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Daily Observations

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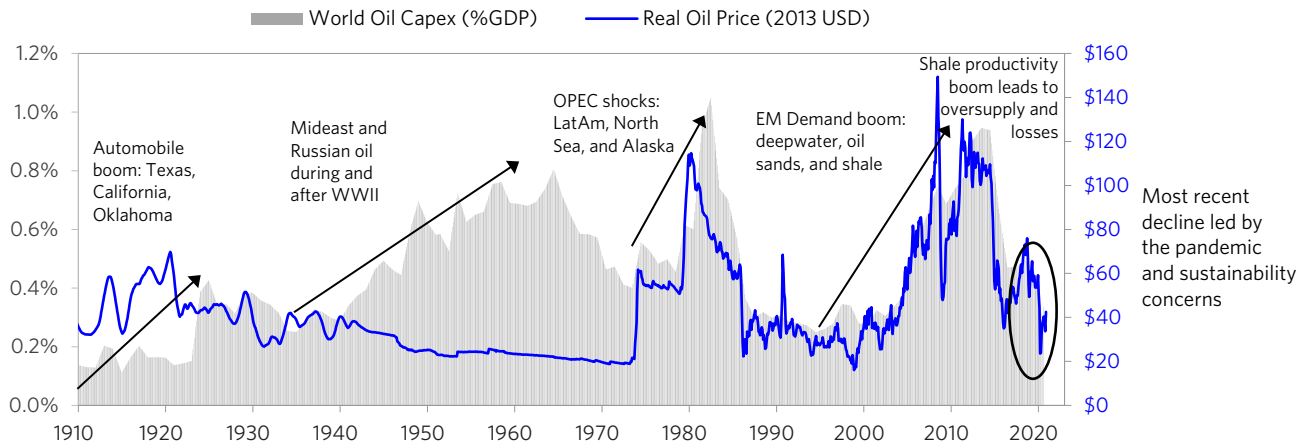
Classic Bottom of the Oil Capital Cycle or Secular Oil Industry Decline?

When we look at the oil industry today, we see what looks like a classic bottom of the commodity capital investment cycle, where a prior supply boom and massive investor losses, combined with low prices driven by pandemic-weakened demand, are leading to a major leg down in investment. Often at this stage of the cycle investors extrapolate the backward-looking weakness just as low investment creates the seeds of a reversal. Both the shallow oil curve and oil equities are discounting significant weakness. Of course, there are a number of secular dynamics that could be reflected in the pricing. And in this particular case the pricing could be discounting a quick transition away from oil (and that the industry won't be able to adapt to that shift), high regulator and policy risks and risk premiums, and that a growing share of investors aren't willing to own these companies at any price. In other words, the pricing suggests that this may be the last major oil cycle as opposed to another boom/bust event that happens every couple decades. We start with a description of how the typical investment cycle tends to play out and then go through the more secular drivers of oil demand, ending on some perspectives on what is discounted for oil companies today.

- 1) In the first phase, a pickup in commodity-intensive growth causes a global **surge in demand** for commodities that outstrips supply. As demand pushes up against capacity limits, prices rise.
- 2) In the second phase, high prices caused by supply/demand imbalance induce large amounts of capital expenditure. As prices rise, margins widen and profits increase. Producers, flush with cash, invest in profitable opportunities to expand production. There is a massive **investment boom**. This supports growth and inflation as capital expenditure accelerates.
- 3) The third phase is typically marked by a slowdown in commodity demand that occurs when the original growth that sparked the cycle fades and high prices incentivize reductions in demand growth by encouraging substitution and efforts to improve efficiency. Simultaneously, the investment boom begins to bring new supply online, demand/supply imbalances ease, and prices stabilize—helping to set in motion the increase in supply and reduction in demand that eventually leads to the **turning of the cycle**.
- 4) In the fourth phase, there is a **supply glut**. The balance between demand and supply swings sharply in the other direction, as production is much greater than demand.
- 5) As prices fall, margins for commodity producers are squeezed. And, in the fifth phase, producers respond to low prices by slashing investment and in some cases shutting down production permanently. This decline in supply eventually brings the market back into balance, as the **low investment decreases capacity**, sowing the seeds for the next cycle. **This is where we are today.**

