

The good, the bad or the expensive? Which mutual fund managers join hedge funds?*

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November 2008

Preliminary draft: Please do not cite without consulting the authors

Abstract

Has the mutual fund industry lost its best managers to hedge funds? We examine the career moves from mutual funds to hedge funds. We find that a mutual fund manager with superior past performance is more likely to start managing an in-house hedge fund while continuing to serve as a mutual fund manager. However, a mutual fund manager with poor past performance is more likely to leave the mutual fund to manage a hedge fund. Thus, mutual funds appear to use in-house hedge funds to retain the best-performing managers in the face of competition from hedge funds. In addition, the managers of mutual funds with greater expenses are more likely to enter the hedge fund industry. The magnitude of such expenses is negatively related to subsequent performance in the hedge fund industry. Hence, hedge funds do not acquire superior performance for their investors by hiring these expensive managers.

*We would like to thank Marek Jochec, Quoc Nguyen and Liz Risik for excellent research support.

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1 Introduction

The retention and promotion decisions are important in any employment relationship since they have direct impact on a firm's productivity. An efficient internal labor market will boost firm performance by keeping skilled managers while firing the incompetent ones. On the other hand, poor internal decisions on retention and promotion will result in the loss of talented managers to competitors. Despite the important nature of this topic, only limited empirical evidence (see Khorana 1996 and Prisinzano 2004) is available regarding fund managers due in part to the lack of data on decisions within internal labor markets.

In this paper, we investigate these decisions by mutual fund management companies when facing direct competition for managerial talent from a surging hedge fund industry. The asset management profession provides a unique opportunity for labor market research. In most cases, the well tracked investment performance can be attributed to individual fund managers. As a result, we can study how individual performance relates to employment decisions over time. Our empirical analysis is based on a sample of managers that switched from mutual funds to hedge funds during the period from 1993 to 2006. The impact of a rapidly growing hedge fund sector on the traditional asset management industry has obtained increasing academic interests, media attention, and regulatory scrutiny. Some recent studies (see Cici, Gibson, and Moussawi 2006 and Nohel, Wang, and Zheng 2008) have examined the side-by-side management of mutual funds and hedge funds by managers. Others (see Kostovetsky 2007) examine mutual fund employees leaving for hedge funds. These studies mainly focus on the effect of such arrangements on performance of mutual funds and hedge funds. However a basic and perhaps more fundamental question remains unanswered: what are the characteristics

of managers that move from mutual funds to hedge funds? Answering this question is a crucial step to improve our understanding of the internal labor market for the asset management industry. Do mutual funds suffer due to competition from hedge funds by losing their best managers? Or do they respond with measures designed to retain the good managers? This question is also important for the investors in the mutual funds and hedge funds. If best managers leave the mutual fund industry, investors better follow suit.

To address the above questions, we explain the movement from mutual funds to hedge funds using a comprehensive list of managerial characteristics. Specifically, we use trading behavior, past performance, risk-taking behavior, portfolio composition and the connections of each mutual fund manager to explain the probability that the manager will join the hedge fund industry. Two very interesting patterns emerge from this analysis. First, we find that the effect of past performance on the decision to become a hedge fund manager varies depending on whether the hedge fund manager retains a position with a mutual fund. Superior past performance is associated with a side-by-side arrangement in which the manager continues to manage the mutual fund but also starts to manage an in-house hedge fund. Inferior past performance predicts the manager leaving the mutual fund industry and joining the hedge fund industry – we label this group of managers complete switchers. Thus, it appears that mutual funds are able to retain the best performers. Those that leave the mutual fund industry have relatively poor performance records.

We also investigate the impact of the career move on the assets under management for a manager. For the side-by-side managers, joining the hedge fund industry means a modest increase in assets under management. However, for the complete switchers,

we find that there is a reduction of \$ 145 million in median assets under management. Even after accounting for the potential to earn higher income through incentive fees, a reduction of this magnitude would usually lead to a substantial reduction in the total fees earned on the assets under management. Thus joining the hedge funds is career advancement only for the side-by-side managers. For complete switchers, leaving the mutual fund industry and joining the hedge fund industry actually appears to be a backward step in terms of compensation. This pattern shows that the labor market within the money management industry is efficient. Superior performers are rewarded while poor performers get side-lined.

Why would the hedge fund managers hire poor performing mutual fund managers? One possibility is that these managers are a poor fit in the mutual fund industry but would be a better fit in the hedge fund industry. We find some evidence that managers who select portfolios with greater idiosyncratic risk, as measured by tracking error, are more likely to move to the hedge fund industry. If these managers have a unique strategy, they would perform better in more flexible environment of a hedge fund compared to a more restricted environment at a mutual fund.

On the other hand, we also observe that the bulk of the managers who left the mutual fund industry to join hedge funds did so during the booming period (early 2000s) of the hedge fund industry. So it is possible that during the period of rapid hedge fund growth, some hedge funds may have lowered their hiring standard in terms of skills. This may also explain why, in our sample, poorly performing managers are more likely to move to hedge funds.

Our second result is that managers whose mutual funds have high expense ratios tend to join the hedge fund industry. This is true for both side-by-side managers as well as

complete switchers. We examine the possibility that higher expenses capture superior quality of the managers and find evidence against it. Higher mutual fund expenses of the switchers are associated with worse performance on the hedge fund side. There are two alternate explanations for hedge funds hiring more expensive managers. One possibility is that hedge funds mistakenly believe that these managers are more skilled money managers. Another possibility is that these managers are more talented at other aspects of hedge fund operations, including networking and marketing. Essentially, they are able to extract larger fees from investors even in the absence of any unique ability. In either case, the best interests of investors in these hedge funds are not served by decision to hire mutual fund managers from expensive funds.

