

## How to select outperforming Alternative UCITS funds?

### Introduction

Alternative UCITS funds pursue hedge fund-like active management strategies subject to high liquidity and transparency constraints, ensured by regulatory oversight. The return characteristics look like the absolute returns from Hedge Funds but Alternative UCITS meet strict liquidity, risk and transparency requirements. This unique combination has proven very successful over the years and the segment has gained tremendously in popularity, both with institutional and retail investors.

Previous research pointed out that both the quality of the operational set-up and the performance of funds varies considerably within this space. Selecting which funds to invest in, i.e. which managers to select is of key importance to investors who want to diversify their portfolios with Alternative UCITS.

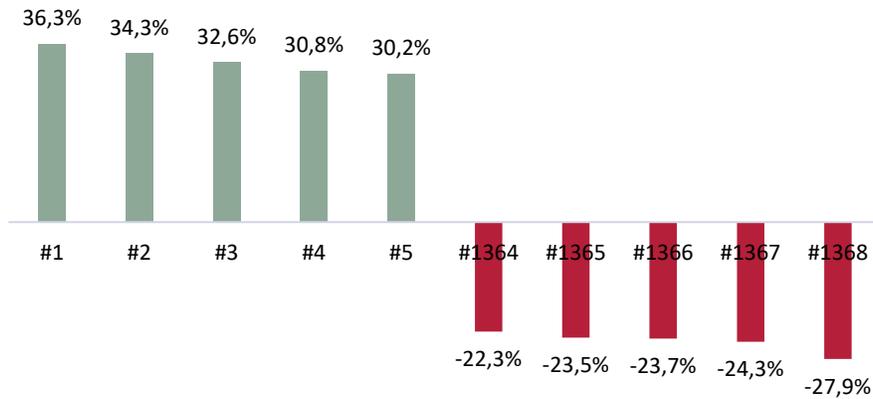
Do outperforming managers exist or are they really just lucky managers who got a fortunate roll of the dice? How can we even define and measure manager talent? Assuming we would have a model to spot outperformance, how does it vary in time and how can we use this information to build optimal portfolios of Alternative UCITS funds?

This paper is based on an upcoming academic publication “The Alpha and Beta of Equity Hedge UCITS Funds – Implications for momentum investing” by Nabil Bouamara (KU Leuven), Kris Boudt (Vrije Universiteit Brussel), Benedict Peeters (Rego Partners / LuxHedge) and James Thewissen (KU Leuven). The academic publication contains a large number of research results. This LuxHedge paper highlights some of those and serves as a short summary on the methodology and main results.

### The importance of manager selection

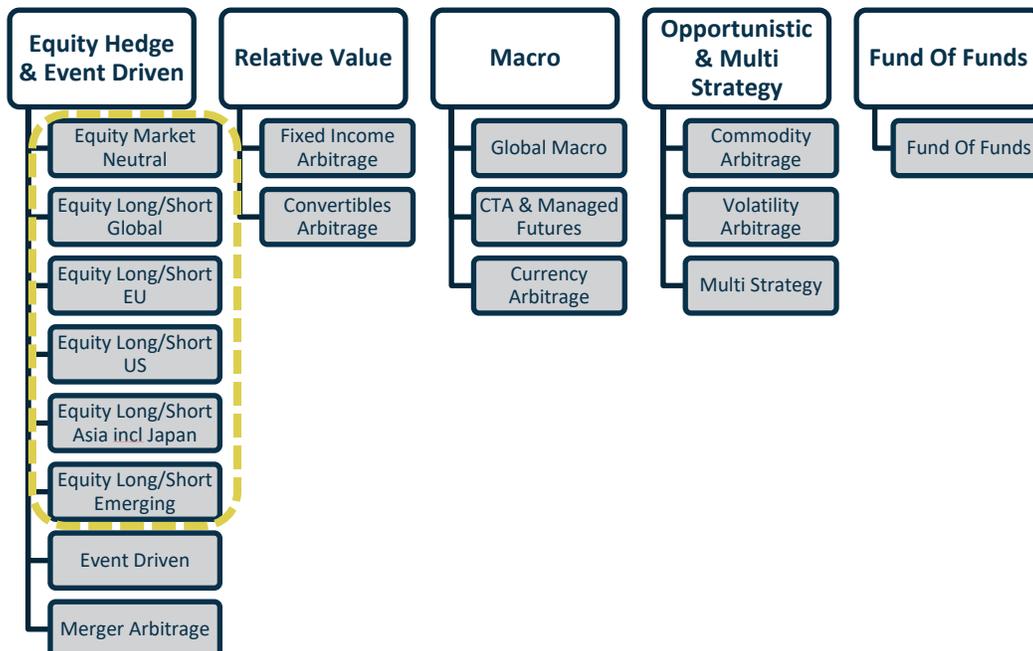
As is the case for hedge funds, the segment of Alternative UCITS is very heterogeneous. Long-only funds that follow a benchmark are known to cluster somewhat towards their common benchmark and tend to move together in lockstep. This is typically not the case for funds with an absolute return objective. The graph below indicates the large spread between the top 5 best and top 5 worst fund returns of the past year. Obviously manager selection is an important topic for investors that want to allocate successfully towards Alternative UCITS funds.

