Box 1
Global implications of low oil prices

This box looks at the impact on global activity of the oil price declines during the last two years. Oil prices have fallen sharply since mid-2014 and reached a ten-year low in early 2016. From their peak in June 2014 to the trough in January 2016, Brent crude oil prices dropped by USD 82 per barrel (70%). Since then, they have recovered modestly by around USD 17 per barrel and, based on oil futures contracts, are expected to rise only gradually in the medium term.

The drivers of the recent oil price decline have changed over time. While most of the oil price decline in 2014 could be explained by the significant increase in the supply of oil, more recently the lower price has reflected weaker global demand. On the supply side, significant investment and technological innovations – particularly in shale oil extraction – caused oil production to surge at a time of weakening growth, particularly in energy-intensive emerging market economies, putting downward pressure on oil prices. Meanwhile, OPEC's decision in November 2014 to keep production quotas unchanged intensified the downward pressures on oil prices amid rising oil inventories. More recently, however, concerns have arisen that weaker global growth has been the main driver of the oil price falls.

The changing nature of the oil price shock has different implications for the global economy. In early 2015 the largely supply-driven fall in oil prices was expected to have a significant net positive impact on global activity, mainly via two channels: (i) income redistribution from oil-producing to oil-consuming countries, which were expected to have a larger marginal propensity to spend; and (ii) profitability gains from lower energy-input costs, which could stimulate investment and thus total supply in net oil-importing countries. However, a more demand-driven oil price fall since the second half of 2015 suggests a less positive impact on the global economy. Although the low oil price may still support domestic demand through rising real incomes in net oil-importing countries, it would not necessarily offset the broader effects of weaker global demand.

Model estimates underscore how the impact on the global economy depends on the underlying nature of the shock. Simulations[1] suggest that a 10% decline in oil prices that is entirely supply driven increases world GDP by between 0.1% and 0.2%, whereas a 10% decline in oil prices that is entirely demand driven is typically associated with a decrease in world GDP of more than 0.2%. Assuming that, for example, 60% of the oil price decline since mid-2014 has been supply driven and the remainder demand driven, the models suggest that the combined impact of these two shocks on world activity would be close to zero (or even slightly negative).

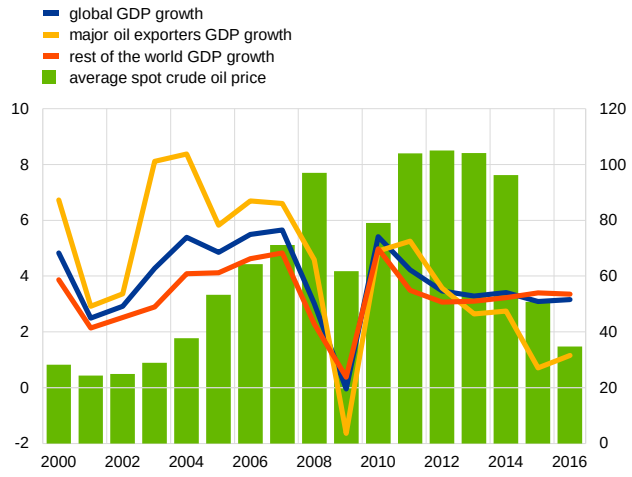
[1] The models that are used for the simulations are the National Institute Global Econometric Model (NiGEM), the six-mod version of the IMF's Flexible System of Global Models, and a structural vector auto-regressive (SVAR) model with sign restrictions to identify supply and demand oil price shocks.

The experience of the past year also suggests that changes in the transmission channels may have dampened the expected positive impact of lower oil prices on global activity. Compared with previous episodes of oil price declines in the 1980s and 1990s, the combined effect of several countervailing factors may have altered the propagation mechanisms of the recent oil price shock.

Chart A

GDP growth slowdown in major oil exporters – comparison with the rest of the world

(left-hand scale: annual real GDP growth in percentages; right-hand scale: annual average spot crude oil price in US dollars per barrel)

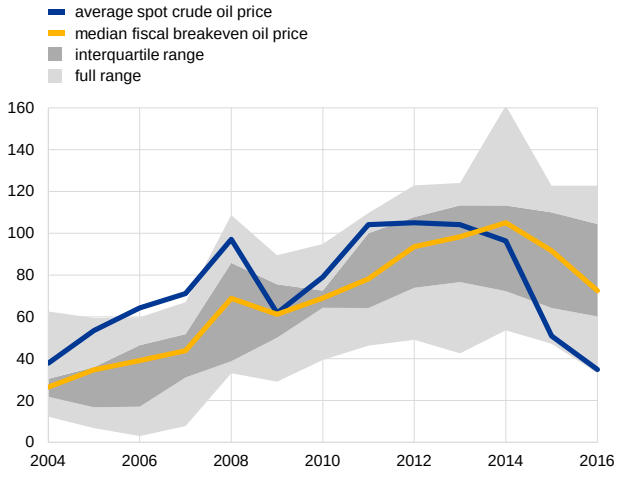


Sources: IMF and ECB staff calculations.
Notes: The group of major oil exporters includes the largest 20 net oil exporters (Algeria, Angola, Azerbaijan, Canada, Colombia, Ecuador, Iran, Iraq, Kazakhstan, Kuwait, Malaysia, Nigeria, Norway, Oman, Qatar, Russia, Saudi Arabia, United Arab Emirates, Uzbekistan and Venezuela). The spot crude oil price is the simple average of three spot crude oil prices – Dated Brent, West Texas Intermediate and Dubai Fateh. The year 2016 is an IMF forecast.

