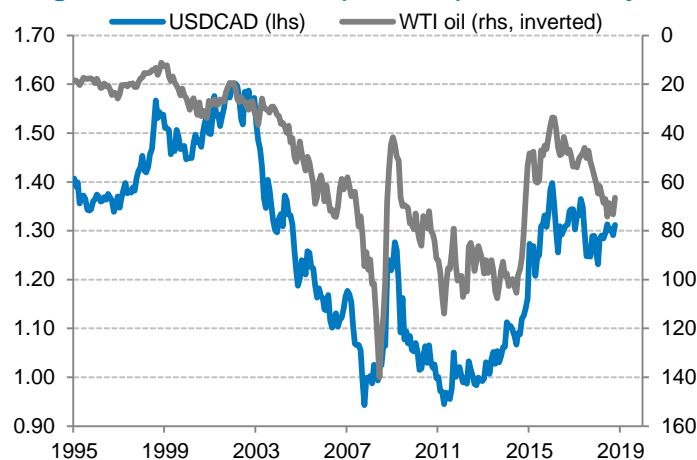


Which oil price to track for USDCAD?

The disappearing and reappearing USDCAD-oil correlation

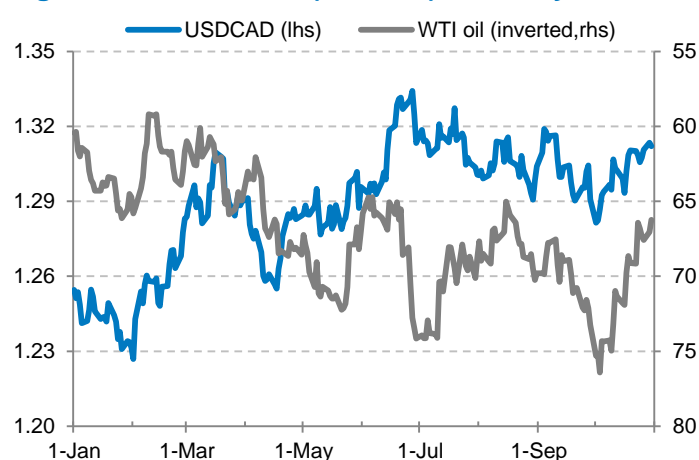
- With WTI putting in a fresh 2M low this week, oil has captured the attention of those who trade or are otherwise exposed to USDCAD risk.
- Looking at the long term, there has been an extremely strong correlation between USDCAD and oil. On a 10Y horizon using monthly closes, the correlation between front-future WTI and USDCAD is -0.87 (the sign should be negative if higher oil means a stronger CAD). See [Figure 1](#).
- Historically, it hasn't mattered which oil price one uses. For the aforementioned 10Y monthly data point sample, the correlation between USDCAD and spot Brent is -0.87 and the correlation between USDCAD and spot WCS is -0.86 .
- Calendar year 2018 has been unusual in that there hasn't been a consistent correlation between USDCAD and any grade of crude. See [Figure 2](#).
- The correlation between USDCAD and WTI for 2018 using daily closes has been 0.45 (wrong sign). The correlation between USDCAD and WCS has been 0.10 (also wrong sign).
- As a result of the bad correlation between USDCAD and oil, our rotating factor model for USDCAD has focused on interest rate differentials as the USDCAD driver. My observation from speaking with USDCAD participants and that most of them also made that switch, although oil is always somewhere in the back of the market's collective mind.

Figure 1: USDCAD and (inverted) WTI monthly



Source: Bloomberg

Figure 2: USDCAD vs (inverted) WTI daily in 2018



Source: Bloomberg

The extraordinary WTI-WCS divergence of 2018 and its impact on USDCAD correlations

- The year 2018 has seen an extraordinary divergence between WCS and other WTI (and between WCS and Brent). Compared to the end of 2017, WCS is down 25%. WTI is up 10% while Brent is up 13%.
- Dramatic spread widening between WTI and WCS is nothing new, although the widening this year has been the most dramatic since WCS began actively trading in 2008. But previous episodes of spread widening have mostly been about

