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Abstract

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1. Introduction

The European Union’s (EU) Directive on Undertakings for Collective Investment in Transferable Securities (UCITS) was a framework started in 1985 and aimed at creating a single European market for the distribution of investment funds registered in a particular EU member state. The framework contained various provisions on diversification, leverage, liquidity and the use of derivatives with the purpose of instilling confidence and maintaining a high level of investor protection.

The severe restrictions of the initial UCITS framework, however, made it a qualified success and not many UCITS-compliant funds were launched. Anderberg and Bolton (2006) point that some of the restrictions seemed sensible, for example the restriction on investing in precious metals, but others were less so, for example the rule preventing the holding of cash and money market instruments (MMI), which effectively ruled out UCITS cash funds. In the early 2000s the European Commission (EC) issued the Management Directive and the Product Directive, collectively known as UCITS III, which provided for the smoother cross-border marketing of UCITS funds and permitted a broader

¹ We would like to thank Alix Capital for providing access to their alternative UCITS database. We would especially like to thank Mr. Louis Zanolin and Mr. Dravasp Jhabvala of Alix Capital for providing much additional information, help and insightful comments, Mr. Daniel Mosca of Nutrimenta Finance & Investments for his dedicated work on our database, Mr. José Galeano and Mr. Fayçal Zerigue of SYZ Asset Management for their research assistance. Any mistakes in this article, nevertheless, are the authors’ own responsibility.

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spectrum of eligible investment instruments and hedge fund-like strategies under the UCITS framework.

The EC gave the Commission of European Securities Regulators (CESR, replaced by the European Securities and Markets Authority - ESMA on 1 Jan 2011) a mandate to publish guidelines on what constitutes eligible investments. Murphy and O'Shea (2008) summarize that depending on the jurisdiction and subject to strict risk management provisions, UCITS funds can invest in assets such as transferrable securities (structured financial instruments (SFI) as transferrable securities, transferrable securities embedding derivatives, closed-ended funds as transferrable securities), financial derivative instruments (hedge fund indices, credit derivatives, commodity indices, 130/30 strategies) and MMI (also bank loans as MMI in Ireland). Anderberg and Brescia (2009) add that the UCITS IV directive will give UCITS funds even more latitude with the ability to establish master-feeder structures, perform cross-border mergers and will further ease the cross-border marketing of funds.

The present article is concerned with the performance of UCITS III funds that employ hedge fund-like strategies, the so-called UCITS hedge funds, alternative UCITS² funds or Newcits. Part of these UCITS is incorporated by companies with offshore-domiciled hedge funds. The purpose of this research is to analyze whether manager offshore experience has an impact on the performance of alternative UCITS funds. We perform this analysis by comparing alternative UCITS managed by companies with and without offshore experience. This comparison tests for a so-called "skill factor" in that offshore hedge fund experience will have an effect on implementing hedge fund investment strategies under a UCITS wrapper. This comparison is similar to the one conducted by Agarwal, Boyson and Naik (2009) as discussed below.

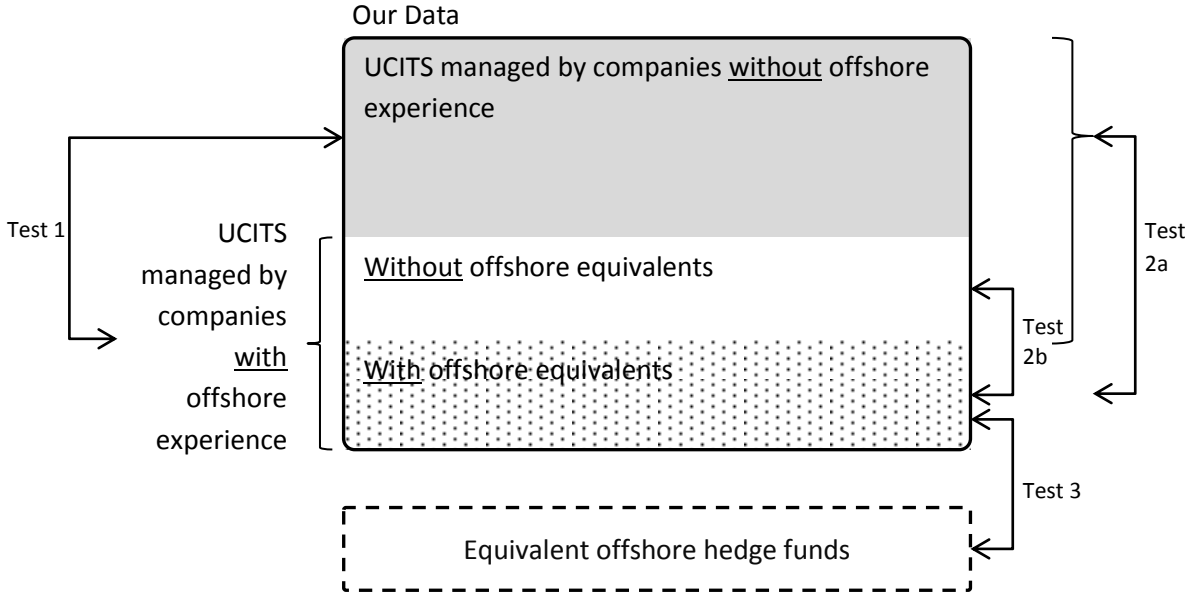
We also compare alternative UCITS with and without offshore equivalents. The offshore equivalents are offshore-domiciled hedge funds managed by the same company whose performance the alternative UCITS replicate either by employing the same or a similar strategy or through a swap. The motivation of this comparison is to study the phenomenon of co-domiciliation. Alternative UCITS of this kind are established after the offshore hedge fund has already been in existence for a period of time. One possibility is that the UCITS are established by successful managers to offer competitive performance in an onshore vehicle in order to diversify their client base. Alternatively, they might be established by managers who are not so successful with the purpose of co-domiciliation in order to gain access to the European investment market and raise assets under a presumably safe structure. As Dominique Lecocq of Iecocqassociate points out, the UCITS framework facilitates fund marketing and distribution. This is especially useful in the post-crisis period when investors seek regulated collective investments (HFMWeek, 2010). From a different point of view, UCITS with offshore equivalents may be different compared to the rest of the UCITS in that they behave much more similarly to hedge funds than to UCITS.

Figure 1 below depicts the separation of our sample of alternative UCITS. As already mentioned, the sample contains UCITS managed by companies with and without offshore experience. Within the subsample of UCITS managed by companies with offshore experience, there are UCITS with offshore equivalents and UCITS without offshore equivalents. On the other hand, the subsample of UCITS managed by companies without offshore experience does not contain UCITS with equivalents. The figure additionally presents the tests we have performed comparing the subsamples.

²We prefer the name alternative UCITS and this is how they are referred to in this article.

Figure 1: Sample separation

This figure presents the separation of our sample of Alternative UCITS into UCITS managed by companies with and without offshore experience. The subsample of UCITS managed by companies with offshore experience is additionally separated into subsamples of UCITS with equivalents and UCITS without equivalents. The comparison tests we have performed are designated in the figure.



Naturally, we also compare alternative UCITS with offshore equivalents to the equivalent offshore hedge funds themselves so as to observe any mean performance or risk disparities. We thus test for the effect that stricter regulation may have on the performance of UCITS funds. This test is similar to the regulation and incentives³ hypothesis that Agarwal, Boyson and Naik (2009) apply to hedged mutual funds (discussed below). To our knowledge, this is the first article to analyze the performance of alternative UCITS having different types of manager experience in such detail (or at all for some of the comparisons).

For a sample period from 2008 to 2011, we find that both UCITS managed by companies with and without offshore experience (Test 1) have positive alpha⁴ which is higher for the former, but insignificant at normally accepted significance level in both cases. Yet, the alpha's p-value of UCITS managed by companies with offshore experience is 0.12⁵, which still provides some evidence that they exhibit skill. As far as the existence of an offshore equivalent is concerned, when we consider our entire sample of UCITS (Test 2a) we find that UCITS with equivalents are generally more volatile but do not exhibit significant mean performance differences when compared to UCITS without equivalents. If we only consider the subsample of UCITS managed by companies with offshore experience (Test 2b), we again find differences in volatility but no meaningful differences in mean performance. In the latter case, however, UCITS without equivalents have positive alpha which is significant at the 95% confidence level. Comparing UCITS with equivalents to the equivalent offshore

³ Although we look at the differences only from a regulation point of view as alternative UCITS are not constrained as far as incentive schemes are concerned.

⁴ The constant term (or unexplained returns) as measured by a multi-factor regression (Fung and Hsieh, 2004)

⁵ Due mostly to the small sample problem, relative to the heterogeneity of the data and the need to sub-sample it for the purpose of our study.

hedge funds (Test 3), we observe no meaningful differences in mean performance and risk when we compare equally weighted indices, but an outperformance on the part of the hedge funds when we do a cross-sectional comparison. There is moreover an average annualized tracking error of 6.1% between the UCITS and the offshore hedge funds.

The rest of the article is organized as follows. Section 2 discusses the UCITS directives and how they are perceived by investment professionals. Section 3 is a brief overview of previous research on comparison of the performance of mutual funds, alternative UCITS, hedge funds and clones. Section 4 presents our database. Section 5 conducts the raw returns comparative performance analysis. Section 6 measures the alpha of the different types of alternative UCITS and hedge funds. Finally, section 7 offers some concluding remarks.

2. Views on the main provisions of the UCITS directives

Most of the existing literature on UCITS focuses on several main areas of interest – the historical development of the UCITS legal framework and its influence, the growth of the industry and its future outlook, and the constraints on hedge fund-like strategies. Very few studies conduct statistical analyses on the performance of alternative UCITS funds or comparison of the latter and the performance of hedge funds. The scarcity of academic literature on the performance of alternative UCITS funds should not be a surprise as the average industry history is relatively short. On the other hand, however, there is a myriad of non-academic opinion pieces, magazine and newspaper articles, which offer diverging professional views on the current state and the outlook of the industry. We have included these views as a confirmation of the need of a more in-depth analysis of the alternative UCITS industry. This section presents the main provisions of the UCITS framework and how they pertain to hedge fund-like strategies.

As summarized by Tuchschnid, Wallerstein and Zanolin (2010), in most jurisdictions UCITS are not allowed to invest in commodities and commodity certificates. Commodities should be accessed through indices. Investments in private equity and real estate are also prohibited. UCITS are, however, allowed to invest in non-eligible assets as long as those do not amount to more than 10% of the total portfolio, the so-called trash ratio.

