The Good or the Bad?
Which Mutual Fund Managers Join Hedge Funds?[1]

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Abstract

Does the mutual fund industry lose its best managers to hedge funds? We find that mutual funds are able to retain managers with good performance in the face of competition from a growing hedge fund industry. On the other hand, poor performers are more likely to leave the mutual fund industry. A small fraction of these poor performers find jobs with smaller and younger hedge fund companies, especially when the hedge fund industry is growing rapidly. Analogously, a small fraction of the better performing mutual fund managers are retained by allowing them to manage a hedge fund side-by-side.

The retention and promotion decisions are important in any employment relationship. Retaining skilled managers while firing incompetent ones is crucial to maintaining productivity. At the same time, retention and promotion policies should take into account the dynamics of competition from the external labor market. Responding appropriately to the changing outside options of employees is critical to the retention of skilled workers.

During the last decade there has been a much greater expansion by hedge funds than by mutual funds.[2] This rapid increase in the size of the hedge fund industry could be attributed to the relative absence of regulations regarding compensation contracts and trading strategies. Unlike mutual funds, hedge funds are able to charge an incentive fee that is a large proportion of the capital gain above a pre-specified hurdle rate because they are free from regulatory restrictions on the investment advisory contracts. This ability to use incentive contracts with 'option-like' features between the fund and the management company could allow hedge funds to lure talented managers away from mutual funds. However, mutual funds could respond to such competition by providing other opportunities to reward successful managers and overcome any potential handicap due to regulation.

We analyze the ability of the mutual fund industry to retain managers with superior historical performance and jettison managers with poor performance in the midst of the rapid growth of hedge funds. Our sample consists of 287 mutual fund managers who joined hedge funds during the period from 1993 to 2006. Of these managers, 157 *side-*

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[2] Between 1997 and 2007, assets under management in mutual funds grew by 167%, where those in hedge funds grew by 300%. (Source: 2009 Investment Company Fact Book for statistics on mutual funds and www.hedgefundfacts.org based on data from Hedge Fund Research Incorporated for statistics on hedge funds.)

by-side managers retained their jobs in the mutual fund industry while simultaneously managing both mutual funds and hedge funds. The remaining 130 managers, *complete switchers*, severed all ties with the mutual fund industry to join hedge funds. We find that superior past performance as a mutual fund manager increases the likelihood of a side-by-side arrangement. Poor performers tend to completely exit the mutual fund industry and some of them find jobs with hedge funds.

Why would the hedge fund industry hire poorly performing mutual fund managers? One possibility is that these managers are better suited to hedge funds than mutual funds. However, our findings suggest that complete switchers continue to perform poorly relative to other managers in hedge funds. In addition, the bulk of the managers who left the mutual fund industry to join hedge funds did so during the boom period of the hedge fund industry (early 2000s).[3] Given the scarce supply of money managers, some hedge funds might need to lower their hiring standards during periods of rapid hedge fund growth. Indeed, we find that poorly performing mutual fund managers tend to find jobs in hedge funds only when the hedge fund industry is growing extensively. Also, these complete switchers join significantly smaller and younger hedge fund management companies. It is possible that such hedge funds are unable to attract talented managers because they do not have sufficiently established reputations.

We also find some evidence that successful mutual fund managers are more likely to begin a side-by-side arrangement when the hedge fund industry is growing rapidly. This is consistent with the conjecture that mutual fund companies respond to the improved

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[3] The number of hedge funds increased from around 2,400 to 3,900 from 1995 to 2000. The number soared to about 8,700 in 2005. Source: www.hedgefundfacts.org based on data from Hedge Fund Research Incorporated.

outside options of their better managers by offering a side-by-side arrangement for retention purposes. This strategy partially alleviates the compensation constraints imposed on the mutual funds by the regulatory environment.

Even though our sample of switching managers is a small fraction of the universe of mutual fund managers and hedge fund managers, we are still able to address an important question regarding the competition for talented managers. Due to a supposed regulatory advantage, the hedge fund industry could potentially attract a large fraction of mutual fund managers. Thus, the fact that so few managers completely switch from mutual funds to hedge funds provides preliminary evidence that hedge funds do not acquire talented managers directly from the mutual fund industry. In addition, of thousands of hedge fund managers, these managers are the only ones for whom prior performance data are available. Thus, for this group we are able to relate historical performance to the selection decision of hedge fund companies.

