Do Retail Traders Move Commodity Markets?

Impacts of Retail Order Flow on Commodity Momentum Strategies

- We study how retail flow data can be used to improve commodity momentum strategies.
- We find that retail flow data is a valuable tool for momentum trading for these commodities.
- The performance improvement applies broadly to long-only, short-only, and long/short strategies for oil, silver, and gold.
- We show a comparison between our retail flow data and the CFTC positioning data for each of oil, silver, gold.

Global Quantitative and Derivatives Strategy

Thomas J Murphy, PhD AC
(1-212) 270-7377
thomas.x.murphy@jpmchase.com

Peng Cheng, CFA AC
(1-212) 622-5036
peng.cheng@jpmorgan.com

Marko Kolanovic, PhD
(1-212) 622-3677
marko.kolanovic@jpmorgan.com

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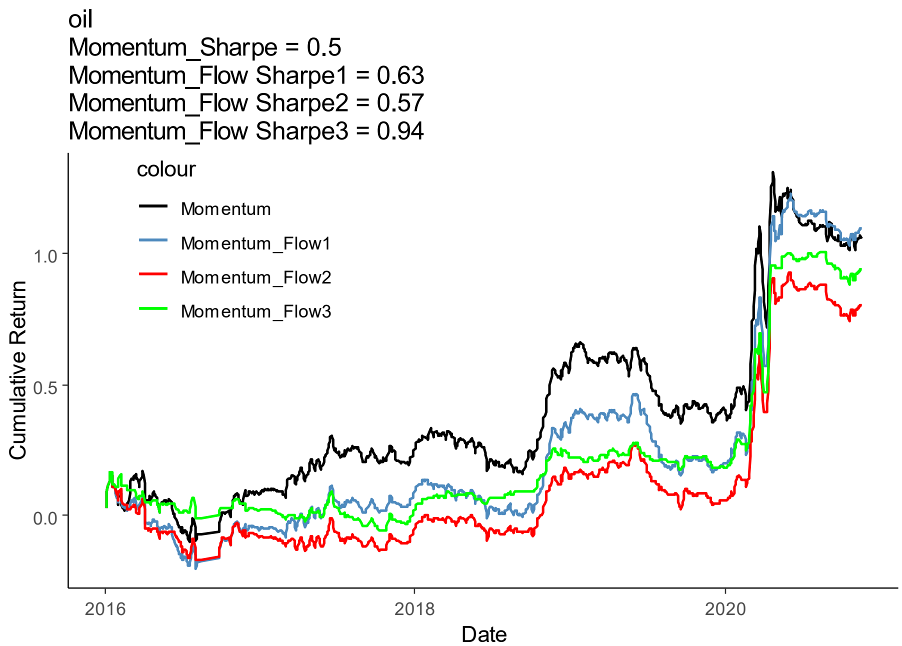
Figure: Oil Momentum Strategy Performance Enhanced by Retail Order Imbalance Signal



Source: J.P. Morgan.

Introduction

Thanks to the proliferation of commodity ETFs, retail traders are now a major investor based in commodities. In this report, we study the impacts of retail order flow to on gold (GLD), silver (SLV), and oil (USO).

Our previous studies of retail flow have not found stand alone signals that are predictive of future returns in macro assets. However, with a more in depth approach, we find that the retail flow data can significantly improve the performance of momentum strategies.

Retail Flow Data and Filter

Previously, we showed how retail trading activity can be extracted from high frequency stock trading data. USO, SLV, and GLD are the three most liquid commodity ETFs and we estimate that ~10% of all stock trades in these three ETFs are retail orders.

Do retail traders move commodity markets? Our previous studies of retail flow have not found stand alone signals that are significantly predictive of future returns in macro assets. However, we believe retail traders impact the markets in more subtle ways. Our data set contains retail market orders only, and therefore represents liquidity taking activity. At the same time, academic studies have shown that CTA strategies are also takers of market liquidity[1]. We hypothesize that CTA strategies outperform when they provide liquidity to retail investors, and underperforms when they compete for liquidity with retail investors.

