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A NEW ERA FOR HEDGE FUNDS?

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A NEW ERA FOR HEDGE FUNDS?

We evaluate the drivers of hedge fund returns and conclude that the normalisation of US monetary policy and US equities' loss of momentum will lead to HF outperformance versus traditional asset classes. We expect annual excess returns in the 5-6% range.

■ Hedge funds have underperformed traditional asset classes over recent years. Despite its outstanding track record over recent decades, the industry has come under mounting pressure. Inflows remain robust, but hedge funds have significantly lowered both management and performance fees to adapt to the new environment.

■ We evaluate the causes of the underperformance and find that the fall in bond yields in the wake of the Fed's QE programme has negatively impacted hedge funds. Additionally, the equity beta has fallen while stocks rallied and alpha generation has shrunk as a result of the low volatility / low dispersion environment. However, alpha generation has started to rise since mid-2014 and the environment is now improving, with valuations stretched across the board, the economic cycle maturing and the Fed beginning to normalise monetary policy.

■ Going forward and based on conservative assumptions, we estimate that hedge funds could deliver annual excess returns in the 5-6% range with low volatility. We believe that diversifying portfolios with an increased allocation to alternatives is particularly attractive at this point in the cycle. Hedge funds have demonstrated their ability to protect portfolios against wide market fluctuations, a scenario that we cannot exclude as the Fed turns the screw.

**Hedge funds have underperformed recently but their long term track record is outstanding**
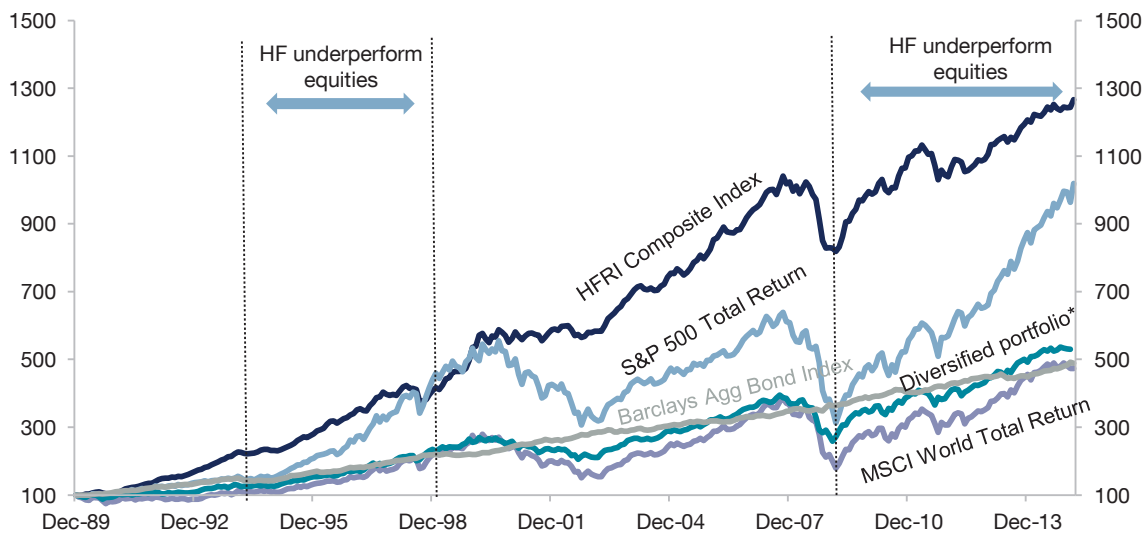
Rebased at 100 as of December 1989. *The diversified portfolio is 60% MSCI World in USD (total return) and 40% Barclay's Global Aggregate bond index, rebalanced every month. Source: HFR, Bloomberg, HFR, Lyxor AM.

Hedge funds have come under fire recently…

Hedge funds have come under mounting pressure over the past five years in terms of their ability to deliver returns in line with investors' expectations. The bulk of the criticism has been essentially related to the accusation that hedge funds collect fees that are allegedly no longer in line with the performance they generate. In this report, we discuss the reasons for such criticism and address the question of hedge funds' expected returns going forward.

To begin with, the chart below shows that hedge funds have in fact underperformed traditional asset classes since February 2009. Since this date, global equities have delivered compound annual returns close to 18% per year (in total return) while hedge funds have generated compound returns below 8%. Similarly, a diversified portfolio composed of equities and bonds (60/40 respectively) has also generated substantially higher returns at 12.7% per year.

**Hedge funds have underperformed over the last six years**
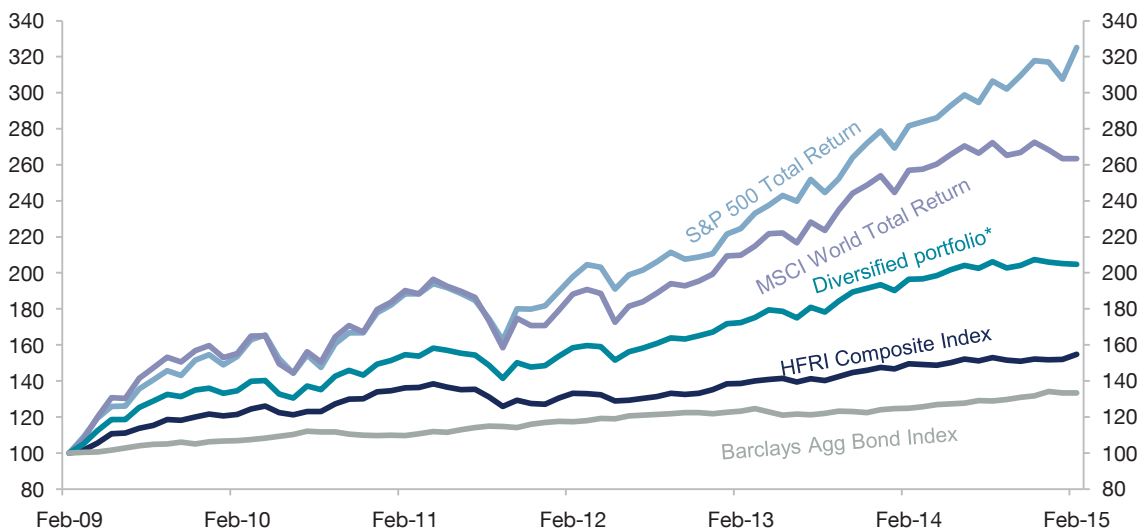
Rebased at 100 as of February 2009. *60% MSCI World in USD (total return) and 40% Barclay's Global Aggregate bond index, rebalanced every month. Source: HFR, Bloomberg, HFR, Lyxor AM

From another perspective, the underperformance of hedge funds has also been seen on a risk-adjusted basis. The chart below shows that since February 2009, both our diversified portfolio and a fixed income benchmark have outperformed hedge funds on a risk-adjusted basis. However, hedge funds outperformed global equities on a risk-adjusted basis thanks to their substantially lower volatility.

