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Is Poor Performance Always Tied to Manager Ability?

By Faryan Amir-Ghassemi

The recent under-performance of hedged equity strategies has received a lot of attention, especially among investors, who are beginning to doubt the effectiveness of hedge funds and fund of funds. Critics point to persistently high fees coupled with declining alpha. But what are the underlying reasons for this under-performance? Since managers have been able to deliver alpha in the past, could the recent poor results be a function of the market, and not one of declining manager skill? In other words, what role does the prevalent market environment play in managers' ability to generate alpha?

To explore these questions, we worked with one of our larger equity fund-of-fund clients to construct this paper. The work

analyzes correlation and dispersion regimes in the markets and measures their impact on long / short equity managers. Our work highlights the importance of these factors in the ability of hedge funds to generate alpha in differing market regimes, and finds that, in the end, managers should be using these metrics to show investors that their money is not misplaced.

Correlation vs. Dispersion

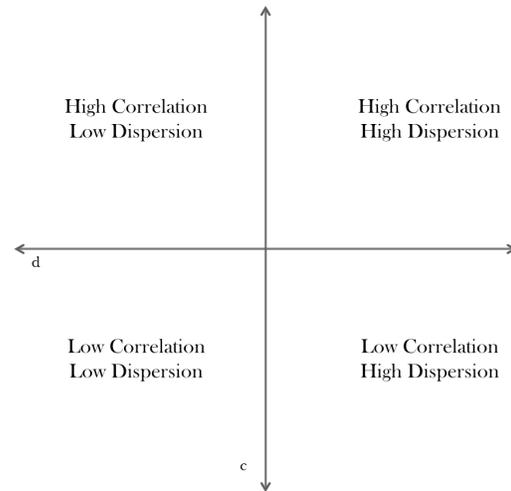
A large portion of active alpha depends on stock picking, or managers' ability to buy stocks that outperform and sell short the stocks that underperform their benchmarks. Intuitively, this ability will be affected by how individual stocks move with respect to one another. If all securities move in perfect unison, there is no room to capture security selection alpha.

Correlation and dispersion can be used to track the broader movement of stocks within an index. Correlation measures the extent to which stocks move in unison, while dispersion is a measure of magnitude differential between the highest and lowest performing stocks.

When markets exhibit high correlation, it is often driven by macro-economic factors rather than stock-specific fundamentals. Most recently, we saw this type of environment during the risk-on/risk-off regime of 2010-2012. This translates to a difficult environment for picking winners and losers, especially for a fundamentally focused stock-picker.

Dispersion is usually driven by company or sector focused trends. An example would be the out-performance of tech/growth stocks versus value in 99-01, or the recent out-performance of healthcare and technology sectors. In a low dispersion environment, the spread of performance between winners and losers is marginal, making it less profitable to capture relative value through strategies such as long/short.

When looking at these two factors, there are naturally four possible combinations that we should consider. Our fund-of-fund client was particularly interested in understanding which of the four presents the best opportunity for hedge fund alpha.



To analyze these four quadrants, we need to test against hedge fund return streams. We use three distinct return series each with their own benefits and drawbacks.

1. Public Ownership Data

The first is our Novus Hedge Fund Universe (“HFU”), which we’ve written extensively about both in [prior research](#) as well as our [blog](#). The HFU is a proprietary list of over 1000 hedge funds’ public regulatory filings, capturing over \$2 trillion of long assets through our Public Ownership product. This index measures the performance of long securities from largely fundamental-focused hedge funds before management or incentive fees. We have compiled this data set back to April 1999.

2. Hedge Fund Index

The second return stream is the HFRI Equity Hedge Index (“HFRI”), an industry standard for long/short equity performance. This index is net of both incentive and management fees.

