

# WHAT INVESTORS NEED TO KNOW BEFORE PLAYING AN OIL RECOVERY

May 2020

Since the beginning of the year, crude oil, whether you look at the WTI or Brent benchmark, has been hit by a combination of demand and a supply shock. On the demand side, the Covid-19 and the lockdowns across the globe have been driving the consumption of oil to multi year lows. On the supply side, the disagreements among the OPEC+<sup>1</sup> and more generally among oil producing countries have created a glut of production that is only starting to be corrected. This deadly combination has driven oil price to historical lows, with a contract in WTI crude oil going negative for the first time ever<sup>2</sup> and has driven volatility to historical highs<sup>3</sup>. The volatility year to date of an investment in the front month WTI futures contract is 162%. Significantly higher than any other asset class. However, many investors are now positioning themselves for an economic recovery and an increase in the price of oil. For example, WisdomTree has seen US\$2.7bn inflows into WTI exchange traded products (ETPs) and US\$0.7bn into Brent ETPs<sup>4</sup>.

When positioning for this oil recovery investors are facing a series of choice that will greatly impact the probability of a positive return on their investment. They must choose:

- + When to enter and when to exit the trade?
- + What crude oil benchmark to invest in, WTI or Brent?<sup>5,6</sup>
- + What Futures contract to invest in, in other words, how far out on the respective oil Futures curve?

This third choice is one that is often overlooked by investors despite its fundamental impact on the performance of the investment in a recovery. In this blog, we aim to conduct a detailed review of some previous oil crises and subsequent recoveries to highlight the advantages and weaknesses of investing at the front end of the futures curve or further along the curve in longer dated contracts.

Our findings show that picking front month Futures contract translates more often than not into

- + Higher volatility
- + Higher roll costs

<sup>1</sup> Organization of the Petroleum Exporting Countries and their partner countries

<sup>2</sup> See [Nymex WTI front month futures trade negative](#), 21st April 2020

<sup>3</sup> See [An age of unprecedented oil volatility](#), 27th March 2020

<sup>4</sup> Data from 1st Jan 2020 to 1st May 2020

<sup>5</sup> See [Brent and WTI – A tale of two benchmarks](#), 4th May 2020

<sup>6</sup> See [From underdog to champion? Brent could be the favoured oil benchmark](#), 4th May 2020

- + Better performance in a sharp, fast recovery of the Spot price
- + Large loss when the Spot price decreases
- + Large loss when Spot is stable but curve is in deep Contango

On the contrary, picking a futures contract further along the curve translates more often than not into

- + Lower volatility
- + Lower roll costs
- + Better performance in slower more gradual recovery of the Spot price
- + Reduced loss when the Spot price decreases
- + Reduced loss when Spot is stable but curve is in deep Contango

**Front months futures contracts exhibit higher volatility and increased drawdowns**

In figure 1, we consider an investor who invested in a given contract (being the 1st or the second or the third and so on) and who rolled his position every month, 3 business days before the front month contract expired. This investor would therefore continuously be invested around the same point of the curve. This is typically what an ETP would do. A front month ETP would roll regularly to maintain a position around the front of the curve. A longer dated ETP would also roll regularly to maintain its position away from the front of the curve.

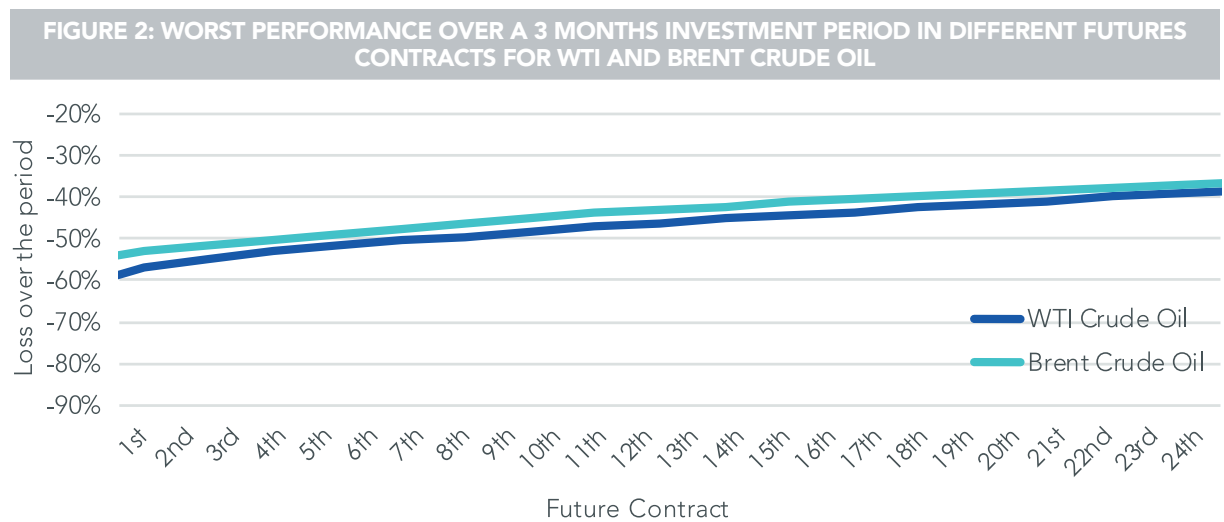
What is clear is that the closer to the front month the investor’s investment is, the higher the volatility of returns. The historical volatility of an investment in the front month (1st) futures contract is 40.5% and 35.9% in WTI and Brent respectively. Moving to the 3rd contract reduces this volatility to 34% and 30% already. The 12th Futures contract exhibit 26.5% and 27% historical volatility respectively. In other asset classes, like equities, strategies that lower volatility tends to be sought after—it’s interesting that oil has tended to be the opposite.

