An EDHEC Risk Institute Publication

Are Hedge-Fund UCITS the Cure-All?

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Abstract

Abstract

As part of the CACEIS research chair on non-financial risks in investment funds, EDHEC surveyed UCITS and alternative asset managers, their service providers, external observers, and investors for their views of structuring hedge fund strategies as UCITS. The 437 respondents report assets under management (AUM) of more than €13 trillion. Investment fund managers account for roughly €7 trillion of these assets. In general, the survey suggests that institutional investors bound by quantitative restrictions will ask fund managers and distributors to repackage hedge fund strategies as UCITS. For their part, managers of alternative funds are concerned by the uncertainties surrounding the directive on alternative investment fund managers (AIFMs) and may consider packaging their strategies as UCITS. Most respondents, however, fear that structuring hedge fund strategies as UCITS will distort strategies and diminish returns. Many strategies, after all, would need to be altered to earn the UCITS label, and liquidity requirements would put the liquidity risk premium out of reach. In addition, hedge-fund UCITS pose operational problems that, as our survey suggests, the industry is insufficiently aware of. In sum, the use of UCITS to distribute hedge funds is the perverse outcome of a messy set of regulations; so EDHEC suggests improved regulation of investment funds and properly designed incentives: incentives to invest in illiquid assets could be designed in regulated closed funds with a fixed horizon; incentives to adopt the AIFM directive must be given by modifying the regulation of European institutional investors and authorising them to invest directly in funds that comply with the AIFM directive; incentives to manage rather than to insure non-financial risks must be given by defining the responsibilities of distributors, asset managers, depositaries, and valuators and requiring them to hold the adequate regulatory capital.

Executive Summary

Executive Summary

The directive on alternative investment fund managers (AIFMs) will not necessarily allow professional investors to buy the funds offered to them. Controversy around the directive, together with uncertainty about the distribution of funds it will allow, will deter investment firms from making the investments to comply with the expected requirements of the AIFM directive. By contrast, as UCITS regulation offers greater possibilities for leverage and more admissible assets, UCITS appeal to both fund investors and managers.

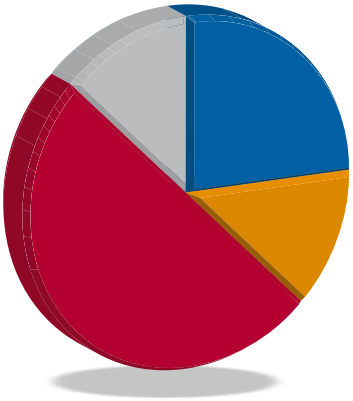
EDHEC surveyed UCITS and alternative asset managers, their service providers, external observers such as regulators and trade bodies, as well as investors for their views of structuring hedge fund strategies as UCITS; the work is part of the CACEIS research chair on non-financial risks in investment funds.

The assets under management (AUM) of the 437 respondents to the survey amount to more than €13 trillion.[1] Investment fund managers account for roughly €7 trillion of these assets.

In general, the survey suggests that institutional investors bound by quantitative restrictions will ask fund managers and distributors to repackage hedge fund strategies as UCITS. For instance, insurance companies envisage (12.5% "somewhat" and 50% "very much so") asking promoters/managers to restructure hedge funds (HF) strategies as UCITS.

1 - If more than one person from a single company responded to the survey, assets under management were counted only once. Respondents who did not report an affiliation account for less than €2 trillion. Ten percent of respondents did not answer the question.

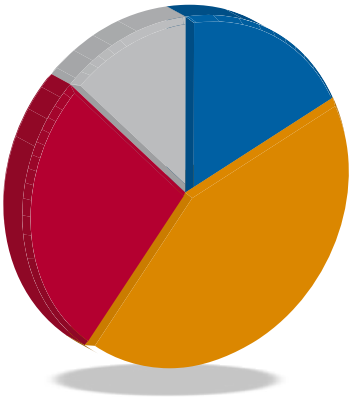
Do you envisage asking promoters/managers to restructure HF strategies as UCITS? (insurance companies)



25% Not at all
12.5% Somewhat
50% Very much so
12.5% I don't know

For their part, managers of alternative funds are concerned by the uncertainties surrounding the AIFM directive and may consider packaging their strategies as UCITS: 60% of alternative investment funds (AIFs) very much agree that the AIFM directive leads to uncertainty about the distribution of funds; 65% of AIFs plan (either "somewhat" or "very much") to restructure their funds as UCITS, whereas 25% do not.

Do you envisage restructuring your own strategies under the UCITS regulation? (AIFMs)



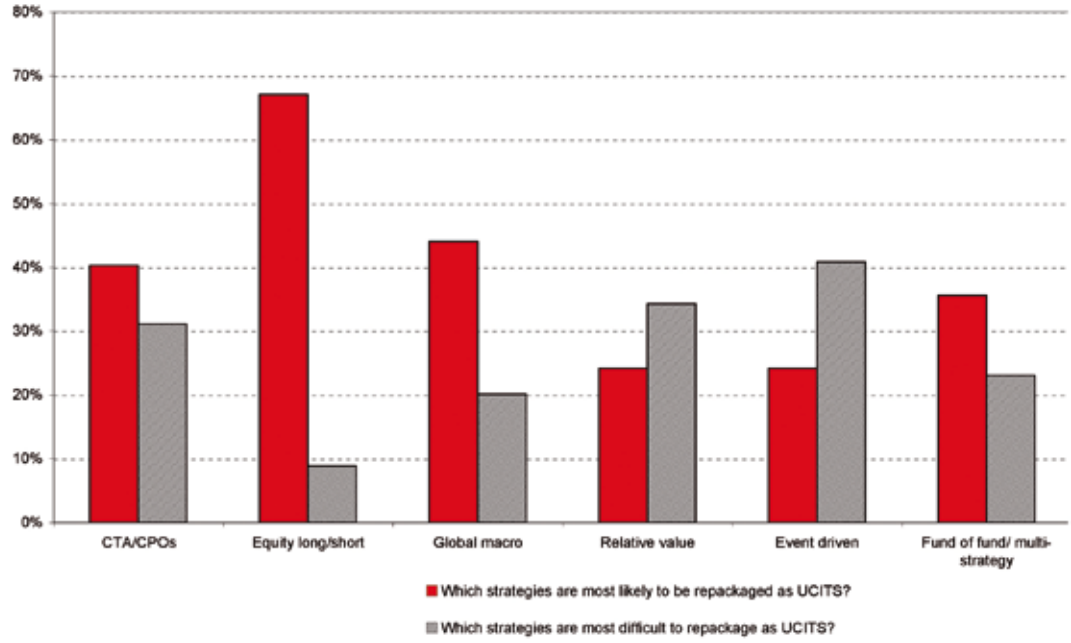
18.2% Not at all
42.6% Somewhat
26.8% Very much so
12.4% I don't know

Executive Summary

On the whole, the survey suggests that a large wave of hedge-fund UCITS is gathering momentum: 92% of respondents say they "see a trend towards packaging HF strategies as UCITS" (38% somewhat and 54% very much so). All insurance companies, subject to quantitative restrictions that limit the possibility to invest in hedge funds, see a wave of hedge-fund UCITS.

The hedge fund strategies most concerned would be Equity Long/Short and the Tactical style (commodity trading advisors [CTAs], commodity pool operators [CPOs] and Global Macro). More than 65% of respondents think Equity Long/Short strategies are more likely to be structured as UCITS than any other strategy, as these strategies rely on liquid securities. More than 40% of respondents think that Tactical style strategies are most likely to be structured as UCITS, a belief that may derive from the frequent reliance of these strategies on index derivatives that are themselves eligible for UCITS. Funds of Funds and Multi-Strategy, for their part, are more likely to be domiciled in Europe than structured as UCITS. After all, though the UCITS directive imposes constraints on funds of funds, many national regulations authorise the distribution to all investors of domestic, regulated funds of alternative funds. Relative-Value and Event-Driven strategies are the least likely to be structured as UCITS. Thirty-four percent of respondents think that Relative-Value strategies are among the most difficult to structure as UCITS. As Relative-Value strategies involve betting that pricing discrepancies between related instruments will disappear over time, they usually involve investing a large fraction of the net asset value in a single instrument, and are thus not always compatible with the UCITS directive. Forty percent of respondents think that Event-Driven strategies are the most difficult to structure as UCITS; after all, Event-Driven strategies invest in illiquid instruments and must be altered to comply with UCITS requirements.

Respondent opinions (multiple choice, all participants)



Executive Summary

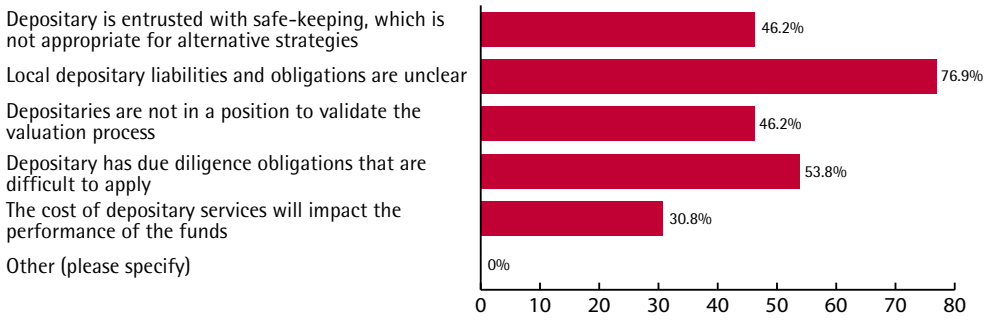
Most respondents fear that structuring hedge fund strategies as UCITS will distort strategies and diminish returns. After all, although most hedge funds meet the leverage (Value-at-Risk limits) requirements made of sophisticated UCITS, liquidity requirements and obligations to limit concentration/issuer risk mean that many a hedge fund strategy would need to be altered to earn the UCITS label. For instance, 69% of participants (52% "somewhat" and 17% "very much so") think that the "liquidity premium of hedge fund strategies will disappear and that performance will fall" when hedge fund strategies are structured as UCITS.

Likewise, two-thirds of respondents report that there are problems with the distribution of hedge funds to retail investors, and 80% percent think that institutional investors should have access to alternative strategies without the need for the expensive UCITS framework. Ninety-seven percent of institutional investors believe that UCITS should not be necessary to access HF strategies.

In addition, hedge-fund UCITS pose operational problems. Seventy percent of respondents think that the definition and the role of the depositary are appropriate, in stark contrast to depositaries and custodians themselves, an overwhelming majority (80%) of whom consider their roles and responsibilities inappropriately defined. This disconnect seems to indicate that the role of depositaries and the problems they encounter when modifications to the UCITS framework are made have been neglected by most respondents (except depositary professionals). Depositaries and custodians are concerned by the opacity of local obligations and of the responsibilities of depositaries (77%), by due-diligence obligations that are difficult to meet (54%), by the difficulty of validating the valuation process (46%), and by the cost of depositary services for hedge fund strategies (31%). When hedge fund strategies are structured as UCITS, some of the non-financial risks are foisted onto the depositaries. The failure to harmonise responsibility rules Europe-wide raises the risk that asset management firms will choose to register in the countries with the lowest depositary costs. Harmonisation, clarification and the definition of guidelines for depositaries are thus necessary; transparency would be better served.

On the whole, the use of UCITS to distribute hedge funds is the perverse outcome of a messy set of regulations; so EDHEC

If the definition and the role of the depositary are not appropriate, why not? (Multiple choice possible, depositaries and custodians)



Executive Summary

suggests improved regulation of investment funds and properly designed incentives: incentives to invest in illiquid assets could be designed in regulated closed funds with a fixed horizon; incentives to adopt the AIFMD must be given by modifying the regulation of European institutional investors and authorising them to invest directly in funds that comply with the AIFMD; incentives to manage rather than to insure non-financial risks must be given by defining the responsibilities of distributors, asset managers, depositaries, and valuators and requiring them to hold the adequate regulatory capital. Yet the AIFMD proposal and the consultation on the UCITS depositary have failed to raise the question of capital requirements.

Executive Summary

1. Presentation of the EDHEC-Risk Survey

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As part of the CACEIS research chair on risk and regulation in the European Fund management industry, EDHEC has done an in-depth review of depositary rules in Europe, and in its response to the European Commission's consultation on the depositary function it asserts that these rules are no longer suited to current asset management techniques or, more broadly, to the changing UCITS framework.

Sophisticated UCITS, which can be used to distribute hedge fund strategies, are a perfect illustration of the problems posed by non-financial risks in the fund industry.

Our view is that structuring hedge funds as UCITS, a trend acknowledged by survey respondents, is bound to become more common.

This study thus attempts to respond to four broad questions:

- Are UCITS strategies appropriate in this context?
- Does packaging hedge fund strategies as UCITS mean distorting the strategies? If so, will it also alter their expected returns?
- Is the UCITS framework really appropriate or is this trend exploiting a weakness in the regulations?
- What are the operational consequences of this repackaging?

1.1 Main Sources of Information

Our study pays particular attention to the UCITS directive, including the 2004 EC recommendation that paved the way for the creation of sophisticated UCITS, and the CESR recommendations on eligible assets (CESR 2007). In addition, we evaluate the current state of negotiations on the directive on alternative investment fund managers (AIFMs).

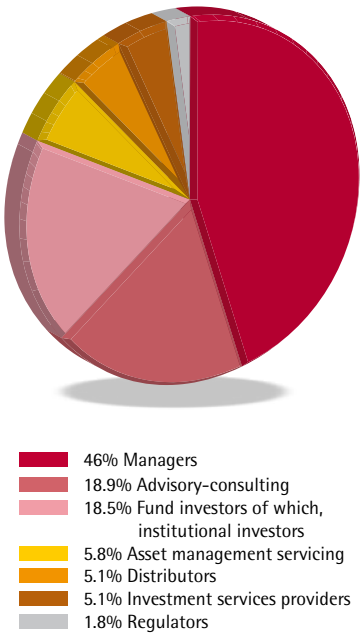
We rely on the CISDM database for the quantitative analysis of hedge funds. This paper focuses on post-1987 returns on the grounds that the hedge fund industry was of a different nature before that period, and because a shorter time period enables visual identification of the characteristics of the recent business cycle.

1.2 Survey

EDHEC has surveyed UCITS and alternative asset managers, their service providers, external observers such as regulators and trade bodies, as well as fund investors for their views on structuring hedge fund strategies as UCITS.

The assets under management (AUM) of the 437 respondents to the survey amount to more than €13 trillion.[2] As these numbers overlap, a more relevant figure may be the €7 trillion of AUM reported by fund managers.

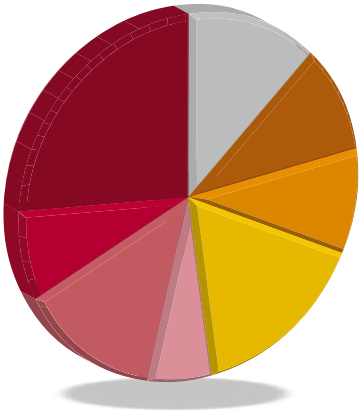
Figure 1: Respondent type



2 - We estimate aggregate AUM by adding the median values of each bucket. For instance, we "allocate" €30bn to a respondent who reports AUM in the €10bn–€50bn bucket. Those who report AUM of more than €100bn are estimated to have AUM of €150bn.

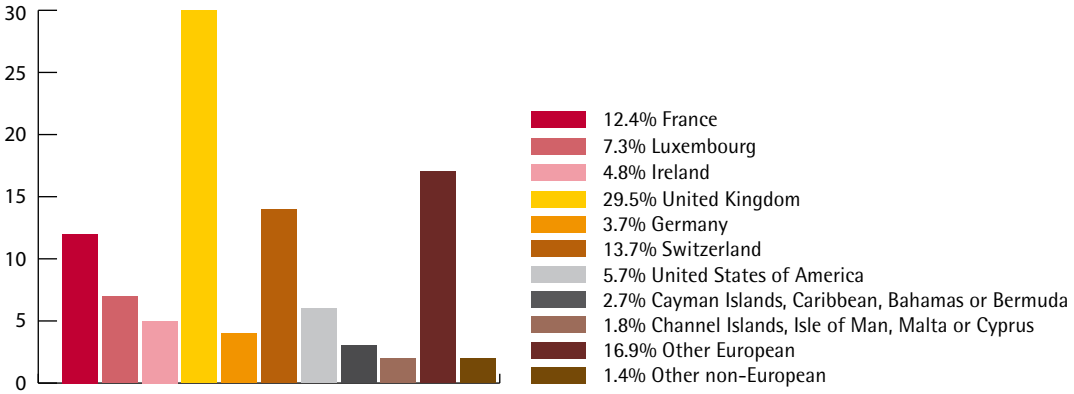
1. Presentation of the EDHEC-Risk Survey

Figure 2: Assets under management



In general, the survey suggests that institutional investors bound by quantitative restrictions will ask fund managers and distributors to repackage hedge fund strategies as UCITS. For their part, managers of alternative funds are concerned by the uncertainties surrounding the AIFM directive and may consider packaging their strategies as UCITS for better distribution. Most respondents, however, fear that structuring hedge fund strategies as UCITS will distort strategies and diminish returns. In addition, hedge-fund UCITS pose operational problems. Respondents are concerned by the opacity of local obligations and of the responsibilities of depositaries, by the difficulty of validating the valuation process, by the cost of depositary services for hedge fund strategies, and by due-diligence obligations.

Figure 3: Country in which your firm is registered (all respondents)
Continental Europe is naturally predominant ("Other European" includes Italian asset management firms as well as many pension funds located in the Netherlands or Northern Europe).



1. Presentation of the EDHEC-Risk Survey

2. Context: A Muddled Regulatory Agenda Encourages Structuring HF Strategies As UCITS

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2.1 The Controversial AIFM Directive and the Future of the Distribution of Hedge Funds

A proposal for an AIFM directive was released by the European Commission in April 2009. The hastily prepared directive proposal is almost certainly the result of the authorities' desire to be seen responding quickly to the financial and economic crisis. It came in for harsh criticism for its general lack of consistency, and the Swedish presidency has released draft amendments that we consider the latest available version of the directive (EC 2009b) and to which, unless specified otherwise, we refer.

3 - AIF stands for alternative investment fund; AIFM for alternative investment fund manager; AIFMD for the directive on alternative investment fund managers.

Uncertainties in AIFMD seen as penalising

The first questions asked of the respondents had to do with the impact of the AIFMD. Most respondents expressed concerns about the uncertainties of the AIFMD, and consider its impact negative.

The results below are those of managers of AIFs.

Figure 4: Does the AIFMD lead to uncertainty about the distribution of funds? (answers from AIFs)
In all figures, the red wedges are the fractions of respondents who very much agree with the questions, the orange those who agree somewhat, and the blue those who disagree. An alternative measure is to look at the ratio of red wedges to blue wedges, i.e., the ratio of those who agree strongly to those who disagree. In the questions below, as virtually no respondents disagree, this ratio is almost infinite!

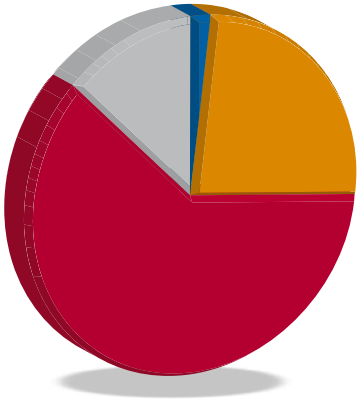
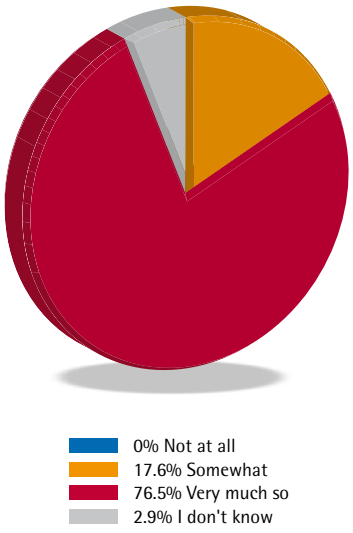


Figure 5: Does the AIFMD lead to uncertainties on the distribution of funds? (answers from legal departments)



The first uncertainty mentioned by respondants has to do with the distribution of funds. The AIFMD, even if passed, offers no clear passport for the effective distribution of these funds.