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It is interesting to note that looking beyond the overall hedge fund underperformance, some strategies have stood out as strong performers. The Relative Value and Event Driven strategies have shown the highest Sharpe ratios since 2009, respectively outperforming the fixed income benchmark and a diversified portfolio. On the other side of the spectrum, Equity Hedge and Macro managers have underperformed, in particular the so-called systematic diversified sub-strategy (CTAs). It is therefore important to keep in mind that hedge funds constitute a heterogeneous asset class. Picking the right strategy and the right fund is the key here.

Over the last six years, hedge funds have underperformed a diversified portfolio on a risk adjusted basis
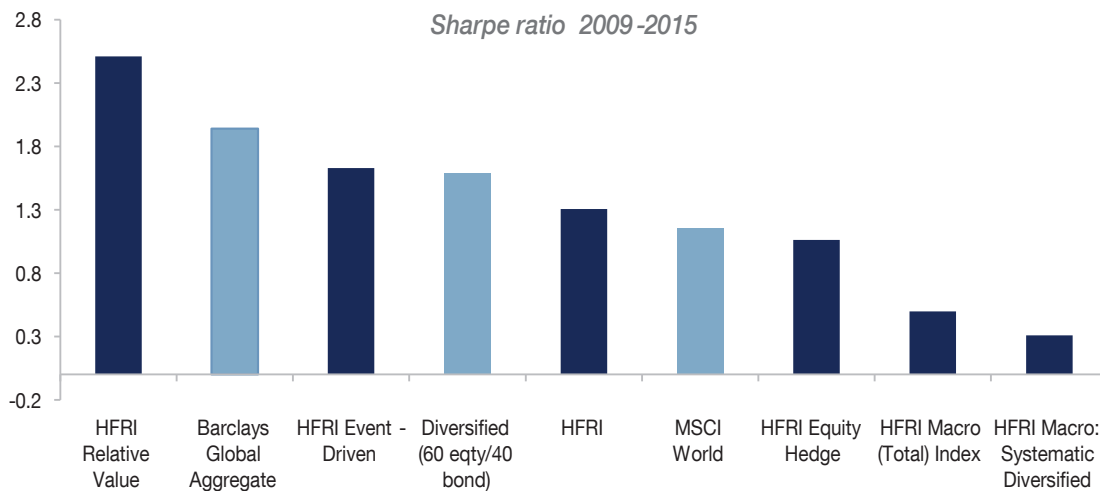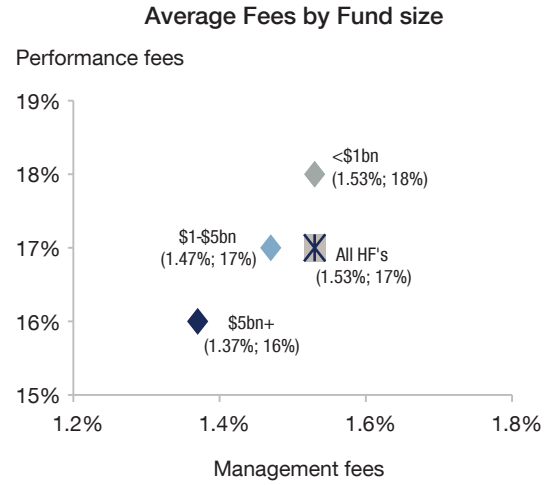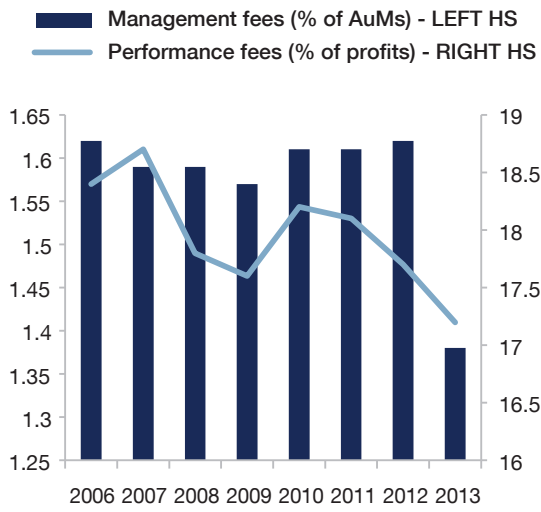

Sharpe ratio 2009-2015

Sharpe ratio calculated using the 3m interest rates as the risk free rate. Source: Bloomberg, HFR, Lyxor AM

The underperformance of hedge funds has put the industry under pressure. Although hedge funds continue to raise money year after year (with global AuM now reaching USD3 trillion), fees have been trending downward. The chart below highlights the fact that the "two and twenty" hedge fund fee structure no longer prevails. The current average fee structure for the industry is a 1.5% management fee and 17% performance fee. On average, the smallest hedge funds have the highest fees (1.53% / 18%) while the largest have the lowest fees (1.37% / 16%).

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The underperformance of the industry has translated into pressure on fees

■ Management fees (% of AuMs) - LEFT HS
— Performance fees (% of profits) - RIGHT HS

Average Fees by Fund size

Performance fees

- <$1bn (1.53%; 18%)
- $1-$5bn (1.47%; 17%)
- All HF's (1.53%; 17%)
- $5bn+ (1.37%; 16%)

Management fees

Source : HFR, Lyxor AM

Hedge funds continue to raise money

AuM, USD bn
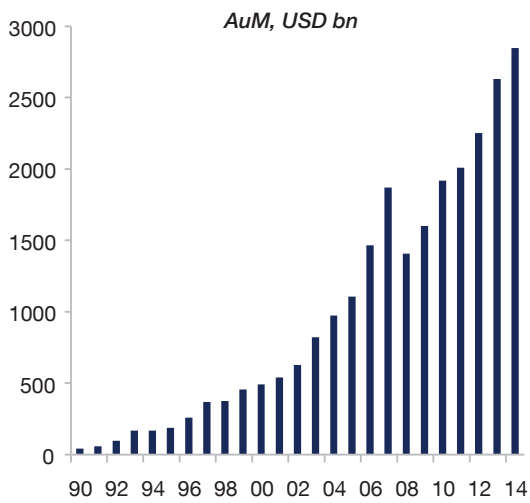
Cumulated net asset flows since Q1-09 (USD bn)

