THE IMPACT OF OIL PRICES ON THE CPI

NOTE

March 16, 2017

- Oil prices progressively increased throughout 2016. However, for most of the year they remained below the prices recorded in 2015, enabling energy CPI to post an average negative rate (-8.4%) for 2016.

- The negative contribution of energy to the CPI is responsible for the negative headline CPI for 2016 (an annual average of -0.2%), despite the rebound in December (1.6%).

- For 2017, it is estimated that oil prices will be higher than in 2016 and average CPI is expected to be set around 2%, although in the first few months it will be close to 3% and it will end the year around 1%.

Economic and European Affairs Department

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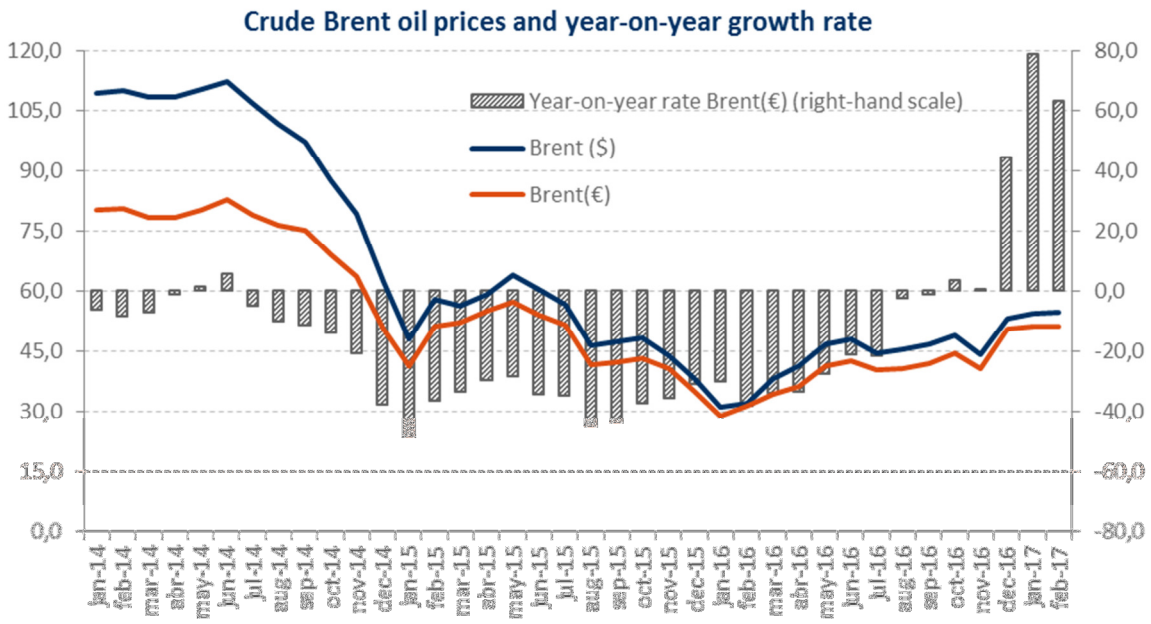
The impact of oil prices on the CPI

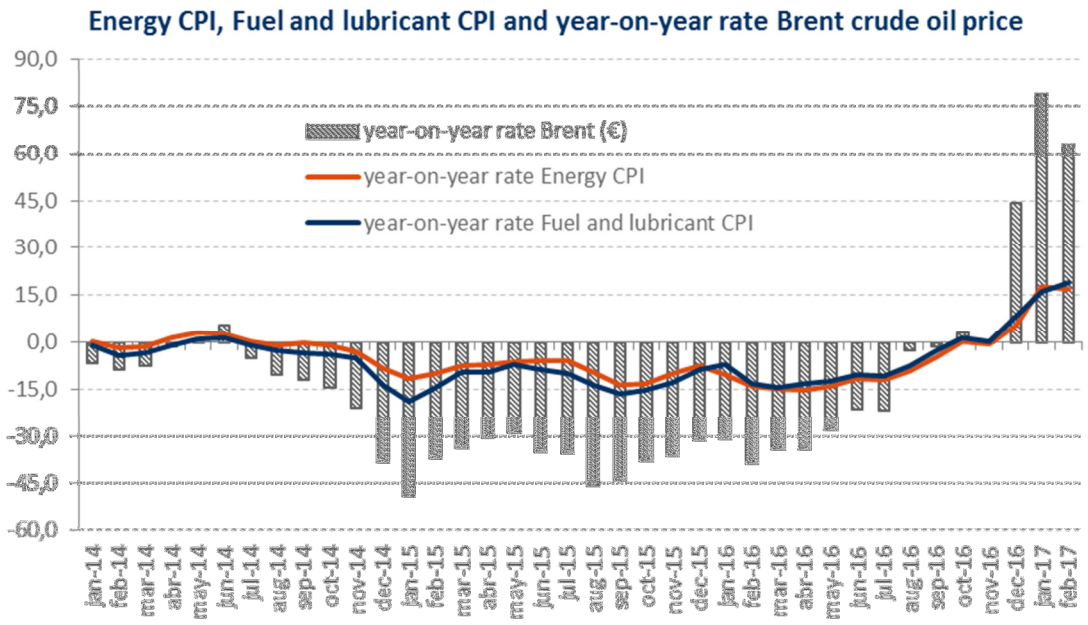
In mid-2014 the price of Brent crude began a downward trend from $110/barrel (price around which it was trading since 2011) to barely over $31/barrel, where it traded for the first few months of 2016. The slowdown in the world economy, the further development of new oil extraction techniques and the increase in production by some of the world's leading producers contributed to the sharp drop in prices.

