Securities Finance Research

Bond-Linked Equity factors enhance signal in Equity Short Interest

Securities Finance Research &
Analytics

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Research Background

While the short interest metrics derived from the Securities Finance dataset have a long and established track record that identifies short interest as a strong leading indicator of future equity returns, using fixed income signals for equity trading is less explored due to the complexities in obtaining and mapping security identifiers and aggregating data from multiple issues back to a single corporate issuer.

This gap was addressed last year with the launch of bond-linked equity factors where Alpha Signals and Bond Pricing businesses collaborated to introduce 19 base factors (and seven variants to extend coverage) using proprietary point-in-time corporate mappings, bond return and curve data. Please refer to the bond-linked equity signals research paper which highlights the robustness of these factors as leading indicators of forward equity returns along with their low commonality with traditional quant factors. The research also portrays benefits to a value-momentum manager by incorporating bond linked signals as an overlay.

In this research study, we examine whether bond to equity factors can be combined with short sentiment factors for an enhanced security selection process in large cap equities in US and Developed Europe. **We employ the top performing Active Utilization and the Bond Value Divergence factors from the proprietary factor suites and run historical simulations that imitate a long-short strategy based on a monthly rebalance schedule during the period April 2015 – July 2023.**

Summary Findings

Cross-sectional rank correlation between Active Utilization and Bond Value Divergence was close to 0 across the two universes suggesting a lack of commonality and uniqueness in their signal which is crucial in using the factors together.

Our historical simulations based on a monthly rebalance long-short strategy during the period Apr 2015 – Jul 2023, revealed the negative association of the two factors with forward returns as expected. **Stocks with low Active Utilization and low Bond Value Divergence outperformed stocks with high factor values and generated significant risk-adjusted returns across the two universes.**
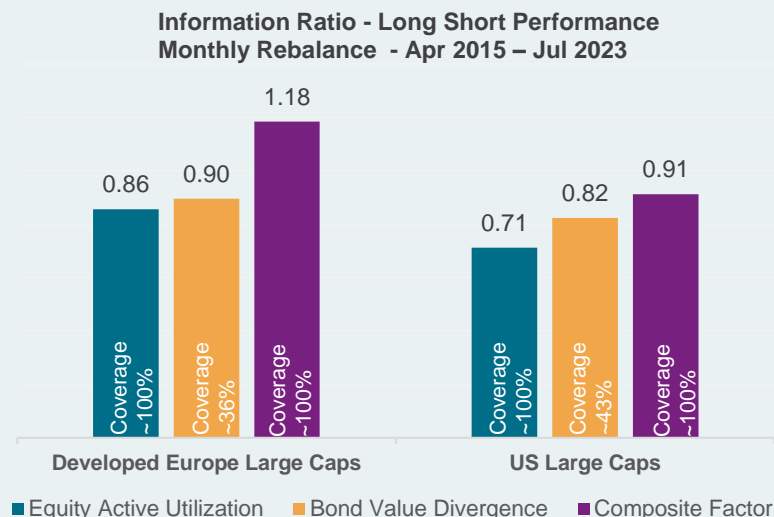
Employing Bond Value Divergence was found to be more profitable than Active Utilization in selecting favourable stocks (long-leg), whereas Active Utilization outperformed Bond Value Divergence in selecting unfavourable stocks (short-leg) in terms of Information Ratios (IR) realized from the hypothetical strategy. **However, using a combination of the two factors generated a higher and more robust risk-adjusted return for both the long and the short legs in comparison to using the factors in isolation.**

In Developed Europe Large Caps, **the Composite Factor returned an annualized spread of ~5.4% with an IR of 1.2x which exceeded Active Utilization by ~37% and Bond Value Divergence by ~31%.**

In US Large Caps, **the Composite Factor returned an annualized spread of ~8.2% with an IR of 0.9x which exceeded Active Utilization by ~28% and Bond Value Divergence by ~11%.**

Yearly breakdown of the average monthly spread further depicts the diversification benefit from using the two factors in conjunction. For instance, during years when Active Utilization generated a negative monthly spread, employing Bond Value Divergence offered positive risk-adjusted returns across the two universes. Similarly, during years when Bond Value Divergence underperformed, employing Active Utilization was found to be beneficial.

It is also worth noting that the Active Utilization factor offered more breadth of information across stocks in terms of factor coverage as bond-linked equity signals can only be created for a subset of issuers with bonds in their capital structure.