- Equity Hedge
- Macro
- Event-Driven
- Relative Value
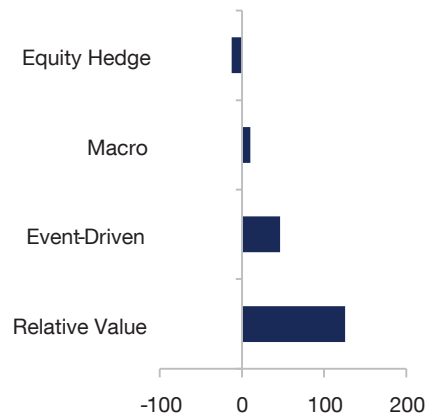
Source : HFR, Lyxor AM

...in spite of an outstanding track record

FOUR STYLISED FACTS

Historical data on hedge fund performance dates back to the early 90s. With 25 years of reliable data on hedge funds across different business cycles, we are now able to draw strong conclusions regarding the asset class in both absolute and relative terms. As such, we discuss in this section four principal stylised facts: absolute performance, relative performance, risk-adjusted performance and decorrelation:

– **The absolute performance of hedge funds has been outstanding:** We calculate that annualised returns of hedge funds after fees since 1990 have been above 10%. We also calculate that hedge funds have been strong generators of "alpha", creating an average of 4.5% per year between 1990 and 2015[1].

– **The relative performance of hedge funds versus traditional asset classes has also been remarkable over the long term.** Hedge funds have delivered returns above those achieved by equities and bonds or a diversified portfolio, as shown by the chart below.

**Hedge fund performance has been remarkable since the early 90s**
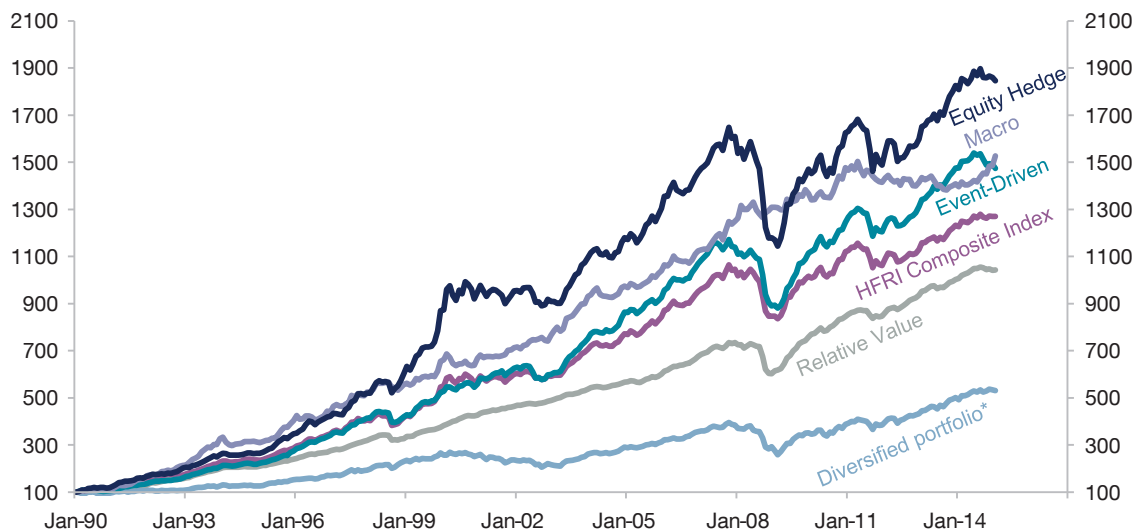
* 60% MSCI World in USD (total return) and 40% Barclay's Global Aggregate bond index, rebalanced every month. Source: HFR, Bloomberg, HFR, Lyxor AM

– **On a risk adjusted basis, hedge funds have outperformed traditional asset classes.** The Sharpe ratio of hedge fund returns since 1990 has been slightly above 1 compared to a meagre 0.2 for the MSCI World. Similarly, hedge funds have delivered risk-adjusted returns slightly above bonds over the last 25 years (as measured by the Barclay's Global Aggregate bond index). Among the strategies, relative value, event driven and macro managers are the strategies that have delivered outstanding risk-adjusted returns over the last 25 years.

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1 This is based on a simple regression, where the HFRI Composite Index is the dependent variable and the S&P 500 and 10y Treasury yields are the two independent variables. We use the data in monthly percentage changes (for 10y yields we use the monthly difference) from 1990 to 2015. We annualise the constant to calculate "alpha" generation.

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Hedge funds have outperformed risk assets on a risk adjusted basis
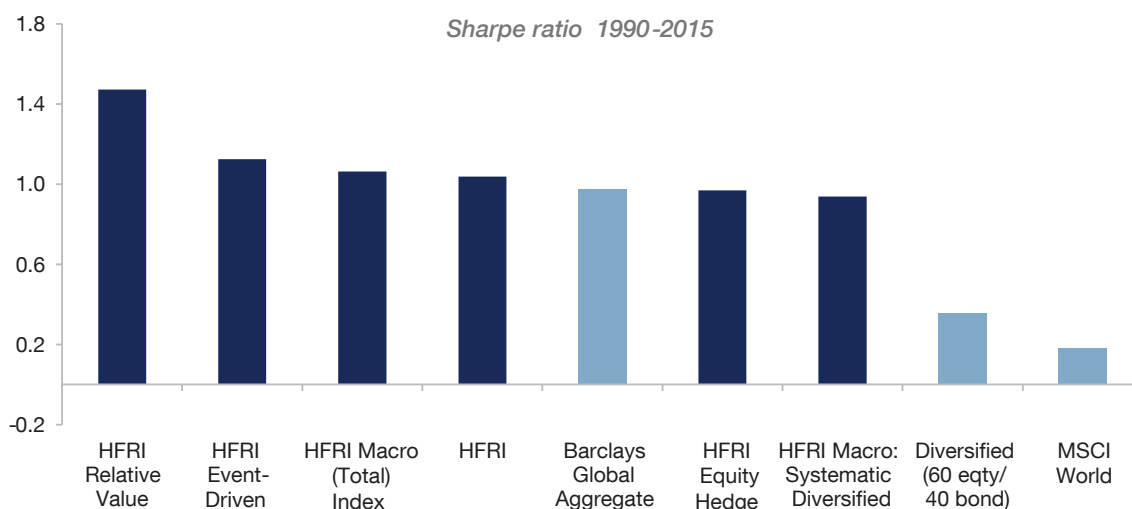
Sharpe ratio 1990-2015

Sharpe ratio calculated using the 3m interest rates as the risk free rate. Source: Bloomberg, HFR, Lyxor AM

– **The correlation between hedge funds and conventional asset classes has been low.** The less correlated strategy appears to have been Macro managers, which includes systematic managers. The correlation of the HFRI Macro with a diversified portfolio composed of 60% equities and 40% bonds has been as low as 0.4. The Macro strategy has been evenly correlated to equities and bonds at 0.35. Additionally, some strategies such as Event Driven and Equity Hedge have shown no correlation with bonds (see table). Finally, the correlation with equities has been higher for Event Driven and Equity Hedge managers at around 0.7.