3. Equity Fund-of-Fund

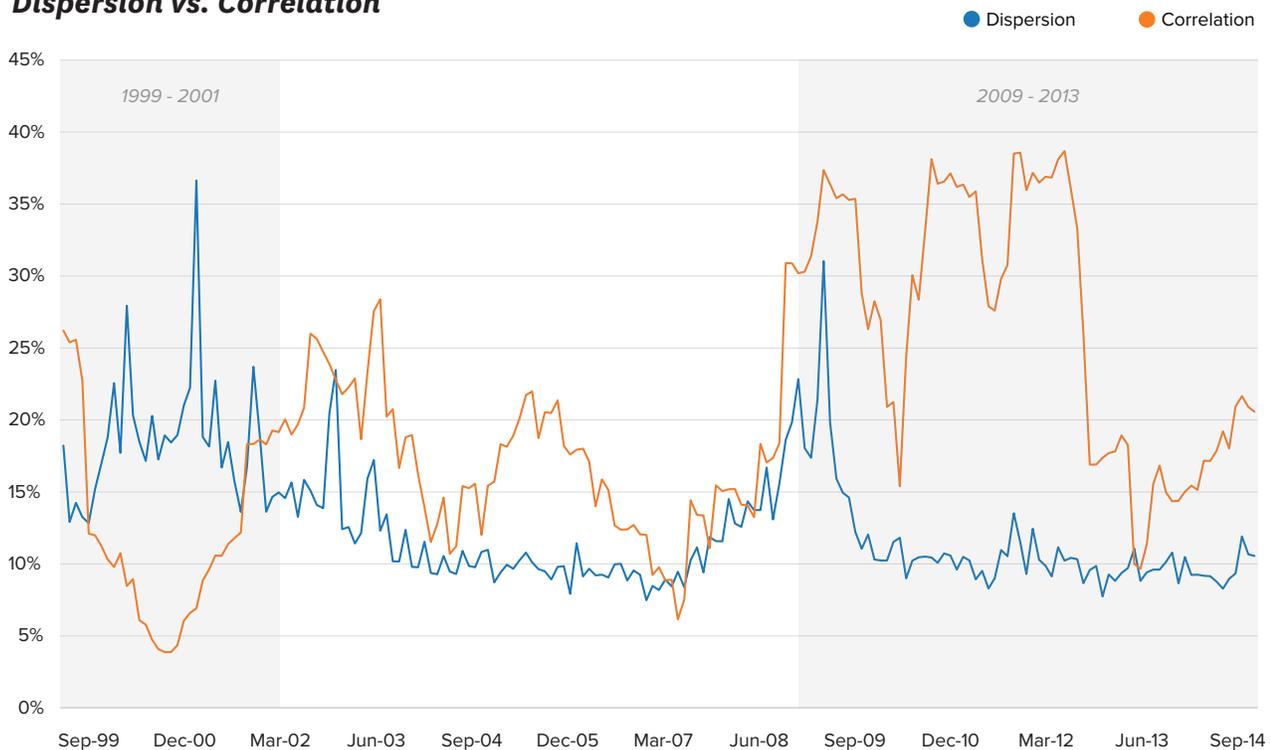
The third return stream is the performance of one Novus client, a diversified long/short equity fund-of-fund (Client Fund of Fund, or “FOF”). FOF is comprised of some of the most successful equity long/short managers in the world and consistently weaves in many of the rising stars of the industry. The returns are net of incentive/management fees from the underlying managers. However, the data set has a few less years less history than the HFU and HFRI.

Calculating Alpha

These three return streams each provide a different lens for defining alpha. We used the Russell 3000 as a benchmark for the study. Our dispersion and correlation factors are also calculated on the Russell 3000 for consistency. HFU alpha is a simple calculation: the excess return over the benchmark. For the HFRI, the returns presented also comprise short performance. To calculate alpha, we used a 12-month rolling CAPM calculation against the benchmark. The FOF data is similar to the HFRI data, but is enriched with the net exposure each month. This net exposure allows us to adjust the benchmark returns to compare excess net-exposure adjusted returns as alpha.

by a spike in both correlation and dispersion during the financial crisis. The years that followed (2009-2013) show spikes of market correlation with low dispersion. Correlations spiked in the third quarter of 2011 ("US debt ceiling debacle"), as well as in the second half of 2012 (Draghi's memorable "We'll do whatever it takes" speech), only to nosedive into the beginning of 2013. During 2013 and 2014, dispersion remained low while correlation steadily increased, although it did not reach the extreme levels seen from 2008-2012. In the very tail end of 2014, we saw an uptick in dispersion, likely as market dislocations in tech, healthcare, and most notably energy afforded a wider spread of return outcomes within the market.