In general, our findings suggest that mutual fund investors did not lose their best managers to hedge funds. On the other hand, to the extent that hedge funds hire managers from expensive funds their investors are worse off.

The rest of the paper is organized as follows. Section 2 reviews the literature and relates our contributions to previous research in this area. Section 3 describes the data and presents summary statistics. Section 4 presents the main findings regarding the determinants of the decision to move to the hedge fund industry. In section 5, we examine the performance of the switchers on the hedge fund side. The final section concludes.

2 Contribution to the Literature

Our study fits into the broader literature investigating factors that affect the retention and promotion decisions within a company. Prisinzano (2004) studies the hiring and fir-

ing decisions of all Major League Baseball managers during the period from 1950 to 1996. The results show that baseball clubs employ all of the distinct measures of managerial performance in termination and rehire decisions. However, when making termination decisions, the clubs also use information that is unlikely to indicate managerial ability. In the asset management industry, Khorana (1996) examines the relation between the replacement of mutual fund managers and their prior performance. The results indicate an inverse relationship between the probability of manager dismissal and fund performance. Moreover, the group of dismissed managers exhibit higher turnover and expense ratios relative to their peers. The overall evidence thus suggests a well functioning internal labor market for mutual fund managers. Gervais, Lynch, and Musto (2005) develop a model in which mutual fund families learn about managerial skills over time. As the number of managers grows, the fund family can boost its credibility of retentions through the firing of unskilled managers.

In our paper, we investigate the retention/promotion decisions by mutual fund management companies when facing direct competition for managerial talent from a surging hedge fund industry. Specifically, we relate the retention/promotion decision to a comprehensive list of managerial characteristics such as performance, assets under management, expenses, tracking errors, experience, turnover, connections to hedge funds, etc. By doing so we significantly expand the list of factors considered in Khorana (1996). We find that mutual fund companies are more likely to retain managers who deliver superior performance and who are able to extract higher fees from investors. The results thus suggest that fund families are successful in retaining their best talent from loss to the hedge fund industry. We also find that poorly performing managers leave the mutual fund industry and join the hedge fund industry. This could be just relocation of talent better suited to hedge fund industry than mutual fund industry. We find that the man-

agers that take on more risk are more likely to join the hedge fund industry. Also, we do not find significant difference in the hedge fund performance of managers who are retained and managers who leave. Both these findings suggest well-functioning internal and external labor markets within the money management industry.

Our study also contributes to the growing body of research on the impact of a surging hedge fund sector on the traditional asset management industry. The previous research in this area has mainly focused on how mutual fund industry reacts to the increasing competition and pressure from the fast growing hedge fund world and the welfare consequences for mutual fund investors. Agarwal, Boyson, and Naik (2006) document that some mutual fund companies began offering “hedged mutual funds” that emulate hedge fund trading strategies such as long-short equity. They find that the performance of these funds is poor relative to non-hedged mutual funds, except in those cases where the hedged mutual funds are offered by companies that also offer hedge funds. Nohel, Wang, and Zheng (2008) investigate the potential conflicts of interest arose from situations where the same fund manager simultaneously manages mutual funds and hedge funds – side-by-side management. They find that side-by-side mutual funds consistently outperform peer funds, consistent with this privilege being granted primarily to star managers for retention purpose.

The main limitation of the above studies is that both focus the analysis on a subset of the mutual fund universe, and thus do not provide an overall assessment at the entire industry level. The primary purpose of our research is to fill this void by constructing a fairly comprehensive sample of mutual fund managers that switched to the hedge fund industry. This allows us to directly gauge the impact of competition from hedge funds by looking at both the side-by-side managers and the complete switchers.

One paper closely related to our research is Kostovetsky (2007) that investigates whether mutual funds have experienced a “brain drain” of top managerial talent to the hedge fund industry. The study shows that, coinciding with the rapid growth period of hedge fund industry, the mutual fund industry experienced a widening performance gap between young and old managers. The study interprets these results as the effect of implicit and explicit “brain drain” on the mutual fund industry since younger managers are more likely to move to the hedge fund industry. While the paper raises a topic of great interest, the evidence is rather indirect due to the lack of information on actual career moves.

Our research has the advantage of directly addressing this issue since we know the exact identity of mutual fund managers that moved to the hedge fund world. This unique feature of our data sample allows us to directly link managers’ switching decision to various managerial characteristics such as experience, performance, and risk-taking preferences. The evidence that fund families award the side-by-side arrangement to best performing managers suggests that there is no explicit “brain drain” of top managerial talent to hedge funds. Moreover, some poorly performing managers manage to land a job in the hedge fund industry in the late 1990s and early 2000s, coinciding with the booming period during which the hedge fund industry experienced dramatic asset growth. This suggests that, some hedge funds may have lowered the hiring standard on managerial skills during such a period.

With this background in mind we turn to data description and empirical investigation of movement from mutual funds to hedge funds.

3 Data

In this section, we describe the data we use and present some summary statistics.

3.1 Sample Construction

We construct the sample of switching managers by combining the TASS and HFR hedge fund databases with the CRSP mutual fund database. The CRSP Mutual Fund Database provides information on fund complex, monthly total net assets (TNA), monthly returns, names and tenure of portfolio managers, and annual characteristics (e.g., expense ratio, 12b-1 fee, load, turnover ratio) for open-end mutual funds, including defunct funds. The TASS and HFR Databases track information on about two thirds of the hedge fund population. These databases provide comprehensive information on monthly net asset value, fund inception date, start and end dates for performance report, investment objectives, names of portfolio managers, leverage, compensation structure, etc.

