

Capturing Alpha Opportunities with the Nasdaq Commodity Crude Oil Index

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Executive Summary

A volatile crude market has created many exciting trading opportunities for commodity traders. We recommend looking at calendar spread to track the trend changes in the crude market. In this paper, we selected seven examples when the calendar spread was relatively high and has flattened or reversed in the relatively short periods. Calendar spread usually compresses at the time when the spot price rebounds. So it's not to our surprise that all of the seven trades are profitable. An interesting finding is that the Nasdaq Commodity Index (NQCI) was able to outperform the Bloomberg Commodity Index (BCOM) during five out of the seven trades. Moreover, with the higher the level of calendar spread and the higher the spot price appreciation, NQCI was more profitable than BCOM during the sample period from Jan. 2013 to Jun. 2018. We attributed the NQCI outperformance to the average shorter contract life that NQCI holds relative to BCOM during the upward spread compression periods.

Using Calendar Spreads to Bet on the Crude Oil Market

The crude oil market has seen dramatic regime changes in the last five years. Crude oil prices slumped since 2014 due to increased global oil supply driven by the breakthrough of shale drilling technology that has triggered a shale oil supply boom in the U.S.¹ Since the oil price bottomed at \$26 in 2015, the robust consumption needs backed by the recovering emerging market, the output reduction led by OPEC and, most recently, the U.S.'s sanction on Iran all have supported a crude oil rebound to above \$80 for Brent prices.

Nevertheless, the tug of war of crude oil prices has increased the market volatility and that becomes a favorable playground for commodity traders. In one of our previous discussions about Crude Oil², we introduced the use of the calendar spread between the generic 3rd month and 1st month contracts to time the crude market rally. In this paper, we're going to review some real examples using data between 2013 and 2018.

Using calendar spreads as an indicator to track the trend changes in the crude market has its profound reasons. Consider these:

- Traders would like to enter the crude market when they are expecting that the price is either in high demand or at good value (oversold).
- The shape of the forward curve is, in general, negatively correlated with the spot price movement. When spot prices rally, the front end will rise faster than the back end. Eventually the curve reaches the extreme position of backwardation, with front end price much higher than the back end prices, the current trend should come to a pause or reverse, vice versa.
- When we see a calendar spread is extremely negative, it could be the best time to short. Similarly, the best time to buy into crude is when the calendar spread is extreme positive.

1 Oil: An Ongoing Story of Supply and Demand, Nasdaq, November 2017

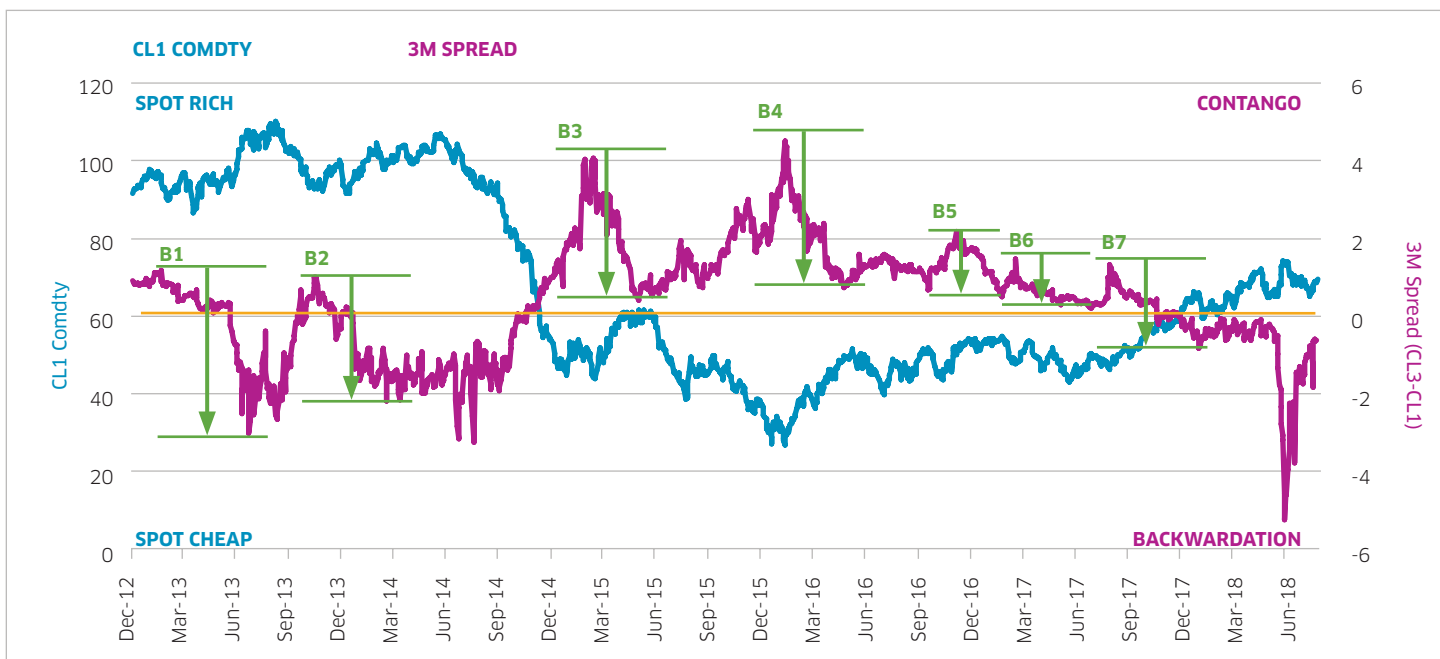
2 How to Trade Oil for a Better Timing of the Crude Bull, Nasdaq, November 2016

