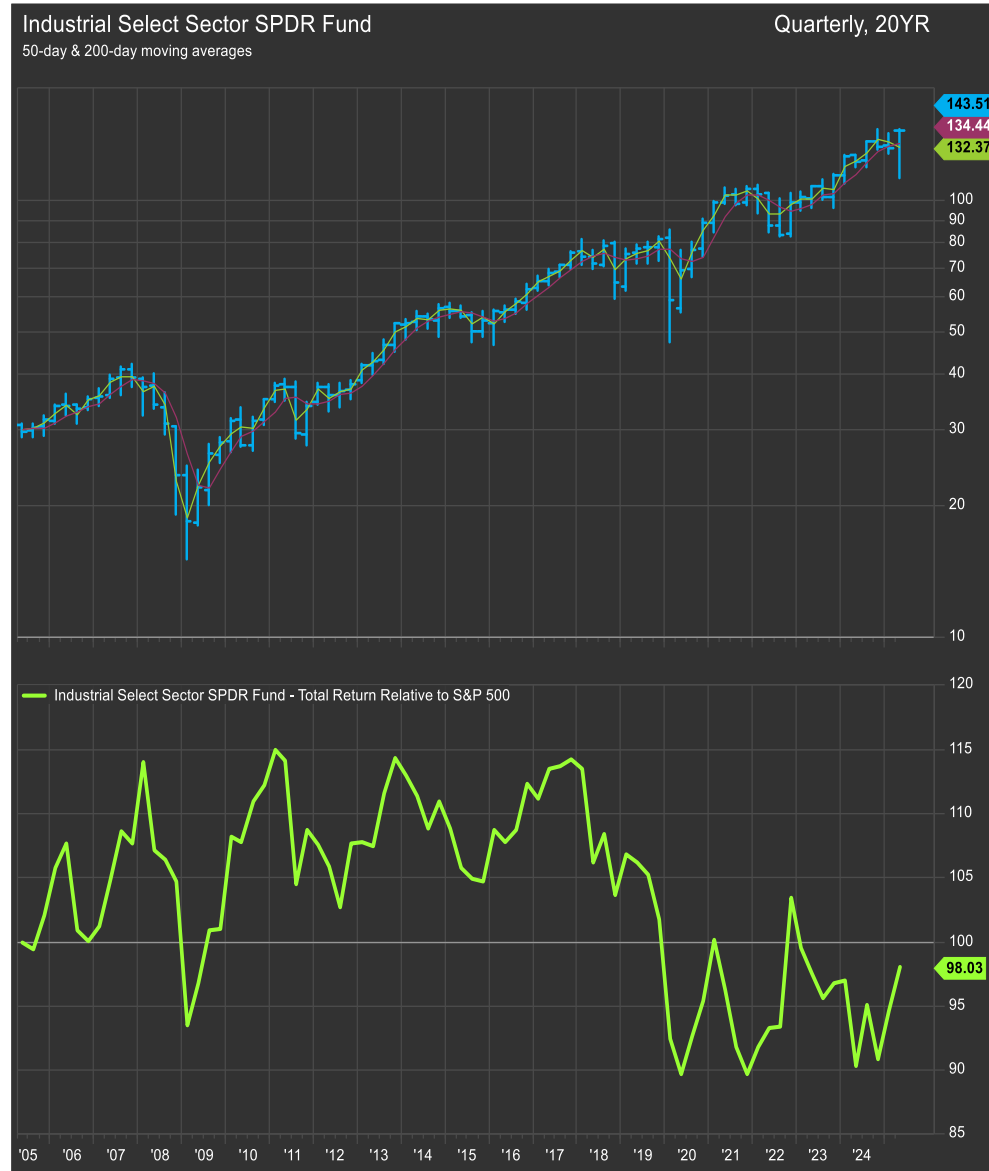


ETFSector.com

Research Study: Intermediate-term Momentum Industrial Sector

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Momentum Indicator Study Details



ETFSector.com Intermediate-term Momentum Indicator

Construction:

- Indicator Value = (1M (Trailing) Excess Total Returns * 0.2) + (3M Excess Total Returns * 0.5) + 6M Excess Total Returns * 0.3)
- Binning Values by groups of 5
- Averaging coincident 1, 3, 6 and 12-month coincident excess total return vs. reference security by bin

Study Securities:

- Sector Proxy: XLI
- Reference Security: SPY

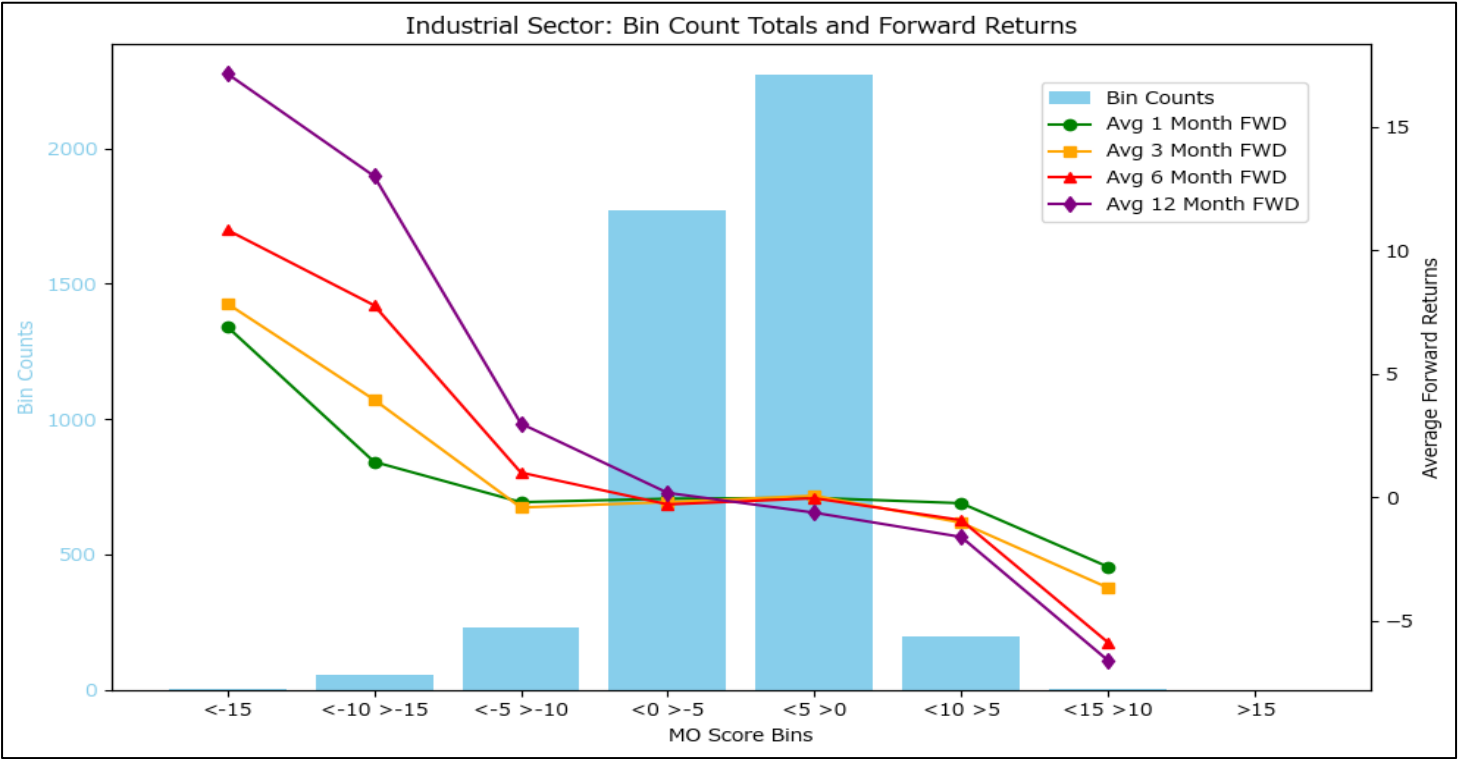
Look Back Period:

- 20 years (Chart)

Objective:

- Insight into the behavior of sector level momentum using a momentum calculation that emphasizes 3-month excess returns
- Identifying historical levels that coincided with positive excess returns