Even within the realm of eligible instruments, however, UCITS funds are constrained by the types of investment strategies they can use. Markov and Tuchschnid (2011) outline the main provisions of the UCITS directives and their impact on the suitability of different hedge fund strategies under the UCITS framework. Long/short equity strategies, for example, are constrained by the restrictions on short selling. The use of synthetic short selling entails additional costs such as the need for active collateral management due to the restriction on counterparty risk. Moreover, the difficulty in establishing a synthetic short position in non-equity instruments makes strategies such as fixed income arbitrage very difficult under the UCITS framework. More generally, Gabbert (2005) points that under UCITS III regulations, UCITS funds can attain a maximum short exposure of 30%, the so called 130/30 strategy, which is not enough to replicate a matched-pair strategy where one security is held long and another one is held short. In essence, only 60% of the portfolio (30% long and 30% short) can be traded on a matched-pair basis.

Beaudoin and Olivier (2010) moreover explain that the strict diversification requirements affect hedge fund strategies that presuppose more concentrated portfolios, such as emerging markets for

example. Leverage requirements also have an impact on strategies, such as fixed income arbitrage, which may involve highly leveraged positions. The strict liquidity requirements imposed on UCITS funds were beneficial during the financial crisis of 2008-2009, but they also carry a cost. As Beaudoin and Olivier (2010) summarize, UCITS funds are effectively barred from investing in less liquid securities such as microcaps and distressed securities or long-term strategies such as deep value investing. Convertible arbitrage strategies may also be difficult to employ because of inefficient pricing due to market illiquidity. UCITS funds must therefore focus on the most liquid part of the market, which offers fewer opportunities. Liquidity therefore has a price. As Fieldhouse (2010) puts it, investors opting for the liquid onshore fund will have to tolerate a discrepancy with the offshore equivalent's performance.

Many of the abovementioned restrictions can be overcome though. As Markov and Tuchschnid (2011) point out, an alternative UCITS fund may replicate an offshore hedge fund's performance through the use of contracts for difference (CFD) or total return swaps (TRS). Such replication strategies are not risk-free, however. First of all, they can be detrimental to the fund itself with investors becoming displeased with large tracking error between the onshore and the offshore fund. Secondly, as Danaher (2010) observes, even though technically allowed, such strategies are outside the realm of transparency endorsed by the UCITS directives. Johnson (2011) comments that "the emergence of ever more complex and esoteric vehicles" may tarnish the UCITS brand. He gives the example of the recent launch of a precious metals UCITS fund, 82% of whose portfolio is invested in just 4 metals. He also cites professional opinions that many of the smaller fund managers are pushing the UCITS envelope and not abiding by the rules 100%. What is even more worrying is that some regulators seem more interested in providing regulatory cover for such funds than in ensuring the original objective of investor protection.

Steinmann (2010) also confirms that strategies such as distressed securities and fixed income arbitrage are difficult under the UCITS framework, whereas others such as CTA need little change. In terms of offshore replication, he says that some UCITS funds only replicate the liquid part of the offshore equivalent's portfolio. As far as index swaps are concerned, he concludes that they inevitably lead to higher costs. He concludes that in both cases, the UCITS performance is inferior and there is a drag compared to the performance of the hedge fund. In addition, as Dominique Lecocq of lecocqassociate points out, UCITS funds have a much higher total expense ratio (TER) compared to hedge funds structured as professional investors funds (PIFs). This is due to the extensive monitoring duties of the custodian bank and the continuous application of the value at risk (VaR) approach, which requires a lot of work, expertise and complex IT tools. (HFMWeek, 2010)

According to HFN Industry Research (2010), the growth of alternative UCITS funds has been significant in recent years, especially 2009 and 2010 following the havoc that the financial crisis wrought in the hedge fund industry. Differing opinions exist as to whether this will be a sustained growth backed by the high investor protection that the UCITS directives offer or a transitory event. John Bohan of Apex Fund Services says that the demand for offshore products based in the Cayman Islands and Bermuda will persist as those centers will retain more flexibility but that they nevertheless need to increase their level of regulation (HFMWeek, 2010). Dominique Lecocq of lecocqassociate adds that the EU AIFM directive, which will harmonize the management of non-UCITS hedge fund managers with AUM in excess of 100 million EUR, is expected not to increase the demand for UCITS funds (HFMWeek, 2010). It is expected to give investors sufficient comfort that the hedge fund industry is subject to proper regulatory surveillance. Investors will thus prefer hedge

funds to paying higher TER ratios for UCITS funds employing costly OTC swaps to access strategies that are otherwise ineligible under the UCITS framework (HFMWeek, 2010).

In this line of thought, Harris (2010) suggests that the recession has been the real reason for the slowdown of inflows into the hedge fund industry. A report by Hedge Fund Research (2011) may serve as a confirmation. According to this report, in Q1 2011 the total capital invested in the global hedge fund industry surpassed 2 trillion USD for the first time in history. The total industry assets in Q1 2011 alone rose by 102 billion USD. For the same quarter investors allocated 32 billion USD in net new capital, which is the largest quarterly net inflow since Q3 2007. There were asset inflows in all strategy classes. The total AUM of the global hedge fund industry has grown from a low of 1.33 trillion USD in Q1 2009 to 2.02 trillion USD in Q1 2011, which is an increase of more than 50% in 2 years.

There is, therefore, evidence that managers are not dropping the traditional hedge fund model and are in fact returning to it as the grip of the financial crisis is softening or as the regulatory scrutiny on banks hardens pushing creative managers to join funds. Harris (2010) notes that more and more managers are establishing parallel structures, i.e. UCITS as complements to offshore hedge funds instead of replacements. In addition, Chothia (2011) cites a report by RBC Dexia and KPMG which reveals that in establishing parallel structures, Ireland's Qualified Investment Funds (QIFs) and Luxembourg's Specialized Investments Funds (SIFs) are gaining popularity versus the UCITS format. QIFs and SIFs are said to offer more flexible liquidity and transparency rules. According to the report, only 24% of hedge fund managers say they had brought offshore funds onshore, of whom 55% say they have opted for co-domiciliation. 77% of those considering establishing an onshore structure in the future say they would prefer QIFs or SIFs.

Trovato (2009) makes an important note that many managers are not even considering establishing UCITS funds for several reasons. First, their strategy may not be replicable under the UCITS format and, second, they would need institutional grade infrastructure that not all managers have. Buckley (2009) adds that they would need to have a large and diverse client base, which means that only the largest hedge funds will attempt to raise assets through a UCITS structure. Smaller hedge fund managers should offer UCITS as a complement to their existing offshore hedge funds. Trovato (2009) points that in some cases, for example the United Kingdom (UK), the boom of UCITS may be largely tax driven because of fears that starting April 2011 high-net-worth individuals in the UK would have to pay a 50% capital gains tax on offshore investments as opposed to 18% on UCITS investments.

Therefore, as far as investors are concerned the picture might be slightly different. Jones (2011) cites a survey carried out by Deutsche Bank according to which 55% of hedge fund investors would prefer to allocate money to onshore UCITS funds and only 21.7% would prefer the traditional Cayman Islands-based offshore funds. The survey covers 184 clients managing more than 2 trillion USD. The survey also predicts that more than 400 billion USD will be invested in the European alternative UCITS funds in the next 2 years (as of 7 Feb 2011).

According to Alix Capital⁶, the alternative UCITS industry has already seen massive growth over the past 5 years. Since the beginning of 2006, the total number of funds has increased more than 6-fold and the total AUM has increased more than 10-fold from 10.8 billion EUR to 112.3 billion EUR. For the past 2 years, the total AUM has increased more than 3-fold, compared to that of the global

⁶Alix Capital's website: <http://www.alixcapital.ch>

hedge fund industry, which has increased by a little more than 50%. In addition, the UCITS brand has become globally recognized.

Even though UCITS are not necessarily conservative investment vehicles, they are perceived as safer compared to hedge funds. In addition, the establishment of alternative UCITS funds by large hedge fund managers such as Man Group, Brevan Howard and Paulson & Co may serve as a sign that this is not a passing trend. The efficiency gains to be brought by the UCITS IV directive are expected to have a positive impact on the European UCITS market. As already mentioned, the establishment of master-feeder structures, the possibility of cross-border mergers and the facilitation of cross-border marketing will further streamline the European UCITS market. As far as the EU's AIFM directive is concerned, there is evidence that the level of uncertainty that has surrounded it coupled with manager impatience about its final provisions has worked in favor of the number of UCITS funds being established (Varriale, 2010).

3. Literature Review

One of the earliest papers that this research is similar to is Liang (1999). For a sample period from January 1992 to December 1996 Liang compares the performance of hedge funds and mutual funds and discovers that hedge funds have higher risk-adjusted performance. He attributes this finding to the hedge funds' better incentive schemes, dynamic trading strategies and the diversity of financial instruments they invest in. Liang also finds that onshore hedge funds (limited partnerships) with offshore equivalents significantly outperform the onshore-only hedge funds and the offshore-only hedge funds. He points out that such funds usually start as onshore-only funds and when the fund performs well an offshore equivalent is established to attract foreign investors. In the present article we perform a similar analysis comparing alternative UCITS with offshore equivalents to alternative UCITS without offshore equivalents. As far as alternative UCITS with offshore equivalents are concerned, however, they are normally established as onshore vehicles of already existing offshore hedges fund, not the other way around.

In general, the comparative approach of the present research is analogous to that of Koski and Pontiff (1999), Deli and Varma (2002) and Almazan et al. (2004) who investigate the differences in the performance of mutual funds that use derivatives and those that do not use derivatives. It is similar to Darolles (2011) who compares alternative UCITS based on management company hedge fund experience on the one hand and alternative UCITS and hedge funds on the other hand. It also resembles Savona (2006) who compares the pre- and post-tax performance of Italian and foreign mutual funds and Agarwal, Boyson and Naik (2009) who compare hedged mutual funds to hedge funds and traditional mutual funds.

Agarwal, Boyson and Naik (2009) conduct a comprehensive study of the performance of hedged mutual funds. Hedged mutual funds bear many similarities to alternative UCITS funds. Alternative UCITS funds are UCITS funds that employ hedge fund strategies but are regulated by the European Securities and Markets Authority (ESMA). In the same vein, hedged mutual funds are mutual funds that employ hedge fund strategies but are regulated by the US Securities and Exchange Commission (SEC). Agarwal, Boyson and Naik (2009) test three hypotheses comparing hedged mutual funds to hedge funds and traditional mutual funds. The regulation and incentives hypothesis states that hedge funds should outperform hedged mutual funds due to the lighter regulatory environment in which the former operate and their performance-based compensation. The strategy hypothesis

posits that hedged mutual funds should outperform traditional mutual funds because of their flexibility to employ more diverse investment strategies and profit from both long and short positions. The skill hypothesis predicts that hedged mutual fund managers with concurrent or previous hedge fund experience should perform better than hedged mutual fund managers without hedge fund experience. In the present article, we test the same hypothesis in the case of alternative UCITS funds – we compare the funds managed by companies with offshore experience and those managed by companies without offshore experience. For a sample period from 1994 to 2004, Agarwal, Boyson and Naik (2009) find evidence in support of all three hypotheses. Regarding the last hypothesis, the authors point that hedged mutual fund managers with hedge fund experience should be more adept at implementing hedge fund strategies under a mutual fund structure. The performance difference of 4.1% per year between the two groups of managers implies that the superior performance of hedged mutual funds over traditional mutual funds is due to the managers with hedge fund experience.

