
OIL: BACKWARDATION TO THE FUTURE

NOVEMBER 2018

Oil futures curves have been in backwardation for most of the past year, driven by perceived tightness in short-term supply. This has provided investors with 'roll yield' on top of the gains made from spot price movements in oil. While we believe that the oil market is balanced at present, that balance looks fragile. If the current backwardation is an indication of market tightness, we believe that this backwardation could continue, as a lack of investment in oil exploration and production could keep supply contained. Moreover, further supply disruptions also cannot be ruled out.

ROLL YIELD: A SOURCE OF PROFIT

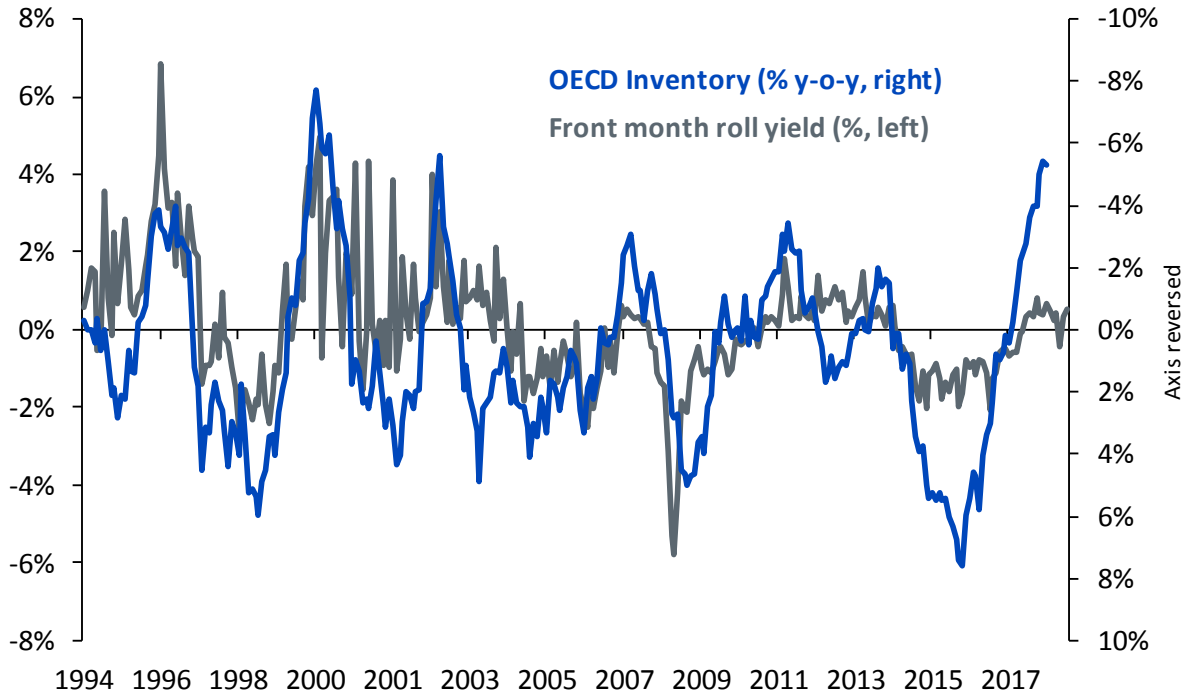
Futures curve backwardation¹ is a sign of tightness in supply. In this scenario, consumers/investors are willing to pay more for the commodity at spot/front month delivery rather than lock in a contract for delivery in a few months' time (which would be cheaper), because there is the potential to generate 'roll yield.'

An investor can generate a roll yield when a commodity futures market contract comes close to expiry. If the investor wishes to maintain their exposure to the commodity, they can sell their existing contract and enter another contract further out on the curve. If the futures curve is in backwardation, the investor will be selling a contract at a higher price than the one they are buying, and therefore booking in a profit.

Historically, we have seen that when the oil futures curve is in backwardation (i.e. roll yields are positive), oil inventories tend to be falling i.e. oil demand is greater than supply and thus draining inventories.

¹ Backwardation: when the current futures contract can be sold for a higher price than it costs to buy the new futures contract. This results in a profit to the investor. For a full description of backwardation, contango, roll yields, spot return, total return, excess return and collateral yield please see pages 48-52 of the ETPedia (Chapter on Understanding Commodity Indices).

