Crude Oil

Sector Briefing

September 2018

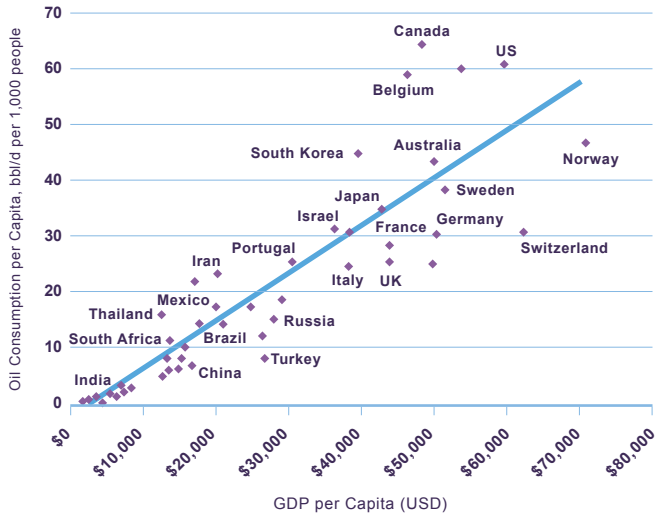
GLOBAL ECONOMIC GROWTH FUELS CONTINUING DEMAND FOR OIL

Canadians follow the price of oil almost as closely as the value of the dollar. That's not surprising. How much a barrel of crude is worth has a big impact on our cost of living whether it is at the pump, the supermarket or once a month when the utility bill is due. Transport costs and energy consumption add up.

More importantly, oil has a significant impact on economic activity and equity markets. Whether a country is a producer or a consumer, oil continues to be a major input. Put simply, even in this age of alternative energy and conservation, oil really matters.

After three years of relatively cheap oil, crude prices have been on a steady rise since mid-2017 as demand has outstripped supply. The price of West Texas Intermediate (WTI), a key crude benchmark, soared past $70 this spring, more than double the $30 a barrel of two years earlier. (All prices are expressed in U.S. dollars.)

Figure 1:
Oil Consumption is Linked to Economic Development



Source: The World Bank; Letko Brosseau estimates

Oil demand is inextricably linked to economic development (see Figure 1). For example, Canadians consume an average of 66 barrels daily per 1,000 population, compared with 61 in the United States, 38 in Japan and 30 in Germany. In stark contrast, this compares with 9 barrels per day in China and 3 in India. As people become wealthier, they tend to consume more gasoline by owning automobiles, more diesel by engaging in transportation-intensive commerce, more jet fuel by flying for work and pleasure and more petrochemical products via both industrial and consumer goods.

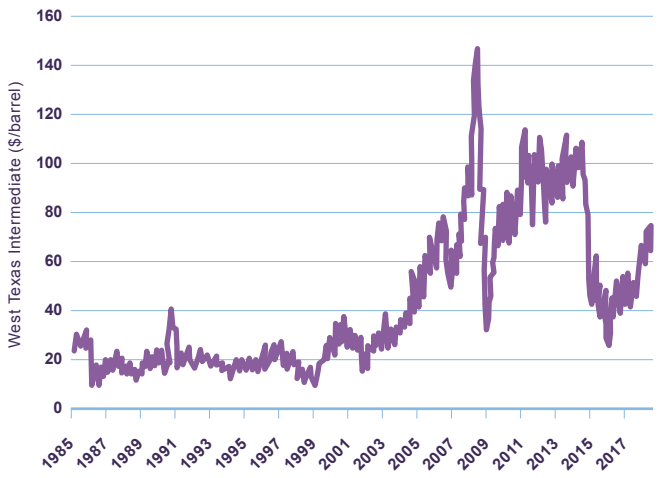
Crude oil varies in quality and, in general, types that are lighter (having shorter chains of hydrocarbons) and sweeter (having lower sulphur content) tend to command higher prices. The lighter varieties, like WTI (priced at Cushing, Oklahoma) and Brent (the North Sea price), are easier to refine and yield more high-value products such as gasoline and diesel than heavier grades, such as those from Canada's oil sands, Mexico's offshore or Venezuela.

Being a global commodity, crude oil is priced in both physical and futures markets on a daily basis. This allows buyers and sellers to trade the actual commodity, as well as hedge price and volume risk in the future. In fact, for every physical barrel of oil produced and consumed, there are 30 barrels of oil traded in the financial markets. While futures trading is essential to the proper functioning of the market, it's important to note that its proportion to the physical market has more than doubled in the last 10 years. This gives rise to greater speculation, more volatility and the risk that prices may at times veer away from their physical equilibrium.

