

Hedge Fund Indices for the Purpose of UCITS: Answers to the CESR Issues Paper



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Summary

This document contains our participation in the consultation process initiated by the CESR on the eligibility of hedge fund indices for the purpose of UCITS (CESR/06-530). In order to be eligible, hedge fund indices have to be classified as "financial indices" according to the CESR's definition. The remainder of this document addresses the detailed questions put forward by the CESR (CESR/06-530) and gives EDHEC's views on these issues.

In our replies to the detailed questions from the CESR, we argue that hedge fund indices should not be required to offer more controls and more transparency than existing financial indices such as stock market indices. Likewise, their construction should not be subjected to detailed rules for choosing constituents and implementing rebalancing and weighting mechanisms. In fact, there is no reason to discriminate against hedge fund index providers in this sense.

Rejecting hedge fund indices seems to be inconsistent with the treatment of indices for other asset classes which face the same types of problems as hedge fund indices. A more promising approach would be to accept hedge fund indices in principle and to require a number of quality criteria, including:

- Transparency of the method
- A methodology that guarantees a high degree of representativity as well as precise classification of components (such as factor analysis)
- Minimum liquidity of the indices
- Investability of index components
- Prohibition of practices such as backfilling
- Information on risk factor exposure

This alternative seems to be more convincing than to either reject hedge fund indices on the basis of their shortcomings or to make all hedge fund indices eligible without considering the specific quality of each index. Wide use of high quality hedge fund indices for investment and risk analysis would mark an important step towards proper information for investors on the level of risk in hedge fund products.

As a complement to our answers to the questions raised by the CESR, please note our reply to the CESR published earlier (Amenc and Goltz (2006)).

NOTE:

This document is presented as follows: comments made by the CESR are provided, together with the specific questions they raise. [The responses put forward by EDHEC \(in blue\) immediately follow.](#)

1. Potential biases with hedge fund indices

CESR:

This section of the issues paper briefly describes some of the material biases thought to affect hedge fund indices. CESR notes that several of these issues can also affect "traditional" indices. Further background and detailed information on HFI providers and their indices can notably be found in Professor Lhabitant's paper.

1.1 Overview of database biases

- The purpose of an index is to concentrate and distill the information from the underlying constituents. This suggests that, to construct an index, information must be available on all possible relevant constituents to allow a proper selection for the particular index to take place.

- For an HFI this information may be taken by index providers from a commercial or proprietary database. However, because hedge funds are in the main "private" vehicles which are not required to report publicly, any database will only contain a partial selection of funds. This is also the case because there is no universally accepted definition of what a "hedge fund" actually is. Academic research seems to indicate that the net effect of this bias on performance is difficult to measure.

- These facts can result in *self-reporting bias*. Only hedge funds that choose to report data will be included in a database. This could mean that poorly-performing funds, and/or hedge funds that are closed to new investment, neither of which have an incentive to report their data, will simply choose not to – so an index drawn from the database may not be properly representative.

- There may also be *database selection bias*, if the database itself has minimum inclusion criteria (even for funds that choose to report) – e.g. a minimum asset base, length of fund track record or specific strategies.

- Databases may also suffer from *survivorship* and *backfill bias*. *Survivorship bias* refers to the situation where, at any particular point in time, the analysis of a database may only include the funds that are still in existence at that point, and not those which have failed or ceased to report in the meantime. *Backfill bias* refers to the instant addition

by a fund manager of historical data on a fund that has newly chosen to report to a database.

1.2 Overview of index biases

- Each particular HFI will have its own construction rules decided by the index provider. This methodology will determine on an ongoing basis how constituent hedge funds are selected and how the index is calculated. Some biases that can affect HFIs are described below:

- *Sample bias*. An HFI provider will need to determine how to select constituent funds so that its index is representative of the particular market it seeks to represent – e.g. the "breadth" of coverage. This might include the selection of only investable underlyings, for example. If this is done through a managed account structure, this will limit the available underlyings that can be selected. More generally, depending on the amount and type of due diligence that the HFI provider chooses to carry out on potential underlyings, there is a possibility that constituent selection comes to resemble an active – rather than passive rules-based – selection of underlying funds. This may explain why index providers use significantly different samples to build their index.

- *Defunct fund bias*. This bias raises the issue of the way that the HFI provider decides to treat a hedge fund which becomes bankrupt or stops reporting data for some reason. The HFI provider's decision will affect the calculation of the index, especially if the HFI provider decides to remove defunct funds going backward.

- *Classification bias*. An HFI may claim to track the performance of a particular hedge fund strategy, which means the index provider will have to develop a methodology to classify potential underlyings both initially and on an ongoing basis (in case of "style drift"). This could involve a passive acceptance of self-classification by the manager of the underlying fund, or a degree of due diligence by the index provider which may be questionable in terms of passive selection of underlyings.

- *Index weighting*. Many different forms of index weighting can be chosen (equal weights, weights by the assets under management of the

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underlyings, with or without capping, etc.). Of course, the construction rules of the index generally will be vital to whether it can be considered to qualify as a "financial index", and so the next section of this paper seeks respondents' views on this assessment, given the detail set out above.

