

Attack of the 'hedge fund' clones

Investable indices, Alternative
beta, 130/30, Permanent
capital

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Questions?

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Executive summary

Hedge funds and funds of hedge funds (FoHF) have become part of the mainstream and their diversification benefits are widely acknowledged but high fees and comparatively poor liquidity still constitute a barrier for many investors. This reluctance is fuelling the growth of various new hedge fund alternatives.

The first-generation of hedge fund alternatives were **investable indices**, which aim to offer investors low cost access to a diversified portfolio of hedge funds. The basic concept is very similar to an exchange-traded fund in that these products track the performance of a diversified pool of hedge funds to offer cheap, transparent and passive exposure to the asset class. While the concept of investable hedge fund indices makes sense, it is difficult to implement in reality. The main challenges of conventional investable indices are the lack of representativeness and the relatively small cost advantage as investable index providers still have to perform due diligence in order to pick funds. A more modern approach is the development of next generation eligible financial indices sponsored by hedge fund providers. These indices allow investors to gain broad exposure to hedge funds in a mutual fund format.

A more recent concept tries to sidestep investing in single hedge funds altogether: **Alternative beta**, also called hedge fund beta or hedge fund replication. Alternative beta aims to produce hedge fund like returns without actually investing in hedge funds. Replication is based on the premise that a large portion of hedge fund returns can be explained by gaining exposure to relatively simple strategies/risk factors. Such risk factors include: small caps, credit risk, short volatility, FX carry, and term structure premiums. The replication model uses a regression analysis to infer funds' time varying exposure levels to these risk factors and then invests according to the most recently inferred exposures. The main advantages of alternative beta are increased transparency, liquidity, absence of fraud risk, and lower costs. Major limitations are: no true alpha and a time delay in exposure levels. We see alternative beta as an interesting concept and have incorporated factor models in our risk management and quantitative analysis processes.

130/30 funds, or short extension strategies, are sometimes referred to as 'hedge fund light'. A 130/30 strategy removes the long-only constraint and permits the manager to short instead of underweight certain stocks. In other words, a manager with USD 100 to invest may go short up to USD 30 and use the notional capital this creates to go long up to USD 130. While the manager has the option to short and time the overall market, the net exposure is still 100% long. Hence, the benchmark is usually an equity index and not an absolute return concept. 130/30 is mainly used by institutional investors as a substitute for their long-only equity allocation. We see 130/30 funds as a less attractive opportunity than hedge funds, mainly due to their static 100% net long exposure.

Permanent capital is also an alternative way to invest in hedge funds. Most permanent capital vehicles (PCV) are closed-end funds that list their shares on a stock exchange. Once the stock is listed it trades just like a single stock and can be bought and sold with ease. To date, listings have been primarily in Europe and quite successful. Some of the benefits of PCV are the permanent capital structure, access to the retail market and daily liquidity. Some of the challenges are prevailing discounts to NAV and the public exposure with potential negative headline risk if the fund is not successful. We believe that PCV offer investors attractive opportunities.

A brief history of FoHF and first generation alternatives

Until the mid 1990s hedge funds were predominantly an investment vehicle for high net worth individuals. The three-year equity bear market at the beginning of this decade was the catalyst for increasing institutionalisation of the hedge fund industry. During 2000-2002 it became apparent to many pension funds, insurance companies and other large asset managers that the 1980s and 1990s were a historical aberration in the equity markets with a two-decade long multiple expansion, benign inflation and steadily declining bond yields. This awareness created the need for more diversification and led to a sustained structural inflow into alternative asset classes such as hedge funds, private equity, commodities and real estate.

During the last few years the FoHF approach has been the preferred investment form for most institutional as well as private investors seeking to gain hedge fund exposure. A FoHF simplifies the process of choosing individual hedge funds and spreads the manager-specific risk across a variety of funds. This blending of different managers aims to deliver a more consistent return than any individual fund can offer. Although conceptually simple, the implementation is difficult. A FoHF operator needs to have an in-depth understanding of and insight into manager selection, portfolio construction, risk management and various forms of quantitative and qualitative analysis. While there are many advantages to a FoHF, there is one major disadvantage: the additional fee layer. FoHF charge a fee on top of the fee structure of the single hedge fund. Non-investors regularly consider fees to be among the major impediments to investing in hedge funds (besides headline risk, lack of familiarity and transparency). Investable hedge fund indices have emerged in response to these perceived shortcomings and can thus be viewed as **first generation alternatives** to FoHF.

Investable indices

The main rationale for investable hedge fund indices is to provide investors with low cost access to a diversified portfolio of hedge funds. The basic concept is very similar to what exchange traded funds (ETFs) offer to long only investors: cheap, transparent and passive exposure to an asset class. This is achieved by creating an index linked to a benchmark portfolio of hedge funds and selling bonds, shares or certificates linked to the performance of the index. The idea is simple and makes sense. In fact, ETFs have been widely accepted as an alternative to mutual funds or index futures. But can the same concept be applied to the notoriously heterogeneous world of hedge funds? What about closed funds, liquidity terms, survivorship bias¹? Are they just FoHF in disguise? What are next generation investable indices?

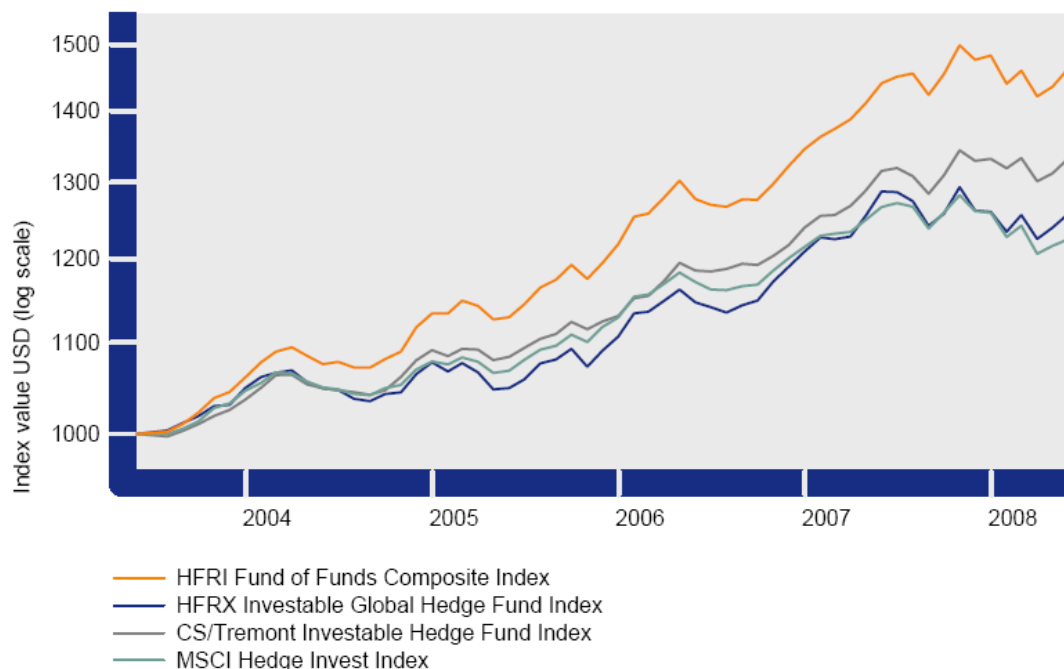
Traditional investable indices

In our view, traditional (old-style) investable indices can be seen as broad-based passive FoHF. They aim to achieve diversification by investing in a large group of funds that represent the hedge fund industry and its main styles and strategies. In some cases investable indices use managed account platforms to increase liquidity and transparency. Probably the best known investable indices are the HFRX index family and Credit Suisse/Tremont indices. Both were created in 2003. One of the main problems of passive hedge fund investing is that investable funds only represent a subset of the hedge fund industry. Many successful funds are not willing or able to accept money from index product providers. In our opinion this is the main problem with the old-style investable

¹ Survivorship bias arises when a database of hedge funds includes only surviving hedge funds. Those hedge funds that have ceased operations or stopped reporting may be excluded from the database. This leads to an upward bias in performance reporting because presumably, those hedge funds that ceased operations performed poorly. In other words, only the good hedge funds survive, and their positive performance adds an upward bias to the reported financial returns. Most academics agree that survivorship bias overstates returns by 200-500 basis points per year (e.g. Malkiel-Saha, 2004 and Amin-Kat, 2003). Some argue that it is at the lower end of this range because the survivorship bias is partially offset by the fact that a number of established and well-performing funds also stop reporting.

indices. It is also difficult to include illiquid funds, such as hedge funds investing in distressed securities. The next chart compares the performance of various investable hedge fund indices with the HFRI Fund of Fund Composite Index, a non-investable FoHF benchmark.

