Crowded Trades Don’t Explain Managers’ Recent Pain

Introduction

Many managers have taken a beating since early November and some attribute the widespread losses to the unwinding of crowded trades by managers who tightly control their risk exposures. But there is no evidence of that in the returns to Axioma style factors on which many investors tilt. In fact, with few exceptions, factors have been fairly well behaved over the past six weeks, with returns for most factors less than two standard deviations[1] away from their long-term averages across most markets.

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[1] Based on the factor’s volatility forecast at the end of October

Table 1 shows returns from November 1 through December 14 for model factors across major regions. Highlights indicate "outsized" returns. Many factors have an expected risk premium. For example, we expect the return to Value to be positive over the long term, meaning cheaper stocks should outperform their more expensive counterparts. While there may seem to be a high number of outliers in our factor returns, a number of them were in the expected direction. In other words, an exposure provided a better-than-expected return, which runs counter to the notion that investors were exiting certain trades. This stands in sharp contrast to the most potent example of the unwinding of quantitatively driven positions, August 2007, when many factors across most regions saw returns that were many standard deviations away from their long-term averages.

Value has struggled in the US and Europe, with returns 2.9 and 4.3 standard deviations below average, respectively. And while Value fared well in Japan, Earnings Yield was about two standard deviations below average in that region. Volatility had a 3.5-standard-deviation-below-average event in Europe over this period, but the return was in the expected direction, so not a red flag. The same held true for Market Sensitivity in several regions, as well as Profitability in Emerging Markets.

Overall, if there were a general unwinding of factor-based positions, we would expect to see much larger factor returns and/or returns in the opposite direction of what was expected.

Table 1. Factor returns, November 1 to December 14, 2018

	US	US Small Cap	UK	Europe	Japan	World wide	Emerging Markets
Momentum	0.89	0.96	0.33	-0.82	0.76	-0.13	-0.61
Value	-1.24	-0.32	0.39	-0.92	1.37	-0.18	0.64
Earnings Yield	0.70	1.45	—	0.73	-1.09	-0.19	-0.85
Volatility	-2.23	-1.09	-1.90	-2.08	-0.50	-0.51	0.37
Mkt Sensitivity	-2.15	-2.08	-1.50	-2.19	-1.39	-0.86	1.03
Growth	0.28	0.21	-0.06	-0.80	-0.22	-0.14	-0.18
Profitability	-0.60	-1.10	—	0.11	0.92	0.29	1.39
Dividend Yield	0.73	1.15	—	-0.78	-0.05	0.31	0.05
Exch Rate Sens	-0.33	0.31	-1.75	-0.64	0.38	0.24	0.98
Size	2.02	2.03	1.45	2.03	0.54	2.01	-0.59
Leverage	-0.26	-0.44	0.25	-0.12	-0.04	0.10	0.28
Liquidity	-0.76	-1.42	-0.54	-0.86	0.02	-0.19	0.44

Source: Axioma

So, what has been driving the negative returns? On top of plunging oil prices, which have anecdotally been an issue, we see at least four reasons (through our risk-focused lens) that may have contributed.

1) Another way that investors use factors is to go long the most attractive stocks and short the least attractive. These "quintile spread" portfolios, unlike Axioma's "factor-mimicking portfolios," returns of which are shown above, may take large industry and other style factor bets, which in turn have a big impact on returns.
2) Unexpectedly large factor returns in factors *typically expected to have returns close to zero*
3) A sharp increase in market volatility
4) Fat-tailed and skewed returns in November

Quintile Spread Portfolios

We at Axioma advocate using "pure" factors to build factor-based portfolios (that is, eliminating the incidental bets), but many investors instead choose the quintile- based (or decile-) strategy. As noted, this methodology may lead to unexpected exposures to industries and other factors. Returns to these spread portfolios may see substantial effects from those incidental bets.