Questions Raised:

Q. 1: What are your views on the potential biases described in this section and on how they can affect HFIs? Please explain your comments.

EDHEC's Response:

Q. 1: The biases of hedge fund databases (self-reporting, selection, survivorship and backfill bias) are a well known problem in hedge fund research. We fully agree with the CESR's view that these biases are important when using information on hedge fund returns and assessing hedge fund performance. However, we believe that raising the issue of database biases stems from confusion over the distinction between investable and non-investable indices. It is true that the problem of database biases is important when considering the information from non-investable hedge fund indices. These indices are based on large databases of hedge fund returns and the reported performance of such an index is indeed subject to the biases mentioned above. However, such indices do not give rise to actual investment products tracking them, as it is not feasible to actually invest in the large number of funds that the index contains (due to operational limits of the index provider as well as the fact that the funds may be closed for new investment). Such indices are used instead to represent the broad hedge fund universe or in order to benchmark hedge fund performance. Therefore, the only indices that could potentially be used in the context of UCITS are investable hedge fund indices. Such investable hedge fund indices typically rely on a small number of funds in order to allow for investability. The actual track record of such investable indices corresponds to the true returns that have been generated for investors by holding the index and, in that sense,

are free of any biases. For example, a fund will be accounted for upon entering the index, with no possibility of "backfilling". Likewise, there is no possibility of excluding a defunct fund that has been included in the index. It is important to note that biases in the sense of "measurement error" do not occur for truly investable hedge fund indices, as far as the true track record is concerned.

However, some of the biases mentioned do not refer to an actual "measurement error", but rather to the fact that an index may not give a "good" representation of the entire universe of hedge funds. This is the case for the "classification bias" and for the "sample bias", mentioned by the CESR. The fact that investable hedge fund indices use only a limited number of funds that have been selected from the entire universe potentially leads to a representativity problem. Likewise, the difficulty of style classification potentially leads to a problem of "style purity" of these indices. As a consequence, the different indices available on the market give a very different view of hedge fund performance.

The concern over existing hedge fund indices not being representative of the universe should however be put into perspective. In fact, a lack of representativity is not necessarily specific to hedge funds. In order to show this, we compared the heterogeneity of hedge fund style indices to that of equity style indices (see Amenc and Goltz (2006)). The table below reproduces the results.

This table reveals that equity style indices appear to be as heterogeneous as hedge fund strategy indices. The degree of heterogeneity is important in magnitude. For example, looking at the February 2001 returns for value stocks, an investor using the S&P index would have observed a return of -11.1% while an investor using the FTSE index, would have observed a return of -3.3%, a difference of 7.8 percentage points in terms of the monthly return.

The case of real estate indices is another case of indices that are not free of representativity problems. Indices tracking the performance of listed property should not be regarded as representative of institutional investments in real estate which is predominantly executed

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Heterogeneity of Equity Style and Hedge Fund Strategy Indices

	Equity Style Indices		Hedge Fund Strategy Indices				
	Growth	Value	Convertible Arbitrage	CTA	Event Driven	Equity Market Neutral	Long/Short Equity
Max. Return Difference	2.9%	7.8%	2.0%	7.2%	2.7%	2.2%	2.9%
Index 1 (Return)	4.7%	-3.3%	-1.7%	7.6%	4.0%	2.6%	0.5%
Index 2 (Return)	1.8%	-11.1%	-3.7%	0.4%	1.3%	0.4%	3.4%
Index 1 (Provider)	Stoxx	FTSE	MSCI	FTSE	HFRX	MSCI	FTSE
Index 2 (Provider)	MSCI	S&P	Dow Jones	CSFB/Tremont	FTSE	Dow Jones	CSFB/Tremont
Month of occurrence	Nov. 2002	Feb. 2001	April 2005	Oct. 2003	Nov. 2004	Jan. 2006	Sept. 2004

The data used are monthly returns data for the period 01/1999 to 12/2005 for the growth and value indices. For the hedge fund strategy indices, we use monthly returns from 07/2003 to 04/2006 for all strategies except CTA and Long/Short. For Long/Short, we use data from 01/2003 to 04/2006. For CTA, we use data from 07/2003 to 02/2006. These differences are due to data availability. For example, the monthly data for the S&P CTA index is last available for 02/2006.

on the private market. Inclusion criteria for listed property indices focus on free float market capitalisation and liquidity of real estate securities and no attempt is made to select and weight components to build an index that would be representative of institutional investment practices in terms of investment styles or sectors. Likewise, international indices of listed property companies are constructed without regard for the economic weight of regions; as a result, countries with developed listed real estate sectors or large property companies are overweighted and vice-versa. Indices built on appraisal values contributed by institutional investors draw their samples from a significantly larger population and need not suffer from these limitations.

From this evidence, we conclude that the problem of representativity is not limited to hedge fund indices. Rather, even equity style indices and real estate indices which seem to be well established as underlyings for indexing products show a low degree of representativity.

