

Dow Jones Commodity Index 3 Month Forward: A Simple Strategy to Measure Enhanced Roll Yield

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Introduction

When considering investing in commodities, synthetic access is a popular choice. Commodity futures offer exposure to commodities performance attributes without the need for delivery and storage, and commodity indices offer broad measures of multiple commodity sectors without the need for detailed knowledge of individual commodity markets. Popular broad commodity indices hold the nearest expiring futures contract with a mechanism to roll out of the futures contract before expiring into the next nearest expiring futures contract.

This roll mechanism introduces a second type of return to commodity investors known as roll yield. Therefore, investing in commodities synthetically exposes the investor to both (1) the return of the underlying commodity, and (2) the roll yield from the rolling mechanism.

A popular and simple carry strategy involves holding commodity futures further along the curve, for example, three months forward. To be clear, being three months forward is a constant maturity strategy, whereby the commodity index always aims to hold futures contracts that expire roughly three months in the future. Practically speaking, this means the contract calendar for a given (prompt month) index is shifted by three units.

This paper will explore the characteristics of indexing at the three-month tenor, using the broad-based commodity index the [Dow Jones Commodity Index](#) (DJCI) and its variant the [Dow Jones Commodity Index 3 Month Forward](#) (DJCI 3M) as an example.

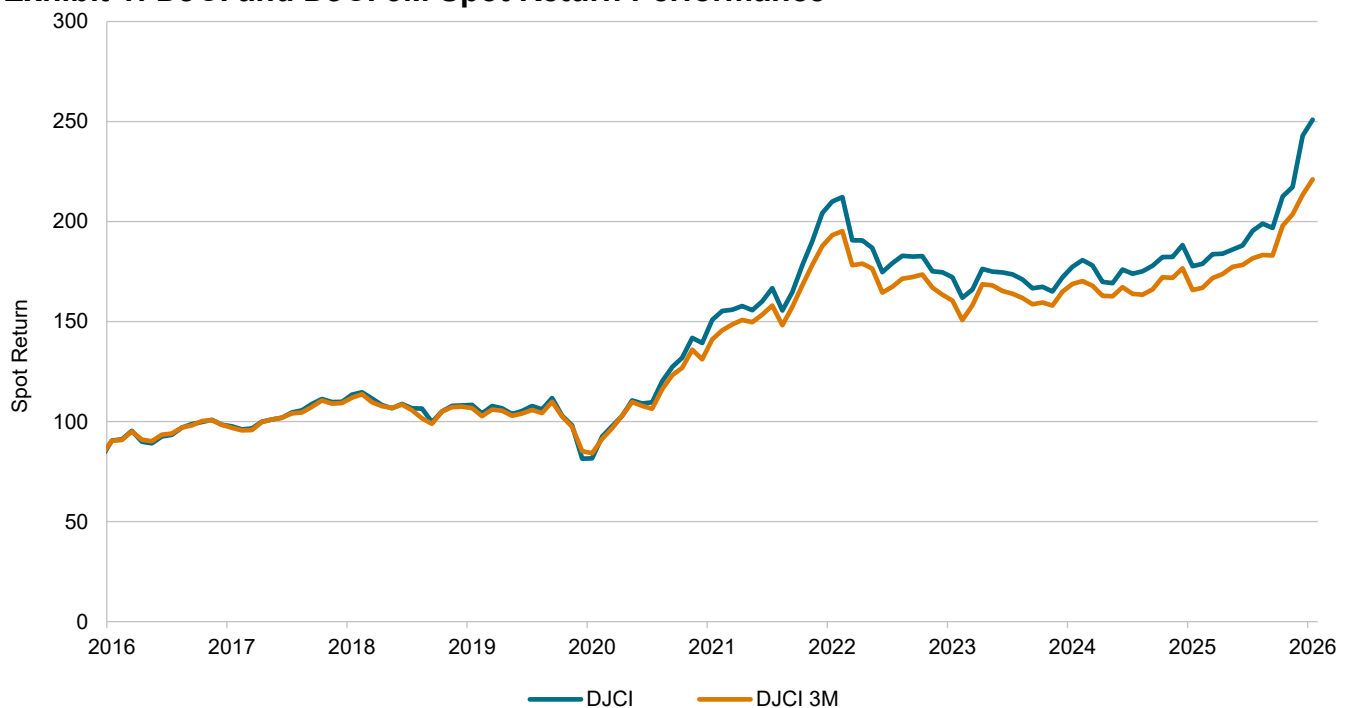
A Comparison of DJCI and DJCI 3M on a Spot and Excess Return Basis