Trade Simulation with Positive Calendar Spreads

To demonstrate how to effectively use calendar spreads to bet on oil price rebounds, we selected seven examples when the calendar spread was relatively high and had flattened or reversed in relatively short periods. It's worth noting that our examples are not selected ex-ante or based on any systematic rules, but rather from an ex-post perspective to provide detailed reviews of the relationship between the calendar spread and oil prices and, most importantly, to compare the performance of the two popular oil benchmarks:

- Nasdaq Commodity Crude Oil Index (NQCI)
- Bloomberg WTI Crude Oil Sub index (BCOM)

Chart 1: Calendar Spread and Crude Oil Price



Source: Bloomberg, Nasdaq

3M Calendar Spread = CL3 Comdty - CL1 Comdty

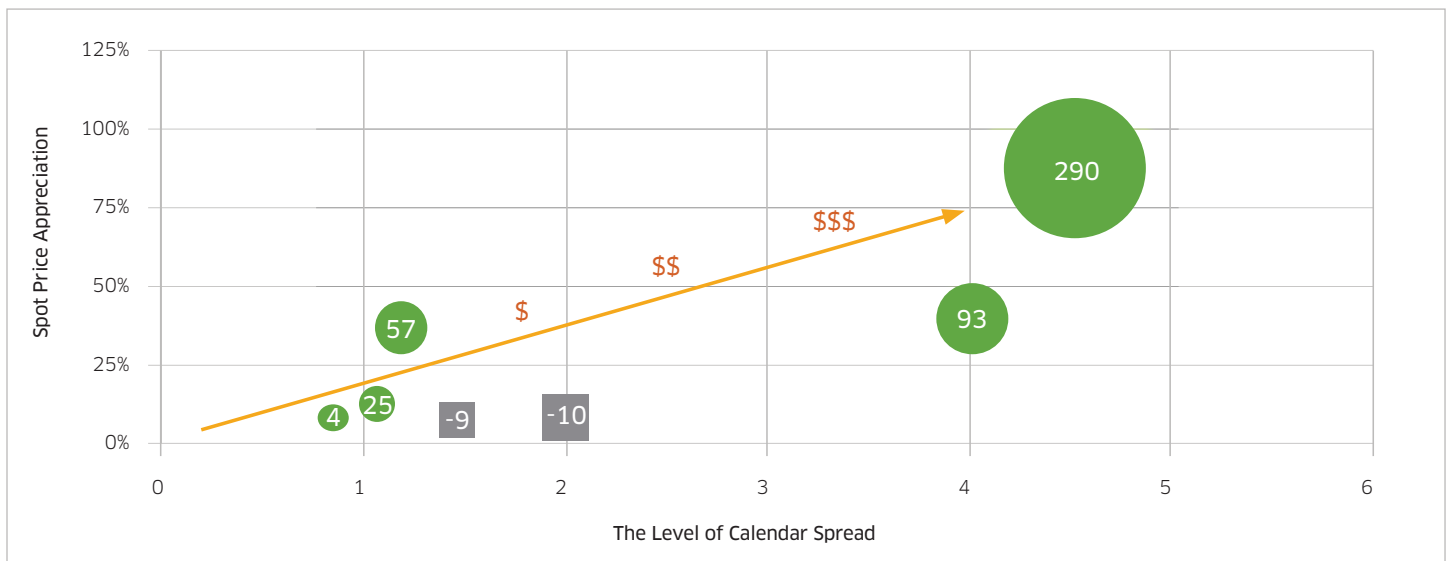
Our simulated trade periods range from 39 to 159 days. Since there's a strong correlation with calendar spread compression and spot price rebound, it's not to our surprise that all of the seven trades are profitable given that we only selected periods where calendar spreads have tightened. An interesting finding is, however, that NQCI was able to outperform BCOM during five out of the seven trades.