Dispersion vs. Correlation



This chart shows the underlying data we used for regression on our three return streams. In looking at the historical patterns of equity market correlation and dispersion, it's interesting to note the interaction of the two factors over different market regimes. For example, the period from 1999 through 2001 shows a very low correlation and high dispersion environment, likely as the tech sector within the Russell 3000 was behaving inversely to the broader market. This is a very ripe environment for alpha generation.

The following 6 years (2001-2007) show a declining dispersion environment with waves of correlation regimes, followed

Findings

In order to analyze the impact of these factors on our return streams, we ran regressions of alpha against the factors to test for significance. To smooth some of the variance/noise of the monthly alpha values, we regressed against trailing twelve-month alphas. When we regress our three index return streams against these factors – both as single factor tests and multi-factor tests – the results are very interesting for investment managers. The fundamental takeaways are:

- Periods of low correlation with high dispersion are best for alpha. For CF and HFU return streams, the most consistent

periods of alpha generation are low correlation / high dispersion followed by low correlation / low dispersion. The worst periods for alpha were high correlation regimes.

- Higher correlation predicts lower alpha. The long/short return streams proved a statistically significant relationship between alpha and correlation.
- High dispersion regimes are good for alpha through stock-picking. The long-only HFU return stream did not prove statistically significant with correlation; but it did with dispersion. Dispersion has a positive effect on stock picking alpha on the long side. Correlation negatively impacts long/short strategies more than long-only.

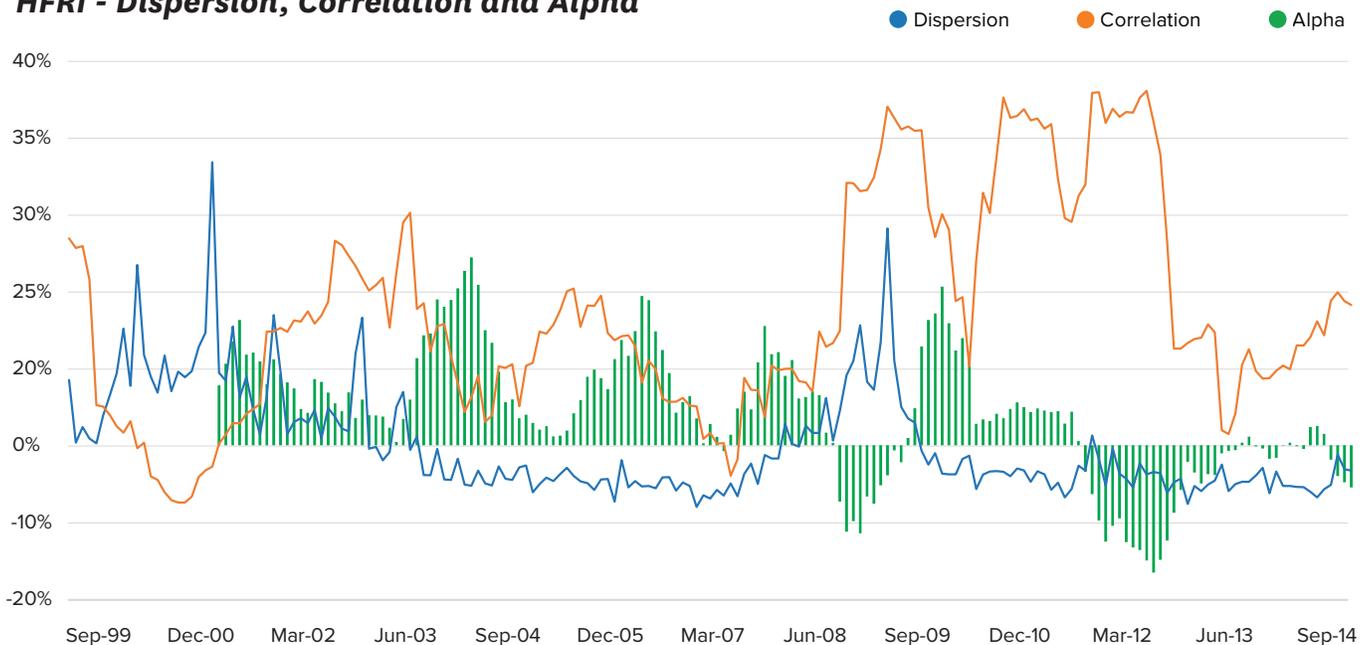
• Recent market environment has not been conducive to alpha generation. Since 2009, the markets have experienced high correlation and low dispersion – the worst environment for hedge fund alpha generation.