One important reason why hedge funds have shown better risk adjusted returns is their low volatility. As shown by the last line in the table below, all strategies have a lower annualised volatility than a diversified 60/40 portfolio. The annualised volatility of hedge funds over the entire period (1990-2015) has ranged from 4.3% for relative value to 9% for Equity Hedge compared to 9.2% for our diversified portfolio.

Low correlation between hedge funds and traditional asset classes

1990 - 2015	HFRI Relative Value	HFRI Macro: Systematic Diversified	HFRI Event Driven	HFRI Equity Hedge	HFRI Macro Index	MSCI World	Barclay's bond index	Div portfolio 60/40
HFRI Relative Value	1							
HFRI Macro: Systematic Diversified	0.16	1						
HFRI Event Driven		0.78	0.38	1				
HFRI Equity Hedge	0.68	0.49	0.84	1				
HFRI Macro Index	0.34	0.6	0.5	0.55	1			
MSCI World	0.53	0.41	0.69	0.72	0.35	1		
Barclay's bond index	0.07	0.14	0.02	0.04	0.35	0.09	1	
Div portfolio 60/40	0.53	0.42	0.68	0.71	0.39	0.99	0.21	1
Annualized Volatility	4.3%	7.4%	6.7%	9.0%	7.3%	15.1%	3.0%	9.2%

* 60% MSCI World in USD (total return) and 40% Barclay's Global Aggregate bond index, rebalanced every month. The Sharpe ratio is calculated using the 3m interest rate as the risk free rate. Source: Bloomberg, HFR, Lyxor AM

Box 1: Hedge fund indices and their limitations

There are several sources of data for hedge fund performances. However, none is official given that the industry does not have a public organisation that collects comprehensive information. Market participants rely on diverse sources that receive information on a voluntary basis, with significant shortcomings. The usual biases are i) selection bias (hedge funds have no obligation to report their performance and weak performing funds may not report), ii) survivorship bias (the tendency to exclude "dead funds"), iii) backfill bias (when a hedge fund is added to a database, its manager can choose whether or not to report its returns prior to the date of submission) and iv) liquidity bias (some hedge fund strategies invest in illiquid assets for which market prices are not readily available)[1].

The most popular databases are all exposed to these well-known biases. As a result, the use of these benchmarks is being increasingly challenged given that they allegedly overstate hedge fund performance. Some market participants have adopted patchy solutions, such as shaving off hedge fund indices by several percentage points a year. One study suggests that taking into account the biases in the TASS database would reduce the reported returns of hedge funds between 1995 and 2006 from 16.5% to 9%[2].

In spite of these biases, the alternatives are very limited here. In our report, we have decided to use the HFR database, which is the most frequently referenced by investors and practitioners[3]. The following is a brief description of the main hedge fund databases:

– Hedge Fund Research has reported the performance net of fees of nearly 7,000 funds and funds of funds since 1990. It has also created 32 equally weighted monthly HFRI indices. These HFRI indices are the most popular indices, with over 2,000 funds at present.

– The TASS or Lipper database contains the performance of 7,500 live funds and funds of funds along with more than 11,000 dead funds. 14 value-weighted CSFB/Tremont indices have been created, resulting from the joint venture between Credit Suisse First Boston and Tremont Advisor.

– The Morningstar Center for International Securities and Derivatives Markets (CISDM) database has reported the performance of more than 5,000 live hedge funds, funds of funds and CTAs since 1994. Eleven indices have been created from this database.

– The EurekaHedge database was created by ABN Amro and Eurekahedge Fund Advisor. It covers about 6,700 funds and 2,800 funds of funds and offers an equally-weighted benchmark along with geographical indices and indices for UCITS hedge funds.

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1 For further details on the biases of hedge fund databases, see Cazalet Z. and B. Zheng (2014), "Hedge Funds in Strategic Asset Allocation", Lyxor White Paper #11 (March)

2 See Ibbotson R.G., Chen P. and Zhu, K. X. (2011), "The ABCs of hedge funds: alphas, betas, and costs." Financial Analysts Journal (67):15–25.

3 See for instance Jagannathan R., Malakhov A. and Novikov D. (2010), "Do hot hands exist among hedge fund managers? An empirical evaluation," The Journal of Finance, 65(1), pp. 217-255.

Why hedge funds have underperformed recently

The debate concerning the extent of the underperformance of hedge funds has much to do with the benchmark against which the asset class is compared. However, as shown above, hedge funds have underperformed a traditional 60/40 diversified portfolio on a risk-adjusted basis since February 2009. Consequently, we will not discuss the particularities of which benchmark we should adopt to compare the performance of hedge funds. Instead, we will accept the recent underperformance as a fact and focus on its causes.

In our view, there are five main reasons why hedge funds have underperformed traditional asset classes. Some factors appear to be cyclical, such as the equity market rally that took place in the wake of the global financial crisis and the market distortions caused by the Fed's QE in terms of bond yields. Other factors appear to be structural, such as the institutionalisation of hedge funds and the increased regulatory pressure:

– **The Bernanke put.** The underperformance of hedge funds occurred at the same time the unprecedented Fed intervention was distorting markets, pushing bond yields to all time lows and equity volatility to multi-year lows. The chart below shows that every time the Fed decided to expand its asset purchases, its action contributed significantly to taming equity volatility. This effect of Fed policies on volatility has been dubbed the "Bernanke put" (previously known as the "Greenspan put").

