

Hedge Fund Investing in the Aftermath of the Crisis: Where did the Money Go?

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Abstract

This paper investigates the determinants of hedge fund flows after the crisis of 2008. We show that after the crisis, investors maintained their traditional preference for past best-performers. In that sense money flows were not smart after the crisis. We find some evidence, albeit mixed, that inflows mainly went to the most liquid funds and strategies. Finally, for single hedge funds, the domiciliation was also a relevant criterion for allocations, with EU-domiciled funds the most favoured. We finally find weak impact of fee structures on allocation decisions.

We are grateful to the referee for his valuable comments. All remaining errors are our own.

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In 2008, the hedge fund industry posted its worst performance ever. Even if hedge funds significantly outperformed equities, they failed to deliver a positive return when investors needed it the most. Moreover, many hedge funds had to restrict the liquidity of their funds by implementing gates or side-pockets. To top it all off, the biggest fraud in the history of the hedge fund industry was discovered leading to billions of dollars of losses.

The direct consequence of these events was that the hedge fund industry experienced significant outflows. According to EurekaHedge publications, the assets managed by the hedge fund industry declined by \$470bn between June 2008 and April 2009. Fortunately, the flight of investors from the hedge fund industry stopped in May 2009. At this date, inflows to the hedge fund industry exceeded outflows for the first time since June 2008.

Given the shock experienced by the industry in 2008, it is certainly interesting to understand if and how the financial crisis altered the determinants of the flows experienced by hedge funds. In order to do so, we investigate the relationship between hedge fund flows in 2009 and hedge fund characteristics.

Testable hypotheses

Several academic studies investigate the relationship between hedge fund flows and hedge fund characteristics. The main finding of these studies is that money flows into hedge funds primarily chase recent good performance (see for instance Agarwal et al. [2004]). Baquero and Verbeek [2009] contribute to the literature by using quarterly fund flows and modelling in- and outflows separately. They also document a positive relationship between flows and past performance but, contrary to Agarwal et al. [2004] who find a convex relationship, they find a linear one. Xiong et al. [2007] use quarterly flows of funds of hedge funds and they also find a linear flow-performance relationship. More recently, Ding et al. [2009] extend these studies by investigating the effects of share restrictions. They show that the flow-

performance relationship is always positive but more importantly that it becomes concave in the presence of significant liquidity restrictions. Besides performance, the importance of the other hedge fund characteristics on investor flows is less crucial. Agarwal et al. [2004] show that investors are reluctant to invest in funds that have longer lockup periods. Baquero and Verbeek [2009] demonstrate that liquidity restrictions impact differently money inflows and outflows. Agarwal et al. [2004] analyse also the impact of hedge fund manager incentives on flows. They find that investors allocate more money to hedge funds with a greater sensitivity of their total compensation to the fund's performance. Finally, Agarwal et al. [2004], Baquero and Verbeek [2009] as well as Ding et al. [2009] document that investors prefer smaller and younger funds.

Overall, past academic research mainly focuses on determining the shape of the relationship between flows and performance. Rather than this, our study focuses on the potential impact that the financial crisis may have had on investors' recent allocation decisions. This is why we focus exclusively on the 2009 post-crisis flows and formulate our testable hypotheses by insisting on the events that may have had a significant impact on allocation decision. In the rest of this section, we develop five hypotheses, one for each category of hedge fund characteristics we consider: 1) risk and return, 2) size and age, 3) level and structure of fees, 4) liquidity terms and 5) domiciliation. Hedge funds are generally not fully transparent regarding their individual positions. This is why investors tend to rely on past performance to take capital allocation decisions to hedge funds. The extraordinarily difficult market conditions that prevailed during the financial crisis have clearly helped at separating good managers from bad ones. Given the great dispersion in performance during the crisis, we predict that past performance has become even more important. Similarly, the ability of hedge fund managers to manage their volatility during the 2008 stress period will probably be viewed as a good proxy for their capacity to control risks in the future. Finally, excessive

leverage was one of the main performance detractors in 2008. As a consequence, we predict that investors may be reluctant to allocate new money to managers that have the ability to use leverage for their investment strategy. Note that this prediction differs from past research (see Ding et al. [2009]) that documents that funds with higher leverage received higher inflows. As it was thought that only good managers can get financing, leverage was indeed seen as a good proxy for the quality of the fund. With the hindsight of the financial crisis, we can say that this is far from being true. This leads us to our first hypotheses:

Hypothesis 1 a): Funds with good performance during the financial crisis should be associated with higher flows after the crisis.

