Box 2

## SUPPLY- AND DEMAND-SIDE FACTORS IN DETERMINING OIL PRICES AGAINST THE BACKGROUND OF THE COVID-19 CRISIS

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Since early 2020, oil prices have trended downward, accompanied by high fluctuations (see Chart 1). The price of a barrel of Brent thus fell by around 75% from mid-January to its mid-April low, at which point the West Texas Intermediate (WTI) price per barrel even turned negative. The sharpest declines came about as from March, when the pandemic nature of the health crisis became evident. That led to an interruption in global economic activity and, consequently, to a drastic reduction in the demand for crude. At that point too, the agreement on output curbs among the OPEC countries and its associates (OPEC+), led by Saudi Arabia and Russia, came undone (albeit only temporarily).

In other historical episodes, there have been comparable collapses in oil prices. This was the case, for example, on the occasion of the forceful contractions in global economic activity at the time of the 1997 Asian crisis and of the global financial crisis begun in 2008 (with oil prices respectively 40% and 75% cheaper), and at times of significant changes in OPEC strategy, such as those in 1986 and 2014.[1]

Set against these past events, what makes the collapse in oil prices this spring a singular episode is the coincidence in time of a sharp and swift decline in demand with a temporary increase in production. That has given rise to a rapid build-up in inventories worldwide. This box analyses the effect of these two simultaneous shocks on the oil market and the general macroeconomic environment, and the medium-term outlook for the sector.

As regards the first of these three issues, the strong fall-off in demand has been the main explanatory factor behind oil price dynamics in the January-April period. On estimates based on an econometric model,[2] this factor would be responsible for somewhat over 80% of the decline observed (see Chart 2). In the current episode, the traditional demand channel has been amplified by the impact of the lockdown measures globally. These have drastically reduced movement, particularly affecting the transport sector, which accounts on average for close to 65% of the OECD demand for oil (see Chart 3). By way of example, global consumption in the road and railway rolling stock and air transport sectors fell in April by 34% and 69% year-on-year, respectively,[3] compared with 13.5% for all other sectors.

On the supply side, the discrepancies between Saudi Arabia and Russia over the OPEC+ strategy prior to this organisation's March meeting resulted, after that meeting, in the lifting of any commitment to quotas as from April. This led to a significant and unexpected[4] month-on-month increase in OPEC+ production (2.4 million barrels per day, mb/d) and to the application of heavy discounts on selling prices by Saudi Arabia.[5] This supply-side shock would account for around 16% of the fall in oil prices between January and April, according to the model used (see Chart 2 once again).

This latest supply-side shock was, however, temporary; the agreement was swiftly put back in place under the aegis of the United States and the G20. Thus, in mid-April, OPEC+ agreed on a staggered programme of cuts, eyeing the stabilisation of the market in the medium term. The cuts included a most substantial one (of 9.7 mb/d) between May and June, which was later extended to July (see Chart 4). However, this announcement did not prevent either a massive increase in inventories or the one-off negative quoted price for WTI, the day before its May futures contract expired, given its obligation to physically settle these transactions and the lack of storage capacity at the point of delivery (the Cushing crude storage facilities in the United States). Derivatives holders were obliged to pay those parties that had capacity to receive the physical delivery.

Turning to the global macroeconomic effects of these shocks, the traditionally favourable impact of the fall in oil

1 These supply-side shocks usually reflect OPEC's attempts to maintain its market share. In 1986, Saudi Arabia increased its output by more than 40% in one year following an approximate two-thirds cut in output in the previous years. In 2014, OPEC decided to significantly increase its production in order to tackle competition from US shale producers, a strategy that was concluded in 2016. In the latest episode this year, the lack of consensus between Saudi Arabia and Russia led to a temporary breakdown in the OPEC+ agreements and to the setting of heavy discounts by Saudi Arabia.