To test the hypothesis we examine the performance of prototypical momentum strategies in the three commodity ETFs when overlaid with retail order flow. Specifically, we define the daily retail demand/supply imbalance for each ETF as follows.

$$Imbalance = \frac{Buy\,Volume - Sell\,Volume}{Buy\,Volume + Sell\,Volume}$$

We then filter the trades in a prototypical momentum strategy in the following way:

Strategy 1: If the momentum trade direction is positive (negative), then the strategy will go long (short) if the retail flow imbalance is less than .05 (greater than -.05) and stay flat otherwise.

Strategy 2: If the momentum trade direction is positive (negative), then the strategy will go long (short) if the retail flow imbalance is less than 0 (greater than 0) and stay flat otherwise.

Strategy 3: If the momentum trade direction is positive (negative), then the strategy will go long (short) if the retail flow imbalance is less than -.05 (greater than .05) and stay flat otherwise.

It is clear from the above description of the strategies that the choice of .05,0,-.05 in each position implies that each strategy is more restrictive than the previous one.

[1] Kang, Wenjin, Geert Rouwenhourst, Ke Tang, 2020, A Tale of Two Premiums: The Role of Hedgers and Speculators in Commodity Futures Markets, Journal of Finance, Vol 75.1

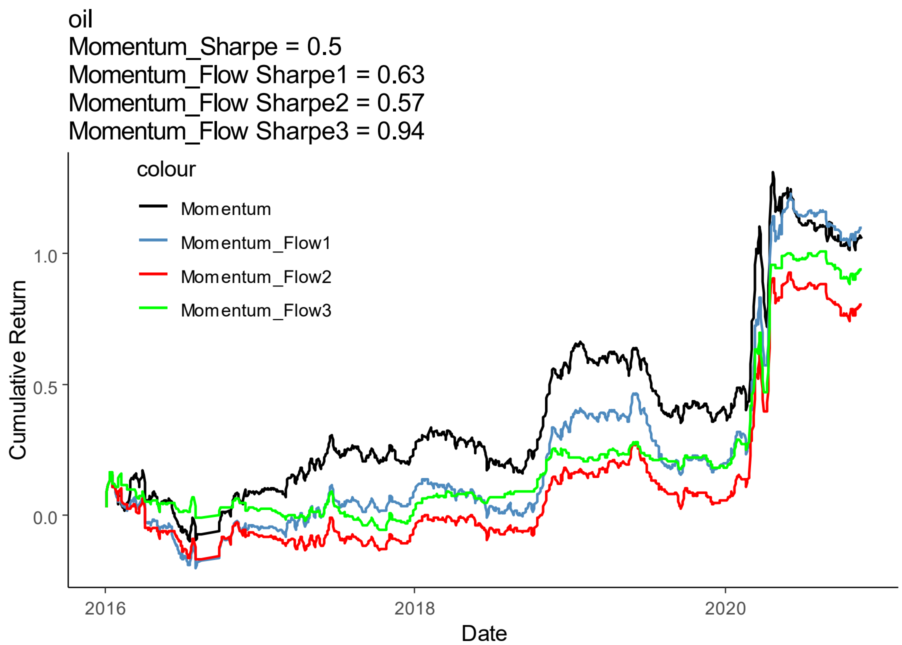
Peng Cheng, CFA
(1-212) 622-5036
peng.cheng@jpmorgan.com

Long/Short Momentum Strategies with Retail Flow Filter

In Figure 1 below we show the results for oil (USO). We use a 1 week lookback period for the momentum signal. Specifically, if USO is positive (negative) from close-to-close 5 days ago then we go long (short) USO. The black curve shows this benchmark strategy. We hold each trade for a period of 5 days. Since this results in overlapping trades, we only allocate 1/5 of the portfolio to each trade.

The other three curves show a progressive filtering based on the retail flow data.The first curve, Momentum_Flow1 filters out a small portion of the trades based on the current retail flow. The second curve has a more restrictive filter and the third has the most restrictive filter, as described in the previous section.

Figure 1: Oil Long/Short Momentum Strategy filtered with Retail Order Flow



Source: J.P. Morgan.