We merge the mutual fund and hedge fund databases by the names of portfolio managers. Specifically, we create lists of unique mutual fund manager names and hedge fund manager names, then combine them and look for matches. For each manager name that appears in both mutual and hedge fund databases, we conduct extensive cross-check on the employment history with various sources (e.g., Morningstar, notes file in the hedge fund databases, and internet searching) to make sure that the two names indeed refer to the same manager. We then examine the tenure period for each manager as reported in the CRSP database and compare it to the hedge fund start and end dates. We restrict our attention to the set of overlapping managers that started out as mutual fund managers and later switched to the hedge fund industry. We further classify these

switching managers into two groups. If there is an overlap between the two reported tenure periods, then we classify the manager as a “side-by-side manager”, i.e., the manager simultaneously managed at least one mutual fund and at least one hedge fund for a certain period of time. If there is no overlap between the two tenure periods, we then classify the manager as a “complete switcher”. Finally, we go back to each respective database and identify which mutual funds and which hedge funds she was ever a party to managing, either on her own or as part of a team.

A limitation of our approach is that our hedge fund dataset is not a comprehensive list of all hedge funds, nor would any other hedge fund dataset be a comprehensive list of all hedge funds because such a dataset does not exist. Unlike with mutual funds where CRSP is a comprehensive database, hedge fund data is provided by several different organizations, the largest of which are TASS/Tremont (now owned by Lipper) and Hedge Fund Research (HFR). Each of these covers roughly 35-40% of the universe of hedge funds, with relatively little overlap. Therefore, we acknowledge that we are not capturing the universe of switching managers that moved from mutual fund industry to hedge fund world. Note that, under the assumption that the switching managers not covered by either HFR or TASS are not systematically different from those covered by these databases, this fact biases our tests against finding significant differences in characteristics between the switching managers and their peers, since our control pool will be “contaminated” with some switchers that have been incorrectly categorized as independent.

3.2 Performance Measures

To evaluate mutual fund performance we use the Carhart (1997) 4-factor model in Equation (1):

$$R_{it} - RF_t = \alpha_i + \beta_{iM}(RM_t - RF_t) + \beta_{iS}SMB_t + \beta_{iV}HML_t + \beta_{iM}MOM_t + e_{it}, \quad (1)$$

where $R_{it} - RF_t$ is the return of mutual fund i in month t minus the risk-free rate; $RM_t - RF_t$, SMB_t , and HML are the market, size, and value factors as in Fama-French (1993); and MOM_t is the momentum factor of Carhart (1997). The intercept, α_i , is the measure of abnormal performance.

As for hedge fund performance, hedge funds can follow much more dynamic trading strategies and can take short as well as long positions. As a result, hedge fund returns exhibit risk characteristics that are quite different from mutual fund returns (see Fung and Hsieh 1997). Recent research (Fung and Hsieh 2001, Mitchell and Pulvino 2001) has shown that the risk return characteristics are non-linear and exhibit option-like features. To address this issue, Fung and Hsieh (2004) propose a 7-factor model, while Agarwal and Naik (2004) expand the Carhart 4-factor model by adding several option-based risk factors.

We follow Fung and Hsieh (2004) and Agarwal and Naik (2004) and use the 7-factor model in Equation (2) and the 6-factor model in Equation (3) to measure risk-adjusted returns for hedge funds :

$$R_{it} - RF_t = \alpha_i + \beta_{i1}S\&P500_t + \beta_{i2}Size_t + \beta_{i3}TCM10_t + \beta_{i4}SPREAD_T + \beta_{i5}BONDTRD_t + \beta_{i6}CURRTRD_t + \beta_{i7}COMMTRD_t + e_{it}, \quad (2)$$

$$R_{it} - RF_t = \alpha_i + \beta_{iM}(RM_t - RF_t) + \beta_{iS}SMB_t + \beta_{iV}HML_t + \beta_{iM}MOM_t +$$

$$\beta_{iATM}ATM_PUT + \beta_{iOTM}OTM_PUT + e_{it}. \quad (3)$$

In equation (2), S&P500 is the excess return on the Standard & Poor’s 500 index (equity market factor), SIZE is the return on the Russell 2000 index return less the Standard & Poor’s 500 return (equity size-spread factor), *TCM10* is the monthly change in the 10-year treasury constant maturity yield (bond factor), *SPREAD* is the monthly change in the Moody’s Baa yield less the 10-year treasury constant maturity yield (credit spread factor), and *BONDTRD*, *CURRTRD*, *COMMTRD* are the excess returns on the trend-following risk-factors on bonds, currencies, and commodities as derived in Fung and Hsieh (2004). In equation (3), $RM_t - RF_t$, *SMB*, *HML*, and *MOM* are defined as in equation (1), while the option risk factors *ATM_PUT* and *OTM_PUT* are the monthly returns in excess of the risk-free rate for the at-the-money put option on the S&P 500 index and the out-of-the-money put option on the S&P 500 index, respectively. Finally, in both equations, $R_{it} - RF_t$ is the return of hedge fund *i* in month *t* minus the risk-free rate.