Furthermore, in the case of broad market indices the underlying logic is based on the single factor model (CAPM). Therefore, the predominance of capitalisation weighted equity indices suggests that investors subscribe to the notion that a single factor explains the risk of stocks, which is in strong contradiction to the consensus in academic finance that more general, multifactor models do a better job at capturing the risk of stocks. Essentially, so-called broad stock market indices may be able to reflect a particular market segment, namely large-cap stocks, rather than represent the entire stock market and thus, the market portfolio of the CAPM. However, such indices completely ignore the importance of

style factors, such as growth and value. A more promising technique of index construction is to reproduce the systematic risk factors of the equity universe.

It is actually possible to construct such indices for the case of hedge funds. It has recently been shown that even with a very restricted number of funds, it is possible to construct truly representative hedge fund indices that reflect the risk factors in the alternative investment universe, given that the funds are appropriately selected and the indices are constructed in order to maximise the representativity dimension (see Goltz, Martellini and Vaissié (forthcoming 2007)).

2. Can hedge fund indices qualify as "financial indices"?

CESR:

Taking into account the legislative background and potential biases affecting HFIs set out in the last section, this section of the paper seeks views from market participants about the ability of HFIs to be considered as financial indices.

The relevant issues are discussed below, based around each of the level 2 requirements that would apply to such an assessment.

2.1 Sufficient diversification

The reference in point (g) of Article 19(1) of Directive 85/611/EEC to financial indices shall be understood as a reference to indices which fulfil the following criteria:

a) they are sufficiently diversified, in that the following criteria are fulfilled:

1) the index is composed in such a way that price movements or trading activities regarding one component do not unduly influence the performance of the whole index;

2) where the index is composed of assets referred to in Article 19(1) of Directive 85/611/EEC, its composition is at least diversified in accordance with Article 22a(1) of that Directive;

3) where the index is composed of assets other than those referred to in Article 19(1) of Directive 85/611/EEC, it is diversified in a way which is equivalent to that provided for Article 22a(1) of that Directive.

• CESR could consider setting level 3 requirements under the "sufficient diversification" requirement, which could help to address sample bias and index weighting issues, for example:

- a minimum number of index constituents for an HFI; or

- a particular weighting scheme that should be used by the index.

Questions Raised:

Q. 2: Should an HFI have to meet certain additional quantitative criteria other than level 2 requirements, or should compliance with the level 2 requirement of sufficient

diversification be left to the UCITS to assess? Please explain precisely the grounds underlying your comments.

Q. 3: What requirements on weighting should HFIs have to fulfil to qualify as financial indices? Please explain precisely the grounds underlying your comments.

EDHEC's Response:

Q. 2: The CESR puts forward two possible additional requirements for hedge fund indices as examples. These examples are:

- a minimum number of index constituents for an HFI;
- a particular weighting scheme that should be used by the index.

We argue that neither of these additional criteria appears to be necessary.

Minimum number of constituents

Since any index has to fulfil sufficient diversification in the sense that "the index is composed in such a way that price movements or trading activities regarding one component do not unduly influence the performance" (see CESR /06-530, p. 9), an additional requirement in terms of a minimum number of components seems to be redundant. It should also be noted that increasing the number of funds does not necessarily lead to better diversification or better representativity, depriving such a criterion of its sense.

In addition, Learned and Lhabitant (2002) show that there is a risk of "diversification overkill"; in fact, the authors show that by increasing the number of hedge funds in a portfolio, the correlation with the general stock market increases. This indicates that such "over-diversification" reintroduces dependence on the stock market and thus reduces the risk-reduction benefits of mixing such portfolios with traditional asset classes. The authors argue that 5 to 10 hedge funds are sufficient in order to reap the benefits of diversification without falling into the pitfalls of "over-diversification".

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Rather, the properties of the funds used have to be taken into account. The table below borrowed from Amenc and Goltz (2006) shows that hedge funds show less co-movement than the components of a broad stock market index. Hence, one can conclude that even with a low number of funds, significant diversification can be achieved.

weighting lead to trend-following strategies that provide an inefficient risk-return trade-off. As an answer to such critiques, equity indices with different weighting schemes have emerged, such as "fundamental"-weighted (Arnott, Hsu and Moore (2005)), "diversity"-weighted (Fernholz, Garvy, and Hannon (1998)) or equal-weighted indices. This freedom of innovating in terms of

Co-movement between index components: hedge funds vs. stocks

	CISDM Funds	Stoxx 600 Index Components
Average Correlation	0.17	0.25
Variance explained by PC1	0.24	0.29

The data used are monthly returns data for the period 01/1999 to 12/2005 for the hedge funds from the CISDM database and for components of the Stoxx 600 index for European stocks.

In addition, it has been shown that even with a small number of components, truly representative hedge fund indices may be constructed. Recent research (Goltz, Martellini and Vaissie (forthcoming 2007)) examines how modern portfolio theory and factor analysis techniques can be used to build investable, yet representative, hedge fund indices. The results suggest that designing sound (i.e., both representative and investable) hedge fund indices is a feasible task given the specific features of the industry, provided that funds are suitably selected and an optimally designed portfolio is designed with the objective of replicating the common trend in hedge fund returns for a given strategy. Amenc and Goltz (2006) contains a summary of the results.

