



The Case for Quant in a Rising Dispersion Environment

December 2022



KEY TAKEAWAYS

- Prospects look brighter for long-short hedge funds on increased dispersion in equity markets.
- Dispersion is a core driver of active stock-picking performance (particularly for quantitative approaches), but until recently had been compressed under the weight of easy money.
- Historical data shows that the performance of equity-based quantitative funds has improved relative to a classic 60/40 portfolio when access to capital tightens.

Following the Global Financial Crisis (GFC), many hedge fund strategies faced challenging market conditions for several years. Monetary easing by global central banks kept money cheap, limiting equity market dispersion, which is a key driver of fund performance.¹ (Dispersion is a measure of how much the return of the average stock differs from the overall market’s return.) This was particularly true for quantitatively driven approaches, which tend to be highly active and diversified.²

More recently, however, this era of easy money had ended, following with multiple rate hikes by central bankers globally, and more expected. With this shift, conditions may be turning in favor of quantitative funds (typically referred to as ‘quants’).³ Rate increases make it likely that equity performance dispersion will increase, which should allow greater room for these active strategies to find opportunities and inefficiencies in the market.

THE TIDE TURNS, FINALLY

Following the GFC, excess liquidity and low interest rates created a “rising tide lifts all boats” scenario, as access to cheap capital has helped keep even the weakest companies afloat.⁴ This resulted in limited distinction between stocks based on fundamental quality. But, as it does, the tide has finally turned.

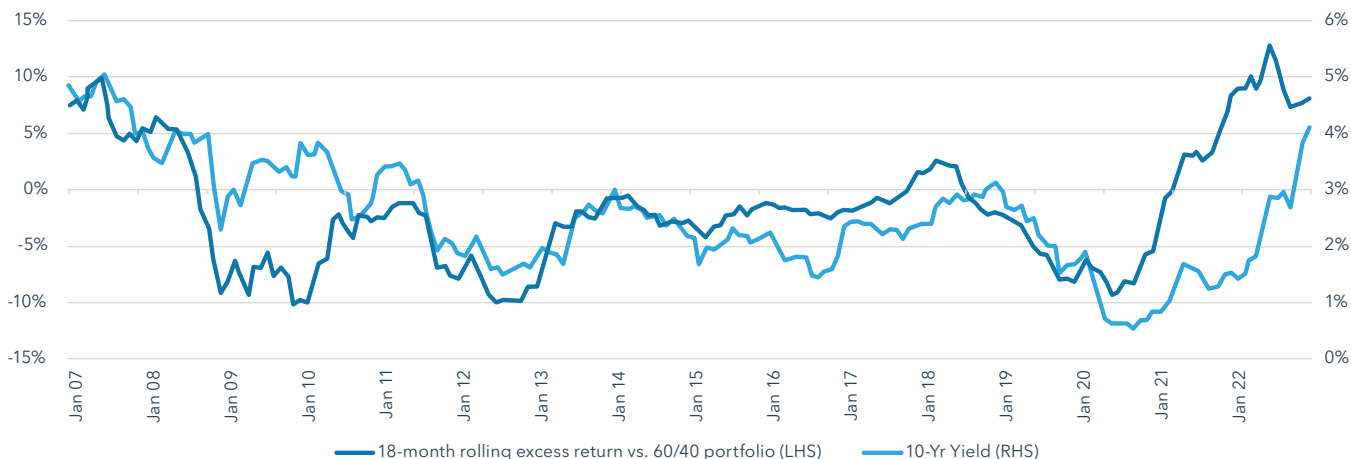
Inflation measures have surged in 2022. Annual consumer price index inflation in the United States reached 9.1% in June—the highest rate since November 1981.⁵

The U.S. Federal Reserve (Fed) already raised rates by 425 basis points, and has signaled its intention to do more.⁶ Quantitative tightening has also begun, with the Fed shrinking its balance sheet by about \$95 billion per month.⁷

This has, in aggregate, tightened liquidity and created a greater separation between fundamentally strong and weak businesses, resulting in greater dispersion within and across multiple sectors globally. Historical performance data shows that the performance of directional quant funds⁸ relative to a traditional 60/40 equity-to-bond portfolio has improved during periods such as these, when rates rise (see Exhibit 1).