Chart B

Fiscal breakeven oil prices for major oil exporters and spot crude oil price

(US dollars per barrel)



Sources: IMF Regional Economic Outlook and ECB staff calculations.
Notes: The fiscal breakeven oil price is defined as the oil price that balances the government budget. The chart shows the median and the range of fiscal breakeven oil prices for 10 large net oil exporters in the Middle East, Central Asia and Africa. The spot crude oil price is the simple average of three spot crude oil prices – Dated Brent, West Texas Intermediate and Dubai Fateh. The year 2016 is an IMF forecast.

On the one hand, the adverse impact on net oil-exporting countries appears to have been rather severe, and has been accompanied by negative spillovers to other emerging market economies. In several net oil-exporting countries, the oil price decline has interacted with other shocks (including fallout from geopolitical tension) to generate a significant macroeconomic adjustment. Major net oil exporters have managed to cushion, to some extent, the initial adverse impact on their output from the recent oil price decline by running substantial and rising fiscal deficits. Nonetheless, GDP growth in these countries has still declined significantly compared with the rest of the world (see Chart A). With spot crude oil prices falling well below fiscal breakeven prices, i.e. the prices required to balance government budgets (see Chart B), the fiscal situation has become increasingly more challenging in several major oil producers, particularly those with currency pegs to the US dollar or other tightly managed exchange rate arrangements (e.g. Iran, Iraq, Nigeria, Saudi Arabia, the United Arab Emirates and Venezuela). Monetary policy has also been constrained in commodity-exporting countries with more flexible exchange rates (e.g. Canada, Mexico, Norway and Russia). As the currencies of these countries have (sharply) depreciated, inflationary pressures have risen, thereby limiting the room for monetary policy easing in response to slowing growth. Finally, financial strains have exacerbated the downturn in prices, particularly in countries with foreign currency

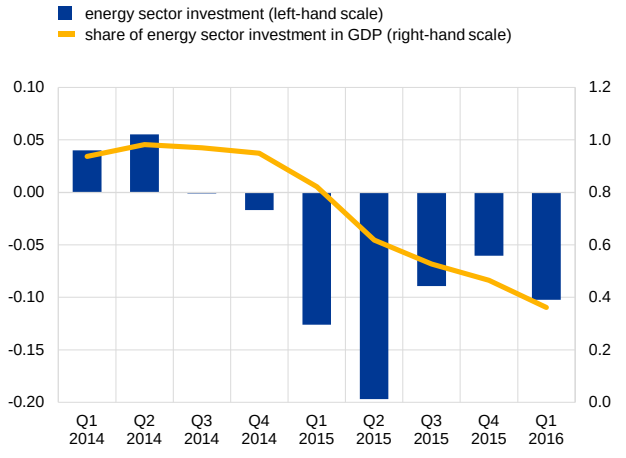
exposures. While the share of major oil-exporting countries in the global economy is relatively small (roughly 15% of global GDP based on purchasing power parity), negative spillovers to countries with close trade or financial links, and global confidence effects, have weighed on global economic activity.

On the other hand, the pickup in demand in several net oil-importing countries as a result of income windfalls from lower oil prices has so far been rather limited. From a longer-term perspective, this could reflect lower energy intensities compared with earlier episodes of oil price declines in the 1980s and the 1990s. In a more recent context, other factors may have restricted the responsiveness of consumption to the oil price decline in some countries, although such effects are often difficult to disentangle empirically. For example, an increase in personal savings in some countries could be related to continued needs for deleveraging that may have prompted households to save more of the windfall gains from lower oil prices than might otherwise have been the case. In addition, expectations may have played a role: spending may build up only gradually if it takes time for households to believe that the lower oil price level will persist. Meanwhile, among emerging market economies, government savings from lower energy subsidies have been used for fiscal consolidation rather than additional economic stimulus. Finally, other factors, such as exchange rate developments and downward adjustments in equity and other asset prices amid increased global economic uncertainty, may have dampened the positive impact of lower oil prices on consumption.

Chart C

US energy sector investment

(left-hand scale: percentage point contribution to quarterly real GDP growth; right-hand scale: percentage of GDP)



Sources: US Bureau of Economic Analysis and ECB staff calculations.

Taking the example of the United States as one of the largest net oil importers, the benefits for consumption of lower oil prices have been smaller than initially anticipated and largely offset by sharp falls in energy-related investment. The oil price decline has supported consumption, but uncertainty about the persistence of low oil prices may have weighed on confidence, implying that the impact of the oil price drop was smaller than initially expected. Meanwhile, the impact of lower oil prices on US shale oil investment was significant, and amplified by the high degree of leverage of shale oil producers and their vulnerability to funding constraints. Since the start of the oil price decline in mid-2014, energy-related investment has dropped cumulatively by 65%, making a negative contribution to GDP growth (see Chart C), while the number of oil rigs has declined to almost one-third of the original number. Yet, in net terms, the estimated impact of the oil price decline on US GDP so far is judged to be modestly positive.

In sum, compared with a year ago, when oil price falls were dominated by supply factors, recent developments suggest that low oil prices have increasingly reflected weakening global demand. While a largely supply-driven fall in oil prices was expected to have a net positive impact on global GDP, a more

demand-driven oil price decline is less likely to provide significant support to global activity. Moreover, the assessment of the role of lower oil prices is clouded by a high degree of uncertainty. One factor driving this uncertainty is possible financial stability and fiscal challenges in some commodity-exporting countries. Another factor is concerns of a more general economic slowdown in emerging market economies, fuelled by widening domestic imbalances and tighter financial conditions in some countries.