Table 1: Simulated Trades With Positive Calendar Spreads

BUY	FROM	TO	DAYS	Spot Price			3M Spread			Return		
				FROM	TO	CHANGE	FROM	TO	CHANGE	NQCI	BCOM	ALPHA (BPS)
1	2/14/13	7/23/13	159	97.31	107.23	10%	1.10	-3.04	-4.14	8.3%	8.0%	25
2	11/13/13	12/22/13	39	93.88	99.32	6%	0.87	-0.59	-1.46	4.8%	4.8%	4
3	3/18/15	6/2/15	76	44.66	61.26	37%	4.03	0.42	-3.61	25.3%	24.4%	93
4	2/11/16	5/26/16	105	26.21	49.48	89%	4.55	0.75	-3.80	55.5%	52.6%	290
5	12/8/16	2/23/17	77	50.84	54.45	7%	1.98	0.51	-1.47	2.0%	2.1%	(10)
6	3/21/17	7/30/17	131	47.34	49.71	5%	1.48	0.22	-1.26	0.5%	0.6%	(9)
7	9/1/17	2/5/18	157	47.29	64.15	36%	1.25	-0.74	-1.99	32.7%	32.2%	57

Two of the best outperformances of NQCI (290 and 93 bps) occurred during the strongest performance periods in the spot price. Two of the worst performances of NQCI in relation to BCOM (-10 and -9 bps) are also related to the weakest performances in crude oil over the time periods studied. This suggests that our observed outperformance in NQCI is a beta enhancer which performance will depend on how the underlying market can go. Moreover, the relative profitability of the NQCI is also correlated with the level of calendar spread – the larger the calendar spread, the more profitable NQCI can generate with the same level of spot price appreciation.

Chart 2: The Higher the Level of Calendar Spread and the Higher the Spot Price Appreciation, the More Profitable NQCI will Generate than BCOM



Source: Nasdaq

Bubble size indicates the alpha from a NQCI trade relative to BCOM trade.

NQCI Outperformance Explained

NQCI and BCOM both utilize liquid crude oil future contracts but their underlying contract terms can be different from time to time. In general, NQCI holds the 2nd month contracts and rolls every month. BCOM rolls less frequently, for about every other month, and its contract terms vary from 1st to 3rd months. The following table shows that NQCI is shorter in contract terms for half of the months.