To examine this approach more closely, we created portfolios that comprised the top and bottom quintiles of some of the more popular factors, calculated capitalization-weighted returns and performance attribution, and compared those returns with those of the underlying factor. The charts below show performance for four sets of quintile portfolios and spreads based on factors in our US4 medium-horizon fundamental model: Medium-Term Momentum (henceforth just called Momentum), Value, Profitability and Earnings Yield. Portfolios were rebalanced daily.

Returns for the spread portfolios were of larger magnitude and much more volatile than returns of the underlying factors, with the spreads experiencing significant drawdowns during at least a portion of the last six weeks.

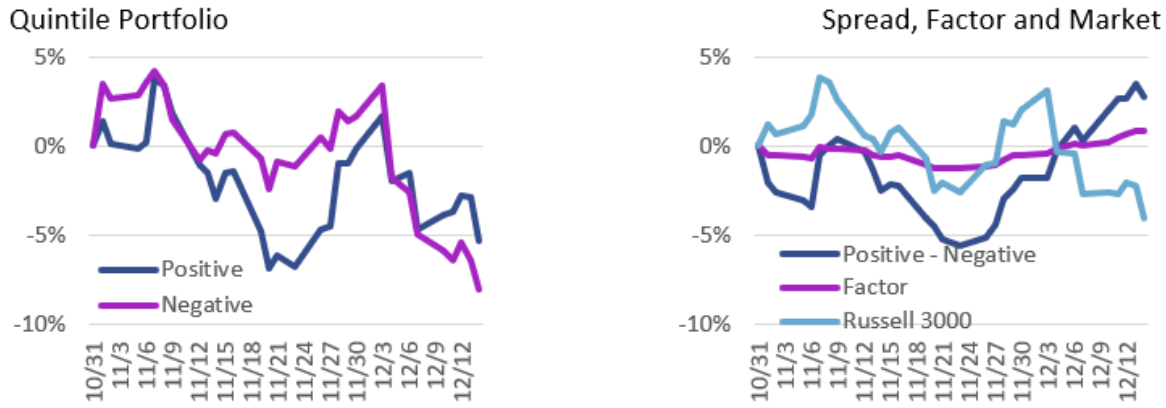
The **Momentum** spread was correlated with the market, so as the market sank and rebounded early in the period, so did the fortunes of the spread portfolio (Figure 1). Throughout October the Momentum drawdown was large, and certainly could have had a major impact on investors tilting on that factor, especially those using quintile spreads to build their portfolios.

Since early December, however, the Momentum spread portfolio (along with the Momentum factor) has continued to rise, although the market has retreated. Over this period, Momentum (whether defined as a quintile spread or Axioma's factor) had a positive return, but the large *daily* returns, the turnover in the positive and negative Momentum stocks, and the change in correlation of the return with the market likely made it tough for a Momentum-based investor—especially one using the top and bottom quintiles) to negotiate the volatility, even though the factor has recovered.

Attribution for the full period shows that performance of the Momentum-spread portfolio was boosted by negative exposures to Value and Volatility, along with a positive exposure to Size. Industry exposures also helped, especially a very large exposure to Software. At the same time, performance was dragged down by large negative stock-specific return.

Rebalancing frequency was also important. The spread portfolio formed at the end of October fell 2.92% in November, whereas when the portfolio was rebalanced daily it was down 1.78%, a full percentage point better than the static portfolio (albeit still down).