Exploring for, developing and refining oil are capital-intensive activities prone to cycles of over- and

under-investment. For example, after OPEC imposed an oil embargo, oil prices soared from $3 per barrel in 1973 to $40 in 1980. This led to demand destruction and a significant increase in exploration and development in non-OPEC countries. So much so that by 1987 oil prices dropped below $20 and failed to consistently exceed that level until the 2000s, even though Saudi Arabia cut its production by more than 60%. In turn, low oil prices in the 1980s and 1990s discouraged excessive investment and set the stage for much higher oil prices in the next decade. As China and other emerging markets began to expand more rapidly, annual global oil demand growth almost doubled from the 1980-2003 average pace of 0.7 million barrels per day to 1.3 million barrels. As such, oil prices increased markedly from $30 per barrel to almost $150 in 2008 and remained in the $80-$130 range between 2011 and 2014 (see Figure 2).

Figure 2: Crude Oil Price (1985-2018)



Source: Bloomberg

FROM SUPPLY SURPLUS TO DEFICIT

The 2014-2016 oil market crash was unique in that it was caused almost wholly by a massive supply glut. In fact, of the four major oil price crashes of the last 40 years, 2014-2016 was the only one not to have coincided with a slowdown in oil demand growth. For context, to have oil demand increasing at a respectable 1.5% average rate over 2014-2016 – and still to have seen a 75% decline in oil price – speaks to the magnitude of the oversupply.

Several factors led to this glut:

• Strong oil prices between 2008 and 2014 led to a sizeable increase in major oil project approvals around the world. Many had long construction horizons, and so they continued to come online even as oil prices plummeted, thus exacerbating the oversupply.

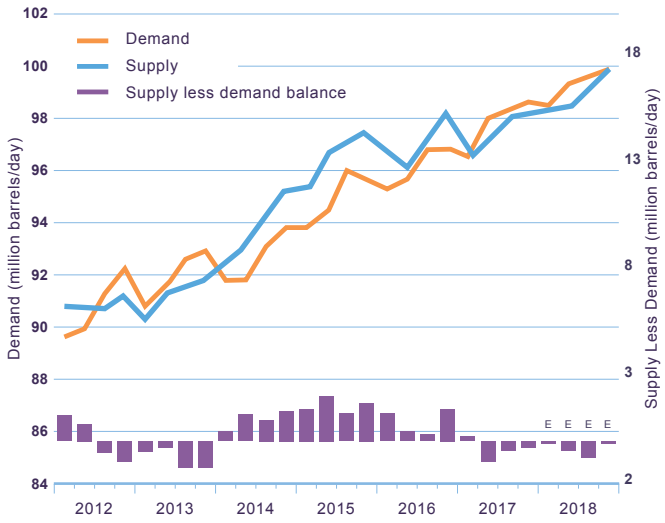
• Tremendous technological innovation led to the Shale Revolution in the United States, where a previously unrecoverable resource could now be tapped economically. U.S. supply grew from 6.9 million barrels per day in 2008 to 13.0 million barrels per day in 2015.

• In late 2014, after years of price management, OPEC made the historic decision to instead defend market share. It decided to pump more barrels at a point in the cycle when it would have usually decided to cut production to support prices. In early 2015, OPEC began to ramp up its production, adding over 3 million barrels per day, by November 2016. Oil prices responded by declining from around $100 a barrel in 2014 to under $30 in 2016.

More recently, oil prices have rebounded strongly, surging to $70 from about $45 a year ago. This has not been driven by speculative fervour, but by a realigning of fundamentals (see Figure 3). The oil market has swung to a 0.3 million barrel per day supply deficit in the second quarter of 2018, from a surplus of 1.4 million barrels per day in 2016, according to the International Energy Agency (IEA). In fact, we've now seen five straight quarters in which global oil demand has exceeded supply, after a run of 13 quarters where supply exceeded demand. As a result, OECD commercial inventories have fallen below 2.8 billion barrels from more than 3 billion in mid-2016 and are approaching their historical average of about 2.5 billion barrels (see Figure 4).

