

# Career Risk and Market Discipline in Asset Management\*

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## Abstract

We analyze hand-collected data on the curricula of 1,627 individuals who worked in hedge funds at some point during their careers. We investigate the extent to which their careers are sensitive to funds' relative performance. They experience a significant acceleration of their career upon being hired by hedge funds, especially if these recently performed strongly relative to their benchmark, and the relative performance of hiring funds is more persistent than that of other funds. This evidence is consistent with assortative matching between better funds and talented professionals. Conversely, the careers of high-ranking employees are significantly and permanently damaged by the liquidation of their funds. This "scarring effect" is concentrated in funds that underperform before liquidation, and thus appears related to the employee's reputational loss. Overall, our results reveal a new facet of market discipline in asset management, operating via the managerial labor market.

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# 1 Introduction

Much research has investigated whether the characteristics and background of managers affect the performance of the companies or funds under their control. Bertrand and Schoar (2003) find that the personal characteristics of chief executive officers (CEOs) and their management “styles” affect corporate behavior and performance. Other studies explore whether corporate policies are affected by specific characteristics of managers, such as overconfidence (Malmendier and Tate, 2005; Malmendier, Tate and Yan, 2011), industry experience (Custódio and Metzger, 2013), background in finance (Custódio and Metzger, 2014), military training (Benmelech and Frydman, 2015) or materialism (Bushman, Davidson, Dey and Smith, 2017). In the asset management literature, there is evidence that institutional investors hire managers who previously generated large positive excess returns, although this return-chasing behavior appears not to result in subsequent excess performance (Goyal and Wahal, 2008, and Busse, Goyal and Wahal, 2010).

Far less is known about the complementary question: how does company or fund performance affect managerial careers? Do salient corporate events such as bankruptcy shape the subsequent career of managers, for instance by affecting their reputation? While incentive reasons are known to call for performance-sensitive managerial compensation (see Murphy, 1999, and Edmans, Gabaix and Jenter, 2017), there is little evidence on whether the managerial labor market acts as a discipline device, over and above the incentives provided within the firm’s boundaries.

In this paper we focus on asset management – and specifically on hedge funds – to investigate the extent to which managerial careers are sensitive to the performance of the funds that employ them. The hedge fund industry is a segment of asset management where incentive concerns and their implications for careers should be particularly salient, for three complementary reasons. First, it is the quintessential business of risk-taking, where a single bad decision may blow up a whole fund. Second, managers are given the greatest discretion in their investment choices, owing to the lightly regulated nature of the business: this creates strong moral hazard issues, given the difficulty of monitoring and reining in top talent (Axelson and Bond, 2015). Third, hedge funds carry out very complex trades and arbitrage strategies, which require scarce and highly specialized talent. Hence, they compete keenly for such talent. Such labor market competition prevents insuring employees against per-

formance shocks: as soon as their quality is revealed, talented professionals extract all rents and untalented ones can get no subsidy (Harris and Holmstrom, 1982; Acharya, Pagano and Volpin, 2016).

We hand-collect unique data about the careers of 1,627 individuals who at some point in their careers were employed in a hedge fund (according to the Lipper-Tass database) as managers, in the sense that they held a low-level, mid-level or top managerial position. Hence, not all the hedge fund employees in our sample eventually become CEOs (only 62% do), differently from most studies on managers' careers that consider only CEOs. For each of them, we observe gender, education, and year of entry in the labor market, as well as all the job changes within and across firms, which include not only hedge funds but also banks, insurance companies, mutual funds and non-financial companies. We classify their jobs based on their position within the corporate hierarchy and on their typical salary. As the data cover employment histories spanning from 1963 to 2016, they shed light on how careers evolve in different market conditions and development stages of the hedge fund industry. We observe that in general career paths are steep, with most promotions occurring early on, consistently with the presence of up-or-out contracts designed to control high moral hazard with dynamic incentives (Axelson and Bond, 2015).

The main research question that these data allow us to address is whether the careers of professionals in asset management are sensitive to the performance of the funds they work for. Fund performance can be either driven by the returns in the relevant asset class ("luck"), or by the ability and effort of its management in terms of asset selection or market timing ("skill"): the former can be measured by the performance of the relevant benchmark, and the latter by the fund's performance relative to the benchmark. In principle, both luck and skill may contribute to the success or failure of a fund, and both can affect the careers of its employees. Therefore, we investigate to what extent the careers of employees respond to their funds' relative performance and to that of the benchmark itself, focusing on two critical stages: the moment in which they are initially hired, and that of the liquidation of the fund they work for, if it ever occurs.