Hypothesis 1 b): Funds with low standard-deviation during the financial crisis should be associated with higher flows after the crisis.

Hypothesis 1 c): Funds that are more prone to use leverage should be associated with lower flows after the crisis.

Past academic research that investigates the impact of hedge fund size has come to two important conclusions. First, smaller-sized hedge funds display more operational risk than big ones (see Christory et al. [2006]). Second, due to capacity constraints in some types of trading strategies, bigger funds underperform smaller funds (see Agarwal et al. [2004] among others). This suggests that, on average, smaller funds outperform bigger ones, but also display much fatter tails. Operational risk has become at the centre stage of hedge fund investors' concerns after the financial crisis. The massive outflows experienced by some hedge funds have raised concerns about the ability of small- to middle-sized hedge funds to survive without significantly reducing their costs and thereby lowering the quality of both their investment and, more importantly, operations team. This is why we predict that, in the post-crisis

environment, operational risk stemming from size will outweigh the performance effect. The same type of argument is valid to predict the relationship between the flows and the age of the fund. On the operational side, the partners of older funds can probably invest more personal wealth in the fund management company than the partners of younger funds who have been collecting fees for fewer years. This will enable partners of young funds to retain key employees after significant losses of assets. Finally, given the high level of risk aversion induced by the 2008 events, investors may perceive older funds as more experienced and stable. This leads us to our second set of hypotheses:

Hypothesis 2 a): Funds with higher assets under management should be associated with higher flows.

Hypothesis 2 b): Older funds should be associated with higher flows.

Until the financial crisis, the level of fees perceived by hedge funds was probably not a major allocation criterion. Hedge fund managers were perceived as above average quality managers that deserve to receive higher fees than mutual fund managers. Empirical research confirms this prediction as the relationship between management fees and flows is not statistically significant (see Baquero and Verbeek [2009]). However, the weak performance delivered by the industry in 2008 may have changed the behaviour of investors and prompted them to become less complacent about the level of both management and incentive fees. With respect to incentive provisions, Ding et al. [2009] show that there is a positive relationship between flows and the existence of a high-water mark provision, as this better aligns the incentive between managers and investors. The same rationale shall apply to hurdle rate provisions.

Hypothesis 3 a): Funds with lower management fees should be associated with more inflows.

Hypothesis 3 b): Funds with lower incentive fees should be associated with more inflows.

Hypothesis 3 c): Funds with high-water mark provisions should be associated with more inflows.

Hypothesis 3 d): Funds with hurdle rate provisions should be associated with more inflows.

Previous academic research (see Agarwal et al. [2004]) find that investors prefer more liquid hedge funds implying a negative relationship between flows and liquidity restrictions imposed by hedge funds. Given the extraordinary liquidity restrictions (e.g. side-pockets) that have been imposed by some hedge funds during the 2008 crisis, we predict that the negative impact of illiquidity on hedge fund flows should remain significant. This leads us to our fourth hypothesis:

Hypothesis 4 a): Funds with higher total redemption period should be associated with fewer inflows.

Hypothesis 4 b): Funds with lockup provisions should be associated with fewer inflows.

Hedge funds are, to a large extent, domiciled in offshore centres such as Cayman Islands or British Virgin Islands. Compared to onshore funds, the tax treatment as well as the operational expenses is generally cheaper for investors that invest in offshore funds. However, the financial crisis has raised several concerns regarding offshore funds. The most important one is probably the lack of transparency, oversight and investor protection of some offshore vehicles. On top of that, developed countries have started to question the tax treatment of funds domiciled offshore. As a consequence, in early 2009 the EU published a draft project for a Directive on Alternative Investment Funds Managers (“AIFMD”). One aspect of the

directive is the possible restriction on the distribution of offshore vehicles to EU based professional investors. In this context, we predict that the flows experienced by hedge funds after the crisis may depend on their domiciliation. This leads us to our fifth and final hypothesis:

Hypothesis 5: Funds domiciled within the EU should be associated with more inflows.