To begin, we will compare the performance of the DJCI and the DJCI 3M on a spot and on an excess return basis. As a reminder, the spot version of the indices is simply the weighted average price of the constituent contracts, whereas the excess return version of the indices accounts for (1) the daily price return of those contracts, and (2) the roll yield received from rolling those contracts.

It is important to note that the contracts must be rolled for a long only strategy to prevent physical delivery, and therefore the excess return index is the only strategy that is replicable.

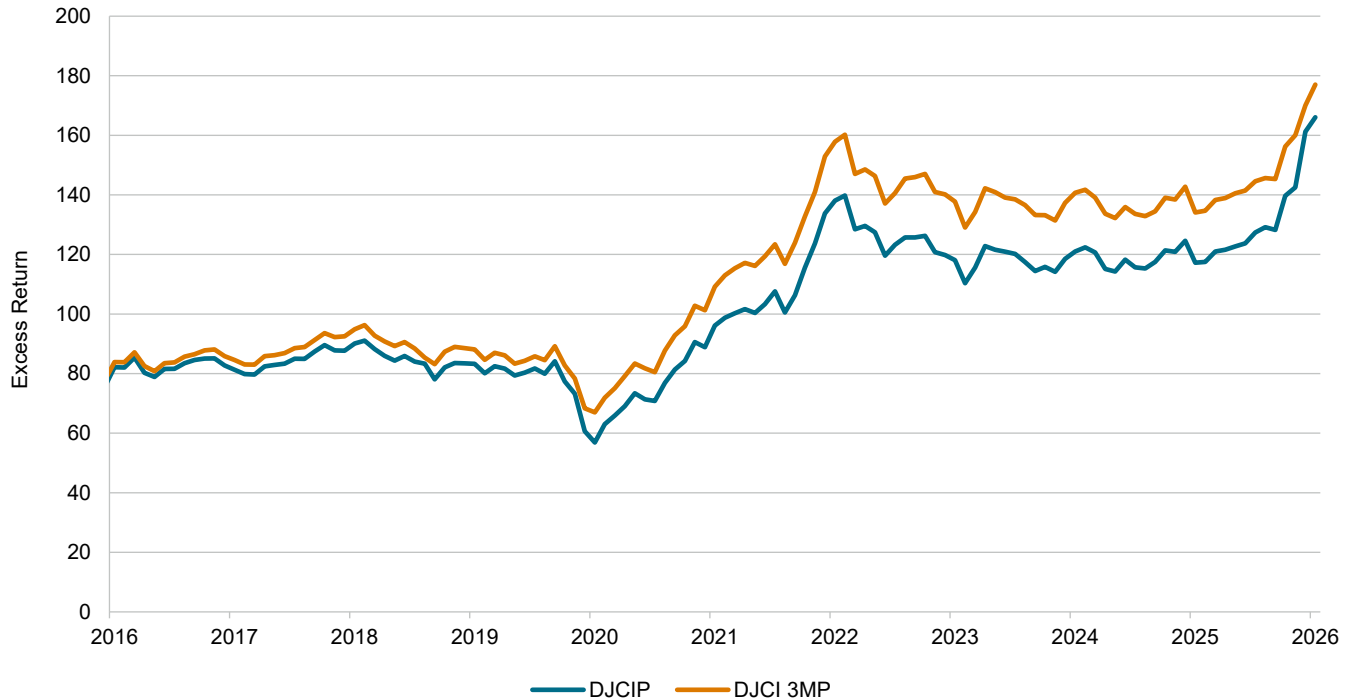
Exhibits 1 and 2 show the DJCI versus the DJCI 3M on a spot and on an excess return basis, respectively. While the DJCI outperformed the DJCI 3M on a spot return basis, the DJCI 3M outperformed the DJCI on an excess return basis.