**FIGURE 1: HISTORICAL VOLATILITY OF INVESTMENTS IN DIFFERENT FUTURES CONTRACTS FOR WTI AND BRENT CRUDE OIL**



Source: WisdomTree, Bloomberg. Period from Jan 1996 to May 2020 for WTI and from Feb 2005 to May 2020 for Brent. Calculations on daily return in USD. Contracts are rolled systematically on close over 1 day, 3 days before expiry. **Historical performance is not an indication of future performance and any investments may go down in value.**

What is even more important is that this volatility translates into drawdowns. Figure 2 highlights the worst performance over a 3-month period that an investor would experience depending on his position on the futures curve. An investor in the front month (1st) futures contract could have lost -84.4% and -70.3% in WTI and Brent respectively over this worst 3 months period. Moving to the 3rd contract would have significantly reduced this worst-case scenario with losses of “only” -63% and -58.9% respectively.



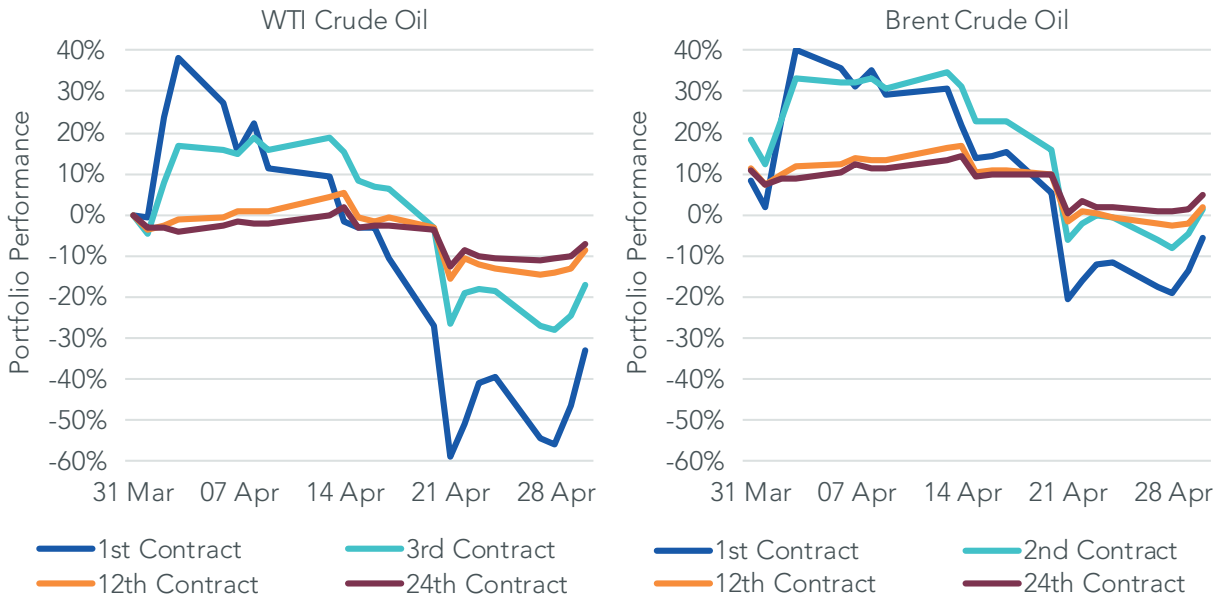
	1st Contract	3rd Contract	6th Contract	12th Contract	24th Contract
<b>WTI</b>	-84.4%	-63.0%	-57.1%	-52.0%	-45.0%
<b>Brent</b>	-70.3%	-58.9%	-54.9%	-49.8%	-43.8%

Source: WisdomTree, Bloomberg. Period from Jan 1996 to May 2020 for WTI and from Feb 2005 to May 2020 for Brent. Calculations on daily return in USD. 3M is defined as 60 business days. Contracts are rolled systematically on close over 1 day, 3 days before expiry. **Historical performance is not an indication of future performance and any investments may go down in value.**

On the 20th April 2020, the May 2020 WTI Future Contract (the Front Month Contract) went negative a day before its expiry. It was the first time ever that an oil contract exchanged for a negative price<sup>7</sup>. Assuming that an investor in the front month contract rolled 3 days before expiry, as we have assumed above, then he would not have been impacted by that drop below zero. However, would he have been spared completely? Would his performance have been at par with an investor invested further along the Futures curve?