**Information Ratio - Long Short Performance
Monthly Rebalance - Apr 2015 – Jul 2023**

Developed Europe Large Caps			US Large Caps		
0.86	0.90	1.18	0.71	0.82	0.91
Coverage ~100%	Coverage ~36%	Coverage ~100%	Coverage ~100%	Coverage ~43%	Coverage ~100%

■ Equity Active Utilization ■ Bond Value Divergence ■ Composite Factor

Factors used in our study

- **Equity Active Utilization (Securities Finance):**

The amount of lender value on loan relative to the active lendable value. Active lendable value strips out inactive lendable inventory as per Securities Finance proprietary algorithm. *Stocks were ranked in ascending order as per this factor as stocks with low active utilization have lower short sentiment in comparison to stocks with high active utilization. Thus, stocks with low active utilization were assigned favourable ranks as they are expected to outperform stocks with high active utilization.*

- **Bond Value Divergence*(Alpha Signals: Bond to Equity factors):**

It is defined as the difference of market equity return and estimated equity return based on 120-day linear regression of equity return on 5-year mid z-spread percentage change and MSCI ACWI Index return. The factor measures the level of divergence across the equity market and bond market for each company. *Stocks were ranked in ascending order, as the more negative the bond value divergence, the lower the market equity return when compared to the estimated equity return, the more likely the increase of market equity price, which could result in higher equity return. Thus, stocks with more negative bond value divergence were given favourable ranks.*

- **Composite Factor:**

An equally-weighted composite factor which was computed using the above-mentioned proprietary factors where *favourable stocks ranked closer to 1 would have lower Active Utilization and lower Bond Value Divergence in comparison to unfavourable stocks on a relative basis. Please refer to the next slide for more details on how we construct the composite factor.*

For a hypothetical long-short strategy, stocks ranked in the top 30% as per the individual factors formed the long portfolio and stocks ranked in the bottom 30% formed the short portfolio.

*Bond Value Divergence is one of the top performing factors in the recently launched Bond to Equity factor suite that utilizes the proprietary Bond Pricing and point-in-time Corporate Mapping datasets in factor construction. Please refer to the Alpha Signals – Bond to Equity factor introduction paper for further details.

Creating the Composite Factor

A multi-factor score that was created by using an equally-weighted percentile rank score based on the Active Utilization and Bond Value Divergence factors from S&P Global's proprietary datasets

Methodology

At the end of every month, percentile ranks of these factors were compiled independently and then an equally weighted average of these ranks was used to calculate a composite factor score.

- **Finally, a percentile rank of this equal weighted average score was calculated to get the composite factor .** If data on one of the factor was not available, the remaining factor was used independently in creating the composite factor.

- Both Active Utilization and Bond Value Divergence were ranked in ascending order as stocks with high factor values are expected to underperform in comparison to stocks with low factor values. Please refer to the previous slide for factor interpretations.

- As such, stocks ranked in the top 30% as per the composite factor formed the long portfolio and stocks ranked in the bottom 30% formed the short portfolio in our hypothetical long-short strategy.

Equity Active Utilization

Bond Value Divergence

Composite Factor

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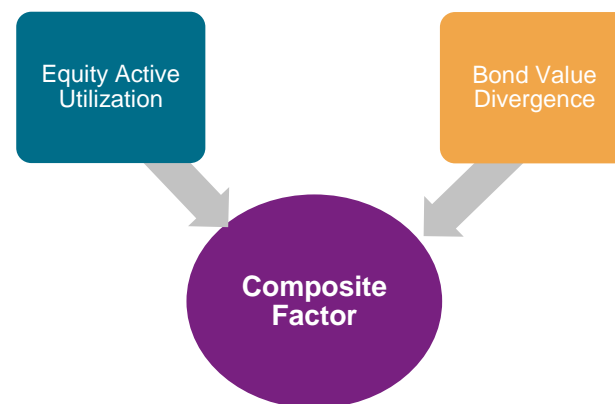
Universe and Back-Test Criteria

- **Universe:** Historical point-in-time constituents for the Developed Europe & US Large Caps universe were sourced from S&P Global's Alpha Signals platform. The Developed Europe universe was further screened to identify large cap stocks per country with market cap >= median market cap calculated based on the county of exchange where the stocks were traded. The identification of large cap stocks was done at the end of every month during the period of our study.

