When does active management add value?

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Abstract

Hedge fund managers have long touted their ability to add "alpha" particularly in times of market stress. As the rapid growth of the ETP landscape has given rise to more liquid "alternative betas", investors have started to take a closer look at the "alpha" provided by hedge funds. We study a universe of long/short equity funds (with a focus on the North American markets) with the objective of shedding some light on how much alpha they deliver, as a group, as well as ***when*** *that alpha is present. We find evidence that long/short equity managers, collectively, tend to underperform a liquid dynamic portfolio of ETPs designed to clone these managers' collective performance. This underperformance tends to occur during periods of market stress suggesting that hedge fund managers' value-added, as a group, lies in their ability to make the right factor bets over longer time horizons relative to shorter time horizons.*

The hedge fund industry ended 2013 with $2.6 trillion in AUM[i] with Long/Short Equity funds representing the largest single strategy group. As this industry has grown to epic proportions over the last several years, and generating large fees as a result, many investors have started questioning the value proposition offered by hedge funds. While the hedge funds, themselves

have always maintained that they offer a source of uncorrelated "alpha" relative to traditional passive investments, the increasing number of "liquid alternative" options available to investors has made this argument more difficult.

It is widely accepted that any active manager's returns can be characterized by their exposure to systematic risk factors ("beta") and their exposure to unsystematic or idiosyncratic risks ("alpha"). In the early 90's, Eugene Fama and Ken French showed that some of the returns that were classified as "alpha" in the original CAPM portfolio actually showed a robust sensitivity to systematic risk factors beyond the traditional "global market factor".[ii] These two new "alternative" risk factors (size and value) did a good job at explaining the outperformance of many equity managers. Since then, a number of other "alternative betas" have been unveiled as previously classified "alpha".[iii]

In recent years, a number of academic studies have shown that hedge fund returns generally, and long/short equity returns in particular, can be well explained with time-varying exposures to different exposures that have investable proxies in the ETP market.[iv] In turn, this has prompted a number of commercially available products seeking to "replicate" the same systematic "beta" exposures that are being implemented by the hedge funds themselves.

Outline

This paper attempts to gain some understanding of the value added from the collective active management decisions of long/short equity hedge funds relative to an investable benchmark that replicates the aggregate factor exposures of the group.

We show that a simple, dynamic portfolio of ETFs, designed to mimic the aggregate performance of long/short equity managers, does a very good job replicating their collective returns over time and actually outperforms during periods of market stress. The magnitude of this outperformance can be quite large (approximately 8% annualized). This result runs counter to the traditional view that hedge funds (long/short equity funds in this case) add value during these periods of market stress because of their ability to actively manage. These results suggest that, as a group, long/short equity managers would do better during tough environments by maintaining their core factor exposures (effectively captured with our "clone" portfolio) and avoiding the temptation to trade too frequently.

The remainder of this paper is organized as follows. We review the data and methodology underlying our benchmark of long/short equity fund returns including known biases and limitations. We then discuss the methodology for creating the dynamic, ***investable***, portfolio to replicate the systematic "beta" of this benchmark including practical "real-world" constraints. Finally, we compare the benchmark of active hedge fund returns to its passive counterpart and present our concluding remarks.

Building a better benchmark

We utilize the eVestment database of hedge fund returns to create proprietary classifications based on each fund's self-reported description as well as their monthly returns.[v] The goal of this exercise is to ensure a level of quality assurance (by correcting misclassified funds) as well as to provide an additional level of granularity not-available with currently available commercial benchmarks of hedge fund returns. For example, we further classify the universe of long/short equity managers into different sector focuses (i.e. TMT, Consumer, etc) as well as different geographic focuses (i.e. N. America, Emerging markets, W. Europe, Developed Asia, etc.). Despite the required effort of such an undertaking, this is appealing in that it ensures a greater degree of homogeneity within each of our benchmarks. At any point in time, the factor exposures that will be driving Asian long/short equity funds will likely be very different than those driving North American focused long/short equity funds. Our focus for this analysis is on the group of long/short equity hedge funds that we've identified as having a focus on N. American equity markets.