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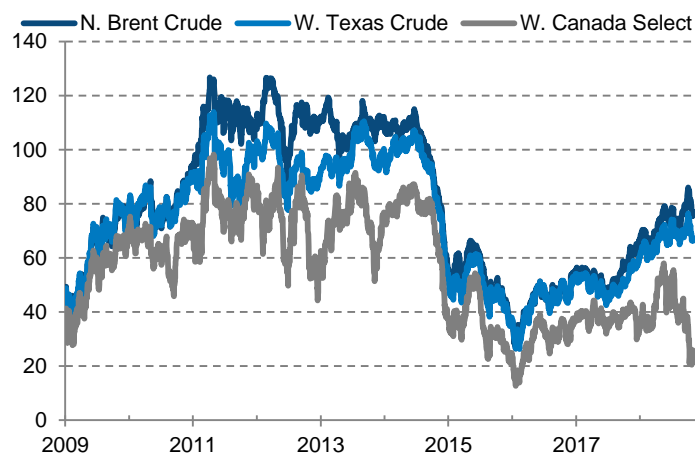
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WCS falling faster than WTI or rising less rapidly than WTI (**Figure 3**). In 2018, we have seen WTI and WCS going in completely opposite directions, which is truly extraordinary.

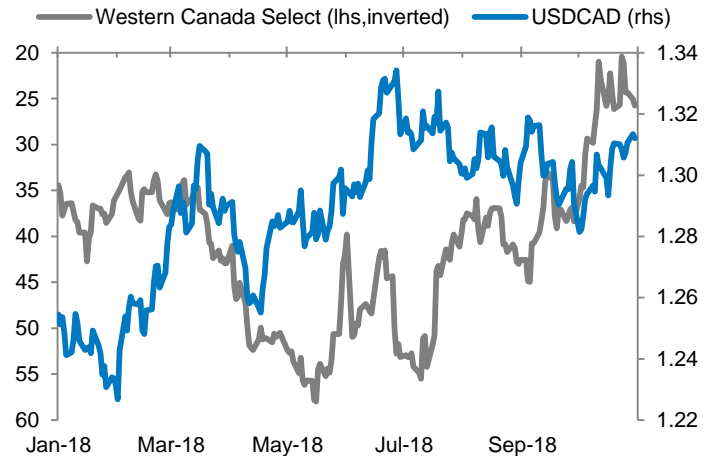
- With CAD 3.9% weaker against the USD on the year, at first glance one would say that USDCAD is following WCS and not WTI (**Figure 4**).
- In my conversations with market participants, my observation is that market participants within Canada began paying more attention to WCS than WTI in about February. My observation is that most USDCAD participants outside of Canada have not yet made that mental switch. They continue to look at USDCAD relative to WTI.

Figure 3: WCS, WTI and Brent crude spot prices



Sources: Bloomberg

Figure 4: USDCAD vs (inverted) WCS daily in 2018



Source: Bloomberg

Correlation tests suggest WTI or a basket is the best thing to watch

- To repeat what was stated earlier, both WTI and WCS have a wrong-sign correlation with USDCAD in the period captured by 29-Dec-2017 through today. However, that result fails to capture the fact that there have been a couple of periods when each oil price did map with USDCAD.
- In March and April, the rally in CAD corresponded with a rally in WCS (see **Figure 4**). And for the period since early August, the movement in USDCAD has mapped well with WTI (see **Figure 2**).
- For those who are more concerned about theory than statistics, it is important to note that Canada produces about the same amount of each grade. In fact, Canada also produces a tiny amount of Brent-grade crude. If we were to form an oil basket to match Canada's production, it would have weights of roughly 50% for WTI, 45% for WCS and 5% for Brent.
- One might think (and I initially did) that using a basket approach could lead to a single oil price with a stronger and more consistent correlation with USDCAD. The statistical evidence is mixed. For a long-run test using 10Y of monthly data, the basket has a correlation of -0.88 with USDCAD, which is not much of an improvement from -0.87 for WTI. For a test of calendar 2018 using daily data, the basket still has a wrong-sign correlation of +0.30. However, the basket looks like it maps reasonably best with USDCAD according to the 'eyeball test' (and especially since July). See **Figure 5**.
- Although the basket doesn't test all that well statistically, I am still attracted to it theoretically. And I take encouragement that the correlation of USDCAD with the basket is accelerating. Maybe now is the time that the concept could take off, although that would require a lot of model traders to reconfigure their models. Maybe that's asking too much!
- The rolling 3M correlation of USDCAD and WTI is accelerating. It has improved to -0.69 this month, after being a wrong-sign correlation in August and September. The rolling 3M correlation of USDCAD with the basket is -0.27 after regaining the right sign early in October. See **Figure 6**.
- The rolling 3M correlation of WCS with USDCAD still has the wrong sign. With that in mind, I would push it behind WTI, the basket and even Brent in my ranking of oil prices to watch.