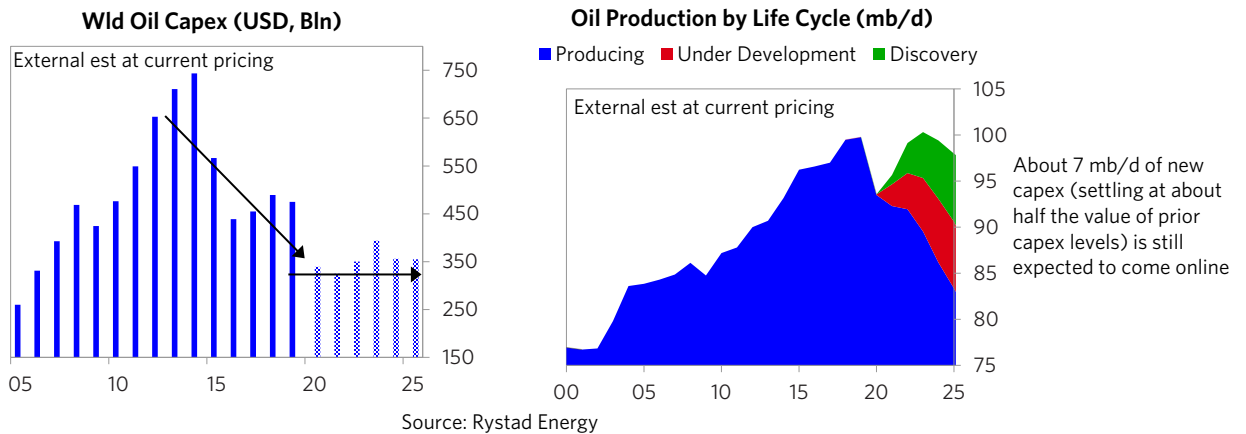
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The Long-Term Oil Investment Cycle



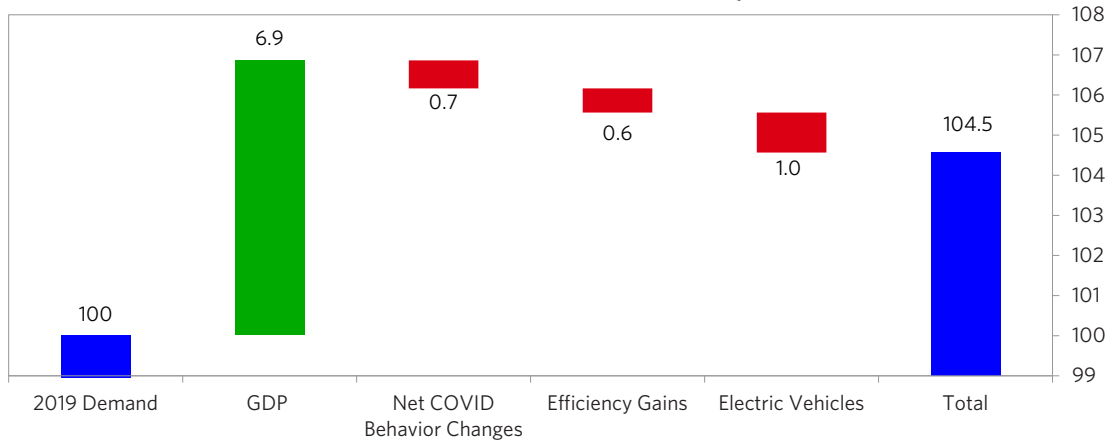
The next two charts zoom in on the recent capex cuts and the consensus expectations of what they mean for production. These estimates are by their nature imprecise. The cuts in the last five years didn't lead to declines in production because of the shale productivity gains. The investment that did occur in the US over the last five years led to production increases, lower prices, and substantial losses. At least for now, the lessons of this period are front of mind and the focus is on deleveraging and capital return to investors rather than growth. For profitable producers, the planned cuts in production are actually intended to keep production flat or up modestly, while many less profitable producers are cutting back.

The chart on the right shows what these cuts imply for production. A rebound is likely based on prior capex (the red area), while new investment (likely more than is now planned at current prices) will be needed to get production to return to pre-COVID levels.