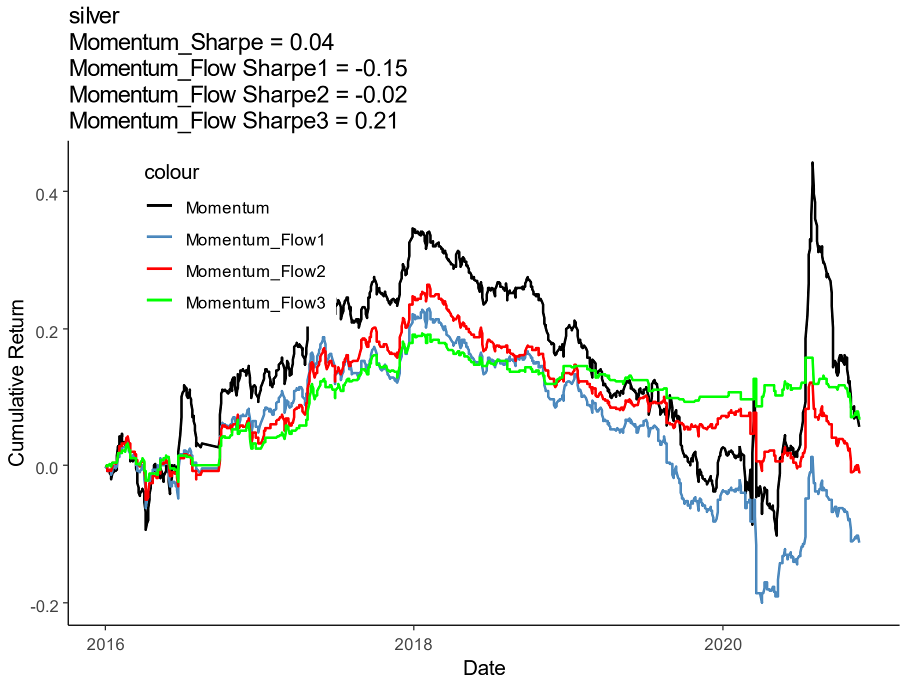
Oil Long/Short	Mean	Sdev	Sharpe	Drawdown
Momentum	0.23	0.46	0.5	-0.38
Momentum Flow 1	0.29	0.47	0.63	-0.37
Momentum Flow 2	0.28	0.48	0.57	-0.34
Momentum Flow 3	0.51	0.54	0.94	-0.22

Source: J.P. Morgan.

Next we see the results for silver. In particular we see that the green curve is the only one with a meaningfully positive Sharpe ratio.

Peng Cheng, CFA
(1-212) 622-5036
peng.cheng@jpmorgan.com

Figure 2: Silver Long/Short Momentum Strategy filtered with Retail Order Flow



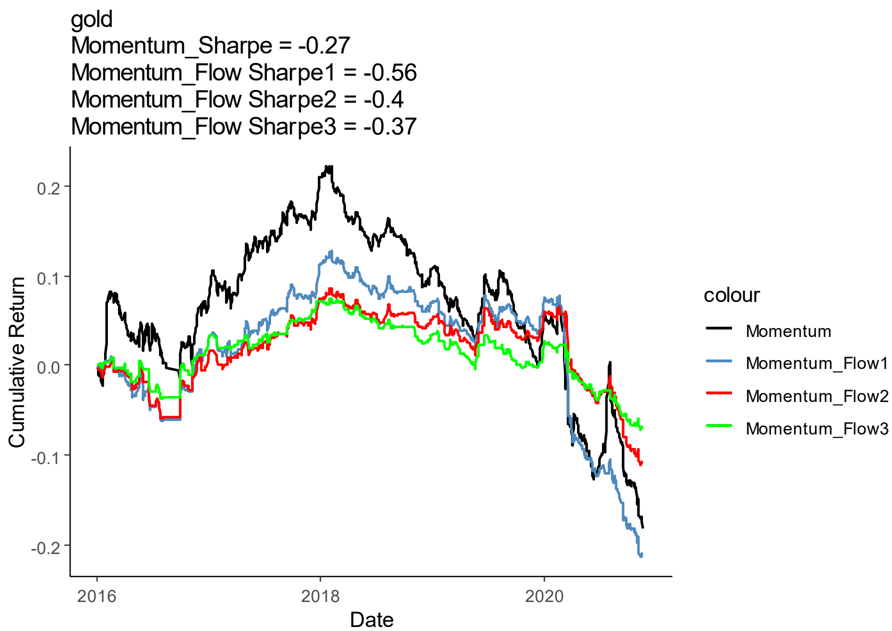
Source: J.P. Morgan.