Exhibit 1: DJCI and DJCI 3M Spot Return Performance



Source: S&P Dow Jones Indices LLC. Data from April 30, 2016, to April 30, 2026. Indices rebased to 100 on April 30, 2016. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Exhibit 2: DJCIP and DJCI 3MP Excess Return Performance



Source: S&P Dow Jones Indices LLC. Data from April 30, 2016, to April 30, 2026. Indices rebased to 100 on April 30, 2016. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

What does this mean? This indicates (1) that the weighted average price of the prompt month futures contracts is higher than the weighted average price of the three-month forward futures contracts, and (2) that the excess return difference of the DJCI 3MP can therefore be attributed to the increased roll yield return of the three-month strategy. The increased roll yield of the three-month strategy is so large that it compensates for the lower weighted-average price point.

Disaggregation into Formulas

We can disaggregate this performance mathematically to see these same results. Specifically, the difference between the excess return versions, DJCI 3MP and DJCIP, can be disaggregated into (1) the difference in price returns, and (2) the difference in roll yield, where roll yield for each maturity strategy is proxied by the difference in the excess return version and the spot return version for that strategy.

This is explained in the following formulas:

$$Return_{3MP} - Return_{1MP} = Price\ Difference + Roll\ Yield\ Difference$$

$$Price\ Difference = Return_{3M} - Return_{1M}$$

$$Roll\ Yield\ Difference = Roll\ Yield_{3M} - Roll\ Yield_{1M}$$

$$Roll\ Yield_i = Return_{i,p} - Return_i$$

Exhibit 3 shows the simple returns of the DJCI, DJCI 3M, DJCIP and DJCI 3MP on a 1-, 3-, 5- and 10-year basis. Here, again, we can see that, on a 10-year basis, the DJCI outperformed the DJCI 3M, but the DJCI 3MP outperformed the DJCIP.

Exhibit 3: Spot and Excess Returns

Period	Spot Return (%)		Excess Return (%)	
	DJCI	DJCI 3M	DJCIP	DJCI 3MP
1-Year	41	33	42	32
3-Year	46	38	41	29
5-Year	66	57	73	62
10-Year	177	144	102	111

Source: S&P Dow Jones Indices LLC. Data as of April 30, 2026. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

Using the formulas above, we expand our analysis in Exhibit 3 into price return and roll yield difference.

Exhibit 4: Disaggregated Returns for DJCI, DJCI 3M, DJCIP and DJCI 3MP

Tenor	1 (%)	2 (%)	3 Roll Yield Difference (%)			1 = 2 + 3c (%)
	Return Difference (DJCI 3MP – DJCIP)	Price Difference (DJCI 3M – DJCI)	3a 3-Month Roll Yield (DJCI 3MP – DJCI 3M)	3b 1-Month Roll Yield (DJCIP – DJCI)	3c Roll Yield Difference 3a – 3b	
1-Year	-10	-8	-1	0	-2	-10
3-Year	-12	-8	-9	-5	-4	-12
5-Year	-11	-10	5	6	-1	-11
10-Year	9	-33	-33	-75	41	9

Source: S&P Dow Jones Indices LLC. Data as of April 30, 2026. Past performance is no guarantee of future results. Table is provided for illustrative purposes.

As shown in Exhibits 1 and 2, the 9 percentage point difference between the DJCI 3MP and DJCIP is explained by a -33 p.p. decrease in price return but a 41 p.p. increase in roll yield return. Notably, the 41 p.p. increase in roll yield is a decrease in negative roll yield, rather than an increase in positive roll yield, for the three-month strategy.

Price Return by Commodity

Why did the DJCI outperform the DJCI 3M? Put another way, why did the prompt month contract have a higher price than the three-month futures contract? Isn't it often the case that commodities are in contango?