It is important to note that no attempts have been made to correct our benchmarks for known biases such as survivorship bias or backfill bias. As such, these benchmarks will present a return stream that is biased upwards (as is true with any benchmark created from self-reported hedge fund returns).

Creating an investable Long/Short Equity "clone"

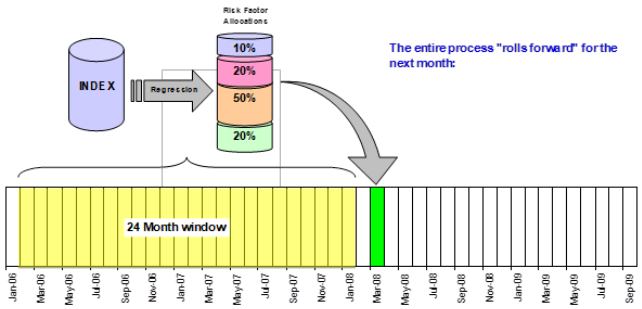
In attempting to capture the changing, systematic exposures of a universe of long/short equity funds we need a methodology that is robust and can be implemented with reasonable practical considerations. We utilize an approach known in academic literature as a "rolling factor-based replication".[vi] Specifically, we are trying to identify a combination of ETFs that best emulates the performance of our internally created benchmark of monthly (N. American) Long/Short Equity returns over time. Several commercially available products employ a similar methodology[vii].

Once the benchmark of monthly returns of Long/Short Equity funds has been created, we perform a series of rolling regressions using 24 months of data from the benchmark (as the dependent variable) and 24 months of data from various ETFs as the potential explanatory variables.[viii] A stepwise process identifies the combination of ETFs that "best" explained the returns of the N. American Long/Short Equity benchmark over that particular lookback period.[ix] The weights from the regression are then used to construct a portfolio of ETFs, both long and short, that will be held for 1 month until the next round of hedge fund returns are reported. This process is repeated each month by rolling the entire "window" forward.

Because hedge funds typically don't report their monthly returns immediately after market close on the last day of the month, a 1 month "lag" was introduced between the lookback period and the forecast period, as a matter of practical implementation. For example, the portfolio of ETFs used to generate the return for March 2008 (for example) was chosen based

on a time-series regression of our benchmark of long/short equity hedge funds on the ETFs for the 24 months ending in January 2008:

Exhibit 1: Rolling Regression-based process



While this "gap" is less than ideal from a statistical perspective, it ensures that the backtest incorporates the same "real world" constraints that a practitioner of this methodology would be facing. For example, hedge funds' returns for January 2008 weren't reported to the data vendors until sometime during the month of February 2008. As a result, that data can only be used to make decisions starting in March 2008 onward. One of the appeals of this methodology is that it does not suffer from "look-ahead bias" since the allocation decisions use only information available at that particular point in time. It is important to remember that the goal of this exercise is to create a portfolio that captures the different market factors employed by long/short equity hedge funds over time and is ***investable***.

The outcome of this process is a robust, investable, dynamic benchmark against which to measure the non-investable benchmark of active managers.

One criticism of this approach is that 2 years of historical returns data for long/short equity funds is going to provide little value in explaining their returns going forward. After all, the idea that a backward looking approach can adequately mimic the exposures of a group of active hedge funds is difficult for most investors to consider. The evidence, however, completely refutes this assumption (to the surprise of many) as will be shown below. In addition to the interesting questions this result raises (that we will attempt to address below), we also offer a practical explanation for this phenomenon. While individual long/short equity managers are (generally) creating portfolios one stock pick at a time, when these portfolios are aggregated across multiple managers (all of whom are pursuing a similar strategy in a similar market) the result is a return profile that is actually driven by a dynamic collection of different systematic market exposures (i.e. size, value, sector, etc.). Whether or not these factor tilts were the original intention of the underlying hedge fund managers is irrelevant. The important point for investors of ***portfolios*** of long/short equity managers is to understand that market factors – not stocks – will very likely be the primary drivers of returns over time.