Upon being hired by a hedge fund, professionals are seen to experience a significant acceleration of their career. The acceleration is greater if the fund has outperformed its benchmark in the previous three years. Moreover, overperforming funds that manage to hire tend to also overperform in subsequent years. Altogether, these

findings suggest assortative matching between overperforming funds and high-talent professionals. Funds with strong relative performance can attract top talent because they can expand and thus create career advancement opportunities for their new hires; and they target professionals that help them to maintain overperformance in subsequent years. This reveals a new facet of market discipline in asset management: not only overperformance attracts fund flows from investors, but allows them to have a comparative advantage in hiring talented and sought-after managers. This is consistent with the evidence by Brown and Matsa (2016) that high-quality job seekers shy away from distressed financial firms, based on applicants' responses to job postings during the recent crisis.

Symmetrically, the careers of high-ranking employees are significantly and permanently damaged by the liquidation of their fund, while those of middle- and low-level employees are not significantly affected. This “scarring effect” is concentrated in funds that underperform relative to their benchmark before liquidation. Hedge funds are particularly suited to investigate this issue, as their liquidation is not a rare event, especially upon unsatisfactory performance. While in principle a “scarring effect” of liquidations may either result from a drop in the manager’s reputation or from the destruction of his fund-specific human capital, the fact that it affects only top managers and arises only for funds with poor relative performance points to the first of the two interpretations. Also this evidence is consistent with the idea that the labor market provides an additional discipline mechanism, on top of those arising from investors’ behavior: managers in charge of funds liquidated upon underperforming are penalized in their subsequent career compared to those that are liquidated after not underperforming.

Previous work on managerial careers has mostly focused on the impact of macroeconomic or financial market conditions at the time of labor market entry on workers’ subsequent labor market outcomes: Oyer (2008) document that a buoyant stock market encourages MBA students to go directly into investment banking upon graduation, with a large and lasting effect on their subsequent career, while Schoar and Zuo (2016) show that the career paths of people graduating in recessions are persistently affected by the macroeconomic conditions prevailing when they enter the labor market. Similarly, Oreopoulos, von Wachter and Heisz (2012) find that people who graduate during recessions suffer persistent earnings declines lasting ten years. Our evidence differs from this work because it focuses on the role of the labor mar-

ket in rewarding “skill” as measured by relative performance rather than “luck” as determined by general market or macroeconomic conditions. As such, it is related to several findings in the literature.

Our evidence on assortative matching is consistent with the findings by Goyal and Wahal (2008) and Busse, Goyal and Wahal (2010) that institutional investors tend to hire managers with strong relative performance, and by Ferris, Jagannathan and Pritchard (2003) that past company performance correlates with the number of subsequent appointments of its directors. Our findings are also related to Gibbons and Murphy (1990), who provide strong empirical support for relative performance evaluation in CEO pay and retention policies. We show that the incentive effects of relative performance extend beyond the boundaries of firms’ compensation and retention policies, as they encompass also the hiring policies of subsequent employers.

Our evidence on the “scarring effects” of fund liquidations is related to previous work on the effect of firm bankruptcies. Eckbo, Thorburn and Wang (2016) report that only one third of CEOs maintain executive employment after bankruptcy filing, especially when their firm’s previous profitability was below the industry average, and departing CEOs suffer large income and equity losses. Graham, Kim, Li and Qiu (2015), who analyze employer-employee matched panel data from the US Census for thirty states from 1985 to 2008, document a persistent 15-percent drop in wages following bankruptcy. Relatedly, Hochfellner, Montes, Schmalz and Sosyura (2015) show that workers in German firms affected by the financial crisis experienced persistent earnings losses of approximately €2,400 per year, nine weeks longer unemployment spells, and a lower probability of climbing the job ladder than workers in unaffected firms. Baghai, Silva, and Ye (2017) find that, when inventor teams are dissolved because of bankruptcy, inventors subsequently become less productive. We contribute to this strand of the literature not only because of our focus on the finance industry, but mainly because we relate these “scarring effects” to the drop in the reputation of powerful employees (though not necessarily CEOs), rather than to the accidental loss of firm-specific human capital.

The paper is organized as follows. Section 2 illustrates the structure of the data set and describes the characteristics of the workers in our sample and those of their careers. Section 3 investigates how careers evolve upon being hired by a hedge fund, depending on the fund’s previous relative performance and on that of the relevant benchmark. Section 4 explores the impact of the liquidation of hedge funds on

the subsequent career of their employees, also in this case depending on the funds' previous relative performance. Section 5 concludes.

## 2 Data

We collect data about the characteristics and career paths of professionals who in 2007-14 held a position – e.g. trader, analyst, portfolio manager, top executive – in at least one hedge fund present in the Lipper Hedge Fund Database (TASS).<sup>1</sup> Most of the professionals in the sample also held positions in other companies during their careers, namely other asset management companies (mutual funds, pension funds, private equity funds, etc.), banks, insurance companies, consultancies or even companies outside the financial sector.