While the results are in line with our expectations in light of historical hedge fund performance, we were nevertheless surprised by the quality of the results.

Evidence

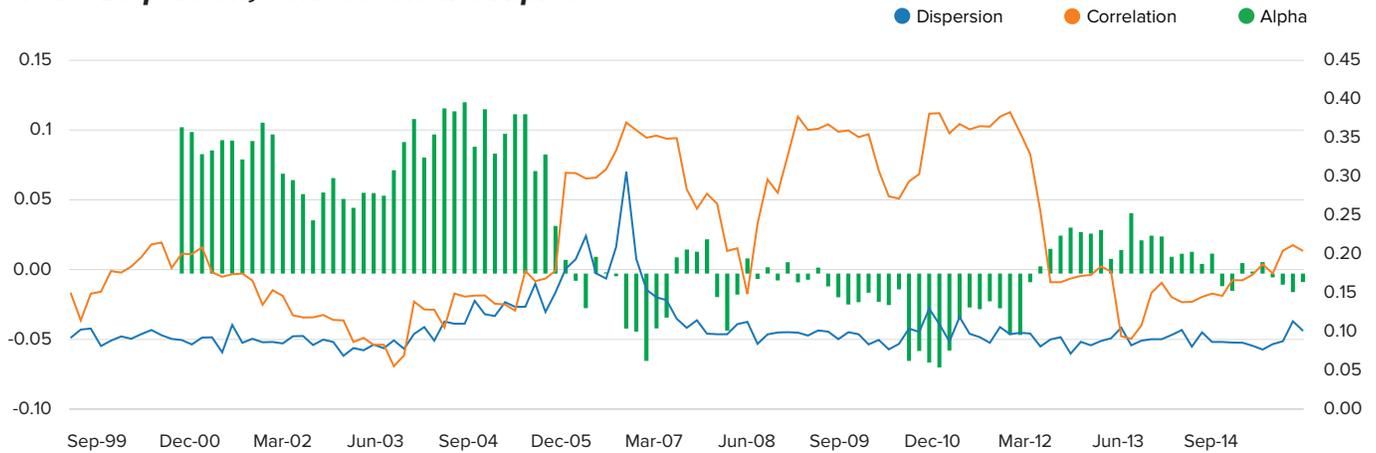
Testing each return stream, we calculate the significance of dispersion and correlation. Beginning with the HFRI, the periods of high alpha coincide with low correlation. The negative alpha periods move almost in tandem in direction and amplitude with the high correlation regimes. A possible explanation for that is high correlation regimes presented a challenging environment for generating alpha through shorts.