Hedge fund underperformance took place while unprecedented Fed interventions distorted markets
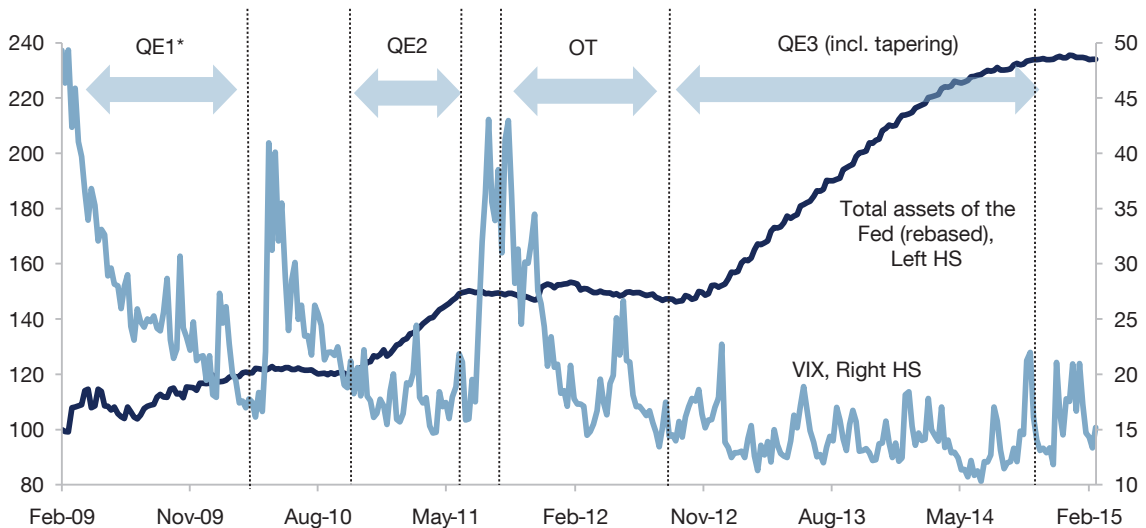
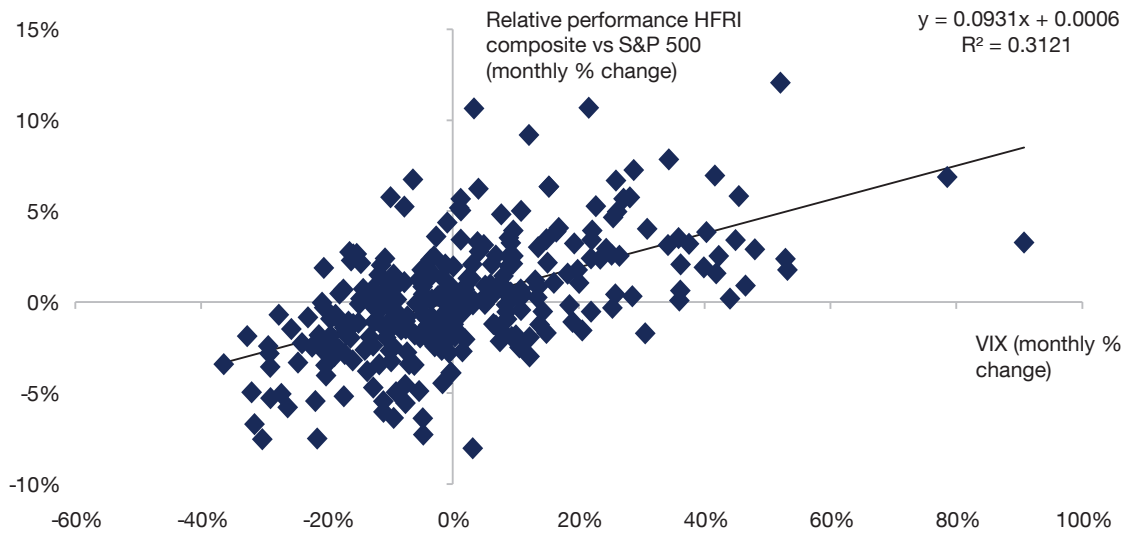
*QE1 was announced on November 25, 2008. Source: Federal Reserve, Bloomberg, Lyxor AM

The chart below illustrates the fact that there is a relationship between the relative performance of hedge funds and the fall in volatility. When volatility rises, hedge funds outperform equity markets. Alternatively, when volatility falls (as was the case over the past six years), hedge funds underperform.
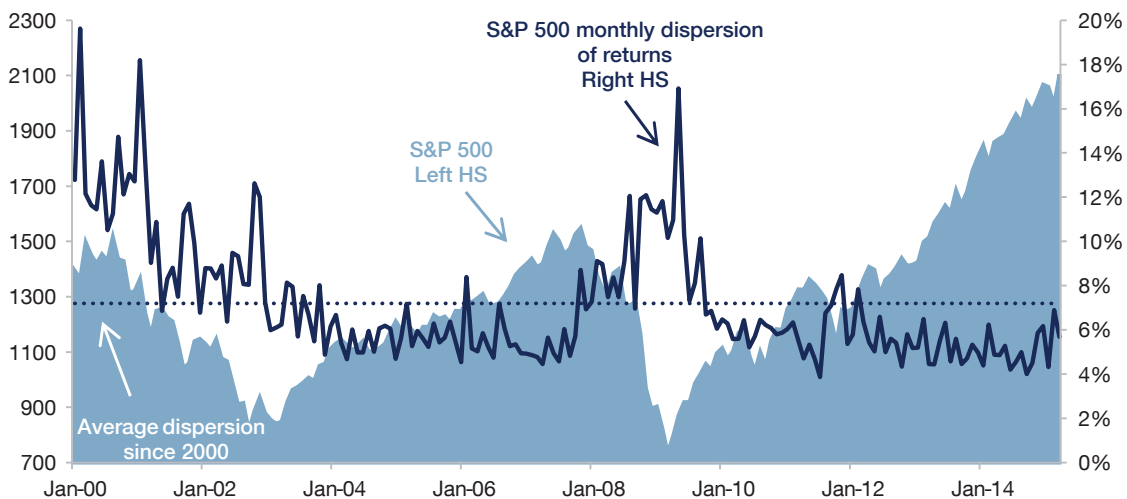
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When volatility falls (as was the case over the past six years), hedge funds underperform

Relative performance HFRI composite vs S&P 500 (monthly % change)

$y = 0.0931x + 0.0006$
$R^2 = 0.3121$

VIX (monthly % change)

Based on monthly data between 1990 and 2015. Source: CBOE, HFR, Bloomberg, Lyxor AM

– **Liquidity driven markets.** As part of the extremely accommodative monetary conditions in the US, equity markets have been driven to a larger than usual extent by liquidity conditions. For fundamental investors such as Equity Hedge, managing a long/short book turns out to be complex and costly when the market is up and the rising tide lifts all boats. The dispersion of performances within the S&P 500 has effectively been very low over the past few years.

US stock market dispersion has been extremely low, hurting the short books of L/S Equity

S&P 500 monthly dispersion of returns
Right HS

S&P 500
Left HS

Average dispersion since 2000

Dispersion is measured as $\sqrt{\sum_{i=1}^{n} w_i (r_i - P)^2}$ where P is the portfolio return, each r1 is a component return and each wi is the corresponding component weighting Source: S&P, Bloomberg, Datastream, Lyxor AM

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– **The fall in bond yields** has been particularly unprecedented in the context of the decline in potential output in advanced economies, rising disinflationary pressures and central bank interventions. We will show in the next section that the dramatic fall in bond yields has had a negative impact on hedge fund performance.