Comparing the Active vs. Passive Hedge Fund Benchmarks

Taking into account historical ETF availability, a return-stream was able to be constructed for our investable "clone" portfolio starting in November 2003. The chart below shows the monthly returns of the benchmark of long/short equity hedge fund returns (described in section 1) and the ETF "clone" created using the methodology just described. As can be seen, the investable, passive clone portfolio does a very good job of emulating the non-investable benchmark of long/short equity returns over time:

Exhibit 2:

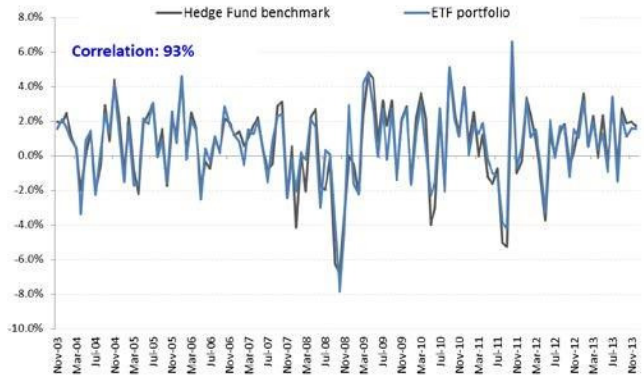


Exhibit 3:

Even with the limitations imposed by our methodology, an investor could have done a remarkably good job of "cloning" the same factor exposures as a basket of long/short equity funds using only long & short combinations of ETFs. This is an important result because it clearly shows that, despite only trading once a month, and using information from the previous two years, the clone portfolio is still able to capture, ***real-time***, most of the return profile shown by our universe of North American long/short equity funds. So, while any individual long/short equity fund may be turning over the names in their portfolio on a much quicker basis, in aggregate, the underlying risk factors driving long/short equity returns take longer to evolve.

It is worth emphasizing that simply averaging monthly hedge fund returns to create an index does not necessarily reflect the economic reality of investing in a group of hedge funds. Some portion of those monthly returns contains, *with certainty*, an upward bias of unknown magnitude. While outside the scope of this paper, the various biases that affect "non-

investable" hedge fund indices, relying on self-reported data cannot be ignored particularly when making comparisons to an investable index[x].

Rolling Outperformance of LSENA Benchmark vs Investable Clone

The charts below show the rolling risk and return of the passive hedge fund "clone" relative to that of the Long/Short Equity N. American (LSENA) benchmark:

Exhibit 4:

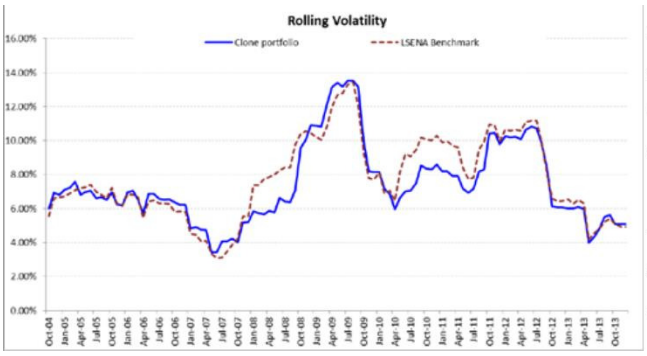
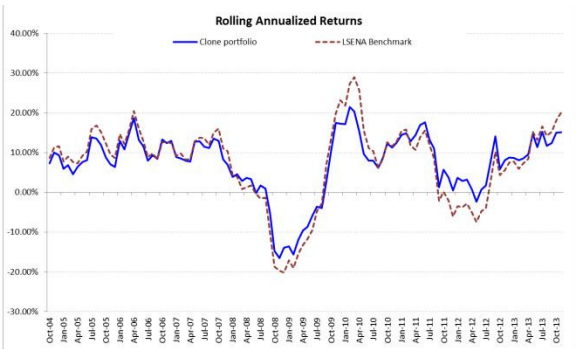