Methodology

In order to test our hypotheses, we run a regression similar to the one used by Ding et al. [2009]:

$$\begin{aligned}
 Flow_i = & \alpha + \beta_1 Perf_i + \beta_2 SD_i + \beta_3 Leverage_i + \beta_4 StartSize_i + \beta_5 Age_i \\
 & + \beta_6 D_LowMgmtFee_i - \beta_7 D_LowIncFee_i + \beta_8 D_HighWaterMark_i + \beta_9 D_HurdleRate_i \\
 & + \beta_{10} D_OpenForInvestments_i + \beta_{11} TotalRedemptionProd_i + \beta_{12} D_Lockup_i \\
 & + \beta_{13} D_EURnonEU_i + \beta_{14} D_US_i + \beta_{15} D_Caribbean_i + \beta_{16} D_Emerging_i + \varepsilon_i
 \end{aligned} \tag{1}$$

We measure *Flow* as the percentage change of assets under management (*AUM*) between end April 2009 and May 2010, net of investment returns (*r*):

$$Flow = \frac{AUM_{05/10} - AUM_{04/09}(1+r)}{AUM_{05/10}} \tag{2}$$

We consider this specific period in order to exclude sales that were mainly driven by liquidity needs during the first months of 2009. As mentioned above, the hedge fund industry experienced positive net flows between May 2009 and May 2010 and we can suppose that these flows relied more on investors' judgements about hedge fund's expected future performance than on pure liquidity needs.

In line with the hypothesis, we group the characteristics of the funds into 5 categories.

Three variables consider the risk and return features of the single hedge funds: *Perf*, *SD* and *D_Leverage*. *Perf* is the abnormal return of the fund computed using the 8 factors model of

Fung and Hsieh [2001]¹ from July 2007 to December 2008. Even if July 2007 was not the peak date for the performance of hedge fund indices, it was the month during which the first significant problems appeared in the hedge fund industry with both the collapse of the Bear Sterns credit hedge funds and the beginning of the quant meltdown. December 2008 was the through date of the drawdown for the industry as expressed by the HFRX Global Hedge Fund index.² SD is the standard deviation of returns over the same period and $D_Leverage$ is a dummy variable that takes the value of 1 if the fund uses leverage and 0 otherwise.

As proxy for the seniority of the funds, we use $StartSize$, the natural logarithm of AUM of the fund as of April 2009, and Age , the age of the fund (expressed in years).

$D_LowMgmtFee$ and $D_LowIncFee$ are dummy variables that take the value of 1 if the management fee and incentive fee are below the sample median and 0 otherwise. Together with $D_HighWaterMark$ and $D_HurdleRate$, two dummies that equal 1 if the fund applies a high-water mark or hurdle rate provisions and 0 otherwise, they compose the bucket of variables related to fees.

We measure the liquidity restrictions with $TotRedPeriod$, D_Lockup and $D_OpenForInv$. $TotRedPeriod$ is the sum of redemption frequency and redemption notice, expressed in months. D_Lockup is a dummy that takes the value of 1 if the fund has a lockup and 0 otherwise. To isolate the fact that funds open to investors can potentially collect more money, we include the variable $D_OpenForInv$. This is a dummy variable that takes the value of 1 if the fund is open for new investments and 0 otherwise.

Finally, we considered 5 groups of countries: European Union (EU), European countries which are not member of the EU (Channel Islands, Guernsey, Jersey and Switzerland), North

¹ Trend-following risk factors can be downloaded from <http://faculty.fuqua.duke.edu/~dah7/DataLibrary/TF-FAC.xls>. Other factors were obtained from Bloomberg.

² Note that we model the relationship between past performance and hedge fund flows linearly as our main objective is not to focus on the shape of the relationship between past performance and flows. Unreported results show that our conclusions are unaffected by the use of alternative non-linear measures such as the TRANK measure used by Ding et al. [2009]. These results available upon request by the authors..

America (US and Canada), Caribbean Region (Bahamas, Barbados, Bermuda, BVI, Cayman Islands, US Virgin Islands, Netherlands Antilles) and emerging countries (Gibraltar, Israel, Kingdom of Bahrain, Mauritius, South Africa and UAE). We consider the impact of domiciliation with respect to a European domiciled fund. We thus include dummies for the four latter categories: $D_{EURnonEU}$, D_{US} , $D_{Caribbean}$ and $D_{Emerging}$, respectively.

