



## THE CASE FOR REPLICATION OF EQUITY LONG/SHORT HEDGE FUNDS

In the wealth management space, many allocators are confronted with a dilemma:

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*How can investors gain exposure to equity long/short strategies while limiting single manager risk or paying excessive fees?*

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Replication may offer a compelling solution. Factor-based replication strategies seek to match or outperform a portfolio of hedge funds by investing directly in the core “factor weights” – exposures across key equity and other markets – of those funds through liquid futures and/or ETFs. As explained below, the concept is that factor weights drive most pre-fee performance over time, and hence a strategy with lower fees could match or outperform net-of-fee returns over time, with the added potential benefits of minimal single manager risk, daily liquidity, lower fees and often more attractive drawdown characteristics.

### THREE IMPORTANT FEATURES OF REPLICATION



Seeks to **match or outperform** actual, illiquid hedge funds, whereas mutual fund or ETF versions tend to underperform over time.



Provides **diversification of a multi-manager portfolio**, which solves high dispersion of single manager funds.



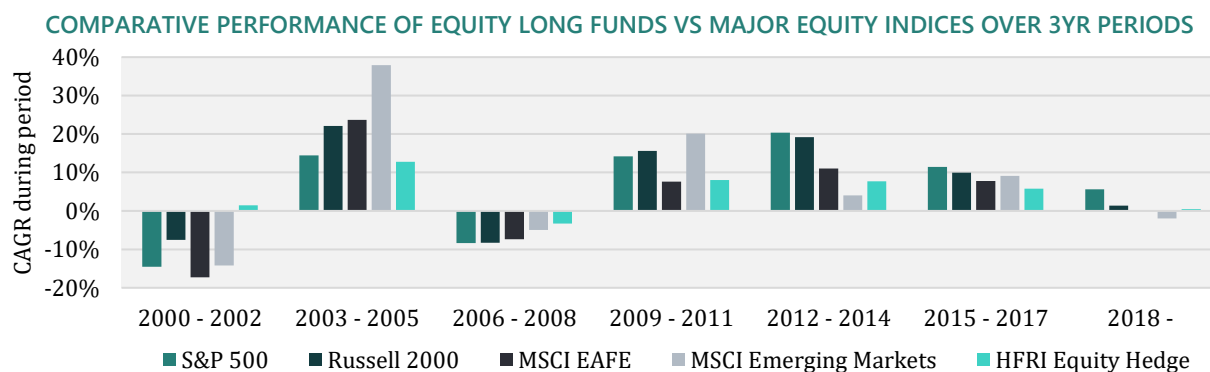
Can be offered in regulated structures like mutual funds and ETFs with **reasonable fees**.

This paper will provide an overview of factor-based replication as well as an example of a live portfolio managed by our firm since 2012.

## What is Factor-Based Replication?

Broadly defined, “factors” are indices that represent exposure to a specific market category. For instance, the broadest equity factors generally include US large cap, US small cap, and International and Emerging Markets. Today, allocators often evaluate the performance of, say, a mutual fund to its relevant “factor” benchmark to determine whether the manager is adding value after fees.

In the mid-2000s, numerous academics and Wall Street firms concluded that the same concept could be applied to hedge funds. Unlike most mutual funds, hedge funds generally have more latitude to invest across different factors as market conditions change. Fundamental security selection at the fund level translates into shifts in factor weights at the portfolio level, and those shifts can add meaningful “alpha.” Case in point: hedge funds tended to be long value and short growth in the early 2000s, overweight emerging markets from the mid-2000s through the Crisis, and overweight quality and growth large capitalization US stocks since 2012. The chart below shows the performance of each of the four broadest equity factors over three-year periods since 2000, compared with the HFRI Equity Hedge Fund index, a widely recognized Equity Long Short Hedge Fund index.



A replication strategy for hedge funds, therefore, should include multiple market factors and the flexibility to shift exposures over time – a concept we call “dynamic beta.” Once the relevant “set” of factors is identified, statistical models can analyze recent performance to understand current factor tilts and how they are changing.