Table 2: Contract Terms at the 15th of the Month³

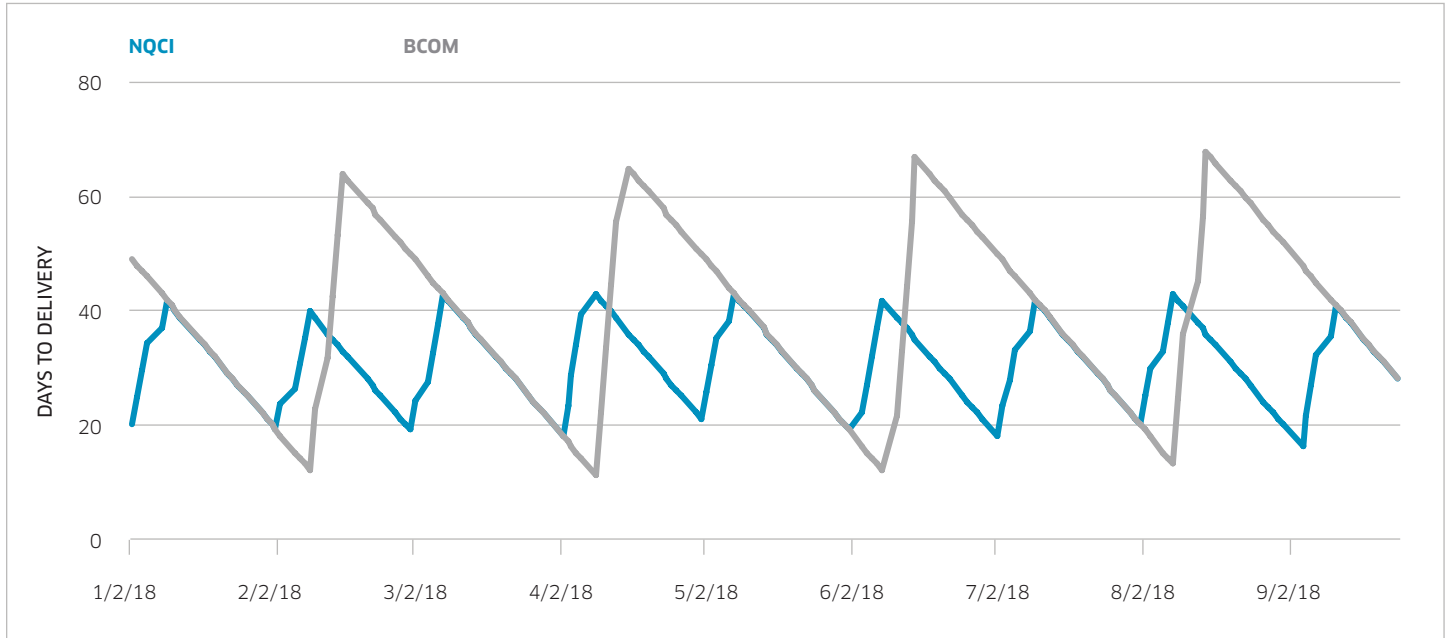
ROLL MONTH	NQCI CONTRACT	BCOM CONTRACT	DIFFERENCE IN MONTHS
2018-Jan	Mar'18	Mar'18	0
2018-Feb	Apr'18	May'18	-1
2018-Mar	May'18	May'18	0
2018-Apr	Jun'18	Jul'18	-1
2018-May	Jul'18	Jul'18	0
2018-Jun	Aug'18	Sep'18	-1
2018-Jul	Sep'18	Sep'18	0
2018-Aug	Oct'18	Nov'18	-1

Source: NQCI and BCOM methodology documents.

3. NQCI rolls on the 1st to 5th business days of every month; BCOM rolls on the 6th to 10th business days of every two months. The 15th business day position represents a better comparison than at the beginning of the month.

A more accurate way to look into this is to plot the two indexes' days to delivery over time, as shown below. While it is true that at the beginning of the month, right after NQCI finishes the contract roll on the fifth business day of the month, NQCI can hold longer term contracts than BCOM; for the rest of the time, NQCI has either equal or shorter term contracts than BCOM.