Figure 1: Brent roll yields and OECD oil inventories



Source: Bloomberg, Wisdom Tree, data available of close 30 September 2018.

Historical performance is not an indication of future performance and any investments may go down in value.

The indication of supply tightness can also be a sign that prices are rising. There is no guarantee that prices will be rising, yet historically, it appears that when the oil futures curve has been in backwardation (i.e. roll yields have been positive) excess returns² have more often been positive than negative.

BRENT ROLL YIELDS AND EXCESS RETURNS

| | Positive roll yield | Negative roll yield | TOTAL |
|------------------------|---------------------|---------------------|-------|
| Positive excess return | 39 | 25 | 64 |
| Negative excess return | 18 | 28 | 46 |
| TOTAL | 57 | 53 | 110 |

Source: Bloomberg, WisdomTree, data available as of 30 September 2018. Using quarterly excess returns published by Bloomberg and implied roll yields (using a front month price) from Q2 1991 to Q3 2018.

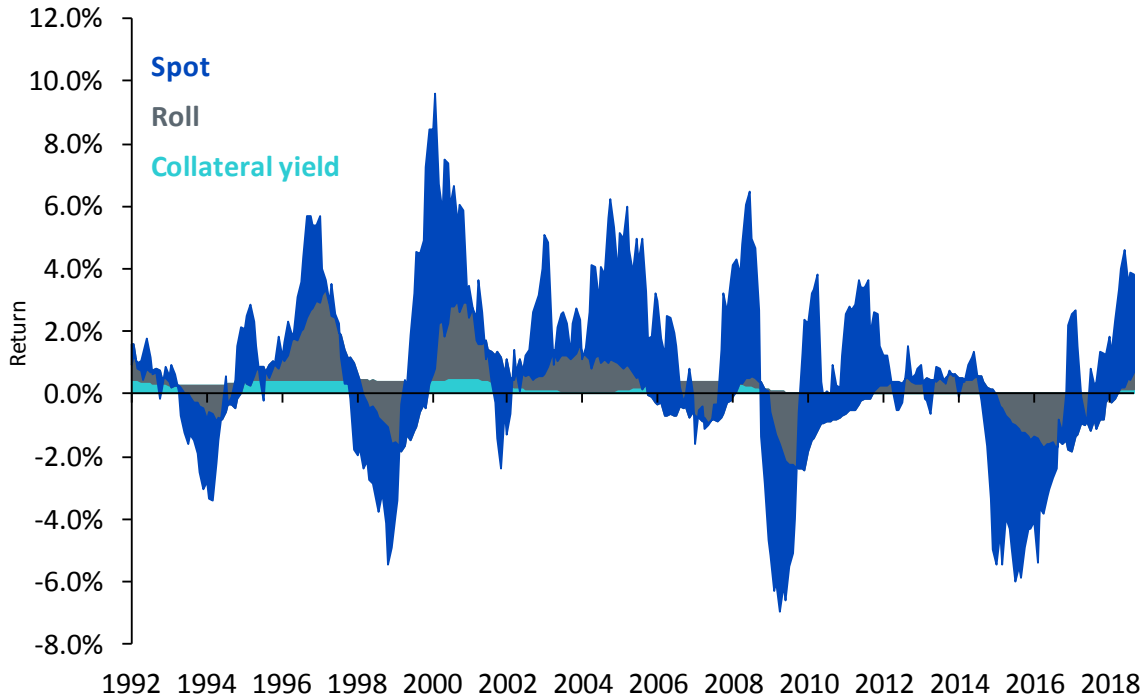
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Over the last year, an investor would have gained 44% in price and 9% in roll yields when investing in a front-month Brent strategy, and 42% in price and 3% in roll yields when investing in a front-month WTI strategy³.

² Excess return is total return less the collateral yield.

³ Calculated using Bloomberg Commodity Index excess returns for Brent and WTI and front month futures prices as the spot, in the year to 30 September 2018. Calculation based on index, not product and therefore does not include fees. An investor would also gain a collateral yield of close to 3% in Brent and 2% in WTI.