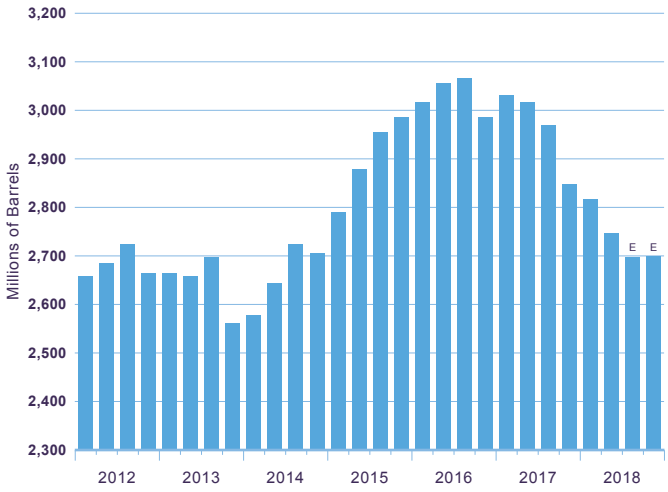
Several factors have underpinned this rebalancing. Two years after increasing output, OPEC along with allies such as Russia enacted production cuts to the tune of 1.8 million barrels per day. Meanwhile, Venezuelan production collapsed, removing another 0.7 million barrels from the market. Further, the severe price decline caused major cutbacks in exploration and development budgets, leading to both slower growth in U.S. shale production, and also significant cutbacks in major project approvals, especially in areas outside of OPEC and the United States.

Figure 3: Global Oil Supply / Demand Balance



Source: International Energy Agency, Letko Brosseau
E: Letko Brosseau estimates

Figure 4: OECD Commercial Oil Inventory



Source: International Energy Agency, Letko Brosseau
E: Letko Brosseau estimates

SOURCES OF SUPPLY

Crude oil wells experience declining production over time as down-hole pressure drops. For example, offshore wells in the Gulf of Mexico lose 20%-25% of their production every year without mitigation, while long-lateral fractured horizontal wells in basins such as the Permian in western Texas or the Bakken in North Dakota can lose 60% of production in their first year. Just to slow these decline rates, the industry needs to spend billions each year on a variety of mitigation measures, such as injection wells and other secondary recovery techniques. This results in an average global decline rate of about 5%.

With the exception of OPEC and the United States, the rest of the world will likely see its oil production decline over the next five years. The lack of major project approvals amid low oil prices will continue to contribute to reduced supply during 2019-2022. Political developments have had a more immediate impact. The United States' withdrawal from the Iran nuclear agreement will potentially remove over 1 million barrels per day from markets. With the precipitous fall in Venezuelan output continuing at a pace of 50,000 barrels a month, total losses from these two countries could total as much as 1.5 million barrels per day by the end of 2018.

These cuts have been somewhat offset by the increased production in the U.S., driven largely by shale development in the Permian Basin. However, this growth recently slowed as pipelines carrying oil to refineries and ports on the Gulf Coast reached capacity. Meantime, drilling and completion costs have been rising. Moreover, the industry is beginning to take a more measured approach to developing shale resources, emphasizing returns and shareholder-friendly capital allocation rather than only production growth.

ACCELERATED DEMAND

Synchronized global economic growth has heightened demand for oil in recent years and shows little sign of abating, despite such threats as electric vehicles (discussed below). Emerging markets have been increasingly in need of oil, particularly China. As these markets continue to develop, so too should their oil consumption.

Cheap oil has also boosted consumption in developed markets. The resulting lower fuel costs have, in turn, influenced consumer behaviour. A case in point: the number of automobile-miles driven in the U.S. has

increased 8% during the past three years and two-thirds of new passenger vehicles purchased have been fuel-thirsty SUVs.

To gauge future global demand for oil, it is important to understand how it is being consumed. The following is a breakdown of the sources of global oil demand, by use:

- 56%: All forms of transportation (land, air and marine), although demand growth is slightly slower than that of global GDP due to fuel-efficiency improvements.
- 14%: Residential heating and power generation (8% and 6% respectively), but demand is declining as oil is replaced by natural gas as a fuel source.
- 11%: Petrochemicals, demand for which is in line with GDP.
- 7%: Industry and agriculture, where growth is expected to remain steady.

We expect global oil demand to continue to grow at about one-half the rate of global GDP, as per-capita incomes increase in emerging markets.

WHAT ABOUT ELECTRIC VEHICLES?

Despite our belief that electric vehicle (EV) sales will multiply over the next couple of decades, we think economic growth, driven by emerging markets, will prevent oil demand from peaking before 2030. This assumes an aggressive 10% EV penetration of the total automobile fleet by that time, compared to the current 0.5%.