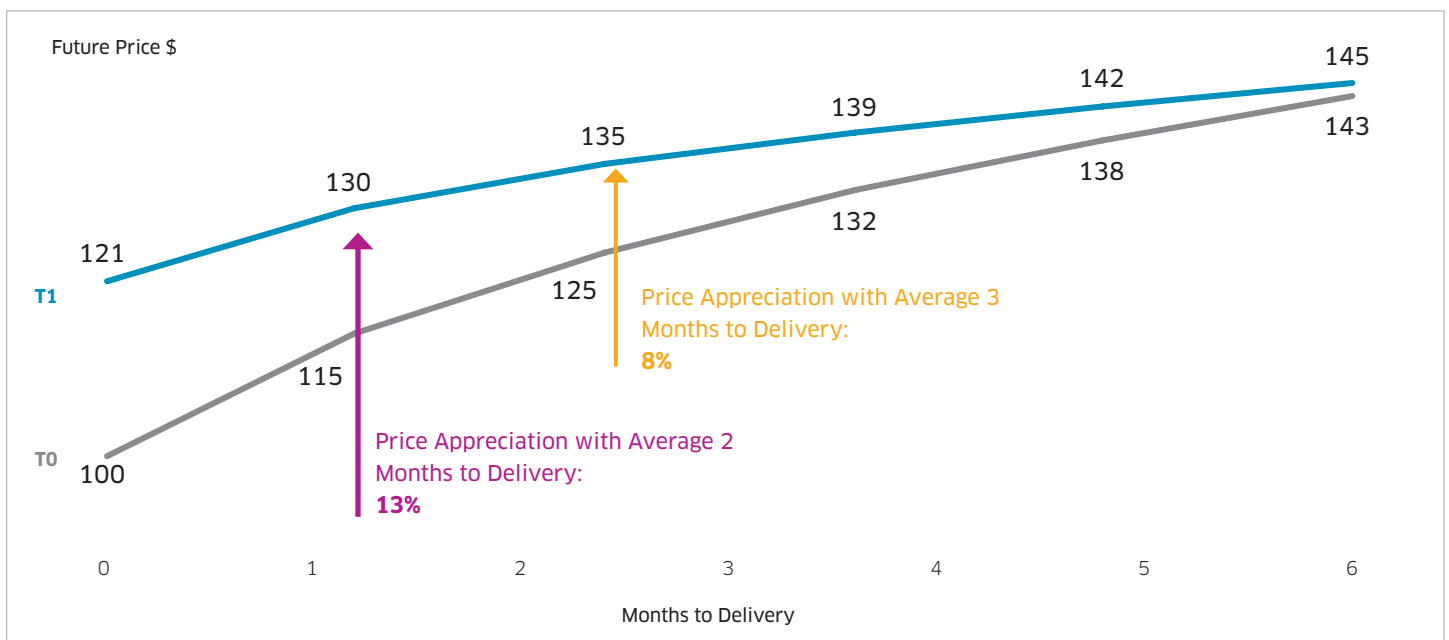
Chart 3: NQCI in General Holds Shorter Term Contracts than BCOM



Source: Bloomberg, Nasdaq

Why does the underlying contract life matter in our case? This is because all of our index changes are captured during the periods with upward spread compressions. An upward spread compression means that both spot and future prices are moving upwards, and the spot and shorter term contract prices are moving faster than the longer term contract prices so the calendar spreads are narrowed. In this case, it is always beneficial to hold contracts at the front end, as NQCI does.

Chart 4: Hypothetical Case with Upward Spread Compression



As we have explained at the beginning of the article and also observed from chart 1, the narrowing of calendar spreads is commonly associated with the rising of spot prices. It's better to hold crude oil at this phase because the asset is getting popular and trading volumes are also picking up. On the contrary, it is true that the widening of calendar spread comes with the falling of spot prices. Holding NQCI may seem to be disadvantaged in that case. But why should we hold crude oil under this selling off phase? Hence we think the disadvantage of holding NQCI under the bearish scenario seems to be overstated.

Product review

Nasdaq offers a variety of Crude Oil future pricing derived indexes, ranging from the conventional front roll WTI and Brent indexes to the more advanced leveraged and inverse indexes (shown in table 3). There are also some ETF products available in Europe that are benchmarked to the Nasdaq oil indexes (shown in table 4). This allows investors to invest in one or both sides of oil prices depending on their market views and expectations.

Table 3: Nasdaq Crude Oil Index Family

INDEX SYMBOL	NAME
NQCICBER	NASDAQ Commodity Brent Crude Index ER
NQCICLER	NASDAQ Commodity Crude Oil Index ER
NQCIL2CLER	NASDAQ Commodity 2x Leverage Crude Oil Index ER
NQCIL3CBER	NASDAQ Commodity 3x Leverage Brent Crude Index ER
NQCIL3CLER	NASDAQ Commodity 3x Leverage Crude Oil Index ER
NQCIS2CLER	NASDAQ Commodity 2x Inverse Crude Oil Index ER
NQCIS3CBER	NASDAQ Commodity 3x Inverse Brent Crude Index ER
NQCIS3CLER	NASDAQ Commodity 3x Inverse Crude Oil Index ER

Table 4: Crude Oil ETPs benchmarked to Nasdaq

ETP TICKER	ETP NAME
BRND	Boost Brent Oil ETP
3BRL	Boost Brent Oil 3x Leverage Daily ETP
3BRS	Boost Brent Oil 3x Short Daily ETP
3OIL	Boost WTI Oil 3x Leverage Daily ETP
3OIS	Boost WTI Oil 3x Short Daily ETP
WTID	Boost WTI Oil ETP
OILZ	Boost WTI Oil 1x Short Daily ETP
2OIL	Boost WTI Oil 2x Leverage Daily ETP
2OIS	Boost WTI Oil 2x Short Daily ETP

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