

The Economics of Oil

BI Economic Research, Global Dashboard | BI »



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(Bloomberg Intelligence) -- The relationship between the world economy and oil -- still its primary source of fuel -- is changing. Oil's share of the energy mix is down. Lower energy intensity of growth is depressing demand. A surge in U.S. shale production has changed supply dynamics and weakened OPEC's hand. Through it all, oil retains its capacity to move global growth and inflation. And global growth remains a key driver of the oil price.

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Scroll through the deck below for Bloomberg Economics' explainer on how oil impacts the economy, how the economy impacts oil, a curated set of our best recent economic research, and industry and strategy research from Bloomberg Intelligence. For a straight look at the oil industry visit BI OIL, commodity strategy BI COMDG, and for detailed energy research BNEF. (01/28/19)

Section

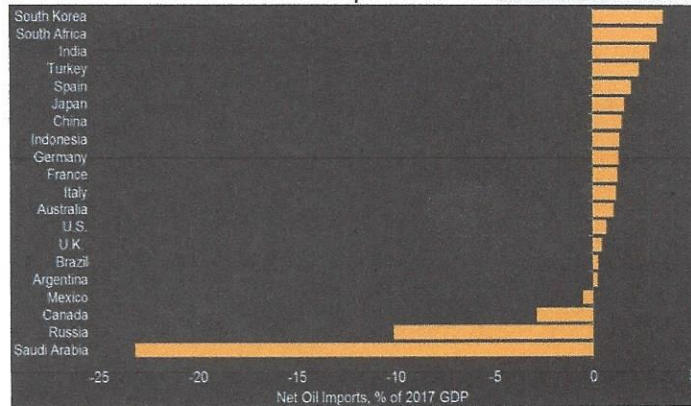
Economic Impact of Oil

2. How Oil Supply Shocks Affect the World Economy

If it comes from surging supply, lower oil prices are a boon to global growth. Lower prices redistribute income from oil-producers, with higher propensity to save, to more free-spending oil consumers. Consumers have more money in their pocket. Businesses have higher profits and more incentive to invest. The net result -- stronger demand. In general, a supply-driven 10% drop in oil prices might be expected to drive a 0.1%-0.2% boost to the level of world output.

For many oil-exporting countries the primary impact tends to be fiscal, with less revenue channelled into FX reserves. If the fall in oil prices is long-lasting and fiscal buffers small, adjustment to a new, lower, level of income has to be made. (01/28/19)

G20 Net Oil Imports as % GDP



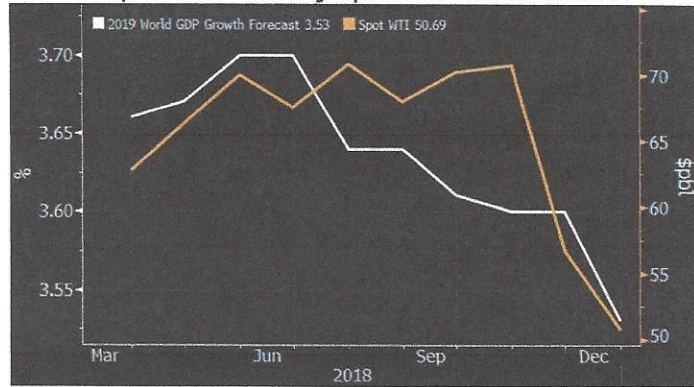
Source: BP Statistical Review of World Energy 2018, Bloomberg Economics

3. How Oil Demand Shocks Affect the World Economy

A demand shock that pushes the oil price lower is a symptom of slower growth, not the cause. The decline in prices still provides support to real incomes in advanced economies, but not enough to offset the weaker demand that triggered the shock. We estimate that the bulk of the decline in oil costs toward the end of 2018 reflected lower expectations of global GDP growth. As a consequence, we expect the benefits to global growth to be limited.