3.3 Summary Statistics

Using the procedure outlined in Section 3.1, we identified a total of 275 managers that switched from the mutual fund industry to the hedge fund world: 150 side-by-side managers and 125 complete switchers. Table 1 reports the number of switchers by year and by investment styles. As shown in Panel A, the number of switching managers were fairly steady in the mid 1990s (in the low 20s per year), and reached the peak in the early 2000s. During the three year period from 2001 to 2003, a total of 112 mutual fund managers switched to the hedge fund industry – accounting for more than 40% of the switching sample. This coincides with the booming period of hedge fund industry. The

rate of switching slowed down starting from 2004. For the last two years of our sample period, only 9 switching managers were identified. It is possible that we underestimate the actual number of switchers in 2005 and 2006. Given that our hedge fund data ends at year-end 2006, it could be the case that some recent switchers have yet to report in either of these two databases. We deal with this problem by limiting our sample to period before 2004 in the analysis in section 4. But even after acknowledging this potential downward bias, we still believe that the overall trend documented in Table 1 is plausible and representative. Due to the recent market turmoil and decreasing profit margin for many hedge fund trading strategies, the capital inflows to hedge fund industry have slowed down and the cases of hedge fund failure and reconstruction are increasing. It is thus not surprising to observe a decreasing trend of the migration from mutual funds to hedge funds. Table 1 also reports the time trend separately for the two types of switching managers. Although we observe the most number of switches during the hedge fund booming period for both types of managers, the concentration of switch is more evident for the complete switchers. In contrast, the switch of side-by-side managers are much more evenly distributed over our sample period.

In Panel B of Table 1, we report the distribution of switching managers among different hedge fund investment styles. The investment style that captures the most number of switching managers is Long/Short Equity (165), followed by Equity Market Neutral (33), Fixed Income (25), Fund of Funds (23), and Emerging Markets (15). Hence, more than 70% of switchers ended up managing equity hedge funds.

Table 2 presents various managerial characteristics before they switched to the hedge fund industry. We present summary statistics separately for side-by-side managers (Panel A) and complete switchers (Panel B), and compare them to non-switchers (Panel

C). For side-by-side managers, the mean (median) TNA under management is \$1,050 million (\$279 million), compared to \$840 million (\$156 million) for complete switchers and \$1,600 million (\$268 million) for non-switchers. Hence, side-by-side managers on average managed more mutual fund assets than the complete switchers. The average experience (measured by manager tenure) is about 3 years for both groups of switchers, comparable to the average for non-switchers. Regarding asset compositions, switching managers tend to have much higher proportion of equities (around 67%) in their portfolios than the non-switchers (54%). This suggests that equity fund managers are more likely to switch to the hedge fund industry.

Table 2 also presents three measures of managerial performance during the five-year period prior to the switch: average monthly raw return, average monthly benchmark-adjusted return, and the 4-factor alpha. For each manager, we calculate the TNA-weighted average of returns across all funds under management. All performance measures suggest that side-by-side managers delivered much better returns than the complete switchers and non-switchers. For example, the average 4-factor alpha for the side-by-side managers is -0.05% on a monthly basis, compared to -0.22% for the complete switchers and -0.08% for non-switchers. Moreover, when comparing benchmark and factor adjusted returns, the complete switchers delivered much worse returns than the control group of non-switchers. In terms of 4-factor alpha, the complete switchers underperformed the non-switchers by 0.14% per month.

Table 3 provides descriptive statistics on the hedge fund side for the switchers from mutual fund. We can see that both side-by-side managers and complete switchers manage similar funds at least along the dimension we are examining. Median fund size of side-by-side managers of nine million is comparable to median fund size of complete

switchers of eleven million. Minimum investment, lockup period, and incentive fee also appear to be comparable for both the groups. It appears that those who completely moved to hedge fund charge a higher management fee than side-by-side managers and this difference in mean of 0.09% is statistically significant.

Having described the general characteristics of movers to the hedge fund industry, we now examine factors that explain the move.

4 What Explains Entry into Hedge Funds?

In this section, we model the entry of mutual fund managers into hedge fund industry as a function of past characteristics of mutual fund managers. We use the panel data of mutual fund managers described before. For the managers that join the hedge fund industry, the entry variable is 1 in the year of entry and 0 before that. The manager is dropped from the sample once she joins the hedge fund. For the managers who never join a hedge fund the entry variable is 0 throughout.

We model the entry variable through a logistic model. We use portfolio composition, trading behavior, performance of the mutual fund manager among other characteristics as explanatory variables in this model. If a mutual fund manager manages multiple funds, we take an average of the fund variables weighted by assets under management of each fund except when described otherwise.

We include proportion invested by the managers in common stock as our explanatory variable. This portfolio composition variable is included to capture the style of the mutual fund manager. It is possible that if the hedge funds are looking to invest primarily in equities, they would want mutual fund managers with that experience.

We include turnover as an indicator of the trading behavior of the manager. It is possible that low turnover is taken as a sign of passive strategy. Thus if hedge funds want active managers they would want managers with high turnover.

Total net assets under management would capture reputation, visibility and ability of the manager to attract funds. This could have a significant bearing on the attractiveness of the manager for the hedge funds. We include log of total assets under management of a manager, calculated as a sum of assets under her management in different funds she is managing.

We also include average expenses that manager charges. This is TNA-weighted average of expense ratios of all the funds the manager is managing. Expenses would be an important indicator of costs for the investors. Alternately, expenses might reflect the quality of the manager. A third possibility is that expenses reflect the ability of the manager to extract money from the investors.