Figure 1. Momentum Quintile Portfolios, Spread and Factor Cumulative Returns

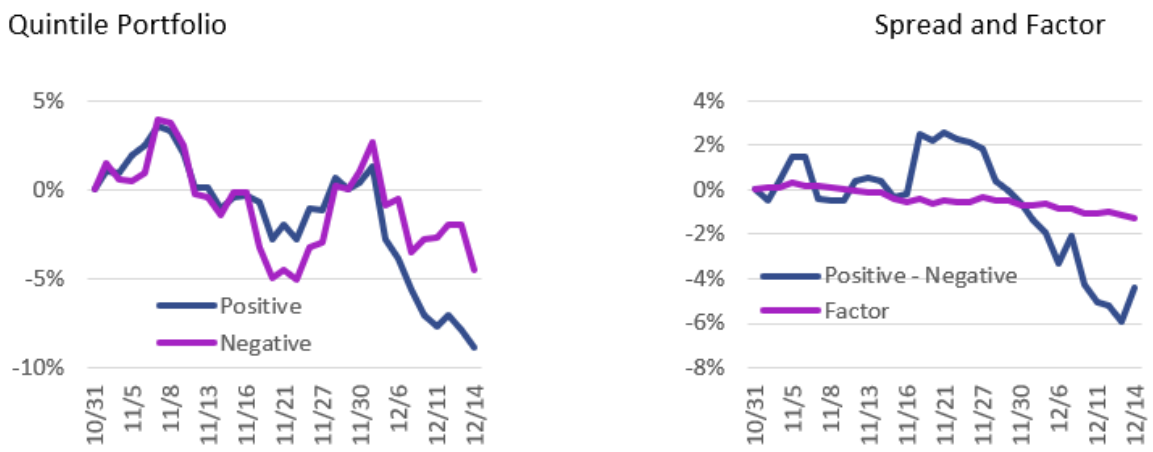


Source: FTSE Russell, Axioma

As noted, the **Value** factor in the US has fallen short of expectations, and the returns were even worse for the quintile spread portfolio (Figure 3). In contrast to Momentum, however, returns were better earlier in the period under study, and only started to fall apart as we approached December. On one hand, this provided some diversification benefit for managers using a multi-factor approach, as the spread returns between Momentum and Value were quite negatively correlated (Figure 4). But for a manager who may have given up on Momentum and switched to Value as a major tilt, this could have meant a double whammy. The factors had a much lower correlation than the spread portfolios, although it was still negative.

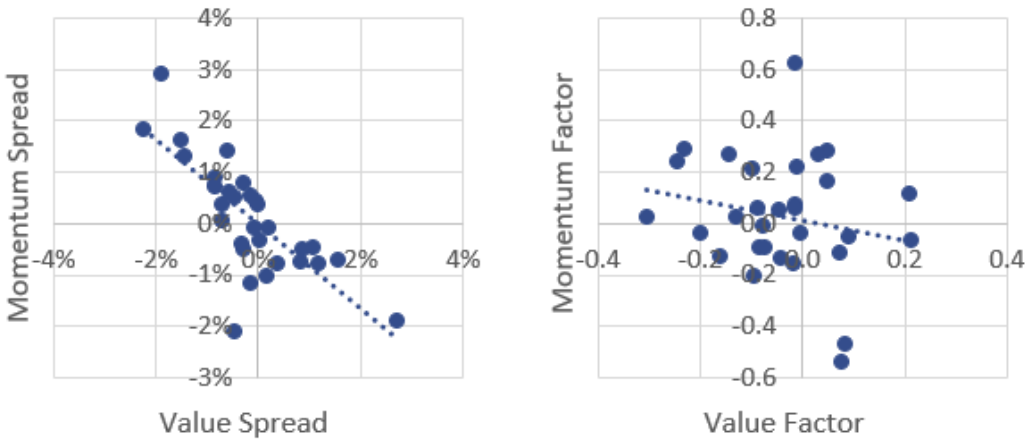
Attribution of the Value spread portfolio clearly shows that exposure to the Value factor was a big drag on return, but industry exposures—especially a huge overweight in Banks—dragged down returns even more than the exposure to Value.