<sup>7</sup> See [Nymex WTI front month futures trade negative](#), 21st April 2020

**FIGURE 3: APRIL 2020 PERFORMANCE OF INVESTMENTS IN DIFFERENT FUTURES CONTRACTS FOR WTI AND BRENT CRUDE OIL**



Source: WisdomTree, Bloomberg. Period 31st March 2020 to 30th April 2020. Calculations on daily return in USD. Contracts are rolled systematically on close over 1 day, 3 days before expiry. **Historical performance is not an indication of future performance and any investments may go down in value.**

Figure 3 shows that he would have suffered greatly from the higher volatility of this contract and its higher propensity to follow the Spot price over the month of April. In fact, there is a stark difference between a front month investor in WTI that would have lost 60% of their investment as of the 21st April and a 3rd futures contract investor that would have lost “only” 25% at that point in time. It is a much different proposition to think about recovering from a 25% loss (requires a 33.33% return) than it is from recovering from a 60% loss (requires a cumulative 150% return).

It is worth pointing out as well, that investors in Brent were not subject to such volatility. 1st Contract investors in Brent suffered a -25% loss at the worst point in the month. The main reason for this difference between WTI and Brent being that Brent futures contract did not go negative in April, quite far from it. The WTI Futures contract is physically settled i.e. on expiry barrels of oil change hands and therefore storage has to be found near Cushing, Oklahoma which happened to be very difficult in April. On the other hand, the Brent contract is cash settled i.e. only cash changes hands. As described by Nitesh Shah in his blog [“From underdog to champion? Brent could be the favoured oil benchmark”](#), on the 4th May 2020, there is no physical bottle neck that can impact the Brent Future.

Therefore, front month contracts have been riskier as, they have had higher volatility, have had higher drawdowns and they have tended to be significantly more sensitive to issues in the physical market. So, has that translated well in terms of better performance into recoveries?

**How to benefit from an oil recovery? It depends on the shape of that recovery**

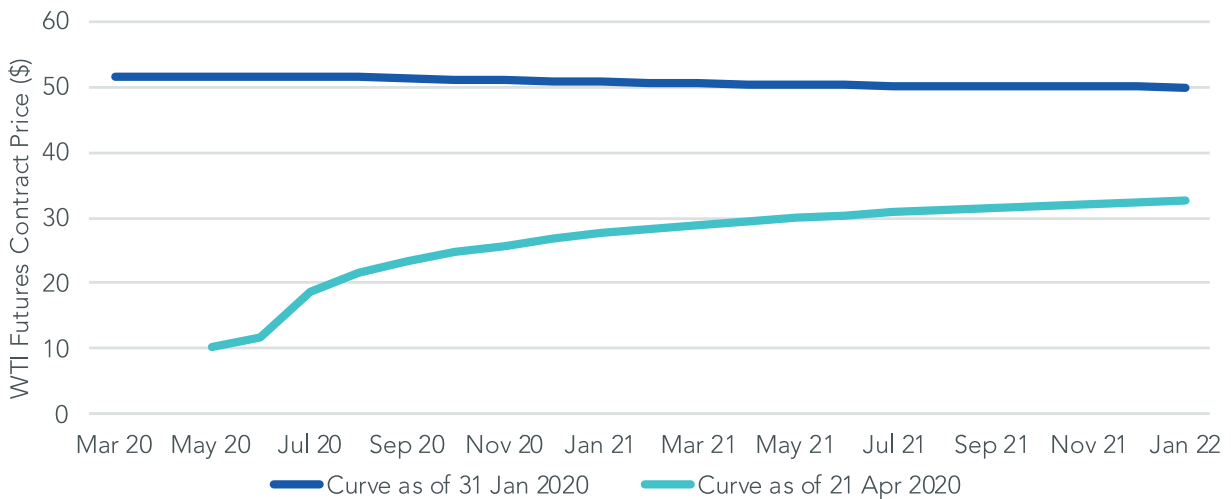
Understanding the behaviour of the oil Futures curves during price recoveries, in the wake of oil price crashes, can be very tricky. During an oil crash, investors have usually observed two concomitant events:

- + The Spot price goes down

- + The curve steepens into deep contango i.e. the price difference between a Futures contract and the one just before it in the curve increase to large levels. Simply put, the market is assuming through price behaviour that future oil prices will not persist at similarly low levels. Usually, there is a reason why supply is perceived to be very high relative to demand in the near-term, but history has shown that these forces have tended to come back to better equilibrium in the medium to longer-term, allowing prices to rise.

