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Understanding The Performance of The Betashares Crude Oil Index Currency Hedged Complex ETF (ASX: OOO)

Most equity ETFs provide their exposure by holding a portfolio of shares. Movements in the price of the shares in the portfolio are reflected in changes in the net asset value (NAV) of the ETF, and so the ETF can be expected to closely track these movements.

Similarly, the Betashares Gold Bullion ETF – Currency Hedged (ASX: QAU) holds physical gold bullion, and so the ETF's price is expected to closely track changes in the spot price of gold.

However, most commodity ETFs do not work this way. Because it is inconvenient and expensive to buy, hold and store physical commodities like oil, wheat and wool, these ETFs gain their exposure via futures contracts. The performance of these ETFs is therefore linked to commodity futures, and may be materially different to the performance of the spot price of the commodity itself.

Understanding commodity futures is critical to understanding the performance of the Betashares Crude Oil Index Currency Hedged Complex ETF (ASX: OOO).

How does OOO work?

OOO aims to track an index that provides exposure to WTI Crude Oil futures.

To do this, the ETF invests its assets in cash and is paid the performance on the underlying futures-based index by a counterparty via an agreement with one or more financial institutions. This agreement is known as a 'swap agreement'.

What determines your returns from OOO?

As OOO's performance payoff is related to futures, your returns from an investment in OOO depend primarily on three things:

- movements in the spot price of oil
- roll return – the return (positive or negative) that results from the process of rolling futures contracts
- (explained below)
- collateral return – the return the ETF makes from investing its assets in cash (typically a return close to the RBA cash rate).

What is 'roll return'?

WTI Crude Oil futures have a settlement date, on which the holder of a contract (i.e. a party with an outstanding 'long' position) is required to pay for, and take delivery of, the underlying oil. Most investors, including managers of oil ETFs, do not want to take delivery of oil. So if they want to maintain an ongoing exposure to oil beyond settlement of the futures contracts they currently hold, the investor must sell those contracts before they expire and buy new contracts with a later expiry date.

This process is known as rolling. The process of maintaining an ongoing exposure to a commodity through holding and rolling futures contracts involves either a cost, or a benefit – this is called 'roll return'. To understand it, we need to look a little closer at futures pricing.

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Futures pricing – contango and backwardation

Oil futures prices are influenced by a number of variables, including expectations of what the spot price of oil will be at maturity of the futures contract, and the costs of transporting, storing and insuring oil for the duration of the contract.

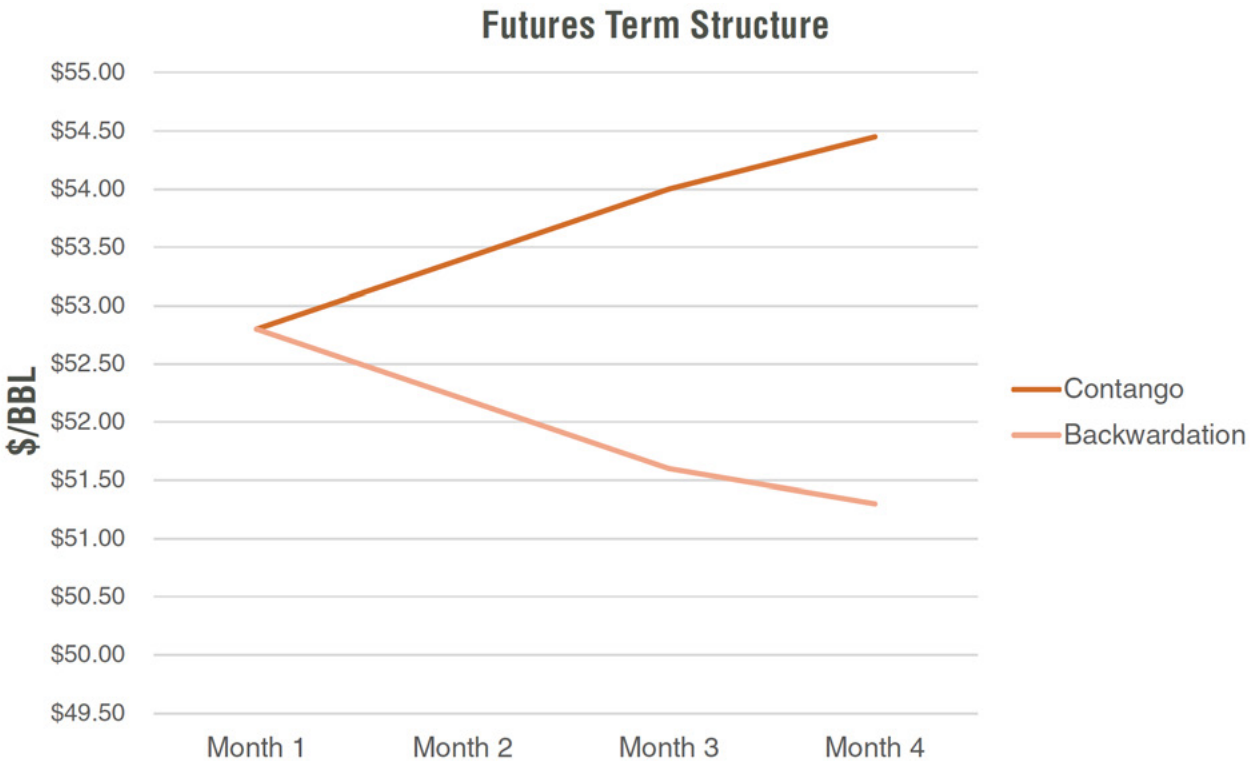
This means that the price of oil futures will not be the same as the spot price of oil, which refers to the price for immediate delivery of oil (and therefore does not have transport, storage and insurance costs built in) and is set by current supply and demand. Also, contracts of different maturities will trade at different prices.