Silver Long/Short	Mean	Sdev	Sharpe	Drawdown
Momentum	0.01	0.29	0.04	-0.45
Momentum Flow 1	-0.04	0.25	-0.15	-0.43
Momentum Flow 2	0	0.25	-0.02	-0.27
Momentum Flow 3	0.05	0.25	0.21	-0.12

Source: J.P. Morgan.

Finally we present the chart for gold in Figure 3 below. The results for gold do not seem as strong for the long/short strategy but this may be due to the fact that the benchmark itself had strongly negative performance. Furthermore, there may be some different dynamics to the strategies performance depending on whether or not we are going long in the momentum strategy vs. going short. In the next section, we show the results for both the long and short components.

Figure 3: Gold Long/Short Momentum Strategy filtered with Retail Order Flow



Source: J.P. Morgan.

Gold Long/Short	Mean	Sdev	Sharpe	Drawdown
Momentum	-0.04	0.14	-0.27	-0.4
Momentum Flow 1	-0.08	0.15	-0.56	-0.34
Momentum Flow 2	-0.06	0.14	-0.4	-0.19
Momentum Flow 3	-0.05	0.13	-0.37	-0.15

Source: J.P. Morgan.

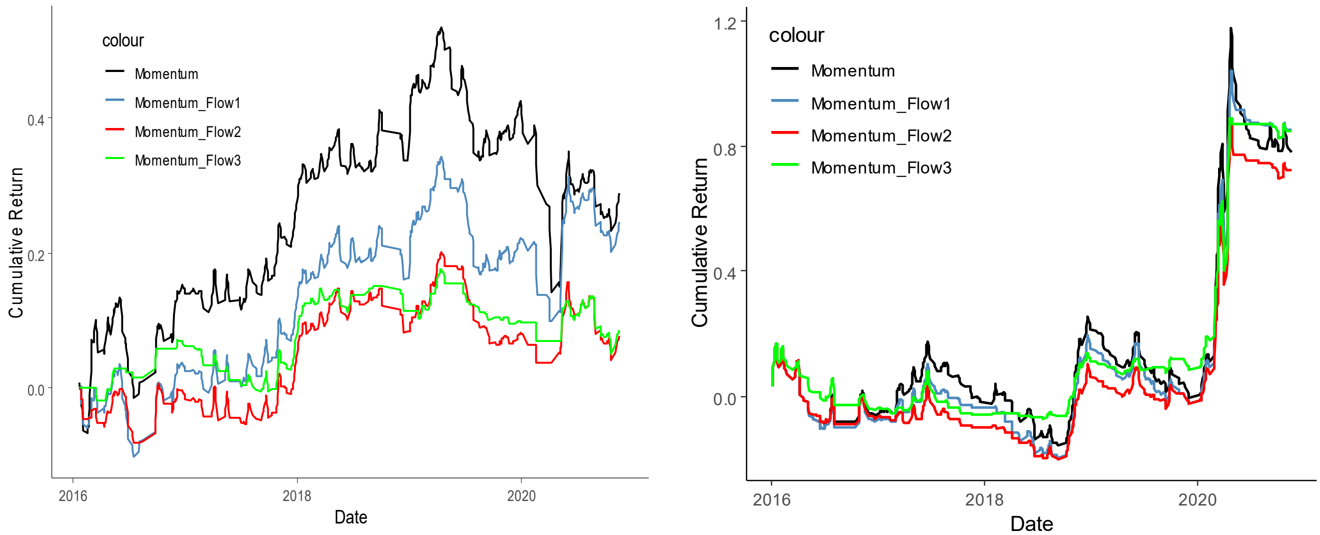
Long/Short P&L Comparison

As mentioned earlier, due to the asymmetry of retail buying vs selling behaviour, the impacts of retail flow may differ on the long-only vs short-only components of these momentum strategies. We present the resutls for these components now. Specifically, the long (short) strategy will go long (short) when the momentum signal is positive (negative) (i.e., the asset has a positive (negative) return close-to-close from 5 days ago) and will stay flat other wise.