Figure 2: Composition of Brent total returns (rolling 12-month average)



Source: Bloomberg, Wisdom Tree, data available as of close 05 October 2018.

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WHY ARE OIL CURVES CURRENTLY IN BACKWARDATION?

Curve backwardation has largely been engineered by the Organisation of Petroleum Exporting Countries (OPEC). Since January 2017, the oil cartel has restricted the supply of oil by assigning its members and partners a quota for the amount of oil that they produce. Although the cartel has historically had a poor history of complying with quotas, this time it has done exceptionally well. Part of the reason for this, is that up until June 2018, each country was allocated an individual quota (rather than a group-wide limit). Under individual quotas, each country was accountable for their own production levels and this helped to restrict oil supply.

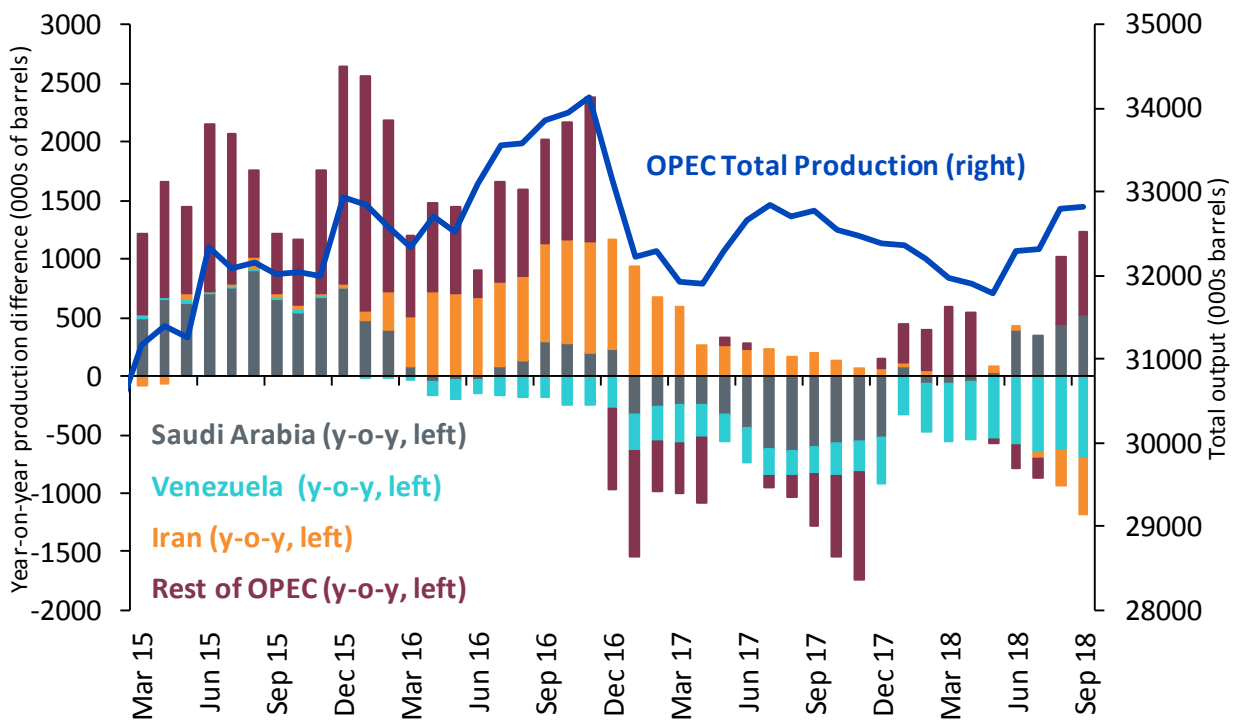
Another reason OPEC has done well in complying is because of unintended production disruptions. For example, Venezuela has experienced an economic implosion, and this has impacted oil production significantly. Venezuela’s inability to pay international service providers has led to their withdrawal from the country. Supply disruptions in Libya and Nigeria have also contributed to OPEC supply volatility.

CAN BACKWARDATION LAST?