HFRI - Dispersion, Correlation and Alpha



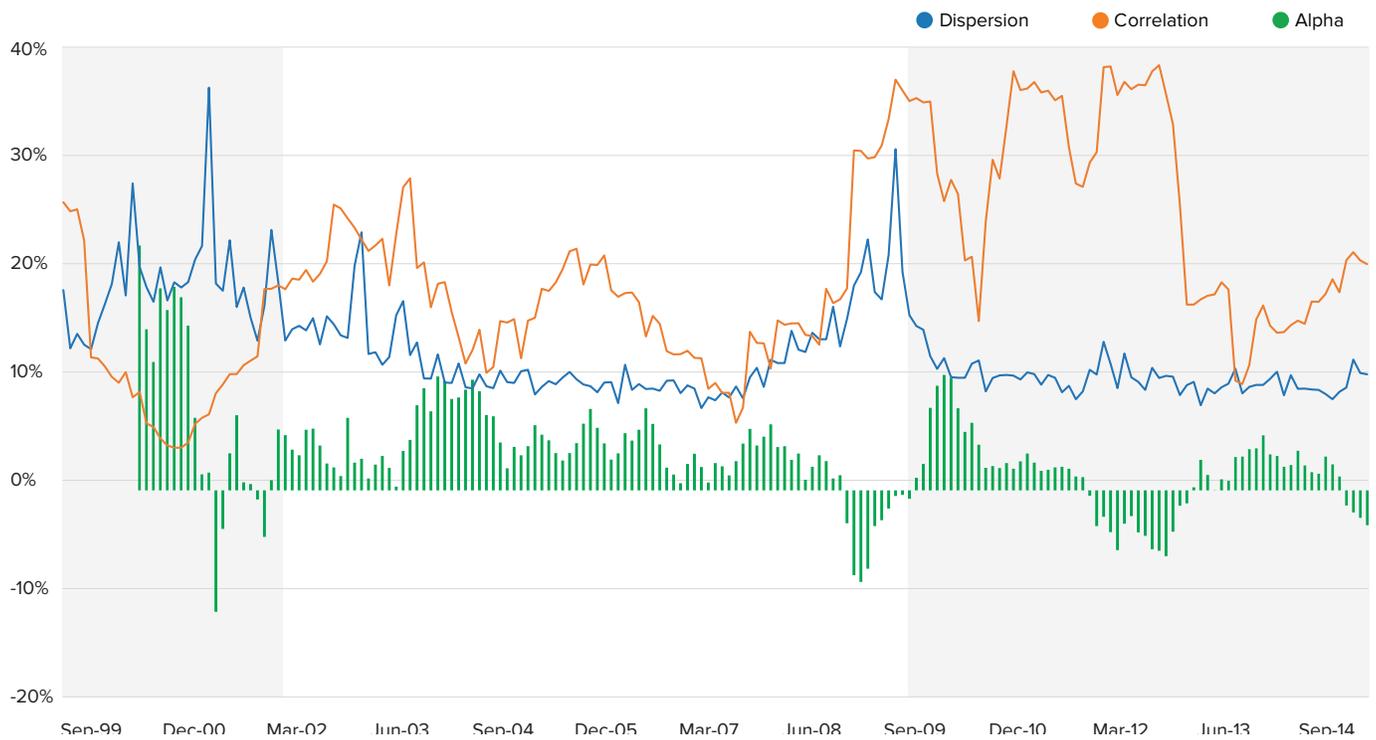
A very similar pattern is observed with the returns of the FOF. Again, a low correlation environment was conducive to high alpha, and high correlation periods coincide with negative alpha.

FOF - Dispersion, Correlation and Alpha



With our public data set, the HFU data shows how stock-picking alpha can be amplified by dispersion environments. The period of highest alpha generation is clearly the early regime of declining correlation and increased dispersion during the tech bubble. During high dispersion periods, hedge funds have a clear tailwind to apply security selection to outperform the market.