This is what we have observed in Q1. In January, the curve was very flat with only a few dollars price difference between the 1st and 24th contract. By mid-April, the spot price had lost more than 40 dollars and the curve was in deep contango with the front month contract \$20+ cheaper than the 24th one. (see figure 4). Of course, in January we must remember that COVID-19 was really impacting China, whereas by mid April it was impacting the entire world, thereby contributing to a massive supply/demand imbalance in the oil market.

FIGURE 4: WTI FUTURE CURVES AS OF 31ST JANUARY AND 21ST APRIL 2020



Source: WisdomTree, Bloomberg. **Historical performance is not an indication of future performance and any investments may go down in value.**

During the recovery, investors hope to benefit from increases in the spot price but two effects are at work that diminishes their potential returns:

- + The Curve Flattening: When the Spot price increases, the future curve tends to flatten i.e. the price difference between the different futures contracts gets smaller and smaller. This flattening means that the investor does not benefit from the full gain in the spot price. For example, if investors expect the situation to normalize i.e. go back to January status quo then the spot price would move from close to 0\$ to 50\$, a gain of almost 50\$ and the curve would flatten (January curve was very flat). In this scenario, the first contract would move from 10\$ to 50\$ i.e. 40\$ or 10\$ less than the spot, the second contract would move even less from 12\$ to 50\$ i.e. 38\$ and the 24th contract only from 32\$ to 50\$ i.e. 18\$.
- + The Roll Cost: Every day that the investor holds an oil Futures contract waiting for the Spot price recovery, the investor loses money because of the roll cost. The curve being in deep contango in such scenarios can translate into large losses.

For more details on the impact of roll costs on Futures contract investment see [“Why does it matter commodity ETPs are exposed to Futures contracts not the physical Spot?”](#).

When combined, those two phenomena, mean that oil investors never fully benefit from the spot price rebound but only from a part of it. In a way, it would be better if they didn't consider the concept of “the price of oil” and actually only considered the specific performance of the exact futures position defined in their exposure.

The part that is tricky is that both effects don't have the same amplitude for each futures contract. The curve flattening tends to impact long dated futures more strongly. The roll cost tends to impact the front of the curve more strongly. This means that depending on the shape of the recovery, the best investment will differ:

- + In rapid recovery, front month future contracts will do better because they'll rebound faster (less impacted by the curve flattening) and they won't have been hurt by the roll cost for long
- + In a slow recovery, longer dated contracts will do better because what they won't have lost in roll costs will more than compensate for the increased flattening cost.

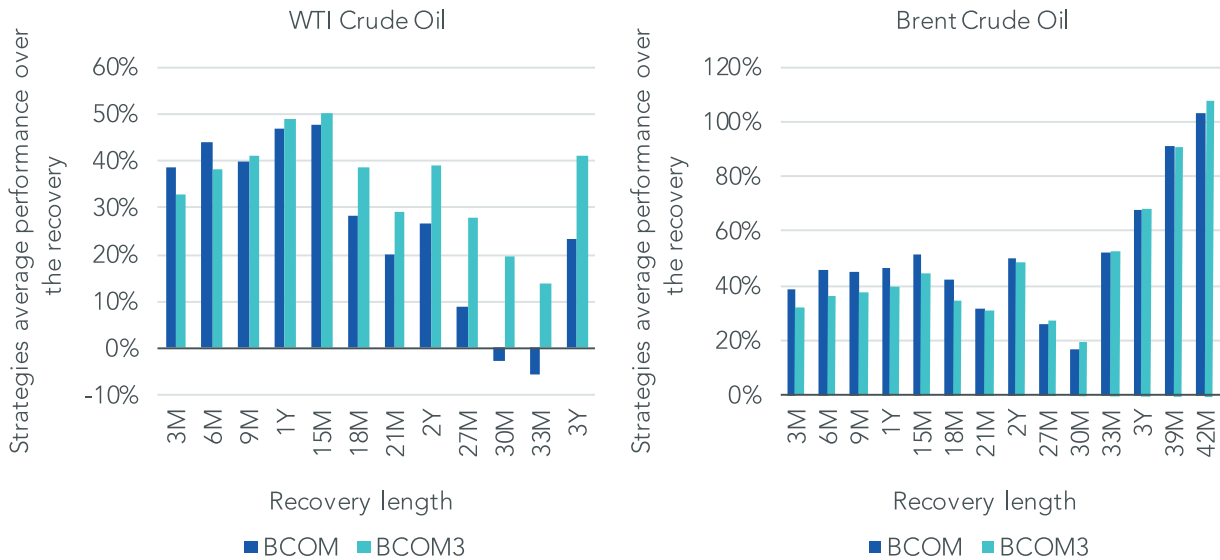
#### The impact of the speed of the recovery on different investment strategies