Momentum Indicator Study: Notable Results

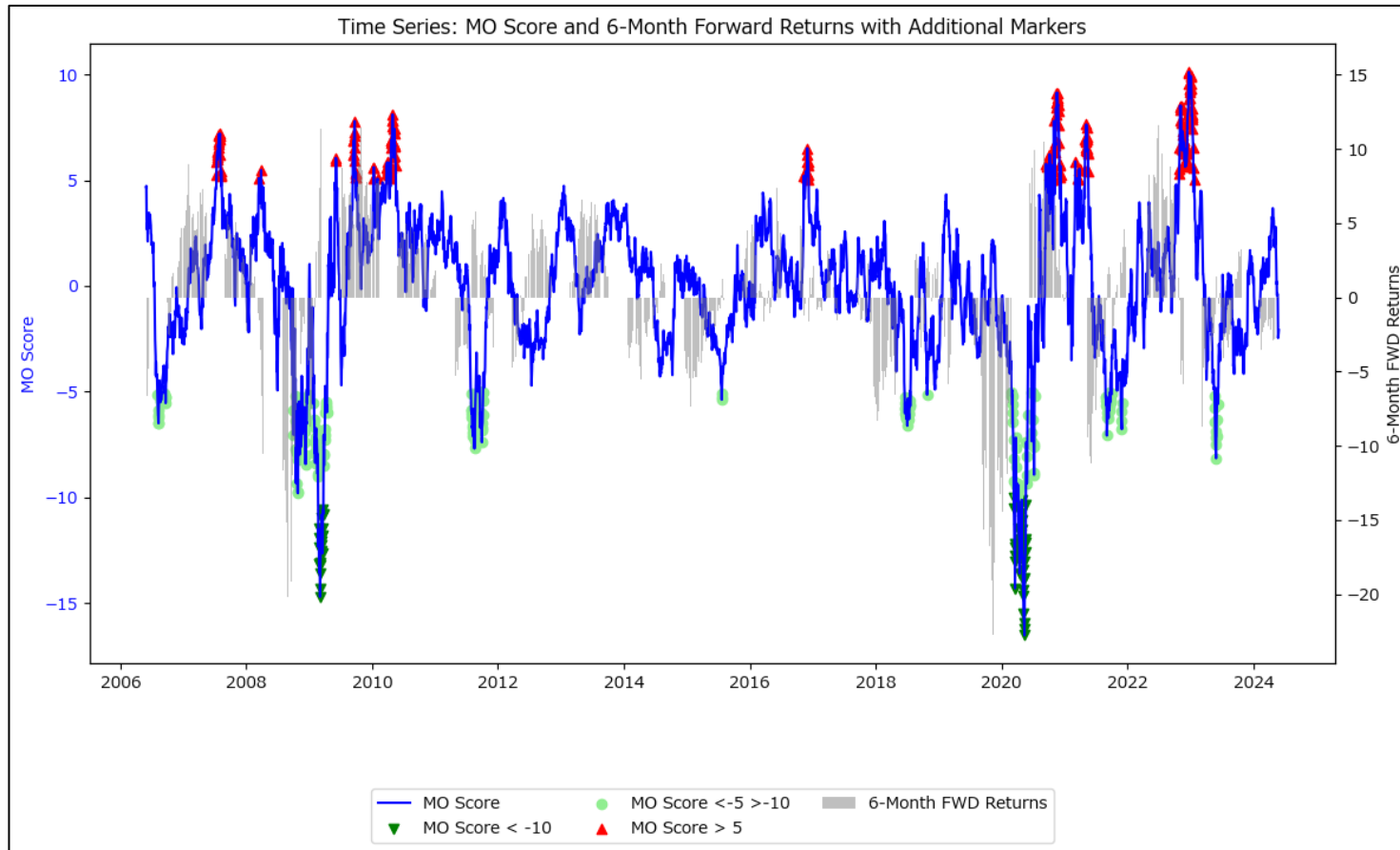


Key Takeaways:

- Potential alpha opportunities are highest at extreme low levels
- While extreme low scores have produced high average FWD returns over 1, 3, 6 and 12-month timeframes, the sector is notable for a lack of positive momentum readings with less than 5% of the study readings above the 5 level and only 2 readings above the 10 level
- Scores with Values >-5 coincide with flat to negative forward excess returns on average
- **Based on this research the Industrial Sector is on a neutral signal with a Mo Score of 4.68 is approaching a “Sell” Threshold**

Bin	Observations	Avg_1_Month_FWD	Avg_3_Month_FWD	Avg_6_Month_FWD	Avg_12_Month_FWD
<-15	4	6.904441386	7.843934053	10.82678446	17.15746067
<-10 >-15	57	1.435205025	3.952353301	7.775700711	13.0083937
<-5 >-10	231	-0.200251873	-0.41658546	0.999930028	2.985820018
<0 >-5	1763	-0.039972969	-0.183088698	-0.293811868	0.16587805
<5 >0	2271	-0.014486524	0.05379166	-0.050555474	-0.636824811
<10 >5	202	-0.291372594	-1.283188892	-1.149274166	-1.782480636
<15 >10	2	-2.818381773	-3.667554677	-5.881202818	-6.613541519

Momentum Indicator Study: Insights & Strategy Tips



Insights on the Research:

- **Values <-10** coincided with high average excess returns over 1, 3, 6 and 12-month periods
- **Values <-5** were a weaker buy signal generating positive average returns 0-3% above benchmark over 12-months
- **Values > 5** coincided with negative excess returns
- Mapping theoretical Mo Score buy and sell signals shows the -10 level (dark green) generates strong signals in infrequent clusters
- An optimized strategy might find a slightly higher level that captures more alpha. If we were to implement a trading strategy around this indicator it would include
 - Identifying the -9 and 4 levels as alerts
 - On the alert we'd use a moving average cross over strategy like a 10-day > 50-day crossover or a trend channel alert to identify potential trend change after the signal
 - Holding period between 1-12 months on buy signals below -10
 - These characteristics would alert you just above (below) the study threshold and enter long on a subsequent rally or positive divergence from the short-term m.a. crossover mechanics

Momentum Indicator Study: Tactical



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XLI Mo Score approaching Sell Signal level at 5

- **Values <-10** coincided with high average excess returns over 1, 3, 6 and 12-month periods
- **Values <-5** were a weaker buy signal generating positive average returns 0-3% above benchmark over 12-months
- **Values > 5** coincided with negative excess returns
- We use technical analysis to help manage risk
 - Short-term moving average crossover strategies can function as stop losses
 - We like identifying support and resistance levels based on price structure
 - Horizontal support is at \$136
 - Trend Channel Support (for the more risk averse) offers a tighter stop at \$141
 - Our preference is to have looser stops to allow for longer holding periods