Agarwal, Boyson and Naik (2009) also treat the important question of why managers with hedge fund experience launch hedged mutual funds if the latter deliver inferior performance. One of the hypotheses they refer to is that hedged mutual funds are launched by poorly performing hedge fund managers. The authors, however, provide evidence to the contrary and suggest that the phenomenon could be explained by the desire of hedge fund managers to have a more diversified client base and raise new assets.

In a recent publication, Darolles (2011) tests the Agarwal, Boyson and Naik (2009) skill hypothesis on a sample of alternative UCITS funds from the Morningstar database covering the period June 2004 to May 2011 and finds that alternative UCITS managed by companies with offshore experience outperform alternative UCITS managed by companies without offshore experience. Unlike Darolles (2011), however, we also calculate the Fung and Hsieh (2004) alpha of both groups of funds in order to extract the true manager added value in both cases. According to our results, neither type of alternative UCITS provides significant alpha. Yet, at 0.12, the alpha's p-value of alternative UCITS managed by companies with offshore experience suggests that there is some evidence of managed added value. Therefore, to an extent we are able to corroborate Darolles' results. Compared to Darolles' (2011) sample of 450 alternative UCITS, ours is larger but covers a shorter sample period.

Darolles (2011) also tests a regulation hypothesis in that hedge funds are expected to outperform alternative UCITS funds due to the stricter regulatory environment in which the latter operate. He finds that regulation indeed has a negative impact on the returns of alternative UCITS. We test this hypothesis in a more specific setting by comparing the performance of alternative UCITS with offshore equivalents and the equivalent offshore hedge funds. Using equally-weighted indices we see no meaningful differences in mean returns and risk. The cross-sectional performance of the hedge funds is, however, better. We also calculate an average annualized tracking error between the UCITS and the equivalent offshore hedge funds of 6.1%.

Tuchschmid, Wallerstein and Zaker (2010) perform a comparative analysis of a similar nature by studying the performance of 20 replication products, or clones, that replicate the returns of hedge funds using 3 main approaches – factor analysis, dynamic trading and reverse engineering. The stated advantage of these replication products is that they are more transparent, contain no manager-specific risk and charge lower fees than hedge funds, although not all of these claims are necessarily true. For the sample period from March 2008 to May 2009, the authors find that hedge

fund replication products deliver competitive returns compared to hedge funds. They have low correlations to market indices and target absolute returns (although neither the replication products nor the hedge funds seem to achieve them). The replication products perform very well when benchmarked against hedge fund indices. Tuchschnid, Wallerstein and Zaker (2010) conclude, however, that given the conservative nature of replication products, it is no surprise that they have outperformed hedge fund indices during a period of economic downturn.

In a follow-up article, Tuchschnid, Wallerstein and Zaker (2011) study the performance of an extended sample of 22 replication products over a longer sample period covering April 2008 to October 2010. As the authors say, since funds of funds are the most frequently used investment vehicles to access hedge funds, comparison of the performance of replication products against the HFRI fund of funds index is appropriate. Over a shorter period starting in August 2009 and ending in October 2010, as many as 50% of the replication products outperform the HFRI fund of funds index on a raw return basis. In addition, replication products have a slightly higher return dispersion compared to hedge fund indices and in general lower risk-adjusted performance as measured by the Sharpe ratio. Over the whole sample period starting in April 2008, however, two-thirds of the replication products outperform the HFRI fund of funds index, their return dispersion is lower and their risk adjusted performance is higher. Moreover, the high R-squared in the Fung and Hsieh (2004) regression model and the few occurrences of statistically significant alpha shows that replication products do have exposure to common hedge fund risk factors.

Tuchschnid, Wallerstein and Zanolin (2011) find mixed results as far as the excess returns of alternative UCITS in comparison to those of hedge funds are concerned. For a sample period from 2006 to 2010 the UCITS Alternative Global Index⁷ outperforms the HFRI fund of funds and the HFRX composite index⁸ but underperforms the HFRI composite index. For a shorter sample period starting in 2008 the UCITS Alternative Global Index outperforms the HFRI composite index as well. It should be pointed out that the second period is more affected by the financial crisis. The authors find significant differences in the investment opportunity set of alternative UCITS and hedge funds, with the latter having significantly higher dispersion of return and risk. The authors also find that large differences exist with regard to strategy level. In some strategies, hedge funds outperform alternative UCITS funds in terms of absolute return, while in others hedge funds perform worse. In general, hedge funds appear to be a much more heterogeneous group than alternative UCITS funds.

In a recent book chapter, Markov and Tuchschnid (2011) point out that during the recent financial crisis alternative UCITS funds perform better on average, which could be attributed to the stricter risk management process and the enhanced liquidity requirements. This is a confirmation of the aforementioned findings that during the crisis period hedge funds performed worse compared to more conservative investment vehicles. During the period April 2010 to March 2011, however, hedge funds outperform alternative UCITS funds in 6 out of the 10 strategy classes under investigation and the global index. These include long/short equity and fixed income, two of the strategies with the highest value of AUM of alternative UCITS funds.

The present article is also similar to research conducted by HFN Industry Research and Hedge Fund Intelligence. In "UCITS Compliant Hedge Funds" (2010), HFN Industry Research compare the performance of UCITS-compliant "hedge funds" (alternative UCITS funds in our terminology) and

⁷ Provided by Alix Capital: <http://www.ucits-alternative.com>

⁸ This is an investable index.

hedge funds. They give an overview of the number of funds, fund domicile, relative performances, correlations among strategies, asset flows, etc. In an article called “UCITS Are Mirroring the Performance of Offshore Hedge Funds” (2010), Hedge Fund Intelligence analyze the tracking error between onshore UCITS and their equivalent offshore hedge funds. They find that, averaged over all strategies, the tracking error is a little more than 3% and that the percentage of UCITS that outperform their equivalent offshore hedge funds is slightly higher than the percentage of UCITS that underperform them. The present research investigates the same problem from a more detailed point of view.

This article analyzes whether manager offshore experience or the existence of an offshore equivalent has an effect on performance within the alternative UCITS realm. We conduct this both by analyzing the historical evolution of the comparative performance and by calculating the manager added value as expressed by the Fung and Hsieh (2004) alpha. Thus, as far as manager offshore experience is concerned, we go one step further than Darolles (2011). As far as the existence of an offshore equivalent is concerned, to our knowledge this is the first article to analyze its effect on the performance of the alternative UCITS funds in question. Naturally, we also compare the UCITS with offshore equivalents and the equivalent offshore hedge funds in order to gain insight into the mean performance and risk differences and the tracking error.

4. Data

Before describing our database, we present a comparison of the alternative UCITS industry, the hedge fund industry and the equity markets. Figure 2 below presents the cumulative excess returns⁹ of the UCITS Alternative Global Index¹⁰, the HFRI Fund Weighted Composite Index¹¹, the S&P 500 and the Euro Stoxx 50 from December 2005 to May 2011. It is obvious that the financial crisis of 2008-2009 had a strong impact on the relative mean performance of the indices. Prior to the crisis, the equity indices outperform the alternative UCITS and the hedge fund index. After the crisis they underperform them. In fact, both equity indices have a negative cumulative excess return at the end of May 2011. Before the financial crisis, the hedge fund index slightly outperforms the alternative UCITS index. From July 2008 to August 2010, on the other hand, the alternative UCITS index exhibits superior performance. Afterwards, the hedge fund index starts dominating the alternative UCITS index again.

During the worst of the recession, therefore, the alternative UCITS index, due to the industry’s relatively more conservative nature, dominates both the hedge fund index and the two equity indices. Moreover, it is the least volatile of the four indices during the sample period. Nevertheless, the hedge fund index crawls out of the recession at a faster pace to provide a cumulative excess return of 6% at the end of May 2011 compared to that of 0.1% for the alternative UCITS index.

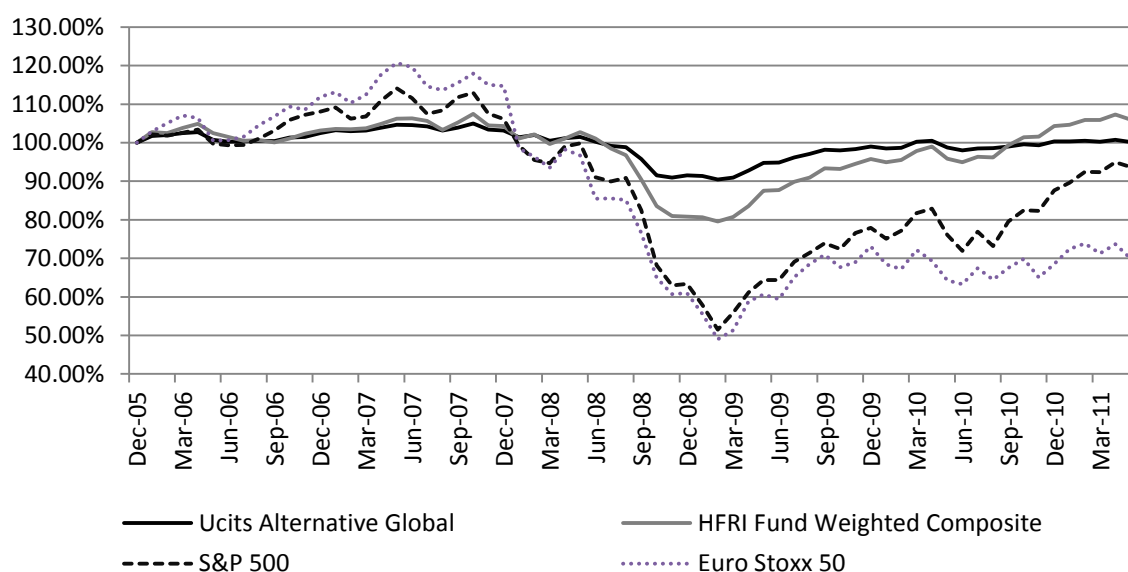
⁹Over the Libor rate

¹⁰A benchmark alternative UCITS index provided by Alix Capital, <http://www.ucits-alternative.com/>

¹¹Hedge Fund Research benchmark hedge fund index

Figure 2: Alternative UCITS vs. hedge fund and equity indices

This figure presents the cumulative excess returns of the selected indices when the end of December 2005 is taken as a base of 100%. The sample period ends at the end of May 2011.