Our paper brings together two strands of research on managerial turnover. The first strand investigates internal signals affecting the retention and promotion of managers (e.g., Weisbach 1988; Fee, Hadlock, and Pierce 2006; Lehn and Zhao 2006; and Cichello, Fee, Hadlock, and Sonti 2009). The asset management profession provides a unique context for labor market research with a well-tracked investment performance for individual fund managers (e.g., see Khorana 1996; and Chevalier and Ellison 1999). Consistent with these studies, we find that better performing managers are retained and promoted while poorly performing ones are fired. The second strand focuses on the impact of industry/market conditions and the scarce supply of skilled labor on managerial turnover (e.g.,

Parrino 1997; Khanna, Noe, and Sonti 2008; and Eisfeldt and Kuhnen 2010). We relate the turnover of money managers to the career opportunities in the money management industry in an effort to understand the turnover of mutual fund managers during a special time period when the landscape of the asset management industry is undergoing an extreme makeover due to the rapid growth of hedge funds. Our study finds that both good and bad managers get a better deal when the hedge fund industry is growing.

There is a growing body of research on the impact of a surging hedge fund sector on various aspects of traditional asset management industry. Agarwal, Boyson, and Naik (2009) study the performance of "hedged mutual funds," whereas Cici, Gibson, and Moussawi (2010) and Nohel, Wang, and Zheng (2010) investigate the potential conflicts of interest arising from the side-by-side management. Nohel et al. (2010) find no conflicts of interest because mutual funds managed by side-by-side managers consistently outperform peer mutual funds after the manager enters the side-by-side arrangement. We focus primarily on the ex ante characteristics of mutual fund managers that enter the hedge fund industry either as complete switchers or side-by-side managers. This approach allows us to analyze the competition for managerial talent across the two industries. Chen, Chen, and Cyree (2009) examine a smaller sample of mutual fund managers moving to hedge funds to investigate whether mutual fund managers can improve their own performance by managing a hedge fund. They also find that complete switchers are poor performers relative to side-by-side managers.

Kostovetsky (2011) 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 evidence of an implicit and explicit "brain drain" from the mutual fund industry caused by the superior ability of hedge funds to attract younger managers from mutual funds. While the paper raises a topic of great interest, the evidence is at best indirect because, unlike our study, there is no information regarding actual career decisions. Our findings, that mutual funds offer the side-by-side arrangement to managers with better performance and sever their ties with managers performing poorly, suggest that mutual funds do not lose their existing talent to hedge funds. We acknowledge that our empirical framework only examines departures of existing mutual fund managers to hedge funds (explicit brain drain) rather than the impact of competition from hedge funds on the quality or number of arrivals to mutual funds (implicit brain drain). However, if mutual funds are able to compete for existing talent, it is difficult to think of a mechanism that prevents mutual funds from competing for new arrivals as well.

The rest of the paper is organized as follows. The next section describes the data. Section 2 investigates what characteristics explain manager movement to hedge funds. In Section 3, we examine the performance of the switchers on the hedge fund side. Section 4 analyzes why some hedge funds hire poorly performing mutual fund managers. The final section concludes.

1. Data

We construct the sample of switching managers by combining the Lipper TASS Hedge Fund database (TASS) and the Hedge Fund Research database (HFR) 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 other characteristics such as expense ratio and turnover. The TASS and HFR databases track information, such as monthly net asset value, fund inception date, investment objectives, and names of portfolio managers, for the majority of the hedge fund population.

Specifically, we compare mutual fund manager names with hedge fund manager names. For each manager name that appears in both mutual and hedge fund databases, we conduct an 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. Nohel et al. (2010) provide details on the matching procedure. We restrict our attention to the set of managers that begin as mutual fund managers and later joined the hedge fund industry. If there is an overlap between the tenure of the manager at mutual funds and at hedge funds, then we classify the manager as a "side-by-side manager," i.e., the manager simultaneously managing 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 identify the mutual funds and the hedge funds the manager managed, either on her own or as part of a team.