One way to think about demand shocks to oil prices is as a shock absorber for the global economy. If demand is strong, oil prices rise and global growth is dampened. If demand is weak, prices fall, providing a boost to consumer purchasing power just as that support was most-needed. (01/28/19)

Drop in Oil Prices Symptom of Slower Growth

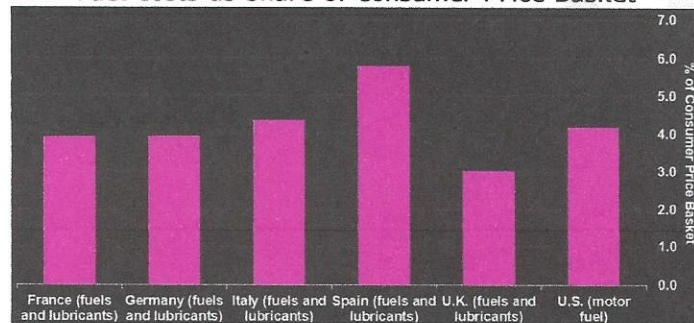


Source: Bloomberg Economics

4. How Oil Price Shocks Affect Inflation

In the 1970s, OPEC embargos triggered an inflationary surge for oil importers. The Fed took rates to 19% to squeeze inflation from the system. Decades later, some of the transmission mechanisms are the same, but not all. High prices are first felt at the gas station, then household utility bills rise, then businesses have to push up prices or take smaller profits. What's changed is that independent central banks and the end of wage indexation mean higher oil prices no longer fuel pay gains.

Fuel Costs as Share of Consumer Price Basket



Source: Eurostat, BLS

For net oil exporters lower oil costs are often associated with currency depreciations -- gains from cheaper fuel are more than offset by more costly imports. If the currency is pegged, the near-term impact on consumer prices can be similar to that in importing economies, unless large fuel subsidies are in place. (01/28/19)

5. How Central Banks Respond to Oil Price Shocks

The response of central banks in oil-importing economies to an oil price shock depends on if it is demand or supply-led; the bank's mandate; and if inflation expectations are anchored. For the Fed, the ECB or the BOE a supply-led slump in oil costs could cause tighter policy. The shock boosts demand and, if expectations are anchored, the economy will be running hotter once it's passed. A demand-led fall in oil prices comes with looser monetary policy as slack appears in global labor markets.

Central Bank Moves in Face of Oil Price Shocks

	Central Bank Mandate	Inflation Expectations	Impact: GDP Growth	Impact: Interest Rates
Oil Supply Shock (+)	Inflation Targeting	Anchored	+	+
	Inflation Targeting	Unanchored	-	-
	FX Targeting	N/A	+	-
Oil Demand Shock (-)	Inflation Targeting	Anchored	-	-
	Inflation Targeting	Unanchored	-	-
	FX Targeting	N/A	-	-

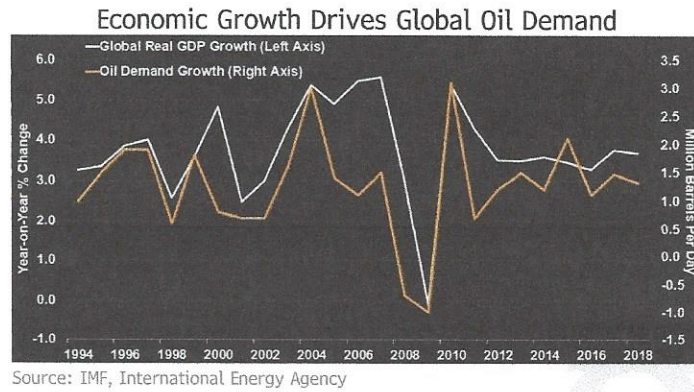
Source: Bloomberg Economics

Easing would also be appropriate in economies with loosely-anchored inflation expectations, where lower inflation feeds weaker wage growth. In oil-exporting economies lower prices call for higher interest rates to soften the impact of a weaker currency on inflation. That can be painful - compounding the blow from lower oil revenue. (01/28/19)

Demand Drivers

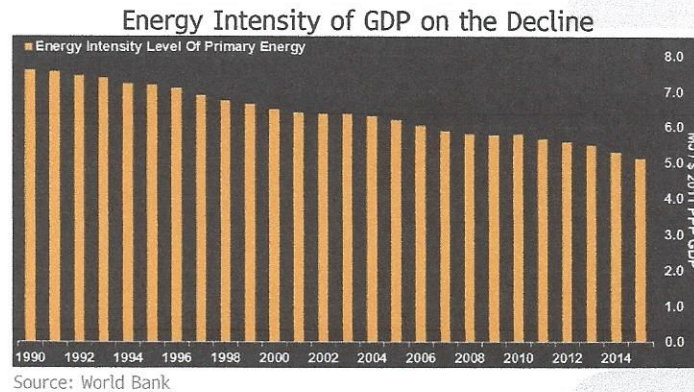
6. Global Growth Keeps Pushing Oil Demand to New Highs