Particular Weighting Scheme

The definition of a weighting scheme is often cited as a problem for hedge fund indices. In particular, capitalisation weighting, which is the standard in equity index construction, is difficult to implement in the hedge fund universe which is characterised by scarcity of information on assets under management. However, it should be noted that even in the case of equity indices, different weighting schemes exist. First, while most indices use capitalisation weighting, additional criteria are often taken into account, such as sales/revenue and net income (see the "Guide to the Dow Jones Global Titan 50 Index", January 2006). Second, capitalisation weighting has been subject to severe criticism (see e.g. Haugen and Baker (1991), Amenc, Goltz, and Le Sourd (2006), or Hsu (2006)), pointing out that the mechanics of capitalisation

index construction has led to new solutions in the area of equity indices, and there seems to be no good reason to constrain hedge fund indices to a particular weighting scheme.

It should also be noted that sufficient diversification is an issue with other indices such as real estate indices. While commercial property indices computed from the appraisal values of thousands of real estate assets and hedonic indexes constructed from large numbers of transactions in the housing market appear to be sufficiently diversified, the same cannot be said of indices based on the share price of companies investing in property. In spite of the rapid growth of the listed real estate market, it currently represents but a fraction of the overall investable property universe. At the country level, it is nonsensical to compute an index of listed property companies in most of Europe given the scarcity of eligible components. In large European countries with developed listed property sectors and at the European level, concentration in industry still results in the possibility of a component unduly influencing the performance of the index.

Q. 3: Rather than imposing a certain weighting scheme, indices should be required to be representative of the hedge fund strategy which they reflect. In fact, the main distinction between active investment vehicles (such as funds of hedge funds) and indices is the representativity of the latter. It seems to be the case that especially some providers of so-called investable hedge fund "indices" conduct fund selection based on past performance, leading to poor representativity.

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CESR:

2.2 Represent an adequate benchmark

The reference in point (g) of Article 19(1) of Directive 85/611/EEC to financial indices shall be understood as a reference to indices which fulfil the following criteria:

b) they represent an adequate benchmark for the market to which they refer, in that the following criteria are fulfilled:

- 1) the index measures the performance of a representative group of underlyings in a relevant and appropriate way;
- 2) the index is revised or rebalanced periodically to ensure that it continues to reflect the markets to which it refers following criteria which are publicly available;
- 3) the underlyings are sufficiently liquid, which allows users to replicate the index.

- The first criterion of this requirement is that the index measures the performance of a "representative" group of underlyings in a relevant and appropriate way. This seems key to the issue of sample bias. Whether something is representative depends on the definition of what is trying to be measured by the index. While no HFI is actually able to be representative of the whole universe of hedge funds, this condition suggests that the index provider must precisely and comprehensively define and disclose what the HFI is attempting to measure (perhaps by providing information on the breadth of its sample). Accordingly, the UCITS can assess whether this criterion is met.

Questions Raised:

Q. 4: Is the definition of the representative group of underlyings made by the index provider sufficient to satisfy the criterion of "adequate benchmark"? Please provide comments.

Q. 5: Is there a role for any quantitative assessment of the 'breadth' of coverage of the HFI? If so, how would this work?

EDHEC's Response:

Q. 4: First, since the CESR raises the question of hedge fund indices being "adequate benchmarks", a general distinction should be made between benchmarks and indices.

A benchmark is defined as a reference portfolio and, consequently, it is supposed to be representative of the risks of the managed portfolio. It is widely accepted that the choice of the benchmark plays an important role in explaining portfolio performance. Construction of a benchmark allows objectives to be fixed in terms of the systematic risk exposure of the portfolio, which is reflected in its strategic asset allocation. The benchmark also serves to evaluate portfolio performance.

An index is a portfolio that is representative of one or more risk factors. For example, a geographic index has the objective to be representative of the risk of the stock market of the country considered, while a style index and a sector index are respectively representative of the risks of the investment style or industry sector considered. We speak of indexed management when the index is the benchmark of the portfolio. However, it is important to underline that the two terms 'index' and 'benchmark', often inappropriately used as synonyms, do not mean the same thing. While an index is representative of the market as a whole or a certain segment of the market, a benchmark has to be representative of the risks chosen by an investor over the long term. Instead of simply choosing an index as a benchmark, a portfolio manager can for example choose to use a combination of indices or any other portfolio. Thus, even though an index can be used as a benchmark, the benchmark is not necessarily an index.

With respect to hedge fund indices, we can state that a hedge fund index should be representative of the hedge fund strategy it covers. This means that the index should fully reflect the risk and return characteristics of the given hedge fund strategy. This requirement seems to correspond to the requirement stated by the CESR (CESR/06-530, p.9), that "the index measures the performance of a representative group of underlyings."

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Q. 5: There are a few measures that may be used in order to measure the breadth of a portfolio. First, breadth can be seen as the opposite of concentration, which is often measured by the Herfindahl index. Another way of assessing breadth would be to define breadth as the tracking quality with respect to a representative portfolio. In this sense, correlation analysis with representative portfolios (that are not necessarily investable) may be used. In what follows, we present these two methods in more detail.