Consensus expectations are that oil demand is likely to grow over the next five years, and almost all estimates we are aware of don't indicate a meaningful inflection point is likely before 2030. The first chart below shows expectations for the next five years. The consensus expectation is for oil demand to grow over the next five years as the global economy recovers and many in Asia join the middle class. COVID-related changes and electric vehicle adoption over this time frame are expected to be small negative influences.

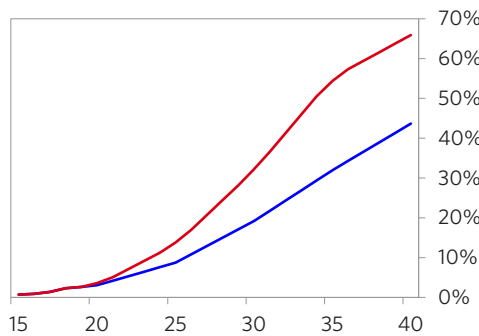
Base Case for 2025 Oil Demand (mb/d)



A key reason that consensus expectations are for a relatively slow transition away from oil is that the shift to electric vehicles is just starting and it will likely take time for the global auto fleet to turn over.

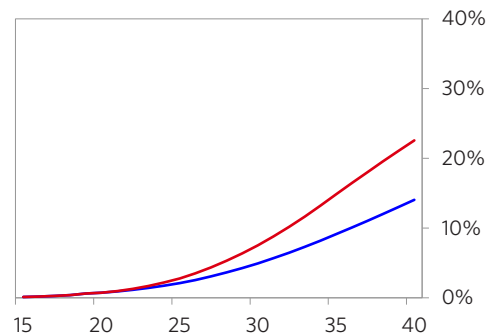
Wild EV Sales (% Total Light Vehicles)

— Consensus Est — Aggressive Policy

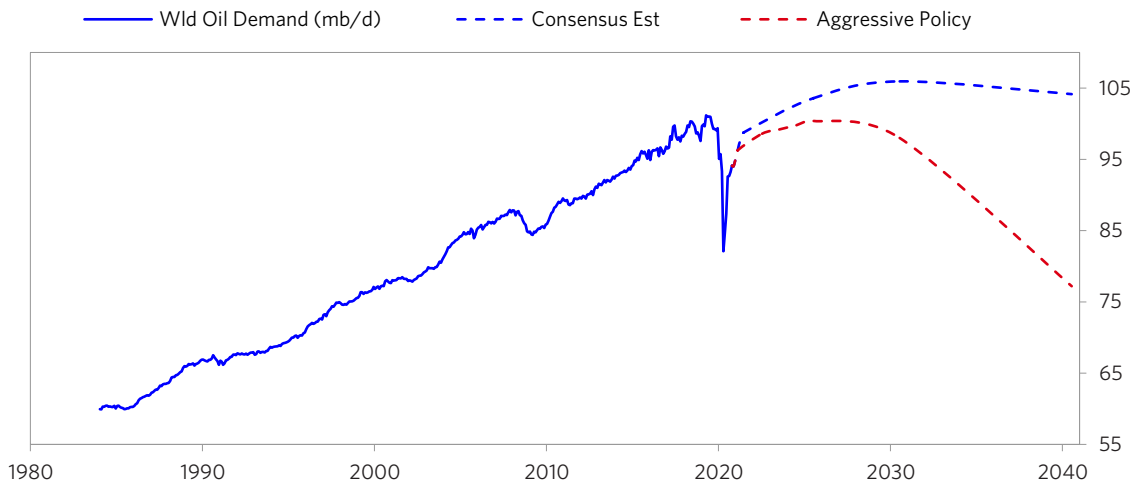


EVs (% Total Fleet)