Dataset

Hedge funds returns and characteristics are obtained from the HFR database. Instead of relying on time series of AUMs provided by HFR, we created our own series by using home-made backups of the static fields contained in the database. This procedure allows us to reduce the impact of backfilling bias. Even if we do not formally control for survivorship bias, we are only marginally concerned by its impact. As a matter of fact, our goal is to analyse the active allocation decision of investors, not the forced ones due to liquidations.

Among the 12270 series contained in our database, we retain the funds that reported their AUM both in April 2009 and May 2010 (2491 funds). We then discard funds that do not state their domicile (107 funds) and their returns for the period between July 2007 and December 2009 (258 funds). Other 60 funds are not considered because we do not know their fees (management fee, incentive fee, high-water mark, or hurdle rate), investment terms (redemption frequency, redemption notice or lockup), whether they are open for investments and if they use leverage. We retain only the funds that report their figures (AUM and returns) in USD or EUR (1911 funds). We also discard 178 funds whose AUMs followed and unrealistic evolution.³ Finally, if a fund has several classes,⁴ we retain the one with the highest AUM as of May 2010. By applying these filters, we obtain a sample of 1485 funds.

³ We remove from our sample the funds whose AUM decreased by more than 90% ($\Delta AUM < -90\%$), whose AUM did not change ($\Delta AUM = 0\%$) or whose AUM increased by more than 10 times ($\Delta AUM > +1000\%$). It is very likely that this procedure discards funds that misreported their AUMs (and not funds that liquidated). In fact, almost all the funds reported returns also in 2010, and the patterns of NAVs do not suggest that these funds are shutting down.

Descriptive statistics

Exhibit 1 contains the descriptive statistics of the net flows observed for our sample from the end of April 2009 to the end of May 2010. There is a significant dispersion between strategies and also within strategies. Event Driven is the style with the lowest median outflows (-0.6%), whereas Funds of Funds faced the most important median outflows (-15.9%). In addition, Fund of Funds is also the only strategy with negative average flows. Standard deviations of flows are relatively high for all the strategies (between 49% and 87 %) which indicate that investors discriminated between funds when they decided their allocation.

**EXHIBIT 1: Descriptive Statistics of Flows
(May 2009-May 2010)**

	No Obs	Mean	StDev	1 st Q	Median	3 rd Q	Skew	Kurt
All	1485	5.4	70.1	-29.9	-5.1	18.3	2.4	12.2
Global Macro	246	11.1	63.1	-22.6	-1.2	30.8	2.3	11.9
Relative Value	170	7.1	74.7	-29.8	-5.6	27.7	2.1	10.3
Equity Hedge	545	14.1	77.1	-23.9	-1.0	24.9	2.3	11.0
Event Driven	117	21.7	86.9	-31.0	-0.6	36.2	1.7	6.1
Funds of Funds	407	-15.0	49.4	-40.6	-15.9	2.8	2.8	22.9

Exhibit 2 displays the descriptive statistics of our continuous explanatory variables. The distribution of the size variable is highly positively skewed with some big funds that increase the average size of the funds contained in our sample. The average fund is 8-year old, it generated a positive alpha of 0.4% per month over the period under investigation and it takes about 4 months to redeem from it. Regarding other liquidity terms, 88% of the funds included in our sample have a high-water mark, 15% a hurdle rate and 26% a lockup. These figures are very close to the ones observed for the whole HFR database. 87% of the funds that constitute

⁴ All the cases are treated with a triple condition algorithm based on: 1) similar names, 2) low distance and 3) high correlation between the returns. Specifically, fund names are standardized by removing attributes such as Ltd., onshore, offshore, etc., and then funds with similar standardized names are compared two-by-two in terms of correlation and Euclidian distance. The identified duplicates are then removed according to their AUM.

our sample report in USD. Finally, one half of the funds we retained are domiciled in the Caribbean region, 36% in the North America and 14% in Europe.