2. Context: A Muddled Regulatory Agenda Encourages Structuring HF Strategies As UCITS

A passport for marketing to professional investors... who cannot necessarily buy AIFs anyway

In short, the AIFMD offers regulated AIFMs a passport for the marketing[4] of alternative funds to professional investors in Europe.

However, authorisation to market AIFs to professional investors does not guarantee that these investors are allowed to invest in AIFs. After all, these investors will still be bound by their domestic prudential regulations. Although most pension funds must abide by the prudent-man rule (Amenc, Martellini, and Sender 2009), insurance companies are bound by quantitative restrictions and generally cannot invest more than 10% in foreign AIFs. Many German investors are also bound by quantitative restrictions. It is for this reason that insurance companies may use so-called wrappers (such as performance swaps with investment banks) to access alternative funds. So, for fund distribution, the benefits of AIFMD may turn out to be less than meets the eye.

In addition, insurance companies will soon be subject to Solvency II, a risk-based regulation under which investments in hedge funds will require setting aside more capital than investments in UCITS (EDHEC 2007): the risk charge for investments in hedge funds comes to 45%, and that for investments in equity to 32%. But the average risk in hedge funds is lower, so an insurance company with a diversified exposure to hedge fund indices will have incentives to invest in hedge-fund UCITS rather than hedge-fund wrappers.

The AIFMD is not a passport for retail distribution

The AIFMD is not a passport for retail distribution, and Member States are free to regulate the distribution of any non-UCITS in their domestic markets. Despite this amendment, the AIFMD should facilitate the cross-border distribution of AIFs: a foreign fund similar to one admitted in the domestic market should in theory be accepted. But as long as the liabilities of depositaries differ from one European country to another, this theory may never become practice. For instance, in countries such as France, which allows the sale of non-UCITS (ARIA and "fonds contractuels") to retail investors, but where the depositaries' liabilities are greater than in the rest of Europe, the French regulator could refuse foreign AIFs with investments and risk systems similar to those of French ARIA funds on the grounds that their depositary arrangements differ.

As with the greater capital charges levied on insurance companies that invest in hedge funds, high net worth individuals may face higher capital gains taxes on hedge fund earnings. In the UK, funds of hedge funds are available to high net worth individuals, but their returns are taxed as revenue, at a marginal rate of 50%, whereas UCITS gains are treated as capital gains, at a flat rate of 18%. So UCITS are more tax-efficient and funds of hedge funds distributed in private banking networks are now often structured as UCITS.

4 - Passive marketing, i.e., answering a request for information from a client, is not considered marketing for the purposes of the AIFMD or in most national regulations. The AIFMD offers a passport for "active" marketing to professionals.

2. Context: A Muddled Regulatory Agenda Encourages Structuring HF Strategies As UCITS

Figure 6: Is the three-year exclusion penalising for offshore funds? (answers from AIFs)

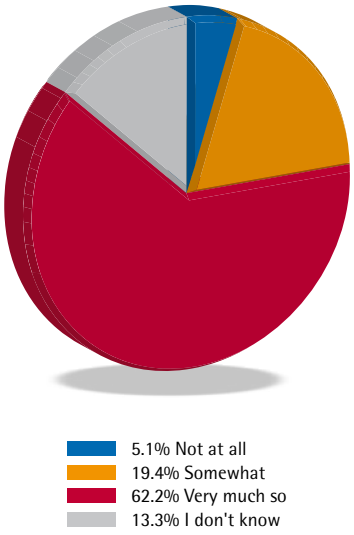
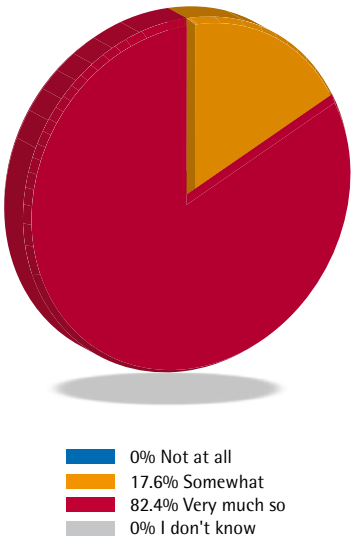


Figure 7: Is the three-year exclusion penalising for offshore funds? (answers from legal departments)



Marketing by offshore funds will be prohibited for at least three years

In addition, respondents (above all, from legal departments) are worried by the limitations on offshore funds.

After all, non-EU AIFs will not benefit from a European passport in the short term. The initial AIFMD proposal mentioned a three-year exclusion of hedge funds. This exclusion may now last longer, as the Swedish proposal requires only that the European Commission make proposals regarding foreign AIFs within three years of the implementation of the AIFMD.

In their comments, respondents also expressed concern about the uncertainties regarding the costs of depositary services made mandatory by the AIFMD (depositary costs are discussed in section 3.2.3).

But, in general, uncertainties about the outcome of the AIFMD and about the distribution of regulated alternatives in Europe will deter investment companies from making the investments to comply with expected AIFMD requirements; instead, managers will seek other ways to distribute their strategies.

Box 1: An agenda out of control will deter investment firms from making the investments to comply with expected AIFMD requirements

The adoption of a European directive is drawn out and extremely complex. The draft proposed by the European Commission is discussed by the Council of Ministers, which comes back with its own proposals. These proposals, together with industry feedback, are summarised in a tentative compromise by the (Swedish) presidency in its issue notes.

ECON is the parliamentary committee leading the negotiations. Jean-Paul Gauzès, a French member of the European Parliament, was assigned the role of lead rapporteur and has formulated a parliamentary position to be discussed with the Council.

2. Context: A Muddled Regulatory Agenda Encourages Structuring HF Strategies As UCITS

Each country also has its specific internal organisation for decision making, with negotiations and lobbying involving industry associations, ministries of finance, and the regulators. Because governments' opinions do not always reflect those of professionals, initial stances may change. Very clearly, the final outcomes as well as the date for a vote on the AIFMD are unknown.

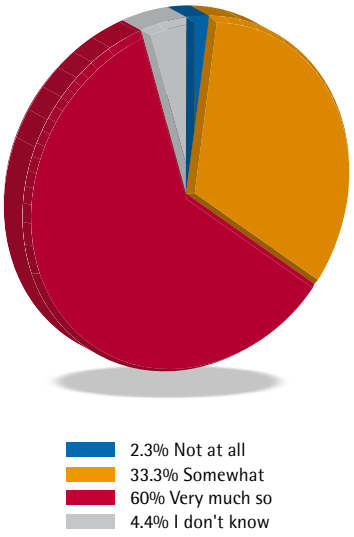
The costs of complying with AIFMD can be split into two categories: one-off costs (legal and structuring costs) and ongoing costs (in particular, the costs of depositary controls). Although managers hope that some of these costs can ultimately be passed to investors if AIFM makes it possible to expand their distribution base or if there is true demand for regulated onshore funds, the uncertainties about the distribution of funds will, in the short term, at least, deter investors from making these compliance expenditures.

2.2 Madoff, Lehman and Investor Protection

The Madoff affair and the Lehman bankruptcy have had a profound impact on both investment professionals and political agendas. The Madoff affair, in brief, has shown that the obligations of the depositaries to return assets to investors are subject to legal interpretations and domestic discrepancies; on the political agenda now is a move towards a better definition and a strengthening of depositaries' responsibilities. Investors, for their part, have better understood the non-financial risks of hedge funds, an understanding that may accentuate their preference for UCITS.

For more than 90% of the respondents to our survey, recent developments such as the Lehman bankruptcy and the Madoff affair have made the investment community more aware of restitution risk. Results here are very similar for all categories of investors, except for CEOs and CIOs, who are more likely to think that the Madoff and Lehman affairs have increased awareness of this risk.

Figure 8: Have recent developments made the investment community more aware of restitution risk? (all respondents)



Naturally, there has also been an impact on investors' decisions. Ninety-five percent of fund investors acknowledge the importance of operational risks in investment decisions, 75% claiming that this is a very important part of their investment decisions. Investors now systematically perform due diligence for operational risks, and they reportedly allow due-diligence departments to veto investment decisions.

2. Context: A Muddled Regulatory Agenda Encourages Structuring HF Strategies As UCITS

Figure 9: How relevant are restitution or other operational risks to your investment decisions? (fund investors)

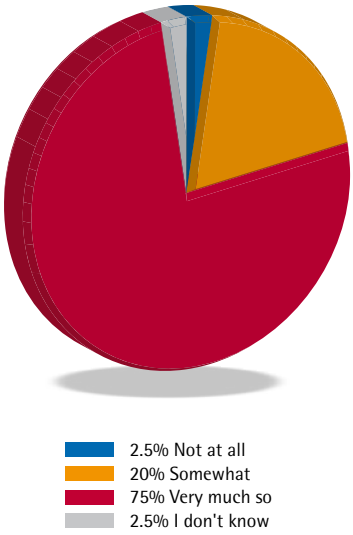
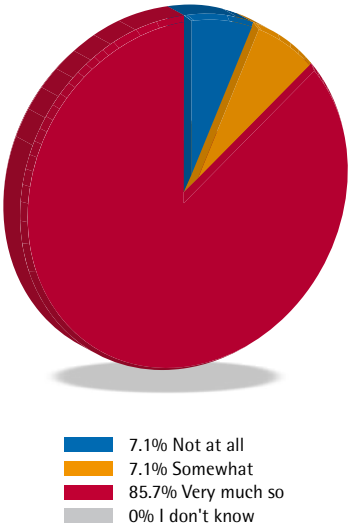


Figure 10: How relevant are restitution or other operational risks to your investment decisions? (AIFMs who report that they are principally buyers of funds)



In general, it seems that the Madoff affair and Lehman bankruptcy have whet investors' appetite for UCITS. As they were meant primarily for retail investors, UCITS were designed to offer the greatest degree of protection.

Box 2: The Madoff affair and depositary problems

The Madoff affair can be summarised as a large non-financial loss and a failure to return the assets of a UCITS retail fund. This failure to return assets of a UCITS raises awareness of the varying interpretations of the obligations of depositaries; in particular, there is a notion that depositaries' responsibilities are greater in France than in Luxembourg.

A large proportion of French savings is invested in UCITS funds that are produced in Luxembourg. This proportion could increase with the UCITS IV directive that recognises the master-feed structure and allows funds the domiciliation of funds virtually anywhere in Europe. This potential investment of French savings in funds domiciled in less protective jurisdictions worries the French regulator, whose mission is to ensure the protection of domestic investors.

This heterogeneity is also a problem Europe-wide, as it undermines the single market for funds. It has even become a problem for Luxembourg authorities, as they would rather end-investors not be sceptical of the protection they are offered when they invest in funds domiciled in Luxembourg.

The subsequent political agenda springs from a desire for the homogenisation and strengthening of the obligations of depositaries. Acting on this agenda will, of course, increase the prices for depositary services; depositaries may even need to charge an additional fee tantamount to an insurance premium.

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In addition, there will be an impact on risk-management practices: depositaries as well as funds that invest in hedge funds will need to manage non-financial risks better.

Lehman's failure to return the assets of alternative funds it held in custody affected alternative funds that used the prime broker as a sub-custodian. This bankruptcy thus had an impact on the structure of such alternative funds, on the business model of prime brokers, and on the relationships between prime brokers and depositaries.

Box 3: The failure of Lehman as a prime broker of alternative funds

The lack of segregation of assets at Lehman meant that leverage funds were unable to recoup their assets immediately. This was a particular problem in France, where depositaries had an immediate and unconditional obligation of restitution—they had to compensate some ARIA EL funds for assets that had been re-hypothecated by Lehman.

The bankruptcy of Lehman Prime Broker put two distinct items on the political agenda. In France, for ARIA EL funds (which use the prime broker to borrow assets), the depositary's liabilities can be contractually lowered. In other European countries, regulators now tend to require that assets at the prime broker be properly segregated.

In parallel, the failure of Lehman as a derivatives counterparty has led to high systemic risk because of the interconnection in the banking system, because buyers of derivatives' assumption that counterparty risk was low, and because of the need to replace derivatives used in hedging schemes. This systemic risk and these costs for the end users of derivatives have led to the clearing of derivatives by central counterparties, *i.e.*, clearing houses that do not just match transactions but also assume counterparty risk (see box 6).

Although central counterparty clearing houses (CCPs) will reduce counterparty risk, better collateral management in investment funds would have made it possible to mitigate counterparty risk. Despite the impact of the Lehman and Madoff affairs on the regulatory agenda, however, harmonisation, clarification and the definition of guidelines for depositaries are unfinished and must be pushed through in the short term.

2.3 Attractions of the UCITS Framework

In Europe, rules for the distribution of investment funds are complex and lack homogeneity.

2. Context: A Muddled Regulatory Agenda Encourages Structuring HF Strategies As UCITS

Figure 11: Available non-harmonised legal vehicles

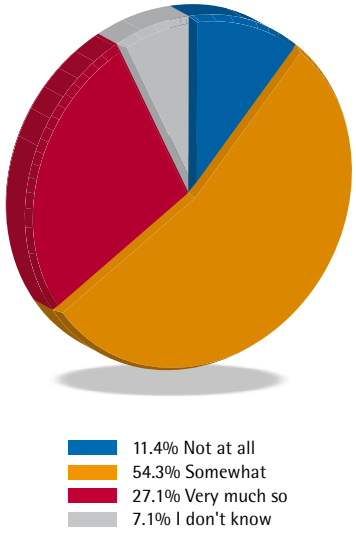
	Real estate	Private equity / Venture capital	Hedge fund	Other legal structures
Belgium	• Closed-end real estate investment company (SICAFI / Vastgoedbevak)	• Public PRICAF/PRIVAK • Private PRICAF/PRIVAK • PRIFONDS	• None	• Open-ended investment company (SICAV/BEVEK) • Closed-end investment company (SICAF/BEVAK) • Contractual funds (FCP) • FPC/FBS • VBS/SIC
France	• OPCI (FPI, SPICAV) • SCPI • SIIC • SCI	• FIP • FCPR • FCPI • SCR	• Contractual OPCVM • ARIA / ARIEL • FCIMT • OPCVM de fonds alternatifs	• FCP • SICAV • FCC
Germany	• Spezial-Sondervermögen • Immobilien-Sondervermögen • Geschlossene Immobilienfonds	• Unternehmensbeteiligungsgesellschaft (UBG) • GmbH • GmbH & Co. KG	• Sondervermögen mit zusätzlichen Risiken-Hedgefonds (incorporated or non-incorporated) • Dach-Sondervermögen mit besonderen Risiken - Dachhedgefonds (incorporated or nonincorporated)	• Sonstige • Sondervermögen
Ireland	• Investment limited partnership • Common contractual fund • Unit trust	• Investment limited partnership • Common contractual fund • Unit trust	• Investment limited partnership • Common contractual fund • Unit trust	• Unit trust • Investment lLimited partnership
Italy	• Fondi immobiliari • SIIQ	• Fondi chiusi (closed end structures)	• Fondi speculativi • Fondi riservati	• Fondi garantiti • Fondi riservati
Luxembourg	• FCP (Part II) • SICAV/SICAF (Part II) • SIF • SICAR • SOPARFI	• FCP (Part II) • SICAV/SICAF (Part II) • SIF • SICAR • SOPARFI	• FCP (Part II) • SICAV/SICAF (Part II) • SIF	• None
Poland	• Closed-end funds • Limited liability company	• Closed-end investment fund for non-public assets (CEIF) • Limited liability company	• Closed-end investment fund • Funds of funds or specialised open-ended investment funds	• None
Spain	• Fondos de inversión inmobiliaria • Sociedades de inversión immobiliaria	• Venture capital funds • Venture capital companies	• Instituciones de inversións • Colectiva de inversións libre (IICIL) • Instituciones de inversión colectiva de IIC de inversión libre (IIC de IICIL)	• Fondos garantizados • Fondos especializados
United Kingdom	• Limited partnership • Limited liability partnership • Unit trust • Open-ended real estate trust • OEIC	• Limited partnership • Venture capital trust • Limited liability partnership • Company PLC	• Limited partnership	• Unit trust • OEIC • Limited liability partnerships • Limited partnerships

Source: PricewaterhouseCoopers

2. Context: A Muddled Regulatory Agenda Encourages Structuring HF Strategies As UCITS

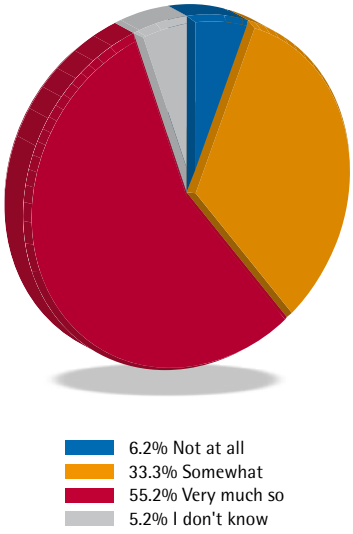
More than 80% of respondents self-classified as sellers/managers/distributors of funds report that it is "somewhat" or "very" difficult to promote and distribute their own alternative funds in Europe.

Figure 12: How difficult is it to promote your own alternative/ hedge funds in Europe? (sellers only)



Respondents to the EDHEC survey assert that the UCITS framework facilitates the distribution of funds. In addition, 90% of sellers, managers, and distributors agree "somewhat" or "very much" that the UCITS framework makes it much easier to promote and distribute hedge funds.

Figure 13: Does the UCITS framework make it a lot easier to promote and distribute hedge funds? (sellers only)



After all, UCITS are the sole vehicle eligible for pan-European distribution. Once an investment has earned the UCITS designation in its home country (or is registered in a host country if it is a foreign fund), it can be marketed and distributed in other European countries, in keeping with the directives on the single market. In addition, a UCITS designation may also be the only passport for distribution to institutional investors (with the exception of pension funds).

In addition, UCITS is an internationally recognised label, and European statistics show that UCITS are sold worldwide: 40% of UCITS are sold outside of Europe. After all, many regulators from Asia, the Middle East, and Latin America accept the distribution of UCITS within their borders to retail and other investors, who invest heavily in UCITS. The US, by contrast does not recognise UCITS as the equivalent of its domestic regulated funds. In short, a strategy packaged as a UCITS will be able to sell to any investor (retail or professional) in Europe, and to many investors beyond the borders of Europe.

The UCITS framework has likewise enriched the list of eligible assets (CESR 2007 advice on eligible assets) and expanded the possibilities for leverage (recommendation EC/2004/383); so-called sophisticated UCITS, sometimes more vaguely called UCITS-III funds, allow a large number of alternative strategies to be packaged as UCITS. A more detailed description of these rules and of how each class of strategy complies with them is provided in chapter III.

2. Context: A Muddled Regulatory Agenda Encourages Structuring HF Strategies As UCITS

PricewaterhouseCoopers (2008) notes that, although all UCITS funds are sold extensively to institutional investors, sophisticated UCITS are very much sold to international investors (indeed, the number of such funds sold to non-EU investors is greater than that sold to EU investors).

