declines. Overall, the macroeconomic impact of these

3 This period includes the combined effects of the 1979 Iranian revolution and the Iran-Iraq war from 1980 onwards.

4 Under these scenarios the public sector only responds through its automatic stabilisers. In particular, the exercise does not incorporate any fiscal policy measures in response to the energy shock (following the usual "no policy change" assumption).

5 A relatively standard monetary policy rule is applied to simulate the rise in short-term interest rates: that of the *New Area-Wide Model II* (Günter Coenen, Peter Karadi, Sebastian Schmidt and Anders Warne. (2019). "The New Area-Wide Model II: an extended version of the ECB's micro-founded model for forecasting and policy analysis with a financial sector". Working Paper Series, 2200, ECB). This rule makes short-term interest rates dependent on their past and on euro area GDP and inflation. These variables are estimated using the scenarios published by the ECB in its *March 2026 ECB staff macroeconomic projections for the euro area*, which are rescaled to the sizes envisaged here. It should be noted that this last assumption does not imply any particular monetary policy response by the ECB should these scenarios hypothetically materialise.

Chart 2
Inflation scenarios

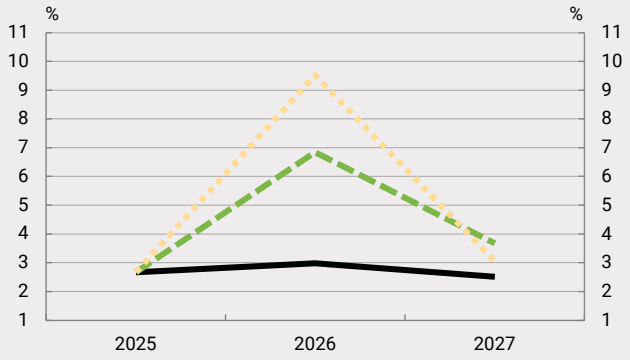


Chart 3
Real GDP growth scenarios

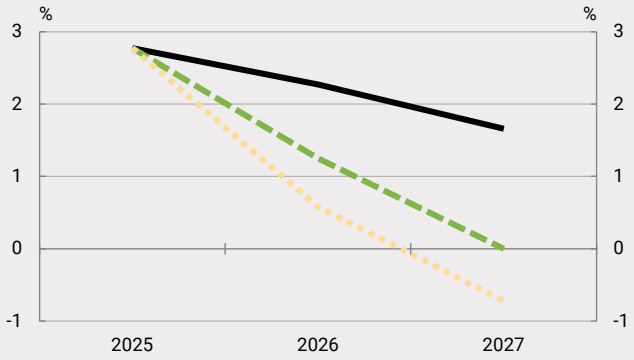


Chart 4
Unemployment scenarios

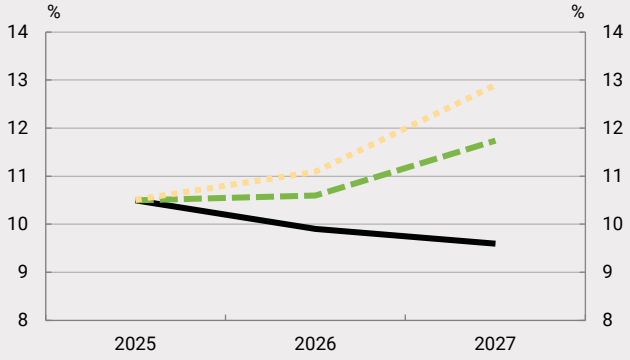
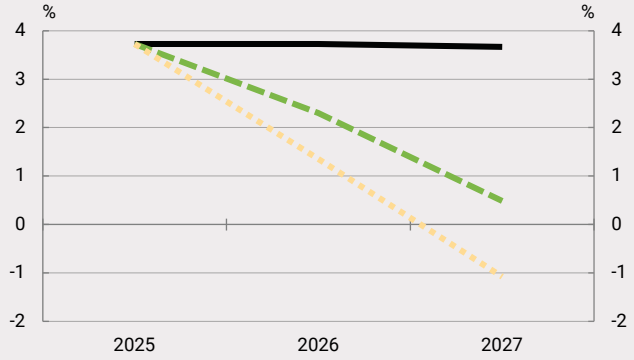