2 Bayesian structural VAR model estimated with monthly data for the period from January 1980 to April 2020. The structural shocks are identified following a sign restrictions framework, which enables a distinction to be drawn between oil market supply-side, global demand, precautionary demand and idiosyncratic demand factor shocks.

3 See "COVID-19 Report 11th edition", Rystad Energy.

4 At that time, the market was expecting an announcement of an additional cut of 2% to total daily production.

5 The increase in OPEC+ production was, however, partly offset by the reduction in output by other countries, particularly the United States. As a result, the month-on-month increase to total supply was only 0.3%, far lower than the increases in production in previous episodes of broken OPEC agreements (1985 and 2014), which led to declines in oil prices of around 65% (see Chart 1).

Box 2

## SUPPLY- AND DEMAND-SIDE FACTORS IN DETERMINING OIL PRICES AGAINST THE BACKGROUND OF THE COVID-19 CRISIS (cont'd)

Chart 1
BRENT PRICES (a)


Chart 2
HISTORICAL DECOMPOSITION OF OIL PRICES

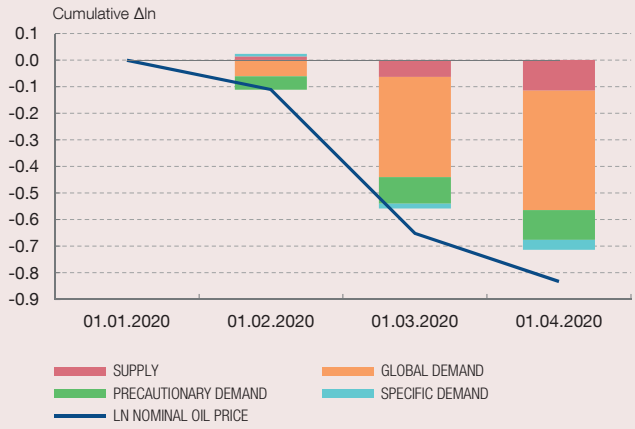



Chart 3
SECTORAL OIL DEMAND IN THE OECD, 2018

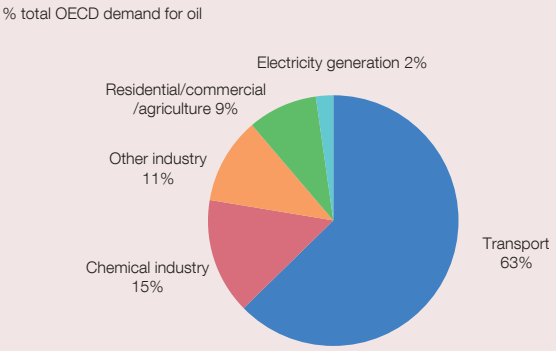



Chart 4
SUPPLY, DEMAND AND CHANGE IN INVENTORIES (b)

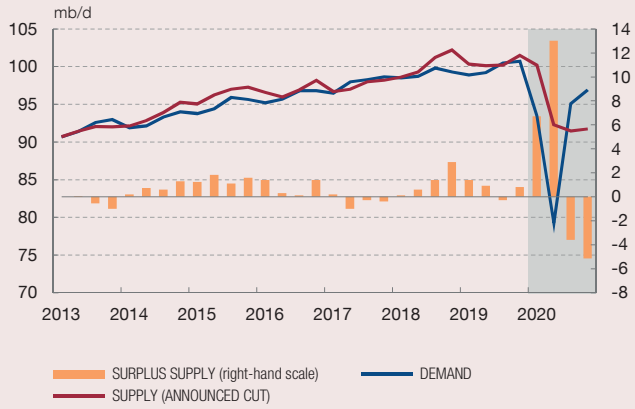
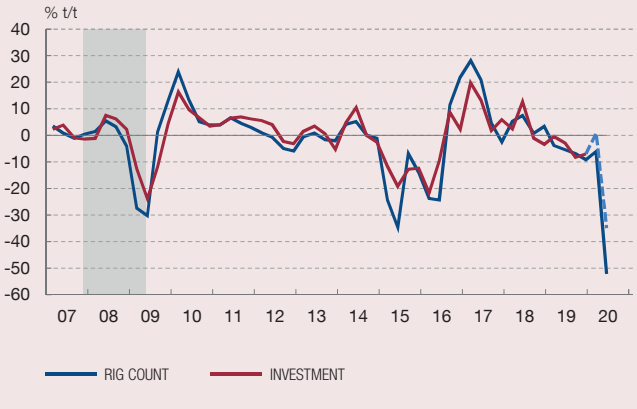