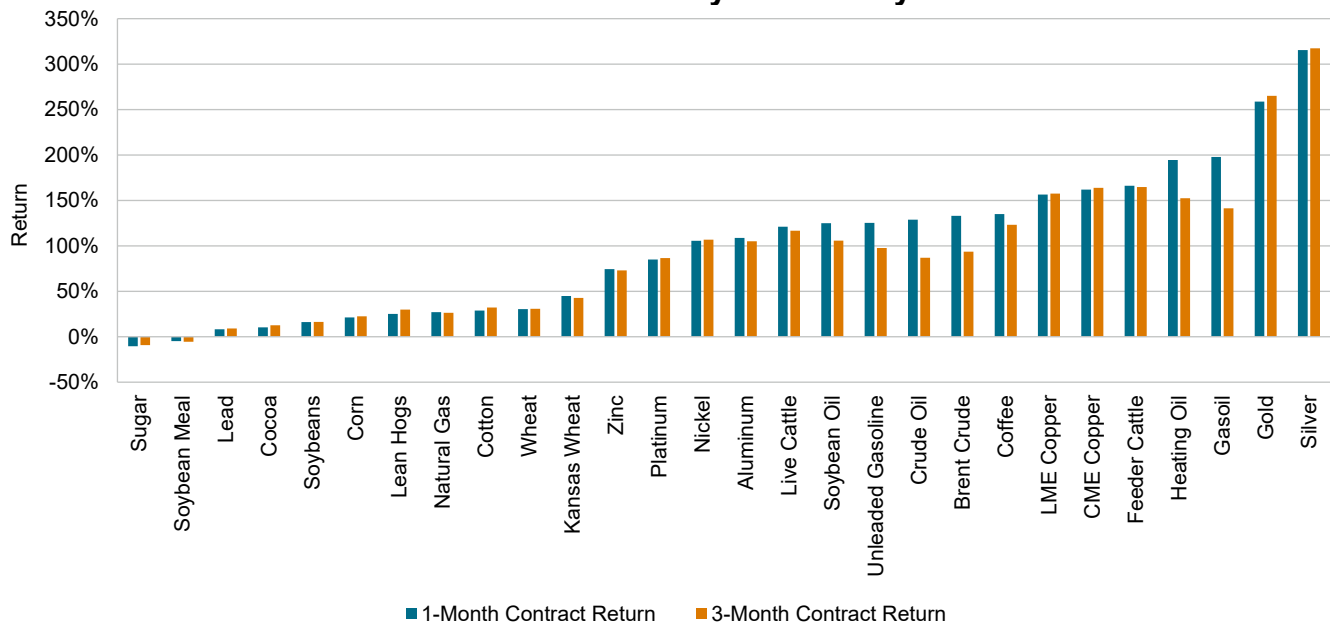
First, the prompt month futures contract is the closest to the physical market as the futures market can reach. It often is the most liquid contract and has the largest number of market participants contributing to price discovery. It also reacts in real time to macroeconomic news, supply-demand imbalances and inventory conditions. This is why the prompt month often has the highest and most volatile price point.

Second, while individual commodity markets fluctuate between being in backwardation or being in contango, these shapes are often the most acute at the front end of their respective futures curves. This is because these contracts are closer to immediate delivery and are sensitive to net costs of carry, including financing costs, storage costs and convenience yield. Over time, short-term impacts on these costs tend to diminish and become more stable, leading to a flatter curve further out.

This is why the DJCI 3M underperformed the DJCI on a price return basis, regardless of the shape of the futures curve from F0 to F2.

Exhibit 5 shows the 10-year simple price returns of the underlying commodities for the DJCI and DJCI 3M at the one-month and the three-month tenor as of April 30, 2026. We can see similar price returns for many of the commodities but underperformance for a few.