A limitation of our approach is that a comprehensive dataset does not exist for hedge funds. TASS and HFR each cover roughly 35%-40% of the universe of hedge funds, with relatively little overlap. Therefore, our sample has 70%-80% of hedge funds but we

acknowledge that we are not capturing the universe of switching managers that moved from the mutual fund industry to the hedge fund world. However, with comprehensive coverage of mutual funds, this lack of complete coverage of hedge funds only introduces noise and biases the statistical tests against finding significant results.

Using the procedure outlined above, we identify a total of 287 managers that switched from the mutual fund industry to the hedge fund world: 157 side-by-side managers and 130 complete switchers. Table 1 shows classification of the switching managers based on the styles of mutual funds they manage prior to the switch and the categories of hedge funds they join. It can be seen that the majority of the managers come from equity mutual funds and also join hedge funds with equity-driven strategies. This picture is reinforced by the fact that switching managers also have a larger fraction invested in common equity in their mutual fund portfolio (81% for a median mutual fund manager as opposed to around 90% for a median switching manager).

Both groups of switchers are very small fractions of the 10,097 uniquely identified mutual fund managers and 9,616 uniquely identified hedge fund managers. This is an important finding in itself. However, it may be the case that even though the number is small, the most talented mutual fund managers move to hedge funds. We investigate this possibility in Section 2.

To capture mutual fund performance, we calculate either style-adjusted average return, style-adjusted MPPM, or 4-factor alpha, using returns before expenses. Each month style-adjusted return is calculated as the return of a mutual fund minus the average return of all the mutual funds with the same style. MPPM is the manipulation proof performance

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measure suggested in Goetzmann, Ingersoll, Spiegel, and Welch (2007). For mutual fund i, for a time period ending at t, it is calculated over prior T months as:

$$MPPM_{i,t} = \frac{1}{1-\rho} ln \left(\frac{1}{T} \sum_{k=t-T+1}^{t} \left[\frac{1+r_{i,k}}{1+r_{f,k}} \right]^{1-\rho} \right). \tag{1}$$

For month k, $r_{i,k}$ is the return for a mutual fund i and $r_{f,k}$ is the risk-free rate. The measure looks like the average of a power utility function with relative risk aversion coefficient ρ. The choice of ρ depends on the benchmark portfolio against which the mutual fund is evaluated. As reported in Goetzmann et al. (2007), using CRSP value-weighted market return as the benchmark gives a value for ρ between 2 and 4. For our calculations, we use ρ equal to 2, 3, or 4. Style-adjusted MPPM is the MPPM for a fund minus the average MPPM of all the funds with the same style divided by standard deviation of MPPM across those funds. We use the Wiesenberger Fund Type Code before 1993 and the Standard & Poor's Detailed Objective Code from 1993 onward to determine fund style. The 4-factor alphas are based on market, size, value, and momentum factors (see Carhart 1997). We obtain the data for the factors and the risk-free rate from Kenneth French's website. We use monthly data for three or five years to measure the performance.

2. What Explains Entry of Mutual Fund Managers into Hedge Funds?

In this section, we analyze the entry of mutual fund managers into the hedge fund industry as a function of their past performance, trading behavior, experience, and assets under management among other characteristics. We use the panel data of mutual fund managers described before. We consider three possible career changes: completely dropping out of

the money management industry, completely switching to hedge funds, and a side-by-side arrangement. We use multinomial logistic regression to jointly model the probability of each of these career moves against a reference category of managers continuing only in the mutual fund industry. If a mutual fund manager manages multiple funds, we use the average of the fund variables weighted by the assets under management of each fund except when described otherwise.

Past performance is a measure (although a noisy one) of the skill of a manager. It is also a measure of her visibility since better performing mutual fund managers enjoy the limelight and are able to attract fund flows. We use performance before expenses so as to better capture managerial ability.

Hedge funds are likely to search for managers who have their own active strategies. Low turnover can be taken as a sign of passive strategy. High tracking error (calculated either as the standard deviation of residual from a 4-factor model or the standard deviation of style-adjusted return) would indicate a strategy that is different from the standard 4-factor strategy or from the usual strategy within that style.