Chart 5
Credit growth scenarios



Baseline Brent $145 scenario Brent $220 scenario

SOURCE: Banco de España.

scenarios is substantial, but smaller than that of the scenarios commonly used in bank stress tests.[6]

Effects on the banking sector

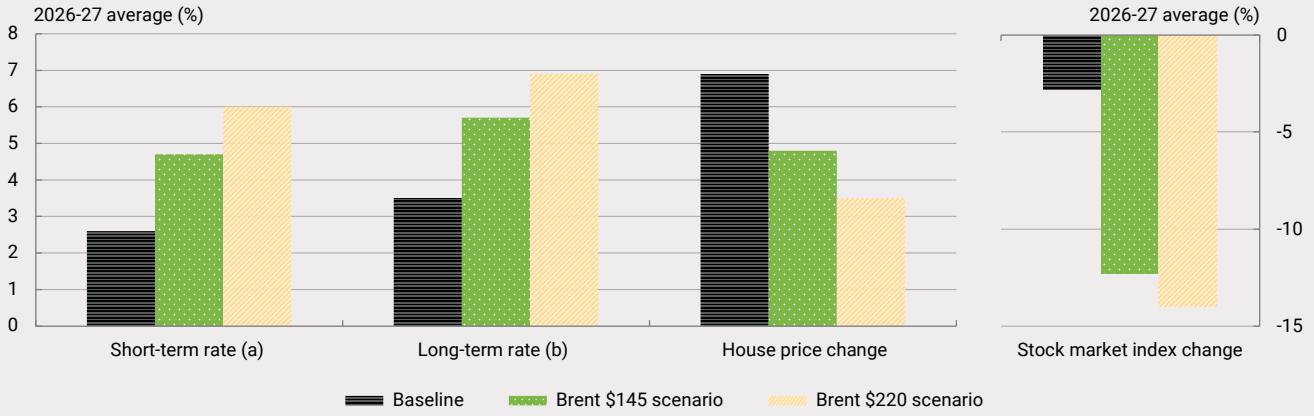
This section analyses how the macroeconomic scenarios associated with different energy price paths would affect the profitability and solvency of Spanish banks through domestic business and sovereign holdings, with solvency measured using the fully loaded CET1 capital ratio.[7]

Chart 7 shows that both scenarios have an appreciable negative impact on bank profitability. Compared with the baseline scenario, a broad profit measure – calculated as the sum of the pre-tax profit in Spain and additional

6 For example, the gap in terms of average real GDP growth between the baseline scenario and the Brent $220 scenario – the most severe scenario considered in this box – is 2 pp, whereas the difference with respect to the adverse scenario of the European Banking Authority's EU-wide stress tests amounts to 3.4 pp. For reference and further details, see the latest scenarios used in the Banco de España stress tests set out in Box 3.2 of the Autumn 2025 FSR.

7 The term "fully loaded" means the ratio is calculated excluding transitional arrangements.

Chart 6
Interest rate and asset price valuation scenarios



SOURCE: Banco de España.

a Short-term rates refer to the 3-month EURIBOR.
b Long-term rates are measured as the 10-year sovereign bond yield (general government debt).

variations in the value of Spanish government debt holdings –[8] would decline by 28% under the Brent $145 scenario and by 47% under the Brent $220 scenario. As a percentage of risk-weighted assets (RWAs), this reduction represents a fall of almost 0.7 pp under the Brent $145 scenario and a larger deterioration, of around 1.1 pp in 2026 and a cumulative 1.3 pp over the entire horizon, under the Brent $220 scenario.[9] These results show that energy shocks such as those considered here would materially affect banks' profit-generating capacity, with the impact increasing as scenarios become more severe.

However, despite the impact on profitability, institutions' solvency proves highly resilient, thanks to their ability to absorb the shock through different offsetting mechanisms. Indeed, Chart 8 shows that, by the end of the horizon, the CET1 ratio differences between the adverse scenarios and the baseline scenario are minimal.