Economic growth is the main driver of global oil demand. Faster expansion means increased need for energy to fuel transportation and industry. Demand for crude oil has been growing steadily, averaging an increase of 1.3 million barrels per day a year since 1994. The only decline was in 2008-9 as the global financial crisis hit, driving oil prices down. The International Energy Agency expects oil demand to exceed 100 million b/d for the first time in 2019. (01/28/19)



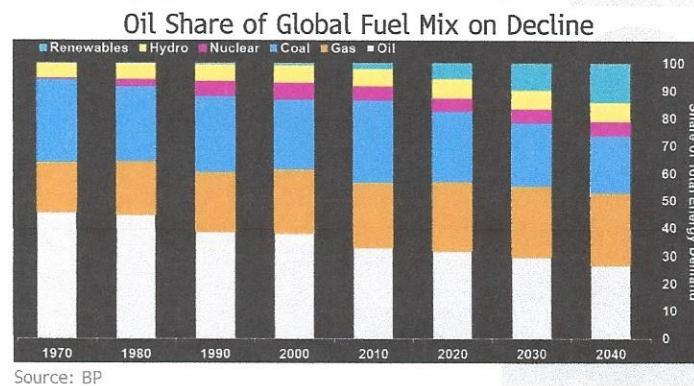
7. How Energy Efficiency Changes Oil Demand Dynamics

The world is using energy more efficiently. Since 1990, the energy intensity of GDP (the units of energy needed to produce each unit of output) has been declining at an average rate of 1.5% per year. In 1990 it took 7.6 MJ to produce each dollar of real GDP. In 2015 it required only 5.1 MJ. If this trend continues, the world economy will need to grow in excess of 1.5% each year to generate more demand for energy. The IMF projects growth sustained above 3.5% a year for the foreseeable future. (01/28/19)



8. How Changes in the Energy Mix Impact Oil Demand

Higher demand for energy doesn't automatically mean higher demand for oil -- the energy mix has changed over time. Oil's share in the global fuel mix is expected to fall to 32% in 2020 from 46% in 1970. Cleaner energy sources -- gas, nuclear and renewables (wind, solar, geothermal, biomass and biofuels) -- are stepping in. BP expects the share of oil to fall to almost a quarter by 2040 -- almost on par with gas. It also projects the share of renewables to rise to 14% in 2040 from virtually zero in 2000. (01/28/19)

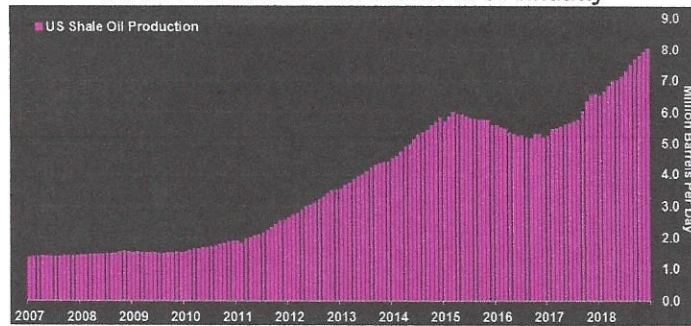


Supply Drivers

9. Shock-Absorbing Shale Changes Oil Supply Dynamics

The U.S. shale revolution has radically altered the global oil market. From output of below 1.5 million b/d in 2007, shale today produces nearly 8 million b/d -- a 17% annual increase in production over the last 11 years. The revolution hasn't just been in quantity but also in the speed of response to prices. When oil prices fell in 2015-16, shale quickly cut production by nearly one million b/d. As prices began to recover in 2017, shale ramped up output by 2.8 million b/d - absorbing most of the increase in global demand.