As far as our alternative UCITS database is concerned, it consists of monthly net-of-fees returns of 550 funds provided by Alix Capital¹². Our 550 funds are managed by 259 managers. The majority of funds in the database, i.e. 464 funds, are denominated in EUR. There are also 43 funds denominated in GBP, 40 funds denominated in USD, and 3 funds denominated in CHF.

Both the funds and the managers have been analyzed for having offshore equivalents or having offshore experience, respectively. The analysis has been carried out by comparison of the alternative UCITS funds to hedge funds in the BarclayHedge and Lipper TASS databases, by additional internet searches, by consulting Alix Capital and by contacting some of the managers. We are therefore confident that our database is as complete as possible.

Table 1 gives the top 5 countries of domicile of the alternative UCITS in our database. As shown in the table, Luxembourg is the preferred alternative UCITS domicile. Table 2 provides some statistics pertaining to the alternative UCITS funds and their managers.

Table 1: Alternative UCITS domiciles

This table presents the top five countries of domicile of the alternative UCITS funds in our sample

Country of domicile	Number of funds
Luxembourg	257
Ireland	107
France	98
United Kingdom	38
Germany	21

¹² <http://www.alixcapital.ch/>

Table 2: Alternative UCITS fund and manager characteristics

This table presents the number of alternative UCITS funds and the numbers of management companies in total and by offshore experience in our sample

Funds and managers	Number
Alternative UCITS funds	550
Management companies (total)	259
Management companies with offshore experience	81
Management companies without offshore experience	178

Table 3 presents the strategy breakdown of alternative UCITS funds in terms of manager offshore experience and the existence of an offshore equivalent. It is appropriate to mention again that the UCITS with offshore equivalents in the first column are a subsample of the UCITS managed by companies with offshore experience in the second column. UCITS managed by companies without offshore experience, on the other hand, do not have offshore equivalents. As the table shows, the number of funds in some strategies is small. Results in the empirical sections, therefore, need to be viewed in light of this.

Table 3: Strategy breakdown of alternative UCITS funds by manager offshore experience and the existence of an offshore equivalent

This table presents the strategy breakdown of alternative UCITS with offshore equivalents, alternative UCITS managed by companies with offshore experience and alternative UCITS managed by companies without offshore experience. Note: The numbers of alternative UCITS managed by companies with offshore experience include the numbers of alternative UCITS with offshore equivalents

Strategy	With offshore equivalents	Managed by companies with offshore experience	Managed by companies without offshore experience
CTA	7	11	20
Macro	4	33	106
Long/Short Equity	29	57	80
Equity Market Neutral	4	10	29
Event Driven	4	9	5
Fixed Income	4	28	43
Emerging Markets	6	21	24
Commodity	0	1	13
FX	2	8	29
Multi-Strategy	3	4	19
Total	63	182	368

Offshore equivalents in our research are hedge funds whose performance the UCITS track, or replicate, by using the same or a similar strategy or through a swap. Deutsche Bank's UCITS platform, for example, allows managers such as Winton Capital and Man Group to replicate their offshore hedge funds onshore through a swap agreement.

Performance data for the offshore hedge funds has been collected from the BarclayHedge and Lipper TASS databases. In some cases, complementary data from Bloomberg and fund prospectuses was

used in order for the database to be as complete as possible. Some of the offshore equivalents are present in both BarclayHedge and Lipper TASS, but for the majority we could find data in either BarclayHedge or Lipper TASS. The use of both databases thus allowed us to build a much more comprehensive database of alternative UCITS funds with offshore equivalents and of the equivalent offshore hedge funds themselves. Performance data of the offshore hedge funds is net of fees. The majority of the offshore hedge funds are domiciled in the Cayman Islands. Other domicile locations such as Bermuda, the British Virgin Islands, the Bahamas, Guernsey and even Ireland and Luxembourg are also present. The offshore hedge funds in our database are denominated in USD, EUR, GBP, JPY and CHF. In some cases there are share classes denominated in different currencies. Where available, we have taken the share class denominated in the same currency as the available onshore alternative UCITS fund. Otherwise, we have taken the USD share class or the only share class available in the databases.

Our database should not be significantly affected by the usual hedge fund database biases – the survivorship bias, the instant history bias and the selection bias. The first two are controlled by the fact that UCITS funds are required to publish their performance with the regulator (ESMA) on a regular basis¹³. The third bias is controlled by the fact that the funds in the Alix Capital database have to comply with certain criteria in order to be included, i.e. they have to use hedge fund strategies.

5. Comparison of Raw Returns

This section performs the comparisons outlined in the introduction in terms of raw returns. As already explained, we compare alternative UCITS managed by companies with and without offshore experience (Figure 1, test 1) in order to test for a skill effect. In line with the arguments of Agarwal, Boyson and Naik (2009), we want to test whether companies with offshore experience are more successful in applying hedge fund strategies under a UCITS framework. We also compare UCITS with and without offshore equivalents in order to study the phenomenon of co-domiciliation. Are successful offshore hedge fund strategies duplicated onshore in order to offer competitive returns to a diversified client base? Or is co-domiciliation the purpose of not very successful managers so they can attract more clients and raise new assets through a facilitated marketing and distribution process? From a different point of view, alternative UCITS with offshore equivalents could exhibit different characteristics compared to alternative UCITS without offshore equivalents. To be precise, alternative UCITS with offshore equivalents could perform more similarly to hedge funds than to the rest of the alternative UCITS.

To analyze the latter question, we compare alternative UCITS with offshore equivalents first to the rest of the whole sample of alternative UCITS (Figure 1, test 2a) and then to the rest of the subsample of alternative UCITS managed by companies with offshore experience (Figure 1, test 2b). In both cases there are interesting patterns which are discussed below. This comparison is in a sense similar to the one conducted by Liang (1999) where he compares onshore hedge funds with offshore equivalents to the onshore-only and offshore-only hedge funds. As a final step, we compare the alternative UCITS with offshore equivalents and the equivalent offshore hedge funds themselves (Figure 1, test 3). This test aims to capture whether there are differences due to the stricter

¹³The Alix Capital database started collecting data in 2009 and there are no funds which ceased operations prior to June 2009. As shown by Tuchschnid, Wallerstein and Zanolin (2011), however, UCITS funds exhibit a very low attrition rate.

regulation that alternative UCITS operate under and is in a way similar to the regulation and incentives hypothesis that Agarwal, Boyson and Naik (2009) test when comparing hedged mutual funds and hedge funds. It is, however, different in that alternative UCITS do not have restrictions on their incentives schemes and we are therefore only interested in regulation-induced differences.

Whether we take UCITS or hedge funds, we construct equally-weighted monthly-rebalanced indices. A particular issue in our database is that due to the short history of many of the alternative UCITS funds, our indices may initially have a smaller number of funds and then funds are added and the index is reweighted as new return data becomes available. We chose this methodology over one where we take a sample period for which all (or the majority of) funds have available return data or one where we select the funds whose return series' length is equal to or longer than a predefined sample period length. In the first case we end up with a very short sample period while in the second case we end up with a very small number of funds.

The short sample period can be explained by the fact that the boom in the launch of alternative UCITS funds started in 2009 (HFN Industry Research, 2010) and the industry therefore has a very short average history. It is also interesting to mention here that alternative UCITS with offshore equivalents have shorter average history than alternative UCITS without offshore equivalents. As we aim to study the alternative UCITS industry mostly along the line of the existence of offshore equivalents, our sample period is further shortened. In the majority of comparisons it starts in June 2008 and ends in May 2011. Despite being short, this period covers a crisis period and a recovery stage and allows us to observe how the relative performance of the indices in each pair changes as we move from the crisis to the recovery period. The sections below provide comparisons for three 12-month periods: June 2008 – May 2009 (the crisis period), June 2009 – May 2010 (the second period) and June 2010 – May 2011 (the third period). In order to gain further insight into the relative performance we also consider the period June 2009 – May 2011 (the last 24 months) and June 2008 – May 2011 (the entire 36-month sample period).

We should mention here that we are aware of the fact that the differences in mean performance and volatility in the comparisons (except for the comparison between UCITS with offshore equivalents and the equivalent offshore hedge funds) are affected by the different strategy loads of the samples being compared. Even though the comparative performance of not all strategies is the same as that of whole samples, the majority of strategies perform comparatively in the same way as the whole samples.

In order to conduct a coherent comparison between funds denominated in different currencies, we have expressed all return series as excess returns over the 1-month Libor rate of the respective currency. Using the funds' excess returns in their own currency is equivalent to comparing investment projects where the investor is fully hedged towards currency risk. Thus our comparison lingers on the usual covered interest rate parity assumption being perfectly verified. All tables in this section present monthly index results, i.e. mean monthly returns or monthly standard deviations, or statistics derived from those. None of the results have been annualized. Two-tailed t- and F-tests are used where indicated. The results of all statistical tests, both parametric and non-parametric are for a 90% confidence level. Cross-sectional results for each of the index comparisons are also briefly discussed and presented in detail in the appendix, section 9.2.

5.1. The skill effect of manager offshore experience

This section compares the performance of alternative UCITS managed by companies with and without offshore experience (Figure 1, test 1). As already explained, companies with offshore experience are companies that manage offshore-domiciled hedge funds in addition to their UCITS. Table 4 presents the monthly statistics of the indices of both types of alternative UCITS. The index of UCITS managed by companies with offshore experience is composed of 182 funds while the index of UCITS managed by companies without offshore experience is composed of 368 funds. Therefore, approximately 1 in 3 funds in our sample is managed by a company with offshore experience.

Table 4: Companies with offshore experience vs. companies without offshore experience

This table presents the performance of alternative UCITS managed by companies with offshore experience (182 funds) and alternative UCITS managed by companies without offshore experience (368 funds). Panel A presents index mean monthly returns and standard deviations along with t-test p-values for the mean monthly returns and F-test p-values for the standard deviations. Panel B presents index downside deviations, maximum drawdown and Sharpe ratios. Results are presented for three consecutive 12-month periods as well as for the last 24 months and the entire 36-month sample period.