Figure 1: Traditional investable indices versus non-investable FoHF benchmark



Source: Bloomberg. Performance in USD. There is no guarantee of trading performance and past performance is not necessarily a guide to future performance/results.

As the above figure shows, investable indices clearly lag the non-investable benchmark. Some of the underperformance is explained by various biases² that tend to be higher for non-investable indices. But even after adjusting for these biases there is still a gap. Furthermore, biases in FoHF are smaller than in single hedge fund indices, as more FoHF survive compared to single funds. The investor also needs to consider that index-linked products have various layers of fees. Hence, the returns to the end-investor will be even lower than the index returns.

In principle, providers of traditional investable indices face two problems. First, they have to exclude funds that are closed to new investment, are not interested in attracting index money, have low liquidity or low investment capacity. Second, index providers have been tempted to select outperforming funds ex post - a practice that naturally leads to good pro forma track records but, once live, the returns often diminish. The low cost advantage also has to be put into perspective. While there is no explicit FoHF fee, the index still invests in single hedge funds that themselves have high fees (unlike second generation alternatives which we discuss later). Due diligence also needs to be performed and this is not free. Keep in mind that FoHF typically charge around 1% management fee and 5-10% performance fee while 2 and 20 are still the norm for single funds. Furthermore, conventional methods for constructing representative asset class indices rest on the assumption that the underlying assets are reasonably homogeneous and that the investor follows a buy and hold strategy. In contrast to this assumption, the characteristics of hedge funds are diverse and dynamic. In our opinion, these

² Various biases such as survivorship bias, selection bias (i.e. those hedge funds that are performing well have an incentive to report their results to a database in order to attract new investors into the fund, subject to liquidity constraints. Hence those hedge funds that are included in the database tend to have a better performance than those that are excluded because of their presumably poor performance.)

old-style investable indices are not attractive for investors as the 'saved' FoHF fee layer does not compensate for other shortcomings such as missing diversification, or the lack of access to closed funds or illiquid strategies. We also think that the distinction between indices and regular FoHF disappears upon closer inspection.

Next generation investable indices

A more recent development is the design of eligible financial indices sponsored by hedge fund providers. This opens a new window of opportunity to market or license index-linked products used within the UCITS framework. UCITS are a set of European Union directives that aim to allow investment funds to operate freely throughout the EU on the basis of a single authorization from one member state. UCITS-compliant indices must be sufficiently diversified, represent an adequate benchmark and be published regularly. We view these new-style investable indices more favorably as they allow investors representative exposure to hedge funds and offer frequent liquidity. Also, the rule-based index construction leads to higher transparency and the UCITS mutual fund format is well known and accepted by many investors. In summary, these new indices are a major improvement compared to conventional investable indices.

Alternative beta (hedge fund replication)

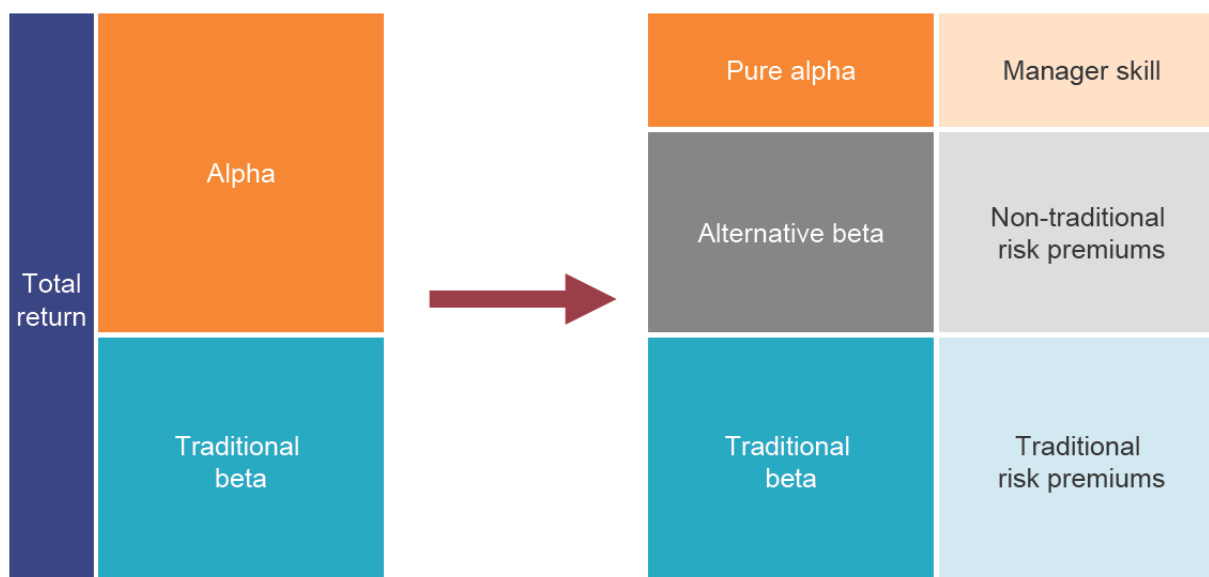
While first generation hedge fund alternatives (FoHF, investable indices) addressed diversification and double fee structures they did little to reduce the high fees of the underlying funds. This spurred the development of second-generation concepts that sidestepped investment in single hedge funds altogether: Alternative beta or hedge fund replication.

Until recently, hedge fund returns were considered to stem from beta, i.e. systematic risk, and alpha, the manager's skill. Over the past decade, however, as researchers started to analyze hedge fund returns in more detail, they came to the conclusion that hedge fund returns have to be broken down into the following components:

- Traditional beta
- Alternative beta
- Pure alpha

This can be seen in the next figure.

Figure 2: Hedge fund returns broken down by source



Source: Man Investments/RMF Investment Management. Please note that the box sizes above are for schematic purposes only and not representative of the actual size.

Traditional beta stems from systematic market risk and specific company/industry risk. While specific risks can be diversified away, systematic risks cannot and thus investors want to be compensated for taking this risk. Traditional beta can be easily replicated with publicly available indices such as stock, bond, and commodity indices.

Alternative beta refers to returns derived from investing across various, non-traditional yet systematic risks. These include liquidity risk, credit risk, volatility risk and event risk, but also taking short positions and applying leverage. Exposure to some of these risks can be achieved by investing in futures, options, spreads etc. As these securities have a non-linear payout profile, traditional long-only investors do not tend to invest into them. Nevertheless, they are systematic and do not depend on manager skill. Fung/Hsieh called them asset based factors, thus reflecting the systematic character of these investments as well as the alternative investment managers who take these risks as can be seen in the chart overleaf.

