

Macro Observations

In January, the whole commodities space suffered from a panic surrounding the coronavirus outbreak. The disease spread quickly with 31,161 cases and 637 deaths as of February 6. When compared to the 2009 outbreak of the swine flu, the coronavirus appears to be substantially less severe. According to CDC, swine flu affected millions of people globally with an ultimate death count of 150,000 – 575,000. The swine flu had a limited impact on markets, as the focus at the time was on the recovery from the Great Financial Crisis. Compared to previous epidemics, the Chinese government has been very fast to implement unparalleled measures to contain the new disease. A historic 61mm Chinese citizens have been quarantined, at times with the use of force. It is now illegal to be outside without a mask in a number of Chinese cities, and disinfectant is being sprayed on the streets of Wuhan. Air travel from multiple countries to China has been shut down, and restrictions on Chinese visas are commonplace. The daily growth rate of cases has slowed from over 60% to 11%, and the epidemic thus far has been mostly contained to China with less than 1% of cases international. The outcome is highly uncertain but hopefully the extreme measures by the Chinese along with warmer weather will have a positive impact.

Estimates of the impact of the virus on oil demand are all over the map. The range has been for as little as 150,000 b/d hit on an annual basis to as high as 500,000 b/d. The immediate impact for the next few months is much higher at 700,000 b/d to 3,200,000 b/d, while most forecasters assume that the Chinese economy will begin to recover once we get to the spring season. The high end of that range would be equivalent to the peak impact of the Great Financial Crisis on global oil demand. 61mm Chinese citizens incapacitated is less than 5% of the Chinese population, so that is perhaps 700,000 b/d of lost demand. Additionally, air travel in China is down 50%, which is an incremental 450,000 b/d hit. While 1,500,000 b/d as a near term impact is reasonable, even OPEC is confused about the current state of affairs. Their emergency technical meeting concluded that the current cuts should be held for 2H and a temporary incremental 600,000 b/d cut for Q2 was appropriate. The Russians then argued that more time was needed to assess the virus impact. At the next OPEC meeting, the cartel is likely to take action. At this moment, the next OPEC meeting is planned for March 5-6, but Saudi is hoping for an earlier meeting.

Adding to OPEC's difficulty in quantifying the current market balances has been the warm weather and a significant disruption in Libya. Unseasonably warm weather in the Northern Hemisphere impacted heating demand by about 20mm barrels in January. This put pressure on the oil price before the virus outbreak. Libyan production then fell by 1mmb/d as General Haftar shut-in production in retaliation for Turkish backed troops entering Tripoli. Were the huge Libyan disruption to last, it would overwhelm the impact from the virus; clearly, the market believes that the Libyan impact is temporary. It is worth noting that the main backers of Haftar are Saudi, UAE, and Russia, all of whom benefit from the oil production shut-in. Like the virus, the course of Libyan production is highly uncertain.

US oil production growth continues to slow. The EIA's drilling productivity report now shows tight oil growth of only 20,000 b/d m/m into February, or essentially no growth. On the weekly EIA numbers, US production has been flat for 10 weeks, but the adjustment factor has dropped by 404,000 b/d, suggesting that production could already be declining. Exxon had flat production in the Permian Q3/Q4 and a slight decline in the Bakken. The rig count and frack spreads continue to be under pressure. Both Schlumberger and Halliburton see a sustained decline in frack spreads for all of 2020. With the current oil price, it is unlikely the US shows any oil production growth in 2020, which would be a large

downward revision to forecasts. ***The EIA's Annual Energy Outlook was published in late January, and their reference case assumes that US oil production grows 1mmb/d in aggregate over the next two years and then stays flat for the next 20 years as well productivity declines.*** This remarkable forecast has been met with a yawn by the market. Burned by premature estimations of shale's demise, the market now ignores what is right in front of its face.

ESG concerns continue to have a limited impact on near term supply / demand fundamentals but weight on sentiment. According to InsideEVs.com, global electric vehicles sales were down 3.9% for 2019, in line with global auto sales down 4.7%. In aggregate, EVs had a miniscule hit to oil demand in 2019 of only 35,000 b/d. IONITY, Europe's network for super-charging electric vehicles backed by all the major European car companies, announced that it will increase prices by 500% starting February. This puts recharging prices at \$0.88 per kilowatt-hour or higher than the equivalent European gasoline or diesel prices (which are double prices in the United States.) The charge time at IONITY stations will still be approximately 20 minutes even with super-chargers. The UK government moved forward its ban on sales of gasoline and diesel cars from 2040 to 2035. Just to replace the UK's 31.5 million ICE cars with EVs would take almost twice the world's annual cobalt supply and at least half the world's annual copper supply, according to a report by a team of scientists led by professor Richard Herrington, head of earth sciences at the UK's Natural History Museum. Were these cars to be powered by wind, the copper required would triple. While a ban of internal combustion in the UK stretches the imagination, concerns regarding oil demand will limit investment by oil companies. The hit to oil supply is likely to be much larger than the hit to oil demand from ESG. The market is not far off from recognizing this critical issue.

A new report from Geological Survey of Finland warned of an impending oil crisis. The peer-reviewed analysis cautioned that a peak in oil supply, driven by a lack of investment, will likely lead to a significant financial crisis. The outlook for oil becomes increasingly constructive in the back half of 2020. Large project additions taper off as we get to the end of the year and the market laps the ramp in Norway, Brazil, and the Gulf of Mexico. Tight oil continues to slow. Demand picks up assuming the virus eventually is controlled and the impact of the US / Chinese trade war subsides.