To construct the data set, we draw the names of 13,056 hedge fund professionals from the TASS database. The TASS database contains biographical information about hedge fund managers (name and surname, name and address of the fund where they work, start and end dates of their job, type of job, i.e. portfolio or marketing manager), about the investment companies that employ them, and about the funds managed by the company, since typically each investment company owns several hedge funds. To complete this information with the previous and subsequent work histories of these professionals, we hand-collected data about their education (degrees and respective dates, subject and school for each degree), year of the first job, as well as the start dates, end dates, employers and job levels held throughout the worker's career. These data were drawn from individual resumes available on a major professional networking website, together with information available on Bloomberg, Businessweek and companies' websites. For many managers, employment histories were missing or too incomplete, so that the final sample consists of 1,627 managers. As a result, our sample is likely to overrepresent more talented professionals, insofar as these tend to have public profiles and populate them with complete and up-to-date information. In presenting our results, we shall discuss the external validity issues that may arise from this sample selection.

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<sup>1</sup>TASS contains quantitative and qualitative information about 21,000 hedge funds, such as monthly performance, addresses, inception date, investment focus, management, parent company, as well as names and surnames of employees, the investment company employing them, the hedge fund for which they worked and their job.

We classify the jobs held by the professionals in our sample along two dimensions: the position of each job within the corporate hierarchy, and the typical salary associated with each job title and sector. We first match the job titles reported by professionals in their curricula with the Standard Occupational Classification (SOC) produced by the Bureau of Labor Statistics (BLS). Then, in order to create a measure of the position of an employee in the job ladder, we group the SOC codes into the 6 following bins, meant to capture different degrees of decision-making power:<sup>2</sup>

1. Craft Workers, Operatives, Labors and Helpers, and Service Workers (coded as 1);
2. Technicians, Sales Workers, and Administrative Support Workers (coded as 2);
3. Professionals (coded as 3);
4. First/Mid Officers and Managers (coded as 4);
5. Top Executives (coded as 5, except for those coded as 6);
6. CEOs, or other positions at the head of the corporate hierarchy (coded as 6).

Since employees holding the same position in the job ladder may have different compensations in different sectors (e.g., the Chief Operating Officer of an asset management company typically earns more than that of a commercial bank), we use the Occupational Employment Statistics (OES) to identify the average annual salary associated in 2016 to each SOC code in 6 sectors: (i) asset management (AM), (ii) commercial banking and other lending institutions (CB); (iii) financial conglomerates, defined as institutions encompassing lending, insurance and/or asset management (CO); (iv) insurance (IN); (v) other finance, which includes mainly financial consultancies and portfolio advisors (OF); and non-financial firms and institutions, including government, supranational institutions and stock exchanges (NF). The end result is an imputed salary for each professional-year observation in our sample.

Table 1 illustrates the average salary and examples of job titles associated to each job level: for obvious reasons of space, the table cannot report the thousands of job titles present in our data. It is important to understand that salaries vary not

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<sup>2</sup>These job bins are based on the EEO-1 Job Classification system, except for top managers that we group in a separate bin.

only across the 6 above-listed job levels, but also within each job level depending on the SOC code of the relevant job title, and within each SOC code depending on the relevant sector. Since OES wage data are available at the relevant level of disaggregation only since 2005, we prefer to neglect altogether time-series variation in salary levels for the same SOC code and sector, to avoid the inconsistencies stemming from a mix of actual and imputed data. Moreover, our salary data do not include bonuses and variable compensation, which typically form a significant portion of total pay in asset management and investment banking: as a result, they understate the differences in compensation between sectors and occupations.

[Insert Table 1]

## 2.1 Characteristics of Professionals and Careers

Table 2 describes the characteristics of the individuals in our sample. All of the professionals that report data on educational attainment have a university degree: at the undergraduate level for 40 percent of the sample, at master's level for another 42 percent, and at Ph.D. or J.D. level for 3 percent. As one would expect, education in economics or finance is dominant: 60 percent of the individuals in the sample have received their highest degree in these subjects. A sizeable minority (17 percent) obtained their highest degree from a top-15 university, defined on the basis of QS Ranking, and an even smaller group (7 percent) received it from a mid-level university (ranking between 16 and 40). The age composition of the sample overweights the cohort that started working in the 1990s, which forms almost half of the sample, while the cohorts that started working in the 1980s and the 2000s are 21 and 29 percent of the total, and only 4 percent entered the labor market before 1980. Consistently with anecdotal evidence about gender imbalance in finance, the sample is dominated by males (84 percent).

[Insert Table 2]

By construction, careers are dominated by positions in asset management, with 71 percent of person-year observations referring to occupations in this sector. However, some of the professionals in the sample spent part of their careers in commercial banking (7 percent of person-year observations) or outside finance (17 percent). The



typical job level in the sample is that of a middle managerial position (which belongs to bin 4 of our classification), with a 2016 average salary of \$189,082 and a median one of \$217,950, revealing a skewed distribution of salaries. The individuals in the sample do not switch only between job levels but also across companies over their career paths: 13 percent of person-year observations refer to switches across employers.