Pure alpha refers to the manager's skill. As alpha is broken down into its return sources it is expected that several factors which used to be classified as alpha will be reclassified as alternative beta, thus reducing the pure alpha portion. Some researchers even believe that as strategies mature, its idiosyncratic features are often eroded by competition, leaving behind primary, replicable alternative beta returns.

Figure 3: Systematic risk premia

Pure alpha	Manager skill	Manager skill
Alternative beta	Non-traditional risk premiums	<ul style="list-style-type: none"> • Convergence risk • Small cap risk • Corporate event risk • Commercial hedging risk • Short volatility risk • Complexity/efficiency risk • Liquidity risk • FX carry risk • Value vs growth • Commodity risk • Term structure risk
Traditional beta	Traditional risk premiums	<ul style="list-style-type: none"> • Equity risk • Interest income • Credit risk

Source: Man Investments Research.

Replication

Based on the idea that hedge fund returns can be broken down into traditional beta, alternative beta and alpha, several researchers and investment professionals took the discussion a step further and argued that if the bulk of hedge fund returns can be explained through systematic tradable risk factors it should be possible to replicate hedge fund returns by applying rolling regression on some publicly available asset class indices using several market factors. Thus the concept of hedge fund replication was born. The term alternative beta was first coined by Professors Bill Fung and David Hsieh in 2003, but their research goes back to 1994. Since then, several others have started to look into alternative beta/ hedge fund replication. In December 2007, around 20 hedge fund “clone” products were on the market. Today, there are three main types of alternative beta approaches:

Figure 4: Three alternative beta approaches

Criteria/ approach	Factor-based replication/ Replicating factor strategies (RFS)	Bottom-up emulation/ mechanical duplication	Payoff distribution replication/ dynamic trading
Approach	Hedge fund returns boiled down to few tradable risk factors, representing stocks, bonds, commodities, emerging markets, high yield spreads. Linear, multiple factor regression models.	Reproduction of HF returns in a systematic and quantitative manner by naively investing into all market opportunities within a strategy, i.e. all announced mergers, according to certain rules.	Focuses on matching the unconditional distributional properties of hedge fund returns, as opposed to their time-series properties. Trades a number of liquid market instruments.
Pro	Publicly available indices used.	Suitable for strategies not well explained by factor modelling	Replication of return distribution, not monthly return.
	Replication of monthly returns.	Direct link to investment strategy.	Out-of-sample results are practically viable.
Contra	Only works for predefined time period (in sample), keeps failing for out-of-sample periods.	Costly	Replicating return distribution based on correlation/risk characteristics. Same distribution of returns does not yet guarantee same performance on a monthly basis.
	Frequent trading difficult to capture.	Relatively difficult to implement.	Rules cannot always be executed, i.e. when there is not enough liquidity.
	Limited to tradable factors.		Convergence to the desired statistical properties is slow (several months or even years).
Researchers	Fung/Hsieh, Jaeger/Wagner, Agarwal/Naik, Hasanhodzic/Lo	Mitchell/ Pulvino	Kat/ Amin/ Palarao

Source: Man Investments/RMF Investment Management, Edhec.

So far, the factor modeling approach has been used to analyse the practicability of replicating hedge fund strategies. The table below gives an overview of strategies that have already been replicated and the R^2 figure gives an indication of how exactly the strategy could be replicated. R^2 values range from 0 to 100. An R^2 of 100 means that the strategy can be fully explained by replication factors. A high R^2 (between 85 and 100) indicates that the replication has been in line with the hedge fund performance. A low R^2 indicates that the replication performance turned out quite differently from the original hedge fund.

The table below shows that the R^2 figure varies quite substantially between the different hedge fund strategies. While equity hedge and event driven strategies can be fairly accurately replicated, other strategies, such as fixed income arbitrage and risk arbitrage, are more difficult to replicate. Market neutral is the strategy that has the lowest percentage in the table below. This shows that the market neutral strategy cannot be broken down into fundamental factors but rather that this is a strategy with real alpha. The table further highlights the fact that depending on researchers/type of factors used, different R^2 figures are achieved. The biggest discrepancy can be found for convertible bond arbitrage, with R^2 ranging from 14.7% to 75.0%. This shows that even though several researchers have started to break down hedge fund strategies into fundamental factors, there is no clear set of factors for any given hedge fund strategy due to the fact that the same hedge fund strategy can be played in many different ways.

Figure 5: In-sample results of hedge fund replication based on factor modeling

Hedge fund style	Hedge fund strategy	Adjusted R^2	Replication difficulty
Equity hedge	Equity long/short	72.5% ¹ 88.5% ³	😊
	Short selling	82% ¹ 81.2% ³	😊
Relative value	Relative value/arbitrage	52.2% ¹ 66.0% ²	😐
	Fixed income	40.5% ³	😞
	Risk arbitrage	44.0% ¹	😞
	Convertible arbitrage	40.5% ¹ 70.0% to 75.0% ² 54.0% ³ 14.7% to 56.0% ⁵	😞 to 😊
	High yield	78.0% to 79.0% ²	😊

Hedge fund style	Hedge fund strategy	Adjusted R ²	Replication difficulty
Relative value (cont.)	Mortgage-backed	59.0% to 66.0% ²	☹️
	Equity market neutral	35.3% ³	☹️
Event driven	Event driven	73.4% ¹ 79.3% ³	😊
	Merger arbitrage	52.9% ³	☹️
	Restructuring	65.6% ¹	☹️
	Distressed	68.4% ³	☹️
Global macro	Global macro	49.7% ³	☹️
Diversified	Diversified	64.0% ²	☹️
	Multi-strategy	55.0% ⁴	☹️

Source: Edhec. The Myths and Limits of Passive Hedge Fund Replication. June 2007. Research done by: ¹Agarwal, Naik (2004 – in sample time period 1990-2000), ²Fung, Hsieh (2002 – in sample time period 1990-2000), ³Jaeger, Wagner (2005 – in sample time period 1994-2004), ⁴Fung, Hsieh (2004 – in sample time period 1991-2002), ⁵ Agarwal, Fung, Loon, Naik (2005). Replication difficulty: 😊 - good, ☹️ - medium, ☹️ - bad.

Attentive readers may have noticed that certain strategies are missing from the table including commodities and CTA trading. Commodity hedge funds are difficult to replicate because the return dispersion is significant, i.e. there are too many factors that play a role and these cannot all be modeled. Furthermore, there are no hedge fund commodity indices that would represent these strategies. As such, one would have to identify a list of commodity managers in order to perform the replication. The fact that CTAs are not included in the above list proves that even though managed futures strategies have a quantitatively driven beta component that is easy to replicate and well-known across markets, the alpha part is added by more sophisticated research which enhances the models and can be rightfully called skill/research-based. Good CTAs have a significantly more sophisticated and diverse set of models than any of those used so far in the replication literature. They also invest heavily in market access to ensure low cost execution and a diversified portfolio of instruments. Furthermore, efficiency is increased by applying real-time intra-day trading, which is operationally intensive and also expensive. These components add further value compared to simple work done based on daily closing prices and are thus difficult to replicate using alternative beta strategies.

In general, it can be said that these explanatory factors provide at best a partial explanation for the performance of most hedge fund strategies, indicating that hedge fund returns cannot be explained only through systematic factors. Furthermore, these figures need to be taken with a pinch of salt as there is no clear set of factors for

any given hedge fund strategy, different researchers apply a different set of factors, thus ending up with very different results.

Several investment banks have started to offer alternative beta products based on factor modelling. The table below gives a brief overview of the type of factors used for the modelling. As can be seen, Partners Group (research since 1999) and Merrill Lynch started to offer alternative beta a while ago, but the bulk of investment banks only started to look into this last year.