Exhibit 5: Price Return for DJCI Constituents by Commodity

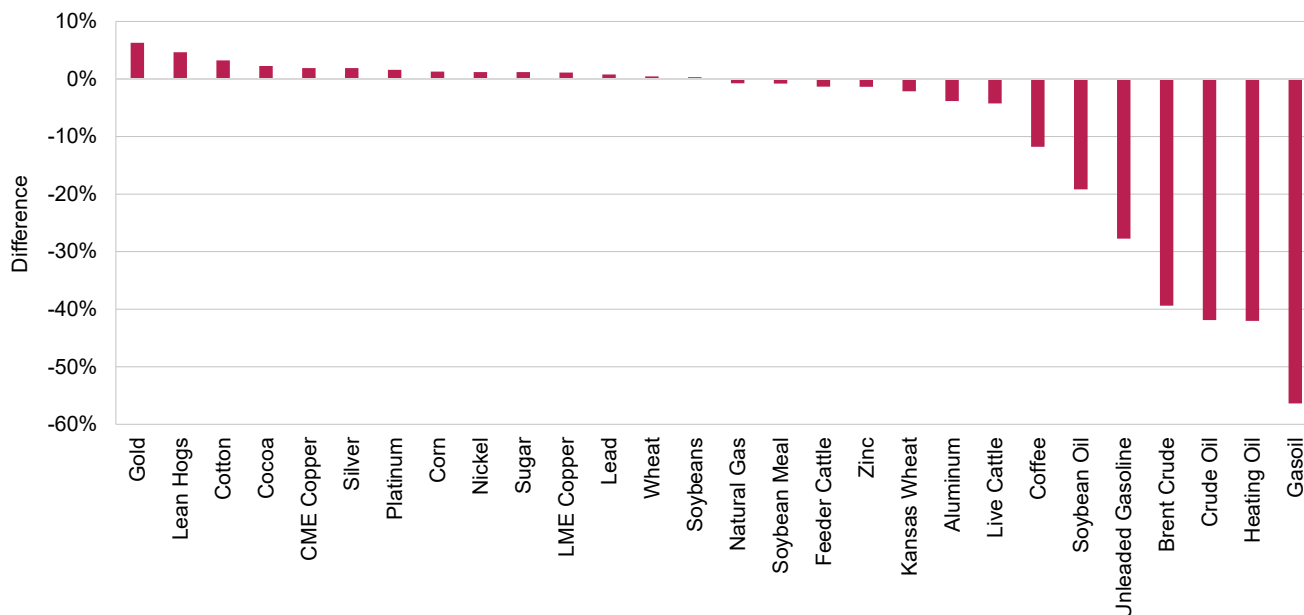


Source: S&P Dow Jones Indices LLC. Data as of April 30, 2026. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Exhibit 6 shows the price differences between the three- and one-month contract returns for DJCI constituents, in order. This exhibit highlights specifically that many petroleum

commodities underperformed at the three-month tenor versus the one-month tenor on a price return basis.

Exhibit 6: Difference in Returns between 3-Month and 1-Month Contracts for DJCI Constituents



Source: S&P Dow Jones Indices LLC. Data as of April 30, 2026. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Roll Yield Return by Commodity

We will now turn to why and how the DJCI 3MP outperformed the DJCIP, given that the DJCI 3M underperformed the DJCI. We have already determined that this is due to the difference in roll yield between the two indices and that it is due to a decreased negative roll yield rather than increased positive roll yield.

Let’s first explain how roll yield works. When the index rolls from one contract to the next, investors replicating the strategy can pocket the difference between the price of the roll out contract and the price of the roll in contract. When the roll out contract is priced higher than the roll in contract, in other words, the commodity is in backwardation, the strategy generates positive roll yield. When the roll out contract is priced lower than the roll in contract, in other words, the commodity is in contango, the strategy generates negative roll yield.

So, why would a commodity be in backwardation or contango at a specific tenor?

Let’s revisit the cost of carry model for futures pricing. We can approximate futures prices as a function of financing costs, storage costs and convenience yield (i.e., the net cost of carry) as follows:

Futures Price \approx Spot Price + Financing Cost + Storage Costs – Convenience Yield

Financing costs and storage costs represent the cost of holding a commodity, while convenience yield represents the benefit of holding a physical commodity. Financing costs can be thought of as the opportunity cost of holding the commodity rather than selling it immediately and generating yield on the cash generated. Storage costs are the physical costs associated with holding inventory.