**Top 5 best and worst performers  
2016 June - 2017 May**



**Data**

The segment of Alternative UCITS has grown very rapidly over the past 10 to 15 years and now covers a wide area of hedge fund style strategies ranging from Equity Long/Short over Fixed Income Arbitrage to Global Macro, Volatility Arbitrage and Multi-Strategy funds. The LuxHedge database currently counts more than 1300 funds, well exceeding a total of 400BEUR in Assets under Management. For the purpose of this study, we will zoom in on Equity Hedge UCITS funds. Very similar methodologies can be applied to other sub-segments of the Alternative UCITS space. The universe is further constrained as summarized in table 1 below, giving rise to a total of 178 funds that are included in this study. Important to note here is that both active and liquidated funds out of the LuxHedge database are included to overcome survivorship bias.



<b>Data Period</b>	Jan 2010 – Sept 2016
<b>Strategy</b>	Equity Hedge (Long/Short & Market Neutral)
<b>Inception date</b>	Before Jan 2014
<b>Price (NAV) history</b>	Minimum 1 year
<b>Shareclass</b>	only 1 shareclass kept per fund
<b>Currency</b>	No restriction (but converted to EUR at spot)
<b>Minimum AUM</b>	No restriction
<b>Minimum subscription</b>	<= 500,000EUR
<b>Market status</b>	Both “dead” and “alive” funds

Table 1: Subset of LuxHedge database used in the study

## Unbundling returns – Alpha and Beta – Defining outperformance

A thorough econometric analysis is required to analyse risks and returns of any investment. When a fund has realized a large gain, it is of prime importance to understand whether this was the consequence of taking on large risks or whether there was true outperformance and manager talent involved in realizing the gain.

A multi-factor model framework has typically been used to unbundle returns into an alpha and several beta factors, allowing to isolate the fund specific component (alpha) from common factor performance that is due to taking systematic risks (beta). Table 2 below lists well known papers from the financial academic literature that have applied such factor models to different asset classes.

<b>Fama &amp; French (1992)</b>	3 factor model to explain <b>stock</b> returns
<b>Carhart (1997)</b>	4 factor model to explain <b>mutual fund</b> returns
<b>Fung &amp; Hsieh (2004)</b>	7 factor model to explain <b>Hedge Fund</b> returns

Table 2: seminal papers with factor models to different asset classes

This study builds further on these models and uses both the 4-factor Carhart model and the 7-factor Fung & Hsieh model to analyse risk-adjusted returns of Equity Hedge UCITS funds between 2010 and 2016. A detailed description of all factors used is given in the academic publication of Bouamara et al., table 3 below serves as a summary and overview.