Our conclusion is based on our analysis of key variables, such as the rate of automobile-fleet turnover and country-level forecasts. The 10% scenario assumes an aggressive EV sales rate of nearly 40% of total sales by 2030, compared with only about 2% in 2018. While this scenario assumes EVs will reduce oil demand 1.8 million barrels per day by 2030, overall consumption will still be 2.6 million barrels per day higher than today's level. In other words, even under a scenario in which EVs represent almost 40% of passenger car sales, the oil market still has room to run.

In the end, oil demand is impacted by the stock, not the flow, of electric vehicles. So even with a dramatic increase in the flow of EV sales, it will still take years to alter the overall stock of vehicles enough to impact oil consumption.

OUTLOOK

With capital spending down during the past three years, a global supply gap will persist through the end of the decade. In the meantime, continued global economic growth will support steady oil demand. This may require a significant number of new projects to be approved and developed. While it is true that the Permian Basin can make up some of the shortfall, we believe that balancing the market and providing future supply stability will require higher-cost/large-reserve/long-life projects, such as deep-water offshore sites, oil sands and U.S. shale.

Production losses due to a natural 5% annual decline rate, combined with continued demand growth of 1.5% implies the need to grow annual production by 6.5% going forward. To do so, oil prices need to rise to levels that make these developments viable for companies and governments. Our estimate of these price thresholds is based on the triangulation of new project economics, oil-company financials and OPEC government budgets:

- **Marginal cost of supply.** Over the next five years, almost 30 million barrels per day of new production will be needed to offset natural declines and meet growing demand. This large additional supply will come from increased production by OPEC countries, but also from more expensive sources which require prices in the $65-$70 range. We think this is supported by our belief that the supply gap is driving the current oil price upswing.

- **Company financials.** The world's largest exploration-and-production companies need a Brent oil price of $70 to cover their capital expenditures and dividends. U.S. companies require a slightly lower price in order to generate a 10% return on capital.

- **Government budgets.** Many governments rely heavily on oil revenues to balance budgets – and in some cases to fund social programs and maintain political stability. On average, a Brent price of about $65 is required to balance budgets in Saudi Arabia, Iran, Iraq, UAE, Kuwait, Libya, Venezuela, Angola, Ecuador and Nigeria.

WE REMAIN BULLISH ON OIL AND ENERGY STOCKS

Our oil forecast for the remainder of 2018 and into 2019 is decidedly positive, especially given the recent issues with market access in the Permian basin, as well as continuing declines in Venezuela and the anticipated drop in exports from Iran. We expect the WTI price to average $60 in 2018, and $70 in 2019 and beyond. The under-investment in oil projects has set the stage for potentially higher prices in the future, especially given continued tensions in the Middle East. We believe this provides a favourable backdrop for oil-exposed producers.

Furthermore, we think the oil industry has shifted focus and to an extent now offers a more compelling value proposition for investors than in the past, as the increase in oil prices should return cash to company shareholders. Some of the largest producers in the world, such as Royal Dutch Shell plc, ConocoPhillips Co. and Suncor Energy Inc., have made clear that shareholder returns – in the form of growing, sustainable dividends and large buyback programs – will be central to their capital-allocation priorities as higher prices create windfall profits.

In a world in which the threat of EV penetration – whether overblown in the short term or not – has created a permanent cloud over the outlook for the industry, we think oil companies increasingly will be forced to compensate for uncertainty by maintaining generous and transparent shareholder-return policies. We think this bodes well for the stocks. Moreover, if companies increasingly allocate finite capital toward dividends and buybacks at the expense of exploration and development, higher oil prices will not necessarily lead to a supply buildup that is as rapid as in past cycles, which should support prices for longer.

In selecting energy stocks, we prepare a long-term assessment based on the company's reserves. We forecast production volumes and revenues under various price scenarios, less royalties, operating costs, capital expenditures and taxes. Interest and debt repayment also are considered, in order to establish a present value of the company's business. We believe this discipline, in combination with a watchful eye for opportunities to purchase shares at prices below a company's present value, are part of the recipe for profitable energy investments.

Other criteria include:

- High quality, predictable reserves in safe jurisdictions
- Strong finances
- Low costs with an ability to generate strong free cash flows at current energy prices
- A friendly approach to capital allocation that balances growth and capital return to shareholders.

Our portfolio holdings include Suncor Energy Inc., Canadian Natural Resources Ltd., Cenovus Energy Inc. and Husky Energy Inc. in Canada; ConocoPhillips in the United States; and Royal Dutch Shell plc and Total SA internationally.

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