Figure 6: Alternative beta/replication products offered

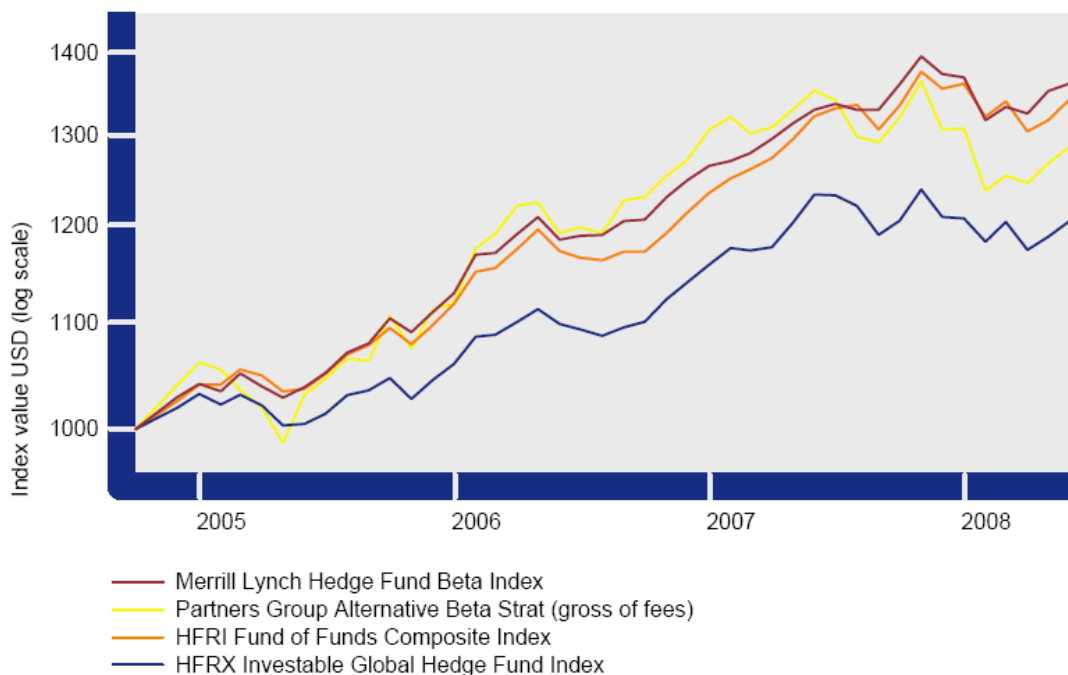
Company	Replication project name	Factors used	Comment	Performance
Partners Group	Partners Group Alternative Beta Strategies	<ul style="list-style-type: none"> ▪ Large caps ▪ Small cap spread ▪ AR (1) – autocorrelation factor, which is the one-month lagged time series of the dependent variable) ▪ MSCI EM ▪ Bonds 	Factor replication. Returns are gross of fees.	Oct 2004
Merrill Lynch	Merrill Lynch Hedge Fund Beta Index	<ul style="list-style-type: none"> ▪ S&P 500 ▪ Russell 2000 ▪ USD Index ▪ MSCI EAFE ▪ MSCI EM ▪ BBA LIBOR 	Factor replication. Transparent modelling process, easy to replicate.	Feb 2003
Goldman Sachs (GS)	GS Absolute Return Tracker Index	<ul style="list-style-type: none"> ▪ Stocks ▪ Bonds ▪ Commodities ▪ Rating ▪ Volatility 	Semi-active product, i.e. GS selects the funds to replicate based on unknown criteria.	Mar 2007
JPMorgan	Not publicly available	<ul style="list-style-type: none"> ▪ Small/large cap US equity ▪ Non-US equity ▪ EM equity ▪ US gov/ corp. bonds ▪ Short-term interest rates ▪ Commodities ▪ Currencies ▪ Real estate ▪ Options on these underlying assets 	Rule-based investing	N/A
Deutsche Bank	Absolute Return Beta Index	<ul style="list-style-type: none"> ▪ Series of investable, liquid market factors (both long and short) 	Rule-based approach	Jul 2007

Company	Replication project name	Factors used	Comment	Performance
Bear Stearns	Not publicly available	<ul style="list-style-type: none"> Not publicly available 		N/A
State Street	Premia Strategy	<ul style="list-style-type: none"> Not publicly available 		N/A
Credit Suisse Asset Management	Credit Suisse Strategic Alternative Beta Research	<ul style="list-style-type: none"> Factor approach combined with conditional tactical models. 	In collaboration with Professors Fung, Hsieh, Naik	N/A
Blue White Alternative Investments Ltd	Blue White Alternative Beta Fund	<ul style="list-style-type: none"> Not publicly available 	Lower risk profile than others in the space	May 2007
Alpha Swiss	Not publicly available	<ul style="list-style-type: none"> Not publicly available 	Reporting stopped Feb 08.	Dec 2005 to Feb 08

Source: Company material.

To put alternative beta performance into perspective, the performances of two replication strategies have been compared to the investable and non-investable HFR hedge fund index. This can be seen in the line chart below.

Figure 7: Performance comparison – (non)-investable hedge fund indices vs hedge fund replication indices (October 2004 to May 2008)



Source: Bloomberg, RMF Investment Management. Man Investments calculations. Performance in USD. There is no guarantee of trading performance and past performance is not necessarily a guide to future performance/results.

Figure 8: Performance statistics – replication strategies vs (non-)investable hedge fund indices

1 October 2004 to 31 May 2008	Merrill Lynch Hedge Fund Beta Index	Partners Group Alternative Beta Strat (gross of fees)	HFRI Fund of Funds Composite Index	HFRX Investable Global Hedge Fund Index
Total return	36.19%	28.76%	34.31%	20.46%
Annualised return	9.00%	7.31%	8.58%	5.33%
Annualised volatility	4.89%	8.22%	5.12%	5.08%
Ann. downside deviation	3.15%	5.68%	3.47%	3.72%
Sharpe ratio	0.90	0.37	0.79	0.19
Sortino ratio	1.40	0.53	1.16	0.26
Worst drawdown	-3.75%	-5.42%	-2.91%	-2.55%
Max	3.50%	4.98%	3.07%	2.82%
Skewness	-0.84	-0.48	-0.86	-0.56
Kurtosis	1.26	-0.02	0.06	-0.63