Exhibit 1: Rate increases benefit directional quant performance

18-month rolling excess returns from HFRI Quantitative Directional Index vs. 60/40 portfolio, against 10-year Treasury yield



Source: eVestment, MacroTrends.net, as of December 5, 2022. For illustrative purposes only. Past performance is not indicative of future results.

WHY A MORE DISPERSED ENVIRONMENT SUITS QUANTS

For a more detailed introduction to Quantitative Funds, please see the **Appendix** at the end of this paper.

Quantitative equity investing is based largely on long and short stock picking.⁹ Fund managers generally select stocks based on statistical analysis, often through the lens of a factor with historically proven performance, and aim to find and exploit market opportunities and inefficiencies.

Quant funds can analyze a broader range of stocks than a traditional, fundamental approach and at greater speed.¹⁰ They can exploit their technology and statistical algorithms to process multiple inputs across a more diverse range of stocks, sectors, markets, and geographies, which improves consistency and predictability.¹¹ The strategy generally hinges on capturing a large number of small, profitable trades.

A more dispersed market environment therefore broadens the opportunity set and improves the odds of

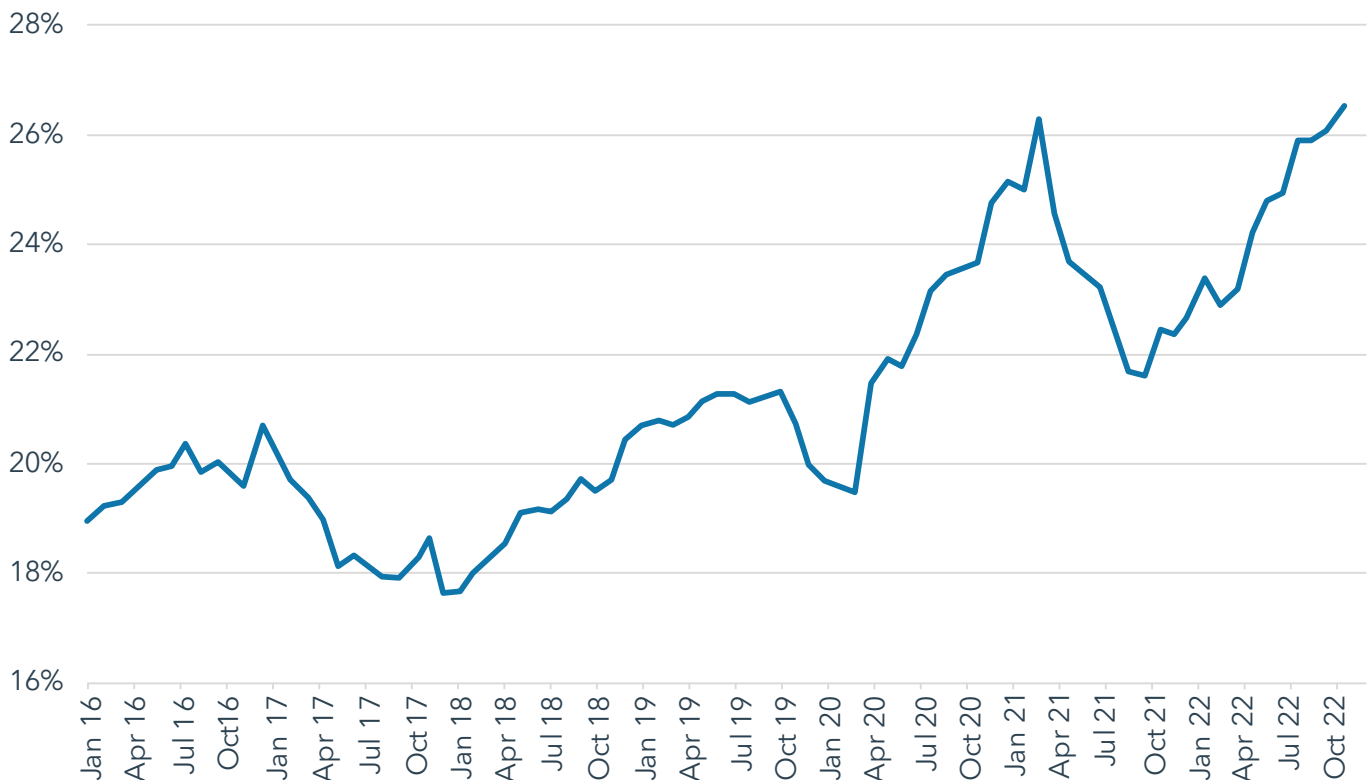
success of a long-short construct. However, in a market where financial fundamentals or specific “factors” are of diminished importance, when correlations increase and the deviation of individual stock performance from the overall sector or market trajectory is very slight, a directional quant strategy may underperform the broader market.¹²