A measure that is commonly used to address the concern over the possibility of highly concentrated portfolios is the Herfindahl Index. The Herfindahl Index (HI) is a measure of concentration. It is given by the sum of the squares of the weights of all funds included in the FRP. Formally, let w_j denote the portfolio weight of the j -th fund. For a portfolio of n funds, we then have:

$$HI = \sum_{j=1}^n w_j^2$$

The functional form of the Herfindahl Index penalises large individual weights. For example, a portfolio where 2 funds have a 25% allocation each and the rest is equal weighted will have a lower HI (HI=0.16) than a portfolio where one fund has 40%, one has 10% and the rest is equal weighted (HI=0.20). Generally speaking, the index takes on values between $1/n$ and 1. High values indicate high concentration, with a value of one indicating the extreme case of one single fund in the portfolio with the rest of the weights being set to zero.

Principal Component Analysis (PCA) may be used in the following way in order to assess the breadth of a hedge fund index. Starting with a large database of hedge fund returns, one may extract the combination of individual funds that capture the largest possible fraction of the information contained in the data. Technically speaking, this amounts to using the first component of a PCA of fund returns as a candidate for a pure style index. One may use the method to describe each variable as a linear function of a reduced number of factors. To that end, one needs to select a number of factors, such that those factors capture a large fraction of asset return variance, while the remaining part can be regarded as statistical noise. By choosing just

one factor, this method can be used to generate "the best one-dimensional" summary of a set of individual funds. Once the common factor has been extracted, the correlation coefficient of the hedge fund index with that common factor can be calculated and can be used in order to assess the tracking quality of the hedge fund index with respect to the broad non-investable portfolio.

CESR:

- A number of issues arise from the second criterion: that the index is "revised or rebalanced periodically to ensure that it continues to reflect the market to which it refers following criteria which are publicly available":

- *Backfilling and defunct funds.* These treatments can both affect the index calculation going backward. Backfilling occurs when historical data from a new index constituent is allowed to change previously published index values, whereas the treatment of defunct funds will also affect the index calculation going forwards;

- *Sample bias.* In order to address the issue raised by this bias, each change in composition of the HFI could be announced, explained and documented by the HFI provider;

- *Classification bias.* In view of the problems of classification bias, requirements could be placed on the index provider's methodology in this regard;

- *Funds of hedge funds.* It has been suggested that some HFIs are funds of hedge funds in another guise. One way to distinguish between the two would be based on active/passive selection of the constituents; that is, whether selection of constituents depends on some degree of judgment or solely on publicly disclosed objective rules.

Questions Raised:

Q. 6: *Should backfilling be banned for HFIs to qualify as financial indices? If not, why not? Please explain precisely the grounds underlying your comments.*

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Q. 7: Should the CESR set criteria for the treatment of defunct funds by HFIs for them to qualify as financial indices? If so, what should they be? Please explain precisely the grounds underlying your comments.

Q. 8: Is disclosure of the index revision methodology sufficient or should controls be placed on the frequency, method or amount of due diligence the index provider must carry out regarding ongoing constituent classification? If so, what should they be? Please explain precisely the grounds underlying your comments.

Q. 9: Can the UCITS assess the revision methodology of the HFI adequately or should an independent third party be required to review the HFI's methodology? If the latter, how would this work? Please explain precisely the grounds underlying your comments.

Q. 10: Is passive versus active selection of constituents the key difference between an HFI and a fund of hedge funds respectively? What could be the other differences? Please explain precisely the grounds underlying your comments.

Q. 11: Should only HFIs where constituent selection depends solely on publicly available objective rules qualify as financial indices? If not, why not? What sort of subjective judgments could be used to select underlying constituents? Please explain precisely the grounds underlying your comments.

Q. 12: Are there any competition aspects CESR should consider in the context of hedge fund indices compared to funds of hedge funds? Please explain precisely the grounds underlying your comments.

EDHEC's Response:

Q. 6: Backfilling should not be allowed as it distorts performance. However, backfilling is not much of an issue as it does not occur with

investable hedge fund indices as outlined above, at least not for the true track record beginning from the launch date. The issue of backfilling applies to non-investable hedge fund indices, which, by definition, would not be destined to become underlyings for derivatives.

Q. 7: Defunct funds are necessarily excluded from investable hedge fund indices as of the occurrence of the event that causes the fund to be defunct. Excluding defunct funds from the track record obviously distorts performance but this is not much of an issue as it does not occur with investable hedge fund indices.

It should be noted that misrepresentation of funds in the hedge fund databases (funds that are defunct or omitted for other reasons or included through backfilling by the database provider) leads to representativity problems with the databases and with non-investable indices based on those databases. Investable indices on the other hand, are largely free of such biases, since they have a more modest proposal, namely representing the investable (and observable) part of the hedge fund universe rather than the (unobserved) entire hedge fund universe.

In addition, emphasis should be put on the fact that the omission of assets is a generic problem with any index: one may as well blame stock market indices for the fact that they do not include stocks that have been delisted or stocks that are to be listed in the future!

Q. 8: The construction methodologies (weighting information, rules of return calculation, etc.), as well as the selection criteria (i.e. rules of inclusion of assets), should be made available to the public. Sufficient and timely information about the index can help the index users understand the index better and use it appropriately. The transparency of an index can also increase the reliability of the data and reduce the investors' risk in their choice of management style.