Figure 2. Value Quintile Portfolios, Spread and Factor Cumulative Returns



Source: Axioma

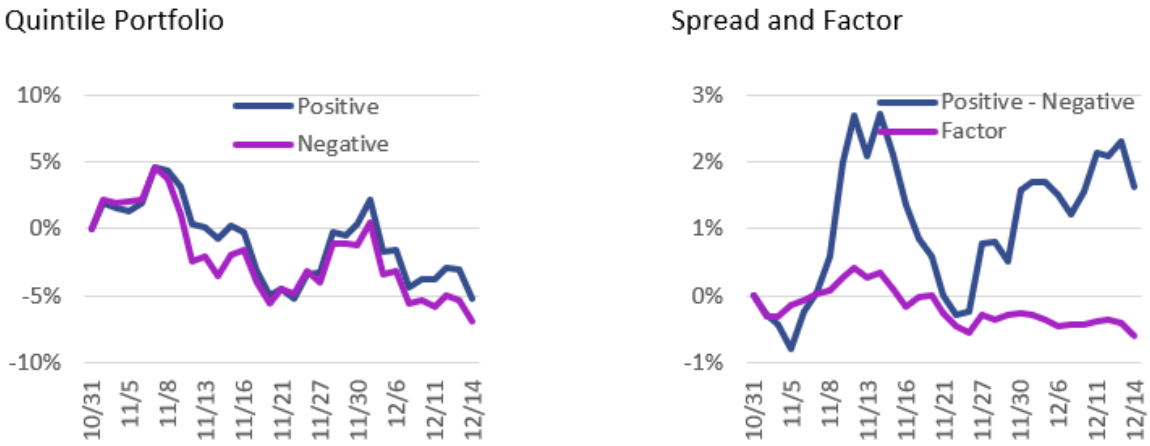
Figure 3. Scatterplot of Spread and Factor Returns, Value vs. Momentum



Source: Axioma

The return to the **Profitability**-spread portfolio was positive over this period, but the rapid return surge and subsequent drawdown in November was probably difficult to negotiate (Figure 4). More recently the spread portfolio has produced a positive return, whereas the factor return was negative. The spread portfolio's exposure to profitability therefore obviously reduced returns, as did industry exposures (with a big overweight in Computer Hardware and underweight in Biotech hurting the most). But those drags were offset by a positive exposure to Size and negative exposures to Value and Volatility.

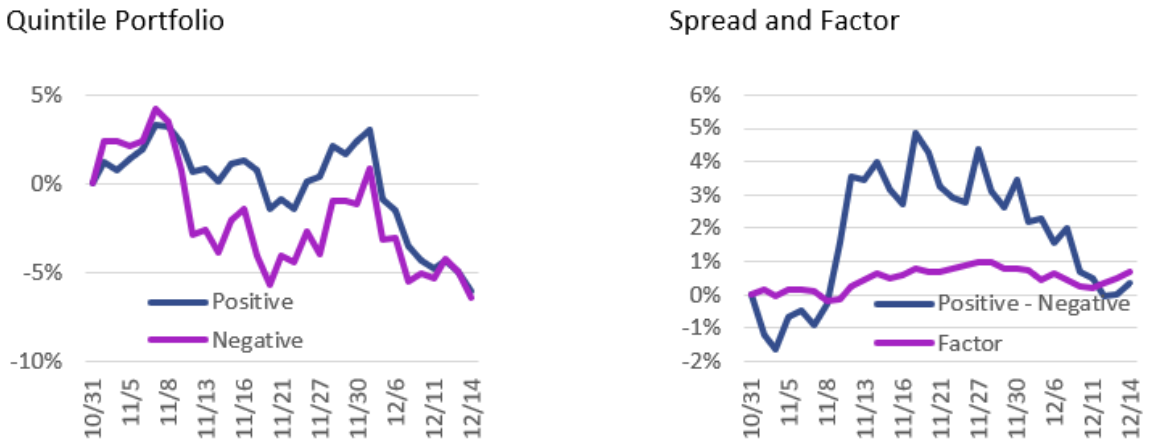
Figure 4. Profitability Quintile Portfolios, Spread and Factor Cumulative Returns



Source: Axioma

Finally, we turn our attention to **Earnings Yield**, where the factor return was positive, and the Spread return staged a huge round-trip, surging in November but falling apart and giving most of the return back in December (Figure 5). The factor was therefore helpful as the market was tanking in November, but did not help when stocks again turned south in December. And once again, industries and other style exposures had larger impacts on return than the exposure to Earnings Yield. Biotech's (negative) and Banks' (positive) very large exposures both hurt returns substantially, whereas positive exposures to Size and Value, and negative bets on Market Sensitivity and Volatility, buoyed the portfolio.