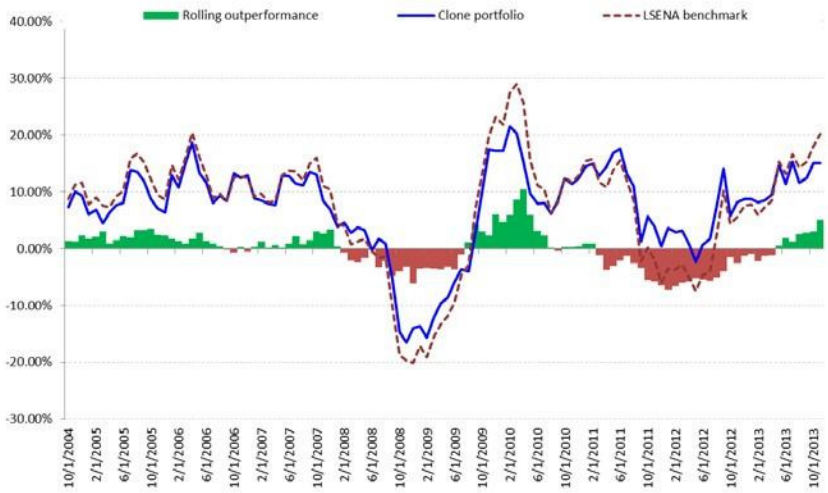
Exhibit 5:



Interestingly, we see a divergence between the two volatility and return profiles during certain periods. The following chart focuses specifically on the rolling 12 month outperformance of the benchmark of monthly HF returns relative to the ETF clone.

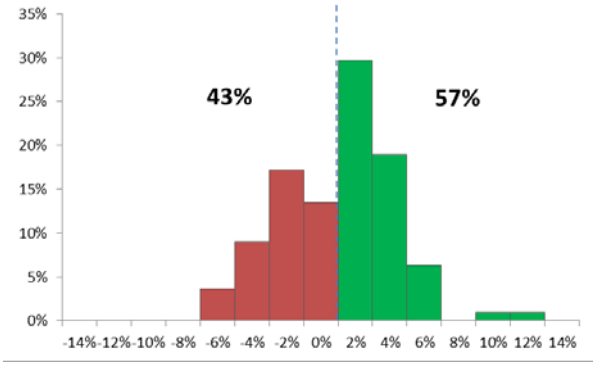
It can readily be seen that the benchmark of active hedge fund managers underperforms the clone portfolio of ETFs during the 2008 crisis as well as the 2011 “Euro crisis”.

Exhibit 6:



The distribution of those 12 month periods of outperformance is shown below:

Exhibit 7:



The active benchmark outperforms in 57% of the 12 month periods, however in nearly all of those periods the outperformance (over the 12 months) was less than 4%.