EXHIBIT 2: Descriptive statistics of fund’s characteristics

	Mean	StDev	1 st Q	Median	3 rd Q	Skew	Kurt
Start Size (mio USD)	241.4	666.8	18.9	55.9	185.6	7.4	76.8
Age (years)	8.3	4.6	4.8	7.2	10.7	1.3	4.9
Perf (%)	0.4	1.3	-0.2	0.2	0.9	0.8	11.0
SD (%)	4.6	3.3	2.5	3.6	5.7	2.3	11.9
TotRedPeriod (months)	3.7	3.4	1.8	2.5	4.5	2.5	12.2

Results

Exhibit 3 contains the estimated coefficients and the t-statistics for the regression described in Equation (1). We run it on each strategy separately and on the whole sample. Given the peculiarities observed for Funds of Funds, we also estimate the regression on the whole sample excluding Funds of Funds. In the latter two regressions, we add dummy variables to control for style effects (the base strategies are Funds of Funds and Relative Value, respectively). The second column of the table indicates the expected sign of the coefficients according to our hypotheses. We compute the t-statistics using the Newey-West [1987] methodology in order to adjust for autocorrelation and heteroskedasticity. The comments in the following section are based on the coefficient estimated excluding Funds of Funds.

Pooled regression results

As we can see from Exhibit 3, the regression’s outcome invalidates our predictions regarding the impact of *StartSize* and *Age* on hedge fund flows. Smaller funds attracted more money during the period than bigger ones. This finding is not due to the indirect impact of performance as *Perf* and *StartSize* are positively correlated (i.e. bigger funds performed better during the crisis). Similarly, *Age* has a negative, albeit not statistically significant, coefficient. These results are consistent with previous studies and show that, despite the financial crisis,

investors' allocation decisions were not heavily impacted by the additional operational risk associated to both small-sized and young hedge funds.

EXHIBIT 3: OLS regressions of net flows (May 2009-May 2010)

	Expected Sign	All Strategies	Without Funds of Funds	Global Macro	Relative Value	Equity Hedge	Event Driven	Funds of Funds
<i>Intercept</i>		0.76 **	1.27 ***	-0.48	2.08 **	1.75 ***	2.18 **	0.81
<i>Perf</i>	+	3.22 ***	2.71 **	-3.39	6.52	3.08 **	13.3 **	15.2 ***
<i>SD</i>	-	-3.09 ***	-3.15 ***	-1.66	-4.11 ***	-3.34 ***	-4.62 **	-1.78
<i>D_Leverage</i>	-	-0.09 *	-0.06	-0.02	-0.34 **	0.02	-0.12	-0.16 **
<i>StartSize</i>	+	-0.04 **	-0.04 **	-0.00	-0.07 *	-0.05 *	-0.08 *	-0.04 **
<i>Age</i>	+	-0.00	-0.00	0.00	-0.00	-0.00	0.02	0.00
<i>D_LowMgmtFee</i>	+	-0.01	-0.04	0.03	-0.14	-0.02	-0.29	0.01
<i>D_LowIncFee</i>	+	-0.09	-0.03	0.17	-0.09	-0.10	0.49	-0.48 **
<i>D_HighWaterMark</i>	+	-0.02	0.01	0.26	0.19	-0.08	0.33	-0.01
<i>D_HurdleRate</i>	+	0.02	-0.02	0.05	-0.41 ***	0.16	-0.63 **	0.03
<i>D_OpenForInv</i>		0.13 **	0.06	0.26 ***	-0.24	-0.03	0.62 **	0.28 ***
<i>TotRedPeriod</i>	-	-0.01	-0.01 **	-0.07 **	-0.03 **	-0.01	-0.02	0.01
<i>D_Lockup</i>	-	-0.10 **	-0.08	0.27	0.05	-0.08	-0.12	-0.16 ***
<i>D_EURnonEU</i>	-	-0.17	-0.39 **	0.25	-0.31	-0.55	-1.29 **	0.09
<i>D_US</i>	-	-0.04	-0.20 **	0.37 ***	-0.20	-0.42 **	-0.92 **	0.11
<i>D_Caribbean</i>	-	-0.07	-0.23 **	0.31 **	-0.01	-0.39 **	-1.26 ***	0.11
<i>D_Emerging</i>	-	-0.18 **	-0.43 ***	0.12	-0.16	-0.78 ***	-	-0.09
<i>D_RV</i>		0.21 **	-					
<i>D_EH</i>		0.28 ***	0.06					
<i>D_GM</i>		0.22 **	-0.01					
<i>D_ED</i>		0.37 ***	0.17 **					
Number Observations		1485	1078	246	170	545	117	407
Adjusted R squared		7.02%	3.96 %	1.60%	10.50%	5.28%	14.32%	11.82%

Note: Values significant at the 10% are denoted with *, those significant at the 5% by ** and those significant at the 1% with *** (2-tailed tests).