A considerable number of individuals in the sample attain top positions during their careers: Table 2 shows that 40 percent of person-year observations refer to level-6 positions, and accordingly the right panel of Figure 1 shows that the same 40 percent earns the top salary. Figure 1 also reveals that low and middle managerial positions are the next most common jobs in the sample. The prevalence of managerial positions arises from the fact that the sample is formed by professionals who at some point in their career held positions in hedge funds, which typically attract highly talented individuals: in this sense, our data set is likely to over-represent talented workers, as in studies based on sample of graduates from prestigious universities, such as Oyer (2008). However, our sample is not formed only by people who eventually become CEOs, as in Benmelech and Frydman (2015), Graham, Harvey and Puri (2013), Kaplan, Klebanov and Sorensen (2012), and Malmendier, Tate and Yan (2011): differently from these studies, the individuals in our data set may just rise to low- or mid-level managerial tasks, or even drop from a top position to a lower one.

**[Insert Figure 1]**

Figure 2 illustrates career paths by plotting the average job level and average salary against work experience: the typical individual in the sample starts off at a low- or mid-level managerial level (between job-level bins 3 and 4), rises to high-level managerial positions (bin 5) after about 20 years, and then works his or her way gradually to top-level positions over the remaining 20 years. The progression of the average salary appears to be faster than that of job levels in the early phase of the career, and slower in the later part of the career; however, this is likely to reflect simply the fact that as people rise through the ranks, an increasing fraction of their total pay is made of bonuses and variable compensation, which is not captured by our salary measure.

**[Insert Figure 2]**

To control for possible cohort effects, Figures 3 and 4 illustrate the typical career path and salary profile separately for three cohorts, formed by people who entered the labor market in the 1980s, 1990s and 2000s respectively. The three cohorts feature the same typical career path until 2009, even though the hedge fund industry underwent wide changes over the careers of individuals in these three cohorts: it was a nascent industry in the late 1980s and early 1990s, it boomed in the mid-1990s and plateaued in the 2000s. Instead, the career paths of the three cohorts diverge after 2009, when that of the youngest cohort first levels off and then declines, while those of the older cohorts do not. This is likely to reflect the fact that by 2009 older asset managers had already reached top positions that sheltered them from the effects of the financial crisis, while young finance professionals who started off in the 2000s were hit by the crisis while still in the early phase of their careers.

[Insert Figure 3]

## 2.2 Hedge Fund Returns

We draw hedge fund return data from the TASS database. Hedge funds are classified according to their strategies, as described by TASS and grouped in 6 classes by Agarwal, Daniel and Naik (2009, Appendix B): relative value, security selection, multiprocess, directional trading, funds of funds, and a residual category.

Panel A of Table 3 shows the mean and standard deviation of yearly percentage return of the respective benchmarks, defined as the average yearly return of the funds in the respective class for the whole sample period. As expected, given the high-risk strategies pursued by these funds, average yearly benchmark returns are quite high, ranging between 10.1% for relative value to 23.8% for directional traders funds, and their volatility is correspondingly high.

[Insert Table 3]

Panel B of Table 3 shows the range of variation of the funds' relative returns (defined as the difference between their percentage returns and those of their respective benchmarks) for each of the six classes. The range of variation of fund relative return is very large, between 15 and 110 times the corresponding average benchmark return. This great heterogeneity in performances will prove to be important for the

analysis of the effect of liquidations on individual careers in Section 4 below, where we explore how such effect varies depending on fund relative performance.

### 3 Sensitivity of Hedge Fund Hiring to Performance

The key research question of this paper is whether the careers of asset managers are affected by the performance of the funds they work for. We start addressing this question by focusing on the development of their career when they are initially hired by a hedge fund. The data clearly indicate that being hired by a hedge fund coincides with a considerable career advancement for the individuals in our sample: Figure 5 shows that, upon such a hire, the job level rises on average almost by 1 notch (that is, from one bin to the next one) and the average salary rises by \$40,000.

[Insert Figure 5]

To assess whether this career advancement is related to the performance of the hiring fund, we estimate models that relate the individual job level or wage not only to the event of being hired by a hedge fund but also to the interaction of this event with the previous relative performance of the fund and with the relevant benchmark return. The most complete specification that we estimate is as follows:

$$\Delta y_{it} = \beta_0 + \beta_1 r_{jt-1} + \beta_2 b_{jt-1} + \beta_3 y_{it-1} + \boldsymbol{\gamma}' \mathbf{x}_{it-1} + \lambda_t + \epsilon_{it}, \quad (1)$$

where  $\Delta y_{it}$  denotes either the change in the job level or in the wage of individual  $i$  upon being hired by a hedge fund for the first time in year  $t$ ,  $r_{jt}$  is the average performance of fund  $j$  relative to its benchmark in the three years before the hiring of individual  $i$ ,  $b_{jt}$  is the average return of the benchmark of fund  $j$  over the same interval,  $\mathbf{x}_{it}$  is a vector of characteristics of individual  $i$  (gender, education, work experience) and of the hiring fund (assets under management), and  $\lambda_t$  are year fixed effects.