2.4 Towards a Wave of Hedge-Fund UCITS

The attitudes of respondents suggest that a wave of hedge-fund UCITS, with both supply and demand as its impetus, will take shape. Slightly more than 60% of investors in investment funds plan to some extent to ask promoters or managers to restructure HF strategies as UCITS; likewise, figure 15 shows that 70% of fund managers plan to restructure their strategies as UCITS.

Figure 14: Do you envisage asking promoters to restructure their hedge fund strategies as UCITS? (investors only)

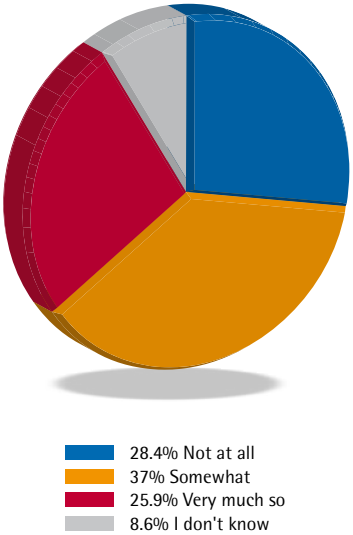
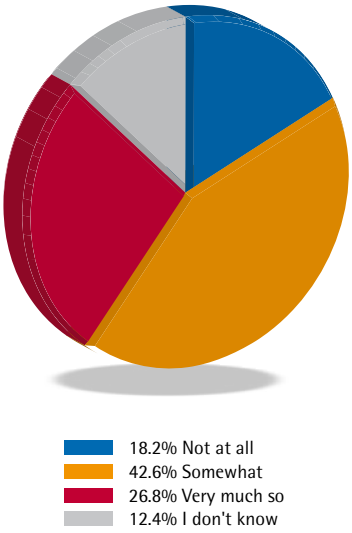
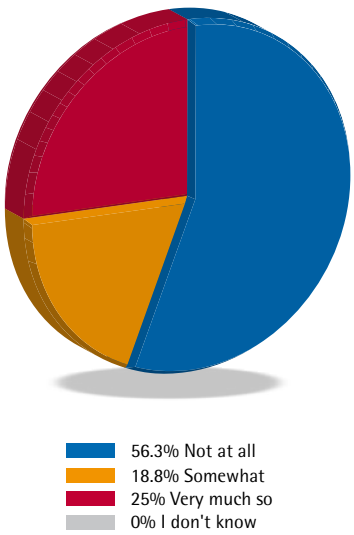


Figure 15: Do you envisage restructuring your own strategies under the UCITS regulation? (AIFMs)



The attitudes of institutional investors depend on whether they are subject to investment restrictions. Most pension funds, generally exempt from investment restrictions, show no interest in having hedge fund strategies packaged as UCITS (figure 16a). Insurance companies (fig. 16b), by contrast, are subject to investment restrictions and plan to ask promoters or managers to restructure their funds as UCITS.

Figure 16a: Do you envisage asking promoters/managers to restructure HF strategies as UCITS? (pension funds)



2. Context: A Muddled Regulatory Agenda Encourages Structuring HF Strategies As UCITS

Figure 16b: Do you envisage asking promoters/managers to restructure HF strategies as UCITS? (insurance companies)

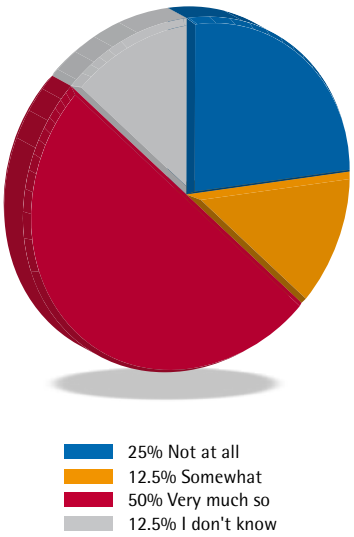
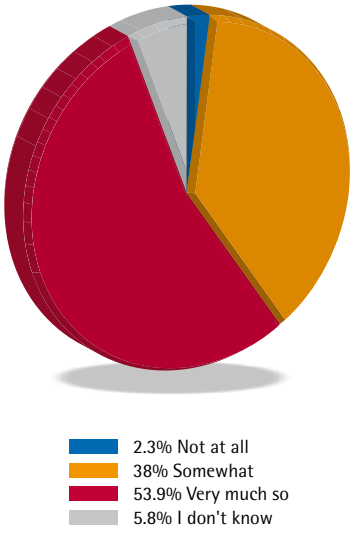


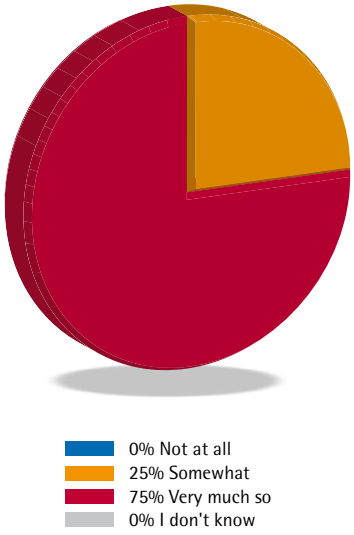
Table 17a: Do you see a trend towards packaging HF strategies as UCITS? (all respondents)



In general, several forces should contribute to a coming wave of hedge-fund UCITS: the AIFMD, if it passes, will make possible the marketing but not necessarily the distribution of approved funds. The AIFMD thus leads to uncertainty for the distribution of non-coordinated funds and for regulated alternative investment funds, so, paradoxically, the AIFMD may push funds to structure as UCITS, especially as Madoff and Lehman have made fund investors aware of restitution risk. The UCITS framework allows a larger number of strategies to be structured as UCITS. Moreover, the crisis has had a major impact on investor preferences; onshore funds and regulated funds, believed to enjoy greater protection from operational risks, are the beneficiaries of these changing preferences.

As it happens, respondents to the EDHEC survey are aware of the trend toward packaging HF strategies as UCITS. The institutional investors subject to investment restrictions who responded to our survey are more aware of this trend than are respondents as a whole (figure 17b).

Table 17b: Do you see a trend towards packaging HF strategies as UCITS? (insurance companies)



Current figures are a reflection of decisions that were made before the crisis. They thus reflect very imperfectly the current trend towards the structuring of hedge fund strategies as UCITS. The eligibility of hedge fund strategies for the UCITS designation notwithstanding, only a handful had become UCITS as of summer 2009 (figures 18a and 18b).

2. Context: A Muddled Regulatory Agenda Encourages Structuring HF Strategies As UCITS

Figure 18a: Only a handful of hedge-fund-like UCITS up to summer 2009
*Number of hedge fund-like UCITS**
** The sum of UCITS hedge funds = UCITS absolute return according to Lipper category*
Source: Lipper LIM, PwC Analysis

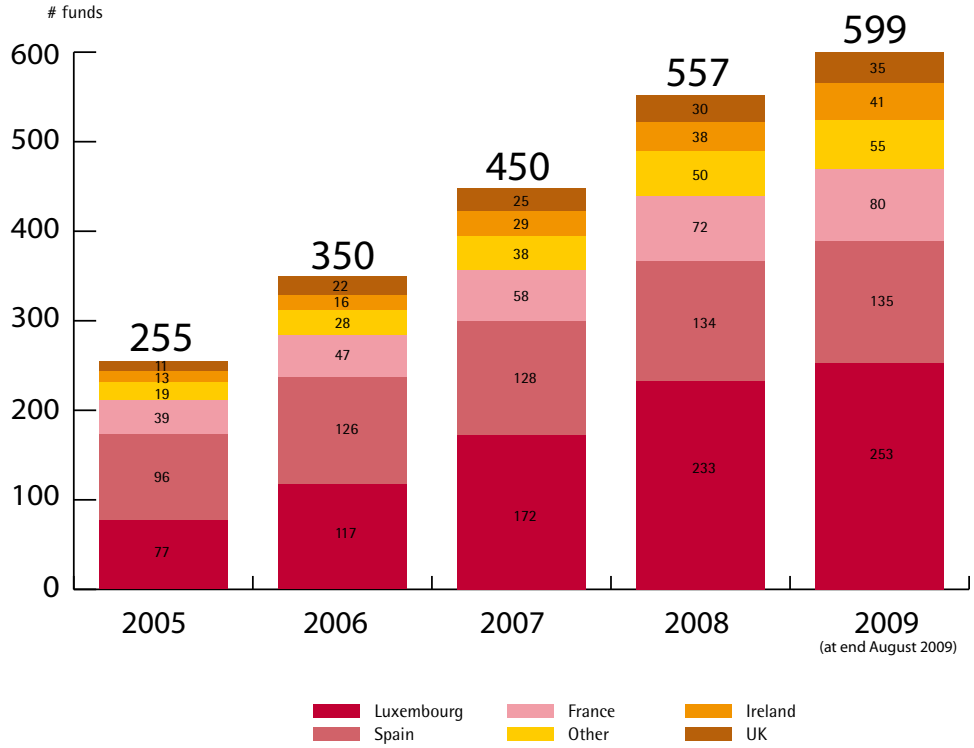
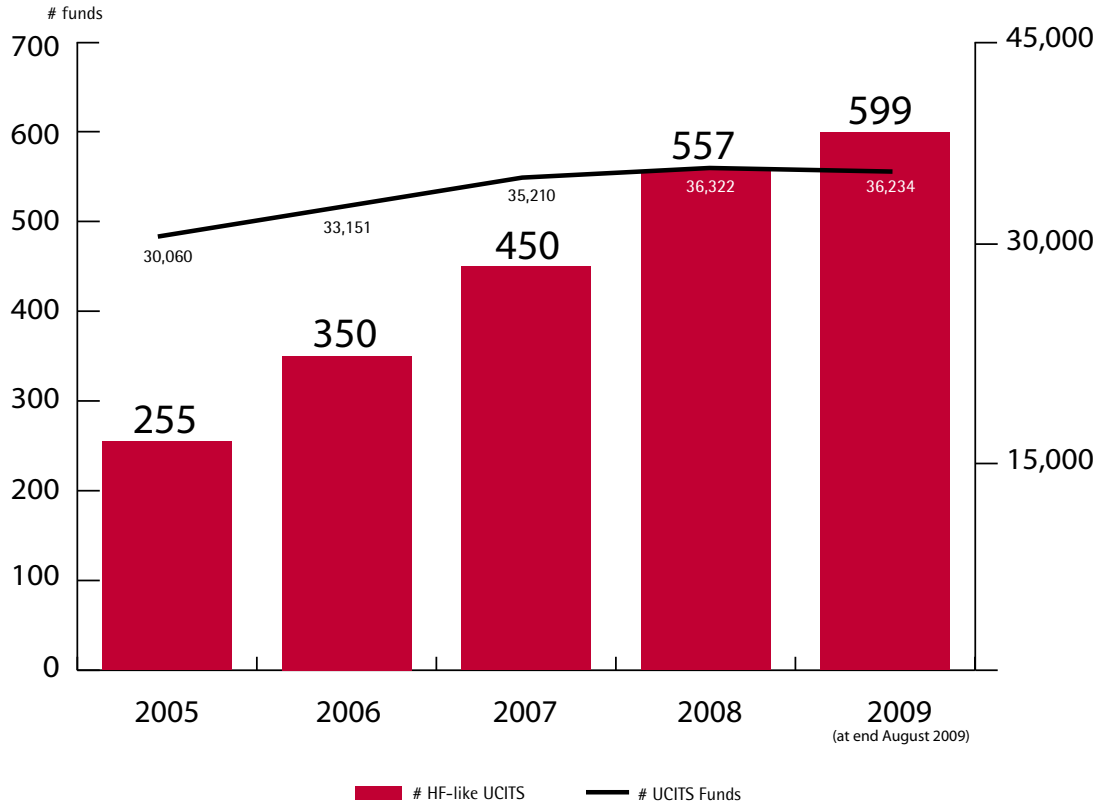


Figure 18b: Only a handful of hedge fund-like UCITS as of summer 2009



2. Context: A Muddled Regulatory Agenda Encourages Structuring HF Strategies As UCITS

Figure 19: The largest hedge funds have a UCITS offering
Hedge fund-like UCITS launched or to be launched 10 2009 - Examples

Promoter	Fund name	Domicile	Strategy	Launch
BlueCrest Capital - ML	Blue Trend UCITS Fund	Lux	CTA	Feb-09
Aquila Capital	Pharos Evolution	Lux	CTA	Mar-09
SVM AM	KSVM UK Absolute Alpha Fund	UK	UK Equity L/S	Apr-09
Aviva Investors	UK Absolute Return	UK	UK Equity L/S	Sep-09
Goldman Sachs	GS Fundamental Equity L/S fund	_	Equity L/S	Sep-09
Millenium Global - DB Select Alpha	Millenium Global Systematic Alpha	Lux	Mkt Nal country L/S approach + Mkt timing on currencies, fixed income, equities and cdties	Sep-09
SGAM	SGAM Invest Europe Absolute Research	France	Equity L/S - Pair trading	Sep-09
Threadneedle	Threadneedle L/S Credit Opportunities	UK	L/S Credit	Sep-09
Allianz GI	Allianz RCM Discovery Europe	Lux	European Equity Mkt Nal	Oct-09
RWC Partners	US Absolute Alpha Fund	Lux	US Equity L/S	Oct-09
Schroders - NewFinanceCapital		Lux	Equity L/S	Oct-09

Source: PWC 2008.

2. Context: A Muddled Regulatory Agenda Encourages Structuring HF Strategies As UCITS

3. Structuring HF Strategies as UCITS

3. Structuring HF Strategies as UCITS

In this chapter, we will first describe the constraints faced by sophisticated UCITS funds (3.1) and then describe how hedge fund strategies can cope with these constraints (3.2).

3.1 Background: UCITS ever friendlier for hedge fund strategies

UCITS funds are bound by the UCITS directive. Although UCITS IV has been passed by the European Parliament, the UCITS regulation currently in force after its transposition into national law is the so-called UCITS III directive (European Council 2008).

In addition, two important regulatory texts have introduced the notion of sophisticated UCITS, which have paved the way for packaging hedge fund strategies as UCITS:

- The CESR advice on eligible assets (CESR 2007) has increased the number of assets in which UCITS may invest.
- Recommendation EC/2004/383 has expanded the possibilities for leverage.

In general, for hedge fund strategies to be classified as UCITS, the following criteria must be met.

Leverage:

The so-called 2004/383/EC recommendation clarifies the measure of leverage to be used by sophisticated UCITS, a self-explanatory word that designates UCITS that have the adequate expertise, risk management and risk measurement tools.

It introduces the notion that Value-at-Risk can be used to gauge leverage, and it recommends the following criteria:

- Absolute VaR limit: there should be an absolute monthly 99% VaR limit of 20%. In other words, the UCITS must control that the worst possible loss over a twenty-trading-day holding period, at a 99% confidence interval, does not exceed 20%.
- Relative VaR limit: the monthly 99% Value-at-Risk should be less than twice the VaR of a derivative-free benchmark.

Box 4: Slightly varying implementations of the EC recommendation 2004/383 in Europe

Not all countries have acted on the EC recommendation. Some, largely as a result of the absence of industry demand, have not defined sophisticated funds at all. The measurement of leverage differs slightly from one country to another, although the general EC guidelines (99% VaR with a one-month holding assumption) are adopted by most.

In Ireland the holding period must be no more than one month, which suggests that a less restrictive weekly or daily holding period can be assumed. However, industry codes of practice are such that a monthly holding period must be input. Austria, Denmark, Germany, and Spain (on paper at least) require a ten-business-day holding period. In that sense, they are less restrictive (by a factor of the square root of two if one assumes twenty business days a month).

Less restrictive again is Portugal, which requires a ten-day holding period and a 95% confidence interval.

France, by contrast, requires a 95% confidence interval and a one-week period, but a 5% maximum VaR limit that makes VaR restrictions more restrictive than in neighbouring countries.

3. Structuring HF Strategies as UCITS

In addition to the absolute VaR constraint, stress tests are generally required (in Luxembourg and Germany they must be done at least once a month).

The relative VaR limit is deemed important for sophisticated UCITS that self-classify as traditional investments such as money-market funds or fixed-income products. The relative VaR criterion is usually less relevant for hedge-fund UCITS because they do not fall into traditional investment categories, as pointed out by 80% of respondents to the EDHEC survey (85% of AIFMs, 85% of fund investors). After all, hedge fund strategies are generally marketed as diversifiers, so hedge funds are rarely interested in using traditional benchmarks and relative VaR constraints.[5]

5 - If needed, a UCITS may take an equity or corporate bond benchmark, where twice the VaR is over 20%, so as to keep the relative VaR constraint from being binding.

Unlike relative VaR, the absolute leverage constraint is mandatory for all funds. We discuss our proxy for the measurement of the VaR of hedge fund strategies in greater detail in appendix 2.

Box 5: Quantitative VaR assessment: How many strategies would pass the test?

Investment funds may measure their Value-at-Risk with historical Value-at-Risk, *i.e.*, using the actual fund position and historical daily market data to simulate the maximum historical loss given by their current strategy. Because hedge fund databases provide only monthly fund returns, we estimate the Value-at-Risk of each fund with sample VaR and Cornish-Fisher parametric VaR, a measure that is based on a Taylor development of the cumulative distribution function.

In our case, we simply use the first four moments, which leads to the following development for our P distribution.

Statistical problems with these measures, the proposed corrections and the details of our calculations are presented in appendix 2.

For the 1988-2009 period, we select at each date the funds that have at least sixty return points, that is, five years of complete data. All graphs show statistics on an equally weighted basis. After all, most indices of hedge funds are constructed with equal weighting.

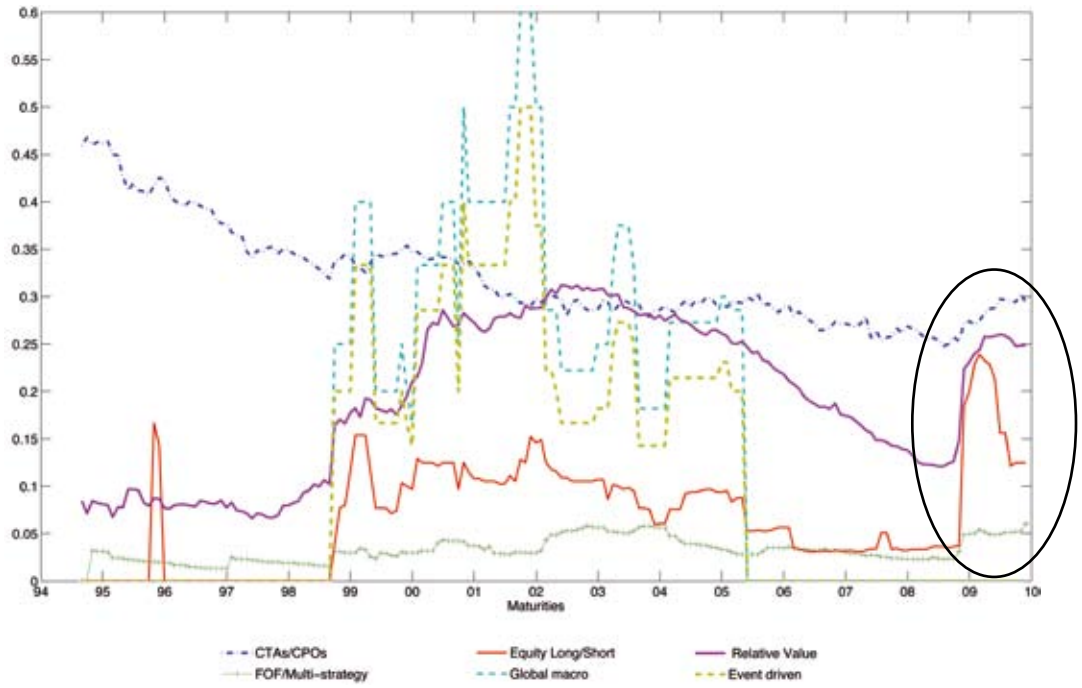
We show figures for the following categories: CTA/CPOs (commodity trading advisors/commodity pool operators), Equity Long/Short (incl. emerging), Global Macro, Relative Value, Event Driven, and Fund of Funds/Multi-Strategy. The number of strategies at the end of 2009 are as follows:

Figure 20: Funds with five years of available returns, as of November 2009
Event Driven and Global Macro are largely underrepresented (and even more so at the end of the sample illustrated in the figure below), so for these strategies an event concerning a limited number of funds may be very visible in the statistics—in figure 21, the fraction of funds that passes the UCITS VaR requirement goes easily from 0 to 50%.