Figure 5. Earnings Yield Quintile Portfolios, Spread and Factor Cumulative Returns



Source: Axioma

One more comment on the topic of quintile sorts. We did a quick study that started with the top quintile portfolio, running optimizations with the objective of minimizing tracking error to the Russell 3000, so we could get a more market-like portfolio. One version did not otherwise constrain factors, while the other constrained industry and other style factor exposures. This process created portfolios that produced much better information ratios over the (short) test period, by reducing or eliminating unwanted bets. We will be conducting a longer and more comprehensive study, but at least in this case can confirm that eliminating the unintended bets produced a more efficient portfolio than the one that simply invested in the most attractive names.

Perhaps These Factors Needed a Bit More Attention

A few other factors—ones that investors often do not pay enough attention to—saw larger-than-expected returns earlier this year, as well as during the November-December period currently under scrutiny, as we showed in Table 1. Most notable were Size and Liquidity in the US Small Cap model, Size in Europe and Exchange Rate Sensitivity in several regions, all of which had returns that were at least two standard deviations away from their long-term averages. Many managers are comfortable with a small-cap bias in their portfolios, even if Size is not an explicit part of their alpha. In the long run that bias has paid off, but larger stocks have had the edge recently, and even a small negative exposure may have hurt. The magnitude of the impact is unlikely to have been a major driver of a performance shortfall, but it could have been a contributing factor. Exchange Rate Sensitivity is a factor that likely garners even less attention than Size, but the magnitude of return in the UK is notable, and a positive exposure to the factor could have shaved off quite a few basis points of return.

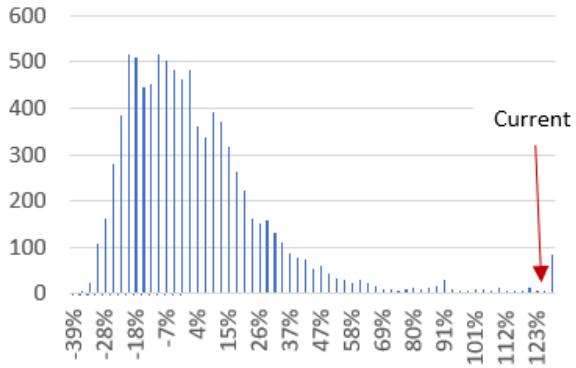
One of the Biggest-Ever Increases in Volatility

The sharp increase in market volatility likely also caused a good deal of dislocation. Market volatility[2] has risen more than 10 percentage points, more than doubling, since its recent low in early October, and that is one of the largest increases in both percentage point and percent terms since the beginning of our US4 model in 1982. Most of the other 52-day periods in which risk rose even more than it did just now were in 2008 and 1987, as well as a few dates earlier this year. The conclusions are similar when we look at the increase in *percentage points*. So, by any measure, the last six or seven weeks have seen huge increases in market volatility[3]. On top of the difficulty this leads to in terms of how to decide when and what to trade, this likely also meant that transaction cost models and trading algorithms underestimated the impact of trading. Volatility itself is not necessarily the problem, rather it is the unexpected nature of current volatility versus last period that created a lot more uncertainty.