To elaborate on the asymmetry of retail trading behaviour, we found that retail buying tends to be more coordinated and persistent than retail selling. Therefore, the liquidity premium may be more elevated on retail buying flow than selling flow.

As we can see in the three figures below, the Long Only Momentum Flow 1 strategies, which avoids competing with retail buy flows, tend to outperform the benchmark. On the other hand, the performance improve is not significant for the Short Only Momentum Flow 1 strategies, which avoids competing with the retail sell flow. This contrasts strongly with the Short Only Momentum Flow 3 strategies, which actively provide liquidity to retail by flow and universally enhance the short leg performance.

Figure 4: Oil Long (Left) vs. Short (Right)



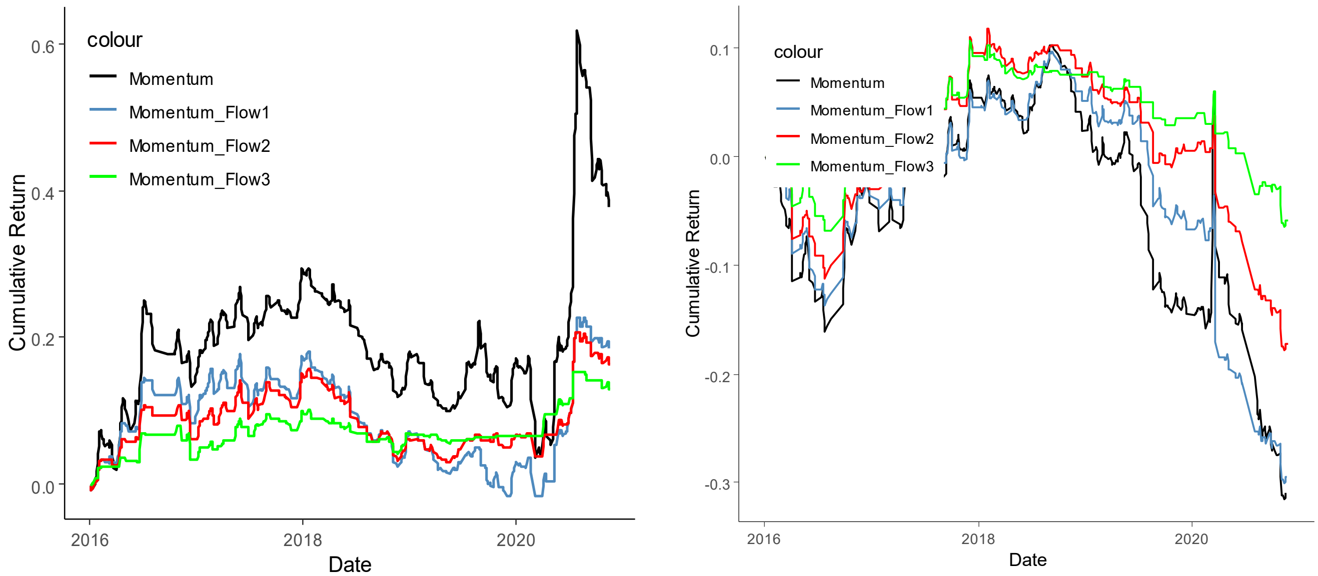
Oil Long	Mean	Sdev	Sharpe	Drawdown
Momentum	0.12	0.31	0.38	-0.39
Momentum Flow 1	0.12	0.3	0.41	-0.24
Momentum Flow 2	0.05	0.28	0.19	-0.16
Momentum Flow 3	0.1	0.27	0.36	-0.12

Oil Short	Mean	Sdev	Sharpe	Drawdown
Momentum	0.36	0.58	0.62	-0.4
Momentum Flow 1	0.61	0.81	0.81	-0.36
Momentum Flow 2	0.52	0.63	0.82	-0.37
Momentum Flow 3	0.9	0.7	1.28	-0.24

Source: J.P. Morgan.