Shale Production Has Grown 17% Annually



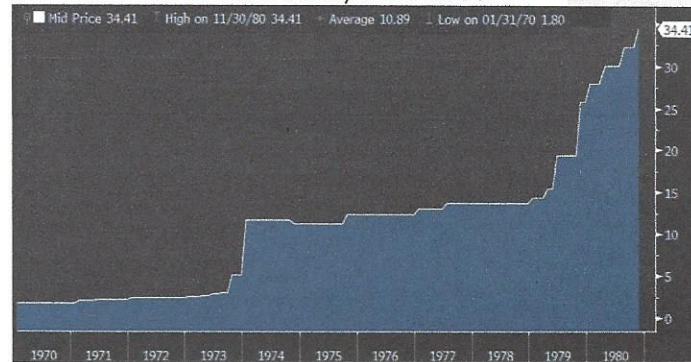
Source: U.S. Department of Energy

Through its quick response to prices, U.S. shale acts as a shock absorber, dampening the movement in oil prices. (01/28/19)

10. OPEC's Influence Is Not What It Was, But It's Still Significant

Founded in 1960, OPEC -- a cartel of conventional oil producers -- came to prominence in 1973, when its oil embargo drove prices from \$3 to more than \$11 and triggered years of stagnant growth and high inflation in the U.S. and other oil importers. It doesn't quite have that power these days, but it's still a significant player in the market, responsible for 40% of global production.

Oil Prices, 1970-1980



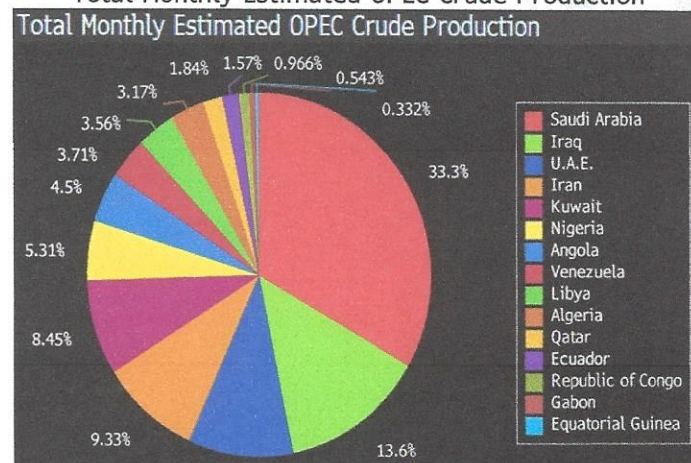
Source: Bloomberg

Saudi Arabia is the largest producer, accounting for nearly a third of OPEC's output. Iraq, the U.A.E. and Kuwait are expected to be the growth drivers in the coming years. OPEC's decision, along with other large producers like Russia, to cut output in 2017 was instrumental in the subsequent price recovery. Click on the Text tab to read more. (01/28/19)

11. OPEC Has A Mixed Record in Supporting Oil Prices

OPEC has a mixed record in controlling supply and fixing prices. On the one hand, the cartel is a large producer in the market, dominated by a single country, which increases the chances of an agreement. On the other, many members have been tempted to cheat on production cut agreements, undermining the group's effort to lift prices.

Total Monthly Estimated OPEC Crude Production



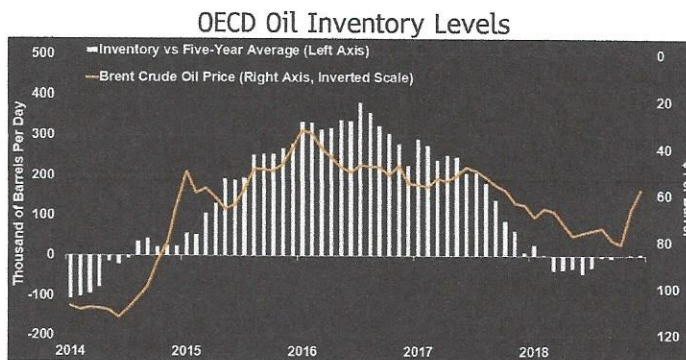
Source: Bloomberg News

Politics continue to play a huge role within the cartel. The reinstatement of U.S. sanctions on Iran has already reduced Iranian exports by 0.8 million b/d. Qatar's recent decision to leave OPEC after being a member for 57 years is unlikely to

disrupt the oil market but is another reflection of politics at work. Click on the Text tab to read more. (01/28/19)

12. Excess Oil Inventory Eliminated but Could Resurface in 2019

Slow demand growth, rapid expansion in U.S. shale oil production and the ramp-up in OPEC output to squeeze non-OPEC members in 2015-16 resulted in a significant build-up of oil inventory. When OPEC agreed to cut production by 1.2 million b/d in 2017, the aim was to bring stocks in line with the five-year moving average. It succeeded -- excess inventory was eliminated in early 2018. OPEC is now trying to be more pro-active: attempting to cut production to eliminate future over-supply. (01/28/19)