In figure 5, we use history as a guide to understand the impact of the curve flattening and the roll cost on the performance of 2 different investment strategies:

- + BCOM Index i.e the Bloomberg Commodity Index which rolls futures close to the front month (between the 1st and the 3rd in general)
- + BCOM3 Index i.e. the Bloomberg Commodity 3M Forward Index which rolls futures further along the curve (between the 4th and the 6th in general)

Figure 5 shows the average performance over an oil recovery, for each of those 3 strategies, depending on the length of the recovery itself. An oil crash is defined by the spot price (proxied by the front month futures contract) losing more than -25% in less than 12 months. The recovery is finished when the spot price has either doubled or come back to its pre-crash level whichever comes first.

FIGURE 5: AVERAGE PERFORMANCE OF OIL INVESTMENT STRATEGY DEPENDING ON RECOVERY SPEED



Source: WisdomTree, Bloomberg. Period from Jan 1996 to May 2020 for WTI and from Jan 1995 to May 2020 for Brent. Calculations on daily return in USD. **Historical performance is not an indication of future performance and any investments may go down in value.**

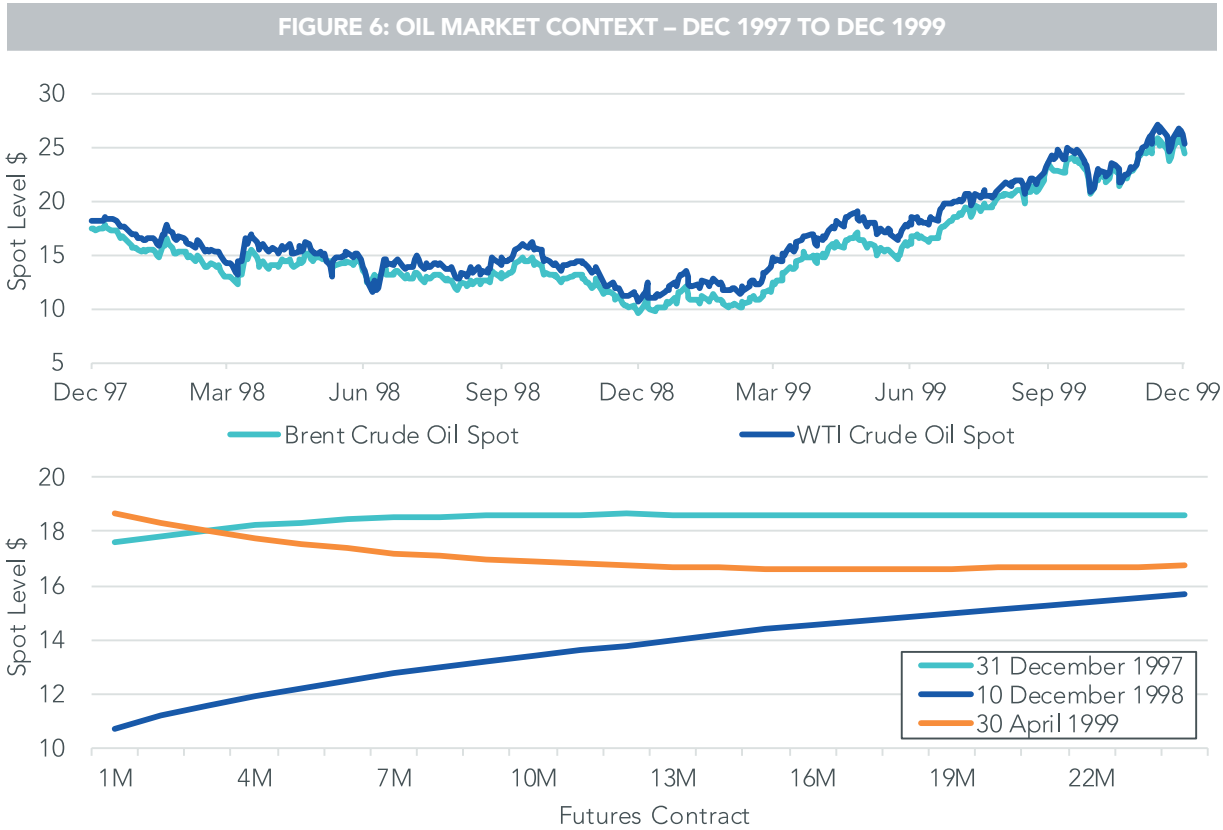
It appears that for investments in WTI crude oil, any recovery longer than 6 months would benefit BCOM 3M forward over BCOM. In fact, if the recovery takes longer than 2 and a half year, an investment in BCOM would lose money despite the fact that the spot price more than doubled over the period.