	Number of funds	(% total)
CTA/CPOs	346	16%
Fund of Funds/ Multi-strategy	1050	48%
Equity Long/Short (incl. emerging)	33	2%
Global Macro	6	0%
Relative Value	737	34%
Event Driven	7	0%
Total	2179	100%

3. Structuring HF Strategies as UCITS

Figure 21: More than 70% of live HFs in each strategy meet UCITS VaR requirements
The right-hand side of the graph shows that at least 70% of the funds in each strategy would pass a VaR test. The pass rate is 70% for CTAs/CPOs, 75% for Relative Value, more than 85% for Equity Long/Short and 95% for Funds of Funds or Multi-Strategy. It is virtually 100% for the remaining strategies at the end of 2009. Rolling through the time series shows the cyclicality of the VaR measurement, with swift increases after crises. Particularly concerned were the Event-Driven and Global-Macro types, although the large spikes for these strategies also reflect the few funds in these two categories. Here, a limited number of losses in major hedge funds modify the statistics, especially when these funds implode. At the other extreme, Funds of Funds and Multi-Strategies proved particularly stable—if anything, they seem to offer a protection from the risk of implosion.



We find that, on average, 85% of live hedge funds (as of November 2009) would pass UCITS VaR requirements. This result is consistent with previous studies that show that hedge fund strategies are no riskier than traditional or UCITS strategies.

Eligible assets

UCITS, in brief, must invest in liquid financial assets. They may not invest in non-financial assets or commodities (except through cash-settled derivatives). In addition, investments in precious metals are forbidden, but this prohibition is subject to debate and is not uniform in all jurisdictions.

The CESR's recommendation on eligible assets has extended the list of eligible assets by allowing investment in indices representative of such non-eligible assets as commodities or hedge funds and in non-leveraged collateralised debt obligations. The CESR has also exempted investments in financial indices from quantitative restrictions such as those on concentration risk.

Liquidity constraints and periodic valuation-surrenders

UCITS are required to invest in liquid assets; in practice, they must be able to value their units at least twice a month[6] and comply with their expectations of surrenders—in all cases, investments must allow at least 20% of the assets to be redeemed.

6 - Article 34 of the UCITS directive states that "A UCITS must make public in an appropriate manner the issue, sale, repurchase or redemption price of its units each time it issues, sells, repurchases or redeems them, and at least twice a month. The competent authorities may, however, permit a UCITS to reduce the frequency to once a month on condition that such a derogation does not prejudice the interests of the unit-holders", but we are not aware of such a disposition being applied in any but exceptional times.

3. Structuring HF Strategies as UCITS

In practice, then, UCITS are allowed to invest a fraction of their assets (at least 10%) in less liquid securities. These investments, however, require pricing policies and tools that enable accurate measurement of their values, as well as adequate risk management.

Article 34 of the UCITS directive allows "competent authorities [to] permit a UCITS to reduce the [valuation] frequency to once a month on condition that such derogation does not prejudice the interests of the unit-holders". This exemption has been taken advantage of most frequently during liquidity crises such as those of 2008-2009.

Quantitative restrictions

The UCITS directive sets out a number of quantitative restrictions that mainly require diversifying investments and controlling counterparty risk. Crude calculations are taken to measure these restrictions,[7] and Value-at-Risk, which serves solely to gauge the leverage of sophisticated funds, cannot be used.

These restrictions can be summarised as follows (see appendix for a slightly more detailed description):

- Concentration risk, *i.e.*, the fraction of the net asset value invested with an issuer, is limited to 5% for a general issuer, to 25% for credit institutions and up to 100% for government bonds, provided that there are at least six securities and that none of them represent more than 30% of the asset value.
- Counterparty risk with a credit institution is limited to 10%
- A UCITS may invest in other funds provided that they are supervised; they shall not invest more than 20% in any single fund; total investments in non-UCITS funds shall not exceed 30%.
- A UCITS cannot perform naked short sales; its borrowings of cash or securities are limited to 10% of the net asset value. Overall, most of the short sales should be performed synthetically.

A 10% ratio allows funds to invest in "other assets", provided they are not forbidden by the UCITS or domestic regulations. In some cases, the vague wording concerning this so-called trash ratio means that UCITS can invest up to 10% in unregulated hedge funds, in what seems to be in inexplicable contradiction with UCITS requirements.

Reporting/transparency

UCITS must be able to release net asset values (NAVs) twice a month; they must also publish annual reports and financial reports, both audited, in which actual transactions are described. In some countries, such as Ireland, a section provided by the depositary appears in the annual report (and could, if they take place too frequently, disclose breaches in diversification ratios or quantitative restrictions for which the asset manager is responsible). Last, the UCITS must report the nature of its strategy and the corresponding (financial) risk profile in the key information document (KID) given to all investors.

7 - The commitment approach, that is, the delta-equivalent to direct investments in non-derivative assets, is looked at.

3.2 HF Strategies Likely to Be Structured As UCITS

The requirements that must be met to qualify as UCITS are described in sub-section 3.1; we turn now to respondents' views of the likelihood of each hedge fund strategy's being structured as a UCITS.

3. Structuring HF Strategies as UCITS

3.2.1 Respondent Opinions

Figure 22a: Respondent opinions (multiple choice, all participants)

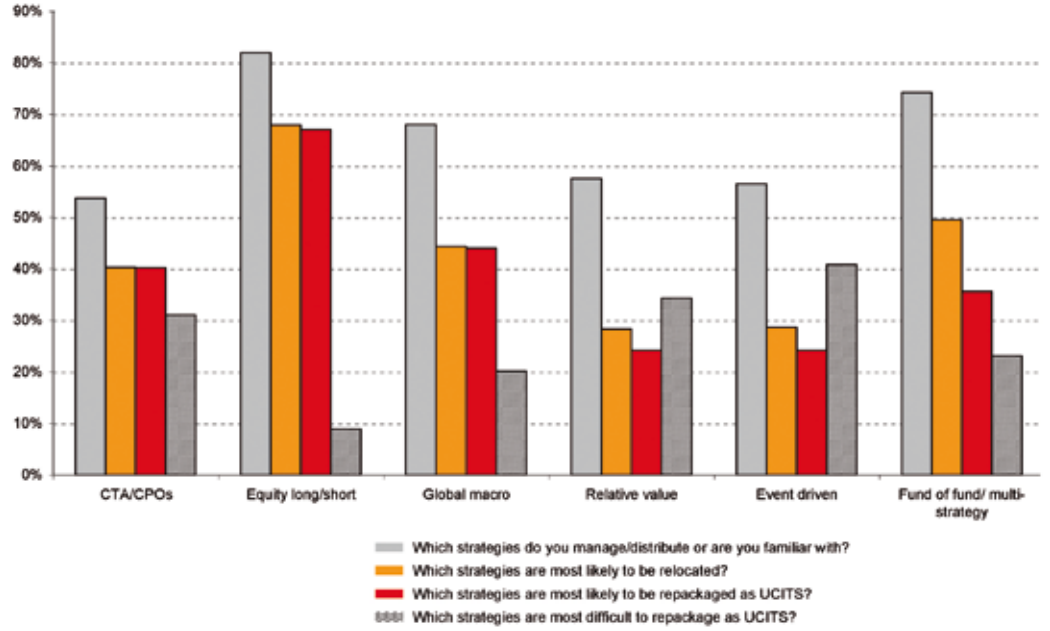
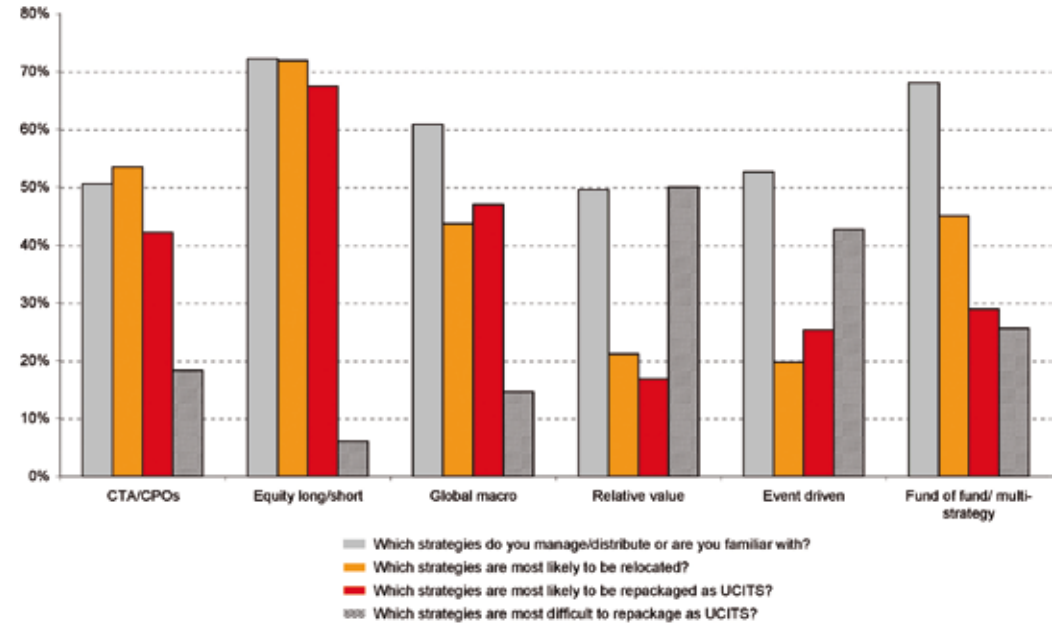
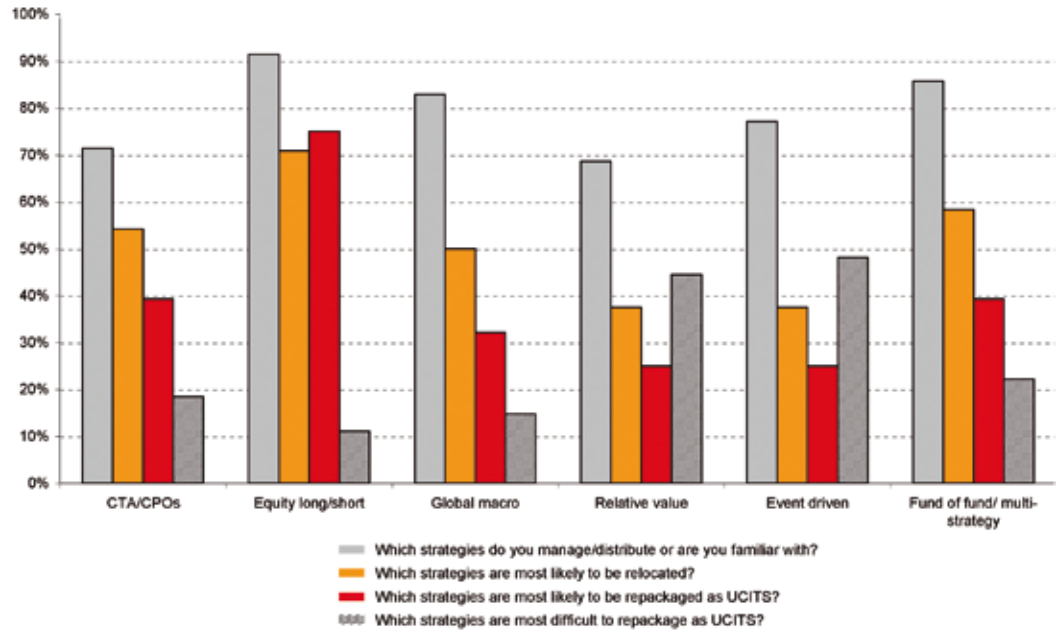


Figure 22b: Opinions from hedge funds and AIFs (multiple choice)



3. Structuring HF Strategies as UCITS

Figure 22c: Opinions from institutional investors (multiple choice)



Respondents are most familiar with Equity Long/Short and Fund of Fund/Multi-Strategy. They think that Equity Long/Short will be the first strategy to relocate to Europe and be repackaged as UCITS. The strategies respondents believe are the hardest to package as UCITS are the event-driven and relative-value types.

The managers of hedge funds and other alternative investment funds respond in much the same ways as respondents as a whole, but they question the ability of relative value strategies to comply with UCITS regulations.

This latest point is interesting, because relative value funds, as we will see, pass the most notorious of UCITS requirements: the leverage or Value-at-Risk constraint. However, relative value funds may not meet other quantitative restrictions such as mandatory diversification ratios.

3.2.2 Analysis for Each Strategy

Most hedge fund strategies, as we have seen, would meet UCITS VaR requirements—though not necessarily all other UCITS requirements—for monthly VaR of less than 20%.[8]

Here we review opinions of the main strategies, and describe how these strategies fit in the UCITS framework in light of constraints regarding liquidity, short-selling, counterparty risk, concentration risk, and eligibility of assets.

a) Equity Long/Short

The Equity Long/Short class encompasses a great variety of styles, such as equity strategies that are neither market neutral nor part of a hedge on other firms' instruments; it includes short-only and long-only strategies, a sector/country focus, emerging, and generally directional equity strategies.

8 - An additional UCITS requirement is that the Value-at-Risk be less than twice the Value-at-Risk of a derivative-free risk benchmark, but, as the respondents to our survey note, this relative indicator is irrelevant to most strategies, and they can get around this constraint by failing to specify a benchmark in their prospectus (or alternatively select a risky type of benchmark rather than a money-market or low-duration bond-type benchmark).

3. Structuring HF Strategies as UCITS

Equity Long/Short strategies are viewed by all participants as the class most easily structured as UCITS (and if needed, relocated to Europe). Indeed, more than 85% of these strategies would pass UCITS VaR constraints. In addition, these strategies are generally diversified and based on liquid instruments, so they would pass most UCITS quantitative restrictions.

Overall, responses to the survey are logical given UCITS regulation; they also reflect the many Equity Long/Short strategies that have already been structured as UCITS (see figure 19).

The most onerous constraint on equity long-short funds is that any short sale superior to 10% of the value of the fund must be done via derivative instruments (after all, naked short sales are forbidden and borrowings of securities are limited to 10%).

In addition, some of the purely directional (long-only, short-only) or very specialised (sector) strategies may have to reduce leverage, as directional risk involves high VaR (in other words, they resemble traditional equity funds that also have very limited room for leverage because of their high volatility). Specialised strategies with high concentrations in a single stock may also have to be excluded. Emerging market strategies face high risks and sub-custodian problems. All strategies must control for counterparty risk, but their leverage is generally lower than that of relative value or even tactical bet styles, so it is not a particular focus here.

The main problem that these funds will face may be an increase in the cost of implementing Long/Short strategies with derivatives instruments. Whereas alternative funds face the cost of borrowing securities, UCITS will buy a product whose cost involves a margin on the top of the cost of borrowing securities borne by the broker (see 3.2.3).

b) Tactical Style

The Tactical style includes CTAs and CPOs, managed futures, and Global Macro strategies, and, after the Equity Long/Short class, it is viewed by respondents as the class most easily structured as UCITS (and domiciled in Europe). This opinion, however, is not shared by CEOs/CIOs or by offshore respondents, who think that CTAs/CPOs are the second hardest class of strategies to structure as UCITS.

The view that the Tactical style overall may be hard to structure as UCITS may be justified by a Value-at-Risk greater than that of other strategies, and by the high rate of failure to pass VaR tests in the 2000's. These statistics suggest that some strategies would need to diminish leverage. In addition, tactical strategies require slightly more adaptation than does equity long/short.

CTAs and managed futures primarily trade listed commodities and financial futures contracts on behalf of their clients. As most of their exposures are based on indices, these strategies are generally not at odds with UCITS requirements. Managers of CTAs and managed futures that want to structure their strategies as UCITS must mainly ensure only that the derivatives contracts they invest in to gain exposure to the commodity markets are cash-settled (physical settlement is generally not allowed in UCITS), that the indices underlying their

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contracts are sufficiently diversified (as they generally are, as commodity indices usually involve several futures).[9]

Some commodity specialists who needed concentrated exposure to a limited number of futures would, however, have to be excluded from candidacy for the UCITS label. Amaranth, for example, relied on instruments, concentration, and leverage clearly at odds with UCITS requirements. In addition, some 15% of CTAs will need to reduce leverage (see figure 21).

Global Macro strategies usually invest in index derivatives, so the vast majority of investments are eligible and would not exceed concentration restrictions.

The great exposure of Global Macro and CTAs to derivatives, as well as rules limiting exposure to credit institutions to 10%, means that solid risk management is necessary. Derivatives contracts should generally be collateralised and the UCITS should seek to diversify its providers (its counterparties); collateral should be managed by efficient systems.

We note that the emergence of central counterparties (CCPs) will considerably alleviate this problem, as it will allow all contracts to be cleared and counterparty risk (of OTC derivatives) to be cleared out.

Box 6: The role of central counterparties (CCPs)

The failure of Lehman led to large losses elsewhere and financial stress on end-users of derivatives because of the high cost of replacing torn up contracts. As a result, the authorities quickly came up with a requirement for the central clearing of derivatives. Banks reluctant to clear derivatives contracts may face additional capital charges.

Regulatory-led initiatives to clear derivatives centrally have focused primarily on credit derivatives. In the US, the major exchanges CME, Euronext Liffe, Eurex, and Intercontinental Exchange (ICE) have led the initiatives. In Europe, by contrast, shortly after the request made by the European Commission, the following clearing providers stepped in: Eurex Clearing (clearing provider for Eurex), LCH.Clearnet (clearing provider for Euronext Liffe), and ICE.

The European Commission (2009a) notes that the "extreme concentration of some market segments" (the limited number of banks providing specific derivatives) and the "direct and [...] indirect role [played by OTC derivatives markets and Lehman's demise] in [the] propagation" of the crisis were among the reasons that factored into the decision to require that derivatives be cleared centrally.

Most derivatives are negotiated in bilateral contracts; that is, they are over-the-counter (OTC) contracts. After the negotiation, clearing houses will serve as central counterparties (CCPs). In a derivatives trade that may still be negotiated over the counter, the CCP becomes a buyer for each seller and a seller for each buyer. The CCP thus takes on all counterparty risk, and it offsets its risk with margin requirements.

CCPs are generally thought to reduce systematic risk. As Pirrong (2009) puts it, "a CCP is a centralised, formalised

9 - In addition, precious metals, even through derivative contracts, may be off-limits. This UCITS requirement is not only not transposed in the laws of all Member States but is also being reviewed by a CESR taskforce on eligible securities.

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mechanism for sharing default risks on derivative contracts among a coalition of financial intermediaries (*e.g.*, banks). In a CCP arrangement, if one member of a CCP defaults on its obligations, the CCP, and hence the other non-defaulting members, assume these obligations. In this way, default losses are shared among the firms that belong to the CCP. Since sharing of risks can reduce the costs of bearing them, at first blush a CCP has much to offer".

For individual banks the costs may be high, but, as Pirrong (2009) argues, CCPs will relieve end-users of derivatives such as institutional investors[10] and asset management firms of some of the counterparty risks of derivative instruments. In addition, counterparty risk management and collateral management will be less demanding, and will result in lower internal and depositaries costs.