In the bull market that had stretched across much of the post-GFC era, short exposure has served to dilute returns as much as hedge risk.

As financial conditions have tightened over the past year, however, a largely uni-directional market—and therefore a challenging one for quants—has fractured into more differentiated trajectories (see Exhibit 2).

Exhibit 2: Dispersion exhibiting general rising trend over recent years

S&P 500 dispersion since January 2016



Source: S&P Dow Jones Indices. Data as of December 6, 2022, and provided for illustrative purposes only. Past performance is no guarantee of future results. Dispersion is the annualized, index-weighted standard deviation of the index constituents' full-month total returns.

THE HUMAN CHALLENGE OF AN INFLATIONARY ENVIRONMENT

It is important to point out that few portfolio managers and stock investors have operated in a market environment like the one in which we now find ourselves. Particularly novel is the high level of inflation—as mentioned above, the highest reading in over 40 years.¹³ While most managers are highly capable and are likely to have studied best practices for investing through inflationary environments, maintaining that discipline in practice is much more difficult. Human emotions and cognitive and behavioral biases can easily come into play.

Unfortunately, it is not unusual for fundamentally oriented investors to become anchored to their beliefs during macro shocks, such as a spike in inflation. Algorithm-led quantitative strategies do not face this issue, with a clearly defined rules-enforced discipline.¹⁴ Furthermore, many of these models have been backtested many years.¹⁵ While back tests have limitations, model-driven analysis incorporating robust statistical processing may better arm funds to invest in a high-inflation environment than the fundamentally driven strategies managed by practitioners that have only invested in an era of low inflation.

RISKS TO OUR THESIS

Directional quant strategies certainly have value as part of a balanced portfolio in any environment, but there are risks to our positive thesis for quantitative funds, centered around dispersion reverting to more subdued levels.

First, there is the chance that the market has already fully, or even excessively, priced in rate increases, which might limit further yield rises from here. As discussed earlier, yield rises have correlated with improved quantitative directional fund performance, so a yield decline might prove a headwind.

Second, an exogenous shock, such as the negative economic impacts rippling out from the conflict in Ukraine,

could lead to a change in policy implementation that slows or curtails further rate hikes by the U.S. Federal Reserve and other central banks.

More generally, an ongoing challenge for quant models is that history is not circular. Quant models are generally derived from extensive backtesting of investment strategies across an array of environments.¹⁶ However, this backward-facing analysis only categorically proves that a strategy would have worked historically. Quant approaches may find it challenging to quickly recognize paradigm shifts and adapt to new market regimes.

A DIVERSIFIER FOR YOUR EQUITY ALLOCATION

Ultimately, however, to the extent that the higher inflation and rising rate backdrop persists, it does seem that we are likely returning to a period with greater dispersion, one that should benefit quantitative long-short funds.