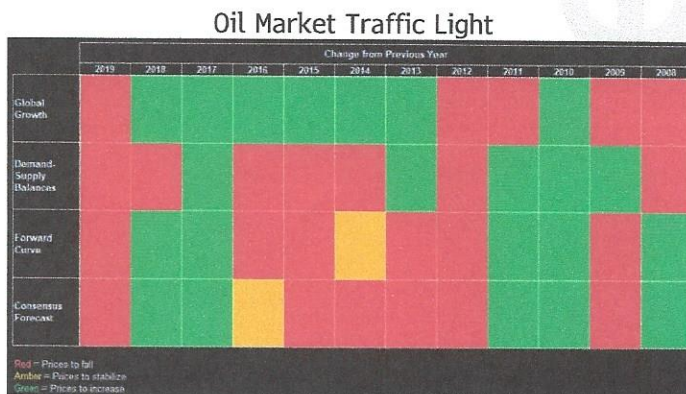


Source: U.S. Department of Energy, Bloomberg

Forecasts

13. Oil Market Traffic Light Shows Lower Prices in 2019

The Brent crude oil price averaged \$72 per barrel in 2018. It's unlikely to be that high in 2019, according to our four-factor traffic light. Global economic expansion is expected to decelerate in 2019, leading to weaker demand growth for oil. Demand and supply balances are also expected to deteriorate in 2019 due to higher output from the Americas. The forward curve is indicating lower oil prices, an average of \$61 per barrel in 2019. The consensus forecast also expects prices to decline, but only to \$67 in 2019.

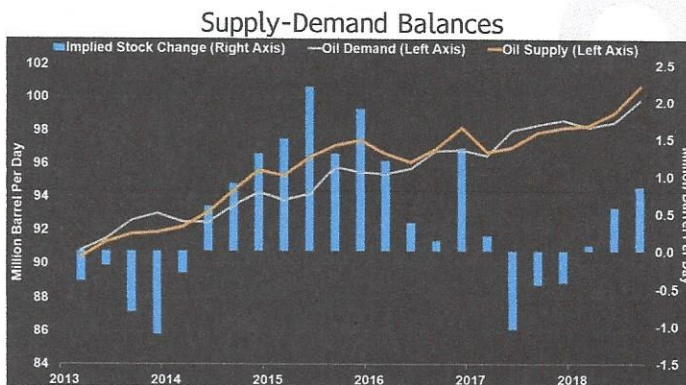


Source: IEA, Bloomberg

Bloomberg Intelligence commodity strategist Mike McGlone says "crude oil's rally of almost 20% to start 2019 leaves it vulnerable to decline for the rest of this year." (01/28/19)

14. OPEC+ Cut Output to Rebalance Market

Global oil demand caught up with supply in 2017 following the coordinated OPEC+ production cuts. Even so, the market is tipping back toward excess supply. The IEA projects crude production in the Americas to rise by 1.1 million b/d in 2019, absorbing most of the increase in global demand. With the market already oversupplied by about 1.3 million b/d in 3Q18, and non-OPEC output expected to increase by 0.6 million b/d, OPEC+ has agreed to cut production by 1.2 million

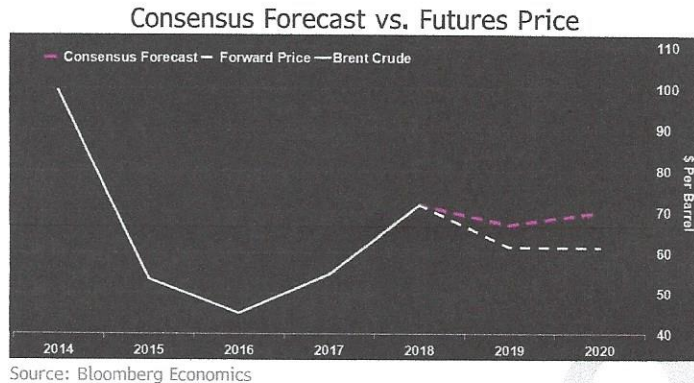


Source: International Energy Agency

b/d starting January 2018 to rebalance the market. (01/28/19)