We also include proportion invested by the manager in common stocks. If hedge funds are looking to invest primarily in equities, they would want mutual fund managers with that experience. Total net assets under management of the manager (log of sum of assets across funds) would capture some characteristics attractive to hedge funds such has reputation, visibility, and ability of the manager to attract funds. We also include mutual fund expense ratio because expenses might reflect the ability of the manager to raise money or some other quality of the manager not captured by performance. We also

include experience and experience-squared in our analysis as additional controls related to age and ability to adapt to hedge funds.

Table 2 presents the results for multinomial logistic regression using 5-year or 3-year style-adjusted return as a measure of performance. Table 3 presents the results using style-adjusted MPPM with ρ equal to 2.[4] All the specifications include year fixed effects and we cluster the standard errors at the manager level. As the tables show, better past performance predicts a side-by-side arrangement, whereas poor past performance predicts an exit from the mutual fund industry – either a complete drop out or a complete switch. Thus, better performers are retained by mutual fund companies, while poor performers leave mutual funds (voluntarily or involuntarily).

The last two rows of Tables 2 and 3 present p-values for the null hypothesis that the coefficients for performance across different categories are equal. This hypothesis is strongly rejected for side-by-side managers and complete switchers. However, the null hypothesis of equality cannot be rejected for complete switchers and complete drop outs. So it appears that the managers that move to hedge funds have similar performance characteristics to those that leave money management entirely. This reinforces the hypothesis that poor performance predicts an exit from the mutual fund industry and some of these managers tend to join hedge funds.

Both total assets under management and expenses have a positive and significant effect on the probability of joining hedge funds. On the other hand, there is a negative relation between assets under management and completely dropping out. Managers for bigger funds with higher expenses are more likely to move to a hedge fund. Since the

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[4]The results are similar if we use 4-factor alpha or style-adjusted MPPM with ρ equal to 3 or 4.

performance measure is before expenses, the expense ratio does not capture skill in a direct manner. Instead, it could represent the manager's ability to attract investors along other dimensions.

3. Performance at Hedge Funds

Hedge funds can follow much more dynamic trading strategies and can take short as well as long positions. To account for non-linear risk return characteristics of hedge funds, we use a 7-factor model proposed by Fung and Hsieh (2004), where the factors are excess return on the Standard & Poor's 500 index (equity market factor), return on the Russell 2000 index return less the Standard & Poor's 500 return (equity size-spread factor), monthly change in the 10-year Treasury constant maturity yield (bond factor), monthly change in the Moody's Baa yield less the 10-year Treasury constant maturity yield (credit spread factor), and excess returns on the trend-following risk-factors on bonds, currencies, and commodities. The results using the 6-factor model of Agarwal and Naik (2004) are similar.

Alternatively, we capture risk-adjusted performance of hedge funds using style-adjusted average return or style-adjusted MPPM following the methodology used to construct the analogous performance measures for mutual funds. (See Section 1 for details.) We use 11 primary strategy categories identified in the TASS database and one category (market timing) from HFR as 12 hedge fund styles for this purpose. We combine other strategy categories identified by HFR so that they match the classification by TASS.

We compute risk-adjusted performance based on monthly fund total returns net of fees during the first 5-year period following the inception for the group of U.S. dollar-

denominated funds covered by TASS and HFR. We require funds to have at least 36 monthly net asset value (NAV) returns to be included in the analysis. We use ρ of 2 to calculate style-adjusted MPPM. The results are similar if we use ρ of 3 or 4.

Table 4 presents the regression results for hedge fund performance on a number of control variables, a side-by-side indicator, and a complete switcher indicator. Control variables include log of average monthly total net assets in the inception year, management fee, incentive fee, log of lockup period, log minimum investment, and two indicator variables capturing whether the hedge fund uses leverage and has high watermark requirement for incentive fee. The standard errors are corrected for heteroskedasticity and clustered at the management company level.

According to the results using all available returns, reported in the first three columns of Table 4, the coefficient for the side-by-side indicator in each specification is not significantly different from zero. This finding suggests that side-by-side managers deliver performance that is similar to the hedge fund industry average. For complete switchers, the pattern of statistically significant underperformance continues even after switching to the hedge fund industry. Compared to the hedge fund universe, funds managed by the complete switchers underperform by 29 basis points per month when using style-adjusted average return or 7-factor alpha. When using style-adjusted MPPM, their performance is 0.38 style standard deviation below the style average. According to the F-test at the bottom of each column, complete switchers perform worse than side-by-side managers.