Faltering at the front end of Brent

In June 2018, OPEC abandoned individual country quotas, so the level of quota compliance that we have seen over the past year may not last if the organisation reverts to its old ways. That could explain why the very front of the Brent futures curve went back into contango in July and August. Indeed, Saudi Arabia – the largest OPEC nation – has clearly expanded production since the end of the country-quota system. And with the exception of Venezuela and Iran, most other OPEC nations are expanding production too. However, the Brent futures curve has returned to backwardation at the front end. Continued production declines from Venezuela and Iran should help maintain the perception of tightness, and hence backwardation.

Figure 3: Year-on-year difference in OPEC oil production



Source: Bloomberg, Wisdom Tree, data available as of close 05 October 2018.

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IRANIAN OIL WITHDRAWAL A THREAT

Right now, global oil markets are in balance. However, even though OPEC is expanding production and US shale oil keeps growing, that balance is fragile. It may only take another supply shock to Libya or to Canada to cast doubts on supply.

The US's extraterritorial sanctions on Iran are a potential source of tightness. Between 2016 and 2017, Iran was a large contributor to OPEC production growth. However, the US has set an early-November deadline for countries to conform to its embargo on Iranian oil imports. As a result, Iran's production has declined in recent months. The magnitude of the Iranian production decline could increase if sanctions are strongly enforced.

While Iranian exports to Japan and India are declining, for now, we expect Chinese authorities to largely ignore the US's sanctions. Yet even China, as the largest importer of Iranian oil, is at risk of shutting the country off. A trade deal with the US could involve adherence to the sanctions as a prerequisite. Even in the absence of a trade deal, the US's influence is powerful. For example, Sinopec – a Chinese State oil refiner which is listed on both the Hong Kong and the New York stock exchanges – has reportedly reduced Iranian imports following pressure from the US to comply.

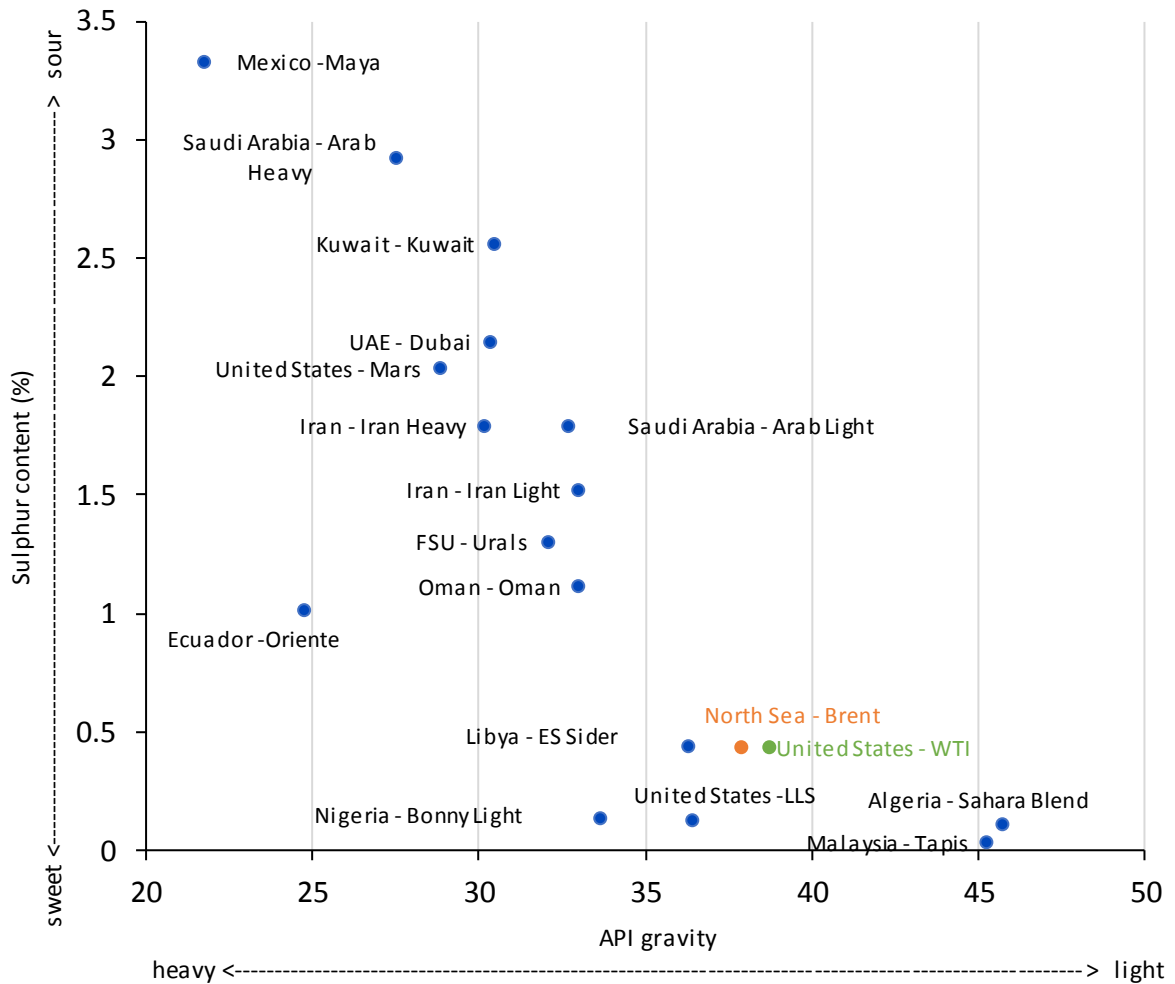
To worsen matters, Iran may block shipments around the Strait of Hormuz – a 21-mile-wide strategic choke point in the Arab Gulf – which would further tighten global oil supply.