In addition to this basic transparency requirement, hedge fund indices should not be put at a disadvantage with respect to stock market indices. The latter are not constrained to respect certain frequencies, methods of

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rebalancing or the amount of due diligence on index constituents, as long as they respect the defined construction methodology.

Furthermore, a judgement on the best frequency or the best method for rebalancing is impossible without taking into account the specific characteristics of each index, as well as parameters such as transaction costs. Therefore, we do not see how investors would benefit from additional requirements for controls on selection of constituents of hedge fund indices.

Q. 9: Again, the comparison with equity indices may be helpful. Transparency with respect to the index construction methodology is a prerequisite for any good index (see Bailey, J.V., 1992, "Evaluating Benchmark Quality", *Financial Analysts Journal* 48, 33-39). However, equity index providers are not required to subject their index construction methodologies to a third party review. We do not see any elements that would allow for discrimination against hedge fund index providers in the sense that they should be treated with more controls than equity index providers.

Q. 10: The selection of constituents of a hedge fund index is not necessarily "passive" in the sense that components are chosen randomly. Components of an index should be chosen so as to maximise the representativity of the hedge fund index. This is the main difference with funds of funds, which try to create outperformance of a representative index through fund selection.

When investing in a fund of hedge funds, the investor necessarily reduces his coverage of the hedge fund universe to a very limited proportion of the population. Typically, this is something that is done deliberately, as investors or fund of funds managers hope to select the good funds and avoid the bad. This selection decision, however, should be separated from the asset allocation decision, since the aim is no longer to optimise the risk return trade-off but to create outperformance, i.e. create alpha benefits.

In addition, it should be underlined that selection of funds leads to a major risk for the investor. Large dispersion in the returns of funds in a given hedge fund strategy can be observed historically.

Therefore, choosing only a few funds may leave the investor with returns that no longer resemble the aggregate return of managers following that strategy. An investment in hedge fund indices, on the other hand, protects the investor from this selection risk. Just like indices for stocks or bonds, these indices deliver the "normal" returns of the asset class or investment style.

In addition to a selection bias, a fund of hedge fund leaves the investor with an exposure to different hedge fund strategies that results from the fund manager's choice rather than the investor's choice. While the resulting allocation may not be optimal for a given investor, it also varies over time according to the rebalancing done by the fund of funds. Therefore, in order to be in control of their allocation, investors would prefer to use hedge fund indices.

However, it should be stressed that hedge fund indices often have opaque selection criteria and some providers have used the suspicious practice of creating in-sample track records which show appealing performance based on fund selection with hindsight. Therefore, some indices even conduct "active selection". However, this should disqualify such indices as "funds of funds" rather than disqualifying the benefits of hedge fund indices in general. The regulator should require that an index provider's selection method is systematic and based on achieving representativity rather than maximum performance.

It should be noted that certain equity indices have also adopted selection criteria that resemble active investment strategies (such as dividend strategy indices) and thus constitute systematic stock picking strategies rather than indices. Also, listed property indices include minimum liquidity constraints in their component screening process which ensure that direct replication is feasible, but which leads to selection biases.

While we stress that any selection of components that is not purely in the interest of achieving representativity should not have its place in the construction methodology of an index, one has to recognise that "active selection" is present in a wide range of indices today, but does not usually lead to a questioning of the status of such indices.

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Q. 11: It should be noted that stock market indices have a range of discretion on defining their constituents as long as they remain within their predefined methodology. Häberle and Ranaldo show that a considerable share of index-related investment management, which is usually considered to be passive investment management, can in fact hide a form of active management. The most well known indices are actually made up of a more restricted number of assets, which are selected using defined rules and are managed in a dynamic way. Likewise, criteria that require interpretation lead to discretionary decisions of index inclusion. S&P for example assess the "financial viability", "adequate liquidity" and "reasonable price" of constituent companies (see the "S&P U.S. Indices Methodology", March 2006). A large number of indices that are provided directly by stock exchanges and are supposed to fully reflect the respective stock market do not always contain all stocks, since inclusion in the index is a commercial argument of the stock exchange vis-à-vis the issuers. Any index that involves discretionary decisions by an index committee is susceptible to inherent selection biases and this problem is not at all specific to hedge funds. There is no obvious reason for constraints for hedge fund index providers in excess of what is required for equity indices.

Q. 12: See the answer to question 22.

CESR:

- The final criterion of the requirement refers to underlyings being sufficiently liquid to allow users to replicate the index. In the context of HFIs it may not be possible to invest in all the underlying index components because some of the hedge funds in question may be closed to new investment; rather "replication" could mean that if supplied with price data for the underlying constituents, users of the index should be able to replicate and so verify the calculation of the index value using the publicly available rules of the HFI.

Questions Raised:

Q. 13: Do respondents agree that the ability to verify the value of the index given price data and the HFI methodology satisfies the replicability criterion? If not, why not?