Experience of a manager could have a significant impact on her chance of entering the hedge fund industry. Presumably hedge funds value experience in money management. That would indicate a positive effect of experience. However, if hedge funds want to follow strategies that are sufficiently different than mutual funds, managers too experienced in the ‘mutual fund way’ of doing things wouldn’t be attractive to hedge funds. Experience would also be positively correlated with age. From a manager’s perspective, a career move from mutual fund to hedge fund would be appealing at a young age but not an old age. To capture these different effects, we include experience and experience-squared in our analysis.

Past performance would be an important characteristic that hedge funds would look at. Past performance is a noisy measure of the skill of the manager. It is also a measure of

the visibility of the manager since better performing mutual fund managers enjoy the limelight and are able to attract fund flows. We look at performance of a manager over five years immediately preceding the year in which they enter the hedge fund industry. We calculate four factor alpha as described in section 3.2 to get a sense of risk-adjusted return. Perhaps relative performance matters more than alpha. So we also calculate benchmark-adjusted return, which is return minus average return of all the funds within the same style. Performance measures are calculated at the fund level. For managers, managing multiple funds, we calculate TNA-weighted average performance across funds. We also look at best performance, captured by maximum alpha or maximum benchmark adjusted return for a manager within a year. If visibility of a manager depends on her best performance, we want to look at the best rather than average performance. We look at performance before expenses so as to get a better sense of a manager's ability. The results are similar if we use performance after expenses.

Perhaps, hedge funds are looking for managers who have their own strategies and are not just following a passive indexing strategy. Turnover captures this to some extent. But we also want to see if tracking error has any bearing on the probability that the managers get to hedge fund industry. Tracking error is calculated either as standard deviation of residual from a four-factor model or standard deviation of the benchmark adjusted return. High tracking error would indicate that manager is employing a strategy that is different from the standard four-factor strategy or that is different from average fund within his style. High tracking error would also indicate that the manager is taking on more risk.

We construct a variable 'connection' to capture how many connections a mutual fund manager has with the hedge fund industry. Connection for manager A is the total number

of managers that worked for the same mutual fund as A and that have moved to a hedge fund. If connections get you a job in the hedge fund industry, we should see a positive effect of this variable on the chance of moving to a hedge fund. However, this variable is a very crude way of capturing connections to the hedge fund industry. A manager could have connection through previous employment or through her undergraduate or graduate institution (see Cohen, Frazzini, and Malloy 2008). Our variable does not capture these connections.

Table 4 presents the results of a logistic regression modelling the entry into hedge fund industry based on the best performance of a mutual fund manager. All the specifications include year fixed effects and we cluster standard errors at the manager level. Columns 2 and 5 present the results for all switchers whether or not they leave the mutual fund industry. As we can see total assets under management have a positive and marginally significant effect. So the more money you manage the more likely you are to move to a hedge fund.

Connection does not have a strong effect on the probability to move to hedge fund. As discussed above, our connection variable is very noisy and the insignificant effect could be a result of that.

Managers that appear to have a distinct strategy as captured by higher turnover or higher tracking error also have a better chance of entering the hedge fund industry. The coefficient of turnover is positive and marginally significant. The coefficient of tracking error is positive and highly significant when we use four factor tracking error (column 2). When we use standard deviation of benchmark adjusted return (column 5) the coefficient is positive but not significant.

Experience has a concave effect on probability of moving to a hedge fund. So experience

has a positive effect initially but too much of experience actually reduces the chances of a move to a hedge fund. This could be because of reluctance on the part of more experienced (and possibly older) managers to make a career change.

Expenses have a very strong and positive effect on the probability of moving to a hedge fund. This is a very interesting result since the more expensive rather than the more cost-effective managers get to enter the hedge fund industry. We look at performance before expenses. So expenses are not capturing performance here. Still there is a possibility that expenses are a less noisy measure of quality or skill of the manager than performance. We examine this possibility in the next section.

Performance has a positive but weak effect on the probability to move to a hedge fund when we look at all the switchers.

One possibility is that not all moves to hedge funds are the same. Perhaps managers who leave the mutual fund industry to join hedge funds are driven by different career concerns than managers who manage a mutual fund and hedge fund side-by-side. To examine this possibility we separate our sample of switchers into complete switchers i.e. the ones who leave the mutual fund industry and side-by-side managers.

Columns 3 and 6 of Table 4 present the results for side-by-side managers whereas columns 4 and 7 present the results for complete switchers. Two important facts emerge from these results. Effect of expenses is positive and significant for both the types of moves. Effect of past performance is very different for the two types of switchers. A better past performance predicts a side-by-side arrangement for mutual fund manager whereas a poor past performance predicts exit from the mutual fund industry and entry into hedge fund industry.

Table 5 presents results for the logistic regression when average rather than best performance is used as an explanatory variable. The results here are similar to those in table 4. Again expenses have a strong and positive effect on probability to move to hedge fund. Again, positive performance predicts a side-by-side arrangement whereas negative performance predicts a complete switch though the results are only marginally significant for complete switchers. One reason for lower significance for average performance could be that hedge funds look at best performance of a manager rather than her average performance.

Table 6 presents effect on odds ratio of one standard deviation increase in the explanatory variables. The numbers are based on logistic regression presented in table 4. Expenses higher in magnitude by one standard deviation improve the odds of joining a hedge fund by 40% to 80%. That is a substantial increase. Performance one standard deviation above the average, improves the odds by 25% to 30% for side-by-side managers and *reduces* the odds by 13% to 23% for complete switchers.

The different effect of performance on the probability to move tells us that there may be different reasons behind these moves. We try to shed more light on this phenomenon in the next section.