Panel A: Index mean monthly return and standard deviation

Index monthly mean and st. deviation	Jun 08 - May 09		Jun 09 - May 10		Jun 10 - May 11		Jun 09 - May 11		Jun 08 - May 11	
	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev
W/o offshore exp.	-0.41%	1.26%	0.34%	0.84%	0.09%	0.54%	0.22%	0.70%	0.01%	0.95%
With offshore exp.	-0.42%	2.09%	0.39%	0.82%	0.34%	0.70%	0.37%	0.75%	0.10%	1.37%
t-, F-test p-values	0.99	0.11	0.88	0.94	0.34	0.39	0.47	0.77	0.73	0.03

Panel B: Index monthly downside deviation, maximum drawdown and Sharpe ratio

Additional Statistics	Jun 08 - May 09	Jun 09 - May 10	Jun 10 - May 11	Jun 09 - May 11	Jun 08 - May 11
Index downside deviation					
W/o offshore exp.	0.94%	0.67%	0.24%	0.46%	0.77%
With offshore exp.	1.68%	0.61%	0.37%	0.47%	1.44%
Index max drawdown					
W/o offshore exp.	7.94%	1.43%	0.94%	1.82%	7.94%
With offshore exp.	9.82%	1.45%	0.67%	2.11%	9.82%
Index Sharpe ratio					
W/o offshore exp.	-0.33	0.41	0.17	0.31	0.01
With offshore exp.	-0.20	0.48	0.49	0.49	0.08

Regarding the mean returns of the indices, UCITS managed by companies with offshore experience typically appear as performing slightly better. The differences in mean returns, however, are not statistically significant as indicated by the t-tests. The index of UCITS managed by companies with offshore experience also appears to be riskier, usually having higher volatility. Measured over the whole 36-month sample period, the difference in volatility is statistically significant as indicated by the F-test.

In order to analyze the differences in performance between the two indices, we carried out two non-parametric tests as well. The first test is the Wilcoxon rank sum test which tests the null hypothesis that the indices are independent samples coming from identical continuous distributions with equal medians against the alternative that they do not have equal medians. The second test is the two-sample Kolmogorov-Smirnov test which tests the null hypothesis that the indices come from the

same distribution against the alternative that they come from different distributions. The tests do not reject the null hypotheses in any of the periods.

The index of UCITS managed by companies with offshore experience appears somewhat more risky also in terms of maximum drawdown and downside deviation. Downside deviation refers to the volatility of index returns which lie below the index average. All three risk measures considered, however, seem to be diminishing for both types of UCITS as we become more distanced from the crisis period. In terms of risk-adjusted performance, measured by the Sharpe ratio, the index of UCITS managed by companies with offshore experience performs better for all periods under consideration.¹⁴

Although not all funds cover the length of every sub-period, we also analyzed the index compositions of both indices cross-sectionally. Detailed cross-sectional statistics are available in the appendix, table A2.1. For each constituent fund we calculated the mean return and standard deviation for each of the periods under investigation. The t-tests show that UCITS managed by companies with offshore experience significantly outperform UCITS managed by companies without offshore experience during the third 12-month period, as well as during the last 24 and 36 months. The means of UCITS managed by companies with offshore experience are significantly more dispersed during the second 12-month period and significantly less dispersed during the third 12-month period.

There is no meaningful difference in the average volatility of UCITS managed by companies with offshore experience as opposed to UCITS managed by companies without offshore experience. This seems to be in conflict with the result for the indices which indicates that UCITS managed by companies with offshore experience are more volatile over the whole sample period. A possible explanation could be found in the average intra-index correlation among the components. It is lower for the UCITS managed by companies without offshore experience (11.45% vs. 15.45%) which could have a smoothing effect on their index volatility.

The section shows mixed results as far as manager offshore experience is concerned. The index results show no meaningful differences in mean performance but differences in the level of risk with UCITS managed by companies with offshore experience bearing more risk. Cross-sectionally, however, UCITS managed by companies with offshore experience exhibit significantly better returns during the third 12-month period, as well as during the last 24 and 36 months.

5.2. The effect of having an offshore equivalent

This section compares the performance of alternative UCITS with and without offshore equivalents when the whole sample of alternative UCITS is considered (Figure 1, test 2a). As already explained, offshore equivalents in this sense are offshore hedge funds, domiciled mainly in locations such as the Cayman Islands and Bermuda, whose performance the UCITS replicate by using the same or a similar strategy or through a swap. The index of UCITS with equivalents is composed of 63 funds while the index of UCITS without equivalents is composed of 487 funds. The total number of UCITS in the two indices is 550 – which is the total number of UCITS in our sample as we include all available funds in this comparison.

¹⁴In all comparisons in this article, Sharpe ratios are compared if at least one is positive.

Table 5: Alternative UCITS with offshore equivalents vs. alternative UCITS without offshore equivalents

This table presents the performance of alternative UCITS with offshore equivalents (63 funds) and alternative UCITS without offshore equivalents (487 funds) when the whole sample of alternative UCITS is considered. Panel A presents index mean monthly returns and standard deviations along with t-test p-values for the mean monthly returns and F-test p-values for the standard deviations. Panel B presents index downside deviations, maximum drawdown and Sharpe ratios. Results are presented for three consecutive 12-month periods as well as for the last 24 months and the entire 36-month sample period.

Panel A: Index mean monthly return and standard deviation

Index monthly mean and st. deviation	Jun 08 - May 09		Jun 09 - May 10		Jun 10 - May 11		Jun 09 - May 11		Jun 08 - May 11	
	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev
W/o offshore equiv.	-0.38%	1.37%	0.37%	0.81%	0.14%	0.53%	0.25%	0.68%	0.04%	0.99%
With offshore equiv.	-1.42%	4.11%	0.22%	1.01%	0.41%	0.94%	0.31%	0.96%	-0.26%	2.57%
t-, F-test p-values	0.42	0.00	0.69	0.46	0.41	0.07	0.81	0.10	0.51	0.00

Panel B: Index monthly downside deviation, maximum drawdown and Sharpe ratio

Additional Statistics	Jun 08 - May 09	Jun 09 - May 10	Jun 10 - May 11	Jun 09 - May 11	Jun 08 - May 11
Index downside deviation					
W/o offshore equiv.	1.09%	0.62%	0.27%	0.47%	0.87%
With offshore equiv.	3.52%	0.75%	0.49%	0.61%	2.91%
Index max drawdown					
W/o offshore equiv.	7.81%	1.38%	0.61%	1.79%	7.81%
With offshore equiv.	23.64%	2.01%	1.12%	3.11%	23.64%
Index Sharpe ratio					
W/o offshore equiv.	-0.28	0.45	0.27	0.37	0.04
With offshore equiv.	-0.35	0.21	0.43	0.32	-0.10

Table 5 presents monthly statistics of the indices of UCITS with offshore equivalents and UCITS without offshore equivalents. The table shows that the differences in mean performance are insignificant according to the t-tests. The non-parametric tests do not reject the null hypotheses either. In terms of volatility, the index of UCITS with equivalents appears to be more volatile. The F-tests reject the null hypothesis in three cases – the crisis period, the third 12-month period and the entire sample period. During the last 24 months, at 0.10 the F-test p-value is also relatively low.

The index of UCITS with equivalents also exhibits higher downside deviations and higher drawdowns. As in section 5.1, for both indices, the risk measures show a lower level of risk as we become more distanced from the crisis period. In terms of Sharpe ratios, whenever the values allow comparison, the index of UCITS with equivalents exhibits lower Sharpe ratios with the exception of the third 12-month period where it exhibits a higher Sharpe ratio due to its improved performance.

As in section 5.1, here we also analyze the index components cross-sectionally and detailed results are presented in the appendix, table A2.2. The differences in the average mean are significant for the second and the third 12-month period, which means that during the second period the average mean of UCITS with equivalents is significantly lower while during the third period it is significantly higher. UCITS with equivalents exhibit significantly higher means dispersion during the crisis period and the entire sample period. Regarding the average component standard deviation, UCITS with equivalents are significantly more volatile for the third 12-month period and the last 24 months as a result.

As shown by this section, the index of UCITS with equivalents is riskier than that of UCITS without equivalents but does not show meaningful differences with regards to mean performance. The cross-sectional results moreover suggest that UCITS with equivalents underperform UCITS without equivalents during the second 12-month period but outperform them during the third.

5.3. The effect of having an offshore equivalent within the sample of UCITS managed by offshore managers

This section presents a special case of the preceding section and here we only concentrate on UCITS managed by companies with offshore experience (Figure 1, test 2b). The comparison should help establish whether there are significant differences between UCITS with offshore equivalents and UCITS without offshore equivalents where both groups are managed by companies with offshore experience. The index of UCITS with equivalents is composed of the same 63 funds as in section 5.2 while the index of UCITS without equivalents is this time composed of only 119 funds. The total number of UCITS in the two indices is thus 182 – which is the number of UCITS managed by companies with offshore experience.

Table 6: Alternative UCITS with offshore equivalents vs. alternative UCITS without offshore equivalents managed by companies with offshore experience

This table presents the performance of alternative UCITS with offshore equivalents (63 funds) and alternative UCITS without offshore equivalents (119 funds) when only UCITS managed by companies with offshore experience are considered. Panel A presents index mean monthly returns and standard deviations along with t-test p-values for the mean monthly returns and F-test p-values for the standard deviations. Panel B presents index downside deviations, maximum drawdown and Sharpe ratios. Results are presented for three consecutive 12-month periods as well as for the last 24 months and the entire 36-month sample period.

Panel A: Index mean monthly return and standard deviation

Index monthly mean and st. deviation	Jun 08 - May 09		Jun 09 - May 10		Jun 10 - May 11		Jun 09 - May 11		Jun 08 - May 11	
	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev
W/o offshore equiv.	-0.28%	1.81%	0.45%	0.76%	0.31%	0.60%	0.38%	0.67%	0.16%	1.20%
With offshore equiv.	-1.42%	4.11%	0.22%	1.01%	0.41%	0.94%	0.31%	0.96%	-0.26%	2.57%
t-, F-test p-values	0.40	0.01	0.54	0.36	0.76	0.14	0.79	0.09	0.38	0.00

Panel B: Index monthly downside deviation, maximum drawdown and Sharpe ratio

Additional Statistics	Jun 08 - May 09	Jun 09 - May 10	Jun 10 - May 11	Jun 09 - May 11	Jun 08 - May 11
Index downside deviation					
W/o offshore equiv.	1.46%	0.52%	0.36%	0.42%	1.20%
With offshore equiv.	3.52%	0.75%	0.49%	0.61%	2.91%
Index max drawdown					
W/o offshore equiv.	7.51%	1.22%	0.53%	1.70%	7.51%
With offshore equiv.	23.64%	2.01%	1.12%	3.11%	23.64%
Index Sharpe ratio					
W/o offshore equiv.	-0.16	0.59	0.52	0.56	0.13
With offshore equiv.	-0.35	0.21	0.43	0.32	-0.10

As shown by table 6, the differences in mean returns, as usual, are not statistically significant both according to the t-tests and the non-parametric tests. In terms of volatility, the index of UCITS with equivalents exhibits significantly higher volatility in the crisis period and the last 24 and 36 months. The index of UCITS with equivalents again performs worse in terms of downside deviations and

maximum drawdown. All risk measures decrease for both indices as we become more distanced from the crisis. The index of UCITS with equivalents has a lower Sharpe ratio everywhere.