- **Factors used:** Active Utilization and Bond Value Divergence factors were used for the purpose of this study. Please refer to the previous two slides for more details on factor descriptions, interpretations and how we combined the two factors to create a composite factor.

- **Factor coverage:** There were ~600 stocks in Developed Europe Large Caps and ~1100 stocks in US Large Caps on average. Factor coverage was found to be consistent during the analysis period with Active Utilization covering ~100% of the stocks and Bond Value Divergence covering ~40% of the stocks across the two universes on average. Factor coverage for the Bond Value Divergence factor was limited as only a subset of issuers have bonds in their capital structure which forms the basis for constructing the novel Bond to Equity signals.

- **Factor rebalance period:** – End of every month during the time-period 31st Mar 2015 – 30th Jun 2023*. 1-month forward total returns were calculated from the rebalance date to judge factor performance and were sourced from S&P Global's ClariFi platform. Returns were equally weighted and extreme return outliers were removed from the sample to avoid few stocks from impacting the overall back-test performance.

- **Data Lag:** Appropriate data reporting lags were incorporated in factor construction to avoid any look ahead bias in our back test results.

- **Factor Ranking:** The factors were ranked in ascending order as per intuition as stocks with low Active Utilization and low Bond Value Divergence are expected to outperform in comparison to stocks with high Active Utilization and high Bond Value Divergence. As per our hypothetical strategy, stocks ranked in the top 30% of a particular factor formed the long portfolio and stocks ranked in the bottom 30% formed the short portfolio.

*1-month forward total return for the 30th June 2023 rebalance was calculated between 30th June 2023 – 10th July 2023 as an exception as the analysis for the research paper was conducted in the 2nd week of July.

Long Short Portfolio Performance – Developed Europe Large Caps

Using Active Utilization and Bond Value Divergence in a hypothetical long-short strategy delivered a strong signal as stocks with low factor values outperformed stocks with high factor values with significant risk-adjusted returns. However, employing a combination of the two factors returned an annualized spread of ~5.4% with an IR of 1.2x which exceeded Active Utilization by ~37% and Bond Value Divergence by ~31%. Bond Value Divergence was found to be more profitable than Active Utilization in selecting favourable stocks (long-leg), whereas Active Utilization outperformed Bond Value Divergence in selecting the short-leg (please refer to slides 10 & 11 for the performance breakdown).
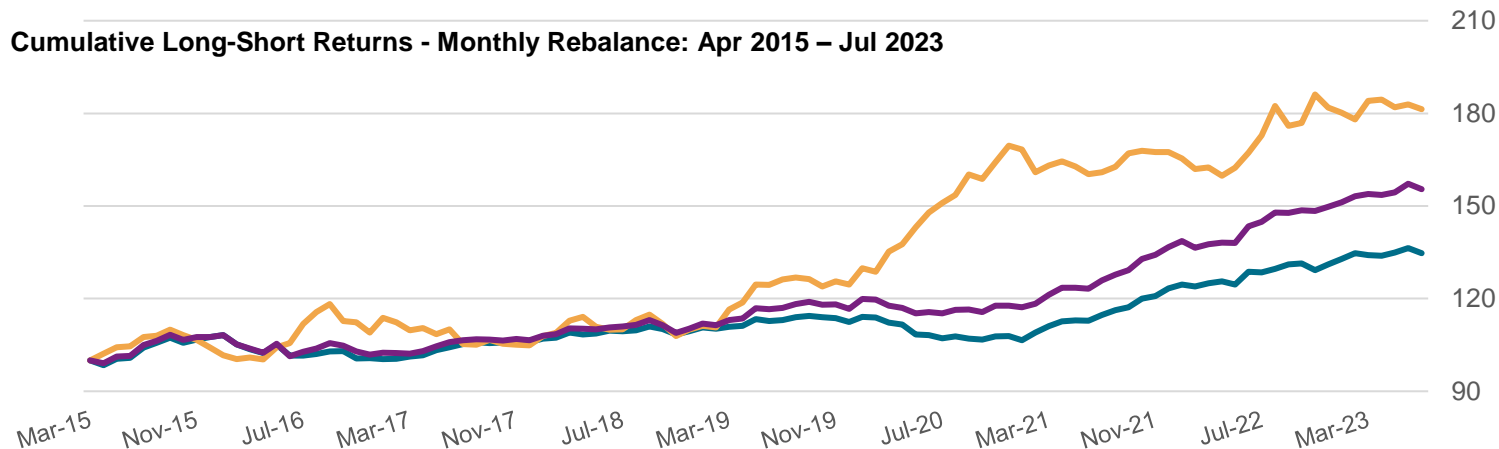
Cumulative Long-Short Returns - Monthly Rebalance: Apr 2015 – Jul 2023