TIGHTNESS CONCENTRATED IN HEAVY CRUDES

Supply of the 'heavier' crudes is most at risk of supply disruption. Venezuela, Iran and Canada produce 'heavy' (low API gravity), 'sour' (high sulphur) crudes and these countries experienced the bulk of supply disruption this year (with the first two likely to experience ongoing outages). Most of the world's growth in crude oil supply is currently from US tight oil, which is 'light' (high API gravity) and 'sweet' (low sulphur). So, even though global oil supply is close to balance at the headline level, growth in oil production is uneven, with declines in supply of heavy crudes, and gains in supply of light crudes.

Refiners are generally set up to process a certain grade of oil i.e. a specific level of sulphur and API gravity. While refiners can change their processes to accommodate different crude grades, this requires investment, and is generally unachievable in the short-term. A shortage in heavier crudes could thus pose problems for refiners. Prices of heavy crudes (or proxies for heavy crudes) are therefore likely to perform better than lighter crudes because of the supply tightness.

Figure 4: Oil by density and sulphur content

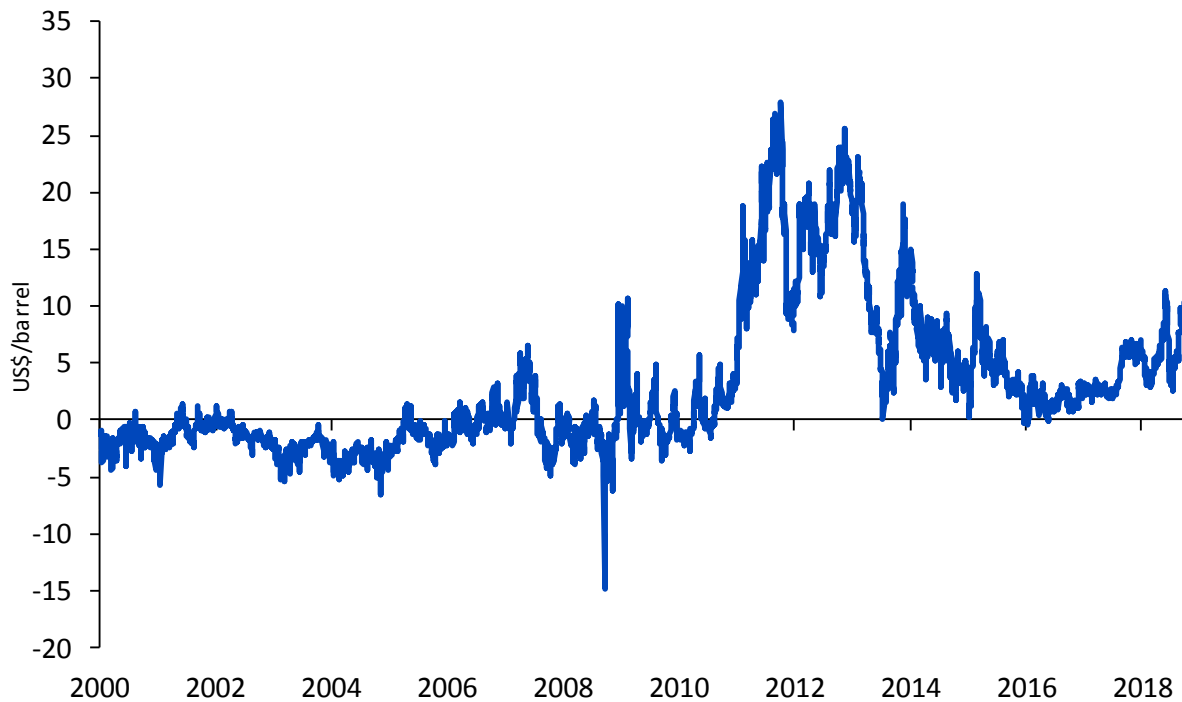


Source: Energy Information Administration, Wisdom Tree, data available as of close 04 October 2018.

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Brent and WTI are similar types of oil and are considered to be at the 'lighter' and 'sweeter' end of the spectrum. Although neither Brent or WTI are heavy crude indices, Brent is widely seen as the proxy for global prices and we expect more of the tightness in oil supply to be reflected in the Brent index. For this reason, we expect Brent to continue to trade at a premium to WTI (as it largely has done since 2010).

Figure 5: Brent - WTI Spread



Source: Bloomberg, Wisdom Tree, data available as of close 04 October 2018.

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OPEC UNLIKELY TO CHANGE POLICY COURSE

Although OPEC is highly unpredictable, we doubt the group will return to the 2014-2016 period of no quotas. Yes, relations between Iran and Saudi Arabia have reached a point where representatives from the respective countries can barely be in the same room – which nearly scuppered the OPEC meetings in June 2018 – but we believe the will of the rest of the group and its 10 external partners is strong enough to continue with the accord. They may not deepen their relationships, but none of the member