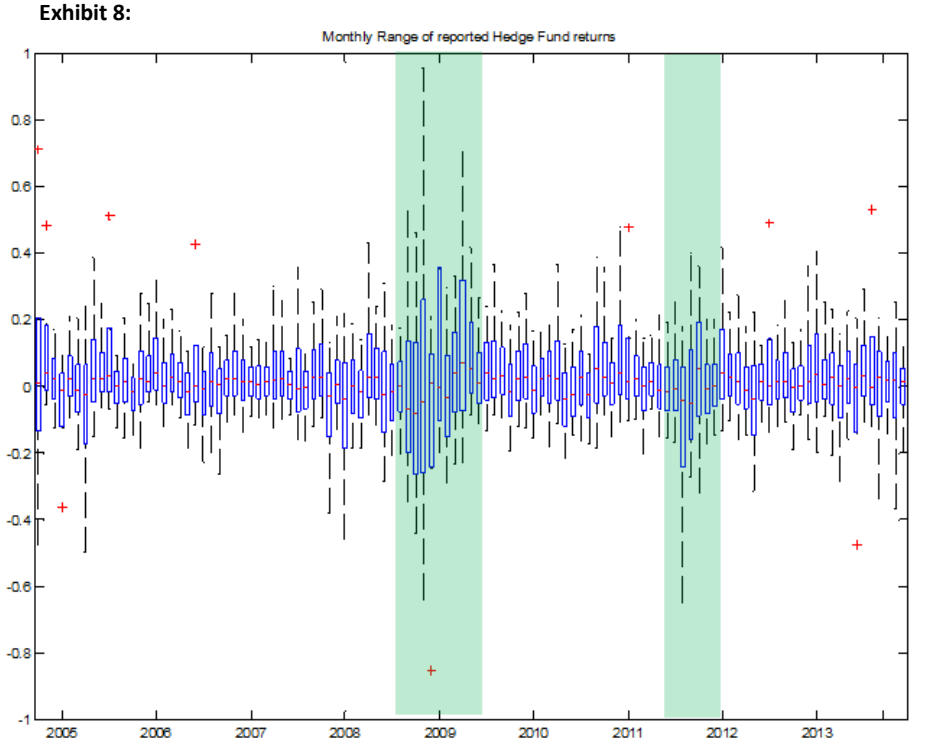
Quantifying the degree to which survivorship bias affects the numbers above is left to the reader. The important point is that the comparisons above assume these biases to be zero when it is known ***with certainty*** that they are positive. Removing the biases from the hedge fund benchmark would simply shift the outperformance bars in Chart 6 down by some (unknown) amount. While this will cast some doubt on the ***true*** measure of outperformance (of the hedge fund benchmark relative to the ETF clone), the measures of underperformance shown above are actually more meaningful since the nature of the bias is always positive. Furthermore, the ***timing*** of the periods of underperformance conveys some useful information.

When are Active Managers *too* active?

To address this question we focus on the two periods in the last decade where the active benchmark underperformed the passive portfolio: the end of 2008 to early 2009 and again during the last half of 2011.

If we look at the dispersion of our universe of hedge funds' returns we see an interesting occurrence during these two periods. In the boxplot below, the blue boxes represent the difference between the 10^{th} and 90^{th} percentile returns as reported by all hedge funds in this universe in that month. The black dotted "whiskers" represent the absolute maximum and minimum returns reported by a long/short equity fund each month. We can readily observe how the range of hedge fund returns increases dramatically towards the end of 2008 and then again in the end of 2011:

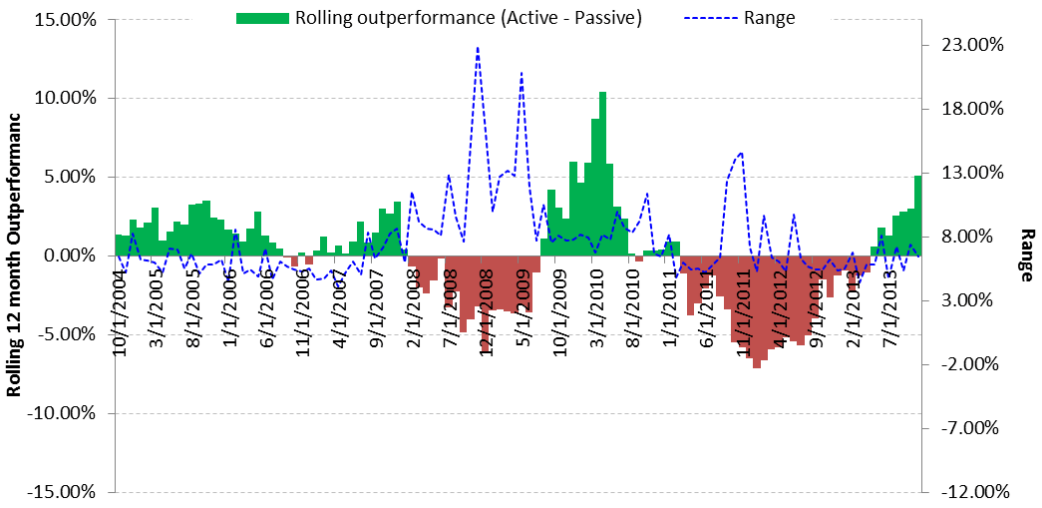
Exhibit 8:



This measure is not meant to serve as a proxy for the level of activity taken by the underlying managers but rather to highlight periods of relatively strong (or weak) consensus among the hedge fund managers.

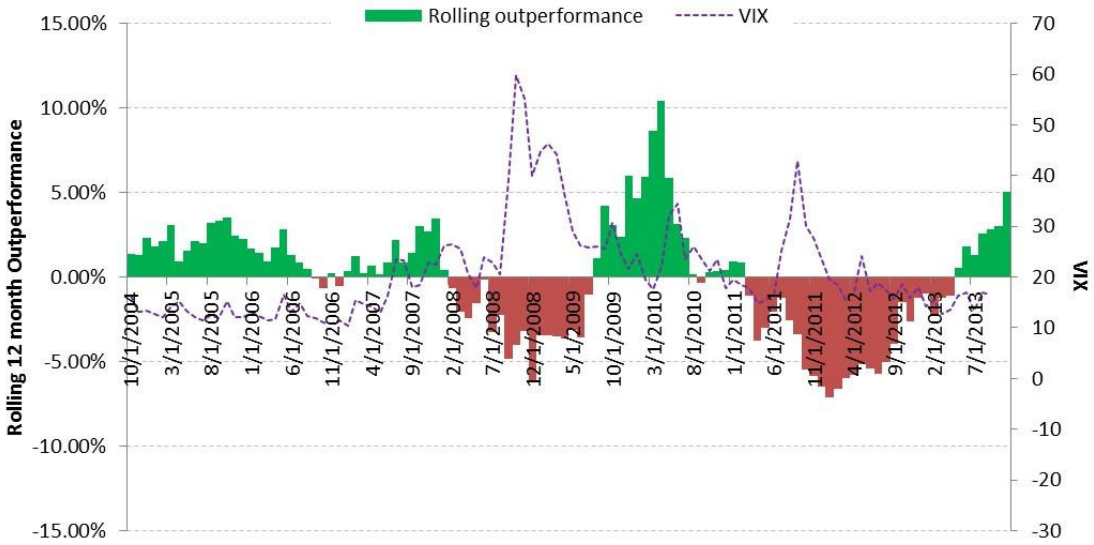
The chart below plots the monthly range from Chart 8 (the difference between the 90th percentile and 10th percentile) as a single number and overlays it on the rolling outperformance of the active benchmark relative to the passive portfolio that was shown above (in Chart 6)[xi]:

Exhibit 9:



We can see that the periods when the active managers are *collectively* underperforming the passive index correspond to periods when there is high (or increasing) dispersion among the active managers. Not surprisingly, this is also accompanied by spikes in the VIX:

Exhibit 10:

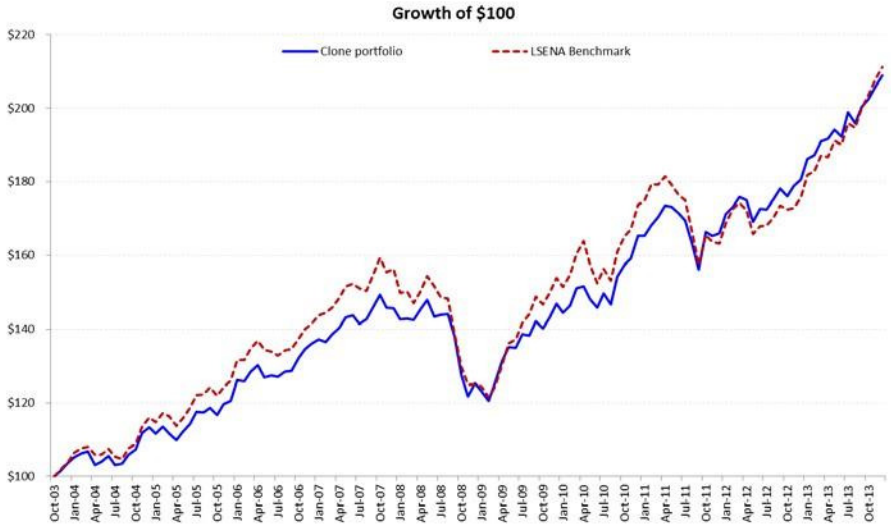


The data suggests that the collective active management decisions of long/short equity hedge fund managers actually ***detract value*** during those periods when (many would argue) it would

be most expected. This comparison also offers some compelling insights into the efficacy of hedge funds' collective timing abilities over different horizons.

The result is that, over the last decade, a passive (yet dynamic) portfolio of ETFs that mimics the exposures held by long/short equity funds could have earned an investor the same return over time with less volatility:

Exhibit 11:



Summary

Since Alfred W. Jones coined the phrase, investors have been drawn to the appeal of actively managed portfolios of long and short exposures with the belief that the active component would serve as an additional hedge in times of stress. The notion that managers would quickly respond to negative market environments by shifting portfolio exposures is a key rationale for paying for an active manager.

Our research shows that a simple clone portfolio of ETFs (using backward-looking information over 2 years) does a remarkably good job of mimicking long/short equity hedge fund returns on a go-forward basis. While counter-intuitive to many investors, this result strongly suggests that the underlying risk-factors that are driving the returns of a diversified portfolio of long/short equity funds evolve over a much longer timeframe. As a result, the clone portfolio offers a very useful (and investable) reference portfolio against which to measure different characteristics of the active benchmark of hedge fund returns. Specifically, any divergence of the active benchmark from the clone portfolio likely represents a period when the active managers, collectively, are making decisions on a shorter timeframe than is being used to create the clone portfolio. The evidence shows that during rising markets, the active benchmark tends to outperform the clone portfolio and during down markets, the opposite.

This runs counter to what has traditionally been touted as the primary benefit of active management (in general) and hedge funds (in particular). For investors in long/short equity hedge funds, this has important implications going forward. Given that the alpha of long/short equity funds' (relative to an investable clone portfolio) is not only time-varying but also correlated with market environment, investors may want to take a closer look at just ***how*** active a hedge fund is and ***when***.

ENDNOTES

[i] Deutsche Bank's 2014 Alternative Investment Survey

[ii] Fama and French [1993]

[iii] Notably: Momentum, Carry.

[iv] William Fung and David Hsieh [1997, 2004]; Lo and Hasanhodzic [2006, 2007]

[v] eVestment is a leading provider of hedge fund data. We use this information to create our own hedge fund classification system in order to achieve the desired level of homogeneity within hedge fund strategies. For example, we like to distinguish long/short equity hedge funds based on their geographic and/or sector focus.

[vi] A. Lo & Hasanhodzic [2006] give an excellent treatment on this approach.

[vii] Credit Suisse long/short liquid alternative beta Index, Index IQ Long/Short Equity Index, Merrill Lynch Factor Index to name a few.

[viii] While outside the scope of this paper, a number of different lookback periods (and weighting schemes) were analyzed. 24 months was used in order to be consistent with the majority of the academic literature.

[ix] The stepwise process is a proprietary methodology that analyzes predicted RMSE (among other metrics) in determining the "best" fit.

[x] Fung and Hsieh [2000] & Brown, Goetzmann, and Ibbotson [1999], as an example, estimate survivorship bias at over 3.0% per year.

[xi] The RHS Y axis is scaled so that the average range over this period crosses the X axis

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