You can plot the prices of oil futures of varying maturities on a graph to create a 'futures curve'.

Commodity futures markets are typically in one of two states:

- If the price of longer-dated oil futures is higher than the price of shorter-dated contracts (and higher than the spot price of oil), the futures curve slopes upward and the market is said to be in contango.
- If the price of longer-dated oil futures is lower than the price of shorter-dated contracts (and lower than the spot price of oil), the futures curve slopes downward and the market is said to be in backwardation.

Contango and backwardation are illustrated in the chart below.



How can I find out what the current shape of the oil futures curve is?

You can find information on the price of WTI crude oil futures and the current shape of the oil futures curve on the CME Group website. Please refer to **Current WTI Crude Oil Futures Curve**.

One other thing that is important to understand is that at maturity, the price of the maturing futures contract will be the same as, or very close to, the spot price. Futures and spot prices are said to 'converge' as maturity approaches.

Futures terminology

Convergence - the process by which the price of a futures contract approaches the spot price of the underlying commodity as maturity approaches

Contango – a situation where the price of futures is higher than the expected spot price of the underlying commodity

Backwardation - a situation where the price of futures is lower than the expected spot price of the underlying commodity

Why does the shape of the oil futures curve matter?

Whether the market is in contango or in backwardation is very important for investors in futures-based ETFs such as OOO, because of the impact on roll return.

The index that OOO aims to track holds the 'near month' futures contract, which expires (and must therefore be rolled ahead of expiry) on a monthly basis.

When the market is in contango, holding a long position in the 'near month' futures contract and subsequently rolling to the 'next month' contract will come at a cost, because the price of the contract being rolled out of (sold) will be lower than the price of the contract being rolled into (bought).

On the other hand, if the market is in backwardation, rolling a long position will result in a gain, because the price of the contract being rolled out of will be higher than the price of the contract being rolled into.

It is important to appreciate that there is no immediate, one-off change to the NAV of OOO each time a futures position is rolled to a later month. The change in NAV that is due to roll return is gradual, as the value of the futures contract converges towards the spot price as its expiry approaches. For example, if the market is in contango, OOO's NAV can be expected to decline gradually from one futures roll to the next (assuming the spot oil price does not change).

Remember that your overall return depends primarily on two things - the change in the spot oil price, and the roll return. If the process of maintaining a long oil futures position comes at a cost (i.e. roll return is negative), then the spot price of oil must rise at least that much in order to make an overall profit.

Example 1 – market in contango

Assume the following prices apply, and the November contract is due to cease trading (expire) today:

	Price per barrel
Spot oil	US$50
November oil features	US$50
December oil features	US$51

An investor enters into a long position in the December contract at US$51 per barrel, which after today will be the 'near month' contract.

Assume that the spot price of oil does not move over the next month. The price of the December contract will then gradually fall to be very close to the spot price of US$50, because of convergence.

Even though the spot price of oil has not changed, the position has lost US$1 per barrel over the month. Looked at another way, the spot price of oil must increase by US$1 over the month, simply for the position to break even.

To maintain exposure to oil futures the position will then have to be rolled into the January contract. If the price differential between the near-month and next-month contracts has remained constant, this roll too will be done at a cost.

It's clear that if the process of repeatedly holding then rolling contracts comes at a cost, roll return will be a drag on performance that must be offset by a rise in the oil spot price in order for there to be an overall profit.

Example 2 – market in backwardation

If, on the other hand, the market was in backwardation, the following prices might apply:

	Price per barrel
Spot oil	US$50
November oil features	US$50
December oil features	US$49

Again, assume the November contract is due to expire today and the spot price does not move over the following month. In this example the investor enters into a long position in the December contract at US$49 per barrel, which after today will be the 'near month' contract.

Over the next month the December contract price will gradually converge (rise) towards the spot price of US$50. The futures position has made US$1 per barrel over the month in roll return, despite no change in the spot price.

Looked at another way, the spot oil price could have fallen by US$1, and the investor would still have broken even.

Why is there contango and backwardation?