Favourable Leg vs. Unfavourable Leg - Monthly Rebalance - Apr 2015 - Jul 2023						
Factor	Annualized Returns	Annualized Volatility	Information Ratio	Average Monthly Returns	% Contribution from Favourable Leg	Average no. of Stocks in Individual Leg
Equity Active Utilization	3.64%	4.25%	0.86	0.31%	46%	185
Bond Value Divergence	7.40%	8.27%	0.90	0.62%	64%	66
Composite Factor	5.43%	4.59%	1.18	0.45%	56%	185

- Performance of favourable stocks relative to unfavourable stocks based on a monthly rebalance strategy is reported for the different factors used in our study. Factor performance is measured using the Information Ratio which is calculated as annualized excess returns / annualized std. dev.
- Stocks were ranked in ascending order at the end of every month based on the factors as per intuition and stocks with high factor values (bottom 30%) were classified as unfavourable (short leg) and stocks with low factor values (top 30%) were classified as favourable (long leg).

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Long Short Portfolio Performance – US Large Caps

Using Active Utilization and Bond Value Divergence in a hypothetical long-short strategy delivered a strong signal as stocks with low factor values outperformed stocks with high factor values with significant risk-adjusted returns. However, employing a combination of the two factors returned an annualized spread of ~8.2% with an IR of 0.9x which exceeded Active Utilization by ~28% and Bond Value Divergence by ~11%. Bond Value Divergence was found to be more profitable than Active Utilization in selecting favourable stocks (long-leg), whereas Active Utilization outperformed Bond Value Divergence in selecting the short-leg (please refer to slides 12 & 13 for the performance breakdown).
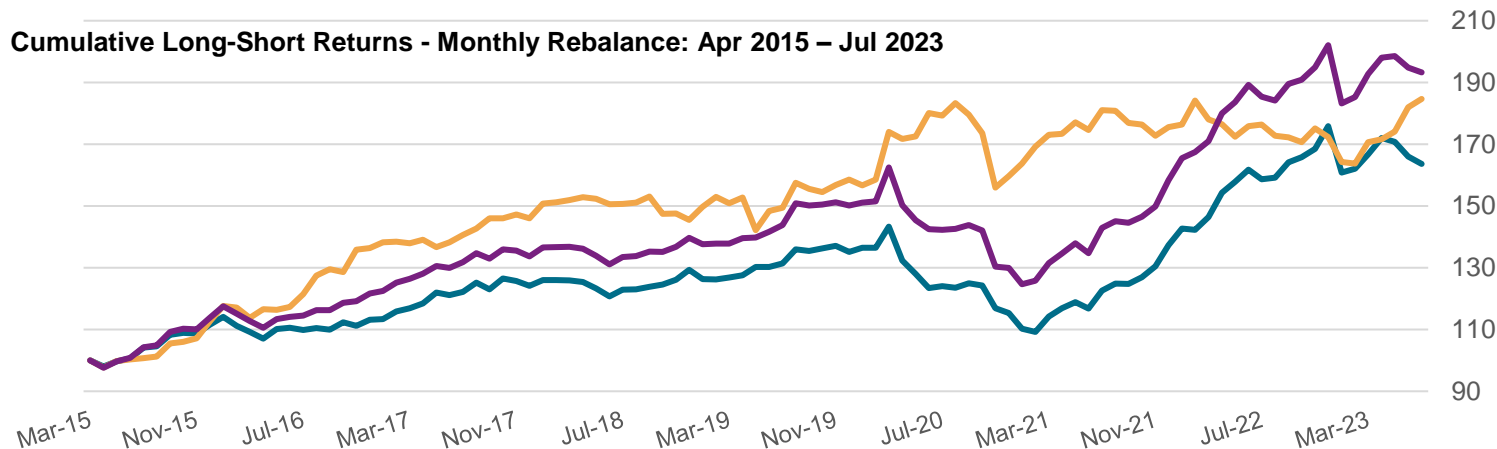
Cumulative Long-Short Returns - Monthly Rebalance: Apr 2015 – Jul 2023