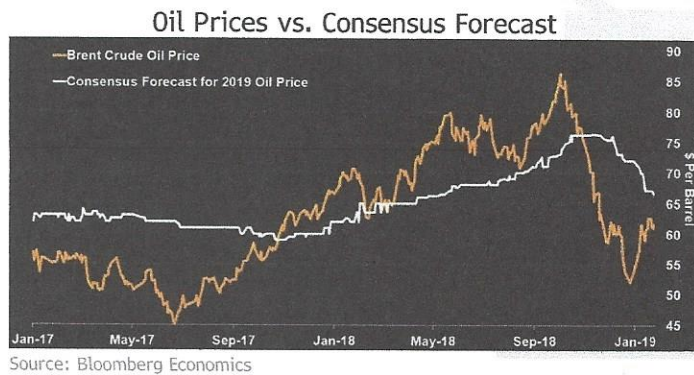
15. Oil Forward Curve Suggests Lower Prices in 2019

Consensus forecasts and markets have diverging views on oil. Consensus expects oil prices to fall to \$67 per barrel in 2019 before recovering to \$70 in 2020. The forward curve is pointing to lower oil prices -- around \$61 per barrel in 2019-20. If OPEC+ fails to cut by 1.2 million b/d in 2019, the excess supply in the market is likely to rise, suggesting prices could end being closer to the prediction of the forward curve than consensus. (01/28/19)



16. Consensus Forecast Responds to Prices with a Lag

The consensus forecast for 2019 has moved up with oil prices. Forecasters have gradually increased their projections for 2019 from \$62 per barrel in early 2018 to \$76 in December. But since then, projections have been gradually revised down to \$67 after prices plunged from their early-October high. The inertia in forecast revision (and possibly lags in forecast collection in a rapidly changing environment) may result in further downward revisions to the consensus call. (01/28/19)



17. In Oil Markets, the Future is Guided by the Present

Hedge funds have cut their net long positions after the slump in oil prices since early October, according to the Commodity Futures Trading Commission data. Money managers reduced their long positions on the crude, and at the same time increased their bearish bets. Whether positioning of money managers has a predictive power for future oil price movement is another matter: it's likely that speculative positioning follows price action rather than the other way round. (01/28/19)



Country Analysis

18. Dependence on Oil is Hard to Shake, Some Are Succeeding

Saudi Arabia and Russia are economies whose fates are tied to oil. The problem with that reliance is that too many resources are put to use in the lucrative oil-extracting sectors and not enough investment occurs elsewhere, damping productivity gains in the non-oil sector. Russia has taken steps to break the link between crude prices and the economy by banking excess revenue rather than spending it. The impact on monetary policy and the economy is now radically different, as the graphic shows.

Saudi Arabia's attempt to diversify away from the black stuff as a source of income shows that this is not easy. Its Vision 2030 program offered too little policy substance and the country's leadership has fallen back on spending oil revenue to maintain popularity. (01/28/19)

Russia Loosens Dependence on Oil Prices

	Ruble	Fiscal Policy	Impact GDP Growth	Inflation	Monetary Policy
Dollar Oil Price Rises	Old Framework Appreciation (a lot) ++	Higher Revenue and/or More Spending	Faster (a lot) ++	Slower --	Looser --
	New Framework: Fiscal Rule Appreciation (a little) +	Higher Revenue Faster Reserve Building No Change in Spending	Faster (a little) +	Ambiguous	Ambiguous
Dollar Oil Price Falls	Old Framework Depreciation (a lot) --	Lower Revenue and/or Less Spending	Slower (a lot) --	Faster +	Tighter +
	New Framework: Fiscal Rule (Oil Above \$40) Depreciation (a little) --	Lower Revenue Slower Reserve Building No Change in Spending	Slower (a little) --	Ambiguous	Ambiguous
	New Framework: Fiscal Rule (Oil Below \$40) Depreciation (a little) --	Lower Revenue Decline in Reserves No Change in Spending	Slower (a little) --	Ambiguous	Ambiguous

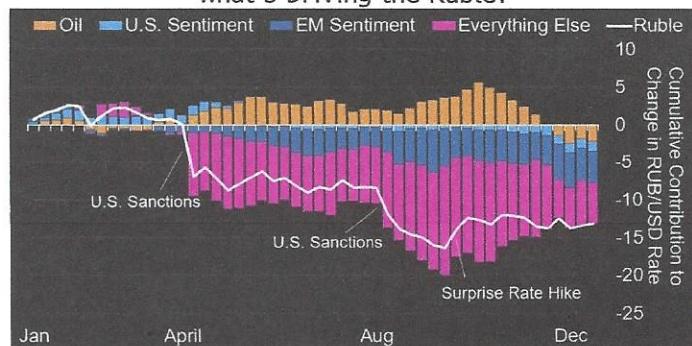
Source: Bloomberg Economics

19. Ruble in Thrall to Geopolitics Shows Fading Influence of Oil

Contributing Analysts [Scott Johnson](#) (Economics)