Results of the cross-sectional comparison are available in the appendix, table A2.3. The average mean returns of the two groups are not statistically significant. As far as the dispersion of the means is concerned, UCITS with equivalents exhibit higher dispersion for all periods but the second 12-month period and the differences are statistically significant. In terms of volatility, UCITS with equivalents exhibit significantly higher average standard deviation during all periods except for the first 12-month period.

In summary, we find no meaningful differences in the mean performance of UCITS with equivalents and UCITS without equivalents. In terms of risk, UCITS with equivalent are significantly more volatile than UCITS without equivalents and perform worse in the other risk measures as well.

5.4. The regulation and cost effects of the UCITS framework

This section provides a comparison of the alternative UCITS with offshore equivalents and the equivalent offshore hedge funds themselves (Figure 1, test 3). As already mentioned, many alternative UCITS were launched as parallel structures and the boom in the launches was in 2009 and 2010. It is no surprise then that the onshore UCITS will have shorter histories compared to the offshore hedge funds.

Table 7: Alternative UCITS with offshore equivalents vs. the equivalent offshore hedge funds

This table presents the performance of alternative UCITS with offshore equivalents (58 funds) and the equivalent offshore hedge funds themselves (58 funds). Panel A presents index mean monthly returns and standard deviations along with t-test p-values for the mean monthly returns and F-test p-values for the standard deviations. Panel B presents index downside deviations, maximum drawdown and Sharpe ratios. Results are presented for three consecutive 12-month periods as well as for the last 24 months and the entire 36-month sample period.

Panel A: Index mean monthly return and standard deviation

Index monthly mean and st. dev.	Jun 08 - May 09		Jun 09 - May 10		Jun 10 - May 11		Jun 09 - May 11		Jun 08 - May 11	
	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev
UCITS	-1.49%	2.87%	0.16%	0.99%	0.37%	0.80%	0.26%	0.89%	-0.32%	1.95%
Offshore funds	-0.43%	2.98%	0.13%	1.18%	0.59%	1.06%	0.36%	1.12%	0.10%	1.94%
t-, F-test p-values	0.39	0.91	0.95	0.58	0.57	0.37	0.75	0.27	0.37	0.96

Panel B: Index monthly downside deviation, maximum drawdown and Sharpe ratio

Additional Statistics	Jun 08 - May 09	Jun 09 - May 10	Jun 10 - May 11	Jun 09 - May 11	Jun 08 - May 11
Index downside deviation					
UCITS	2.90%	0.63%	0.43%	0.52%	2.17%
Offshore funds	3.21%	1.09%	0.32%	0.78%	2.25%
Index max drawdown					
UCITS	20.17%	1.72%	0.93%	2.63%	20.17%
Offshore funds	13.49%	2.66%	0.88%	3.52%	13.49%
Index Sharpe ratio					
UCITS	-0.52	0.16	0.46	0.30	-0.16
Offshore funds	-0.14	0.11	0.55	0.32	0.05

In order for the performance comparison to be as accurate as possible, for each pair of UCITS-offshore hedge fund we have taken the sample period covered by both funds in the pair. Both indices in this comparison contain 58 funds each¹⁵.

The results in table 7 show no meaningful differences in mean performance and volatility. Index statistics by strategy are available in the appendix, table A1.2. In terms of downside deviation, the UCITS index performs slightly better most of the time with the exception of the third 12-month period. In terms of maximum drawdown and Sharpe ratio, the results are more ambiguous but seem to favor the hedge funds.

Cross-sectionally, the hedge funds have a significantly higher average mean during the third 12-month period and the entire sample period, but there are no meaningful differences in volatility. In terms of means dispersion, the hedge funds are significantly less dispersed during the crisis period and significantly more dispersed during the second 12-month period. Global cross-sectional statistics are presented in the appendix, table A2.4 and by strategy in table A1.3.

In an attempt to investigate further differences, we calculated the tracking error between the UCITS and the equivalent offshore hedge funds. Tracking error for each pair of funds is defined as the standard deviation of the return differentials. The average tracking error is 1.8% in monthly terms, or 6.1% annualized. In order to observe whether the tracking error was related to strategy we grouped the pairs into three generalized groups by strategy. Equity market neutral, fixed income and event driven were grouped as relative-value strategies. CTA, macro, long/short equity, emerging markets and FX were grouped as directional strategies. Multi-strategy was left on its own.

We ran a regression of the cross-sectional tracking errors against two dummy variables based on whether the pair of funds falls in the relative-value or directional strategies. We find no meaningful differences between the average tracking error of relative-value strategies and multi-strategy on the one hand, and directional strategies and multi-strategy on the other hand. However, the tracking error of the relative value strategies is significantly lower than that of the directional strategies.

In sum, regarding the relative performance of UCITS and their equivalent offshore hedge funds, the indices exhibit no meaningful differences in mean performance. Cross-sectionally, on the other hand, the average mean of the offshore hedge funds is significantly higher during the third 12-month period and the entire sample period. Therefore, relying on the index results we can say that the UCITS are good replicas of the offshore hedge funds. The cross-sectional results, however, point to the contrary. Nevertheless, as a result of regulation-induced differences, we do observe non-negligible tracking error between the UCITS with equivalents and their equivalent offshore hedge funds.

6. Comparison of Alpha

This section offers a comparison of the alpha of the equally-weighted index pairs compared above. To measure alpha, we use the Fung and Hsieh 8-factor model, which includes the original 7 asset-

¹⁵Four pairs of UCITS and their equivalent offshore hedge funds are not included due to lack of data on the performance of the offshore hedge funds. The UCITS in question are included in the previous comparisons as UCITS with equivalents because we know that they have offshore equivalents. Another pair of funds was removed as an outlier due to substantial mean performance and risk discrepancy between the UCITS and the equivalent offshore hedge fund.

based style factors from Fung and Hsieh (2004) and the emerging markets factor they suggested later. As we have used excess returns over Libor in all our series so far, the 8 regression factors from Fung and Hsieh, where appropriate, have also been expressed in excess of the 1-month USD Libor.

The factors in our model thus are: (1) the S&P 500 excess monthly total returns, (2) the difference between the Russell 2000 and the S&P 500 monthly total returns, (3) the change in the difference between the 10-year Treasury constant maturity yield and the 1-month Libor (month end-to-month end), (4) the change in Moody's Baa yield over the 10-year Treasury constant maturity yield (month end-to-month end), the excess returns to lookback straddles on (5) bonds, (6) currencies and (7) commodities¹⁶ and (8) the MSCI Emerging Market excess monthly total returns.

Data on the lookback straddles is only available through December 2010 and due to the relatively large number of factors in the regression model, we cannot perform regressions for the 12-month periods considered so far. The sample period for most of the regressions is from June 2008 to December 2010, i.e. on 31 observations for each index. As we are only interested in the alpha of each index, analysis of the betas is not included below. The tables below present the alpha of each index along with 90% confidence bounds on the alpha and the adjusted R².

Table 8: Monthly alpha measurement

This table presents the indices' monthly alphas along with 90% confidence bounds on the monthly alphas and the regressions' adjusted R-squared. The regressions are on 31 observations from June 2008 to December 2010. The panels below present the results for the index pairs considered in section 5.

June 2008 – December 2010				
	Monthly Alpha	Lower Bound	Upper Bound	Adj R-Squared
Panel A: Companies with offshore experience (182 funds) vs. companies without offshore experience (368 funds)				
W/o offshore exp.	0.05%	-0.06%	0.17%	0.88
With offshore exp.	0.15%	-0.01%	0.31%	0.89
Panel B: UCITS with offshore equivalents (63 funds) vs. UCITS without offshore equivalents (487 funds) when the whole sample of alternative UCITS is considered				
W/o offshore equiv.	0.09%	-0.01%	0.20%	0.91
With offshore equiv.	-0.26%	-0.59%	0.07%	0.87
Panel C: UCITS with offshore equivalents (63 funds) vs. UCITS without offshore equivalents (119 funds) managed by companies with offshore experience				
W/o offshore equiv.	0.21%	0.05%	0.36%	0.86
With offshore equiv.	-0.26%	-0.59%	0.07%	0.87
Panel D: UCITS with offshore equivalents (58 funds) vs. the equivalent offshore hedge funds (58 funds)				
UCITS	-0.29%	-0.65%	0.07%	0.73
Offshore funds	0.12%	-0.38%	0.62%	0.46

We should mention that we performed Engle and Ljung-Box tests for residual heteroskedasticity and residual autocorrelation for various numbers of lags in the test statistics. The tests indicate that the

¹⁶ The hedge fund trend-following factors based on Fung and Hsieh (The Risk in Hedge Fund Strategies: Theory and Evidence from Trend Followers, 2001) were collected from David Hsieh's website: <http://faculty.fuqua.duke.edu/~dah7/DataLibrary/TF-FAC.xls>
The rest of the data was obtained from Datastream and the Federal Reserve's website: <http://www.federalreserve.gov/>

latter are not issues in most regressions. The results should nevertheless be viewed with care due to the small number of observations. Table 8 above presents the alpha of the 4 index pairs whose returns have been discussed so far.

Comparing UCITS managed by companies with offshore experience and UCITS managed by companies without offshore experience (Figure 1, test 1) we see that the alpha of the former is higher. Even though the alphas are not statistically significant at the 90% confidence level, the alpha of the index of UCITS managed by companies with offshore experience has a p-value of 0.12, which is relatively low. This is a very important finding as it tells us that over the 31-month period ending in December 2010, which is undoubtedly marked by turbulent markets, there is some evidence that UCITS managed by companies with offshore experience exhibit skill.

As mentioned earlier, the fact that UCITS with offshore equivalent have shorter than average history translates into a short sample period because the comparisons we perform in this article are mostly along the line of the existence of an offshore equivalent. However, when we separate UCITS based on management company offshore experience, the sample period can be extended. Table 9 below presents the alphas of the indices of UCITS managed by companies with and without offshore experience when the sample period is extended to start in January 2006. The regressions are therefore performed on 60 observations each¹⁷.

The results show that over a period of 5 years ending in December 2010, UCITS managed by companies with offshore experience have a slightly positive alpha, while UCITS managed by companies without offshore experience have a negative alpha of a higher magnitude. Since the alphas are not significant, however, we cannot conclude on the offshore manager added value during this longer regression period.