EDHEC's Response:

Q. 13: An index does not necessarily become replicable once price data and the construction methodology are available. Even for stock market indices, full transparency is not always granted. For example, the full composition of MSCI Equity indices is not available free of charge to investors, which renders replication impossible, given that the components and the component weights are not known. However, it should be noted that the index does not necessarily have to be replicable by any market participant. Taking again the example of MSCI indices, they may be replicated by market participants who do have access to the full composition (by paying the index provider for this information) but are not replicable by other market participants. As the example of MSCI equity indices shows, the full transparency of indices is not a question that is specific to hedge funds.

This problem exists generally in the case of indices that are constructed from proprietary databases. By construction of the business model of such index and database providers, it is forbidden for market participants (even those who pay for access to the database) who have not entered into additional license agreements with the database provider to create or to replicate such indices. This is for example the case for investable real estate indices for which the CESR has left the possibility of being recognised as financial indices. Also, some of the listed property index providers do not freely disclose components and component weights to the public.

CESR:

2.3 Published in an appropriate manner

The reference in point (g) of Article 19(1) of Directive 85/611/EEC to financial indices shall be understood as a reference to indices which fulfil the following criteria:

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c) they are published in an appropriate manner, in that the following criteria are fulfilled:

1) their publication process relies on sound procedures to collect prices and to calculate and to subsequently publish the index value, including pricing procedures for components where a market price is not available;

2) material information on matters such as index calculation and rebalancing methodologies, index changes or information relating to any operational difficulties in providing timely or accurate information is provided on a wide and timely basis.

- In respect of the first criterion of the appropriate publication requirement, that there should be "sound procedures to collect prices and to calculate and to subsequently publish the index value", concern has been expressed about the adequacy of the index provider relying on reported net asset values (NAVs) from the underlying hedge funds, and the adequacy of their custody arrangements. These issues could be addressed either at the level of the UCITS or at the level of the index provider.

- Calculation of the index will depend on when NAVs become available for the underlying funds. Frequently hedge funds may only publish formal values once a month, with estimates between formal valuations.

- Finally, an independent audit of the calculation of the value of the HFI could be considered as an option, particularly given the discussion above.

Questions Raised:

Q. 14: Should the CESR set requirements for verification of NAV calculation and independent custody arrangements/robust governance structures for the underlying constituents of HFIs to qualify as financial indices; or as an alternative, should the UCITS be required to assess the due diligence procedures of the index provider in respect of the underlyings in this regard? Please explain precisely the grounds underlying your comments.

Q. 15: Should a minimum monthly publication frequency be a requirement for HFIs to qualify as financial indices? If not, why not, and what frequency would be suitable?

Q. 16: Should the CESR require an independent audit of the calculation of HFIs to qualify as financial indices, or should the market be left to decide whether this would be an attractive option for an index provider to put in place? Please explain precisely the grounds underlying your comments.

EDHEC's Response:

Q. 14: Operational risk is a major source of risk for investors in portfolios of hedge funds. A possible way of mitigating this risk is through the use of managed account platforms. Essentially, in a managed account, investors with significant assets to manage ask hedge fund managers to replicate their trading strategy outside of the fund's books in an account that remains in the name of the investor. This concept of "managed accounts" has been derived in numerous forms that offer different features:

- Standard custodial arrangements: assets are held in the name of the fund in a dedicated account operated by the manager of the hedge fund;

- Prime brokerage custody: assets are held in the name of the fund in a dedicated account operated by the manager, the bank can act as an independent provider of controls on behalf of the board of directors;

- Basic managed accounts: assets are held in the name of the investor within the books of a custodian bank and the manager receives the right as part of his management mandate to operate the account. The bank has no duty of control on the assets held, nor on the investment decisions, but reporting independent from the manager can be issued by the bank directly to the investor;

- Managed account platforms: assets are held in the name of the investors in a segregated account and the bank operates back office and risk control functions on behalf of the board

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of directors of the hedge fund. It is important for investors to identify the contractual arrangements the fund has taken with its custodial bank in order to assess the level of protection and independence it will benefit from with the "managed accounts".

However, it may not be necessary to impose a specific way in which to mitigate operational risk on UCITS or on index providers, given that operational risk measurement and management techniques are still evolving.

Q. 15: To the best of our knowledge, none of the existing hedge fund indices, either investable or non-investable, publishes less frequently than monthly. Any frequency that is lower than monthly would be unacceptable for meaningful analysis of the data. We think that increasing the data frequency to a weekly basis is an absolute necessity. Given that hedge fund risk characteristics cannot be captured by the mean and variance but higher moments have to be taken into account, weekly data is needed in order to increase the accuracy of the estimates. In addition, weekly data frequency and weekly liquidity are necessary for dynamically managing the betas of hedge fund strategies for the purpose of asset allocation. As beta management is the principal use of hedge fund indices (see the reply to question 11), these indices should provide weekly data frequency and liquidity.

Q. 16: To our knowledge, such an independent audit is not required for other financial indices, such as stock market or bond indices. We do not see any reason why hedge fund index providers should have to comply with additional control mechanisms.

CESR:

- The second criterion of this requirement refers to material information on the methodology of the HFI being provided on a wide and timely basis. This could be addressed by demanding both transparency of index construction and of index constituents.