Favourable Leg vs. Unfavourable Leg - Monthly Rebalance - Apr 2015 - Jul 2023						
Factor	Annualized Returns	Annualized Volatility	Information Ratio	Average Monthly Returns	% Contribution from Favourable Leg	Average no. of Stocks in Individual Leg
Equity Active Utilization	6.09%	8.55%	0.71	0.52%	42%	337
Bond Value Divergence	7.64%	9.28%	0.82	0.65%	61%	145
Composite Factor	8.23%	9.03%	0.91	0.70%	49%	337

- Performance of favourable stocks relative to unfavourable stocks based on a monthly rebalance strategy is reported for the different factors used in our study. Factor performance is measured using the Information Ratio which is calculated as annualized excess returns / annualized std dev.
- Stocks were ranked in ascending order at the end of every month based on the factors as per intuition and stocks with high factor values (bottom 30%) were classified as unfavourable (short leg) and stocks with low factor values (top 30%) were classified as favourable (long leg).

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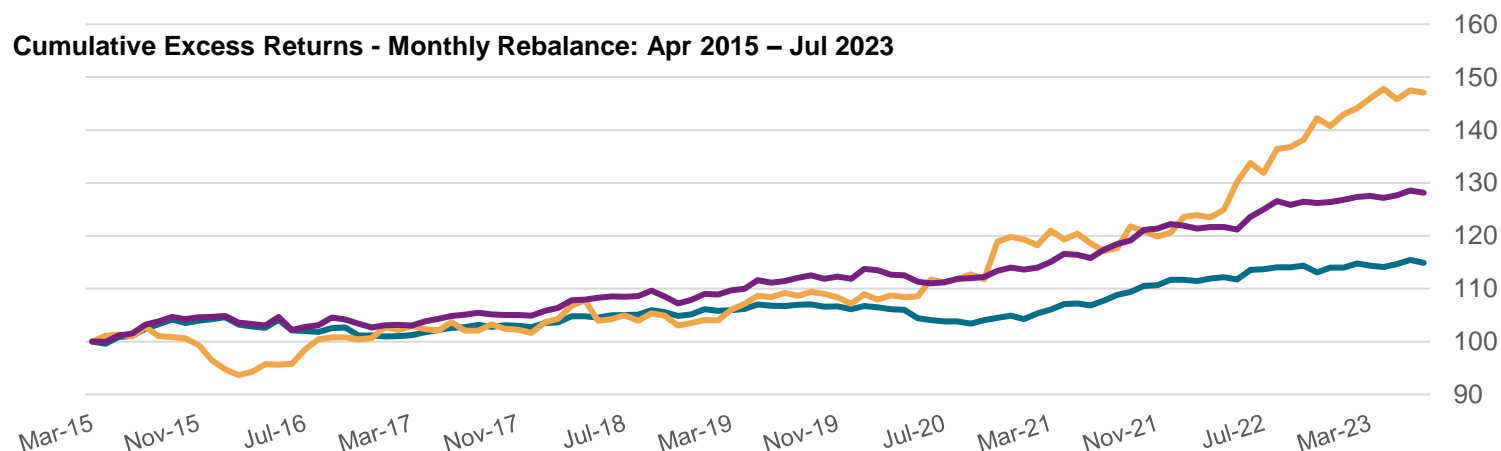
Yearly Breakdown of the Long Short Performance

Yearly breakdown of the average monthly spread further depicts the diversification benefit from using the two factors in conjunction. For instance, during years when Active Utilization generated a negative monthly spread, employing Bond Value Divergence offered positive risk-adjusted returns across the two universes. Similarly, during years when Bond Value Divergence underperformed, employing the Active Utilization factor was found to be beneficial.