The parameters of the specification (1) dissect the career effect of being hired by a hedge fund in various components, depending on the previous performance of the fund and of its benchmark. A positive coefficient  $\beta_1$  can be interpreted as the

effect of being hired by a fund that has on average outperformed its benchmark in the previous three years. A positive  $\beta_2$  would imply that being hired by a fund belonging to a class with higher benchmark return over the previous three years is associated with a larger promotion than the baseline one. The specification allows the baseline impact of being hired by a hedge fund on the job level (or wage) to vary depending on the individual's previous job level or wage, as individuals who start from a high position are likely to have less room for promotion upon being hired by a hedge fund. So the baseline impact of being hired by a hedge fund for individual  $i$  is measured by the constant  $\beta_0$  plus the coefficient  $\beta_3$  multiplied by the individual's previous job level (or salary):  $\beta_0 + \beta_3 y_{it-1}$ .

Table 4 presents the estimates of variants of (1) in which the dependent variable  $\Delta y_{it}$  is the change in the job level. The table starts with a simple specification where the parameters  $\gamma$  of individual and fund characteristics are set to zero (column 1), and then shows richer specifications that include also individual characteristics (column 2), time effects (column 3) and fund characteristics (column 4).

**[Insert Table 4]**

The estimates are quite stable across specifications. In all of them, the baseline effect of being hired by a hedge fund is estimated to be positive and large for the typical individual, in line with the descriptive evidence in Figure 5: based on the estimates shown in column 1, its magnitude is 1.3 and 0.6 for individuals starting from job levels 3 and 4 respectively, and drops to zero for individuals starting from job level 5. So being hired by a hedge fund is associated with a promotion greater than one job level for people coming from a professional position (e.g. analyst), and with a promotion about half as large for those coming from low- or mid-level managerial jobs (e.g. investment manager).

More interestingly, the coefficient  $\beta_1$  is invariably positive and significant: being hired by a fund that made a 10% average excess return over its benchmark implies an additional promotion of one job level. This is reminiscent of the results by Gibbons and Murphy (1990), who show that the revision in a CEO's pay and the probability of his retention are positively and significantly related to firm performance, but negatively and significantly related to industry and market performance. Instead, the estimates of the coefficient  $\beta_2$  are not significantly different from zero in most

specifications: being hired by a fund belonging to a class that recently performed strongly does not appear to affect materially one’s career at the time of the hire.

The estimates of the specifications in columns 2, 3 and 4 of Table 4 show that the career advancement associated with the hire by a hedge fund also varies depending on the gender and the work experience of the employee: male employees advance between 1/3 and 1/2 extra notch, and those with 10 years of work experience almost another 1/2 notch. There is also weak evidence that education contributes to the career advance, as the dummy variables for graduating from a top-15 university and for having a graduate degree carry a positive and (barely) significant coefficient in columns 3 and 4 respectively. Clearly, in these richer specifications the baseline effect of being hired by a hedge fund is lower, its contribution being to some extent absorbed by the individual characteristics of the employees. Finally, the career advance at the time of the hire is not correlated with the size of the hiring fund, as measured by the logarithm of assets under management.

In Table 5 specification (1) is re-estimated using the change of the salary as dependent variable. The baseline effect of being hired by a hedge fund is again positive and significant, as shown by the estimated constant  $\beta_0$ , and is lower for employees who earned a larger salary in their previous job, as shown by the negative estimate of  $\beta_3$ : based on the estimates in column 1 and on the average salaries by job level in Table 1, the baseline yearly salary increase is estimated to be \$73,061 and \$23,693 for individuals starting from job levels 3 and 4 respectively. In Table 5, the coefficient of the relative performance of the hiring fund,  $\beta_1$ , is positive but imprecisely estimated: this may reflect measurement error in our salary imputation as well as the fact that our salary variable measures only the fixed – not the performance-related – component of total compensation. Also the coefficient of the benchmark return,  $\beta_2$ , is not significantly different from zero in the most complete specifications of columns 3 and 4. The coefficients of the individual characteristics retain the same sign as in Table 4 but only that of work experience is precisely estimated, 10 years of previous experience being associated with an additional salary increase of about \$15,000.