In Brent crude oil, BCOM outperforms for recovery up to 2 years long. Brent curve tends to remain less in contango than the WTI curve and therefore the front end of the curve suffers less which is why the results are so different between WTI and Brent.

This confirms that the longer the recovery the more likely the longer dated futures contract will outperform. However, the impact of roll costs on WTI futures contract investment is very high and depending on the speed of the recovery investing in the front end of the curve may wipe all gain from spot increases.

**Oil Crash of Q4 1998 – A lightning fast recovery**

The Asian and Russian economic crisis of 1997-1998 was a negative demand shock for oil. But even before that, slippage in OPEC quota compliance was adding to a supply shock (especially when Saudi Arabia, which had for a long-time resisted production increase, responded to competition from other OPEC members and raised output). At the end of 1997, oil was in slight contango (light blue line in Figure 6. By 10th Dec 1998, oil had crashed hitting a low and as expected, the curve steepened to a very deep contango (dark blue line in figure 6). However, the recovery for oil prices was very fast as a result of OPEC actions. Not only did OPEC tighten quotas and compliance, it combined efforts with non-OPEC countries for the first time, strengthening the effects of the cartel in constraining excess supply. Remarkably, by April 1999, the Spot price had recovered, and the curve flatten to such an extent that it inverted in backwardation (orange line in figure 6). Backwardation—the opposite condition to contango—usually signals that demand is currently outstripping supply, but that the market believes there will be production increases that will bring supply into a better future balance, causing prices to drop in the medium to long term.

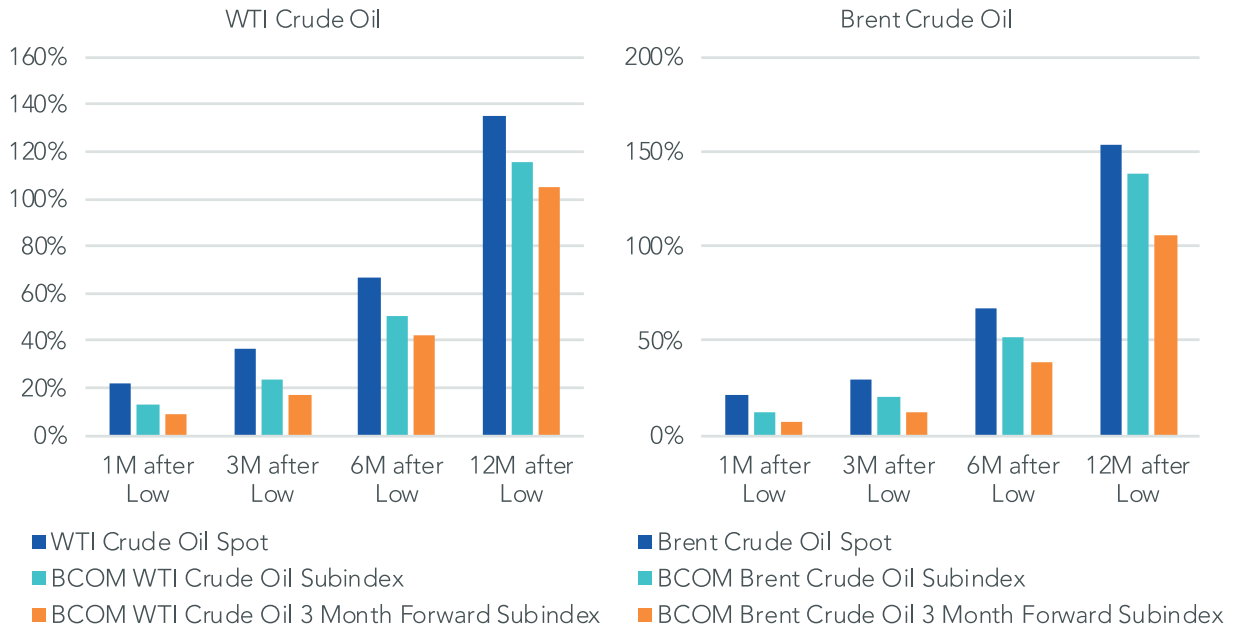


Source: WisdomTree, Bloomberg. Period from Dec 1997 to Dec 1999. **Historical performance is not an indication of future performance and any investments may go down in value.**

Assuming perfect 20/20 vision, figure 7 shows the performance of the 2 strategies from the low point (10th Dec 1998) over different time horizons. Because of the speed of the recovery in that instance, figure 7 shows that BCOM i.e. investment in the front of the curve has performed very strongly. It does not mean that BCOM 3M forward has not performed very strongly, it still doubled over the 12 months. However, it lagged compared to an investment closer to the front of the curve. The recovery, as defined above, lasted 4.5 months and the reality aligned perfectly with the findings discussed previously.