5 Performance at Hedge Funds

As described in section 3.3 most of the characteristics, including size, of the hedge funds managed by complete switchers are similar to those of the hedge funds managed by side-by-side managers. However one thing we have to remember is that the complete switchers give up their jobs with the mutual funds whereas the side-by-side managers get to keep

their jobs. Table 7 presents total money under management of the switchers before and after the move to hedge fund. Side-by-side managers keep the money under management on the mutual fund side and add the money under management on the hedge fund side. Thus, for them the move represents a small increase in the asset under management. The mean (median) assets under management goes up by 37 million (9 million). Complete switchers lose the money on the mutual fund side and add the money on the hedge fund side. As can be seen from table 7, for complete switchers there is a substantial decrease in assets under management. The mean (median) assets under management decreases by 643 million (145 million). If increase in assets under management can be thought about as advancement of career, we can see that side-by-side managers get promoted while complete switchers get demoted.

One possibility is that the complete switchers more than make up for the loss of management fee due to reduction in assets under management through earning incentive fees. However, the magnitude of the drop in assets under management rules out this possibility. Drop in the median assets under management is 145 million. From table 3 we can see that for complete switchers the median management fee is 1.16% whereas the median incentive fee is 20%. At this rate a drop of 145 million would mean a reduction in management fee of 1.68 million. To make up for this loss through incentive fee of 20% the manager has to earn a profit of 8.4 million ($1.68/20\%$). Median hedge fund assets managed by a complete switcher are only 11 million. Thus a profit on 8.4 million means the manager has to earn rate of return of 76% on assets under management. This seems an implausibly high rate of return. Thus it seems likely that the substantial drop in assets under management also means a drop in income for the complete switchers. This explains the results in the previous section that good past performance is associated with a side-by-side arrangement whereas by past performance is associated with a complete

switch to hedge funds.

It appears that the mutual funds are doing a good job of retaining the managers with superior performance by giving them an opportunity to manage an in-house hedge fund. The mutual funds are letting the poorly performing managers go.

Next we examine if there is any difference in performance of the complete switchers and side-by-side managers on the hedge fund side. Table 8 presents the results of regression of hedge fund performance on a number of control variables and a side-by-side indicator. The sample here is only those hedge fund managers that have moved from mutual funds. Their performance at hedge fund is captured by alpha from a seven-factor model as described in section 3.2.¹ Control variables include log of total net assets, management fee, incentive fee, log of lockup period and log minimum investment of the hedge fund. Two indicator variables capture whether the hedge funds under management of the switcher use leverage and have high water mark. Mutual fund expenses refer to the expense ratio of the mutual fund that the manager used to manage before entering the hedge fund industry. Side-by-side indicator is 1 for the managers that have side-by-side arrangement and 0 for the managers that completely moved to the hedge fund industry.

In table 8, we see that the side-by-side indicator is not significant. Thus based on the limited performance record we have about these two kinds of managers we cannot say whether side-by-side managers perform better at the hedge funds compared to complete switchers. This is consistent with the possibility that the complete switchers who have poor mutual fund performance are a better fit at the hedge funds.

We include expense ratio at the mutual fund as an explanatory variable in Table 8 to examine the possibility that expenses actually capture the quality of the managers.

¹We also used alpha from a six-factor model as described in section 3.2. The results are similar.

However, higher mutual fund expenses are related to poor hedge fund performance. Coefficient for mutual fund expenses is negative and significant in Table 8. Thus hedge funds cannot be hiring more expensive managers because they can generate superior performance. This leaves two possible explanations of why more expensive managers are more attractive for hedge funds. One possibility is that hedge funds mistakenly think that expensive managers can generate superior performance. Second possibility is that expensive managers are better at some other things like marketing, raising money or extracting money from the investors. We cannot distinguish between these two hypotheses. However, implication of both these possibilities are not encouraging for hedge fund investors.

6 Conclusion

In this paper, we investigate the retention and promotion decisions of mutual fund management companies based on a sample of managers who moved from mutual funds to hedge funds. Empirical evidence suggests that mutual funds do not lose their best performing managers due to the competition from hedge funds. They are able to retain such managers by offering them an opportunity of career advancement through management of an in-house hedge fund. We find that poorly performing managers leave the mutual fund industry and join the hedge fund industry. But this is not a career advancing move for them since they end up managing much less money. This is consistent with the presence of an efficient internal labor market in which mutual fund families are able to identify/retain skilled managers and sever the relation with the unskilled ones.

These poorly performing mutual fund managers may be a better fit at hedge funds than at mutual funds. We find that in general managers who take higher risk tend to move to

hedge funds. They do not perform relatively poorly at hedge funds as they do in mutual funds.

However, we also find that more expensive mutual fund managers join the hedge funds. In addition, for the poorly performing mutual fund managers that switched to hedge funds, we observe that the bulk of the switches occurred during the booming period (early 2000s) of hedge fund industry. So it is possible that during the period of rapid hedge fund growth, some hedge funds may have lowered their hiring standard in terms of skills but rather emphasized the ability of extracting more fees from investors. This is worrisome for the hedge fund investors because higher mutual fund expenses are associated with poor subsequent hedge fund performance.

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Table 1. Classification of Switchers

This table provides annual and stylistic pattern of mutual fund managers joining the hedge fund industry.