Chart 5
US: DRILLING ACTIVITY AND INVESTMENT IN OIL AND GAS (c)




**SOURCES:** IEA, IFS, World Bank, Federal Reserve Bank of Dallas and Banco de España.

**a** The figure reflects the decline in oil prices during the period of the shock indicated based on internal estimates.
**b** The shaded area reflects IEA supply and demand forecasts.
**c** The broken line reflects forecasts while the shaded area denotes recession in the United States.

prices on importing countries is estimated to have been lower than usual given that, owing to the lockdown, consumers will not have fully benefited from the lower prices. Meantime, the impact for exporting countries will be clearly negative and, in some cases, is translating into downgrades of the credit rating for these countries' sovereign issuers.[6]

As regards the oil industry, the crisis appears to be particularly affecting companies with higher extraction costs and heavy debt, specifically US shale oil producers,[7] but also conventional producers.[8] There have been significant declines in investment in exploration and production both in the United States (see Chart 5) and globally.

Finally, concerning the future outlook for the oil market, the re-establishment of the supply agreement and the incipient start of the economic recovery following the gradual exit from the most extreme lockdown situations have been accompanied by a mild increase in oil prices in May already. As a result, forward prices for 2021 are at similar levels to those of a period of moderate prices, such as in 2000-2006, though still far below those in January this year. The medium-term recovery in the demand for oil is still conditional upon two factors: first, the uncertainty over the path and intensity of the rebound in activity (which, according to the World Bank's baseline scenario, will be moderate, meaning that global GDP in 2021 would still be 5.9 pp below its January forecast[9]); and further, the potential changes in consumer patterns of behaviour in the post-pandemic scenario. On the supply side, the discrepancies in OPEC+ do not allow further disagreements to be ruled out when it comes to complying with the agreement reached before its expiry in August 2022. Grounds for this line of thought are both the modest degree of fulfilment of the agreement by Russia and the intrinsic fragility these types of agreements have evidenced in recent years.[10]

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6 For instance, between March and April, Saudi Arabia, Angola, Kuwait, Congo, Gabon and Iraq were all subject to adverse rating actions (downgrade and/or worsening outlook). Outside OPEC, Mexico and Colombia also experienced downgrades, partly owing to the fall in oil prices.

7 According to Rystad Energy, many US operators will be on the verge of bankruptcy despite the partial recent recovery in the WTI price (see *"US bankruptcies and how to avoid them: The costs and benefits of saving E&Ps via royalty exemptions".* Press releases. Rystad Energy research and analysis, 20 May 2020).

8 According to the UK Oil and Gas industry Association, a quarter of UK upstream oil and gas companies are facing financial difficulties (see Coleman, *"Oil & Gas UK warns of 'increasingly grim' North Sea outlook, urges more support",* Market Insights. S&P Global Platts).

9 In its baseline scenario, the World Bank estimates growth for the global economy of -5.2% for 2020, a downward revision of 7.7 pp on its January forecasts, and growth of 4.2% for 2021. See World Bank. 2020. *Global Economic Prospects,* June 2020. Washington, DC.

10 Behind this fragility are factors such as the emergence of substitutes, enhanced efficiency and new suppliers (see World Bank Group. 2020. *Commodity Markets Outlook, April. Box 1"Set up to fail? The collapse of commodity agreements".* World Bank, Washington, DC).