With respect to performance, both *Perf* and *SD* have significant coefficients indicating that investors preferred funds that performed well with low volatility. By simultaneously controlling for all the variables, each additional percentage point of risk-adjusted return increased the average flow by 271%. In addition, the flows to levered funds last year were 6% lower than the one to unlevered funds. The relationship is not however statistically significant and it is strongly influenced by the Funds of Funds and the Relative Value funds.

Interestingly, this finding differs from the results found by Ding et al. [2009]⁵ who document a positive relationship between leverage and flows. This probably mirrors a combination of two effects: first, a performance effect, since levered funds were the poorest performers during the crisis, and second, a shift in the preference of investors who have become risk-averse to levered funds.

Contrary to our prediction, we find no relationship between the level and the structure of fees and hedge fund flows. In fact, none of the variables related to fees and investment terms has a statistically significant coefficient and few of them display the expected signs. These results are similar to the ones of Ding et al. [2009] and show that despite the crisis, the level and the structure of fees has not become a relevant criterion for investors.

We find mixed evidence for liquidity preference. The coefficient of *TotRedPeriod* is significantly negative, whereas the one of *D_Lockup* is not significantly different from zero. This means that investors considered the permanent restriction measured by *TotRedPeriod* but ignored the one-off constraint represented by lockup. This result partially invalidates our predictions and it is at odds with previous research (see Agarwal et al. [2004]).

Interestingly, the coefficients associated to the variables related to the domicile of the fund are all statistically significant and display the predicted sign. Funds domiciled within the EU did get the highest subscriptions. This is probably a consequence of the draft of the AIFMD and the increasing interest in UCITS funds.⁶

All in all, the evidence of this pooled regression is mixed. On the one hand, similarly to the pre-crisis era, in 2009 investors maintained a strong preference for small funds with high past performance and low volatility. On the other hand, despite the crisis, they failed to

⁵ In this study the authors run a regression similar to ours in order to gauge the impact of share restriction on flows. Even if the goal, the methodology (Fama-MacBeth vs. cross-section) and the dataset (TASS vs. HFR) used are not the same, the relationships are generally close to the ones we find.

⁶ About 80% of our sample reported whether they are UCITS compliant or not. Among them, 3.5% are UCITS compliant. At a strategy level, Equity Hedge is the strategy with the highest percentage (~5.5%) of UCITS funds.

incorporate fees criteria and only partially incorporated liquidity criteria in their investment decisions. Compared to our predictions, these results point out that the crisis has not yet fully altered the preferences of investors. One exception is leverage: unlevered funds get higher flows last year while investors historically preferred geared funds. However, this result may also be related to performance.

Strategy regression results

Given the heterogeneity across hedge fund strategies, we investigate whether the flow-characteristics relationships are strategy dependent. Besides, heterogeneity may also exist among hedge fund investors. This “clientele effect” is potentially strong for Funds of Funds, as these investors generally do not invest directly in single hedge funds. To address these issues, we estimate Equation (1) for each hedge fund strategy separately. The results are also reported in Exhibit 3.

We find significant differences between the pooled regression results and the strategy ones. In fact, only *StartSize* has a similar impact on every single strategy as well as on the pooled regression, even if the coefficients are not always statistically significant. The impact is always negative, but its strength varies across strategies. It is null and non significant for Global Macro funds, whereas it is stronger and significant for the other styles. This indicates that investors did not consider the size of a fund as a proxy for its safety. In that case, we would observe a positive coefficient for the *StartSize* variable, and the magnitude should be bigger for strategies supposed to be riskier from an operational point of view. Also, the strong negative coefficient associated to *StartSize* for Event Driven funds is consistent with the investors’ willingness to avoid potential liquidity issues after the crisis. As Event Driven funds generally take concentrated bets on less liquid assets, a higher amount of assets under management could be viewed as a potential detractor for future performance by investors.