Developed Europe Large Caps - Yearly Breakdown - Average Long Short Returns			
Year	Equity Active Utilization	Bond Value Divergence	Composite Factor
Apr - Dec 2015	0.83%	0.46%	0.82%
2016	-0.53%	0.43%	-0.43%
2017	0.42%	-0.30%	0.37%
2018	0.28%	0.43%	0.30%
2019	0.23%	1.07%	0.48%
2020	-0.34%	2.62%	0.08%
2021	1.12%	-0.09%	1.26%
2022	0.52%	0.73%	0.77%
Jan - Jul 2023*	0.39%	-0.03%	0.54%

US Large Caps - Yearly Breakdown - Average Long Short Returns			
Year	Equity Active Utilization	Bond Value Divergence	Composite Factor
Apr - Dec 2015	1.23%	1.36%	1.47%
2016	0.14%	1.63%	0.57%
2017	0.79%	0.58%	0.80%
2018	0.35%	-0.02%	0.37%
2019	0.37%	0.76%	0.62%
2020	-1.25%	0.16%	-1.12%
2021	1.50%	0.81%	1.70%
2022	2.10%	-0.13%	2.08%
Jan - Jul 2023*	-0.95%	1.04%	-0.55%

- Yearly average of the monthly spreads between favourable stocks and unfavourable stocks are reported for the different factors used in our study.
- Stocks were ranked in ascending order at the end of every month based on the factors as per intuition and stocks with high factor values (bottom 30%) were classified as unfavourable (short leg) and stocks with low factor values (top 30%) were classified as favourable (long leg).

Performance of the Long Portfolio relative to the Universe – Developed Europe Large Caps

In identifying favourable stocks, Bond Value Divergence offered a stronger risk-adjusted performance relative to the universe in comparison to using Active Utilization (an IR of ~0.9x vs. an IR of ~0.8x) for large cap equity stocks in Developed Europe. However, using a combination of the two factors offered a significant improvement in relative performance in comparison to using the factors independently.
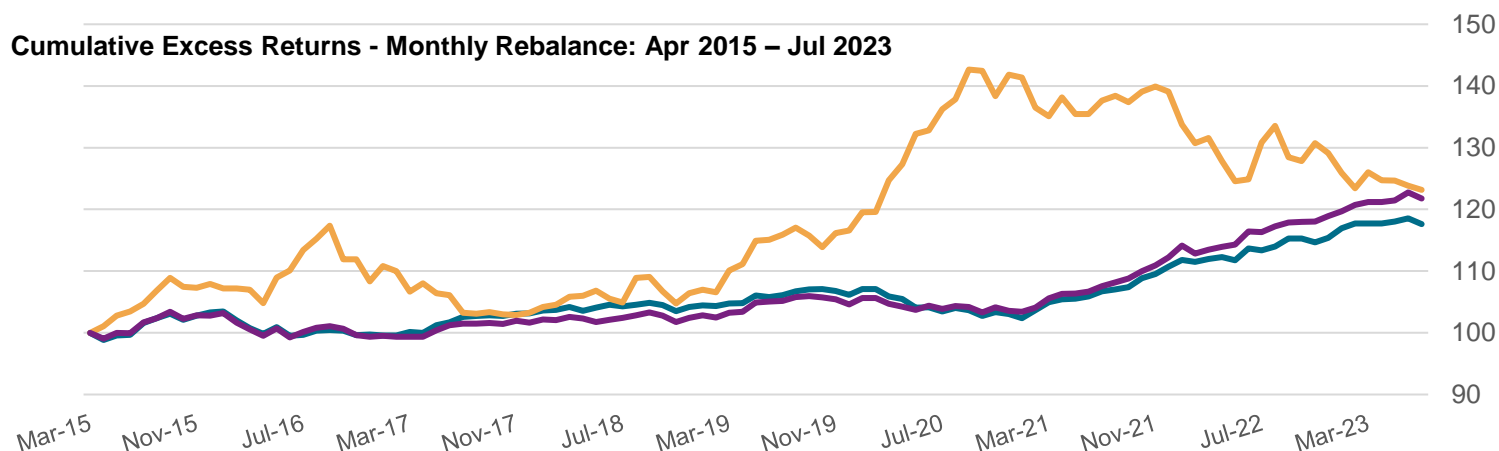
Cumulative Excess Returns - Monthly Rebalance: Apr 2015 – Jul 2023

Favourable Leg vs. Universe - Monthly Rebalance - Apr 2015 - Jul 2023					
Factor	Annualized Returns	Annualized Volatility	Information Ratio	Average Monthly Returns	Average no. of Stocks in Favourable Leg
Equity Active Utilization	1.68%	2.17%	0.77	0.14%	185
Bond Value Divergence	4.74%	5.22%	0.91	0.40%	66
Composite Factor	3.02%	2.50%	1.21	0.25%	185

- Performance of favourable stocks (long portfolio) relative to the universe based on a monthly rebalance strategy is reported for the different factors used in our study. Factor performance is measured using the Information Ratio which is calculated as annualized excess returns / annualized std dev.
- Stocks were ranked in ascending order at the end of every month based on the factors as per intuition and stocks with high factor values (bottom 30%) were classified as unfavourable (short leg) and stocks with low factor values (top 30%) were classified as favourable (long leg).