	<b>Factor</b>	<b>Carhart</b>	<b>Fung &amp; Hsieh</b>
<b>MKT</b>	Market return in excess of the risk-free rate	√	√
<b>SMB</b>	Return on small stocks minus return on large stocks	√	√
<b>HML</b>	Return on high book-to-market stocks minus low book-to-market	√	
<b>WML</b>	Return on winner stocks minus losers stocks over the last year	√	
<b>ge10yt</b>	Change in the iBoxx Germany 7-10 Government bonds		√
<b>spread</b>	iBoxx Euro Corp. Bond AA 7-10 Year Index – German Govt. Bond Index		√
<b>sbd</b>	Excess return on a bond lookback straddle		√
<b>sfx</b>	Excess return on a currency lookback straddle		√
<b>scom</b>	Excess return on a commodity lookback straddle		√

Table 3: definition of different factors used in the Carhart 4-factor and Fung & Hsieh 7-factor models

The last 3 factors from the Fung & Hsieh model are called “Alternative risk premia” and were found to significantly aid in understanding Hedge Fund returns, capturing the typical non-linear pay-off structure of dynamic, primitive trend-following strategies.

Historical data on the factors was taken from the Data libraries of Kenneth French and David Hsieh, calculated back to EUR using end-of-month spot rates.

## Factor model results – Aggregate index level

As a first step, the study applies the Carhart 4-factor and Fung & Hsieh 7-factor model to equally weighted portfolios (benchmark indices) of Alternative UCITS funds, Equity Hedge UCITS funds and the sub categories of Equity Market Neutral and Long/Short Europe funds. The results for the 4-factor Carhart model are shown below in table 4.

	$\alpha$	$\beta_{MKT}$	$\beta_{SMB}$	$\beta_{HML}$	$\beta_{WML}$	$R^2$
All	-0.051 [1.216]	0.242*** [16.421]	0.056** [2.099]	0.006 [0.32]	-0.006 [0.355]	0.789
Equity Hedge	-0.045 [1.216]	0.288*** [15.085]	0.091** [2.77]	-0.023 [0.78]	-0.010 [0.447]	0.763
Equity Market Neutral	0.047 [1.092]	0.098*** [7.513]	0.107*** [3.929]	-0.023 [1.11]	-0.006 [0.283]	0.518
Long/Short Europe	-0.060 [0.68]	0.377*** [11.536]	0.062 [1.083]	-0.044 [1.016]	-0.042 [1.022]	0.658

Table 4: Results of the Carhart 4-factor model applied to benchmark indices of equally weighted Alternative UCITS funds. t-statistics are shown in square brackets below the estimated coefficient values and \*, \*\*, \*\*\* are used to indicate statistical significance at the 10%, 5% and 1% level.

These results reveal several interesting facts about the risk/performance characteristics of equally weighted benchmark portfolios:

- There is no out- or underperformance on average, alpha is indistinguishable from zero on a benchmark index level
- All UCITS and also equity hedge UCITS load on the market factor, albeit with a low beta value
- As expected, Equity Market Neutral has a very low market beta
- On average, many Alternative UCITS funds and especially Equity Market Neutral funds load on the SMB size factor
- $R^2$  is relatively low, especially for equity market neutral funds, indicating that other alternative factors are driving performance and further investigation on spanning the total space of funds is still to be done

The academic paper of Bouamara et al. goes on to show that the more complex 7-factor Fung & Hsieh model does not provide any extra explanatory value on this level of equally weighted portfolios. None of the alternative risk premia are found to be significant in explaining the risk/return characteristics of the different Alternative UCITS benchmark indices.

## Factor model results – Individual funds

We now proceed to the core question of investigating whether outperformance exists for the funds in our sample. Luck or skill? Results are shown in tables 5 and 6 for respectively the Carhart 4-factor and Fung & Hsieh 7-factor model:

	Significant outperformance		Significant underperformance	
	at 5%	at 10%	at 5%	at 10%
<b>Equity Hedge</b>	9.9%	13.9%	6.9%	10.9%
<b>Equity Market Neutral</b>	20.0%	28.6%	5.7%	5.7%
<b>Long/Short Europe</b>	5.1%	5.1%	10.3%	12.8%

Table 5: Using the Carhart 4-factor model, % of funds in sample that show significant outperformance ( $\alpha > 0$ ) or underperformance ( $\alpha < 0$ ) at 5% and 10% level of statistical significance