– **The institutionalisation of hedge funds.** The recent underperformance of hedge funds may also have structural components. There are lingering questions regarding whether the sharp evolution of the hedge fund investor base over the last decade has negatively impacted its performance. This refers to the fact that institutional investors (particularly pension funds) have poured huge amounts of money into hedge funds. Institutional investors now represent two-thirds of the hedge fund investor base, up from 20% a decade earlier. While this has contributed to increasing financial stability and reduced leverage ratios, operating costs have ballooned to meet demands for greater compliance and transparency and to implement tighter internal controls[2].

– **The changing regulatory environment.** The burgeoning of new financial regulations since 2008 (such as FACTA and Dodd Frank in the US) may have impacted the hedge fund industry more than any other segment of the financial industry. This is due to the fact that compliance with financial regulations predominantly affects smaller firms. In a 2013 survey by KPMG, it was estimated that hedge funds had seen a 10% increase in annual operating costs since 2008 attributable to compliance costs resulting from Dodd Frank reforms in the US [3].

Going forward, we believe that several factors discussed above will probably be less important in influencing hedge fund performance. The Fed's QE is over and the US is on track for some form of monetary policy normalisation. Meanwhile, stock market dispersion is converging towards its long-term average. Finally, based on our interactions with the industry, there is anecdotal evidence that five years after the passage of the Dodd-Frank bill, the marginal cost for hedge funds of implementing the new regulations is falling.

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2 See Labosky C. (2012), "The Institutionalization of Hedge Funds and the Asymmetric Price of Reputation", Yale Journal on Regulation.

3 See Mirsky R., A. Baker and R. H. Baker (2013), "The Cost of Compliance" – 2013 KPMG/AIMA/MFA Global Hedge Fund Survey." See also Crain N. V. and W. M. Crain (2010), "The Impact of Regulatory Costs on Small Firms", report prepared for the SBA Office of Advocacy.

Estimating the drivers of hedge fund returns

In order to estimate the determinants of hedge fund returns, we ran a simplistic approach consisting of using the returns of the S&P 500 (in total return) and the changes in 10y Treasury yields to explain the excess returns of the HFRI Composite Index. We used data for US markets (and US Treasury yields) rather than global markets (and bond prices) to make the projections in the next section easier to handle. Additionally, running the regressions using the MSCI World and the JPM Global aggregate bond index did not change the magnitude, the sign and the significativity of the coefficients (see tables 2 and 3 on pages 15 and 16).

We estimate the regressions using ordinary least squares with variables in monthly percentage changes in order to deal with stationarity. We found no autocorrelation in the residuals. Technical details can be found in the appendix. The main results are the following:

– Alpha generation has been significant at an average of 4.5% per year between 1990 and 2009. It has nevertheless fallen since 2009 to 1.2% per year. At 3.7% for the full period, it is within the range of estimates available in the academic literature[4].

– The equity beta has been close to 35% for the full period and has fallen to 31% since 2009. This is also in line with previous estimates.

– The bond yield beta has been around 60% and has increased since 2009 to 70%. This implies that the fall in bond yields in the wake of the global financial crisis hampered hedge fund performance over the period.

– The fit of the regression suggests an important portion of hedge fund returns (55% for the period 1990-2015) is explained by these two variables. Since 2009, these two variables have explained 73% of hedge fund returns.

Alpha generation shrunk over the last six years
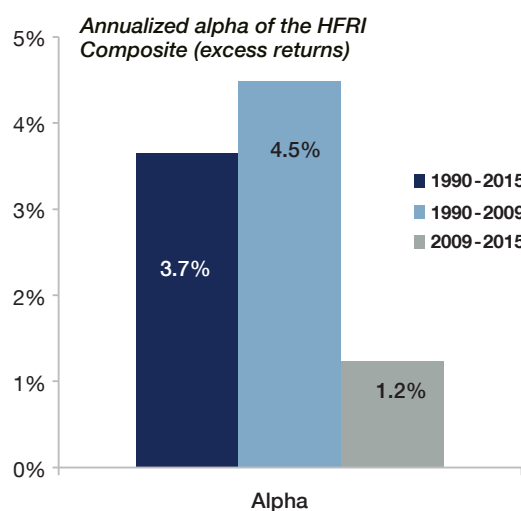
The fall in bond yields had stronger implications
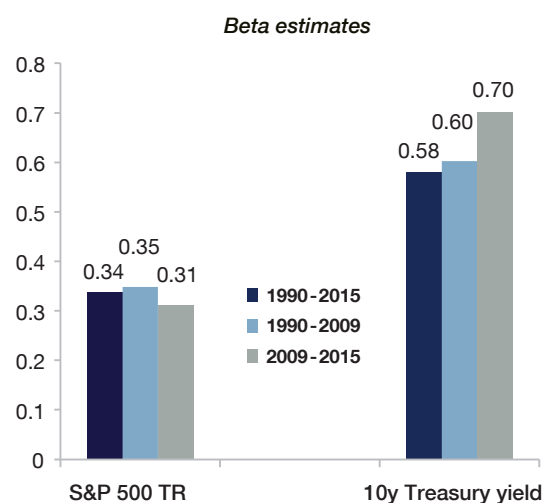
We used the Libor 3m as the risk free rate. Source : HFR, Bloomberg, Lyxor AM

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4 See Ibbotson et al. op. cit. p.6. See also Fung, W and, Hsieh, D. (2004), "Hedge fund benchmarks: A risk based approach." Financial Analyst Journal (60): 65–80.

Extrapolating hedge fund returns

Going forward and based on the coefficients estimated above and a few conservative assumptions, we estimate that hedge funds could deliver excess returns above 5% per year (over the risk free rate) with low volatility. We believe that our 5% estimate is a minimum and there is upside potential from here. In order to estimate these expected returns, we made a few assumptions as described below.

ASSUMPTIONS REGARDING ALPHA GENERATION

According to the academic litterature, Alpha is a concept that measures scarce managerial talents[5]. It is defined as the difference between a portfolio's risk-adjusted return and the return for an appropriate benchmark. When applied to hedge funds, the concept is particularly challenging given that it requires adopting a benchmark for a heterogeneous asset class.

Additionally, the concept of alpha itself is being challenged by the discovery of new risk factors. John Cochrane of the University of Chicago coined the term "zoo of factors" in his 2011 presidential address to the American Finance Association[6]. According to this view, there is no alpha, just beta to be discovered.