Peng Cheng, CFA
(1-212) 622-5036
peng.cheng@jpmorgan.com

Figure 4: Silver Long (Left) vs. Short (Right)



Silver Long	Mean	Sdev	Sharpe	Drawdown
Momentum	0.15	0.3	0.52	-0.26
Momentum Flow 1	0.12	0.24	0.49	-0.2
Momentum Flow 2	0.15	0.24	0.61	-0.13
Momentum Flow 3	0.21	0.23	0.93	-0.06

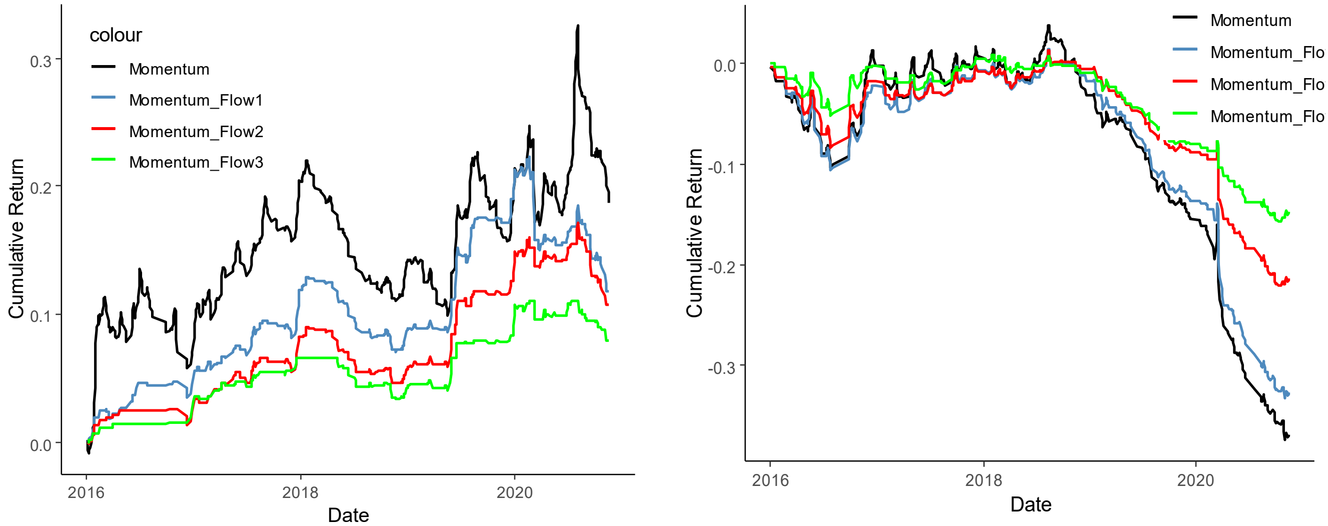
Silver Short	Mean	Sdev	Sharpe	Drawdown
Momentum	-0.15	0.28	-0.54	-0.42
Momentum Flow 1	-0.2	0.25	-0.79	-0.4
Momentum Flow 2	-0.15	0.25	-0.6	-0.3
Momentum Flow 3	-0.09	0.27	-0.32	-0.17

Source: J.P. Morgan.

Finally, we show the results for the long vs short strategy for gold.

Peng Cheng, CFA
(1-212) 622-5036
peng.cheng@jpmorgan.com

Figure 6: Gold Long (Left) vs. Short (Right)



Source: J.P. Morgan.