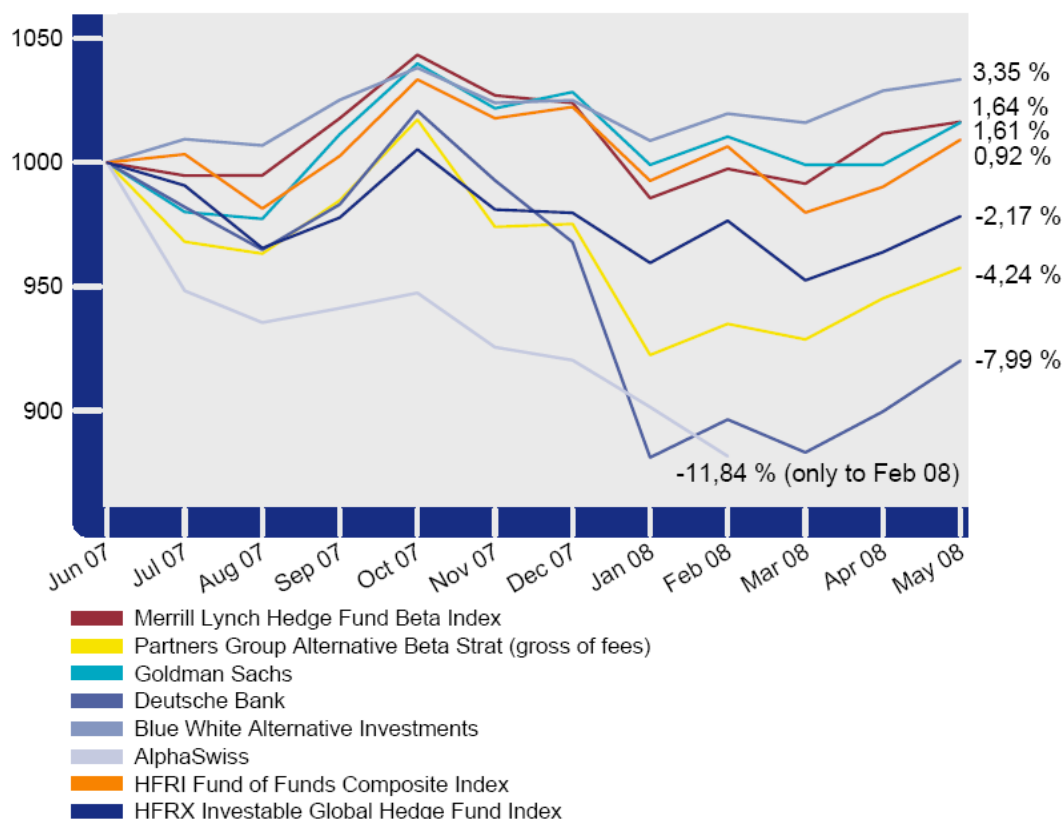
Source: Bloomberg, RMF Investment Management, Man Investments calculations. Performance in USD. There is no guarantee of trading performance and past performance is not necessarily a guide to future performance/results. Sharpe ratio and Sortino ratio are measures of risk-adjusted performance that indicate the level of excess return per unit of risk. Risk is expressed as standard deviation for the Sharpe ratio and as downside deviation for the Sortino ratio. Both ratios are calculated using the risk-free rate in the appropriate currency over the period analyzed. Where an investment has underperformed the risk-free rate, these ratios will be negative. Because these ratios are absolute measures of risk-adjusted return, negative ratios are shown as N/A, as they can be misleading.

The Merrill Lynch replication index outperformed all other indices for the period October 2004³ to May 2008. In fact, it performed fairly similarly to the non-investable HFRI Fund of Fund Composite Index. Partners Group achieved a weaker performance, but still clearly outperformed the investable HFRX Global Hedge Fund Index. As replication indices are less dynamic, one would expect them to adjust more slowly to rapid market movements. This is exactly what happened in August 2007. While both the investable and non-investable HFR index lost ground during that month, the replication indices were flat to marginally down. In this case, the replication indices fared better than the hedge fund indices, but had the market condition been different, the replication indices could also have underperformed. The point is that while hedge funds dynamically adjust their weightings and systematic exposures according to changing market conditions, replication indices do so more slowly. For this reason one would expect replication programs to underperform during a prolonged downturn in the equity markets. While there is no data available for the 2000-2002 bear market, the more recent decline in the equity market indicates a fairly wide dispersion in alternative beta programmes.

The next figure shows the monthly returns of six replication products as well as the (non-)investable HFR indices. The chart shows that there is a wide return dispersion between different replication products. While Partners Group is no longer reporting to Bloomberg, AlphaSwiss stopped reporting in February 2008. These might be indications that the products were not performing according to expectations. On the positive side is the Merrill Lynch index, which performed quite well over the last few months.

³ Merrill Lynch seeded the product in October 2004 but only launched it in autumn of 2006.

Figure 9: Monthly returns since the beginning of the subprime crisis (July 2007 to May 2008)



Source: RMF Investment Management/Glenwood Capital Investments, LLC. AlphaSwiss stopped reporting in February 2008. There is no guarantee of trading performance and past performance is not necessarily a guide to future performance/results.

Hence, alternative beta/ replication strategies have several **advantages** over (non-)investable hedge fund indices:

- Transparent/semi-transparent investment process, making it easy for risk management to track style drifts or frauds
- Easy access to highly regulated markets
- Low fees – cheap solution to non-traditional beta exposure
- No leverage / easily levered
- High liquidity – often daily liquidity through secondary market
- No lock-up periods
- No time-consuming due diligence process
- No headline risk

Nevertheless, there are also several **shortcomings** with regards to alternative beta/ replication strategies:

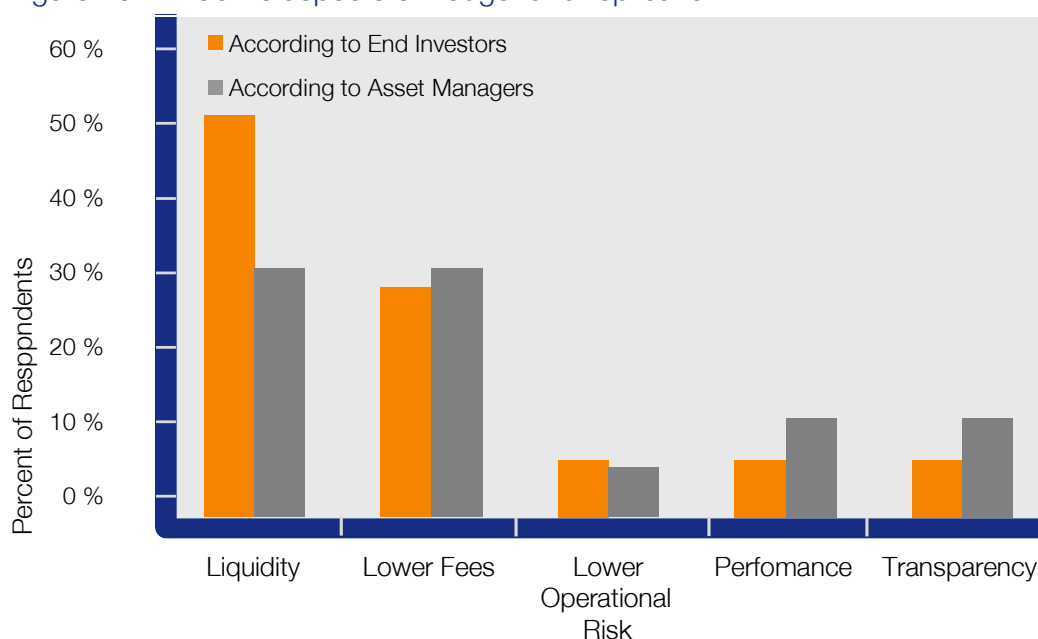
- No alpha – performance is purely technical, no particular skills are used for analysing trading opportunities. As a result, replication strategies offered to clients tend to replicate diversified hedge fund portfolios rather than single strategies.

- Allocations are only adjusted with a time lag. While hedge funds can quickly adapt to changing market conditions, alternative beta is unable to do this as this is the alpha component of the hedge fund return. The asset allocation for alternative beta is based on the analysis of previous time periods, meaning that replication portfolios are trying to forecast hedge fund behaviour based on past returns. Replication strategies are therefore slow in shifting portfolio allocations and in identifying new sources of returns.
- Replication is based on a precise, unambiguous set of quantifiable predetermined rules. As a result, it is difficult for replications to exploit inefficiencies for which quantifiable rules cannot be assigned, i.e. alpha. Furthermore, replication works best where anomalies are expected to persist despite public awareness of them.
- Different factor modelling leads to different definitions of alpha
- Same R^2 figure does not guarantee similar performance
- Models work mainly for time periods that have been chosen for the analysis. Once factors and models have been identified, they are applied to “reality”. Quite often, that is where these models tend to fail (in-sample vs out-of-sample). Hence in order to achieve a reasonable model, the number of regressors needs to be sufficiently smaller than the number of time periods, otherwise the model will overfit the data and most likely underperform out of sample, even though the underlying concept is sound.