Figure 5: USDCAD and our approximate production-weighted oil basket

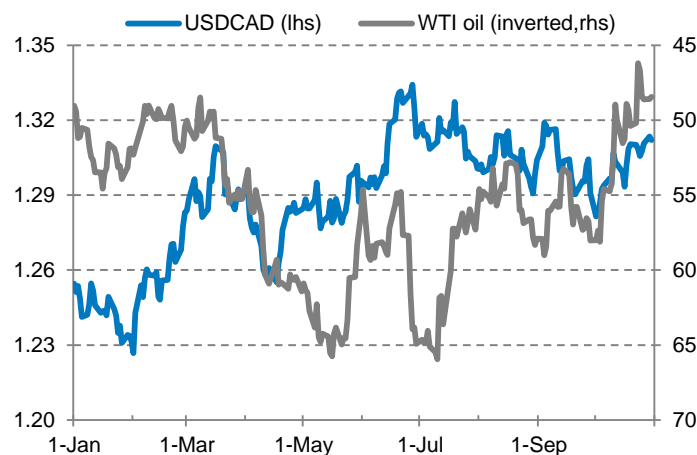
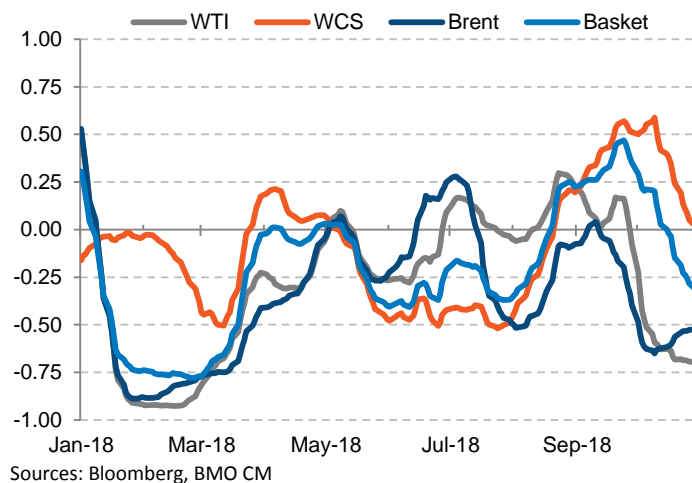


Figure 6: Rolling 3M correlations between USDCAD and the various grades of crude



A caveat about the really long-run and WCS

- Although I believe in the results of my statistical tests, which suggest to pay much more attention to WTI (or the basket) than WCS, I do have a caveat to that observation.
- In the long run, the future of foreign direct investment (FDI) flows into Canada's oil sector will hinge most critically on WCS. If WCS stays below \$50/bbl, it is difficult to expect much in the way of FDI. But if WCS were to get above that threshold and stay for a while, the likely result would be a wave of FDI, which would bring a lower USDCAD exchange rate. So from this FDI angle, if we're talking about the really long run and the correlation of yearly data points, then I would say that WCS matters the most.
- There is another issue that goes along with this FDI angle. The oil-related project that would most readily attract foreign investment (be it FDI or portfolio investment into Canadian-domiciled companies) is infrastructure that brings WCS to a deep-water port. So if a solution to that issue can be found, WCS will rise because the huge discount will shrink. And USDCAD will fall because of the investment inflows. Those related influences would cause the WCS-USDCAD correlation to accelerate.

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