## Case Study

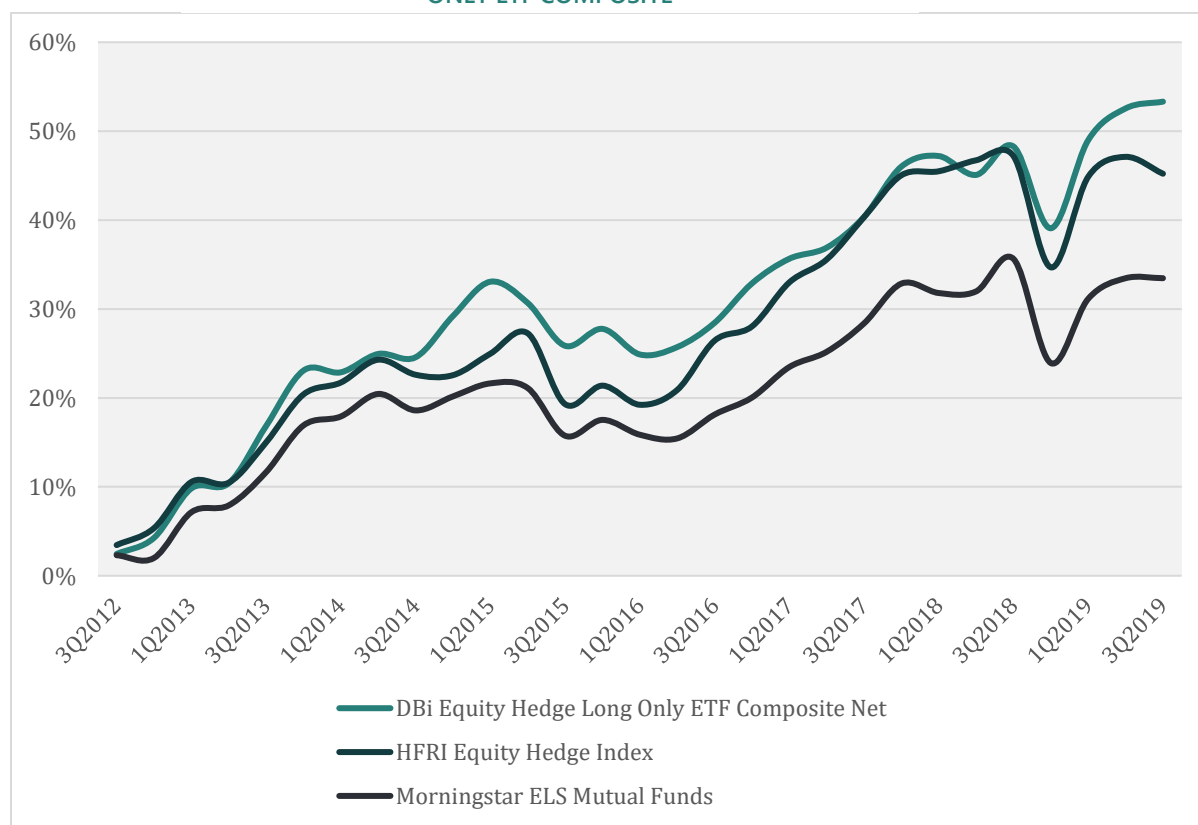
In 2012, we designed a replication-based strategy that would seek to identify the key drivers of the pre-fee performance of a portfolio of forty large ELS hedge funds in a leading hedge fund database. The model analyzes the past fourteen months of monthly performance to

estimate current weights, invests only in long positions in liquid ETFs to approximate the net exposures of those funds, and rebalances once a month. The objective was to match or outperform the HFRI Equity Hedge Fund index net of fees.

As shown on the right, since inception the relatively simple strategy has outperformed the hedge fund index by approximately 80bps per annum after fees with lower drawdowns and a correlation of around 0.85. Perhaps more directly relevant for wealth management firms, the strategy outperformed the Morningstar universe of equity long/short mutual funds by approximately 200 bps per annum.

As discussed further below, replication-based strategies have the potential to outperform high cost strategies through a concept called “fee disintermediation.”