Despite these academic debates, we used the conventional approach consisting of estimating alpha as the constant of a regression. Regressing the HFRI monthly returns on the US equity and bond markets, we estimate that a significant portion of hedge fund returns (2/3 to be precise since 1990) has been the result of alpha generation.

However, the contribution of alpha to hedge fund returns is not constant over time. As shown by the table below, it is highly influenced by the volatility / correlation / dispersion regimes. For instance, a high volatility regime is usually associated with significant dispersion in asset returns, a key factor in generating alpha (below signalled by ++). At the same time, sudden spikes of volatility or dispersion (usually occurring on macro shocks) are detrimental (below signalled by --).

Impact of market conditions on alpha generation by hedge funds

| | IMPACT OF MARKET REGIMES ON ALPHA GENERATION | | | |
	High	Low	Spiking	Plunging
Volatility	++	-	--	-
Correlation	-	+	-	+
Dispersion	++	-	--	-

5 See Berk, J.B., Green, R.C. (2004), "Mutual fund flows and performance in rational markets." Journal of Political Economy (112): 1269–1295.
6 Cochrane, John H. 2011. "Presidential Address: Discount Rates." Journal of Finance, vol. 66, no. 4 (August):1047–1108

In our projections, we assumed that alpha generation going forward will revert to the levels seen in the past. Given the fact that alpha generation has in fact been lower since 2009, we applied a margin of safety. We assumed that alpha generation will equal 3% per year over the next two years (below the 3.7% seen throughout 1990-2015) and 4% between 2017 and 2020 (below the 4.5% seen between 1990 and 2009). This is consistent with our scenario for a gradual rise in volatility and dispersion as a result of the maturing economic cycle, streched valuations and the normalisation of monetary policy in the US.

THREE MARKET SCENARIOS FOR THE US OVER THE NEXT FIVE YEARS

In addition to the above assumptions, we established three forecast scenarios for US equity performances and US 10y Treasury yields over the next five years. We then applied the beta coefficients calculated above to estimate hedge fund returns.

#1: Normalisation of policy rates in the US

Our first set of forecasts implies that the Fed will begin to normalise policy rates in the second half of 2015 at a pace broadly expected by the market. As such, market disruptions would be limited and the rise in 10y bond yields would also be moderate. However, as the economic cycle matures, the US would face a mild recession by 2017. Overall, returns on US equities would average in the mid-single digits, in line with what their current valuation suggests. Regarding bond yields, the normalisation of policy rates would push bond yields higher. However, they would remain below 3% for the next three years, as the economic cycle is at an advanced stage. By the end of the period considered here (the end of the decade), US 10y Treasury yields would approach 4%.

#2: Fed tightens faster than expected

Our second set of forecasts implies that the US economic recovery strengthens in the second half of 2015 and the Fed tightens faster than currently expected by the market. This would negatively impact US equities over the next two years and push 10y Treasury yields above 4% in 2016. However, the strength of the US economy would support risk assets. US equities would deliver high single-digit returns by the end of the period considered here (2018-2020). 10-year US Treasury yields would be above 4%.

#3: Secular stagnation

In this scenario, the soft patch observed in the first half of 2015 would continue and lead to a delayed and shorter policy rate hike cycle than currently discounted by the market. Risk assets would be somewhat supported by the Fed, although returns would remain in mid-single digits due to streched valuations. However, the Fed dovishness would tame volatility. Bond yields would remain slightly above 2%, the level seen at present. This scenario is consistent with current views debated in US policy circles.

Our three scenarios have different implications for US equities and bonds yields

Assumptions S&P 500 TR (% change)


Assumptions 10y Treasury yields
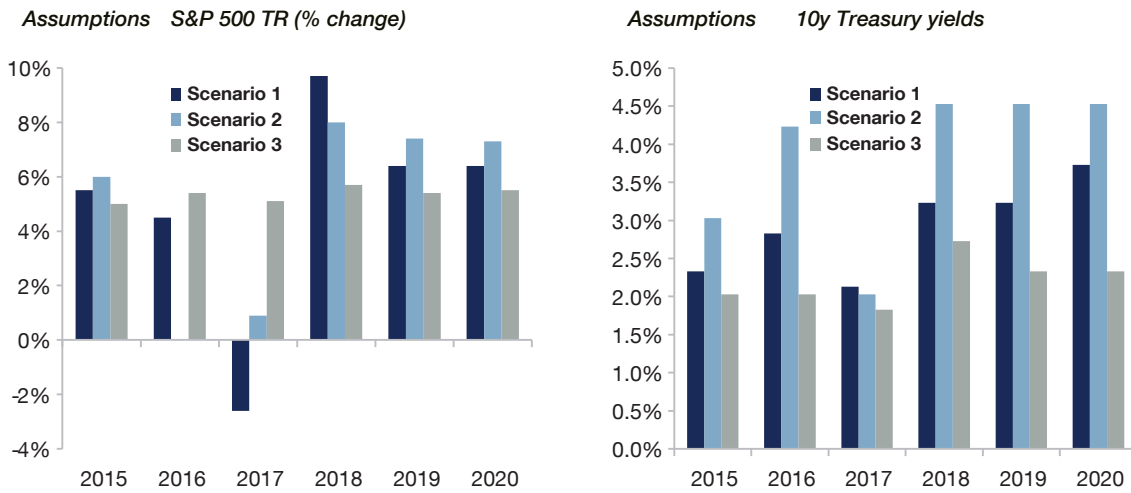
Source : Lyxor AM

IMPLICATIONS FOR HEDGE FUND RETURNS

We extract the beta equity and beta bond yield discussed in the previous section to estimate hedge fund excess returns. The results suggest that the second scenario (Fed tightens faster than expected) would be better for hedge fund returns to the extent that it would imply higher volatility. At the same time, the third scenario (secular stagnation) would be the worst. Overall, hedge fund excess returns would be above 5% per year. We believe that our 5% estimate is a minimum and there is upside potential from here.