Gold Long	Mean	Sdev	Sharpe	Drawdown
Momentum	0.07	0.15	0.49	-0.14
Momentum Flow 1	0.11	0.14	0.74	-0.11
Momentum Flow 2	0.14	0.13	1.03	-0.06
Momentum Flow 3	0.16	0.12	1.27	-0.03

Gold Short	Mean	Sdev	Sharpe	Drawdown
Momentum	-0.18	0.14	-1.32	-0.41
Momentum Flow 1	-0.23	0.15	-1.54	-0.35
Momentum Flow 2	-0.19	0.14	-1.31	-0.23
Momentum Flow 3	-0.17	0.14	-1.22	-0.17

Comparison with CFTC Positioning Data

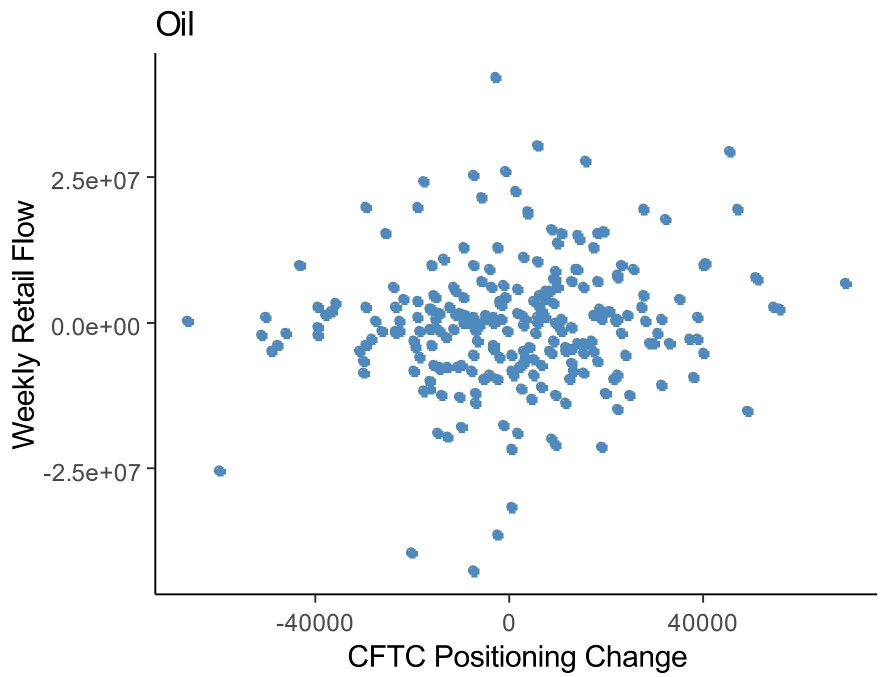
Does the retail order flow represent new information, or is it simply the mirror image of the non-commercial traders' activity? We compare the retail flow data for these three commodities with the CFTC non-commercial positioning data. In particular, we take the data from BBG: CEIGNCN, CEISNCN, and NYM1CNCN for gold, silver, and oil, respectively. As mentioned above about our retail flow data, we normalize the flow based on the daily total turnover. Since the positioning data does not do this but rather uses raw positioning changes, we do not normalize the flow data in this section in order to more closely match the CFTC data type.

We consider the weekly changes in the CTCF positioning data using the indices given above and compare it with the weekly flow data. We show the figures for each commoditiy below. The relationships between the two are generally statistically weak or insignficant. We conclude that retail flow data is not easily replicable via CFTC positioning data.