Investors’ view on alternative beta

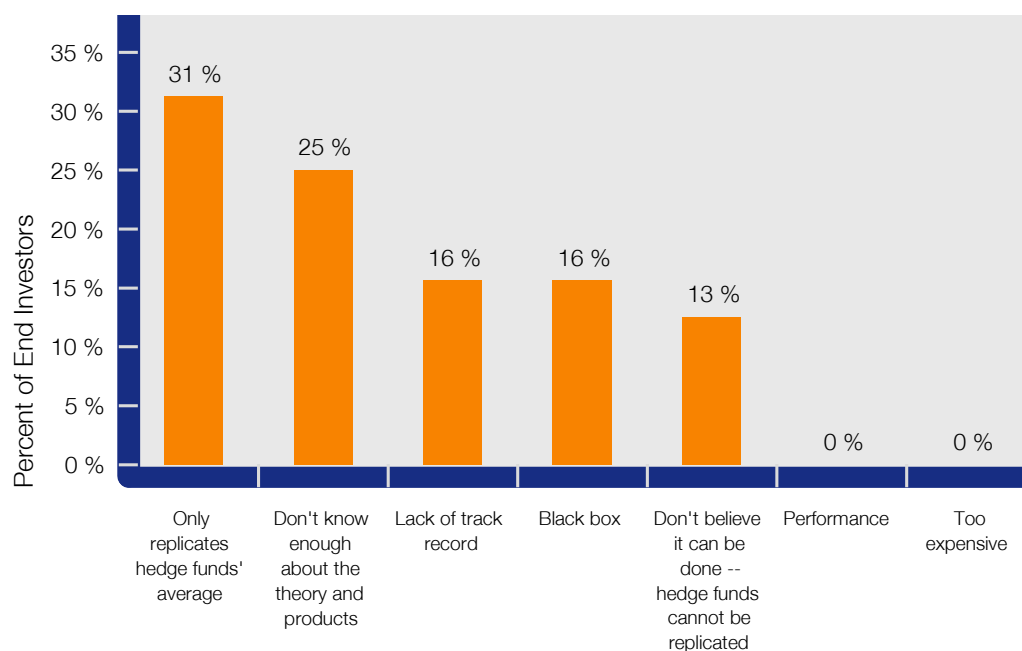
Terrapin and AllAboutAlpha.com conducted a survey of 180 institutions, including asset managers, service providers, consultants and end investors at the beginning of February 2008. The survey found that although currently only 7% invest in hedge fund replication or other forms of alternative beta in 2007, three times this number are planning to do so this year and three quarters of the institutions asked were familiar with the replication concept. The main reason for investing in hedge fund replication products is not performance but rather liquidity and the lower fee structure. With regards to performance, institutions seem to agree that most of the replication strategies only replicate average hedge fund performance rather than outstanding talents. This can be seen in the next two figures.

Figure 10: Attractive aspects of hedge fund replication



Source: Terrapin/AllAboutAlpha.com

Figure 11: Reasons from end investors for not investing in replication products



Source: Terrapin/AllAboutAlpha.com

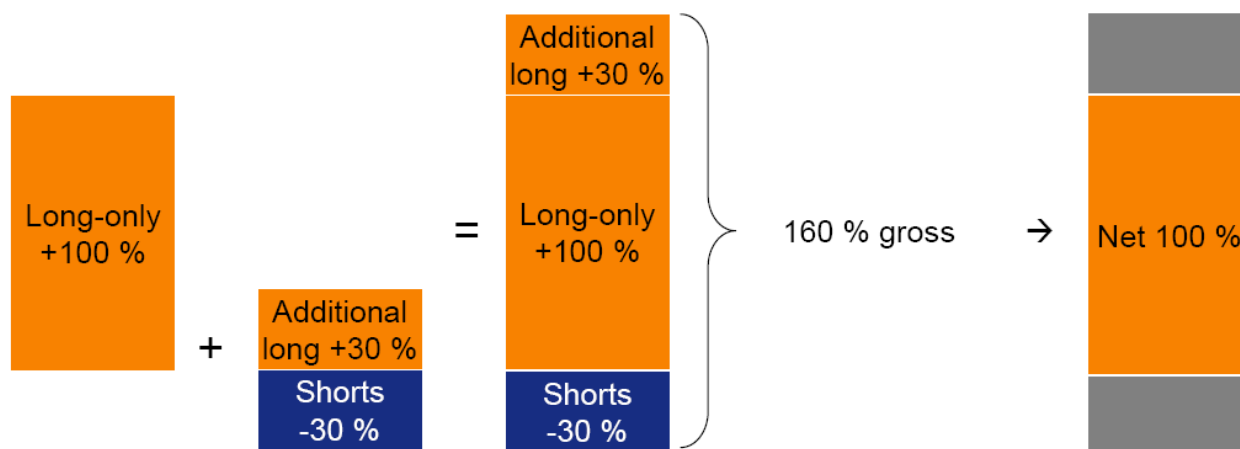
Interestingly, hedge fund houses see these replication products as complementary, not as competitors, with some of them thinking that replication strategies can be viewed as a benchmark. This view is also in line with Man Investments: Glenwood and RMF Investment Management, two investment managers within Man Investments, have been analyzing replication strategies for several years. Both use hedge fund replication factor models (tradable and non-tradable) as part of their risk management process to analyze existing and potential underlying manager performance. By breaking down the underlying manager performance, fund of hedge fund providers can check whether these managers are really producing skill-based alpha, rather than pocketing the risk premium from alternative beta.

130/30 funds (short extension)

One of the most talked about developments in the asset management industry today is the growing interest in short extension or so called 130/30 funds⁴. A 130/30 investment strategy removes the long-only constraint and allows asset managers to short a percentage (i.e. 30%) of their portfolio on which they have a negative view or feel will underperform. The proceeds from the short sale are used to purchase an additional 30% long positions. As a result, a 130/30 portfolio is long 130%, short 30% with a net exposure of 100%, hence maintaining a beta of close to one. Due to their characteristics of picking longs and shorts these funds have sometimes been referred to as 'hedge fund light'. While they have nothing in common with market neutral or macro funds, they can certainly be compared to long/short equity funds.

⁴ The structure usually ranges from 120/20 to 150/50 with 130/30 being the most popular.

Figure 12: 130/30 structure



Source: Merrill Lynch. Schematic illustration.

In essence, the 130/30 concept gives the manager more flexibility to pick stocks and express his/her view both positive and negative. In a traditional long-only setting, a manager can only underweight stocks or hold more cash to express a negative view. Relaxing this constraint provides much greater freedom. This is especially true for stocks with smaller capitalisation that have an insignificant weight in the index. If a stock only has a 0.1% weight in the index, correctly underweighting it will not have an impact on the P&L. Most equity indices are very top-heavy which limits long-only managers to significantly underweight only a handful of large cap stocks.

To give readers an idea of how constraining long-only management can be the table below shows the three most followed equity indices for the developed world: S&P 500 (US), DJ STOXX 600 (Europe) and Topix (Japan). The Topix is the most extremely skewed index with 10% of the index (largest 172 stocks) capturing 75% of the index weight. Although less extreme for other indices, most market cap weighted indices have the same problem. With the ability to short, underweight views can be extended to almost all the stocks in the index, depending on availability of stocks that can be borrowed and liquidity, of course.

Figure 13: Concentration in benchmark is constraining for long only managers

	US: S&P 500	Europe: DJ STOXX 600	Japan: Topix
Number of stocks in index	500	600	1,722
% of index weight captured by largest:			
10% of index names	48%	52%	75%
20% of Index names	64%	69%	87%
30% of Index names	74%	78%	92%

Source: Merrill Lynch.