Bad news on sanctions sent the ruble tumbling in April and August. But a 30% plunge in oil prices? Only modest depreciation. That's remarkable because energy remains a core engine of Russia's economy. Our model shows oil still exerts an influence. It's just weaker than history would suggest, thanks to a fiscal rule that channels oil-and-gas revenue into reserves. A hawkish shift from the central bank has also shored up the currency. So has the receding threat of harsh U.S. action, though we expect another geopolitical shock in the coming months.

What's Driving the Ruble?



Source: Bloomberg Economics

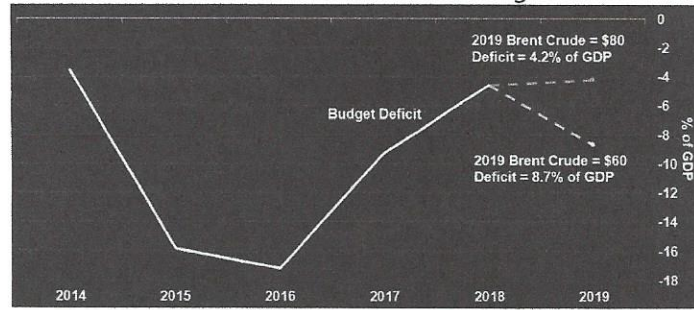
Click on the Text tab for a related analysis. (01/28/19)

20. Realistic Oil Price Assumption Could Double Saudi Deficit

Saudi Arabia based its 2019 budget on an unrealistic oil price, as high as \$80 a barrel by our estimate. What if Brent crude ends up averaging \$60 as the futures curve suggests? Absent cuts to spending, a more realistic oil price could double the deficit to 8-9% of GDP from the 4% assumed in the budget.

Click on the Text tab for the full report. (01/28/19)

Scenarios for Saudi Arabia 2019 Budget Deficit



Source: IMF, Ministry of Finance, Bloomberg Economics estimates

21. Regulatory Uncertainty Holds Back Nigeria's Oil, Gas Industry

Contributing Analysts [Mark Bohlund](#) (Economics)

Nigeria's oil output has recovered since 2016 when it was ravaged by militant attacks on pipelines. While production costs are low, investment in the industry has been impeded by regulatory uncertainty as the Petroleum Industry Bill stalled in parliament. Relatively small domestic players have largely taken over onshore operations from major foreign companies, which have focused on offshore fields.

Recovery in Oil Output Improves Outlook



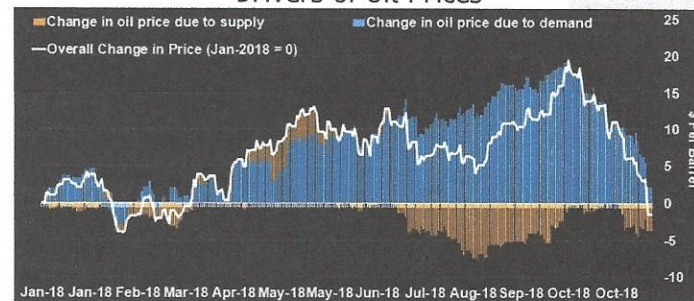
Source: Bloomberg

The passage of the Petroleum Industry Governance Bill in May 2017, the first of four tranches of legislation, marks an initial step toward reducing regulatory uncertainty in the oil sector. The government has pledged to pass the remaining three bills in 1H19. Still, it's unlikely to boost investment in the short term. The decline in oil prices also means government revenue is less plentiful than in 2005-14. (01/28/19)

22. Weak Demand Responsible for 85% of Recent Price Slump

Brent crude lost \$21 between its 2018-high on Oct. 3 and mid Nov. We estimate that weaker demand accounts for \$18 of the decline. Both OPEC and the International Energy Agency have lowered their forecasts for oil demand growth next year blaming a slowing global economy, higher interest rates and turmoil in emerging markets. Supply factors were not completely absent, but these have only account for 15% of the decline in oil prices since early October.