Panel A: Annual Pattern of Switchers

Year	All Switchers	Side-by-side Managers	Complete Switchers
1993	4	2	2
1995	16	14	2
1996	23	16	7
1997	21	13	8
1998	23	15	8
1999	32	17	15
2000	17	5	12
2001	39	20	19
2002	39	22	17
2003	34	19	15
2004	18	7	11
2005	5	0	5
2006	4	0	4
Total	275	150	125

Panel B: Classification of Switchers by Hedge Fund Objectives

Hedge Fund Objective	All Switchers	Side-by-side Managers	Complete Switchers
Convertible	8	4	4
Dedicate Short Selling	2	0	2
Emerging Markets	15	9	6
Equity Market Neutral	33	15	18
Event Driven	11	5	6
Fixed Income	25	14	11
Fund of Funds	23	17	6
Global Macro	9	4	5
Long/Short Equity	165	94	71
Managed Futures	10	7	3
Market Timing	1	1	0
Multi-Strategies	14	8	6

Table 2. Descriptive Statistics

This table provides descriptive statistics on various characteristics of mutual fund managers and funds managed by them based on a panel of mutual fund managers.

Panel A: Side-by-side Managers

	Number	Mean	Median	Std Dev
Total Assets Under Management (Million \$)	150	1050	279	3244
Experience (Number of years)	150	3.1	2.0	2.7
Proportion invested in common equity	150	0.66	0.90	0.40
Average 5 year return	92	0.0103	0.0102	0.0062
Average 5 year benchmark adjusted return	92	0.0015	0.0008	0.0041
5 year 4 factor alpha	88	-0.0005	-0.0002	0.0055

Panel B: Complete Switchers

	Number	Mean	Median	Std Dev
Total Assets Under Management (Million \$)	115	840	156	1561
Experience (Number of years)	115	3.2	3.0	2.8
Proportion invested in common equity	115	0.68	0.91	0.39
Average 5 year return	72	0.0078	0.0076	0.0060
Average 5 year benchmark adjusted return	72	-0.0006	-0.0005	0.0035
5 year 4 factor alpha	65	-0.0022	-0.0015	0.0033

Panel C: Nonswitchers

	Number	Mean	Median	Std Dev
Total Assets Under Management (Million \$)	41694	1600	268	6122
Experience (Number of years)	41694	3.6	3.0	3.8
Proportion invested in common equity	41694	0.54	0.81	0.44
Average 5 year return	28672	0.0068	0.0055	0.0058
Average 5 year benchmark adjusted return	28623	0.0004	0.0002	0.0033
5 year 4 factor alpha	27425	-0.0008	-0.0006	0.0036

Table 3. Descriptive Statistics: Hedge Funds

This table provides descriptive statistics on the hedge fund side for the mutual fund managers who have moved to hedge fund.

	All Switchers		Side-by-Side Managers		Complete Switchers	
	Mean	Median	Mean	Median	Mean	Median
Total Net Assets (Million \$)	111.18	9.93	36.63	8.77	196.78	10.86
Minimum Investment (Thousand \$)	985	588	845	500	1152	688
Management Fee (%)	1.22	1.00	1.18	1.00	1.27	1.16
Incentive Fee (%)	18.22	20.00	17.94	20.00	18.57	20.00
Lock-up Period (Months)	5.18	3.00	5.07	3.00	5.32	4.00
Number of Managers	275		150		125	

Table 4. Logistic Regression for Move to Hedge Fund based on Best Performance

This table provides results of logistic regressions modelling move to hedge fund industry for all the switchers, side-by-side managers and complete switchers. Proportion invested in equity, expenses and turnover are the weighted average variables for all the mutual funds managed by the manager. Total net assets is sum of the net assets of all the mutual funds managed by the manager. Experience is number of years spent by the manager in the mutual fund industry. Performance is maximum four-factor alpha or maximum benchmark adjusted return across all funds managed by the manager. Tracking error is tracking error based on the four factor model or standard deviation of the benchmark adjusted return. The sample is a panel of mutual fund managers at annual frequency. * indicates significance at 10%, ** at 5%, and *** at 1% levels using standard errors clustered at the manager level. The regressions include year fixed effects.

	5 year 4 factor alpha			5 year benchmark adjusted return		
	All Switchers	Side-by-side Managers	Complete Switchers	All Switchers	Side-by-side Managers	Complete Switchers
Number of Observations	18865	18817	18785	20026	19972	19943
Number of Switchers	128	80	48	137	83	54
Proportion invested in equity	0.4455	0.1180	1.2588**	0.2602	-0.0101	1.0651**
Turnover	0.1972**	0.2177**	0.1525	0.2087***	0.2518***	0.1418
Assets under management	0.0998	0.0821	0.1280	0.1046*	0.0819	0.1587
Expenses	99.7277***	118.6000***	70.0565**	109.1000***	126.3000***	87.1547***
Experience	0.2665**	0.2493*	0.3253	0.2443**	0.2272	0.2717
Experience-squared	-0.0251*	-0.0229	-0.0293	-0.0238*	-0.0209	-0.0280
Performance	28.8980**	64.0206***	-41.1159*	27.6327	93.7696***	-92.9931***
Tracking Error	15.9530***	10.1120*	17.9479***	13.3395**	0.7875	12.6898
Connection	0.0192	0.0083	0.0452	0.0134	-0.0021	0.0375

Table 5. Logistic Regression for Move to Hedge Fund based on Average Performance

This table provides results of logistic regressions modelling move to hedge fund industry for all the switchers, side-by-side managers and complete switchers. Proportion invested in equity, expenses and turnover are the weighted average variables for all the mutual funds managed by the manager. Total net assets is sum of the net assets of all the mutual funds managed by the manager. Experience is number of years spent by the manager in the mutual fund industry. Performance is weighted average four-factor alpha or weighted average benchmark adjusted return across all funds managed by the manager. Tracking error is tracking error based on the four factor model or standard deviation of the benchmark adjusted return. The sample is a panel of mutual fund managers at annual frequency. * indicates significance at 10%, ** at 5%, and *** at 1% levels using standard errors clustered at the manager level. The regressions include year fixed effects.