CCPs will allow UCITS (candidates) to invest freely in derivatives without any quantitative restrictions stemming from counterparty risk.

10 - There is a social benefit insofar as risk-hedgers will see their default risk reduced during times of financial distress when they precisely need protection that derivatives products offer.
11 - In practice, this requirement as spelled out in article 19 seems not always to be enforced. Failure to comply, however, is always a risk.

c) Funds of Funds and Multi-Strategies

Funds of funds and multi-strategy funds pool strategies, sometimes adding a layer of dynamic investment strategies. With the exception of multi-strategies that are built by a multi-disciplinary team, these strategies involve investment in other (target) funds.

Fund of Funds and Multi-Strategies are consistently viewed as one of the strategies that will be the most relocated to Europe. After all, most European regulations allow funds of alternative funds to be distributed as regulated funds to high net worth individuals or even as retail funds.

But the same is not true for coordinated funds, and the intuition that the diversification offered by funds of funds makes them naturally compliant with UCITS regulation is mistaken. It is perhaps for this reason that the majority of respondents think that Funds of Funds and Multi-Strategy will be far more eager to domicile in Europe than to restructure as UCITS.

The UCITS directive indeed restricts investment in other funds; it requires that target funds be supervised in much the same way as UCITS,[11] and that the cumulative investments in non-UCITS funds amount to no more than 30% of the value of the fund, so the bulk of the performance must be accessed via derivatives on hedge fund indices.

One possible means of structuring Fund of Funds strategies as UCITS would be to invest solely in UCITS hedge funds, thereby creating funds of UCITS (or UCITS of UCITS) but that would then involve piling up costs inefficiently. If the value added of a managed fund of hedge funds consists mainly of fund selection, restricting the available target funds to UCITS alone clearly diminishes the possibility to create value in funds of hedge funds, and UCITS of UCITS should not be favoured. Funds of hedge funds, for instance, might be structured as regulated funds of alternative funds. After all, many domestic regulations authorise the distribution to all investors of such funds of funds.

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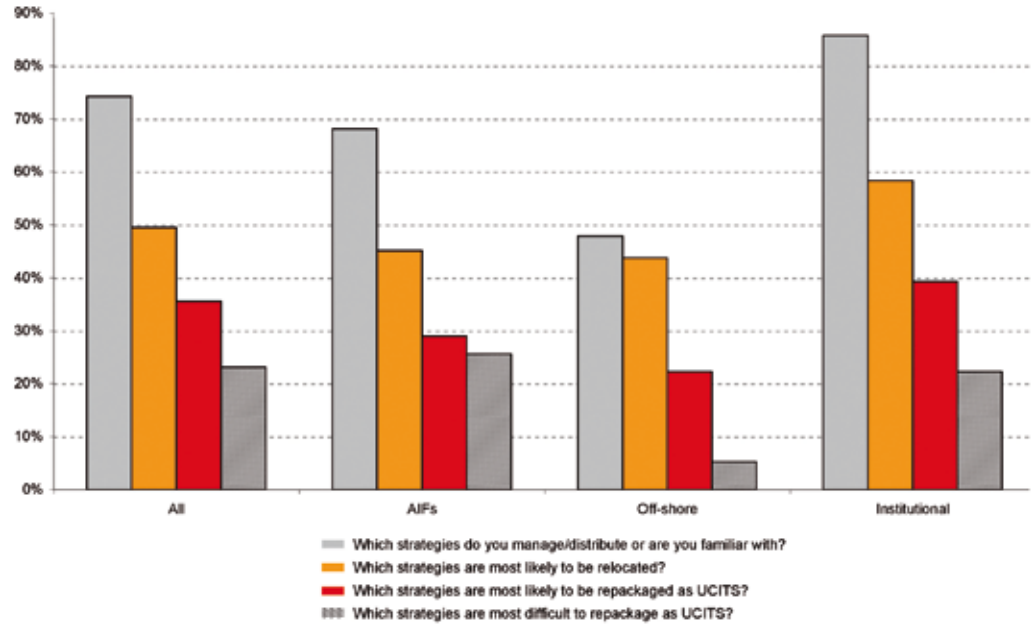
Figure 23: Opinion of funds of hedge funds



A more traditional way to access hedge fund performance is to invest in swaps (or other derivative instruments) based on indices of hedge funds, as financial derivative contracts based on indices of non-eligible securities are eligible for UCITS.

Derivative investments in hedge funds thus limit fund of fund strategies to investing the majority of their funds in indices of hedge funds. There may be little interest in UCITS-managed funds of hedge funds, as they may resemble indexed funds of hedge funds, which can be managed passively and charge investors few additional fees or none at all.

In addition, direct investments in hedge funds pose depositary problems. In France, depositaries currently have full responsibility for sub-custodian risk, so direct investments in hedge funds that do not have depositaries are a risk for them. In the UK and in Ireland, which require continuous due diligence, this process would also prove costly. Again, managed account platforms make it possible to manage operational risks, so hedge funds on such platforms may comply with the UCITS requirement that target funds offer a degree of protection similar to that offered by regulated funds. All the same, the direct and indirect costs of these managed account platforms must be assessed.

d) Relative-Value Arbitrage

The Relative-Value Arbitrage style generally involves betting that pricing discrepancies between related instruments of a firm will disappear over time, and thus involves trading instruments of the same firms, with the use of borrowing and leverage. By extension, equity market neutral strategies, which trade highly correlated stocks, not instruments of the same firm, are generally considered Relative-Value Arbitrage strategies. Convertible arbitrage often involves a long position in the convertible debt issued by a firm and a short position in the stock, with leverage.[12]

12 - The opposite position, long stock and short convertible debt, is often considered hard to build because non-stock securities are generally harder to borrow, and convertible debt will be harder still.

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Relative-Value strategies are perceived as one of the two most difficult strategies to repackage as UCITS (dotted bars higher than red bars for most categories of respondents). It may be because 25% of Relative-Value hedge funds reporting five years of returns at the end of 2009 failed conservative VaR tests. 30% failed similar tests in 2002-2003.

Apart from the fact that stocks need to be shorted synthetically, which involves additional costs, convertible arbitrage requires more control (from both the asset management company and the depositary) because of the less standard nature of the instruments and the possibly lower liquidity of convertible debt.

Fixed-income arbitrage involves leveraging on pricing inconsistencies of generally low-volatility and correlated instruments such as different bond issues. This style includes the arbitrage of price discrepancies between different issues of same-government bonds as well as the arbitrage of more risky securities such as mortgage-backed securities. Because of the limitations on borrowing in UCITS, government bonds must be shorted via futures, which may lead to basis risk and additional uncertainty (futures involve the delivery of an unknown bond, generally referred to as the cheapest to deliver, but the bond to be delivered may change with time). Alternatively, shorting may be done with synthetic instruments, which may be necessary to short bonds for which a future market does not exist (less mature European government bond markets, some corporate bonds or mortgage-backed securities).

Though these strategies are generally considered low-VaR, they may involve significant leverage, especially since government bonds are low-risk instruments. So, even if most strategies pass the UCITS absolute 20% VaR test, they may face quantitative restrictions. After leverage, investments in a single non-government bond security may exceed the 5% threshold, and, again, after leverage, strategies that arbitrage pricing discrepancies of government bonds may even breach the 30% threshold. After all, for a strategy with a 6 to 1 leverage ratio, the 30% maximum investment in a single government bond is equivalent to 5% before leverage. In addition, the look-through approach is used to construct these ratios, which means that the underlying positions of swaps and futures to single securities may need to be accounted for.[13] The necessity to look through and to control concentration ratios frequently means more complex risk monitoring and compliance systems for both the asset management company and the depositary. It may also mean higher depositary costs.

Because of the riskier nature of the underlying securities, equity market neutral funds, also called statistical arbitrage, involve less leverage, and controls are made somewhat easier than for fixed-income arbitrage. They are nevertheless relevant, as strategies such as pair-wise trading may also involve high concentration.

For all Relative-Value strategies, the main issues can be summarised as the cost of shorting synthetically the market and of depositary controls. In addition, fixed-income arbitrage may need to reduce

13 - This requirement is not explicitly worded for futures. However, when one shorts a future bond, one may receive a large amount of the same government security, the cheapest to deliver, without any flexibility in the choice of this instrument.

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leverage (or to enter less profitable arbitrage strategies better to diversify).

e) Event-Driven

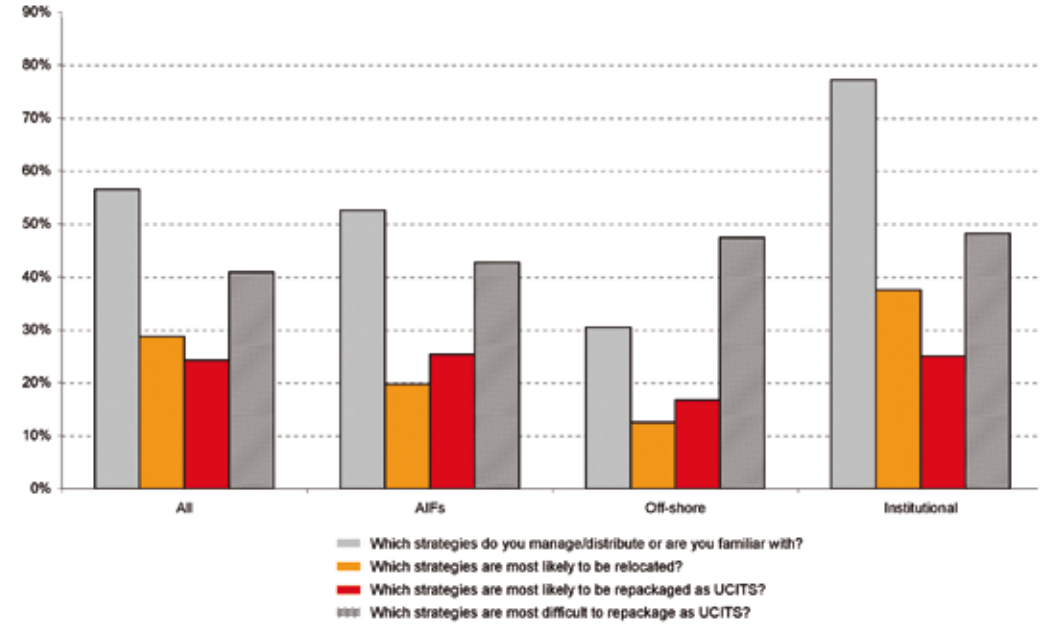
Event-Driven strategies encompass distressed securities, merger arbitrage (also called risk-arbitrage), and event-driven multi-strategy.

They are considered the most difficult strategy to restructure as UCITS. All categories of respondents think Event-Driven strategies are difficult to repackage as UCITS (dotted bars higher than red bars).

The distressed-securities strategy focuses on restructuring companies below investment grade, and it involves significant credit and liquidity risks. These strategies should, in theory, be excluded from the UCITS universe because of the long holding horizon (usually more than a year) and because of their generally very illiquid nature. In addition, the role of the depositary is made more complex for these strategies, as the possible modification of the nature of the firm or of its securities after restructuring not only requires controls and due diligence but also poses problems of safekeeping (for instance, when a company goes private, property rights must be properly verified).

Merger/Risk arbitrage funds generally buy the stock of the company being acquired while shorting the stock of the acquirer. These strategies are often diversified, as many merger operations are often taking place at the same time. Leveraged strategies, however, may be bound by limits on concentration risk (it is easy to have more than 5% invested in a single security after leverage), so some of these strategies may need to reduce leverage or to diversify artificially by entering into merger deals more systematically. Securities used in merger arbitrage may also become illiquid, so liquidity risk must be monitored with care. Event-Driven multi-strategies, with their greater diversification, are more compatible with the UCITS framework.

Figure 24: Opinion of all respondents



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For Event-Driven strategies, too, short positions must be built synthetically.

Overall, Event-Driven strategies must probably change more than any other class of hedge fund strategy to comply with UCITS requirements. Hedge funds such as York, which have set up UCITS III funds with a strategy inspired by the original hedge fund, show the strategies that needed to be altered.

Finally, for all UCITS strategies, variable or performance fees are allowed by the UCITS directive.

Figure 25 provides a visual summary of the current subsection.

A related summary is provided by a respondent: "I have experienced that the current French regulated framework, which is very close to the proposed UCITS regulation (Type 2 French FCP, with exposure measured by reference to a VaR model) offers sufficient room for absolute return strategies with controlled volatility. This is true for long/short European equity, and high yield or emerging market bonds credit/rates arbitrage, where the liquidity/volatility combination is particularly attractive. For less liquid strategies or those requiring much more leverage, the UCITS framework may be restrictive, even more so for high risk/high return proposals".

3.2.3 Cost Problems for Hedge Fund UCITS

From a qualitative standpoint, all comments seem to point towards the higher costs of the UCITS model. As one respondent notes: "UCITS attempt to reduce some of the risks

Figure 25: Summary of problems faced in the main classes of hedge fund strategies
Tactical asset allocation, Equity Long/Short, and Multi-Strategies can be structured as UCITS. Tactical style VaR measures, however, can be unstable, and Equity Long/Short requires shorting via perhaps costlier synthetic instruments. Event-Driven requires the most profound modification and the strongest depositary controls. Relative Value, especially fixed income, may need to reduce leverage or alter strategies to comply with limits on concentration risk. Finally, Funds of Funds will have to rely on performance swaps or other derivative instruments, which will alter non-indexed strategies.

Type of style	Name of strategy	Easily structured as UCITS?	Excluded	Changes needed	Issues
Tactical	CTA, Global Macro	Yes: most funds invest on indices	Old-fashion pure commodity	(Possibly leverage)	VaR reliability
Equity Long/Short		Yes	Specialised concentrated funds	Short synthetically	Cost of shorting
Event Driven	Distressed; Merger Arb., Event-Driven	Yes with adaptations	Distressed	Liquidity and concentration	Depositary controls, due diligence and safe keeping
Relative-Value Arbitrage	Convertible and other firms' instruments	Harder to short non-stock firm securities	Specialised, concentrated "capital" arbitrage	Short synthetically	Costs, concentration, and depositary controls
	Fixed Inc., Equity Market Neutral	High concentration and low VaR happens		Short synthetically. (Possibly leverage)	Depositary control of concentration limits
Funds of Funds and Multi-Strategy Funds		Yes		FoHF: use of swaps (max. 30% direct investment in other funds)	Depositary problems for direct investment in HFs

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posed by hedge funds, and many of the objectives seem sensible. Unfortunately, the depositary model is expensive, and extensive opportunity costs are added by the constraints on liquidity and transparency. I would be surprised if the achieved reduction in risk actually outweighs the increase in costs in practice, so I guess we will see a split between UCITS and offshore hedge funds, with European investors compelled to pay these costs but non-European investors generally preferring cheaper, better-performing offshore products with lower costs. AIFMD will accelerate this process".

3.2.3.1 Participants fear the performance of hedge-fund UCITS will fall as a result of liquidity requirements

Respondents to the survey fear (70% somewhat and 19% very much so) that hedge fund strategies have trouble meeting liquidity requirements, and that hedge funds will suffer from their inability to capture liquidity risk.

Views of liquidity requirements

A greater proportion of the managers (and the proportion of those located offshore greater still) of alternative funds think compliance with liquidity requirements will be a problem (figure 26b).

Figure 26a: Views of liquidity requirements (all respondents)

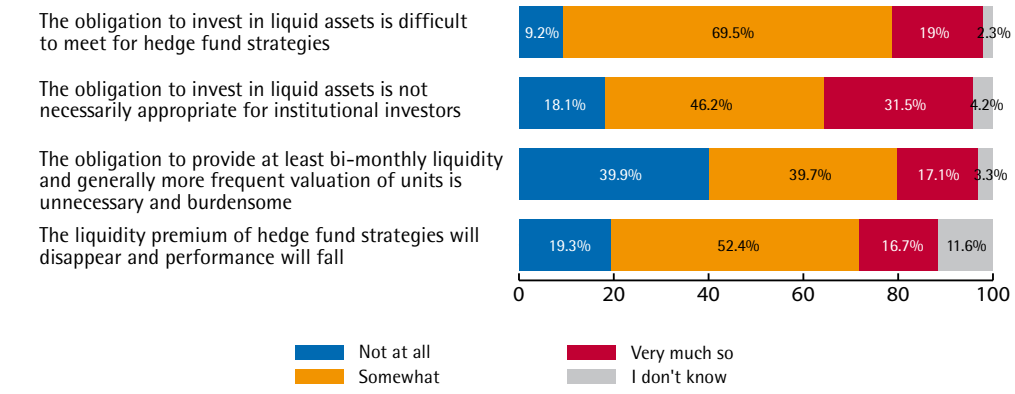
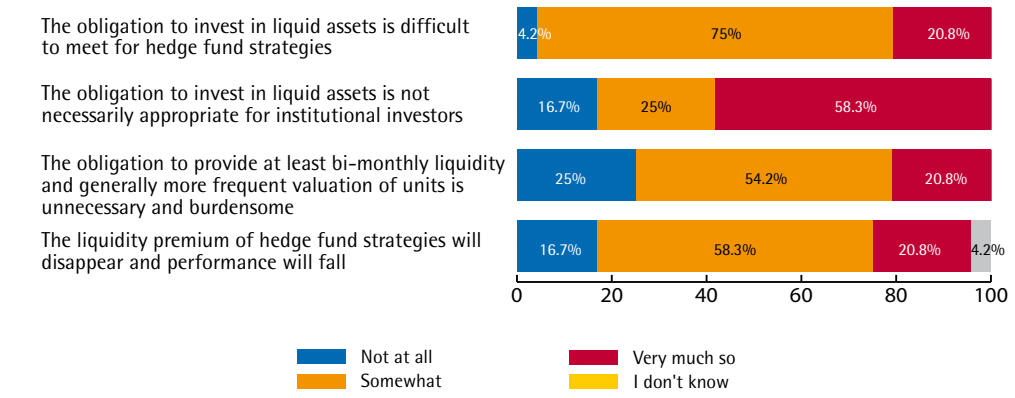


Figure 26b: Views of liquidity requirements (offshore)



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Managers of alternative funds and managers set up offshore are also more likely than respondents as a whole to think that the requirement for liquidity twice a month may be unnecessary and burdensome.

In addition, respondents have expressed concern about the impact of liquidity requirements and other quantitative restrictions on UCITS returns in their comments. One respondent, for example, said: "The [UCITS] directive will have implications for [hedge fund] strategies relating to liquidity, which will 'hurt' them (*i.e.*, possibly affect their performance). Most Long/Short Equity and Macro Strategies will make the transfer (both Directive and UCITS) without too many difficulties or an effect on their performance, although certain strategies (and this will likely be a very significant minority) will 'suffer' due to the leverage constraints in particular".

Fears related to liquidity restrictions are amply justified by academic work on the liquidity risk premium.

UCITS and the forgone liquidity risk premium

As we have mentioned, UCITS must invest in liquid securities. This obligation enables us to provide orders of magnitude for the diminished returns resulting from compliance with UCITS regulations.

Investors' preferences for liquidity mean that they must pay a premium for it and require assets that can be sold with low frictional (transaction costs, bid/ask spreads). For this reason, the first measures of the cost of liquidity were based on bid/ask spreads (Amihud and Mendelson 1988). These authors introduce the notion that the liquidity cost is higher for short-term investors because the annualised impact of the trading cost, seen as a one-off cost, diminishes with the holding horizon. By the same token, long-term investors may benefit from the liquidity risk premium by investing in assets with very high bid/ask spreads and holding them for a very long period. As academic studies point out that assets with higher bid/ask spreads have higher expected returns, long-term investors may be advised to invest in assets that have large bid/ask spreads and, in general, in those that have the highest premium. That more than 60% of Yale University's endowment is allocated to alternative strategies, is illustrative of this pursuit of liquidity risk. Indeed, the endowment's chief investment officer notes: "Accepting illiquidity pays outsize dividends to the patient long-term investor" (Arnsdorf 2009).