Since reporting by hedge funds to TASS and HFR is voluntary, those funds that choose to report their performance, usually backfill their return history. There may be

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a concern that these backfilled returns are biased upwards since the managers with good histories are more likely to start reporting to the databases. To verify that this bias does not affect our findings, we exclude all backfilled returns (returns before the date a hedge fund starts reporting to the database) from our analysis. These specifications are presented in the last three columns of Table 4. The exclusion of backfilled returns reduces our sample of hedge funds substantially. For instance, the number of observations decreases from 2,849 in column 1 to 1,186 in column 4 once backfilled returns are excluded because approximately 50% of hedge funds in our sample have an incubation period larger than 24 months and the performance measures require at least 36 months of non-missing returns data during the five years following fund inception. For the restricted sample, the coefficients of interest are similar in magnitude and the patterns of statistical significance support the same findings as those for the full sample including the backfilled returns. Complete switchers underperform relative to their new peers in the hedge fund industry and, in particular, side-by-side managers outperform complete switchers.

Hence, consistent with the results from the analysis of mutual fund performance, complete switchers appear to have poor investment skills in hedge funds as well. Even though these managers tended to be employed by larger and more expensive mutual funds, complete switchers appear to be less skilled than the average hedge fund manager.

4. Why Do Some Hedge Funds Hire Poor Performers?

In this section, we explore which characteristics of hedge fund families explain the decision to hire poor performers from mutual funds and to what extent the growth of the hedge

fund industry played a role in these decisions.

Table 5 presents the statistics on the size and age of hedge fund families that hired managers from mutual fund industries. We also present statistics on the relative size and age of these employers by subtracting average size and age of all the hedge fund families that started a hedge fund in the same year as these hirings. According to Panel A, management companies that hire side-by-side managers on average manage $113 million assets, which is similar to the average size of management companies in the universe. In contrast, employers of complete switchers on average manage only $22 million, which is statistically significantly different at the 1% level from the universal average. Both absolute and relative sizes for complete switchers are significantly smaller than those for the side-by-side managers. Similarly, looking at age in Panel B, employers of complete switchers are significantly younger than the average hedge fund family, as well as the employers of side-by-side managers. Thus, the switching managers that leave mutual funds after poor performance tend to obtain jobs with smaller and younger management companies. To the extent that the size and age of management companies can proxy for their reputation, the above evidence suggests that some management companies with relatively weak reputations hire these poorly performing mutual fund managers.

Next, we examine if the growth of hedge fund industry has a role to play in the career movement of fund managers. It is quite likely that a growing hedge fund industry presents opportunities for mutual fund managers in general. We estimate a multinomial logistic regression, similar to the one in Tables 2 and 3, to analyze the probability of different career changes of mutual fund managers. In addition to the explanatory variables included

in those tables, we add an interaction of performance and asset growth rate of the hedge fund industry. Table 6 presents the coefficients for performance and the interaction term in this regression. The coefficient estimates for other explanatory variables are similar to those in Tables 2 and 3. We measure the asset growth of the hedge fund industry either as an annual growth rate or rank based on the growth rate for each year in our sample. In general, there is an additional negative effect of performance in the case of complete switchers when interacted with hedge fund growth. Thus, poorly performing mutual fund managers are more likely to be employed by the hedge fund industry when it is growing rapidly. The results are particularly strong for 3-year performance and qualitatively similar (although not statistically significant) for 5-year performance. It is interesting to note that the interaction between performance and hedge fund growth has no significant effect on the probability that a manager completely drops out. Thus, poorly performing managers leave mutual fund companies throughout the sample period. However, when the demand for hedge fund managers expands, the evidence suggests that these managers are more likely to find jobs with a hedge fund.

In Table 6 the interaction between performance and hedge fund industry growth has a positive effect (albeit not always statistically significant) on the probability of a side-by-side arrangement. This result suggests that mutual fund companies are more compelled to offer a side-by-side arrangement to their better managers when faced with competition from a growing hedge fund industry.