Table 9: Companies with offshore experience vs. companies without offshore experience for an extended sample period

This table presents the indices' monthly alphas along with 90% confidence bounds on the monthly alphas and the regressions' adjusted R squared for UCITS managed by companies with offshore experience (182 funds) and UCITS managed by companies without offshore experience (368 funds). The sample period here starts in January 2006 and ends in December 2010 (5 years), i.e. the regressions are performed on 60 observations each.

	January 06 – December 10			
	Monthly Alpha	Lower Bound	Upper Bound	Adj R-Squared
W/o offshore exp.	-0.06%	-0.16%	0.04%	0.77
With offshore exp.	0.01%	-0.11%	0.13%	0.80

We shift our attention now to UCITS with offshore equivalents and UCITS without offshore equivalents. When the whole sample of alternative UCITS is considered (Figure 1, test 2a), we find no significant alphas. Focusing only on UCITS managed by companies with offshore experience (Figure 1, test 2b), the alpha of UCITS without equivalents is positive and statistically significant even at the 95% confidence level. We can conclude therefore that the superior alpha of UCITS managed by companies with offshore experience during our sample period is due to the performance of UCITS without equivalents.

¹⁷None of the regressions exhibits residual heteroskedasticity. The index of UCITS managed by companies with offshore experience sometimes exhibits autocorrelations only if 9 or more lags are used in the test statistics.

For the sake of gaining some additional insight, we also decided to compute the alpha of UCITS without equivalents managed by companies with offshore experience for the 5-year period (but not for UCITS with equivalents due to their short history). Table 10 below presents the results. Residual heteroskedasticity and autocorrelation are not present. Since the alpha is insignificant, however, we cannot make any meaningful conclusions vis-à-vis this longer regression period.

Table 10: UCITS without offshore equivalents managed by companies with offshore experience for an extended sample period

This table presents the index monthly alpha along with 90% confidence bounds on the monthly alpha and the regression’s adjusted R squared for UCITS without offshore equivalents managed by companies with offshore experience (119 funds). The sample period here starts in January 2006 and ends in December 2010 (5 years), i.e. the regression is performed on 60 observations.

	January 06 – December 10			
	Monthly Alpha	Lower Bound	Upper Bound	Adj R-Squared
Index	0.05%	-0.07%	0.16%	0.75

Comparing UCITS and their equivalent offshore hedge funds in table 8, we see no significant alphas and therefore cannot conclude on the added value of offshore hedge funds as opposed to the replicating UCITS onshore. Alpha statistics by strategy are available in the appendix, table A1.4.

Due to the insignificance of the alphas in many cases, we cannot draw a direct comparison of the added value of UCITS as opposed to their equivalent offshore hedge funds. We can, however, mention that from June 2008 to December 2010 (31 months) our entire sample of alternative UCITS exhibit a monthly alpha of 0.08%, yet statistically insignificant. Therefore, from this point of view, there is no evidence that UCITS with equivalents are established as replication vehicles for unsuccessful offshore products. On the other hand, comparing hedge funds to the UCITS managed by companies with offshore experience could be more appropriate because both groups are supposed to be more adept at dynamic trading strategies. In this respect, the offshore hedge funds do not seem to be very successful. Nevertheless, this should be viewed with regard to the impact of the financial crisis on the hedge fund industry’s performance during our sample period. The need for further research within the hedge funds space is thus highlighted.

Globally speaking, there is an important “pattern” in the Fung and Hsieh regressions’ explanatory power as measured by the adjusted R². Even though the UCITS funds in our sample are alternative UCITS funds, i.e. they employ hedge fund strategies, their performance is much better explained by the regression model in comparison to the performance of the offshore hedge funds. In fact, for the 31-month regressions all UCITS indices have adjusted R² of more than 0.70, which is very high.

7. Conclusion

This article offered an analysis of the alternative UCITS industry when manager offshore experience and the existence of an offshore equivalent are considered. We compared UCITS managed by companies with and without offshore experience in order to test for the skill effect of applying hedge fund strategies under a UCITS framework. We also compared UCITS with and without offshore equivalents in order to gain insight into their specific characteristics. As a last step, we compared the UCITS and their equivalent offshore hedge funds in order to observe differences due to the regulatory environment and the additional fees that UCITS charge.

The above comparisons were performed on both the raw return series and the alpha produced by the Fung and Hsieh (2004) regression. The first method allowed us to see patterns and trends in the relative performance while the second method provided a more intuitive measure for the comparison of the value added by the management of these funds.

There are several main findings that this article centers around. Firstly, we find no meaningful differences in the mean performance of UCITS managed by companies with and without offshore experience as measured by the indices. Cross-sectionally, however, we see that manager offshore experience adds to the performance of UCITS. Moreover, UCITS managed by companies with offshore experience exhibit a positive alpha with a p-value of 0.12, which could still provide some evidence of the added value of offshore experienced managers.

Secondly, UCITS with offshore equivalents are riskier but do not exhibit significant mean performance differences compared to UCITS without offshore equivalents. UCITS without equivalents have positive alpha, which is higher than the alpha of UCITS with equivalents and, if we focus on those managed by companies with offshore experience only, statistically significant from June 2008 to December 2010. A consequence of these findings is that the superior alpha of UCITS managed by companies with offshore experience is due to the UCITS without equivalents. Therefore, manager offshore experience adds value to the alternative UCITS fund except for the cases where this UCITS fund has an equivalent offshore hedge fund. This is an important finding but it should also be viewed with regard to the specific sample period and its effect on the hedge funds industry as UCITS with equivalents are in a sense hedge fund replication vehicles.

As far as UCITS and their equivalent offshore hedge funds are concerned, we see that there are no meaningful performance differences when we compare the indices but outperformance on the part of the hedge funds when we do a cross-sectional comparison. We see a degree of divergence as shown by the non-negligible tracking error due to liquidity, leverage and diversification issues and the additional costs that the UCITS charge. As mentioned, for example, some UCITS only replicate the liquid part of the offshore portfolio. Even the swap structures are not perfect replications due to issues such as performance drag and the additional costs of the UCITS wrapper.

8. References

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9. Appendix

9.1. Comparison of UCITS with equivalents and the equivalent offshore hedge funds by strategy

Table A1.1: Number of equivalent pairs by strategy

This table presents the numbers of alternative UCITS with equivalents (58 funds in total) and the numbers of equivalent offshore hedge funds (58 funds in total) by strategy

Strategy	Number of UCITS with offshore equivalents	Number of equiv. offshore hedge funds
CTA	7	7
Macro	4	4
LS Equity	28	28
Equity MN	4	4
Event Driven	1	1
Fixed Income	4	4
Emerging Mkt	5	5
FX	2	2
Multi-Strategy	3	3

Table A1.2: Index statistics by strategy: UCITS with equivalents vs. the equivalent offshore hedge funds

This table presents the indices' performance of alternative UCITS with equivalents (58 funds in total) and the equivalent offshore hedge funds (58 funds in total) by strategy. Not all strategies cover the whole sample period. Results for any given sub-period are presented whenever the relevant index covers the whole sub-period.

Index monthly mean and standard deviation	Jun 08 - May 09		Jun 09 - May 10		Jun 10 - May 11		Jun 09 - May 11		Jun 08 - May 11	
	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev
CTA UCITS			-0.40%	2.07%	0.44%	2.15%	0.02%	2.11%		
CTA offshore			-0.55%	2.14%	0.76%	2.54%	0.10%	2.39%		
Macro UCITS	-1.70%	3.25%	0.49%	1.32%	0.32%	1.77%	0.40%	1.53%	-0.30%	2.42%
Macro offshore	0.64%	8.11%	0.21%	2.26%	0.40%	1.54%	0.30%	1.89%	0.41%	4.80%
LS Equity UCITS	-1.99%	4.32%	0.37%	1.46%	0.42%	0.97%	0.40%	1.21%	-0.40%	2.85%
LS Equity offshore	-0.83%	4.16%	0.32%	1.33%	0.59%	1.02%	0.46%	1.17%	0.03%	2.59%
Equity MN UCITS	-0.24%	1.76%	0.06%	0.59%	0.01%	1.15%	0.03%	0.89%	-0.06%	1.23%
Equity MN offshore	-0.51%	2.11%	0.08%	0.78%	0.05%	1.14%	0.07%	0.96%	-0.13%	1.44%
Event Driven UCITS					0.05%	0.50%				
Event Driven offshore					0.52%	0.87%				
Fixed Income UCITS					0.59%	0.53%				
Fixed Income offshore					0.84%	0.80%				
Emerging Mkt UCITS					0.58%	1.24%				
Emerging Mkt offshore					1.12%	1.80%				
FX UCITS			-0.67%	3.13%	-0.17%	2.76%	-0.42%	2.90%		
FX offshore			-0.46%	3.21%	0.03%	4.01%	-0.21%	3.56%		
Multi-Strategy UCITS			0.19%	0.60%	0.21%	0.52%	0.20%	0.55%		
Multi-Strategy offshore			-0.42%	1.94%	0.63%	1.14%	0.10%	1.64%		
All UCITS	-1.49%	2.87%	0.16%	0.99%	0.37%	0.80%	0.26%	0.89%	-0.32%	1.95%
All offshore	-0.43%	2.98%	0.13%	1.18%	0.59%	1.06%	0.36%	1.12%	0.10%	1.94%

Table A1.3: Cross-sectional statistics by strategy: UCITS with equivalents vs. the equivalent offshore hedge funds

This table presents the cross-sectional performance of alternative UCITS with equivalents (58 funds in total) and the equivalent offshore hedge funds (58 funds in total) by strategy. Results are given for the same sub-periods as in table A1.2.