In terms of quantification, Amihud (2009) provides the rule of thumb that the liquidity risk premium should be at least equal to the (round-trip) trading costs times the average number of trades per year on a given security. To confirm these calculations, Amihud and Mendelson 1986) estimate that a 1% increase in bid/ask spread yields a 2.5% increase in returns. These calculations were made on pre-1986 data, when the annual stock turnover was around 50%—much lower than today—so they expect this excess return to have risen).

More recent estimates show that the liquidity premium can be considerable: Loderer and Roth (2003) show that the median-spread stocks trade at a 30% discount to zero-spread stocks (Nasdaq, 1995-2001). Aragon's (2004) analysis, more specific to hedge fund returns, shows that liquidity

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restrictions on hedge funds, summarised as lockup provisions and redemption periods, account for a significant share of their returns: "Aragon finds that the annual return on a portfolio of funds with lockup provisions is higher than the return on a portfolio of funds without such provisions (within a multifactor model). The difference is 7%–8% for equally-weighted portfolios and 4%–5% for value-weighted portfolios" (Amihud, Mendelson, and Pedersen 2005).

If Aragon's estimate is still valid, the transformation of these illiquid hedge funds into UCITS will affect their performance significantly.

Because of investors' appetite for illiquid assets, UCITS regulation clearly has weaknesses. Because it allows funds to invest partly in illiquid assets without disclosing the illiquidity risks to investors, the UCITS regulation gives investors a false sense of security: strikingly, valuation and the redemptions of units in UCITS money market funds were suspended during the sub-prime crisis in 2007. EDHEC has proposed that funds, such as regulated closed funds whose liquidation horizon would be equal to that of the assets in the fund, be made available (Amenc 2009). These regulated funds would naturally not be subject to liquidity constraints, and investors in these funds could trade their units on secondary markets to recover funds that cannot be redeemed.

3.2.3.2 Other costs from the UCITS regulation

Views of quantitative restrictions

Eighty percent of respondents think that compulsory diversification will distort hedge fund strategies. In addition, more than 70% of respondents think that limiting borrowing to 10% is less than optimal; 70% think the same about similar limits on counterparty risk.

Ninety percent of respondents from AIFs (more than 95% if one excludes those who report they have no opinion) fear this distortion. Respondents located offshore have similar views.

Figure 27a: Views of quantitative restrictions (all respondents)

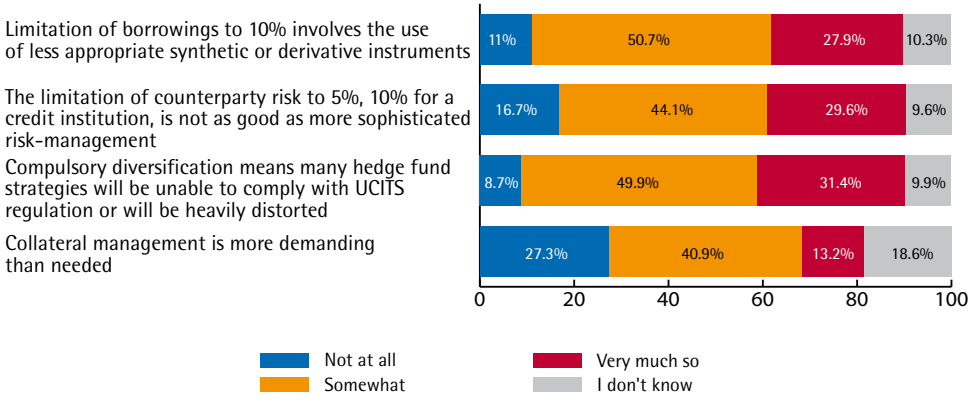

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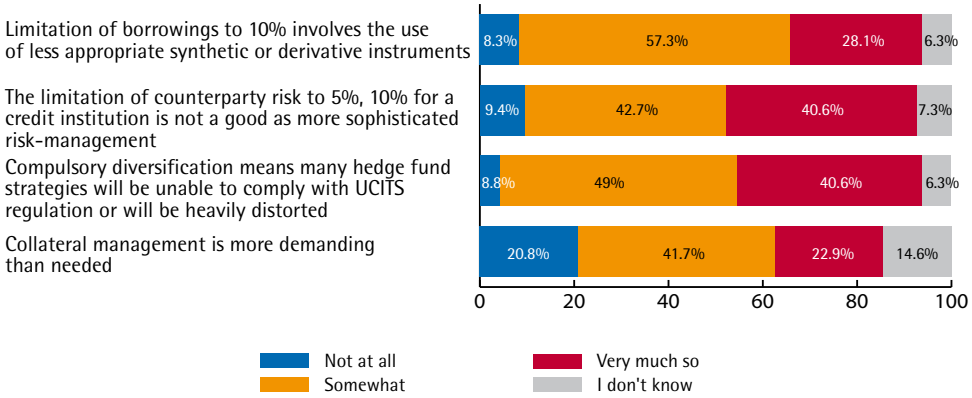
Figure 27b: Views of quantitative restrictions (AIFs)



By the same token, 80% of respondents are worried that restrictions on eligible assets will make it harder for them to set up profitable strategies; 85% of respondents from AIFs and 95% of respondents from offshore share this view (graphs not shown).

In general, the views of the financial community are that UCITS restrictions may lead to changes in hedge fund strategies.

These constraints, apart from distorting strategies, may involve costs: costs for derivatives, for instance, or for structuring and monitoring.

Costs of the use of derivatives

As UCITS will take short positions through derivatives (rather than by borrowing), the cost of shorting should increase. Whereas alternative funds face the cost of borrowing securities, UCITS will buy a product whose cost involves a margin on top of the cost of borrowing securities faced by the broker.

In addition to the normal cost of using derivatives, the more hedge funds structured as UCITS there are, the more expensive shorting may become. Currently, borrowing securities is easy because hedge funds, unlike UCITS, allow prime brokers to reuse securities as part of their collateral arrangements. The fewer funds structured in non-UCITS form, the fewer sources of securities as collateral with prime brokers. The use of derivatives will dry up the market for lodging securities as collateral with prime brokers and there will be fewer securities available to borrow or lend, thereby increasing costs.[14]

The cost of borrowing securities may rise more for some securities. Current re-hypothecation agreements usually specify a maximum amount of securities held at the prime broker that can be reused (usually 120% of the amount of loans made by the prime broker to the fund), but not which security may be reused, so the prime broker is free to pick any security held by the fund to lend it to another firm at any point in time. But without this freedom to re-use any security, individual investment funds fund will need to choose the security they will lend, and certain securities may become scarcer on the securities lending market (for instance, those that may have to be sold in the short term in volatile periods). Scarcer securities will naturally become expensive to short, and in a way much more visible than in current arrangements.

14 - It is, however, difficult to estimate the impact of such an eventual crowding of hedge fund strategies into the UCITS form. A rule of thumb would require knowing the proportion of securities lent by prime brokers that are actually being reused (vs. the proportion that are being borrowed on securities lending platforms).

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Structuring and monitoring costs

Hedge funds that wish to structure as UCITS will incur one-off costs for re-domiciling offshore funds in Europe of offshore funds and for changes in legal structure or the reorganisation of business models.

In addition, they will be subject to ongoing costs for depositary services. Depositary controls are more complex in the case of alternative strategies, yet they may be made mandatory. In addition, there are also more sub-custodianship problems, which, given stricter depositary custodianship liability, mean greater capital requirements at depositaries, and the cost of this capital must be passed through to asset management firms (and to the end-investor). Overall, depositary costs should not be underestimated for hedge-fund UCITS.

In some studies, the costs for hedge funds to comply with the European directive are compared with the potential reduction in diversification benefits if hedge funds are no longer accessible to institutional investors (the association of Dutch pension funds stated that 22% of the €450bn of assets managed by Dutch pension funds are managed by non-UCITS, non-European funds). We find these comparisons misleading, because institutional investors do not need UCITS or even regulated funds to access hedge fund strategies. Alternative means such as performance swaps may be explored.

Collateral management

Respondents are more likely to disagree with the statement that "collateral management is more demanding than needed" than with any other statement.

It is indeed possible that the current practices of collateral management are not optimal. In addition, the responsibilities for collateral management—and how they are shared by asset management firms and their depositaries—are often unclear. In addition to the Lehman case, in which depositaries regulated in France have been held liable for the restitution of collateral of ARIA funds to a prime broker, depositaries often have valuation responsibilities in derivatives contracts, meaning that they are indirectly liable for possible counterparty risk from inadequate collateral management, since the collateral to be transferred is a direct result of the price movements of the derivatives contract.

Box 7: Towards better management of collateral

Total collateralisation may, in theory, be desirable, but because institutions face cash constraints it cannot always be achieved in today's environment. The norm is to put up liquid assets (cash or collateral), although to keep liquidity available banks often attempt not to apply full collateralisation with their larger counterparties.

The more onerous liquidity constraints affecting banks in the wake of the financial crisis (and the realisation that stricter oversight of liquidity risk and perhaps quantitative capital requirements, not stipulated in Basel II, were necessary) will not make anything easier.

Here, the degree of collateralisation of derivatives contracts is seen to have a cost, the cost of the funding of the liquidity (the cost of a repo involving a temporary swap of risky assets and cash).

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In an attempt to make the cost of this operational risk more transparent and to go some way to offsetting it, some banks charge the weaker counterparty to a contract for the net cost of the counterparty risk. For each of the counterparties, the cost of the risk of default is the likelihood of default of the counterparty multiplied by the average expected loss of a contract (which thus depends on collateralisation and on the likelihood of the contract's being in the money at the moment of default). The net cost is the difference between these two costs, so the premium paid reflects an "average" cost and allows partial protection for the more highly rated counterparty. Ideally, one would want to extend the collateralisation practices so that counterparty risk is totally shed. The first step is not to allow excessive collateralisation to create "reverse counterparty risk", *i.e.*, the possible immobilisation or seizure of excessive collateral entrusted to another party in the event of the failure of the counterparty.

Tri-party collateral agreements make it possible to manage this risk. In these agreements, the collateral for a contract between parties A and B is safe-kept by an independent party C, usually a large depositary bank or custodian. Party C ensures that no more than the required collateral is ever paid out to either A or B.

Tri-party collateral agreements thus also offer the possibility of over-collateralisation from both parties, so counterparty risk is shed. In addition, it makes it possible to post risky assets as collateral (as long as there are shave-offs, *i.e.*, further over-collateralisation from both parties).

The practice of using tri-party agreements to shed counterparty risk has not yet been evaluated by the industry, but, for asset managers, the development of central counterparty platforms should mitigate many of the problems of managing collateral and counterparty risk. Central counterparties should also prevent the counterparty risk that generally comes with leverage from forcing funds to enact more restrictive leverage policies.

Conclusion

It is likely that the risk-adjusted performance of hedge funds UCITS will be significantly altered by the rising costs of instruments and of asset servicing; the smaller pool of opportunities; diminished returns from artificial compliance with UCITS requirements, such as unfocused risk-spreading from strategies previously concentrated in highly defined choices; and reduced leverage.

Reduced leverage has no influence in a world with no fixed fees, but when there are fixed fees, as with alternative investments, and, worse, when there is an additional inability to capture risk premia, reduced leverage leads to worse risk-adjusted performance.

Risk-adjusted returns will, in all likelihood, fall sharply for hedge funds that exploit strategies that do not initially comply with UCITS requirements, such as those based on long-term, illiquid instruments.

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3.2.4 Distribution Problems for Hedge-Fund UCITS

3.2.4.1 Participants Think That Institutional Investors Should Access Hedge Funds without a UCITS Wrapper

Two-thirds of respondents (AIFs do not differ significantly from respondents as a whole) report that there are problems with the distribution of hedge funds to retail investors. Eighty percent (more than 90% of AIFs) think that institutional investors should have access to alternative strategies without the need for the expensive UCITS framework. Institutional investors have an even clearer view: 97% believe that UCITS should not be necessary to access HF strategies.

3.2.4.2 Distributing Hedge-Fund UCITS to either Retail or Institutional Investors Is a Concern

Retail investors

Some respondents think that hedge-fund UCITS are simply not suitable for retail investors. One notes: "The mass distribution of financial instruments provides the conditions in which more people may lose their funds. Approval of hedge funds via UCITS communicates a message that risk and reward are not related. After all hedge funds may take away risk on one level (production of return) but with their non-transparency, leverage, and higher charging structures they overlay considerations which increase risk/costs to investors. [...] Hedge funds

Figure 28a: Views of distribution problems (all respondents)

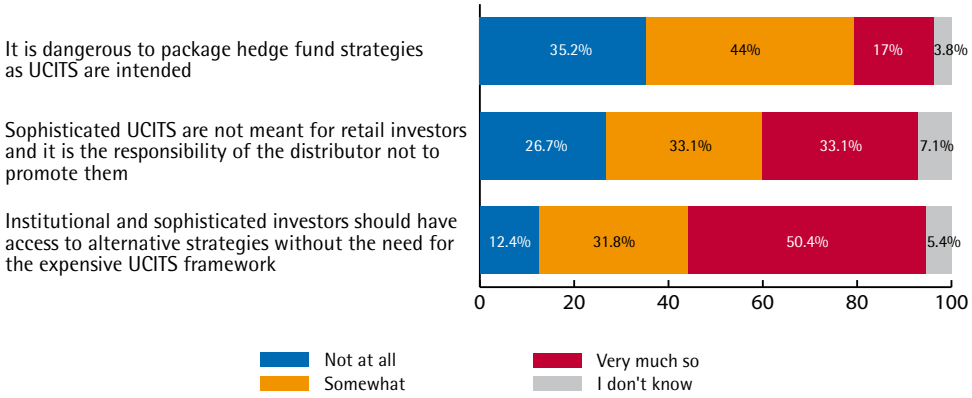
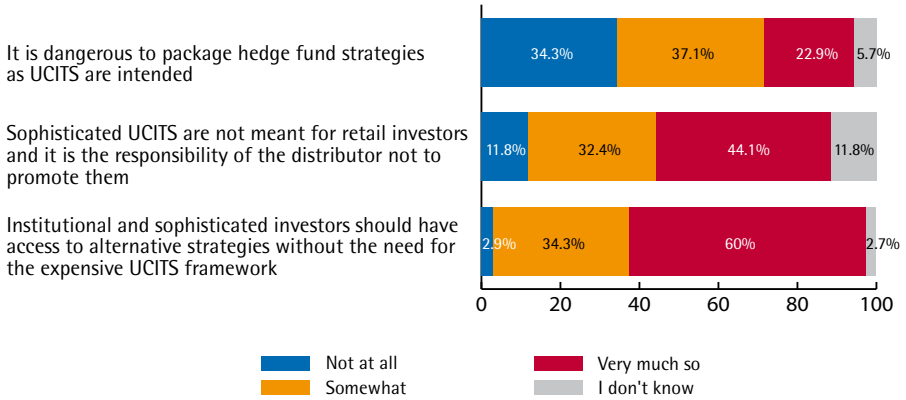


Figure 28b: Views of distribution problems (institutional investors)



3. Structuring HF Strategies as UCITS

should not be used by other than very sophisticated investors and perhaps then only on a bespoke basis, which will act contrary to packaging them via UCITS".

• Suitability of hedge fund strategies

The suitability of hedge funds, even if packaged as UCITS, for retail investors, is indeed arguable. In theory, expanding the menu of asset classes is desirable, but retail investors, usually considered unfamiliar with the complexities of the financial markets, may not understand the complex risks associated with specific hedge fund strategies or be aware that the benefits of investing in a particular fund or strategy are likely to be limited. Before choosing specific alternative strategies, retail investors must first apply broad portfolio management principles. So it may be more appropriate for them to invest in funds of hedge funds, preferably indexed funds of hedge funds, as they could then diversify away from traditional asset classes, all while maintaining limited exposure to specific risks they may not understand.

One respondent emphasises that the provisions made by the French regulator for non-coordinated regulated alternatives, the so-called ARIA funds, are particularly well suited to the retail market. ARIA funds also make it possible to borrow securities and build Equity Long/Short strategies in a traditional way (and to limit contractually the depositary's liability with respect to the assets held or re-used by the prime-broker). A respondent also pointed out that the provisions in the French ARIA regulations could serve as the basic framework for the AIFMD.

These specific strategies that involve leverage still benefit from UCITS depositary protection (although we think this protection is excessive in France). And minimum investments of €125,000 are generally required, so, in practice, access to these funds is limited to high net worth individuals or sophisticated investors (as distributors and advisers are bound to propose a diversification of investments, a rule of the thumb says that investors in such funds must have financial wealth of at least €1mn).

• Distributors are responsible for the advice provided

The suitability (or lack thereof) of hedge-fund UCITS for retail investors may be a concern for distributors. Banking distributors are bound by the MiFID (EU 2004/39) directive, and some countries, such as the UK, have specific regulations for distributors.

Distributors (or promoters and investment advisors) are generally responsible for providing products that meet investor's needs and clear explanations of the risks embedded in these products. They are legally responsible for their advice. In most instances, of course, asset management firms belonging to large financial institutions would rather settle any dispute out of court than engage in public legal procedures that may sully the image of the institution.

How can distributors explain adequately and disclose clearly the risks in hedge-fund UCITS strategies when they lack the necessary information? In particular, asset managers and depositaries are not obliged to disclose non-financial risks clearly, not even in the key information document (KID). After all, there is no obligatory mention of

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non-financial risks, even though the CESR has acknowledged that the synthetic risk indicator "may not capture all risks".

The extreme poverty, even in the KID, of disclosures of non-financial risk should be a concern for distributors, whose moral obligation is to inform their clients of relevant aspects of the investment funds.

Institutional Investors

As illustrated in figure 28b, institutional investors think that hedge-fund UCITS are not suitable for institutional investors. Additional comments illustrating this view are as follows:

"[The] UCITS framework is useful for retailing out HF strategies, but for the most part [...] unnecessary for institutional investors. Whatever investment restrictions are applied will be less than the unrestricted investment guidelines of offshore jurisdictions—so (gross) returns will be less, and costs will likely be higher than offshore funds across the universe".

"Most of the institutional demand in continental Europe is for regulated vehicles, with maximum transparency, readable investment processes, without excessive risk taking. The traditional heavily leveraged Cayman HF, taking mostly liquidity risk premia is not adapted to this market [...]. [The] UCITS framework as it stands today forces you to refocus on the actual risk/reward combination and more properly budget your true risk. It is arguably better suited for less sophisticated, more conservative continental European institutions as opposed to sophisticated northern European pension funds (British, Dutch, Swedish or Danish)".

In addition, it is very likely that hedge-fund UCITS, which are a subset of the current hedge fund universe, are not sufficient to meet institutional investor demand for alternative assets.

Unlike retail investors, institutional investors have huge amounts of wealth to invest and the resources to analyse strategies. Because of the nature of their liabilities, they also have more distant investment horizons; in addition, by pooling savings they diversify away the specific risk of the individual's requiring liquidity in times of financial stress (each individual is subject to the risk of unemployment after a crisis, but in all likelihood only a fraction of investors will lose their jobs at any one time, so the institutional investor can invest in less liquid securities). In short, institutional investors are generally inclined to invest some of their wealth in strategies that they expect to return a liquidity premium; that is, they invest in alternative strategies.

Unlike retail investors, institutional investors can access the full universe of hedge fund managers and do not rely on hedge fund managers' marketing to choose their strategies. They also have the resources, rarely available to retail investors, to analyse strategies and to do due diligence themselves or to contract third parties for these services.