5. Conclusion

Mutual funds do not lose their best performing managers due to competition from hedge funds. Instead, we find that managers leaving the mutual fund industry have a history of poor performance. There is no evidence that these poorly performing mutual fund managers find a good fit as hedge fund managers. Indeed, they underperform their new peers in the hedge fund industry. We find that poorly performing managers leaving the mutual fund industry are more likely to find positions with smaller and younger hedge fund companies during the high growth phase of the hedge fund industry. Thus, leaving the mutual fund industry to join hedge funds appears to be driven by the ability to time the labor market rather than the skill to generate superior performance. We also find that mutual funds offer a side-by-side arrangement to retain their good managers and are more likely to do so when the competition from a growing hedge fund industry is fierce. In general, the mutual fund industry retains skilled managers and sever ties with the unskilled managers.

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Table 1
Classification of switchers

Panel A: Classification of Switchers by Mutual Fund Styles

Style	Side-by-Side Managers	Complete Switchers	Total
Domestic equity	80	43	123
International equity	29	37	66
Domestic fixed income	28	18	46
International fixed income	4	6	10
Money market	4	1	5
Other	9	6	15
Unclassified	3	19	22
Total	157	130	287

Panel B: Classification of Switchers by Hedge Fund Styles

Style	Side-by-side Managers	Complete Switchers	Total
Convertible	3	3	6
Dedicated short selling	0	2	2
Emerging markets	8	6	14
Equity market neutral	11	16	27
Event driven	4	7	11
Fixed income	15	10	25
Fund of funds	13	5	18
Global macro	4	5	9
Long/short equity	90	68	158
Managed futures	4	3	7
Market timing	1	0	1
Multi-strategy	4	5	9
Total	157	130	287

This table provides stylistic pattern of mutual fund managers joining the hedge fund industry. If a manager manages more than one fund, we choose the style of the largest fund.

Table 2
Career moves of mutual fund managers

	5-Year Performance			3-Year Performance		
	Complete Drop Outs	Complete Switchers	Side-by-Side Managers	Complete Drop Outs	Complete Switchers	Side-by-Side Managers
Performance	-37.490***	-69.161***	57.746**	-27.166***	-40.176**	10.707
Proportion invested in equity	0.078	0.660*	-0.291	0.066	0.717**	-0.163
Turnover	0.086***	0.086	0.163*	0.085***	0.052	0.160**
Tracking error	-8.204***	-6.694	6.112	-8.564***	-8.138	4.142
Assets under management	-0.286***	0.146*	0.150**	-0.283***	0.124*	0.202***
Experience	0.015*	-0.079	-0.025	0.022***	-0.079	-0.009
Experience-squared	-0.001*	-0.001	-0.002	-0.001**	-0.001	-0.003
Expenses	-1.050	60.181**	103.100***	-0.803	65.709***	98.825***
Pseudo R^2	0.107			0.103		
Total number of observations	32911			37876		
Number in the category	3255	81	102	3825	98	114
p-value for the test that the coefficients for performance are equal						
Complete switchers v. side-by-side managers	<0.001			0.020		
Complete switchers v. complete drop outs	0.225			0.439		

This table presents results of a multinomial logistic regression modelling the probability of different career moves of mutual fund managers against a reference category. We consider continuing only in the mutual fund industry (reference category), completely dropping out of the money management industry, completely switching to hedge funds, and side-by-side management of mutual funds and hedge funds. Proportion invested in equity, expenses, and turnover are the asset-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 the asset-weighted average of style-adjusted return across all funds managed by the manager. Style-adjusted return is calculated every month as return of a fund less average return of all funds with the same style and then averaged over 3 or 5 years. Tracking error is the standard deviation of the monthly style-adjusted return. The sample is a panel of mutual fund managers at annual frequency from 1992 to 2004. The regression includes year fixed effects. * indicates significance at 10%, ** at 5%, and *** at 1% levels using standard errors clustered at the manager level. Total number of observations is the sum of observations in each category reported and the observations in the reference category.