Convenience yield often arises when producers or distributors benefit from having inventory and when demand and supply cannot or do not move together. Think of, for example, having inventory of agricultural commodities—demand stays constant while harvests may or may not yield as predicted. Another example is natural gas, where demand fluctuates seasonally (stronger demand for natural gas in the colder months), but supply is relatively fixed (a producer cannot suddenly ramp up production). In both cases, having inventory on hand to meet demand is a benefit to the physical commodity holder.

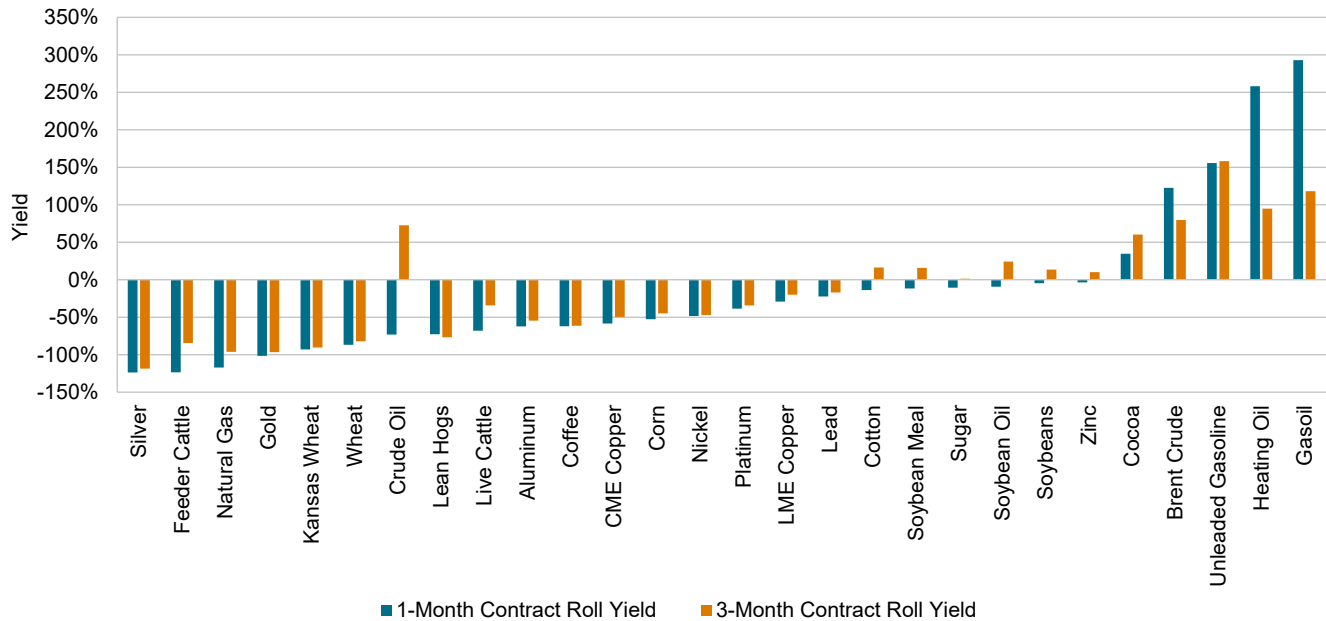
Therefore, commodities in backwardation are generally associated with high convenience yield relative to financing and storage costs, while commodities in contango tend to reflect lower convenience yield relative to financing and storage costs. Given that we have seen negative roll yield for the DJCI, on aggregate, it stands to reason that many of its constituents are in contango between F0 and F1.

Remembering that the DJCI 3M rolls from F3 to F4, why would these same commodities be in “less contango” than those same commodities from F0 to F1? In practice, these same commodities may exhibit less contango further out the curve compared to the front end, because the front of the curve (F0 to F1) is more sensitive to near-term supply-demand imbalances and inventory conditions, which directly affect convenience yield.

Further out the curve (e.g., from F3 to F4), these short-term effects tend to diminish, and prices reflect longer-term equilibrium conditions where convenience yield is typically lower and more stable. As a result, the spread between deferred contracts may be smaller (i.e., less in contango) than in the front. This difference in convenience yield at different tenors of the futures curve helps explain why the same constituent commodities generate less negative roll yield or are in less contango for the DJCI 3M compared to the DJCI.