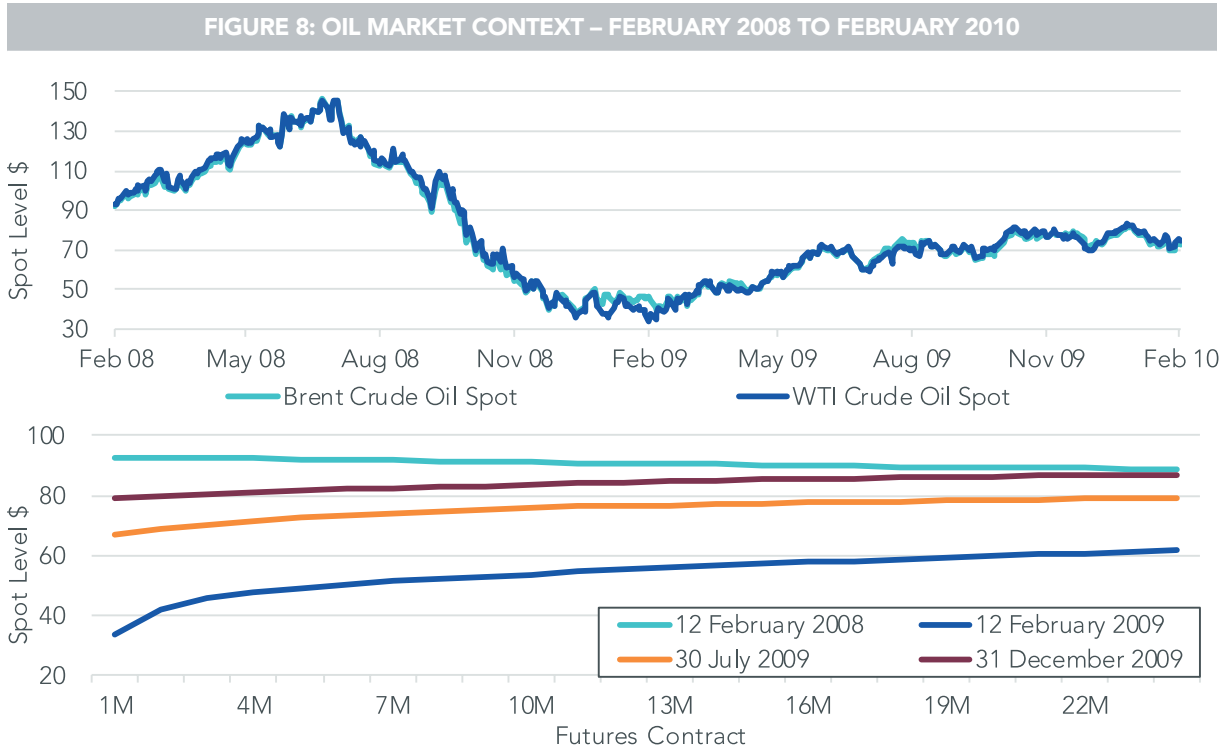
FIGURE 7: PERFORMANCE OF DIFFERENT INVESTMENT STRATEGIES OVER THE RECOVERY



Source: WisdomTree, Bloomberg. Period from Dec 1998 to Dec 1999. **Historical performance is not an indication of future performance and any investments may go down in value.**

**Oil Crash in the Great Financial Crisis– A slow, progressive recovery**

In the Great Financial Crisis, oil prices started to fall in the summer of 2008. Economic deceleration had started well ahead of the Lehman Brother collapse in September 2008. oil prices hit a low on 12th February 2009 with the curve moving from being very flat early in 2007 (light blue line in Figure 8) to a very deep contango (dark blue line in Figure 8). The recovery path was slow. While equities, bonds and other financial assets responded well to monetary easing, demand from the real economy took a long time to rebuild. Therefore, the demand for oil remained weak and only allowed for a measured gain in oil prices. In July, a few months after the low, the spot had recovered slowly but the curve was still in contango (orange line in Figure 8). Ten months after the crash, the Spot price was still in recovery and the curve only slightly in contango (red line in Figure 8).