There are essentially two ways to build a 130/30 portfolio. It is either fundamental or quantitative. A fundamental portfolio is usually more concentrated with only a fraction of the available stocks used as either longs or shorts. Quantitative managers use models to screen for stocks commensurate to various factors such as momentum, valuation to peers etc. and then rate them according to attractiveness. Then, the portfolio can be built with the most attractive stocks as long positions and the least attractive as short positions. In many ways quantitative models offer a more neutral approach to extending a long-only portfolio – provided, of course, that these models can pick shorts. Many of the early movers were set up as quant funds while fundamental 130/30 is now set to increase.

Short-extending a portfolio increases costs with the main costs stemming from financing and stock borrowing. Managers also have to regularly reshuffle the portfolio to maintain the 100% market exposure. These costs vary depending on the individual stocks and across time. Typically, 1-2% of S&P stocks are hard to borrow and may not be available for shorting in the desired amounts or will be more expensive. Instead of shorting single stocks, managers can also short the broader market (systematic short), specific sector indices (i.e. financials or consumer discretionary), or more specific risks such as those related to style (i.e. value versus growth). In reality, 130/30 funds often use a combination of all of the above. This concept is thus very similar to long/short equity hedge funds.

The benefits of the short-extension paradigm do not come without some important **challenges**. One of the most notable challenges is related to picking and managing the short side of these strategies. The information and implementation skills required for shorting stocks are very different to those associated with the long-only world. Since most 130/30 managers have a traditional asset management background, it remains to be seen how these guys perform on the short side. Also, the overall market exposure needs to be constant at 100% which seems unsuited for a prolonged downturn. In contrast, long/short equity hedge funds can vary their exposure depending on the market situation. For example, most equity long/short managers⁵ cut their net long exposure down to 20-30% during the last few months whereas a year ago it was at 60-70%.

An important consideration is whether an investment manager is justified in charging performance fees, in addition to management fees. So far there is no clear trend in the market. If a performance fee is charged, it tends to be based on relative performance (outperformance over benchmark). Management fees of institutional products launched in the market tend to be around 60-90bps (i.e. 1.5x higher than mainstream long-only products) in the US and 75-200bps in Europe⁶.

While 130/30 funds have been slow to take off in the retail market, there has been vivid interest in the institutional space. Worldwide assets in 130/30 funds are estimated to be around USD 75 billion, with the majority held by US institutional investors⁷. The biggest players are State Street Global Advisors, Barclays Global Investors, JPMorgan Asset Management and UBS Global Asset Management. According to a Merrill Lynch survey in late 2007, 16% of US institutional investors were already invested in a 130/30 strategy with assets of about USD 50 billion. This compares to an allocation of 0.7% of the USD 1.7 trillion US institutional market.

It is not easy to find evidence for the performance of 130/30 funds, as much of the money is managed in institutional format and the market is fragmented across managers, domiciles, formats and so forth. The vast majority of these funds are unavailable to the public and are offered only through separate accounts or investment trusts. There is not yet a recognized 130/30 index⁸. According to eVestment Alliance, 130/30 funds

⁵ Based on the underlying managers of RMF focusing on long/short equity.

⁶ Source: Merrill Lynch.

⁷ Source: Infovest, 21 April 2008.

⁸ Standard & Poor's recently launched a 130/30 Index, but this index is currently not used as a performance benchmark.

outperformed the S&P 500 in 2007 by over 3% but underperformed in Q1 2008. Very few products have a track record exceeding three years.

130/30 products offered to the retail markets have been slow to take off. This lack of investor interest has been attributed mainly to performance issues. Since the outbreak of the credit crisis last August, 130/30 products have shown little resistance to the downturn, thus drawing bad publicity to the sector. The introduction of UCITS III legislation across Europe allows traditional long-only fund managers to implement hedge fund style investment strategies for clients. Under the new regulatory framework both leverage and short selling via derivatives are allowed. As a result, UCITS III has blurred the lines between traditional fund management and the hedge fund world slightly. However, the short positions of 130/30 managers can only be synthetic, not outright. This means that fund managers have to use derivatives such as contracts-for-difference or total return swaps.

Their enhanced flexibility is one of the key reasons why 130/30 investing has attracted interest in recent years. Short extensions are to a certain extent the answer to investors' demand for more sophisticated portfolio management without having to pay the 2/20 hedge fund fee structure. We think that 130/30 funds have a strong academic logic and could potentially offer investors an alternative to hedge funds, in particular replacing long/short equity. For the moment, however, it looks as though these funds are marketed as long-only plus, not hedge fund minus. The concept still has to achieve broader acceptance and it remains to be seen whether these funds will actually perform as advertised. At present, their historical track record is too short to draw any conclusions. In our view, the main challenge is the static 100% net long exposure which neglects to protect the downside.

Permanent capital vehicles (PCV)

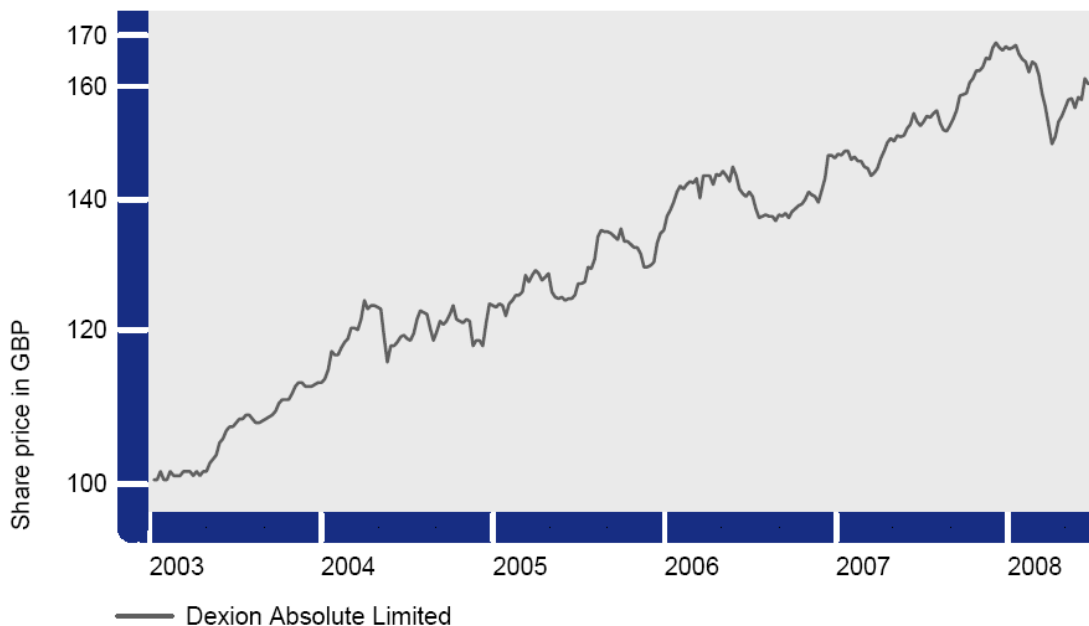
Permanent capital vehicles⁹ are among the hottest topics currently being discussed by alternative asset managers and investors. Hedge funds, private equity firms and infrastructure players are trying to increase the duration and diversity of their assets. The general goal is to access a wider range of "stickier" assets. PCV are exchange-traded closed-end funds. The PCV most commonly used is a new corporate entity, typically a Guernsey-incorporated company. The company needs to be 'closed-ended', meaning that the holders of shares in the company cannot require the company to repurchase their investment, as would be the case with open-ended investment companies. The PCV is then listed on a stock exchange and traded like a single stock.