	Significant outperformance		Significant underperformance	
	at 5%	at 10%	at 5%	at 10%
<b>Equity Hedge</b>	12.9%	14.9%	6.9%	10.9%
<b>Equity Market Neutral</b>	22.9%	22.9%	5.7%	5.7%
<b>Long/Short Europe</b>	10.3%	12.8%	10.3%	12.8%

Table 6: Using the Fung & Hsieh 7-factor model, % of funds in sample that show significant outperformance ( $\alpha > 0$ ) or underperformance ( $\alpha < 0$ ) at 5% and 10% level of statistical significance

Our decomposition of the universe reveals that outperformance does exist, but is rather scarce. Both factor models give consistent results, also here the extra complexity in the 7 factor model does not really provide any additional information.

## Implications for momentum investing

In a last step, we turn to the most practical research question: can we create systematic portfolios of outperforming funds that beat an equally weighted benchmark index consistently? Is there a ranking criterion that we can set up with a reliable signal of superior manager ability?

The set of outperforming funds is assumed to be time-varying, in line with the so called “adaptive market hypothesis”. The aim is to determine whether we can find a good predictor of future superior performance: are there momentum effects that can be capitalized in a well-constructed portfolio of funds?

The systematic portfolios are set up as follows:

- Every month, a new portfolio of funds is constructed
- “Rolling window approach” data of the past 3 years is used to calculate alpha
- Funds are ranked according to past returns, alpha or t-statistic
- Top quintile and bottom quintile portfolios are formed, equally weighted
- 1 month lag between selection and implementation

The table below show the results of the different ranking mechanisms. For alpha and t-statistic, results are shown for the Carhart 4-factor model. The Fung & Hsieh 7-factor model gives very similar results.

	Benchmark	Return ranking		Carhart $\alpha$ ranking		Carhart $t(\alpha)$ ranking	
		Top Quintile	Bottom Quintile	Top Quintile	Bottom Quintile	Top Quintile	Bottom Quintile
<b>Average Return</b>	3.88%	4.27%	1.79%	5.76%	3.71%	6.20%	2.98%
<b>Volatility</b>	4.06%	6.72%	2.87%	4.34%	6.87%	3.58%	5.92%
<b>Sharpe Ratio</b>	0.89	0.60	0.54	1.27	0.50	1.66	0.46

Table 7: Risk/Return characteristics of different Equity Hedge UCITS momentum portfolios versus an equally weighted benchmark.

This is good news from a Fund of Fund portfolio management perspective: outperformance not only exists, but it also persists and can be used to construct portfolios of funds with attractive risk/return characteristics. A simple return momentum strategy is too naïve and does not work well because it doesn't take into account how returns are realized and where they come from (either beta: risk, or alpha: true outperformance). Using the multifactor models, ranking on alpha (outperformance) or t-stat (statistical significance of outperformance) does give very satisfying results.

These ranking mechanisms are deliberately kept very simple, the selected Equity Hedge universe is not constrained in terms of a minimum AUM or daily liquidity requirements and there are no constraints on turnover of the portfolio. So from a practical perspective, these strategies would be difficult to implement as such. But the results clearly show that the factor models do work well to spot outperformance and can be used as a solid basis for a more complicated portfolio construction mechanism.

## Conclusion

The Alternative UCITS universe is very heterogeneous and selecting which funds to invest in is an important topic. Purely looking at returns to judge fund performance is too naïve, a decent econometric analysis with multi-factor decomposition is recommended to unbundle returns in alpha (true outperformance) and beta's (compensation for different types of risk).

Following the most common multifactor models from literature, we've looked at the Carhart 4-factor model originally used on mutual funds and the Fung & Hsieh 7-factor model that has been used to analyse hedge fund performance. We found that outperforming funds do exist, but are scarce. Also, equity hedge strategies work as they should: long/short funds have a small market beta and equity market neutral funds a close to zero market beta. On a benchmark index level, the additional Alternative risk premia factors from the Fung & Hsieh model don't provide any additional explanatory value. In general  $R^2$  values are relatively low, implying that work still needs to be done to further understand and unbundle returns in the Alternative UCITS space.

Lastly, outperformance also persists and well-chosen momentum strategies can work to construct attractive portfolios of Alternative UCITS funds.

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