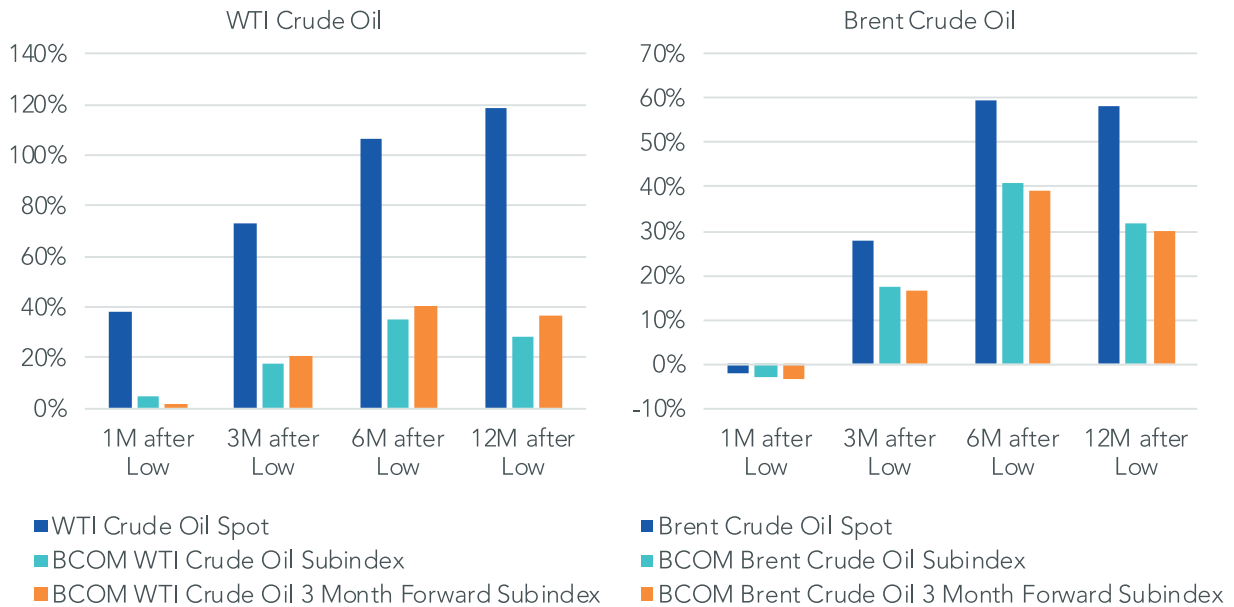
Source: WisdomTree, Bloomberg. Period from February 2008 to February 2010. **Historical performance is not an indication of future performance and any investments may go down in value.**

Assuming perfect 20/20 vision again, Figure 9 shows the performance of the 2 strategies from the low point (12th February 2009) over different time horizons. Because of the relative slowness of the recovery in that instance, Figure 9 shows that for WTI, BCOM i.e. investment in the front of the curve has underperformed an investment further along in the curve for most investment periods. It is also clear that none of the strategies have captured the full increase in the Spot price. In 2009, the WTI futures curve was in deep contango for a long time, therefore, an investor in BCOM ended up paying a lot more in Roll Cost than they gained in Spot price moves. Investors in BCOM3 benefitted from lower Roll Cost and therefore ended up with a better performance.

In Brent crude oil, the situation was different. Contango at the front of the curve was less deep and therefore, BCOM and BCOM3 performance in a similar manner over the different investment periods.

The recovery, as defined above, lasted close to 2 years. The results, in this case, aligns with our previous findings as well with a recovery long enough to benefit BCOM3 in WTI but not long enough to do so in Brent.

FIGURE 9: PERFORMANCE OF DIFFERENT CONTRACTS OVER THE RECOVERY



Source: WisdomTree, Bloomberg. Period from February 2009 to February 2010. **Historical performance is not an indication of future performance and any investments may go down in value.**

**Looking ahead to a possible post Covid-19 recovery**

Judging by how volatile oil prices have been over the past months, forecasting oil's next move appears to be a futile task. However, in the absence of new oil policy measures (by OPEC+ for example) or terrorist related supply shocks, we believe the most likely path will be a slow recovery. We believe that OPEC+'s current quota, despite being the largest coordinated cuts to production seen in history, is not enough to absorb the oil glut in the short-term. Even though rigs in operation in the US are falling at a rapid rate, it is difficult to shut a lot of production off immediately in this era of ultra low prices. Getting the pressure and flow rates to the right level are difficult when re-opening wells and it requires lots of new investment, so producers think twice about shutting them off in the first place. Some producers are locked into leases that they will lose if they shut production off. But the OPEC+ deal does last until 2022 (albeit at a tapered rate). In addition, supply cuts outside of OPEC+ nations are taking place as the economics of production appear weak. After a certain point, the aforementioned sunk costs are worth sacrificing to stem current losses. Also, a dearth of capital expenditure today will set the markets up for tightness in the future. But it will take time for this latter aspect to work its way through.

## IMPORTANT INFORMATION

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