Another variable with interesting results is *Perf*: its impact is positive for all the strategies but Global Macro and it is statistically significant for Equity Hedge, Event Driven and Funds of Funds. The magnitude of the coefficients varies significantly across strategies: it is insignificantly different from zero for Global Macro and Relative Value funds (the strategies with the highest median *Perf*) and it is highly positive and significant for Funds of Funds (the style with the lowest median *Perf*). Hence, performance was a stronger criteria for the losing strategies than for the winning ones. Note also that this is at odds with the results of Getmansky [2004] who find that the flow-performance relationship tends to be stronger for directional strategies than for relative value and event oriented ones. This may reflect a combination of two elements: first, a willingness of investors to put more emphasis on liquidity than on performance of the strategy, and second, a favourable top-down view for Global Macro funds for 2010.

There are several other interesting remarks that can be drawn by looking at the single strategy results. First, Relative Value is the strategy with the strongest negative impact of leverage. This is interesting because this is the style that traditionally uses most leverage. As stated previously, this specific leverage effect for Relative Value funds probably mirrors a performance effect.

Second, Global Macro funds distinguish themselves for the coefficients associated to the domiciliation of the fund. It is in fact the only strategy where funds domiciled in the US and Caribbean had higher flows. This is interesting because in 2008 Global Macro funds had less liquidity problem, fewer side-pockets and gates than other strategies. As a consequence, investors did not feel the need of the additional protection offered by local regulation.

Third, although liquidity had a negative impact on flows for every single strategy, we found that this effect was statistically significant only for Global Macro and Relative Value. This highlights the fact that investor duly discriminated between liquid and illiquid funds

regardless the nature of the underlying assets (liquid assets for Global Macro funds, more illiquid assets for Relative Value funds).

Finally, Funds of Funds offer several specificities as compared to single hedge fund strategies. First, the coefficient of *Perf* is, as expected, significantly positive with the highest point estimate of our sample, whereas *SD* has no statistical impact. Second, Funds of Funds investors preferred funds with the highest incentive fees. In fact, it is the only strategy that loads significantly and negatively on *D_LowIncFee*. This may be the consequence of an attempt by investors to better align their interests with the ones of the managers. As such, investors may have preferred managers whose compensation is more dependent on performance. Third, the impact of liquidity restrictions on net flows was also different from single hedge fund strategies. Contrary to hedge fund strategies, *TotRedPeriod* is not statistically significant while the one of *D_Lockup* is strongly and significantly negative. This means that Funds of Funds investors considered only the one-off restriction of lockup and failed to incorporate the permanent one of *TotRedPeriod*. A closer look at the performances of the Funds of Funds by degree of liquidity reveals that this is not related to a performance effect (i.e. illiquid Funds of Funds did not outperform the most liquid ones in our sample). One alternative explanation probably lies in the presence of liquidity restrictions: funds with the longest *TotRedPeriod* saw fewer outflows simply because investors were locked-in.

Conclusion

This paper examines the impact of the financial crisis on the allocation decisions of hedge fund investors. More specifically, we investigate the determinants of the flows to single hedge funds and funds of hedge funds observed from April 2009 to May 2010.

We find that past risk-adjusted performance remained the key criteria for allocation decisions in 2009. This performance effect was however much stronger for the strategies that suffered

the most during the crisis (Event Driven) and it proved almost inconsequential for Global Macro funds. Given the very strong negative correlation between the single strategies performances in 2008 and 2009⁷, this means that post-crisis money was not “smart”. We also find some evidence for liquidity preference, albeit mixed. Our results show that inflows were stronger for funds with low redemption periods in 2009.

We find mixed evidence for a “flight to safety”. First, investors did not favour big and long-established funds. Size duly remained a key criterion for allocation decisions, but investors maintained their traditional bias towards small funds, as they historically tend to outperform bigger ones. Similarly, age proved unimportant. Second, the use of leverage did not weight strongly on allocation decision. Relative Value funds were the noticeable exception, as they are the most levered managers. Third, we find a significant impact of fund domiciliation as EU-based funds attracted significantly more subscriptions. We link this to the new European regulation project. Finally, in line with previous research, we document an insignificant impact of fee structure. This is at odds with the efforts made by the financial industry to better align the interests of investors and managers after the crisis.

⁷ For single hedge funds, the rank correlation between the performances of 2008 and 2009 is -60%.

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