The sector began to develop in the mid 1990s with the listing of Alternative Investment Strategies on the London Stock Exchange, and Altin AG, CreInvest and Castle Alternative Invest on the Swiss Stock Exchange¹⁰. Since then, this universe has expanded significantly, with the majority of new listings coming from FoHF. More recently, single manager Brevan Howard Asset Management raised USD 1 billion in May 2008 for its new BH Global fund. The majority of PCV are listed in London, Euronext (Amsterdam) and Zurich exchanges. According to ABN AMRO estimates, there are currently more than 40 PCV in Europe. Among the most established funds is Dexion Absolute, the world's largest listed FoHF with assets of about GBP 1.15 billion as of June 2008. The second largest fund is Goldman Sachs Dynamic Opportunities with GBP 420 million in assets.

⁹ Please note that with permanent capital we refer to the listing of a closed-end fund, not the IPO of the management company. The high profile listings of companies such as Fortress, Blackstone, and Och-Ziff last year in the US were IPOs of the management company.

¹⁰ Altin AG subsequently sought a secondary listing on the London Stock Exchange in 2001.

Figure 14: Dexion Absolute Limited (January 2003 – 20 June 2008)



Source: Bloomberg. Dexion Absolute Limited ticker: DAB LN Equity. Performance in GBP. There is no guarantee of trading performance and past performance is not necessarily a guide to future performance/results.

Investors are sometimes faced with restrictions on illiquid investments. A closed-end vehicle, though, is treated as equity and hence allows liquid exposure to the asset class. Company shares may be traded daily on major exchanges, meaning that investors can freely buy and sell at a known price. Even small amounts can be traded which allows for frequent rebalancing. Additionally, investors benefit from stringent corporate governance requirements. These rules depend on the jurisdiction of the exchange in which the fund is listed. For example, funds listed on the London Stock Exchange are covered by the UK Listing Authority, a division of the FSA. They may therefore be regarded as more highly regulated than off-shore open-ended funds. Some funds also pay dividends which can be useful for investors seeking regular income. Depending on where the investor is based, the closed-end structure may be tax-efficient (most PCV are incorporated in Guernsey). The listed structure offers similar benefits to fund management groups. The fixed capital base provides managers the flexibility to run a fixed pool of assets while avoiding the distractions of managing inflows and outflows, hence the term permanent capital. Furthermore, the listing may also open up a new investor base and is likely to raise the profile and boost the brand awareness of the management company. 2006, 2007 and YTD 2008 have been excellent years for fundraising in this sector. This was mainly driven by new listings. However, we have also seen much follow-on issuance as seen on the next figure.

Figure 15: YTD 2008 fund raising activity of listed hedge funds and FoHF¹

Name of fund	Investment manager	When	Amount raised (GBP m)
Absolute Return Trust Ltd	Fauchier Partners	Jan 2008	125
Dexion Absolute Ltd	Harris Associates	Feb 2008	134
Dexion Trading Ltd	Permal	Mar 2008	78
Signet Global Fixed Income Ltd	Signet Research & Advisory SA	Jan to Apr 2008	37
Thames River Multi Hedge + PCC Ltd	Thames River Capital UK	Feb 2008	23
BlackRock Absolute Return Strategies Ltd	BlackRock Alternative Advisors	Apr 2008	144
BH Global	Brevan Howard Asset management	May 2008	500
Goldman Sachs Dynamic Opportunities Ltd	Goldman Sachs Group	June 2008	110
FRM Diversified Alpha	FRM Investment Management	June 2008	61

Source: Man Investments research and ABN AMRO (*list not exhaustive).

But of course there are also drawbacks. Many closed-end funds end up trading at a discount to NAV. A discount develops when the share price drops below the NAV. This can happen for several reasons. Firstly, the share price is a listed equity and will likely not be a safe heaven during a sell-off, even if the NAV does not change. Investors who have to raise money may be forced to sell their liquid holdings, regardless of price. Secondly, even in a benign environment a discount may be present either due to the shares' own momentum or lacking demand from investors. The discount is a big problem and managers usually have to resort to repurchasing shares if the discount gets too wide. To address the sub-NAV issue, certain listed funds have developed incentive arrangements to encourage IPO investors. These include variable management fees, loyalty payments directly to investors or placement agents and options granted alongside the shares. Nonetheless, investors have to keep in mind that they may or may not be able to sell shares at the NAV. Another risk is the fact that PCV are public and thus may expose the investor and/or the provider to negative headline risk if the fund is not successful. Results from a Ernst & Young survey¹¹ suggest 13% of hedge fund managers plan to raise permanent capital in the next two years. While Europe has a couple of PCV listed, primarily in London, Amsterdam and Zurich, the US appears to have only one vehicle (Eaton Vance) that has exposure to alternatives, but it is not a pure hedge fund.

¹¹ E&Y Global Hedge Fund survey 2007.

Conclusion – FoHF are here to stay

Traditional investable indices have been around for about five years now and clearly underperformed non-investable indices as well as a majority of FoHF. **Next generation investable indices** are sponsored by hedge fund providers and offer investors a more interesting opportunity. **Hedge fund replication programmes** have so far produced mixed results. Some have delivered quite impressive results while others faltered. While they are certainly cheaper and more liquid than FoHF, our analysis shows that a number of challenges need to be overcome before such products become a valid alternative to hedge funds. Replication is certainly an exciting invention and needs to be watched and tested further. **130/30 funds** are an interesting concept and have some strong academic logic. They could potentially offer investors a transitional strategy into alternatives. However, there are strong challenges such as short pickings skills and the static beta 1 exposure. In our opinion, it is too early to draw conclusions as very few funds have a multi-year track record. We view the 130/30 concept as a trend of convergence between traditional investment mandates and hedge fund techniques. The topic of **convergence** is a popular one within the asset management industry and the introduction of the UCITS regulatory framework, allowing both leverage and the replication of short-selling strategies via derivatives. The convergence symbolises a new scale of grey in between long-only and the hedge fund world.

FoHF have been and will continue to be an integral part of hedge fund investing. While investors do have alternatives such as direct investing, investable indices, 130/30 or alternative beta replication, FoHF are still the most suitable route for most investors aiming to include hedge funds in their portfolios. This is the case for both private and institutional investors. The long list of casualties in the hedge fund industry has also driven allocators toward the security and diversification provided by a FoHF. On the other hand, as the FoHF industry matures and partially converges with long only asset management, FoHF are having a harder time beating the average return for all hedge fund strategies. Therefore the fees that FoHF charge have to make economic sense. We believe investors should weigh up the fee structure with the value added of the FoHF manager such as fund picking, asset allocation, timing of subscriptions and redemptions, risk management, portfolio construction and continuous monitoring.

Appendix

Indices used:

Index provider	Hedge fund index	Alternative beta index	Index name
Hedge Fund Research, Inc.	✓		HFRI Fund of Fund Composite Index (non-investable)
Hedge Fund Research, Inc.	✓		HFRX Investable Global Hedge Index
Credit Suisse/Tremont	✓		CS/Tremont Investable Hedge Fund Index
Morgan Stanley Capital International	✓		MSCI Hedge Invest Index
Dow Jones	✓		Dow Jones Hedge Fund Strategy Benchmarks
Merrill Lynch		✓	Merrill Lynch Hedge Fund Beta Index
Partners Group		✓	Partners Group Alternative Beta Strategy
Goldman Sachs		✓	GS Absolute Return Tracker Index
Deutsche Bank		✓	db Absolute Return Beta Index
Blue White Alternative Investments		✓	Index name not publicly available
Alpha Swiss		✓	Index name not publicly available

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