Novus (HFU) - Dispersion, Correlation and Alpha



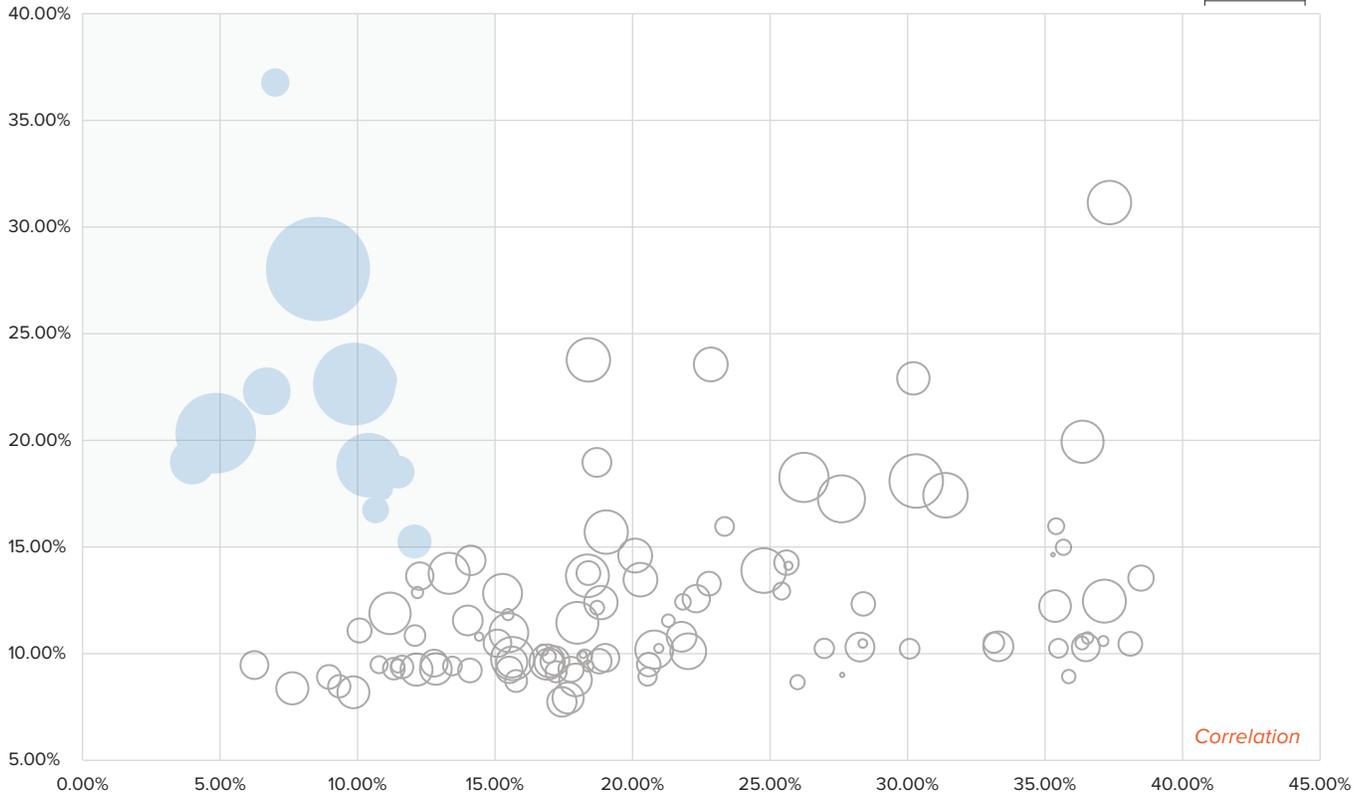
Quadrant Analysis

Going back to our original framework of correlation/dispersion quadrants, if we treat individual months as independent units and bucket them into our four quadrants, we can specifically identify if one of those four regimes is more conducive to generating alpha.

For example, the HFU chart below shows the highest alpha months come in high dispersion, low correlation months. Almost no positive stock-picking alpha was generated within the HFU during high correlation and low dispersion months.