	5 year 4 factor alpha			5 year benchmark adjusted return		
	All Switchers	Side-by-side Managers	Complete Switchers	All Switchers	Side-by-side Managers	Complete Switchers
Number of Observations	18865	18817	18785	20026	19972	19943
Number of Switchers	128	80	48	137	83	54
Proportion invested in equity	0.4082	0.0252	1.2526**	0.2309	-0.1829	1.0431**
Turnover	0.2007**	0.2224**	0.1494	0.2106***	0.2467***	0.1298
Assets under management	0.1099*	0.1005	0.1142	0.1156*	0.1055	0.1316
Expenses	98.0441***	114.6000***	70.2649**	109.1000***	125.4000***	85.1484***
Experience	0.2678**	0.2508*	0.3141	0.2471**	0.2309	0.2570
Experience-squared	-0.0251*	-0.0227	-0.0283	-0.0240*	-0.0211	-0.0268
Performance	25.8912	60.6540***	-26.0395	16.9254	80.3782***	-67.7337*
Tracking Error	18.2078***	16.0764***	18.7034***	15.6461**	11.1050	13.0017
Connection	0.0240	0.0197	0.0407	0.0161	0.0104	0.0268

Table 6. Effect on Odds Ratio

This table presents effect on odds ratio due to one standard deviation increase or decrease in each of the explanatory variables. A number 2 in the table below indicates that one standard deviation increase in the variable is associated with doubling of the odds ratio. The underlying logistic regression models move to hedge fund industry for all the switchers, side-by-side managers and complete switchers. Proportion invested in equity, expenses and turnover are the weighted average variables for all the mutual funds managed by the manager. Total net assets is sum of the net assets of all the mutual funds managed by the manager. Experience is number of years spent by the manager in the mutual fund industry. Performance is maximum four-factor alpha or maximum benchmark adjusted return across all funds managed by the manager. Tracking error is tracking error based on the four factor model or standard deviation of the benchmark adjusted return. The sample is a panel of mutual fund managers at annual frequency. The regressions include year fixed effects. The coefficient estimates are provided in table 4. Unconditional odds ratio is the ratio of number of switchers to the total number of observations.

	5 year 4 factor alpha			5 year benchmark adjusted return		
	All Switchers	Side-by-side Managers	Complete Switchers	All Switchers	Side-by-side Managers	Complete Switchers
Number of Observations	18865	18817	18785	20026	19972	19943
Number of Switchers	128	80	48	137	83	54
Unconditional Odds Ratio	0.007	0.004	0.003	0.007	0.004	0.003
Proportion invested in equity	1.22	1.05	1.75	1.12	1.00	1.60
Turnover	1.18	1.21	1.14	1.20	1.24	1.13
Assets under management	1.18	1.14	1.23	1.18	1.14	1.29
Expenses	1.59	1.74	1.39	1.67	1.81	1.51
Experience (1 std dev increase)	0.99	1.01	1.04	0.99	1.03	0.94
Experience (1 std dev decrease)	0.58	0.60	0.51	0.60	0.61	0.58
Performance	1.10	1.25	0.87	1.08	1.31	0.77
Tracking Error	1.24	1.15	1.28	1.20	1.01	1.19
Connection	1.02	1.01	1.06	1.02	1.00	1.05

Table 7. Assets Under Management Before and After the Move

This table provides mean and median assets under management by side-by-side managers and complete switchers before they move to the hedge fund industry.

	Total Net Assets under Management (Million \$)			
	Side-by-Side Managers		Complete Switchers	
	Mean	Median	Mean	Median
Before the move to hedge fund	1050	279	840	156
At hedge funds	37	9	197	11
After the move to hedge fund	1087	288	197	11
Difference in mean / median after the move and before the move	37	9	-643	-145

Table 8. Regression Explaining Hedge Fund Performance of the Switchers

This table provides results of regression of the hedge fund performance of the managers that moved from mutual fund to hedge fund. Hedge fund performance is captured by alpha from a seven-factor model. Log of total net assets is the natural log of assets under management of the manager on the hedge fund side. Management fee and incentive fee refer to the average fees charged by the hedge funds under management of the manager. Log lockup is the natural log of the hedge fund lockup period in months. Log minimum investment is the natural log of the minimum investment required by the hedge fund. Leverage indicator is 1 if at least one hedge fund under the management of the manager utilizes leverage and zero otherwise. Highwater indicator is 1 if at least one hedge fund under the management of the manager has high watermark and 0 otherwise. Mutual fund expenses refer to the expense ratio of the mutual fund that the manager used to manage before entering the hedge fund industry. Side-by-side indicator is 1 for the managers that have side-by-side arrangement and 0 for the managers that completely moved to the hedge fund industry. * indicates significance at 10%, ** at 5%, and *** at 1% levels using t-statistic clustered at the manager level.

	Coefficient	t-stat
Number of Observations	147	
Log Total Net Assets	0.099*	1.81
Management Fee	-0.480*	-1.91
Incentive Fee	0.528	0.53
Log Lockup	0.084	1.11
Leverage Indicator	0.069	0.38
Highwater Indicator	0.389*	1.83
Log Minimum investment	-0.071	-1.06
Mutual Fund Expenses	-0.333**	-2.06
Side-by-Side Indicator	0.088	0.52