All the trajectories start from the level observed at end-2025 (around 13.9%). From then onwards, the CET1 ratio follows an upward path in the baseline scenario up to 2027, while improvements are more moderate under the adverse scenarios. Under the Brent $145 scenario, the CET1 ratio is 0.3 pp lower than under the baseline scenario in 2026, but this gap narrows towards the end of the horizon. Deviations are more pronounced under the Brent $220 scenario, reaching around 0.4 pp in 2026, although a partial recovery is also observed towards the end of the horizon, leaving a residual difference of just 0.2 pp.

Chart 9 breaks down the contribution of the different factors that explain the impact of the adverse scenarios on the CET1 ratio. Credit quality deterioration in Spain is the main negative factor (generating losses that reduce pre-tax profit), with substantial impacts: approximately -1 pp of initial RWAs under the Brent $145 scenario and -1.9 pp of RWAs under the Brent $220 scenario. The adverse impact of the impairment of sovereign holdings is much more limited, thanks to Spanish banks' strategy of maintaining stable holdings of these assets, which

8 Pre-tax profit is defined as the net financial income obtained after subtracting from total revenue all operating and financial expenses and amortisations, excluding only corporate income tax. Under accounting standards, part of the valuation changes of certain assets (e.g. the fall in the value of government bonds when interest rates rise) are recorded in banks' equity through non-profit accounts. These two impacts are therefore added to have a more comprehensive measure of the change in economic value.

9 By presenting the impact relative to RWAs, it can be more easily linked to the next steps in the analysis. In 2026-27 profitability relative to total assets falls by 0.4 pp under the Brent $145 scenario and by 0.7 pp under the Brent $220 scenario.

Chart 7
Profitability (a)

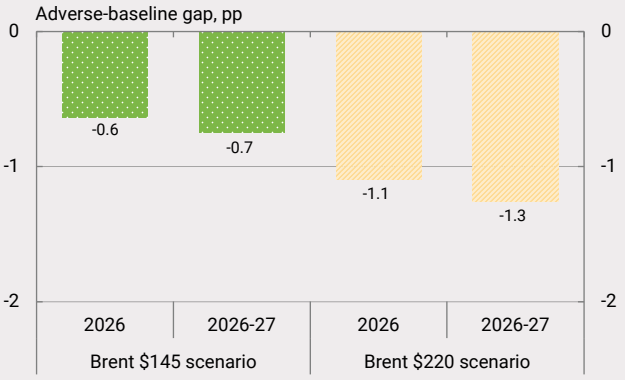
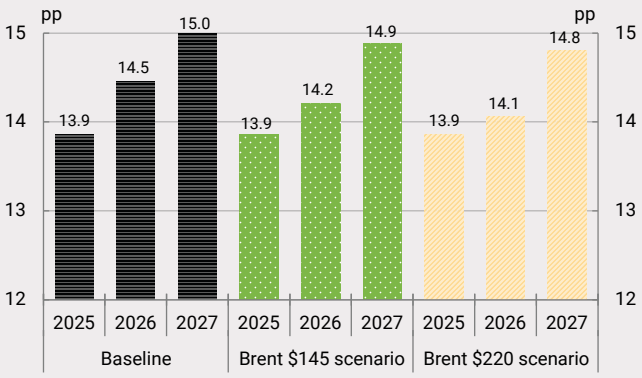


Chart 8
CET1 ratio



SOURCE: Banco de España.

a Defined as the impact on profit before taxes and dividend distributions (considering sovereign losses recorded as other comprehensive income as well as those recorded through the profit and loss account). This amount is shown as a percentage of 2025 RWAs.

allows them to be recorded at amortised cost, meaning that their value is not adjusted based on market price changes.[10]

The adverse effects are partially offset through other channels. The improvement in net operating income relative to the baseline scenario, associated with the rise in interest rates, helps increase pre-tax profit and, therefore, the CET1 ratio, with a stronger effect under the more severe scenario. The contraction in bank lending, which reduces RWAs, is an additional offsetting factor, although it comes at the cost of less financing to the real economy. In addition, the net negative impact on pre-tax profit – driven by credit impairment losses outweighing the improvement in net operating income – leads to lower tax payments and reduced profit distribution, as both the tax base and the amount available for distribution shrink. This, in turn, helps mitigate the overall impact on organically generated capital over the horizon. As a result of these offsetting mechanisms, the net impact on the final CET1 ratio is limited, standing at around 0.1 pp under the Brent $145 scenario and 0.2 pp under the Brent $220 scenario.