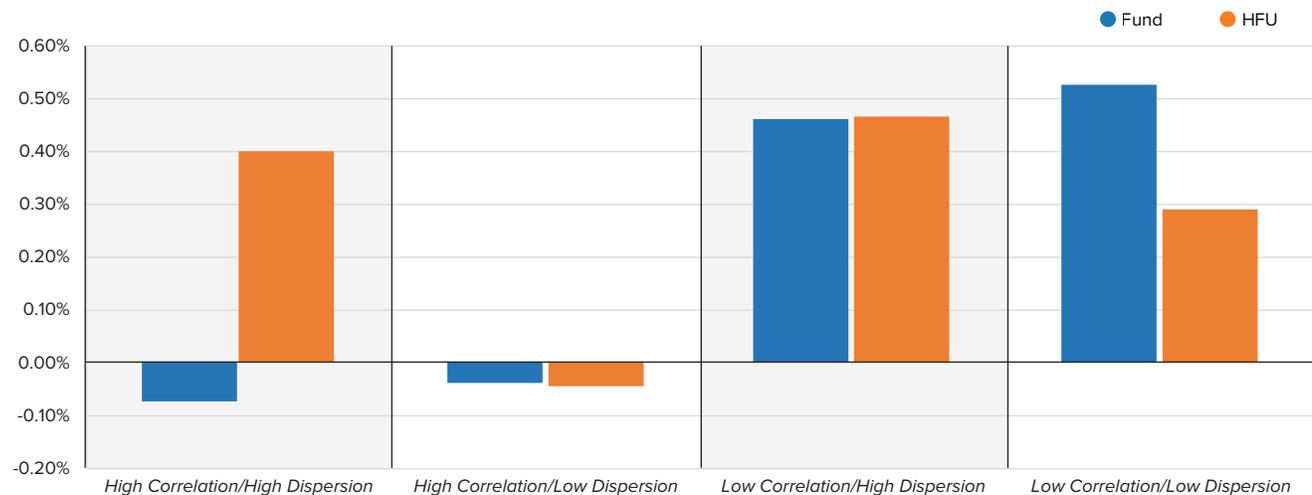
Positive Alpha Only: HFU

Dispersion



Comparing our HFU to the FOF, we can again see that low correlation is imperative for hedge funds to generate alpha. The FOF returns, which include short exposure, are clearly more sensitive to correlation than the long-only HFU:

Alpha by Regime



Conclusion

Market environment is absolutely an important factor in equity long/short alpha. By analyzing the impact of market correlation and dispersion, you can see that the last market regime has been a poor environment for hedge funds to produce alpha. Hedge fund investors can likely empathize with the outcome. The question will be how allocators and funds alike are evaluating results in the face of this structural headwind, and how they choose to react from an allocation perspective. Will the low dispersion environment persist and correlations continue to rise? If so, then hedge funds will likely continue to disappoint. But if the environment changes to resemble the late 90s, active management will be the place to be.

Explaining recent hedge fund performance through this lens should quell any fear your allocators may have as to your individual performance and stock-picking abilities. As we have seen in the past, the market is continuously fluctuating, and while the previous few quarters have not created an ideal environment for hedge fund performance, this could change, and fast.

We perform this analysis every week, so keep an eye on our blog at www.novus.com/blog for the next market update. Sign up for our mailing list to be notified with every new release, so you can continue to make the best investment decisions for your allocators and improve your own performance.

Appendix 1

Data and methodology

Market data was furnished by Novus' Insights and Strategic Solutions group. Its head, Adam Benenson, provides a brief breakdown of our methodology: "We define dispersion as the standard deviation of returns for all constituents within the market at a point in time, in this case, calculated each month. We define correlation as average pair-wise 12 month correlation in monthly returns of all constituents within the market. We also define the market as the Russell 3000, to incorporate a wider spectrum of market capitalization securities than say the S&P 500 or S&P 1500." Benenson's team calculated both statistics for the Russell 3000 going back as far as our test data.

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