**[Insert Table 5]**

The estimates of specification (1) pose an obvious question: why a hedge fund with higher relative performance should want to be more aggressive in bidding for

managers, offering them larger promotions than underperforming ones? This would be rational only if the managers that it attracts in this fashion allow the fund to keep a higher relative performance also in the future. To investigate whether the return persistence of hiring funds exceeds that of non-hiring funds, we estimate the following model:

$$r_{jt} = \phi_1 r_{jt-1} + \phi_2 r_{jt-1} \times H_{jt} + \phi_3 AUM_{jt} + \lambda_t + \mu_j + \eta_{jt}, \quad (2)$$

where the dependent variable  $r_{jt}$  is the average monthly relative performance of fund  $j$  over a 3-year window that starts with the hiring year  $t$  for funds that hire individuals in our sample, and over the same years for funds that do not hire. Specifically, the non-hiring funds matched with each fund hiring in year  $t$  are all the funds that do hire neither in year  $t$  nor at in any other year in which they are present in the sample. The matching is done without replacement, so as to avoid using the same non-hiring funds as matches for more than a single hiring fund. The past performance  $r_{jt-1}$  is the average difference between fund  $j$ 's percentage return and the average return of its benchmark in the 3 years before hiring. The hiring indicator  $H_{jt}$  equals 1 for funds that hire professionals in year  $t$  in our sample and 0 otherwise. The specification also includes control for fund size, as measured by the logarithm of assets under management  $AUM_{jt}$ , calendar year effects  $\lambda_t$ , and fund class effects  $\mu_j$ , i.e. indicators for the classes to which hedge funds belong (Relative value, Security selection, Multi-process, Directional traders, Fund of funds, Other). Table 6 reports the estimates of specification (2).

**[Insert Table 6]**

The estimates shown in Table 6 are very similar, irrespective of whether calendar year and fund class effects are both excluded (column 1), both included (column 4) or selectively included (columns 2 and 3). The estimates show that the performance of funds that hire managers is more than twice as large as that of the control sample. Hence, the funds that have higher past relative performance manage to “lock in” this advantage by offering bigger promotions to their new hires. This suggests that such aggressive hiring policy results in hires of more talented employees. This result holds irrespective of fund size, which is controlled for in all the regressions, and indeed turns out to be strongly correlated with fund performance.

We interpret these findings as the result of assortative matching between overperforming funds and talented managers: the former can attract the latter because their outperformance allows them to create promotion opportunities for new hires, and target managers that help them to maintain overperformance in the future. This reveals that in asset management market discipline works not only by allowing overperforming funds to attract new flows of investment, but also by allowing them to hire better managers.

In unreported regressions, we investigate whether career advancement and wages are significantly correlated with fund relative performance also after the hire, and find no evidence for such further association. This suggests that the job-level and wage premium is front-loaded at the time of a hire by a hedge fund: competition between funds allows the new hire to extract up-front all the rents associated with his or her future contribution to the fund. It is also quite possible that there is a positive correlation between fund relative performance and the variable component of employee compensation (such as bonus pay), which we cannot measure for lack of data.

## **4 Sensitivity of Careers to Hedge Fund Liquidations**

In this section, we investigate if the careers of asset managers are affected by the liquidation of the hedge funds they work for. Hedge funds are particularly suited to analyze the issue at hand, as their typical performance is very volatile and they are often liquidated, especially upon unsatisfactory performance: 31% of the hedge funds reported in the TASS database between 1994 and 2014 end up being liquidated.

Specifically we ask whether, upon the liquidation of a hedge fund, the subsequent labor market options of its employees are negatively affected and, if so, how persistent is this “scarring effect”. In principle, a fund’s liquidation may produce a slowdown in managers’ subsequent careers for two, not mutually exclusive, reasons. First, the fund underperforms because of poor management, and its liquidation triggers a drop in the reputation of its managers, with negative repercussions on their subsequent careers. We refer to this as the “market discipline” hypothesis. Alternatively, the liquidation arises from general market turbulence, rather than from management

errors: in this case, the fund’s liquidation would be uninformative regarding the quality of its managers, yet these risk suffering a slowdown in their subsequent career because of the loss of fund-specific human capital. In this case, fund liquidation is simply an accidental event that damages the subsequent career of the involved professionals, and therefore can be labeled the “career risk” hypothesis.

In order to assess the explanatory power of these two hypotheses, we have to clear the ground from a third source of correlation between fund liquidations and managers’ career outcomes, namely, the assortative matching between funds and managers. As suggested by the evidence in the previous section, underperforming funds tend to hire less talented managers, who therefore are more likely to face liquidation; but in fact these managers would have a less brilliant career even if their funds were not liquidated. To abstract from the correlation between liquidations and subsequent career outcomes arising from this assortative matching, we exploit variation in the timing of funds’ liquidation in an event study framework. This allows us to focus on the variation in the career outcomes associated with liquidations occurring at different moments in time, rather than on the cross-sectional differences in career outcomes between managers of funds that are liquidated and those that are not.

This identification strategy is feasible only insofar as different workers experience their fund’s liquidation at different dates. Figure 6 shows the histogram of the liquidation dates in our sample: there is substantial variation in the timing of funds’ liquidation, with peaks that coincide with the market turbulence of 2008-10 and 2011, but many liquidations occurring also in normal times.