Throughout 2016 the price of oil has been gradually recovering, with Brent set at $53/barrel in December, and close to $55/barrel in January and February, following the agreement reached by OPEC countries at the end of last year. This agreement aims to reduce oil production from January 2017, and other world producers, including Russia, joined in, which will mean a total cut of 1.8 million barrels per day. Despite this price increase throughout 2016, it continued to record negative inter-annual rates during most of the year, lower than -20% until July and returning to positive rates from October, with a significant increase in December, when they exceeded 40%, and has continued in the early months of 2017.



Source: Ministry of Economy, Industry and Competitiveness and CEOE Economic Research Unit

This year-on-year change in oil prices is closely related to the evolution in the price of fuels, as reflected in the CPI for Fuels and lubricants and, by extension, in the Energy CPI, which recorded negative rates for most of 2016, except in the latter months of the year. It should be noted that, in addition to other factors that may also influence price movements, there is an important part within the final price of fuels that corresponds to taxes and is not conditioned by the evolution of oil prices. This explains the lower variability of the price indices analysed, both on the upside and on the downside, compared to the rate of change in oil prices.

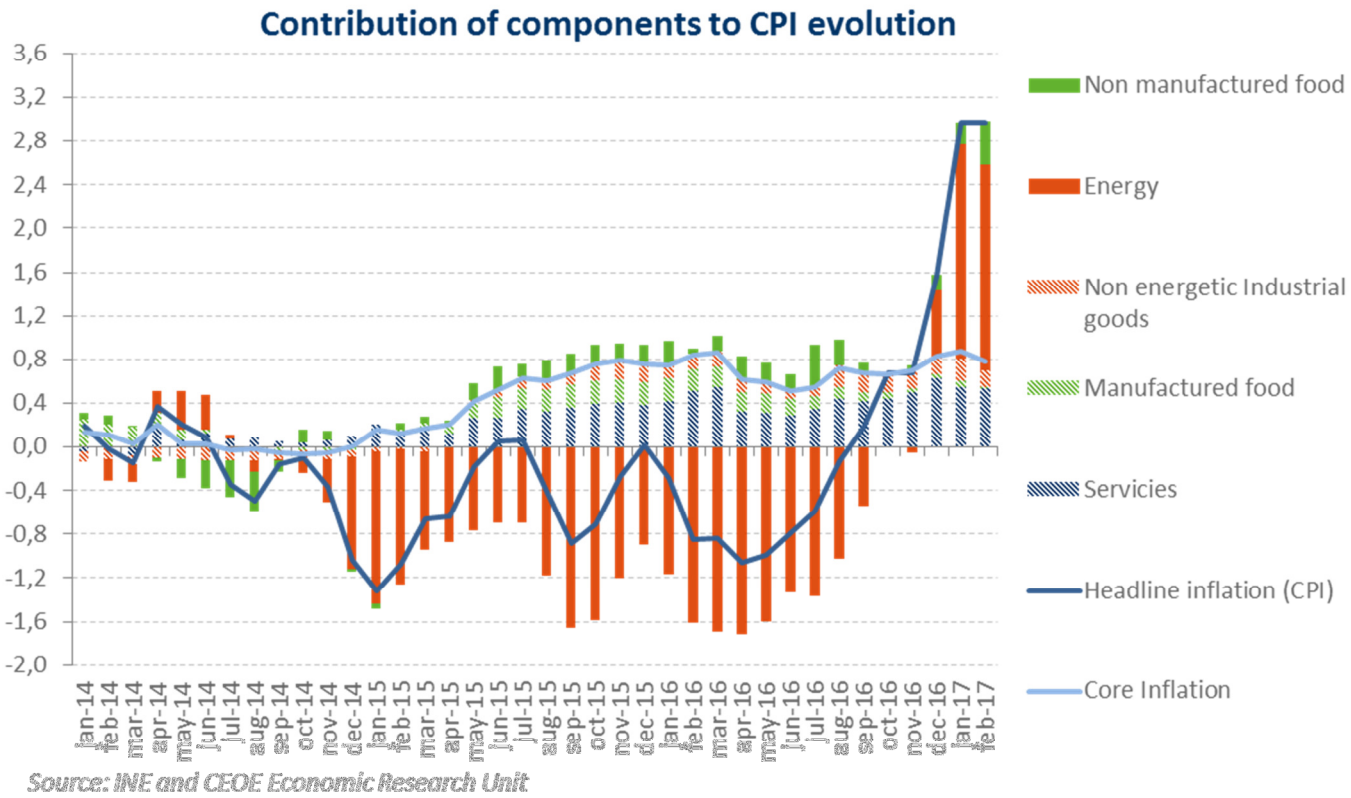


Source: Ministry of Economy, Industry and Competitiveness and CEOE Economic Research Unit