Monthly average mean and average standard deviation	Jun 08 - May 09		Jun 09 - May 10		Jun 10 - May 11		Jun 09 - May 11		Jun 08 - May 11	
	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev
CTA UCITS			-0.40%	2.81%	0.47%	3.55%	0.43%	3.31%		
CTA offshore			-1.36%	3.04%	0.78%	4.02%	0.59%	3.78%		
Macro UCITS	-1.97%	3.40%	0.49%	2.17%	0.04%	2.85%	-0.05%	2.56%	-0.48%	2.73%
Macro offshore	0.57%	10.02%	0.21%	2.97%	0.17%	2.67%	0.04%	2.66%	0.05%	4.37%
LS Equity UCITS	-0.41%	4.79%	0.20%	1.93%	0.35%	1.67%	0.34%	1.78%	0.23%	2.10%
LS Equity offshore	0.14%	4.14%	0.13%	1.90%	0.56%	1.81%	0.44%	1.83%	0.40%	2.00%
Equity MN UCITS	-0.24%	1.99%	0.13%	0.81%	0.01%	1.49%	0.03%	1.37%	-0.01%	1.66%
Equity MN offshore	-0.51%	2.37%	0.28%	1.04%	0.05%	1.59%	0.08%	1.47%	0.00%	1.81%
Event Driven UCITS					0.05%	0.50%				
Event Driven offshore					0.52%	0.87%				
Fixed Income UCITS					0.59%	0.63%				
Fixed Income offshore					0.84%	1.07%				
Emerging Mkt UCITS					0.78%	2.51%				
Emerging Mkt offshore					1.06%	2.44%				
FX UCITS			-0.67%	3.13%	-0.30%	3.24%	-0.37%	3.00%		
FX offshore			-0.46%	3.21%	0.06%	4.55%	-0.04%	4.31%		
Multi-Strategy UCITS			0.19%	0.83%	0.27%	0.72%	0.25%	0.78%		
Multi-Strategy offshore			-0.42%	2.39%	0.69%	1.77%	0.36%	1.95%		
All UCITS	-0.39%	3.41%	0.01%	1.93%	0.34%	1.93%	0.29%	2.00%	0.20%	2.19%
All offshore	0.14%	4.35%	-0.12%	2.39%	0.57%	2.17%	0.45%	2.29%	0.42%	2.50%

Table A1.4: Alpha statistics by strategy: UCITS with equivalents vs. the equivalent offshore hedge funds

This table presents the alpha of the indices of alternative UCITS with equivalents (58 funds in total) and the equivalent offshore hedge funds (58 funds in total) by strategy. Alpha is measured for a period from June 2008 to December 2010 for all indices that have at least 19 observations. Engle test with 1 lag and Ljung-Box test with min(20, length-1) lags are presented. We have unreported results for a complete set of lags. For a small number of lags, say 5 or 6, neither test rejects the null.

Alpha for complete index length – through Dec 2010	Monthly Alpha	90% Lower Bound	90% Upper Bound	R ²	Adj R ²	Index length	Engle test p-value	Ljung-Box test p-value
CTA UCITS	0.50%	-0.29%	1.30%	0.55	0.32	25	0.23	0.18
CTA offshore	0.61%	-0.35%	1.57%	0.50	0.25	25	0.18	0.05
Macro UCITS	-0.13%	-0.91%	0.65%	0.34	0.10	31	0.65	0.50
Macro offshore	0.58%	-0.48%	1.64%	0.71	0.60	31	0.73	0.75
LS Equity UCITS	-0.38%	-0.82%	0.06%	0.86	0.81	31	0.67	0.86
LS Equity offshore	0.05%	-0.47%	0.56%	0.77	0.68	31	0.21	0.73
Equity MN UCITS	-0.09%	-0.44%	0.26%	0.48	0.29	31	0.82	0.51
Equity MN offshore	-0.17%	-0.60%	0.25%	0.45	0.25	31	0.11	0.59
FX UCITS	-0.23%	-1.99%	1.52%	0.28	-0.30	19	0.58	0.02
FX offshore	-0.64%	-2.75%	1.46%	0.20	-0.44	19	0.46	0.03
Multi-Strategy UCITS	0.06%	-0.14%	0.26%	0.49	0.26	27	0.85	0.62
Multi-Strategy offshore	-0.17%	-0.83%	0.48%	0.37	0.09	27	0.57	0.22
All UCITS	-0.29%	-0.65%	0.07%	0.80	0.73	31	0.82	0.46
All offshore	0.12%	-0.38%	0.62%	0.60	0.46	31	0.14	0.85

9.2. Global cross-sectional statistics

Table A2.1: Companies with offshore experience vs. companies without offshore experience: global cross-sectional statistics

This table presents the cross-sectional performance of alternative UCITS managed by companies with offshore experience (182 funds) and alternative UCITS managed by companies without offshore experience (368 funds). Panel A presents the average mean return and average standard deviation for each sub-period along with t-test p-values. Panel B presents means dispersion of the funds in terms of standard deviation of the component mean returns. Panel C presents volatility (or risk) dispersion in terms of standard deviation of the component standard deviations. Panels B and C present F-test p-values as well.

	Jun 08 - May 09	Jun 09 - May 10	Jun 10 - May 11	Jun 09 - May 11	Jun 08 - May 11					
Panel A: Monthly average mean and average standard deviation of component returns										
	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev
W/o offshore exp.	-0.23%	2.62%	0.26%	1.84%	0.08%	1.70%	0.16%	1.82%	0.06%	2.12%
With offshore exp.	0.02%	3.00%	0.19%	1.64%	0.30%	1.58%	0.32%	1.70%	0.24%	2.06%
t-test, p-values	0.14	0.34	0.44	0.25	0.00	0.38	0.00	0.39	0.00	0.70
Panel B: Standard deviation of mean component returns (Means dispersion)										
W/o offshore exp.	1.33%	0.86%	0.80%	0.62%	0.54%					
With offshore exp.	1.39%	0.98%	0.66%	0.56%	0.57%					
F-test, p-values	0.62	0.05	0.01	0.14	0.34					
Panel C: Standard deviation of component standard deviations (Volatility dispersion)										
W/o offshore exp.	2.52%	2.55%	1.90%	1.91%	2.01%					
With offshore exp.	3.30%	1.38%	1.27%	1.27%	1.69%					
F-test, p-values	0.00	0.00	0.00	0.00	0.01					

Table A2.2: UCITS with equivalents vs. UCITS without equivalents: global cross-sectional statistics

This table presents the cross-sectional performance of alternative UCITS with offshore equivalents (63 funds) and alternative UCITS without offshore equivalents (487 funds) when the whole sample of alternative UCITS is considered. Panel A presents the average mean return and average standard deviation for each sub-period along with t-test p-values. Panel B presents means dispersion of the funds in terms of standard deviation of the component mean returns. Panel C presents volatility (or risk) dispersion in terms of standard deviation of the component standard deviations. Panels B and C present F-test p-values as well.

	Jun 08 - May 09	Jun 09 - May 10	Jun 10 - May 11	Jun 09 - May 11	Jun 08 - May 11					
Panel A: Monthly average mean and average standard deviation of component returns										
	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev
W/o offshore equiv.	-0.15%	2.63%	0.26%	1.75%	0.12%	1.61%	0.20%	1.74%	0.10%	2.06%
With offshore equiv.	-0.23%	4.54%	0.01%	2.10%	0.37%	2.05%	0.31%	2.15%	0.23%	2.41%
t-test, p-values	0.88	0.18	0.07	0.17	0.02	0.02	0.19	0.02	0.19	0.17
Panel B: Standard deviation of mean component returns (Means dispersion)										
W/o offshore equiv.	1.31%	0.90%	0.76%	0.60%	0.53%					
With offshore equiv.	2.01%	0.81%	0.75%	0.64%	0.72%					
F-test, p-values	0.01	0.40	0.99	0.49	0.00					
Panel C: Standard deviation of component standard deviations (Volatility dispersion)										
W/o offshore equiv.	2.55%	2.32%	1.76%	1.77%	1.91%					
With offshore equiv.	5.20%	1.46%	1.29%	1.26%	1.89%					
F-test, p-values	0.00	0.00	0.00	0.00	0.97					

Table A2.3: UCITS with equivalents vs. UCITS without equivalents managed by companies with offshore experience: global cross sectional statistics

This table presents the cross-sectional performance of alternative UCITS with offshore equivalents (63 funds) and alternative UCITS without offshore equivalents (119 funds) managed by companies with offshore experience. Panel A presents the average mean return and average standard deviation for each sub-period along with t-test p-values. Panel B presents means dispersion of the funds in terms of standard deviation of the component mean returns. Panel C presents volatility (or risk) dispersion in terms of standard deviation of the component standard deviations. Panels B and C present F-test p-values as well.

	Jun 08 - May 09		Jun 09 - May 10		Jun 10 - May 11		Jun 09 - May 11		Jun 08 - May 11	
Panel A: Monthly average mean and average standard deviation of component returns										
	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev
W/o offshore equiv.	0.07%	2.67%	0.27%	1.45%	0.27%	1.34%	0.33%	1.47%	0.25%	1.87%
With offshore equiv.	-0.23%	4.54%	0.01%	2.10%	0.37%	2.05%	0.31%	2.15%	0.23%	2.41%
t-test, p-values	0.57	0.19	0.11	0.01	0.38	0.00	0.76	0.00	0.86	0.05
Panel B: Standard deviation of mean component returns (Means dispersion)										
W/o offshore equiv.	1.23%		1.04%		0.61%		0.52%		0.48%	
With offshore equiv.	2.01%		0.81%		0.75%		0.64%		0.72%	
F-test, p-values	0.01		0.07		0.05		0.06		0.00	
Panel C: Standard deviation of component standard deviations (Volatility dispersion)										
W/o offshore equiv.	2.69%		1.31%		1.19%		1.22%		1.55%	
With offshore equiv.	5.20%		1.46%		1.29%		1.26%		1.89%	
F-test, p-values	0.00		0.38		0.47		0.77		0.06	

Table A2.4: UCITS with equivalents vs. the equivalent offshore hedge funds: global cross-sectional statistics

This table presents the cross-sectional performance of alternative UCITS with offshore equivalents (58 funds) and the equivalent offshore hedge funds themselves (58 funds). Panel A presents the average mean return and average standard deviation for each sub-period along with t-test p-values. Panel B presents means dispersion of the funds in terms of standard deviation of the component mean returns. Panel C presents volatility (or risk) dispersion in terms of standard deviation of the component standard deviations. Panels B and C present F-test p-values as well.

	Jun 08 - May 09		Jun 09 - May 10		Jun 10 - May 11		Jun 09 - May 11		Jun 08 - May 11	
Panel A: Monthly average mean and average standard deviation of component returns										
	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev	Mean	St Dev
UCITS	-0.39%	3.41%	0.01%	1.93%	0.34%	1.93%	0.29%	2.00%	0.20%	2.19%
Offshore funds	0.14%	4.35%	-0.12%	2.39%	0.57%	2.17%	0.45%	2.29%	0.42%	2.50%
t-test, p-values	0.39	0.49	0.61	0.13	0.08	0.27	0.17	0.16	0.07	0.24
Panel B: Standard deviation of mean component returns (Means dispersion)										
UCITS	1.98%		0.80%		0.74%		0.64%		0.72%	
Offshore funds	1.17%		1.38%		0.66%		0.63%		0.59%	
F-test, p-values	0.06		0.00		0.39		0.90		0.15	
Panel C: Standard deviation of component standard deviations (Volatility dispersion)										
UCITS	2.85%		1.12%		1.12%		1.03%		1.31%	
Offshore funds	4.21%		1.47%		1.23%		1.11%		1.52%	
F-test, p-values	0.17		0.10		0.47		0.54		0.27	