Questions Raised:

Q. 17: Should it be a requirement that in order for an HFI to qualify as a financial index its full rules (rather than just material rules) be made publicly available? If not, why not?

Q. 18: To qualify as financial indices, should HFIs be required to disclose at all times details of their constituents (e.g. list of underlyings, their classification and the weight applying to them, if appropriate)? Is there other information about the HFI that should be disclosed? Would this be done via the index provider's website? Please explain precisely the grounds underlying your comments.

Q. 19: Should a UCITS which intends to invest in derivatives based on HFIs have to disclose this fact in its prospectus or other documents? What degree of information should a UCITS which intends to invest in derivatives based on HFIs have to disclose in its prospectus? Please explain precisely the grounds underlying your comments.

Q. 20: Do you have any other comments relating to hedge fund indices that the CESR should consider? What are they?

EDHEC's Response:

Q. 17: Again stating the arguments made above, full transparency of hedge fund indices should not be a requirement when this is not the case for other financial indices such as stock market indices. It is important to note that for investors, the usefulness of full position transparency may be limited. Analysis of the risk and returns of a given hedge fund index becomes possible as soon as return data is available. For example, risk analysts now widely use techniques such as returns-based style analysis and regression on risk factor exposures when measuring and comparing the performance of different investments. The results of such analysis on the index level may be more useful than detailed qualitative analysis of components.

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Lhabitant (2003), for example, shows that such returns-based risk analysis can be applied to hedge fund portfolios, and provides a strong tool to help understand the style behaviour portfolios of hedge funds, thus facilitating tasks such as classification, monitoring and risk measurement.

Q. 18: It should be noted that one of the largest providers of equity indices, MSCI, does not provide information on the full composition of its equity indices. This information is sold at a high price which is out of reach of retail investors and even many institutional investors, which means that the information is effectively unavailable (see the answer to question 14 above). Also see the answer to question 18 above.

Q. 19: Stemming from a lack of official recognition, hedge fund indices currently do not have the status of a major reference for most hedge fund or fund of hedge fund managers. Instead, most of these managers use the risk-free rate, as represented by the rate of return of short-term treasury bills or money market instruments, as a reference. This practice constitutes the worst of all choices, given that it assumes that hedge funds are completely free of systematic risk exposures. Such a practice therefore leads to performance measures that lack any pertinence and lead investors into the error of omitting to balance returns for the associated risk exposure. Establishing hedge fund indices as truly recognised references therefore appears to be an important step towards proper information for investors on the level of risk in hedge fund products.

Q. 20: Therefore, we propose to adopt an approach that accepts hedge fund indices in principle and requires hedge fund indices to fulfil a range of quality criteria, including:

- Transparency of the method
- A methodology that guarantees a high degree of representativity as well as precise classification of components (such as factor analysis)
- Minimum liquidity of the indices
- Investability of index components
- Prohibition of practices such as backfilling
- Information on risk factor exposure

CESR:

- As mentioned in the paragraph that raised questions 7–13, funds investing in derivatives based on HFI and funds of hedge funds could be considered as alternative financial products from retail investors' point of view – but their characteristics can entail different consequences from a regulatory point of view.

Questions Raised:

Q. 21: *From the regulatory and retail investors' points of view, how do you assess the situation of competition between funds investing in derivatives based on HFIs and funds of hedge funds? Please explain precisely the grounds underlying your comments.*

EDHEC's Response:

Q. 21: Since hedge fund strategies are exposed to a range of risk factors, they may provide the investor with two types of reward, just like any risky investment strategy. These rewards are the return that constitutes a fair reward for the risk taken (beta benefits) and the return that is due to the manager's skill in generating returns in excess of the reward for risk (alpha benefits).

Since hedge funds are not subject to tracking error constraints, as is the case in the mutual fund industry, and since they enjoy freedom in choosing the assets and markets they invest in, the managers' potential for generating alpha can be fully exploited.

In terms of beta, hedge funds offer risk exposure that differs from those an investor can achieve by holding stocks and bonds, and thus have low correlation with these assets. Therefore, adding hedge funds to a portfolio composed of such traditional assets allows for diversification benefits. It is worth noting that the low correlation of hedge fund returns with stock and bond returns has a tendency to remain stable over different stages of the market. This is notably different to international diversification, where benefits tend

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to disappear in unfavourable market conditions. In this respect, hedge funds constitute an answer to the poor conditional correlations of stock market investments in different countries. Adding hedge funds to a portfolio of stocks and bonds not only allows volatility to be reduced (because of low correlation) but also allows the asymmetry to be improved and the extreme risks to be reduced (because of favourable co-kurtosis and co-skewness).

Indices seem to be the natural investment vehicle for beta management. In equity investing, decisions such as transition management or management of cash inflows are usually dealt with by using index products. Likewise market timing and tactical asset allocation strategies are typically implemented with index futures or tracking funds.

Funds of hedge funds, on the other hand, aim to provide alpha by selecting the best funds (fund picking) or by implementing tactical bets on certain hedge fund styles (tactical allocation). This difference between the value proposition of hedge fund indices (beta benefits) and funds of hedge funds (alpha benefits) allows for the potential of both of these investment vehicles to co-exist.

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