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Performance of the Short Portfolio relative to the Universe – Developed Europe Large Caps

Active Utilization offered a stronger signal than Bond Value Divergence in picking shorting candidates during the period of our study. Using the two together generated an IR that exceeded Active Utilization by ~17% and Bond Value Divergence by ~155%.
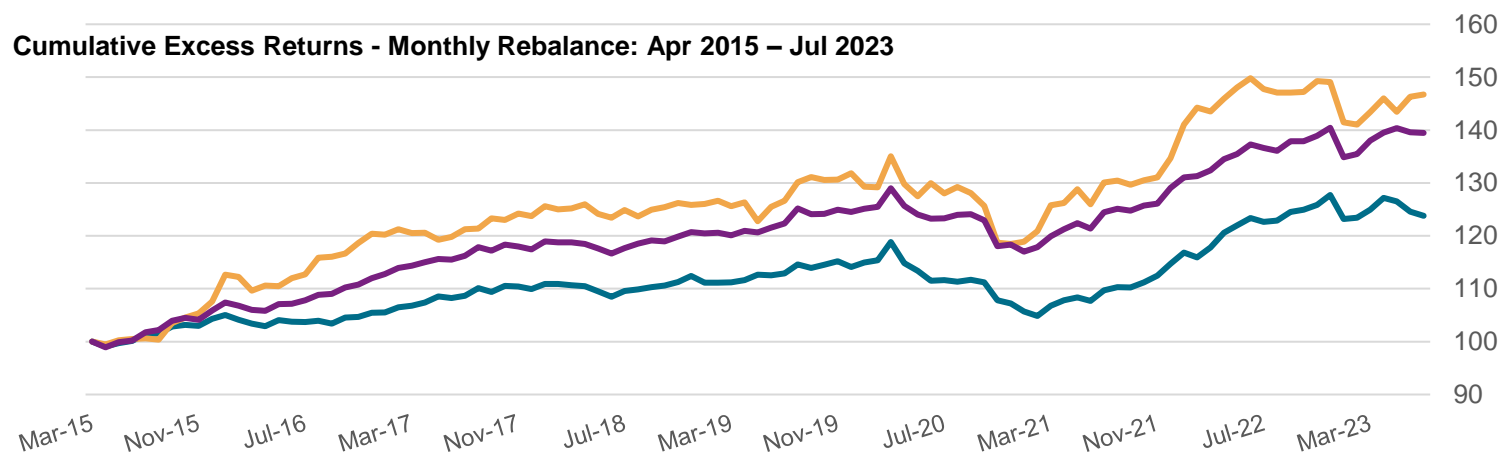
Cumulative Excess Returns - Monthly Rebalance: Apr 2015 – Jul 2023

	Universe vs. Unfavourable Leg - Monthly Rebalance - Apr 2015 - Jul 2023				
Factor	Annualized Returns	Annualized Volatility	Information Ratio	Average Monthly Returns	Average no. of Stocks in Unfavourable Leg
Equity Active Utilization	1.97%	2.38%	0.83	0.16%	185
Bond Value Divergence	2.53%	6.75%	0.38	0.23%	66
Composite Factor	2.39%	2.46%	0.97	0.20%	185

- Performance of unfavourable stocks (short portfolio) relative to the universe based on a monthly rebalance strategy is reported for the different factors used in our study. Factor performance is measured using the Information Ratio which is calculated as annualized excess returns / annualized std dev.
- Stocks were ranked in ascending order at the end of every month based on the factors as per intuition and stocks with high factor values (bottom 30%) were classified as unfavourable (short leg) and stocks with low factor values (top 30%) were classified as favourable (long leg).