As a rising rate environment starts to separate the stronger companies from their weaker rivals, discipline, speed, and consistency—cornerstones of quant-led approaches—should become more important performance drivers. Active long-short stock pickers should find increasing space in which to execute their strategies.

The differentiated approach to equity investing offered by quantitative directional funds could prove complementary as part of an investor's equity allocation. These funds offer broad diversification, and may provide equity exposure but with relatively low beta to the broader stock market.¹⁷ Additionally, quantitative directional equity funds have had a lower standard deviation of returns (10.3% versus 15%-plus for the S&P 500 and MSCI World indices).¹⁸ As such, they should offer protection from the ongoing gyrations in equity markets and, to the extent that volatility can heighten dispersion, quant strategies can, when executed successfully, make that volatility work in their favor.



APPENDIX: WHAT IS QUANTITATIVE INVESTING?

Quantitative investing refers to any investment approach that relies upon mathematical models and algorithms to decide what to invest in and when. Almost all investment professionals now integrate quantitative analysis into their investment decisions, but quant strategies are entirely led by algorithms in terms of both analysis and their active trading process and will not incorporate any information that cannot be systematically aggregated and analyzed.¹⁹

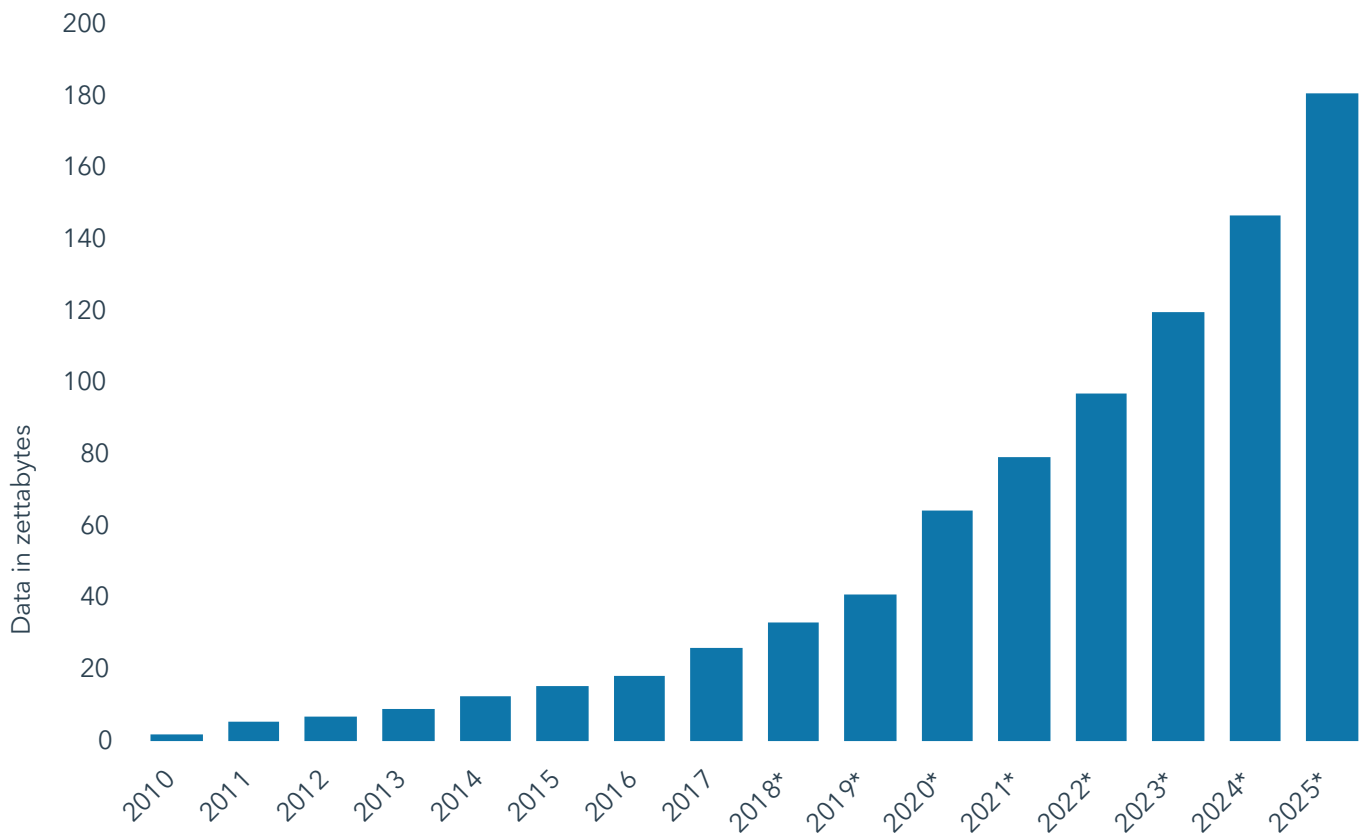
Quant strategies are typically crafted through extensive empirical research that identifies factors that have historically generated excess returns. This process, known as backtesting, assesses the viability of a strategy by modeling how it would have performed across various