Table 3
Career moves of mutual fund managers - MPPM

	5-Year Performance			3-Year Performance		
	Complete Drop Outs	Complete Switchers	Side-by-Side Managers	Complete Drop Outs	Complete Switchers	Side-by-Side Managers
Performance	-0.160***	-0.331**	0.598***	-0.190***	-0.284**	0.106
Proportion invested in equity	0.112*	0.768*	-0.307	0.103*	0.802**	-0.166
Turnover	0.087***	0.070	0.175**	0.088***	0.035	0.167**
Tracking error	-8.506***	-9.492	9.805**	-9.314***	-10.727	5.183
Assets under management	-0.293***	0.121	0.139**	-0.285***	0.107	0.199***
Experience	0.019**	-0.033	-0.026	0.025***	-0.039	-0.008
Experience-squared	-0.001**	-0.003	-0.002	-0.001***	-0.003	-0.003
Expenses	-1.701	62.813**	101.500***	-2.146	67.087***	100.500***
Pseudo R^2	0.107			0.103		
Total number of observations	32428			37278		
Number in the category	3226	78	102	3794	95	113
p-value for the test that the coefficients for performance are equal						
Complete switchers v. side-by-side managers	<0.001			0.022		
Complete switchers v. complete drop outs	0.210			0.454		

This table presents results of a multinomial logistic regression modelling the probability of different career moves of mutual fund managers against a reference category. We consider continuing only in the mutual fund industry (reference category), completely dropping out of the money management industry, completely switching to hedge funds, and side-by-side management of mutual funds and hedge funds. Proportion invested in equity, expenses, and turnover are the asset-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 the asset-weighted average of style-adjusted MPPM measure across all funds managed by the manager. MPPM is the manipulation proof performance measure as suggested in Goetzmann et al. (2007) calculated over 3 or 5 years using ρ of 2. Style-adjusted MPPM is MPPM for a mutual fund minus average MPPM of all funds with the same style divided by standard deviation of MPPM across all funds with the same style. Tracking error is the standard deviation of the monthly style-adjusted return. The sample is a panel of mutual fund managers at annual frequency from 1992 to 2004. The regression includes year fixed effects. * indicates significance at 10%, ** at 5%, and *** at 1% levels using standard errors clustered at the manager level. Total number of observations is the sum of observations in each category reported and the observations in the reference category.

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Table 4

Hedge fund performance

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	All Available Returns			Excluding Backfilled Returns		
	Style-adjusted Return	7-Factor Alpha	Style-adjusted MPPM	Style-adjusted Return	7-Factor Alpha	Style-adjusted MPPM
Total Net Assets	-0.063***	-0.060***	-0.036***	-0.009	-0.027	-0.001
Management Fee	0.087***	0.058	0.065**	0.138*	0.156*	0.117*
Incentive Fee	0.011***	0.020***	0.002	0.002	0.011***	0.001
Lockup	0.054***	0.051***	0.046**	0.056**	0.054**	0.059**
Leverage	-0.008	-0.013	-0.069	-0.011	0.007	-0.065
Highwater	0.159***	0.154***	0.279***	0.173**	0.164**	0.255***
Minimum Investment	0.035***	0.040***	0.065***	0.001	0.044*	0.040*
Side-by-Side	0.072	-0.006	-0.057	0.203**	0.012	0.134
Complete Switcher	-0.287**	-0.294**	-0.384***	-0.273**	-0.305***	-0.430**
Number of Obervations	2849	2534	2849	1186	1179	1186
Side-By-Side vs. Complete Switchers						
F-statistic	5.54	3.27	5.39	11.99	4.40	9.40
p-value	0.019	0.071	0.020	0.001	0.036	0.002

This table provides coefficients from regression of the hedge fund performance. Performance is calculated over 5 years since inception of the fund using either style-adjusted return or 7-factor alpha or style-adjusted MPPM. Style-adjusted return is calculated every month as return of a fund less average return of all funds with the same style and then averaged over 5 years. 7-factor alpha is calculated using a model proposed by Fung and Hsieh (2004). MPPM is the manipulation proof performance measure as suggested in Goetzmann et al. (2007) calculated using ρ of 2. Style-adjusted MPPM is MPPM for a hedge fund minus average MPPM of all funds with the same style divided by standard deviation of MPPM across all funds with the same style. Total net assets is the log of average monthly total net assets in the inception year. Management fee and incentive fee refer to the fees charged by the hedge fund. Lockup is the natural log of the hedge fund lockup period in months. Minimum investment is the natural log of the minimum investment required by the hedge fund. Leverage is 1 if the hedge fund utilizes leverage and zero otherwise. High watermark is 1 if the hedge fund has high watermark requirement for the payment of incentive fee and 0 otherwise. Side-by-side is 1 for hedge funds that are managed by the side-by-side managers and 0 otherwise. Complete switcher is 1 for hedge funds that are managed by the complete switcher from mutual funds and 0 otherwise. First three columns present results using all available returns for a hedge fund including the backfilled returns. Last three columns present results excluding the backfilled returns. * indicates significance at 10%, ** at 5%, and *** at 1% levels using t-statistic clustered at the hedge fund family level. Last two rows provide F-statistic and p-value for a hypothesis that coefficient for side-by-side managers and complete switchers is the same.