[2] As defined by the fundamental short-horizon forecast for the Russell 1000 back to 1982

[3] And you probably don't need me to tell you that…

Figure 6. Histogram of the Russell 100 Percent Increase in Short-Horizon Risk, 1982 to the Present

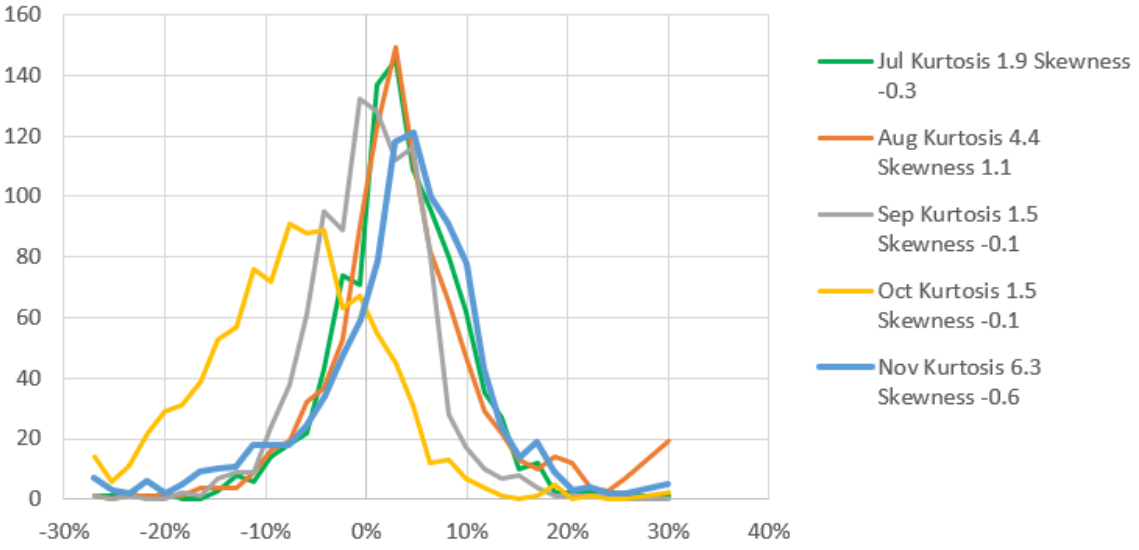


Source: FTSE Russell, Axioma

Recent Returns Were Skewed *and* Fat-Tailed

Higher dispersion can be good for managers. After all, when the difference between the best and worst performing stocks is high, and if the manager has done a good job of identifying the winners and losers, there is more "bang for the buck" to be had. The average return also should not matter for a hedge fund, at least one that is market and/or beta neutral. However, if the distribution of returns is skewed and/or fat-tailed, a bad bet can have bigger-than-usual consequences. Our final analysis of the performance shortfall that seems to have taken place in the last few months shows the distribution of returns for stocks in the Russell 1000 month-by-month from July through November. We calculated the skewness and kurtosis statistics for each month and included them in the legend. Although all months stood out as having slightly higher kurtosis than would be expected if returns were perfectly normally distributed, November clearly stood out from the prior four months with a bigger negative skew and much fatter tails. Eyeballing the chart suggests that the tails were fatter on the left side of the distribution.

Figure 7. Distribution of Monthly Returns and Associated Moments



Note: Returns are based on stocks in the Russell 1000 at the end of each month.

Source: FTSE Russell, Axioma

Conclusion

Many portfolio managers, particularly hedge funds, have struggled of late. Some commentators have attributed the performance shortfall to the unwinding of crowded trades driven by the need to constrain factor exposures. Our analysis of factor returns over the past six weeks points away from that explanation, as most factors in most regions have "behaved" as expected, although there were a few exceptions, as always. Outsized returns relative to historical averages and expected volatility generated by some factors were actually in the expected direction, whereas a panic for the exits would have meant a reversal of returns.

We believe that the underperformance was more likely the result of sharply higher volatility, which made it quite difficult to be nimble enough and probably heightened trading costs, along with skewed and fat-tailed return distributions, both of which made the penalty to poor bets even bigger than usual. In addition, we looked at how some managers may implement factor strategies by just buying the best and shorting the worst stocks based on a given factor, and how that possibly led to portfolios with big unintended bets that ate the potential alpha.