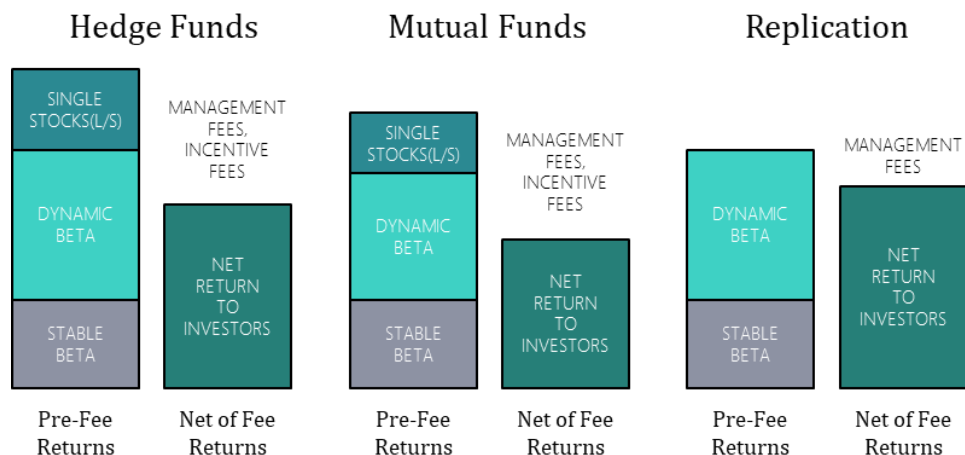
**CUMULATIVE PERFORMANCE OF THE DBI EQUITY HEDGE LONG ONLY ETF COMPOSITE**



## Fee Disintermediation

Importantly, replication strategies do not seek to capture several sources of returns of actual ELS hedge funds: single stock selection, shorting, industry tilts or direct exposure to smart beta factors. The thesis is that those “non-core” exposures explain less than 25% of pre-fee returns -- substantially less than fees and expenses. Hence, the argument is that replication can lead to comparable or better net-of-fee performance by capturing most pre-fee sources of return with lower fees and expenses, a concept called “fee disintermediation.” The

representative chart below breaks down the primary sources of pre-fee performance for equity long/short hedge funds, mutual funds and replication relative to net-of-fee returns.



## Potential Benefits and Limitations

Relative to investing in a single hedge fund or mutual fund, replication has three potential benefits: minimize single manager/blow up risk by targeting a diversified pool of funds; reduce fees/expenses and potentially deliver better performance over time; and potentially offer more attractive drawdowns characteristics by avoiding crowded single stock trades.

The potential limitations are that a given single manager might materially outperform peers, popular stocks can go through periods of (modest) outperformance relative to indices, broad indices may not capture shifts in industry or smart beta exposures, and replication provides no direct exposure to single stock shorts. Our conclusion is that in most circumstances, the benefits can outweigh the limitations.

## ALTERNATIVE APPROACHES TO REPLICATION FOR EQUITY LONG/SHORT

SINGLE MANAGER	REPLICATION	SMART BETA/RISK PREMIA	13F/13D POSITIONS
<i>Discretionary stock selection</i>	<i>Dynamically-adjust to changes in manager views/positions.</i>	<i>Targeted exposure to specific strategy, like value.</i>	<i>Clones positions of largest managers</i>
<ul style="list-style-type: none"> <li>* Reasonable fees</li> <li>✓ Single stock exposure</li> <li>* Sector like exposure</li> <li>* Consistency of returns within group</li> <li>✓ Dynamic exposure shifts</li> </ul>	<ul style="list-style-type: none"> <li>✓ Reasonable fees</li> <li>* Single stock exposure</li> <li>✓ Sector like exposure</li> <li>✓ Consistency of returns within group</li> <li>✓ Dynamic exposure shifts</li> </ul>	<ul style="list-style-type: none"> <li>✓ Reasonable fees</li> <li>* Single stock exposure</li> <li>* Sector like exposure</li> <li>* Consistency of returns within group</li> <li>* Dynamic Exposure shifts</li> </ul>	<ul style="list-style-type: none"> <li>✓ Reasonable fees</li> <li>✓ Single stock exposure</li> <li>* Sector like exposure</li> <li>✓ Consistency of returns within group</li> <li>* Dynamic Exposure shifts</li> </ul>

## Conclusion

Allocators to equity long/short mutual funds and ETFs face several challenges. Single managers show wide dispersion from the benchmark, which makes the risk of picking the “wrong” fund problematic. High fees and expenses can detract from long-term performance. And the constraints of investing in mutual funds appear to have cost more than 1% of performance over the past five years against similar hedge funds.

Model portfolios in the wealth management space are built on the premise that long-term portfolio performance is driven principally by asset allocation. Equity long/short allocations typically represent one “bucket.” The challenge for allocators is often how to efficiently gain exposure to the strategy without excessive single manager risk. Replication can be a viable solution.