In 2016, the average change in the CPI was negative, specifically -0.2%, despite having posted a 1.6% increase in December, since rates recorded for the first half of the year were close to -1.0%. This behaviour was clearly influenced by the change in energy prices, which registered negative rates during most of the year, standing around -15% between February and May, while they showed the opposite behaviour in December, with a 5.3% increase on the back of the rebound in oil prices recorded for said month. In the first two months of 2017 the energy prices increased by 17.5% and 16.8% respectively.

The following graph shows the contribution of the different components (calculated as the price change for each of the components times its weight in the CPI) to the overall CPI configuration. It depicts how energy, with an average drop of 8.4% in 2016, and a weight in the overall CPI of 11.4% for said year, has a negative contribution of almost one point on average (-0.96) and is the sole responsible factor for the CPI having posted negative rates for most of 2016. Likewise, energy, with a positive contribution of 0.6 points in December, is the component that most influenced the CPI increase for that month. In the first two months of 2017 the contribution of energy is higher, reaching nearly 2 points in January and 1.9 points in February.

In contrast, core CPI showed a moderate increase, an annual average of 0.8% in 2016, with all the components posting positive figures. Furthermore, the headline index, excluding energy, increased an average of 0.9% in 2016. In December, these indices were set at 1.0% and 1.1% respectively.



What's expected for 2017?

For 2017, average inflation is expected to be around 2%, with a first few months where the CPI increases has been around 3%. This is due to the increase in energy prices, derived largely from the rise in oil prices, which in January and February have been 78.9% and 63.2% higher than in the same months of the previous year. Subsequently, starting in March, a gradual deceleration of the CPI is foreseen, to end the year at rates close to 1% as the energy contribution is progressively diluted.

However, all these forecasts will be very dependant on the evolution of oil prices and on the derived possible second round effects. Currently, Brent crude futures point to a mild rise in price throughout the year to about $53/barrel in December. However, a better performance of the world economy could pressure prices upwards, while a rebound in the production of unconventional hydrocarbons or from countries not participating in the agreement, as well as a possible breach of agreed quotas, would push prices downward.

Let's look at three possible scenarios. Firstly, a central scenario, where the price of oil in January and February are set at $54.4/barrel and $54.5/barrel respectively, and stabilizes at around $55/barrel for the rest of the year. A second scenario where the price of oil continues its upward trend and ends up around $70/barrel and a third scenario, opposite to the previous one, where the price of oil progressively reduces to $40/barrel.

In the central scenario, the price of oil would stabilize at around $55/barrel, which would mean an increase compared to 2016 of an average of 36% for the year. This would mean an increase in energy prices of 12.3% on average for the year, with increases close to 17% in the month of February that would then gradually reduce throughout the rest of the year, and by year-end rates would be close to 4%. Thus, the overall CPI would increase by 2% for the year as a whole, although in the first months rates would rise to around 3%, to close the year with rates close to 1%. Core inflation under this scenario would be expected to post an average annual rate of 1%.

In the second scenario, with the price of oil rising to $70/barrel in December, the average annual price would be $62.2/barrel, which would mean an average increase of 52% compared to 2016. The effect on energy prices would lead to an 18.8% average annual increase, raising the overall CPI to 2.7%.

In the third scenario, the price of oil would gradually reduce to $40/ barrel in December. In this case, the average price would be $47.2/barrel, 18% higher than in 2016, although by year-end the price difference would be 24% lower than the previous December. This situation would lead to an average increase in energy prices of 4.7%, again with great disparity between the first months, with increases approaching 17%, and the end of the year months, where they would be up to 11% lower. The headline CPI would increase by an annual average of 1.1%, with rates close to 3% in the first months and returning to negative growth in the final months.

2017: CPI projections based on the oil price evolution

	Oil ($/barril) 2017	Oil (€/barril) y-o-y rate	CPI energy 2017	CPI Headline 2017	CPI December total 2017
Baseline scenario. Oil price in $55 /barrel	54,9	35,8%	12,3%	2,0%	1,0%
Increase price until $70/barrel in December	62,2	52,2%	18,8%	2,7%	2,5%
Decrease price until $ 40/barrel in Decembe	47,2	18,1%	4,7%	1,1%	-0,8%

Source: CEOE Economic Research Unit