Exhibit 7 shows the roll yield for the constituent commodities of the DJCI versus the DJCI 3M. It is notable that heating oil and gasoil have delivered greater roll yield on the prompt month, but the DJCI 3M has delivered greater roll yield for WTI crude oil and lower negative roll yield for most of the commodities delivering negative roll yield.

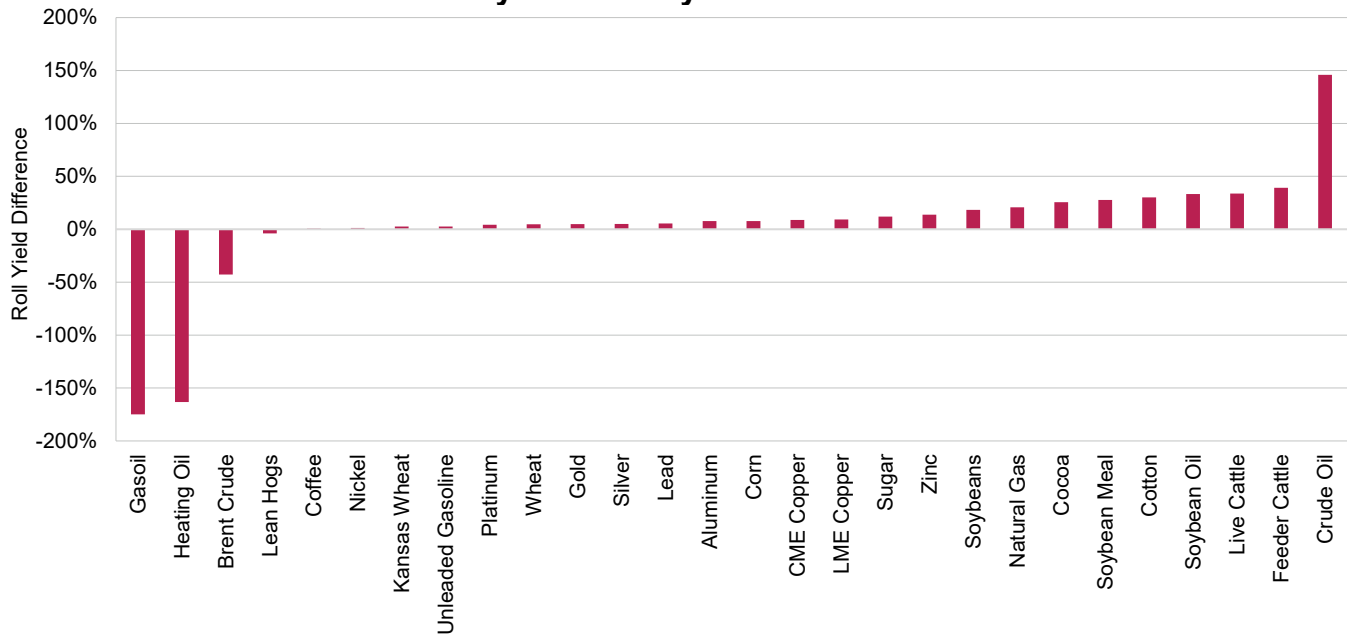
Exhibit 7: Roll Yield for DJCI Commodities



Source: S&P Dow Jones Indices LLC. Data as of April 30, 2026. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Exhibit 8 shows the same detail, with WTI crude oil dominating in terms of roll yield difference, and, except for gasoil, heating oil and brent crude, all commodities delivered a small amount of increased roll yield to the three-month strategy.

Exhibit 8: Roll Yield Difference by Commodity



Source: S&P Dow Jones Indices LLC. Data as of April 30, 2026. Past performance is no guarantee of future results. Chart is provided for illustrative purposes.

Conclusion

In conclusion, we have seen that the DJCI 3M is a simple strategy that alleviates the concentration of negative carry at the front end of the futures curve. While there are more advanced strategies to optimize roll yield, being three months forward appears to be a sweet spot for a simple, low-turnover strategy that has historically offered high liquidity and tight bid-ask spreads.

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