	Oil	Silver	Gold
Reg Coeff	-26	-28	63
Adj. R^2	.023	0	.011
p-value	0.009	0.57	.04

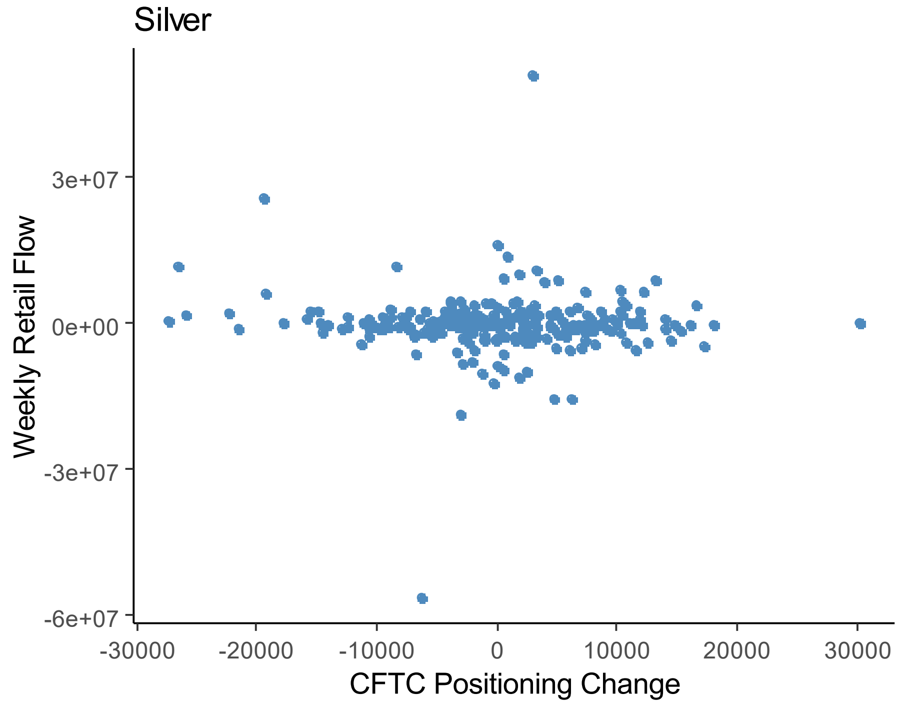
Source: J.P. Morgan.

Figure7: Oil CFTC Non-Commercial Positioning vs. Retail Flow Data



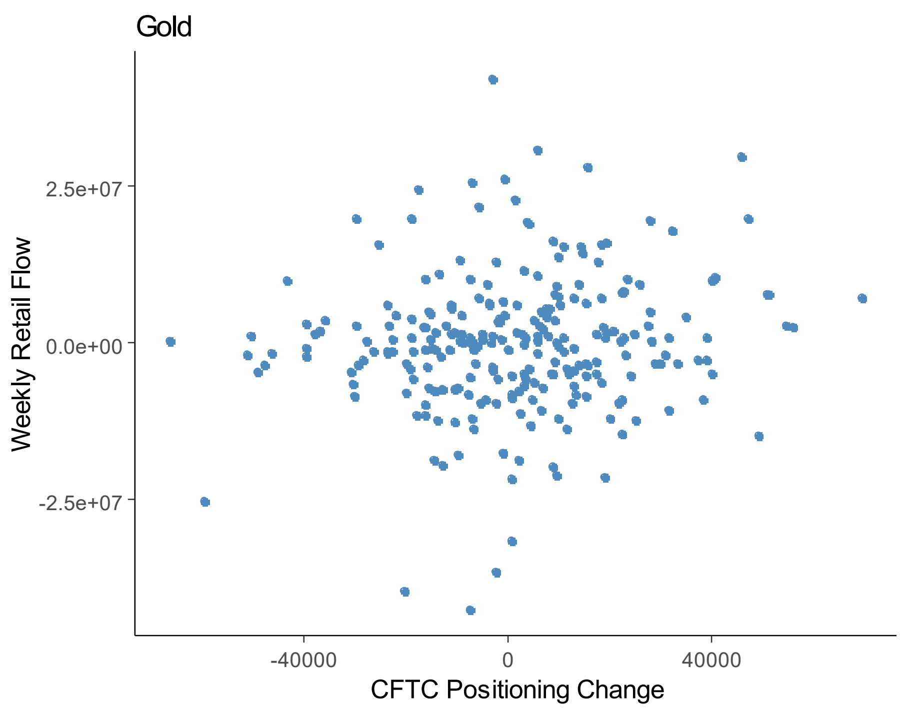
Source: J.P. Morgan.

Figure 8: Silver CFTC Non-Commercial Positioning vs. Retail Flow Data



Source: J.P. Morgan.

Figure9: Gold CFTC Non-Commercial Positioning vs. Retail Flow Data



Source: J.P. Morgan.

Conclusion

We have applied our retail flow data with the intention of enhancing momentum strategies for oil, silver, and gold. We considered both long/short momentum strategies as well as single direction (long or short) momentum strategies. We find that this retail flow data is a valuable resource to use in combination with momentum based strategies for these commodities. Additionally, we have compared our retail flow data with BBG CFTC data. We find that the correlation between these two is inconclusive. This gives us more confidence in the unique value of our retail flow data.

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