nations want to go back to the situation in 2014, when the fall in oil prices was so great that the economic and financial health of the OPEC nations was under threat; seeing Venezuela struggle is most likely painful enough. While Saudi Arabia and Russia have indicated their willingness to increase supply to avoid excessive tightness, they benefit from some tightness due to higher prices, and hence we believe they will not expand supply sharply.

CONTINUED GROWTH IN US SHALE NOT GUARANTEED WITHOUT INFRASTRUCTURE BUILD-OUT

As we have discussed, the main area of supply growth is in US tight oil. But even with this source, there are limitations to growth. Infrastructure needs to grow in lock-step with growth in oil production. The fact that WTI Midland is trading at such a deep discount to WTI Cushing indicates that there is a glut in oil produced in the tight oil regions that is not making its way to the right places quickly enough. Infrastructure limitations could slow the pace at which US shale can help satisfy global oil needs.

Figure 6: WTI Midland - WTI Cushing



Source: Bloomberg, Wisdom Tree, data available as of close 03 October 2018.

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DEMAND REMAINS STRONG FOR NOW

As we indicated in our article Limited oil and gas investment could be shoring up tightness in the future, over the medium term, the dearth of capital investment in oil production is likely to lead to tightness if demand continues to remain robust. In contrast to other cyclical commodities such as industrial metals, the market does not appear to fear a demand downshift in oil from the burgeoning trade-war. We can't explain this dichotomy. We suspect that the market has it wrong for industrial metals, rather than oil. Indeed, the International Energy Agency expects oil demand to grow by a robust 1.4 mb/d in 2018, and 1.5 mb/d in 2019 (following 1.5 mb/d growth in 2017). However, should the market reassess demand for oil, we could see the curve revert to contango.

CONCLUSION

Backwardation in oil futures curves is a signal of market bullishness. While we think that the market is in balance, there is supply tightness in areas – especially in heavier crudes. This could be enough to ensure that the futures curve remains in backwardation going forward. We don't believe that a new wave of supply is forthcoming, nor do we think that demand will falter, unless today's bullish demand expectations are unfounded.

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