Performance of the Long Portfolio relative to the Universe – US Large Caps

For a long-only strategy, the Composite Factor offered a prominent improvement in risk-adjusted performance relative to the universe for large cap equity stocks in the US. Using the two factors in conjunction offered an IR of ~1.1x which outperformed Active Utilization and Bond Value Divergence by ~60% and ~40% respectively.
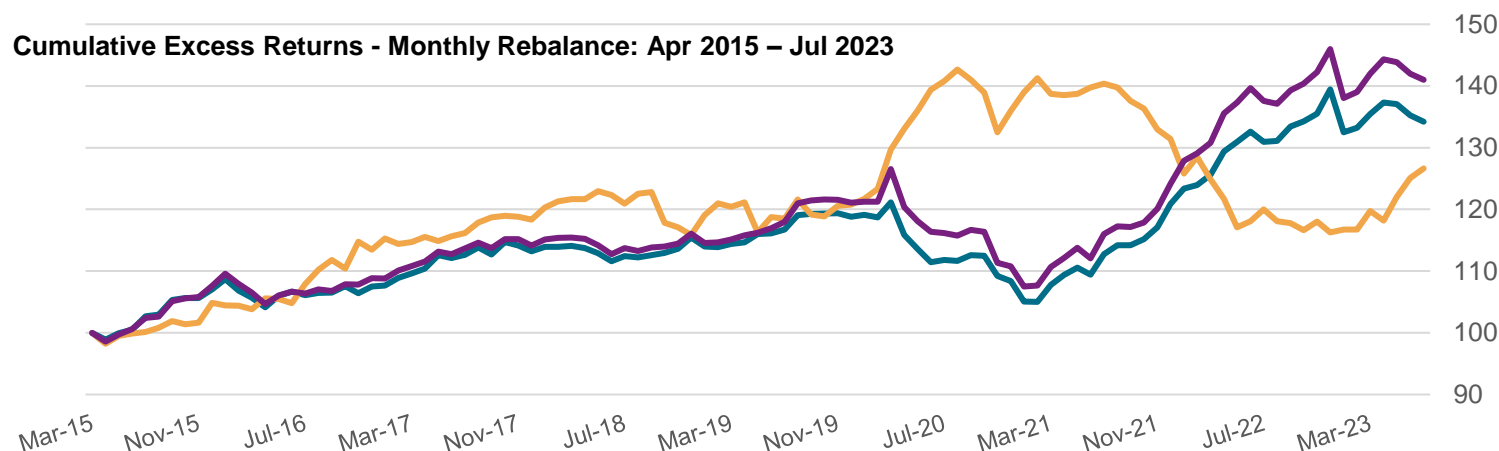
Cumulative Excess Returns - Monthly Rebalance: Apr 2015 – Jul 2023

Favourable Leg vs. Universe - Monthly Rebalance - Apr 2015 - Jul 2023					
Factor	Annualized Returns	Annualized Volatility	Information Ratio	Average Monthly Returns	Average no. of Stocks in Favourable Leg
Equity Active Utilization	2.59%	3.79%	0.69	0.22%	337
Bond Value Divergence	4.71%	6.00%	0.78	0.40%	145
Composite Factor	4.07%	3.74%	1.09	0.34%	337

- Performance of favourable stocks (long portfolio) relative to the universe based on a monthly rebalance strategy is reported for the different factors used in our study. Factor performance is measured using the Information Ratio which is calculated as annualized excess returns / annualized std dev.
- Stocks were ranked in ascending order at the end of every month based on the factors as per intuition and stocks with high factor values (bottom 30%) were classified as unfavourable (short leg) and stocks with low factor values (top 30%) were classified as favourable (long leg).

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Performance of the Short Portfolio relative to the Universe – US Large Caps

In US Large Caps, our univariate analysis suggested the importance of employing Active Utilization in picking shorting candidates over Bond Value Divergence. Using the Composite Factor improved the risk-adjusted returns by more than 50% in comparison to Bond Value Divergence whereas only a marginal improvement was seen in comparison to Active Utilization.

Cumulative Excess Returns - Monthly Rebalance: Apr 2015 – Jul 2023

Universe vs. Unfavourable Leg - Monthly Rebalance - Apr 2015 - Jul 2023					
Factor	Annualized Returns	Annualized Volatility	Information Ratio	Average Monthly Returns	Average no. of Stocks in Unfavourable Leg
Equity Active Utilization	3.59%	4.91%	0.73	0.30%	337
Bond Value Divergence	2.87%	6.21%	0.46	0.25%	145
Composite Factor	4.21%	5.48%	0.77	0.36%	337

- Performance of unfavourable stocks (short portfolio) relative to the universe based on a monthly rebalance strategy is reported for the different factors used in our study. Factor performance is measured using the Information Ratio which is calculated as annualized excess returns / annualized std dev.
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