**[Insert Figure 6]**

In what follows, we first document the fact that fund liquidations are associated with “scarring effects” (Section 4.1), and then investigate whether such effects are a reflection of “market discipline”, the materialization of “career risk”, or both (Section 4.2). To this purpose, we will exploit the idea that market discipline should apply only to managers with strong decision-making power, who may be held responsible for their fund’s failure. Moreover, market discipline entails that liquidations should entail scarring effects only if they occur in the wake of poor relative fund performance; if instead all fund liquidations entail such effects, they are simply a source of generalized career risk.



## 4.1 Scarring Effect of Liquidations

Figure 7 provides a first piece of evidence on how hedge fund liquidations affect the respective employees' careers. The figure plots the job levels (left scale) and salaries (right scale) of the employees of funds that were eventually liquidated, for an interval of 11 years centered around the liquidation year (shown as year 0). The job level is increasing up to the year of the liquidation event, where it reaches almost level 5, and decreases significantly in the two years after the liquidation. Even though it recovers to some extent in the subsequent three years, it is not on the same trend as before. The evidence for the salary is similar, and even sharper: after rising gradually by about \$15,000 over the 5-year interval before the liquidation, the salary drops by about \$5,000 subsequently, with no symptom of reversal. On the whole, the figure suggests that employees of liquidated funds had successful careers right up to liquidation, and a significant slowdown afterwards.

[Insert Figure 7]

The effects shown in Figure 7 are unconditional. To control for individual effects (manager fixed characteristics being potentially correlated with fund liquidations) and for year effects (liquidations being potentially concentrated in crisis years, in which managerial careers may slow down anyway), we adopt an event study approach, where the event of interest is the first time a worker experiences a fund's liquidation, and estimate the following specification:

$$\Delta y_{it-\tau} = \sum_{k=-5}^5 \theta_k L_{it-\tau}^k + \alpha_i + \lambda_t + \epsilon_{it}, \quad (3)$$

where  $\Delta y_{it-\tau}$  are changes in the outcome of interest (job level, salary, employer), where  $\tau$  is the year of liquidation,  $\alpha_i$  are individual fixed effects,  $\lambda_t$  are calendar year effects, and  $L_{it-\tau}^k$  are leads and lags of the first fund liquidation a worker experiences, defined as  $L_{it-\tau}^k = \mathbf{1}(t - \tau = k)$  for  $k = -5, \dots, 5$ , where  $\mathbf{1}(\cdot)$  is a dummy that equals 1  $k$  periods before or after the liquidation.

We normalize the value  $\theta_{-1} = 0$  to gain identification of the sequence of  $\theta_k$ , which can be interpreted as the change in the outcome (e.g., the job level change) from the year before the event to  $k$  periods after (or before) its occurrence. Our empirical strategy relies on the assumption that before liquidation there is a stable

trend in the outcome variable (e.g., the job level), which would continue in the absence of liquidation: hence, the pre-liquidation trend can be considered as a benchmark to identify the effects of fund liquidation. If this assumption is valid,  $\theta_k$  should be approximately zero for  $k < 0$ , implying that the pre-liquidation trend is fully absorbed by the constant (or the individual fixed effects, if present in the regression). Instead, any effects of the liquidation should emerge as estimates of  $\theta_k$  significantly different from zero for  $k > 0$ .

For managers who experience fund liquidation we only retain this information for 5 years prior and after the event, so as to avoid the endpoints of the leads and lags being a mixture of further leads and lags. Since Baghai, Silva, Thell and Vig (2017) show that talented workers tend to leave their companies when these approach bankruptcy, we include among the employees affected by liquidations those that were employed in the relevant fund in a two-year window prior to the event. This avoids the selection bias that may be induced by considering only employees that still work in the fund when it gets liquidated.

Clearly, different  $\theta_k$  are estimated using different samples, because sample composition is subject to changes over time. For example, asset managers that experience fund liquidation early in their career are not observed several years prior to the event, while those that experience liquidation at the end of their career are not observed several years after the event. In order to mitigate this concern, as a robustness check, we also estimate equation (3) using a balanced sample of managers in the funds that get liquidated.

Table 7 reports the estimated  $\theta_k$  coefficients from equation (3). The specifications in columns 1 to 3 do not include year effects and individual fixed effects, whereas columns 4 to 6 do. Column (1) shows that in the year after a fund liquidation the average job level decreases by 0.12 notches below the pre-liquidation trend, and does not recover after that date: in fact, also the coefficients corresponding to the subsequent four years are negative, though smaller and not precisely estimated. Column (2) shows that professionals suffer yearly salary losses in all five years after liquidation: the cumulative salary loss is close to \$13,000 based on the significant coefficients of year +1, +2 and +4, and \$17,000 summing all five coefficients. This drop in salary is likely to underestimate the fall in total compensation, since our salary measure does not account for bonuses and variable compensation. This setback after liquidation compares with a trend increase of 0.6 notches in job level and \$2,701 per year over

the pre-liquidation period, as measured by the constants of columns 1 and 2.