— Consensus Est — Aggressive Policy



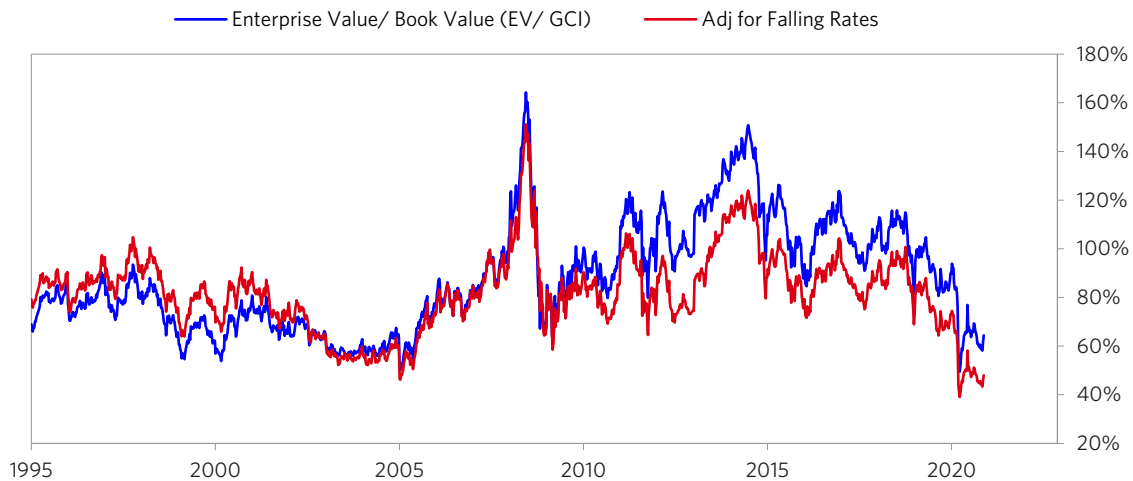
Looking beyond the next few years, it is likely that policy choices and technological developments will play a meaningful role in the path for oil demand. These changes will need to overcome the natural growth in energy demand coming primarily from a growing middle class in India and China, as well as oil use outside of transportation, such as plastics. It will also take time before the current fleet turns over to electric even under aggressive plans, as shown above.



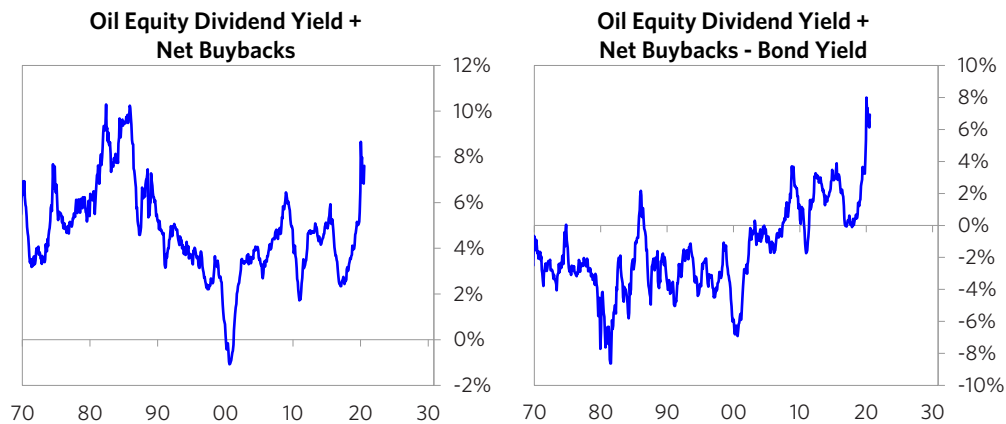
The charts below provide perspective on the pricing and current profitability. We show a few perspectives, as each perspective requires a different set of assumptions. Regardless of how you cut it, the pricing below implies either a much more pessimistic outlook than the consensus perspectives above, or much higher uncertainty and risk premiums.

What Oil Equities Are Discounting

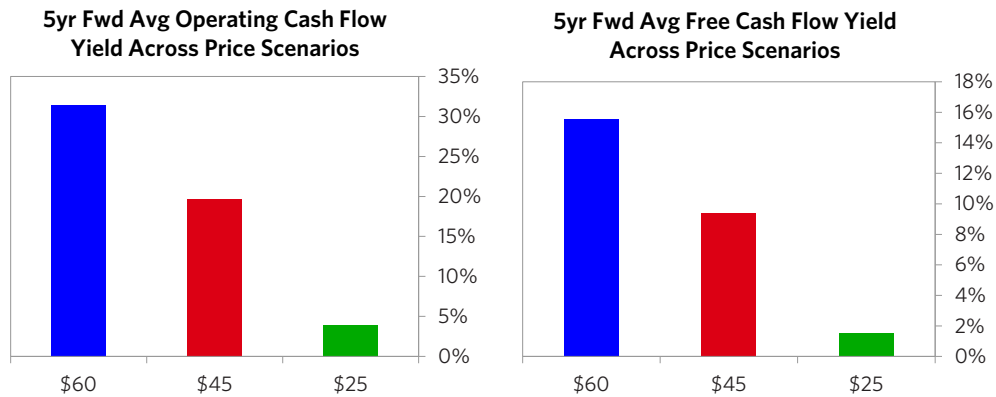
The blue line on the first chart below is a rough proxy for the value of oil sector stocks relative to discounted cash flows from extracting reserves (using a 10% discount rate). This perspective is consistent with the total value of oil equities and debt being worth about half of the value of future expected production. This calculation heavily discounts production beyond the next 10 or 15 years, so it implies a fairly pessimistic outcome. The red line adjusts for the secular decline in rates and implies even more weakness relative to history.