You can think of contango and backwardation as the price of storage worked into futures contracts. If you were to invest in physical oil, you would need to own or rent a storage facility or tanker. The cost of this would be relative to the current supply and demand for oil. If there is a glut of oil, and not enough storage capacity, then storage will be expensive, likely leading to a steep futures curve and a contango situation. However, if there is strong demand for oil relative to supply this would result in lower requirement for storage. The cost of storage would fall, which could lead to a relatively flat futures curve and a potential backwardation situation.

Oil futures markets can spend lengthy periods of time in a state of either contango or backwardation. However, the shape of the curve can shift rapidly. For example, in January 2020, crude oil futures were in backwardation. By April 2020, the curve had shifted dramatically to a state of steep contango. As the COVID-19 pandemic took hold and economies ground to a halt, demand for oil collapsed, and with it, the spot price of oil. At the start of January 2021, the oil futures market returned to a state of backwardation.

Changes to the shape of the curve can even occur intra-month, with the result that the actual roll return can turn out to be different from what is anticipated.

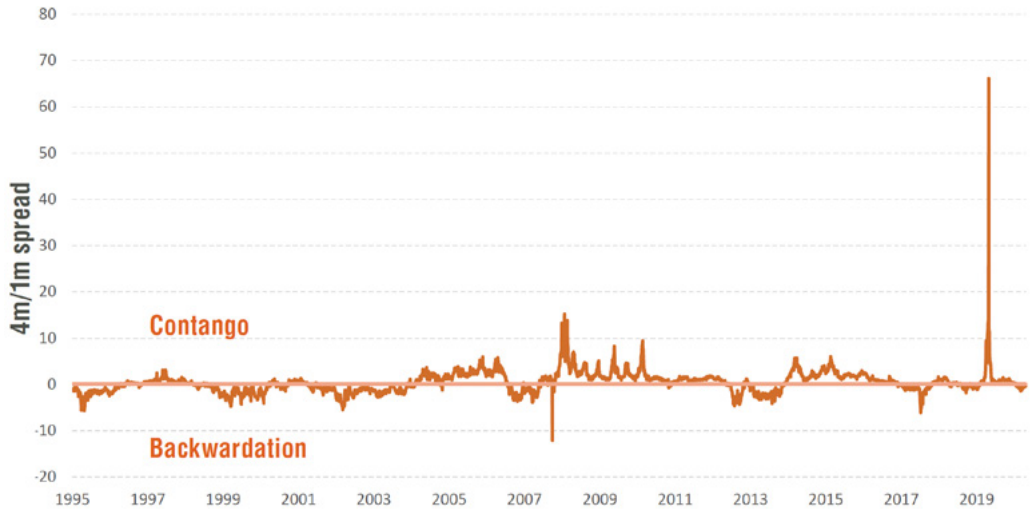
How much of the time are oil futures in backwardation vs. contango?

There is no hard and fast rule. WTI futures can be in one state or the other for extended periods (several years) or can move between backwardation and contango over much shorter timeframes (weeks or months).

For example, over the 16 years between December 1995 and November 2011, when OOO was launched, WTI futures spent approximately 53% of the time in contango, and 47% in backwardation. This figure is derived from a futures spread based on generic 1 to 4 months maturity.

However, as the chart below shows, the first ~9 years of this period were spent largely in backwardation, while the subsequent ~7 years were spent largely in contango.

WTI Futures – Contango and backwardation (4-month/1-month futures spread), December 1995 – April 2021



The massive contango spike in the chart above took place on 20 April 2020, when, for the first time in history, oil prices briefly fell below zero.

Since the launch of OOO, the WTI market has spent around two thirds of the time in contango. However, in early January 2021, the market went into backwardation, and as of 15 April 2021 was still in backwardation.

Summary

An investment in OOO is not the same as an investment in the spot price of oil. While spot and futures prices are typically highly correlated, you should not expect an ETF based on oil futures to provide an identical return to holding physical oil. At times there can be material differences in returns.

As futures contracts mature, the futures position must be rolled into a contract with a later maturity. Depending on the shape of the futures price curve, the roll may give rise to a profit or a loss. The continual process of rolling means that roll return will be an important factor in your overall returns from OOO.

You can check the current **WTI Crude Oil Futures curve here.**

About Betashares

Betashares is a specialist provider of fund products that are traded on the ASX. We offer the broadest range of ETFs and other funds on the ASX. Our objective is to provide intelligent investment solutions to help investors reach their financial goals.

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There are risks associated with an investment in OOO, including market risk, commodity volatility risk, commodity roll risk and derivatives risk. For more information on risks and other features of OOO, please see the product disclosure statement at www.betashares.com.au.

The index which OOO aims to track is based on the price of WTI crude oil futures contracts. Investing in commodity futures is not the same as investing in the "spot price" of a given commodity. As such, OOO does not aim to, and should not be expected to, provide the same return as the performance of the spot price of oil. The performance of ETFs that are linked to commodity futures may be materially different to the spot price for the commodity.

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