Table 5
Hedge fund family size and age

Panel A: Hedge Fund Family Size (Millions $)

	Side-by-Side Managers	Complete Switchers	p-value for t-test Side-by-Side Managers vs. Complete Switchers
Mean Size prior to Switch	112.69	22.42	0.001
Mean Size relative to Hedge Fund Universe	-4.57	-111.15	0.001
p-value for t-test for Relative Size	0.877	<0.001	

Panel B: Hedge Fund Family Age (Years)

	Side-by-Side Managers	Complete Switchers	p-value for t-test Side-by-Side Managers vs. Complete Switchers
Mean Age prior to Switch	1.51	0.55	0.007
Mean Age relative to Hedge Fund Universe	-2.34	-3.77	<0.001
p-value for t-test for Relative Age	<0.001	<0.001	

This table presents statistics for size and age of hedge fund families that hire managers from the mutual fund industry. In Panel A, the first row shows mean size prior to the year in which a manager is hired. The second row presents the mean for relative size of the employer families adjusted for average size for all hedge fund families that started a hedge fund in the same year. The third row presents p-value for t-test for the relative fund family size presented in the second row. The last column shows the p-value for t-test for the difference in mean family size for side-by-side managers and complete switchers. Similar statistics for age are presented in Panel B.

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Table 6
Impact of growth of hedge fund industry
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	5-Year Performance			3-Year Performance		
	Complete Drop Outs	Complete Switchers	Side-by-Side Managers	Complete Drop Outs	Complete Switchers	Side-by-Side Managers
Style-adjusted Return						
Performance	-22.613*	-47.973	-1.936	-25.214***	27.883	-42.571
Performance*HF growth rank	-1.886	-2.980	7.199	-0.198	-8.197**	7.390*
Performance	-28.317**	-56.037	15.181	-26.719***	11.024	-28.052
Performance*HF growth	-0.733	-1.254	3.171	-0.012	-3.735**	3.380*
Style-adjusted MPPM						
Performance	-0.110*	-0.363	0.118	-0.155***	0.295	0.082
Performance*HF growth rank	-0.007	0.005	0.069**	-0.004	-0.072**	0.009
Performance	-0.143***	-0.375	0.221	-0.176***	0.176	0.121
Performance*HF growth	-0.001	0.004	0.036**	-0.001	-0.035**	0.002

This table presents results of a multinomial logistic regression modelling the probability of different career moves of mutual fund managers against a reference category. We consider continuing only in the mutual fund industry (reference category), completely dropping out of the money management industry, completely switching to hedge funds, and side-by-side management of mutual funds and hedge funds. Performance is the asset-weighted average of either style-adjusted return or style-adjusted MPPM measure across all funds managed by the manager. Style-adjusted return is calculated every month as return of a fund less average return of all funds with the same style and then averaged over 3 or 5 years. MPPM is the manipulation proof performance measure as suggested in Goetzmann et al. (2007) calculated over 3 or 5 years using ρ of 2. Style-adjusted MPPM is MPPM for a mutual fund minus average MPPM of all funds with the same style divided by standard deviation of MPPM across all funds with the same style. HF growth rate is annual growth rate of the assets under management in the hedge fund industry during the year of career move. HF growth ranks are annual ranks based on HF growth rate. The sample is a panel of mutual fund managers at annual frequency from 1993 to 2004. The regression includes year fixed effects and other control variables described in the caption of Table 2. * indicates significance at 10%, ** at 5%, and *** at 1% levels using standard errors clustered at the manager level.