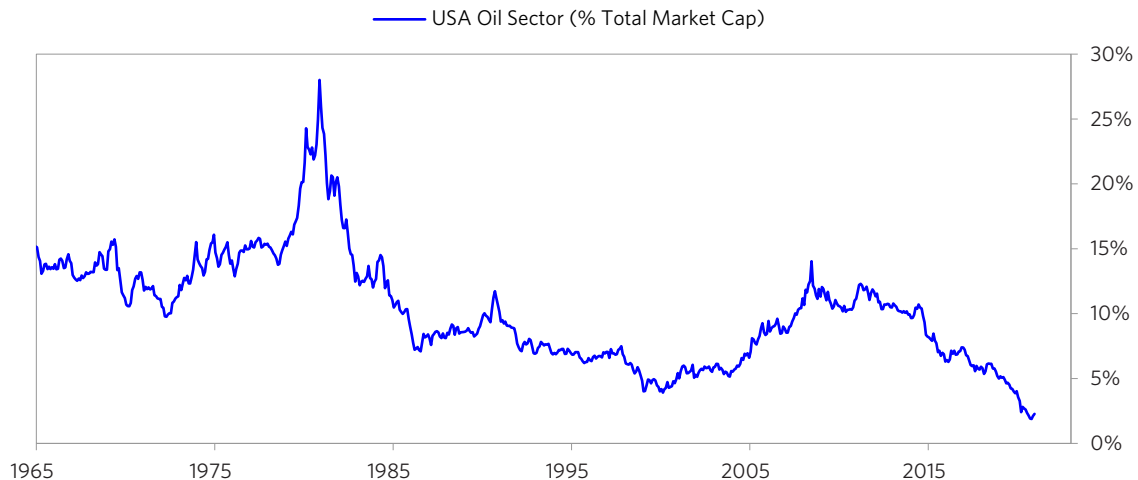
Perspectives that focus on the current level of investor returns show a similar picture (here, high levels mean high yield and low prices). While some dividends may still be slashed as the industry adapts to lower prices, substantial adjustments have already occurred. The dividend yield plus buybacks is at levels not seen since the 1980s. If you adjust for the fact that you could earn high yields just by buying treasuries (chart on the right), the pricing is clearly at extremes today (consistent with discounted expectations of these flows declining relatively quickly).



Another perspective is to look at bottom-up free cash flow yields at different oil prices. The oil industry has substantially lowered its costs in recent years, a trend that has accelerated over the last couple of years. With oil prices around current levels, most of the industry is fairly profitable. Profitability roughly doubles at prices of \$60. The last year was a good test of what happens when oil prices drop to around \$30, with declines in production and shut-ins leading to supply adapting to weaker demand. Most of the industry would not be profitable at prices below \$30, though some producers would be able to eke out small profits. The chart on the right shows free cash flow yield excluding any capex, and the chart on the left includes current levels of investment, which for the most part are sufficient to keep production roughly steady.



The chart below shows the market cap of the US oil industry relative to the overall equity market going back to 1965. This perspective is not a pure valuation metric, as it makes sense that over time, as a society gets wealthier, productivity would push energy to be a smaller part of the economy. Still, it is striking that oil went from being a major part of the equity market for 40 years, to about 10% less than a decade ago, to about 2% today. The huge shift is partially due to markets pricing in the secular decline of the industry, but it is also in large part due to the huge rally in other parts of the market.



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