But institutional investors have also been hit by the recent crises and, as our survey shows, are highly conscious of the operational risks associated with their investments. Most are now reluctant to invest in "traditional" offshore hedge fund strategies, and they are showing a greater appetite for hedge fund strategies packaged as UCITS.

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UCITS, after all, are seen as relatively free of operational risks, but their relative immunity to these risks comes at the direct cost of tighter controls and at the indirect cost of altered strategies and reduced risk premia.

UCITS are thus not sufficient to meet institutional investors' needs for risk—which can be defined by the risk they should take with an understanding of how their utility function differs from that of the average market investor. In particular, since institutional investors have longer investment horizons than the average investor, they should try to access the liquidity risk premium, and for this reason, hedge-fund UCITS would not sate their hunger for risk.

• Costs of investing in hedge funds and the sharing of due-diligence costs

The costs of due diligence, which makes it possible to choose strategies and to assess the non-financial risks of hedge funds, are redundant, as they are borne by different investors at the same time. In a UCITS, the depositary and the asset management firm will bear some of the due-diligence costs, but because these two companies must assess risks independently, they will often duplicate the due-diligence procedures (and costs) for any investments in other hedge funds. In addition, all investors in a given hedge fund need to perform the same due diligence.

Institutional investors could either outsource the performance of due diligence or, if they have the same due-diligence obligations, pool their resources and share the costs of a single due diligence for each target fund.

This process should then facilitate direct access to hedge fund strategies, either through direct investment in hedge funds or through performance swaps (institutional investors are usually permitted to invest in performance swaps or related structured products). These instruments, if collateralised, provide access to the full performance of the hedge fund strategies chosen by the investor, at a cost far less than that of structuring a fund into UCITS, but operational losses or the disappearance of assets will lead to losses for investors just as if they had themselves invested directly in hedge funds. For this reason, using derivatives to invest in hedge funds still requires due diligence, a requirement that in no way invalidates our argument for sharing the costs of this process.

In general, it seems to us that the use of UCITS to distribute hedge funds to professional investors is a perverse outcome of messy regulation.

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4.1 Insufficient Industry Awareness of Problems Posed by the Depositary Role

Managers and distributors of funds believe, in the main (70%), that the definition and the role of the depositary are appropriate, in stark contrast to depositaries and custodians themselves, an overwhelming majority (80%) of whom consider their roles and responsibilities inappropriately defined.

This disconnect seems to indicate that the role of depositaries and the problems they encounter when modifications to the UCITS framework are made have been neglected by most respondents (except depositary professionals). As it happens, regulations that apply to the depositary may need to undergo total reworking rather than mere modification. In some European countries, these regulations are an outgrowth of bank law: in France, for example, the restitution obligation is a legacy of the Civil Code, that is, of a period in which safekeeping involved deposits of deeds of ownership and valuables put in the safe-deposit boxes in a bank. In addition, the new instruments and strategies allowed in UCITS pose numerous problems. The back office has likewise been neglected.

Figure 29a: Are the definition and the role of the depositary appropriate? (managers and distributors of funds)

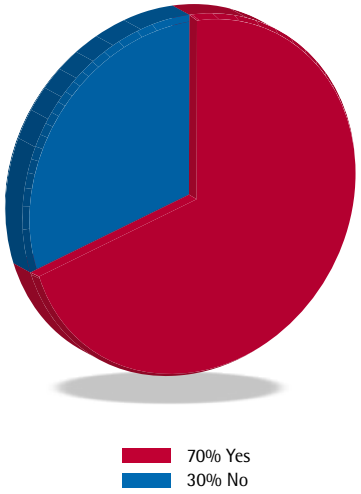
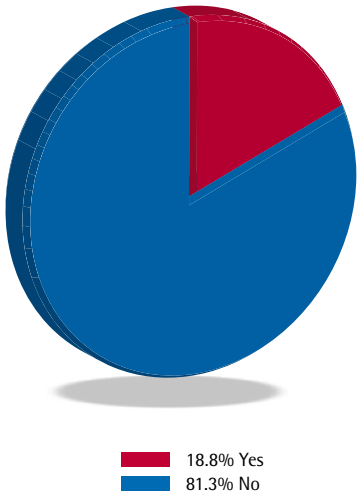


Figure 29b: Are the definition and the role of the depositary appropriate? (Depositaries and custodians)



Does this disconnect show that the fund industry is unaware of non-financial risks? In this respect, the EU definition of a qualified investor (EU 2004/39) is perhaps questionable: clients may be treated as professional investors, "on request", if at least two of the following requirements are met: (i) the client has carried out transactions, of significant size, in the relevant market at an average frequency of ten each quarter over the previous year; (ii) the size of the client's financial instrument portfolio exceeds €500,000; (iii) the client works or

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has worked in the financial sector for at least one year in a professional position. So-called professional investors may be far less aware of the non-financial risks than a more modest back-office employee.

Local depositary liabilities and obligations are unclear

Depositaries underscore, first, that their local liabilities and obligations are unclear. For representatives of legal departments, AIFs and institutional investors, the unclear liabilities of local depositaries are the primary stumbling block too.

After all, the liabilities and obligations of depositaries differ markedly from one European country to another, because depositary rules are closely linked to legal origins, the history of banking and asset management, and whether countries are primarily producers or consumers of funds. These disparities are very much at odds with the spirit of the single market. UCITS, of course, are promoted as commoditised European funds that can be managed and domiciled anywhere in Europe and yet offer equal protection to unit-holders. But as experience shows, degrees of protection rise and fall in tandem with the greater or lesser liability of depositaries, so as long as these disparities remain UCITS should be considered domestic, not European, products.

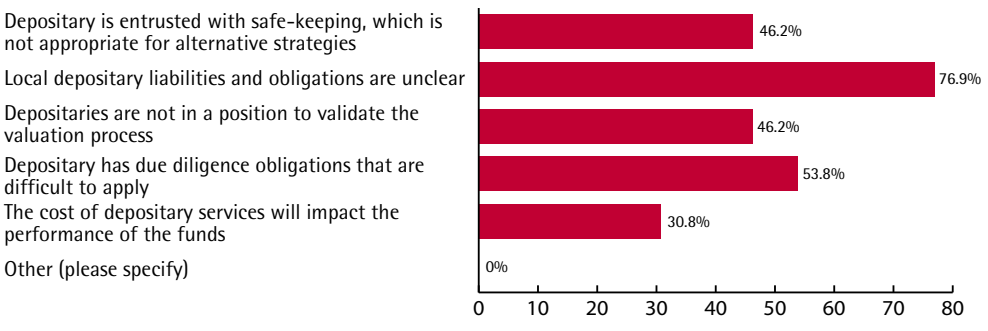
The depositary has diligence obligations that are difficult to apply

Depositaries likewise mention that their due-diligence obligations are difficult to fulfil.

Many of the tasks depositaries must perform are poorly defined. In fact, there is an inherent conflict between the depositary's obligation to monitor the decisions made by asset managers and the need to allow swift implementation of investment decisions. This necessity means that, in practice, most monitoring takes place after the fact. So what is the appropriate time-frame for controls? How exhaustive should they be? How to split the liability for losses between the asset managers and the depositary? Too often, these questions have not been posed by local regulators.

The eligibility of assets, which can be judged only *ex post* by depositaries, illustrates the necessity of clear guidelines for depositary obligations. Controls of listed assets are

Figure 30: If the definition and the role of the depositary are not appropriate, why not? (Multiple choice possible, depositaries and custodians)



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now made relatively easy by computer programmes, as the characteristics of listed assets are generally accessible electronically. A depositary, for instance, can detect relatively easily whether the asset management firm has invested in a futures contract on commodities that involves a physical settlement (rather than a cash settlement). In that case, the depositary should be able to contact the asset managers in the next few days and ask them to undo the transaction (and immediately warn regulatory authorities if the managers are reluctant to do so). For unlisted assets, the situation is much more complex. Many OTC transactions are still paper-based, so controls are subject to significantly greater delays, errors and omissions than for electronic transactions. Likewise, UCITS requires that target funds comply with UCITS quantitative restrictions. But it is very hard for the depositary to verify this compliance. In short, then, depositary controls are problematic above all in the world of alternative assets and funds of funds.

Valuation and costs

Legal departments and AIFs point first to the lack of clarity of local depositary obligations, then to a notion of safekeeping inappropriate for alternatives, and the inability of depositaries to validate the valuation process for complex instruments.

They then point to the cost of depositary services as a consequence of their greater responsibilities and the necessity of more numerous checks of alternative strategies.

Institutional investors also express concern, above all, about the lack of clarity of the depositaries' obligations; that depositaries are not in a position to validate the valuation process, a problem for those which have the largest positions in derivatives (NB: this valuation problem affects 83% of pension funds) is likewise a concern.

Finally, the cost of depositary services is the primary concern of offshore funds. After all, these funds are not obliged to have a depositary/custodian, and when they have one, they are free to choose the services the depositaries will perform.

Box 8: The AIFMD proposal allows depositaries to exempt themselves from the obligation of restitution on condition that they pursue ongoing due diligence

The inharmonious legal responsibilities in European countries are unsustainable, as they will ultimately undermine the notion of a single market for investment funds in Europe (UCITS). The failure to harmonise responsibility rules Europe-wide raises the risk that asset management firms will choose to register in the countries with the lowest depositary costs.

The European Commission, in a framework made part of the AIFMD, is taking preliminary steps to ensure uniform depositary obligations throughout Europe. It would have been more logical to design depositary rules before the AIFMD and to issue separate recommendations. Because there is as yet no agreement on the AIFMD, and because the proposed changes to depositary rules have been made part of this directive proposal, it may be impossible for the European Parliament to vote on any of these rules.

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In brief, the AIFMD proposes that the depositary be fully liable for a loss of financial instruments, unless it contractually exonerates itself in the event of sub-custodianship, as long as it meets its obligations to monitor risk. Though these obligations must be defined at a later stage by the European Commission, it is widely expected that they will be more stringent than they currently are in most countries. In addition, the Commission has proposed obligations to disclose sub-custodianship (when the depositary is exonerated from its liability) and potential conflicts of interests. Although this transparency is welcome, we still think that the British requirement that the usual bones of contention be disclosed and that unit-holders be notified is a good practice.

Conclusion

The first conclusion of this study is that hedge-fund UCITS will offer less attractive performance than hedge funds themselves. Packaging hedge funds as UCITS involves altering strategies and lowering their performance; the liquidity risk premium, for instance, is no longer accessible. In addition, the cost of asset management servicing also increases, particularly for complex strategies and funds of funds, costs that will further hit the performance of these funds.

Second, the UCITS framework may be appropriate neither for retail nor for institutional investors.

In general, retail investors neither need access to very specific alternative strategies nor have the knowledge to profit from them; they should instead seek exposure to hedge fund strategies through indexed funds of hedge funds. It is then the responsibility of the distributors to ensure that hedge-fund UCITS suit their clients.

The creation of UCITS structures as a means for institutional investors to access hedge fund strategies is, in our view, a perverse outcome of a messy set of regulations: these investors, despite their sophistication, their need to access alternative strategies to diversify, their natural long-term horizons, and their ability to invest in illiquidity strategies, are generally not allowed to invest directly in hedge funds. In addition, given the uncertainties on the agenda for the AIFMD, fund managers and distributors find it easier to structure their funds in an existing and stable form, UCITS. But because of the costs involved in the UCITS form, and because of the need to invest in liquid assets, a need that may not suit the long-term nature of institutional investors' portfolios, the UCITS framework may be particularly penalising for these investors. They may instead consider accessing hedge fund strategies via performance swaps, knowing that they will still need due diligence processes when deciding which hedge fund to invest in.

Third, in the UCITS framework, some of the non-financial risks are transferred to the depositaries, with very diverse consequences in European countries. The lack of harmonisation and clarification of depositary liabilities in Europe makes a general conclusion of the consequences of the risk transfer towards depositaries somewhat arduous. This transfer of risk makes it urgent to clarify depositaries'

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liabilities and obligations Europe-wide; only with harmonisation and a level playing field for UCITS depositaries will a single market for UCITS become a reality. Without swift harmonisation, the now clear understanding that liabilities of depositaries are inconsistent throughout Europe would probably mean significant regulatory arbitrage—or regulatory dumping—and, on the whole, decreased average protection of unit-holders in Europe.

Although some transfer of risk to depositaries may be appropriate, it is essential that regulations create incentives not merely to have depositaries insure non-financial risks but to ensure that these risks are managed. If there are no such incentives, no aggregate protection will be gained for the end-investor, who will in the end bear the *ex ante* cost of insuring non-financial risks rather than the *ex post* cost of realised non-financial risks, but will, in the aggregate, not be better off (except at a second order, for lower volatility in realised non-financial risks).

In sum, the wave of Hedge-Fund UCITS is a consequence of changes in the regulation of investment funds. What we are currently observing may be nothing more than the initial impact of regulatory changes. In the coming years, further modifications to the capital requirements, risk management practices and business models of prime brokers, depositaries, and asset managers are to be expected.

On the whole, our main suggestions for the regulation of investment funds are the following:
The idea of a single type of regulated fund that suits all categories of investors is a pipe dream. UCITS regulation should focus on the needs of retail investors, and regulators should stop expanding the menu of alternative asset classes and strategies, at least until proper regulation and communication of the non-financial risks of these novel techniques are properly addressed.

In particular, if investors are eager to capture the liquidity premium, hedge-fund UCITS may lead to the same liquidity risks as found in money-market funds during the recent crisis. To resolve the problem of fund liquidity, EDHEC has proposed (Amenc 2009) that a separate class of regulated funds be created for investments in illiquid strategies. Regulated closed funds with a liquidation horizon equal to that of the assets in the fund could allow a clear distinction between funds that invest in liquid instruments and other funds. These closed funds could be exchanged on secondary markets should investors wish to redeem early.

Because alternative funds suit institutional investors' needs better than UCITS do, hedge funds would naturally seek to structure as regulated AIFs rather than as UCITS if the AIFMD authorised not just the marketing of funds Europe-wide, as it is doing, but also the distribution of these funds to institutional investors. So, to give hedge funds incentives to submit to the AIFMD, the EU should ensure that institutional investors are allowed to buy regulated alternatives.

Finally, for the optimal management of non-financial risks by distributors, asset managers, depositaries, and valuators, each party should be accountable for the risks it is responsible for, and it must hold adequate

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capital to compensate unit-holders for any relative non-financial losses. When capital requirements are not made of each party, most of these parties have no incentives to manage and communicate risks, as it is highly likely that end-investors and regulators will seek to have the most highly capitalised party, usually the depositary, bear the ultimate responsibility for all losses. By the same token, the liability-sharing agreement proposed in the AIFMD should imply that distributors, asset managers, depositaries, and valuators hold sufficient regulatory capital to discharge their responsibilities in the event of losses. Yet the AIFMD proposal and the consultation on the UCITS depositary have failed to raise the question of capital requirements.

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Appendices

Appendices

1. Summary of Quantitative Restrictions

Excerpts from the UCITS directive.

These restrictions can be summarised as follows:

• The 5%-10%/20%/40% concentration risk ratios: "A UCITS may invest no more than 5% of its assets in transferable securities or money market instruments issued by the same body. A UCITS may not invest more than 20% of its assets in deposits made with the same body [...]. Member States may raise the 5% limit [...] to a maximum of 10%. However, the total value of the transferable securities and the money market instruments held by the UCITS in the issuing bodies in each of which it invests more than 5% of its assets must not then exceed 40% of the value of its assets. This limitation does not apply to deposits and OTC derivative transactions made with financial institutions subject to prudential supervision".

• Exceptions:
- 25% for regulated credit institutions: "Member States may raise the 5% limit [...] to a maximum of 25% [...] bonds when these are issued by a credit institution which has its registered office in a Member State and is subject by law to special public supervision designed to protect bond-holders".
- 35% for quasi-government bonds: "The Member States may raise the 5% limit [...] to a maximum of 35% if the transferable securities or money market instruments are issued or guaranteed by a Member State, by its local authorities, by a non-member State or by public international bodies to which one or more Member States belong".
- 80% total exceedance limit: "When a UCITS invests more than 5% of its assets in the bonds referred to in the first subparagraph and issued by one issuer, the total value of these investments may not exceed 80% of the value of the assets of the UCITS".
- 100% for government bonds: "By way of derogation [...] Member States may authorise UCITS to invest in accordance with the principle of risk-spreading up to 100% of their assets in securities and money market instruments issued or guaranteed by any Member State [...]. The competent authorities shall grant such a derogation only if they consider that unit-holders in the UCITS have protection equivalent to that of unit-holders in UCITS [...]. Such a UCITS must hold securities from at least six different issues, but securities from any one issue may not account for more than 30% of its total assets".

• The 5%-10% FDI counterparty ratios: "The risk exposure to a counterparty of the UCITS in an OTC derivative transaction may not exceed:
- 10% of its assets when the counterpart is a credit institution referred to in Article 19(1)(f), or
- 5% of its assets, in other cases".

• 10-20%/30% investment in other funds:
- "1. A UCITS may acquire the units of [...] collective investment undertakings [that] are subject to supervision considered by the UCITS' competent authorities to be equivalent to that laid down in Community law [...] provided that no more than 10% of its assets are invested in units of a single UCITS or other collective investment undertaking. The Member States may raise the limit to a maximum of 20%.
- 2. Investments made in units of collective investment undertakings other than UCITS

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may not exceed, in aggregate, 30% of the assets of the UCITS".

• Borrowing limited to 10% (Art 36):
- "1. [A UCITS shall not] borrow. However, a UCITS may acquire foreign currency by means of a 'back-to-back' loan.
- 2. By way of derogation from paragraph 1, a Member State may authorise a UCITS to borrow up to 10% of its assets/value of the fund:
(a) provided that the borrowing is on a temporary basis;
(b) in the case of an investment company, provided that the borrowing is to make possible the acquisition of immovable property essential for the direct pursuit of its business".

• Short-sales to be performed synthetically. In addition to limiting borrowing to 10% of the value of the UCITS, naked short sales are generally forbidden. UCITS can short-sell a security only through derivative instruments (single stock futures or total return swaps on single stocks; in an equity long-short fund, one may use futures to short the entire market and buy individual securities in the traditional way).

• The 10% trash ratio. Article 19.2 states simply that: "a UCITS may invest no more than 10% of its assets in transferable securities and money market instruments other than those referred to in paragraph 1".

The vague wording concerning the "trash ratio" has sometimes led to the interpretation that UCITS may invest up to 10% of their assets in nearly anything. UCITS are nonetheless subject to domestic legislation, which generally obliges UCITS to invest even these amounts in financial securities and limits their ability to use this ratio to invest in derivatives and commodities. This 10% ratio can, in some circumstances, be used to invest in unregulated hedge funds or similar alternatives, in what seems to be in inexplicable contradiction with UCITS requirements.

2. Quantitative VaR Assessment: How Many Strategies Would Pass the Test?

Statistical Methodology: A Proxy for Leverage Measurement

Value-at-Risk at a given point in time should be estimated by taking the fund's position into account, and most practitioners and theoreticians would think that having (internal) daily or weekly fund data would significantly enhance the precision of historical VaR estimates. Hedge fund databases, however, provide only monthly fund returns.

We use a conservative VaR estimate that consists of the greater of the (upscaled) sample VaR and of the parametric VaR. Both estimates are variations on "historical VaR", as they are based on past estimates rather than on forward-looking estimates (such as market implied volatility). In the absence of individual hedge fund positions, historical VaR is the most easily used method. In addition, VaR models usually rely on (actual) fund detailed positions and at the same time on historical parameter estimates, so they are tantamount to historical VaR. In particular, VaR estimates tend to be pro-cyclical, and our method makes it possible to reproduce this stylised fact.