Hedge funds set to deliver (excess) returns over 5%
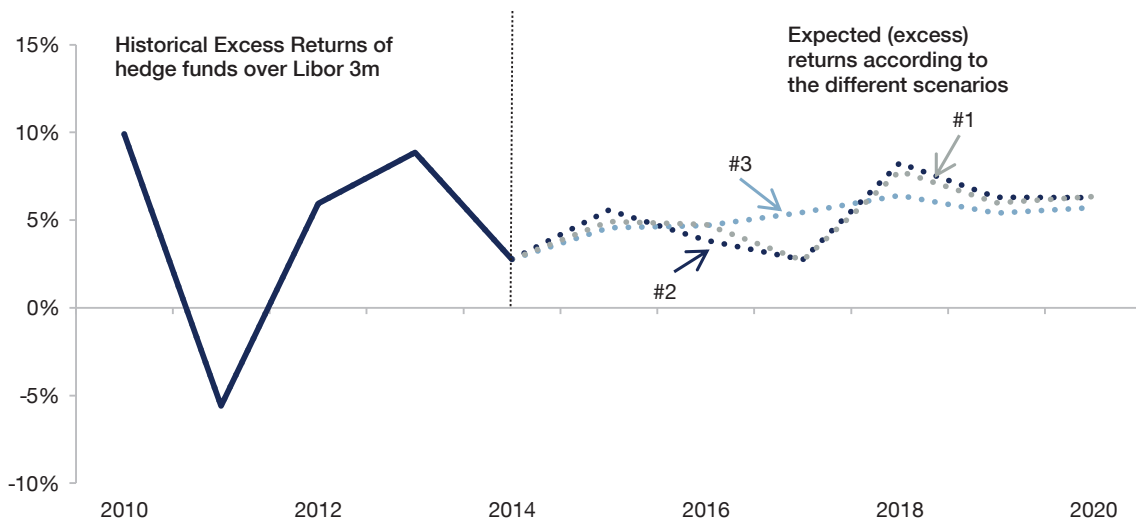
Technical Appendix

In this section, we provide details on the data used in the regressions and provide descriptive statistics. We also discuss the econometric specification.

DATA

In order to estimate the determinants of hedge fund returns, we used the Hedge Fund Research database with data from December 1989 to February 2015. All indices are computed on monthly percentage changes in order to deal with potential stationarity issues. We used the HFRI Fund Weighted Composite Index (HFRI).

To the extent that our objective was to make projections on hedge fund returns while limiting the number of assumptions, we focused on the explanatory power of US equities and US Treasuries. We used monthly returns of the S&P 500 (in total return) and the monthly difference of the 10-year Treasury yield as explanatory variables. It is important to note that we also tested global benchmarks for equity and bond markets (respectively the MSCI World in total return and the J.P. Morgan Global Aggregate Bond Index (in total return unhedged USD) but found no significant differences with regards to the magnitude, the sign and significativity of the coefficients.

Finally, we tested the serial autocorrelation of the residuals using the Ljung-Box test (Box-Pierce). The results suggested that we could not reject the null hypothesis that the residuals were independently distributed at the 95% threshold. Hence we proceeded with the Ordinary Least Squares method.

DESCRIPTIVE STATISTICS

In this section, we provide descriptive statistics concerning the variables used in this report from January 1990 to February 2015. We can see some significant differences. In particular, hedge funds deliver monthly returns on par with equities on average over the long term (0.9%), while volatility is comparable to bonds (2%).

Variable	Mean	STD	Median	Skewness	Kurtosis	Min	Max
ΔHFRI	0.9%	2%	1.0%	-0.7	2.6	-8.7%	7.7%
ΔSPX500	0.9%	4.2%	1.3%	-0.6	1.2	-16.8%	11.4%
ΔUST10Y *(price)*	0.1%	2.1%	0.2%	0.1	1.45	-7.4%	9.6%

All statistics are computed on a monthly basis; in percentage change for equities and percentage points for bond yields. HFRI refers to the HFRI Fund weighted Composite Index).

ECONOMETRIC SPECIFICATION

As stated above, we tested the explanatory robustness of two variables (equities and bonds), using respectively two benchmarks for each asset class (US benchmarks and global benchmarks). The specification is as follows:

$$R_t = \alpha + \beta_1 \, \Delta EQTY_t + \beta_2 \, \Delta BOND_t + \varepsilon_t$$

where R_t represents the returns of Hedge Fund strategies at time t, α is a constant that measures alpha, $\Delta EQTY_t$ represents the monthly percentage change of equities in total return at time t, $\Delta BONDS_t$ represents the monthly variation in bond yields at time t, in percentage change, ε_t is a mean zero error term that captures unobserved heterogeneity.

RESULTS

Table 1:

HFRI Composite excess returns over Libor 3m	(1) Feb 1990- Feb 2015	(2) Feb 1990- Jan 2009	(3) Feb 2009-Feb 2015
Intercept	0.0030***	0.0037***	0.0010
	(0.0008)	(0.0010)	(0.0011)
S&P 500 TR	0.3374***	0.3480***	0.3109***
	(0.0180)	(0.0222)	(0.0261)
10y Treasury yield	0.5797**	0.6026*	0.7010*
	(0.2809)	(0.3380)	(0.4464)
Observations	301	228	73
Adjusted R2	55%	52%	73%
Annualized Alpha	3.7%	4.5%	1.2%

Standard errors in parentheses. ***, **, * indicate statistical significance at 1%, 5% and 10% respectively. Source: Lyxor AM.

Table 2 (with US bond prices instead of US bond yields)

HFRI Composite excess returns over Libor 3m	(1) Feb 1990- Feb 2015	(2) Feb 1990- Jan 2009	(3) Feb 2009-Feb 2015
Intercept	0.0030***	0.0037***	0.0010
	(0.0008)	(0.0009)	(0.0011)
S&P 500 TR	0.3354***	0.3470***	0.3073***
	(0.0180)	(0.022)	(0.0262)
10y Treasury price	-0.0794***	-0.0826***	-0.090*
	(0.0360)	(0.0444)	(0.0519)
Observations	301	228	73
Adjusted R2	55%	52%	74%
Annualized Alpha	3.6%	4.5%	1.2%

Standard errors in parentheses. ***, **, * indicate statistical significance at 1%, 5% and 10% respectively. Source: Lyxor AM

Table 3 (with global equities and global bond prices)

HFRI Composite excess returns over Libor 3m	(1) Feb 1990- Feb 2015	(2) Feb 1990- Jan 2009	(3) Feb 2009-Feb 2015
Intercept	0.0044***	0.0055***	0.0016**
	(0.0008)	(0.0009)	(0.0009)
MSCI World TR	0.3473***	0.3559***	0.3244***
	(0.0174)	(0.0219)	(0.0212)
JPM Global Aggregate Bond Index total return	-0.1362**	-0.1665***	-0.0275
	(0.0455)	(0.0547)	(0.0648)
Observations	301	228	73
Adjusted R2	57%	54%	81%
Annualized Alpha	5.3%	6.6%	1.9%

Standard errors in parentheses. ***, **, * indicate statistical significance at 1%, 5% and 10% respectively. Source: Lyxor AM.

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