Pairs Trade on CMBX Series 6 and 7: A Case Study on MallStreams

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MallStreams

Figure 1. Aggregate Customer Visitation

MallStreams provides daily customer visitation to 4,000+ individual shopping centers and enclosed malls owned or operated by the top 30 publicly traded retail REITs by market cap.

Figure 1 uses MallStreams to plot aggregate customer visitation to all properties underlying CMBX Series 6 and 7. The visitation is normalized and indexed to support easy comparisons across any time horizon or set of properties. Note visitation is aggregated over a 28-day rolling window. This sequential aggregation highlights business seasonality: peaks on Black Friday and during the Christmas holiday period are well-defined.

The rank reflects the average customer visitation per property within each index. Series 6 and 7 are generally comparable, though Series 7 sees more visitors on average because it represents a higher proportion of traditional enclosed malls.

Figure 2. YoY Change in Visitation

Figure 2 plots the year-over-year ("YoY") change in the customer visitation index from Figure 1.

Note multiples of 7 are chosen for rolling windows to ensure aggregation periods are comparable in consecutive years.

Next, this information is used to construct the trading signal for the strategy.
Signal Construction and Performance Statistics

**Figure 3. Rank by YoY Change in Visitation**

- The blue line in Figure 3 plots the difference between 28-day rolling windows of YoY change for CMBX Series 6 and Series 7. The green line establishes the trend by plotting a 28-day moving average of the blue line.
- Long and short positions are derived from the position of the trend line: long Series 7 and short Series 6 when the green line exceeds the blue and short Series 7 and long Series 6 when the blue exceeds the green.

**Figure 4. Performance using MallStreams Visitation Only**

- The blue line in Figure 4 shows the cumulative return of the pairs trade and corresponds to the left y-axis. The dotted gray shows the long and short positions taken over time as indicated on the right y-axis.
- The strategy uses daily close-over-close returns for the aggregate index values for CMBX Series 6 and 7. Because CMBX indices are traded via credit default swaps, the strategy requires a minimum holding period of 1 week. Transaction costs are ignored in this analysis, so longer minimum holding periods may be necessary.
- Ignoring the inherent leverage in any short position, the strategy is unlevered. For example, with a total of $100 to allocate, $50 is allocated to long and $50 to short.

Next, performance is assessed with a customer income signal layered on top of the visitation signal.
Enhanced Performance with Layered Signals

Figure 5. Performance using Visitation and Income

- Figure 5 shows the cumulative return for a strategy that only takes positions when the visitation signal from page Figure 4 agrees with another signal from Thasos’ Attribution product line that measures the change in the average household income of visitors.

- The income signal is computed as follows: 1) measure the sequential month-over-month (‘MoM’) change in the difference between monthly income of visitors to Series 6 and Series 7 malls; and 2) long Series 6 and short Series 7 when the MoM change is positive and short Series 6 and long Series 7 when the MoM change is negative.

- Layering the visitation and income signals and trading only when they agree eliminates the largest drawdowns seen in Figure 4 and significantly improves the Sharpe Ratio.

Figure 6. Stable Sharpe Ratio

- Figure 6 demonstrates that the Sharpe Ratio for the strategy is relatively stable over a broad range of lag days.

- Lags are defined as the number of days required for the market to assimilate the fundamental information in MallStreams and Attribution from other data sources. For example, a lag of 10 means the strategy is using visitation and income signals from 10 days ago to determine the positions for today.

- The performance stability suggests the fundamental information represented in MallStreams and Attribution is not readily available through other data sources.