periods. This analysis will consider economic, accounting, and financial data, but may also leverage governmental data, demographic information, and even non-standard data sources such as website traffic or credit card activity. As the volume of data digitally collected and made available continues to expand globally, quant models have a larger dataset through which to fine tune their algorithms (see Exhibit 3).

Once these factors have been identified and the algorithms developed, the human element is removed from the process, with investment decisions made and executed by computers. This systematic approach can result in a consistent and predictable execution of the selected strategy. The algorithm constantly monitors the market to identify mispricing opportunities that meet the defined criteria for the fund, be that based upon value, growth, quality, momentum, or some other statistical measure.

Exhibit 3: Rising volumes of data should benefit quant strategies

Global volume of data in zettabytes



Source: Statista. *Estimate. For illustrative purposes only. A zettabyte is a measure of digital storage capacity.



END NOTES

1. Source: Connor, Gregory, and Li, Sheng, "Market Dispersion and the Profitability of Hedge Funds," 2009.
2. Source: Bloomberg, "Wall Street Quant Strategies Have Proved Their Worth," January 31, 2022.
3. Source: Federal Open Market Committee, "Summary of Economic Projections," March 16, 2022.
4. Source: FRED Economic Data, ICE BofA BB US High Yield Index Effective Yield.
5. Source: US Bureau of Labor Statistics, July 18, 2022, sourced December 7, 2022.
6. Bankrate, published December 14, 2022; sourced December 14, 2022.
7. Bankrate, published September 19, 2022; sourced December 7, 2022.
8. Directional quantitative funds are long-short funds that typically assume a net exposure to the market one way or the other, in contrast to market neutral approaches, which aim to fully balance exposures.
9. Source: Bloomberg, "Wall Street Quant Strategies Have Proved Their Worth," January 31, 2022.
10. Ibid.
11. Source: Coresignal, "Quantitative Investing Strategies: A Quick Guide," February 18, 2022.
12. US Bureau of Labor Statistics, July 18, 2022, sourced December 7, 2022.
13. Source: Connor, Gregory, and Li, Sheng, "Market Dispersion and the Profitability of Hedge Funds," 2009.
14. Source: Coresignal, "Quantitative Investing Strategies: A Quick Guide," February 18, 2022.
15. Source: Empirica, "Guide to Algorithmic Trading and Quant Funds' Profitability."
16. Source: Empirica, "Guide to Algorithmic Trading and Quant Funds' Profitability."
17. Source: Hedge Fund Research Inc. Quantitative directional equity funds had a beta of 0.57 against the MSCI World Index and 0.56 against the S&P 500 from January 2000 to December 2021.
18. Source: Hedge Fund Research Inc., as of March 3. Data from January 2000 to September 2022.
19. Source: Bloomberg, "Wall Street Quant Strategies Have Proved Their Worth," January 31, 2022.

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