Conclusions

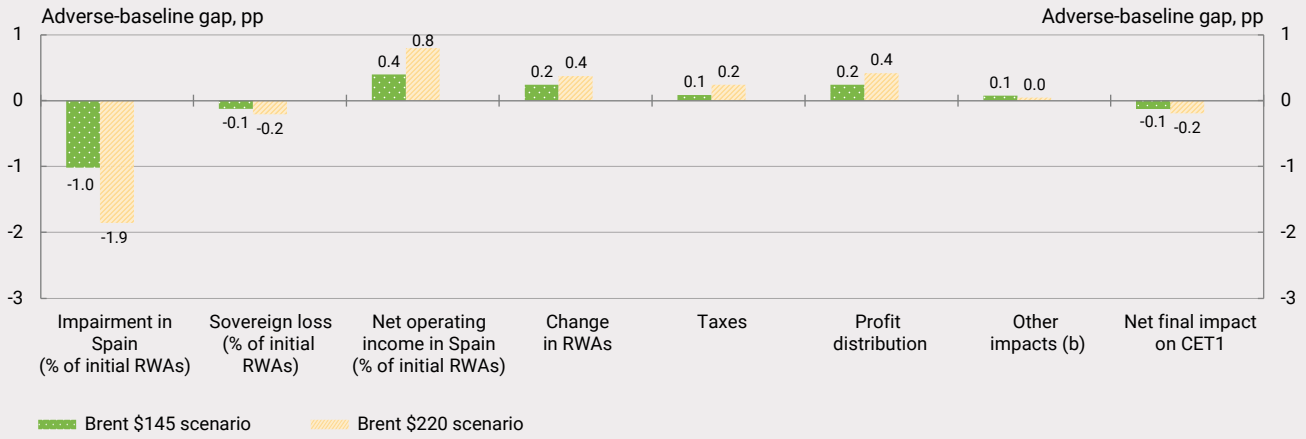
Overall, the simulated scenarios demonstrate the Spanish banking system's significant resilience to sharp and persistent rises in the price of oil and other energy sources. However, the impact on banks' profit-generating capacity is substantial. These results provide information on Spanish banks' ability to withstand very marked deviations from the baseline scenarios, which are plausible but have a very low probability.

The analyses should be interpreted with caution. First, banks' solvency could be affected through other financial channels (such as business abroad or changes in market liquidity). Moreover, the high degree of uncertainty associated with the current geopolitical context could give rise to macro-financial paths that are significantly different from those considered in this exercise and generate different (very low probability, but plausible) tail scenarios.

The scenarios studied consider a very significant increase in energy prices and measure its effects on the economy using general equilibrium models that capture various

10 The amortised cost is defined as the initial amount of a financial asset or liability, minus principal repayments, plus or minus the portion recognised in profit or loss of any difference between the initial amount and the redemption value at maturity due to changes in the effective interest rate applicable to the contract. Importantly, assets measured at amortised cost are not revalued to reflect changes in their market value.

Chart 9
Net impact on CET1 ratio through different channels (a)



SOURCE: Banco de España.

a Impacts are defined as changes in the CET1 ratio projected for 2027 and in financial flows projected for 2025-27 (e.g. capital generation) stemming from the difference in macro-financial conditions between the adverse and baseline scenarios in this box.
b Other consolidated gains and losses, exchange rate effects and loss coverage on ICO-backed loans (guaranteed by the Government).

transmission channels of these price shocks. However, these exercises do not consider all possible relevant macroeconomic effects and transmission channels under extreme scenarios.

For example, in addition to price effects, restrictions on the availability of energy goods or other production inputs could create bottlenecks in global production chains that would magnify the effects on economic activity and inflation. Alternatively, uncertainty about energy supply or prices could prompt greater financial market corrections or loss of confidence, which would reduce inflationary pressures but could amplify the adverse effects on activity or the financial constraints faced by households and firms. As part of the monitoring of risks to financial stability, the Banco de España will continue to gather and analyse information to enable a proper and up-to-date assessment of the current uncertain environment, in order to characterise the risk scenarios and their impact on the banking sector as comprehensively as possible.