Drivers of Oil Prices



Source: Bloomberg Economics

The U.S. decision to grant waivers to eight countries to continue importing oil from Iran eased some of the supply concerns. Expectations of higher non-OPEC supply, particularly from the U.S., were also a factor. (01/28/19)

Industry and Strategy

23. BI Primer: 1 Million-Barrel Drop in Oil Supply to Support Price

Contributing Analysts [Salih Yilmaz](#) (Energy) & [Will Hares](#) (Energy)

Research Note: [Oil Commodity Primer](#)

A 1 million-barrel a day decrease in oil supply from Saudi Arabia and Iran is likely to provide support for crude prices in the next couple of months, which has recently seen pressure from waivers on Iran sanctions and concerns of a slowdown in oil demand. Saudi Arabia has promised a 500,000 barrels a day (kbpd) lower export level in December and we expect another 500 kbpd of oil Iranian exports to be curtailed due to sanctions. Confusion and lack of clarity around the waivers may continue to keep oil prices volatile.

The short-cycle nature of U.S. shale oil has incentivized operators to accelerate activity, though further near-term supply growth has been restricted due to ongoing pipeline bottlenecks in the U.S. Permian Basin. Easing of bottlenecks, possibly by late 2019, would unlock further supply growth. (11/12/18)

24. BI Primer: Aramco IPO May Be Dropped as \$2 Trillion Is Way Off

Contributing Analysts [Salih Yilmaz](#) (Energy) & [Rob Barnett](#) (Government)

Research Note: [Saudi Aramco Pre-IPO Research Primer](#)

A cancellation of Saudi Aramco's IPO wouldn't be a huge surprise, as the large discrepancy between the likely public valuation and expectations set by Prince Mohammed bin Salman put the plan on shaky ground, leading to eventual scuttling, as we previously anticipated. Our base-case scenario valued the company at \$1.2 trillion -- 40% below the government's lofty \$2 trillion assessment. If it were to happen, Saudi Aramco's IPO would have created one of the world's largest traded companies, based on our analysis, but the listing faced numerous hurdles.

The IPO was part of wider efforts by Prince Mohammed bin Salman to modernize Saudi Arabia's economy, with planned proceeds used to implement reforms. (09/07/18)

25. BI Company Research Primer: Exxon Mobil Company Primer

Contributing Analysts [Fernando Valle](#) (Energy) & [Jonathan Mardini](#) (Energy)

Research Note: [Exxon Mobil Company Primer](#)

COMPANY THESIS: Exxon Mobil is taking steps to recapture its top spot by acquiring low-cost resources and moving away from long-life, high-cost assets. Its five pillars of Upstream growth have all been added since the 2014 downturn. Returns will continue to improve in 2019 due to the start of major projects in 2H17 and higher oil prices. But recapturing leadership of Big Oil's returns, lost in 2015 to Total, will hinge on effective capital deployment. Despite a strong balance sheet and improving cash-flow generation, Exxon seems unlikely to resume buybacks, so it can focus on retooling its portfolio. (01/11/19)

26. BI Primer: PetroChina's Earnings Set to Rise on Gas Price Reform

Contributing Analysts [Lu Wang](#) (Energy)

Research Note: [PetroChina Research Primer](#)

COMPANY THESIS: PetroChina's profit will climb, helped by higher oil prices and China's gas-price reform. With breakeven at \$50 a barrel, the company's upstream earnings will rise significantly as Dubai oil stays above \$70. The company may increase domestic gas output with 4-5% compounded annual growth in the medium term. China's gas prices will become more market-oriented, allowing supply-and-demand dynamics to determine prices, which should improve PetroChina's earnings by increasing revenue and narrowing losses from imports. The residential city-gate price hike is likely to generate 4.5 billion yuan in incremental pretax profit this year, assuming its domestic sales volume will be 130 billion cubic meters, with 20% for residential, and a 0.3 yuan-per-cubic-meter price increase taking effect on June 10. (11/08/18)

In Energy, an Extended Oil Bull With Positive Carry, Warming Gas

Contributing Analysts [Mike McGlone](#) (Strategy)

Research Note: [Commodity Primer - Range-Bound Oil, Warming Gas](#)

WTI crude oil should be entering an extended-range period, having reached a potential peak in October on Hurricane Michael and tension over Saudi Arabia. Primary bull-market trends in demand vs. supply, stocks-to-use and backwardation are retreating from extremes. Natural gas appears to be in early recovery days. (10/22/18)

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