What drives crude oil prices?

An analysis of 7 factors that influence oil markets, with chart data updated monthly and quarterly

July 7, 2020 | Washington, DC
Crude oil prices react to a variety of geopolitical and economic events

- Arab Oil Embargo
- Iraq invades Kuwait
- Saudis abandon swing producer role
- Iranian revolution
- OPEC cuts targets 1.7 mmbpd
- OPEC cuts targets 4.2 mmbpd
- Global financial collapse
- Low spare capacity
- 9-11 attacks
- OPEC production quota unchanged
- Global pandemic reduces oil demand
- U.S. spare capacity exhausted
- Asian financial crisis

Sources: U.S. Energy Information Administration, Refinitiv
World oil prices move together due to arbitrage

Sources: Bloomberg, Refinitiv

$/b (real 2010 dollars, monthly average)
Crude oil prices are the primary driver of petroleum product prices

Sources: EIA Short Term Energy Outlook, Refinitiv

July 7, 2020
Economic growth has a strong impact on oil consumption

Sources: U.S. Energy Information Administration, Oxford Economics
 Changes in expectations of economic growth can affect oil prices

Note: Starting in January of each year, each line shows the expected forecast of GDP growth for the specified calendar year, which tends to move toward the actual realized growth outcome as the year progresses. Expectations continue to evolve into the next calendar year as revised GDP data become available (e.g., 2008 GDP expectations are revised even during 2009).

Source: Oxford Economics
In OECD countries, price increases have coincided with lower consumption

Sources: EIA Short Term Energy Outlook, Refinitiv

July 7, 2020
Rising oil prices held down global oil consumption growth from 2005-2008, despite high economic growth.
Changes in non-OPEC production can affect oil prices

Sources: EIA Short Term Energy Outlook, Refinitiv
Non-OPEC supply expectations indicate changes in market sentiment concerning oil supply

Note: Starting in January of each year, each line shows the expected forecast of non-OPEC supply for the specified calendar year, which tends to move toward the actual realized supply outcome as the year progresses.

Sources: EIA Short Term Energy Outlook
Changes in Saudi Arabia crude oil production can affect oil prices

Sources: U.S. Energy Information Administration, Refinitiv
Unplanned supply disruptions tighten world oil markets and push prices higher

Sources: U.S. Energy Information Administration
During 2003-2008, OPEC’s spare production levels were low, limiting its ability to respond to demand and price increases.

Sources: EIA Short Term Energy Outlook, Refinitiv

July 7, 2020
The years 2003-2008 experienced periods of very strong economic and oil demand growth, slow supply growth and tight spare capacity.

Sources: EIA Short Term Energy Outlook, Refinitiv
Inventory builds go hand-in-hand with increases in future oil prices *relative to* current prices (and vice versa)

*Sources: EIA Short Term Energy Outlook, Refinitiv*
Open interest in crude oil futures grew over the last decade as more participants entered the market

Source: Bloomberg
Physical participants’ (producers, merchants, processors, and end users) U.S. futures market contract positions

Source: Commodity Futures Trading Commission, Commitments of Traders
Money managers tend to be net long in the U.S. oil futures market

Source: Commodity Futures Trading Commission, Commitments of Traders
Crude oil plays a major role in commodity investment

Source: Bloomberg
Commodity index investment flows have tended to move together with commodity prices

* Note: CFTC discontinued the collection of index investment data in November 2015.

* Source: Bloomberg, Commodity Futures Trading Commission (CFTC)
Correlations (+ or -) between daily price changes of crude oil futures and other commodities generally rose in recent years.

Note: Correlations computed quarterly.
Correlations (+ or -) between daily returns on crude oil futures and financial investments have also strengthened.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S &amp; P 500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Dollar</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.S. Bonds</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WTI Implied Volatility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inflation Expectations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Correlations computed quarterly

- Negative correlation: < -0.65, -0.65 to -0.4, -0.4 to -0.25
- Positive correlation: 0.25 to 0.4, 0.4 to 0.65, > 0.65
For more information


Short-Term Energy Outlook | www.eia.gov/steo

Annual Energy Outlook | www.eia.gov/aeo

International Energy Outlook | www.eia.gov/ieo

Monthly Energy Review | www.eia.gov/mer

EIA Information Center
(202) 586-8800 | email: InfoCtr@eia.gov