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Sample VaR returns biased estimates when the sample size is less than the desired percentile. When there are fewer than 100 returns to estimate the 99% VaR, the worst return but one is a biased element of a VaR at a confidence interval of less than 99%. To illustrate this bias, suppose that we have sixty returns to estimate the 99% VaR. The worst return but one gives us an estimate of the 59/60=98.3% VaR, less than the 99% VaR. In that case, taking normal assumptions on the tail of returns, we upscale the sample VaR so that it reflects the adequate confidence interval (when there are sixty data, the sample VaR must be adjusted by approximately 10%).

Sample VaR is also a volatile estimate of the true VaR: when there are few observations in the tail of the distribution, the empirical VaR estimates are a random selection of a small set of values of a very volatile sub-sample, so the estimate will itself be volatile. And when the sample size is less than the desired percentile, our rescaled empirical VaR will provide optimistic results when the distribution is negatively skewed or has positive kurtosis.

For this reason, we supplement our calculations with a parametric VaR estimate, the Cornish-Fisher VaR expansion (Zangari 1996). The Cornish-Fisher VaR expansion relies on the approximation of a law that is "not too different" from the normal law, but has non-Gaussian moments of order two or more. It is based on a Taylor development of the cumulative distribution function.

In our case, we simply use the first four moments, which leads to the following development for our P distribution:

For a given desired percentile q of the distribution, we write
$z = N^{-1}(q)$ where N is the *cdf* of the Gaussian law
With μ as the mean returns, σ as the volatility, S as the skewness and K as the centred kurtosis
$P(q) = \mu + [z + ((z^2-1)*S)/6 + ((z^3-3*z)*K)/24 - ((2*z^3-5*z)*S^2)/36] * \sigma$

This parametric measure is stable when the sample size is sufficient to estimate moments in a robust way. In small samples, parametric VaR can result in severe distortions, as only a few very high returns will have a large impact on the estimate of both the mean and the skewness of the strategies. As it happens, twenty-four funds in the CISDM database post returns of more than 80%.

The Corner-Fisher expansion, of course, yields adequate estimates when the P distribution is "not too far" from a normal distribution. For a strategy with stop-losses, for instance, this parametric VaR would yield highly biased estimates of the true VaR.

Other technical problems must be dealt with as well. Parametric VaR may yield unrealistic VaR estimates above 100% loss when the distribution of funds is negatively skewed.[15] In that case, as well as in the more anecdotal one in which upscaling sample VaR leads to a loss of more than 100%, we have limited VaR to the 100% maximum possible loss.

An option would be to build more robust estimators suited to the database we are dealing with (there is no reason that using

15 - In reality, losses can exceed the funds' asset value, but in that case additional losses are for asset management firms, depositaries, and distributors. But we do not tackle this issue with statistical analyses.

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estimators suited to very generic cases would also be optimal in our case). However, as our aim is neither to posit new theory nor to make perfectly accurate estimates, we take very basic statistical approaches. In short, for a robust estimate of the smallest number of hedge fund strategies that would pass the UCITS VaR test, we simply take the more conservative of our VaR estimates.

For the 1988-2009 period, we select at each date the funds that have at least sixty returns points, that is, five years of complete data. For the graphs that show statistics weighted by assets under management (AUM), only funds that display AUM are selected.

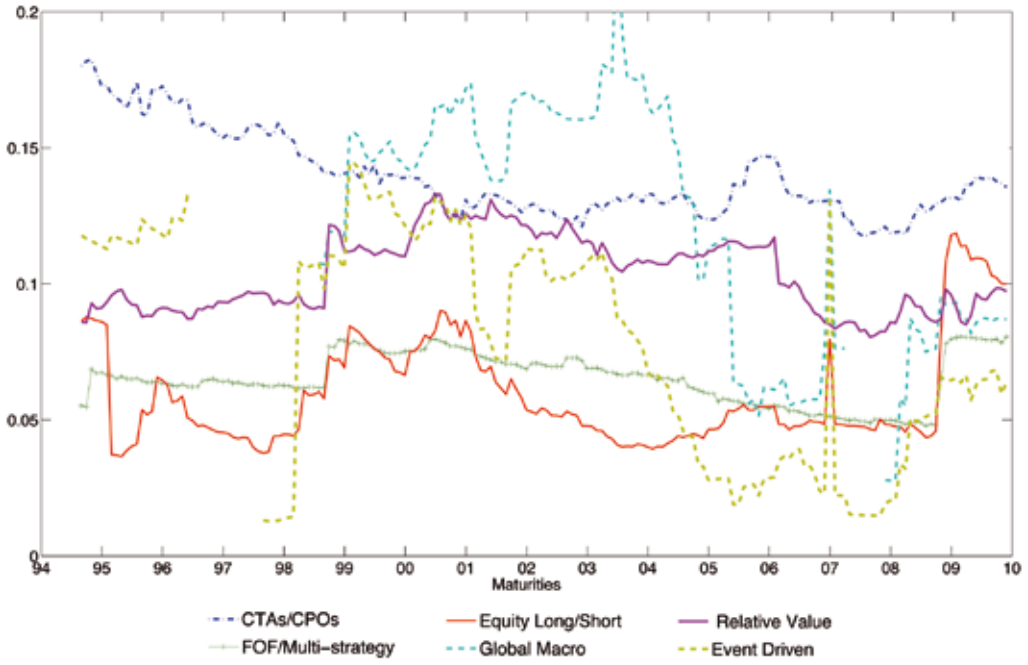
Cyclicality of VaR

Do UCITS VaR constraints protect against operational risks?

A question not asked in the survey, but important both for investors and for regulators of investment funds is whether UCITS VaR constraints do in fact serve as protection from operational risks.

After all, since Value-at-Risk is cyclical and poorly predicts financial risk, one may hope that having Value-at-Risk as a selection criterion will prevent investors from selecting hedge fund strategies that are the most susceptible to implosion. Figure 32 shows that before 2008 Value-at-Risk could serve as a screening indicator to select very risky hedge funds, as high-VaR hedge funds imploded more frequently. In 2008-2009, however, the crisis hit high- and low-VaR

Figure 31a: Cyclicality of VaR measurement (value-weighted)
Average Value-at-Risk, is cyclical, in particular for Global Macro and Event-Driven strategies, for Equity Long-Short, and, to a lesser extent, for the other strategies. The analysis is not based on a rolling window, as always selecting six years of returns would considerably accentuate the cyclicality of VaR estimates. In the graph below, the failure of high-VaR hedge funds and new hedge funds with controlled VaR (or self-reporting bias) in the database contribute greatly to the shape of these curves.



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hedge funds indiscriminately; supposedly low-risk hedge funds with leveraged positions in highly correlated securities also went belly up.

Figure 31b: Cyclicality of VaR measurement (equally-weighted)
On an equally weighted basis, average Value-at-Risk displays the same cyclical pattern—though slightly less pronounced for Global Macro and Event-Driven strategies, where bigger funds appear more stable (or risk-controlled).

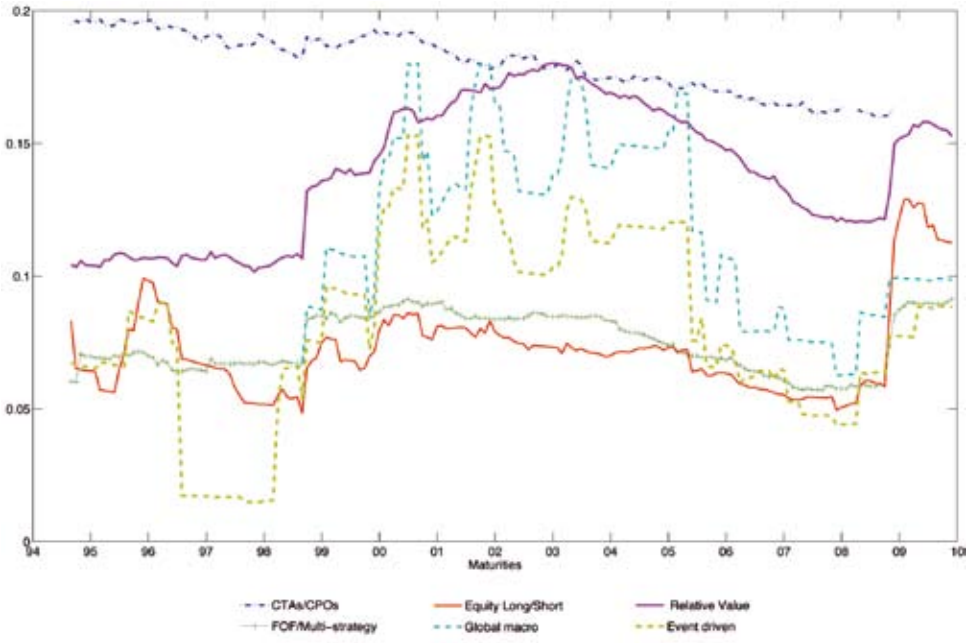
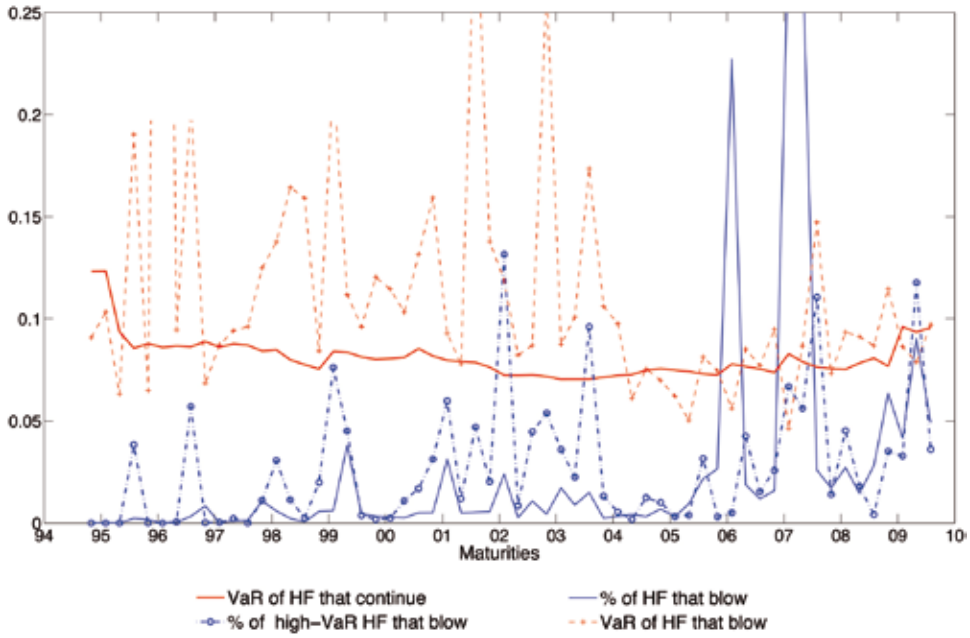


Figure 32: Relationship between blow-up rate and Value-at-Risk
The dotted red curve (compared with the plain red curve) shows that the VaR of hedge funds that blew up or simply stopped reporting was higher (before they stopped reporting) than the VaR of hedge funds that continued reporting. By the same token, the dotted blue curve (compared with the plain blue curve) shows that the proportion of high-VaR hedge funds that blew up or stopped reporting after three months was significantly greater than the proportion of low-VaR hedge funds that did the same. The 20% absolute VaR constraint is the threshold separating high- and low-VaR funds.
In 2008, the dotted and plain lines increased simultaneously at the same rate: the crisis affected both high-VaR and low-VaR funds at the same time.



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Although the greater correlation of risky assets conditional on the state of the economy is well documented (Engle 2002; Andersen *et al.* 2007),[16] the increasing importance of previously tame factors, such as credit and liquidity risks, has led to the de-correlation of strategies previously considered highly correlated.

Although liquidity was once considered the factor behind the spreads of government bonds from the euro zone, the crisis led to the resurgence of country credit risk within the euro zone, and bond yields de-correlated.

These changing correlations and the possibility of suddenly high realised variance (or even the implosion) of hedge fund strategies considered low risk illustrate yet again the fragility of various forms of historical VaR as a tool for risk measurement (including the internal measures used by many institutions). It goes without saying that methods more sophisticated than historical VaR will be more stable and will provide better forecasting power (see Andersen *et al.* 2007 for a review of more stable methods of measuring and predicting risk).

16 - Dynamic models of the variance of returns (Andersen et al. *2007) generally imply rising correlations when the market volatility rises. After all, idiosyncratic volatility will tend mechanically to play a lesser role when systematic volatility rises.*

Appendices

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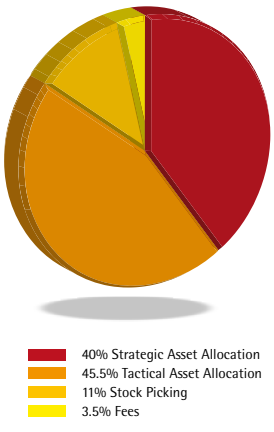
About EDHEC Risk Institute

About EDHEC Risk Institute

Founded in 1906, EDHEC is one of the foremost French business schools. Accredited by the three main international academic organisations, EQUIS, AACSB and Association of MBAs, EDHEC has for a number of years been pursuing a strategy for international excellence that led it to set up EDHEC-Risk in 2001. With 47 professors, research engineers and research associates, this centre has the largest asset management research team in Europe.

The Choice of Asset Allocation and Risk Management

EDHEC-Risk structures all of its research work around asset allocation and risk management. This issue corresponds to a genuine expectation from the market. On the one hand, the prevailing stock market situation in recent years has shown the limitations of diversification alone as a risk management technique and the usefulness of approaches based on dynamic portfolio allocation. On the other, the appearance of new asset classes (hedge funds, private equity, real assets), with risk profiles that are very different from those of the traditional investment universe, constitutes a new opportunity and challenge for the implementation of allocation in an asset management or asset-liability management context. This strategic choice is applied to all of the centre's research programmes, whether they involve proposing new methods of strategic allocation, which integrate the alternative class; taking extreme risks into account in portfolio construction; studying the usefulness of derivatives in implementing asset-liability management approaches; or orienting the concept of dynamic "core-satellite" investment management in the framework of absolute return or target-date funds.



Source EDHEC (2002) and Ibbotson, Kaplan (2000)

An Applied Research Approach

In an attempt to ensure that the research it carries out is truly applicable, EDHEC has implemented a dual validation system for the work of EDHEC-Risk. All research work must be part of a research programme, the relevance and goals of which have been validated from both an academic and a business viewpoint by the centre's advisory board. This board is made up of internationally recognised researchers, the centre's business partners and representatives of major international institutional investors. The management of the research programmes respects a rigorous validation process, which guarantees the scientific quality and the operational usefulness of the programmes.

Six research programmes have been conducted by the centre to date:

- Asset allocation and alternative diversification
- Style and performance analysis
- Indices and benchmarking
- Operational risks and performance
- Asset allocation and derivative instruments
- ALM and asset management

These programmes receive the support of a large number of financial companies. The results of the research programmes are disseminated through the three EDHEC-Risk locations in London, Nice and Singapore.

In addition, EDHEC-Risk has developed a close partnership with a small number of sponsors within the framework of research chairs. These research chairs correspond to a commitment over three years from the partner on research themes that are agreed in common.

About EDHEC Risk Institute

The following research chairs have been endowed to date:

- Regulation and Institutional Investment, *in partnership with AXA Investment Managers (AXA IM)*
- Asset-Liability Management and Institutional Investment Management, *in partnership with BNP Paribas Investment Partners*
- Risk and Regulation in the European Fund Management Industry, *in partnership with CACEIS*
- Structured Products and Derivative Instruments, *sponsored by the French Banking Federation (FBF)*
- Private Asset-Liability Management, *in partnership with ORTEC Finance*
- Dynamic Allocation Models and New Forms of Target-Date Funds, *in partnership with UFG*
- Advanced Modelling for Alternative Investments, *in partnership with Newedge Prime Brokerage*
- Asset-Liability Management Techniques for Sovereign Wealth Fund Management, *in partnership with Deutsche Bank*
- Core-Satellite and ETF Investment, *in partnership with Amundi ETF*
- The Case for Inflation-Linked Bonds: Issuers' and Investors' Perspectives, *in partnership with Rothschild & Cie*

The philosophy of the centre is to validate its work by publication in international journals, but also to make it available to the sector through its Position Papers, published studies and conferences. Each year, EDHEC-Risk organises a major international conference for institutional investors and investment management professionals with a view to presenting the results of its research: EDHEC-Risk Institutional Days.

EDHEC also provides professionals with access to its website, **www.edhec-risk.com**, which is entirely devoted to international asset management research. The website, which has more than 35,000 regular visitors, is aimed at professionals who wish to benefit from EDHEC's analysis and expertise in the area of applied portfolio management research. Its monthly newsletter is distributed to more than 400,000 readers.

EDHEC Risk Institute: Key Figures, 2008-2009

Number of permanent staff	47
Number of research associates	17
Number of affiliate professors	5
Overall budget	€8,700,000
External financing	€5,900,000
Number of conference delegates	1,950
Number of participants at EDHEC-Risk Executive Education seminars	371

Research for Business

The centre's activities have also given rise to executive education and research service offshoots.

EDHEC-Risk's executive education programmes help investment professionals to upgrade their skills with advanced risk and asset managementtraining across traditional and alternative classes.

About EDHEC Risk Institute

The EDHEC Risk Institute PhD in Finance

The EDHEC Risk Institute PhD in Finance at EDHEC Business School is designed for professionals who aspire to higher intellectual levels and aim to redefine the investment banking and asset management industries. It is offered in two tracks: a residential track for high-potential graduate students, who hold part-time positions at EDHEC Business School, and an executive track for practitioners who keep their full-time jobs. Drawing its faculty from the world's best universities and enjoying the support of the research centre with the greatest impact on the European financial industry, the EDHEC Risk Institute PhD in Finance creates an extraordinary platform for professional development and industry innovation.

The EDHEC Risk Institute MSc in Risk and Investment Management

The EDHEC Risk Institute Executive MSc in Risk and Investment Management is designed for professionals in the investment management industry who wish to progress, or maintain leadership in their field, and for other finance practitioners who are contemplating lateral moves. It appeals to senior executives, investment and risk managers or advisors, and analysts. This postgraduate programme is designed to be completed in seventeen months of part-time study and is formatted to be compatible with professional schedules.

The programme has two tracks: an executive track for practitioners with significant investment management experience and an apprenticeship track for selected high-potential graduate students who have recently joined the industry. The programme is offered in Asia—from Singapore—and in Europe—from London and Nice.

FTSE EDHEC-Risk Efficient Indices

FTSE Group, the award winning global index provider, and EDHEC Risk Institute launched the first set of FTSE EDHEC-Risk Efficient Indices at the beginning of 2010. Initially offered for the UK, the Eurobloc, the USA, Developed Asia-Pacific ex-Japan, and Japan, the index series aims to capture equity market returns with an improved risk/reward efficiency compared to cap-weighted indices. The weighting of the portfolio of constituents achieves the highest possible return-to-risk efficiency by maximising the Sharpe ratio (the reward of an investment per unit of risk).

EDHEC-Risk Alternative Indexes

The different hedge fund indexes available on the market are computed from different data, according to diverse fund selection criteria and index construction methods; they unsurprisingly tell very different stories. Challenged by this heterogeneity, investors cannot rely on competing hedge fund indexes to obtain a "true and fair" view of performance and are at a loss when selecting benchmarks. To address this issue, EDHEC-Risk was the first to launch composite hedge fund strategy indexes as early as 2003.

The 13 EDHEC-Risk Alternative Indexes are published monthly on **www.edhec-risk.com** and are freely available to managers and investors.

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