Column 3 indicates that starting from the year after a liquidation employees become 8 percentage points more likely to change company, compared with the 13 percent pre-liquidation turnover rate measured by the constant. The estimates in columns 4 to 6 show that the estimated effects are almost unaffected when controlling for time and individual effects, the main difference being a slightly smaller and less precisely estimated drop in salary, and a significant increase in mobility in both of the first two years after liquidation, leading to a 14 percent cumulative increase in mobility.

**[Insert Table 7]**

We also replicate this event study analysis separately for the employees that switch to a new company and for those that do not after their fund's liquidation. The estimates, not reported here for brevity, show that the scarring effects are present only for the individuals that switch employer after the liquidation: those that remain with the same firm experience no significant changes in their subsequent labor market performance. Also this finding is consistent with two possible explanations. One is that the employees leaving the company after a fund's liquidation are laid off by the fund, being held responsible for its underperformance. An alternative interpretation is that fund liquidations associated with the liquidation of the whole parent company force the fund's employees to switch to new employers. Since, however, switching to a new employer is itself an outcome of the liquidation event, results obtained by conditioning on firm switches are to be taken with caution.

## **4.2 Causes of Scarring Effects**

As discussed above, the scarring effects of liquidations documented in the previous subsection can have two, not mutually exclusive, causes. According to the "market discipline" hypothesis, a fund liquidation tarnishes the reputation of its managers, with negative repercussions on their subsequent careers. According to the "career risk" hypothesis, instead, the employees of liquidated funds are hit by the accidental loss of the skills acquired while working in the fund, and possibly suffer psychological distress, which makes them less productive in their subsequent jobs. According to the

first story, liquidations are at least partly attributed to the employee’s prior behavior, while in the second they simply result from bad luck.

To shed light on the rationale of the scarring effects of liquidations, we exploit the heterogeneity in the impact of fund liquidations on careers along two dimensions: the decision-making power of the employee of the liquidated fund, and the fund’s relative performance prior to liquidation. The liquidation of a fund may inflict serious reputational losses only on employees who had substantial power over the fund: hence the “market discipline” hypothesis, that attributes the post-liquidation slowdown in careers to such reputational losses, is unlikely to hold if all the fund’s employees are equally affected by liquidations, irrespective of their ranking in corporate hierarchy. Moreover, reputational losses are likely to arise only for liquidations that follows a poor relative performance of the fund, and not those arising from general market turbulence. Therefore the “market discipline” hypothesis implies that fund liquidations should impair employees’ subsequent careers only when they are associated with particularly poor fund performance relative to its benchmark.

To test whether high-ranking employees are hurt more than others in the years following a liquidation, we repeat the event study analysis described in the previous section separately for two groups: professionals in “top” jobs (job levels 5 and 6) in the year prior to the liquidation, and those in “medium-level” jobs (level 3 and 4). The estimates, which are based on observations for the year before liquidation, the liquidation year itself and the subsequent 5 years for all the individuals who experience liquidation, are displayed in Table 8. For brevity, the table reports only the estimates of the specification without year effects: controlling for such effects leaves the results unaffected.

**[Insert Table 8]**

The table shows that in the year after liquidation employees formerly in top positions suffer demotions and salary losses: the job level drops by 15% of a notch, and the salary by about \$6,000, and these drops are not subsequently reversed. Instead, for employees holding low-medium jobs prior to liquidation the subsequent drop in job level and salary is not significantly different from zero, except for the drop in salary four years after liquidation. The demotions implied by these estimates for top-level employees may appear modest compared with the frequent loss of CEO status by the executives after bankruptcy reported by Eckbo, Thorburn and Wang

(2016). This difference may be explained by the fact that hedge fund liquidations are far less dramatic events than firm bankruptcies: as investment companies typically manage a family of hedge funds, they can keep operating even when they liquidate one of their funds, so that in principle the employees working for a liquidated fund can be retained by the same employer, and even reassigned to another fund with the same job level.

In fact, in our sample a fund’s liquidation frequently leads to the reallocation of its top employees: these are much more likely to switch employer after liquidation than they are before liquidation, their probability of switching company rising cumulatively by 37 percentage points in the first three years after the event. In contrast, employees with low or medium-level positions feature no change in mobility after liquidation: if anything, their probability of switching employer decreases, although its change is not significantly different from zero.

The result that fund liquidation penalizes only the subsequent careers of high-ranking employees is a first piece of evidence in favor of a reputation-based interpretation. However, one could argue that high-level employees are also those with most fund-specific human capital at stake, since they may have developed portfolio strategies, client relationships and work habits that cannot be easily transplanted when switching to a new job, possibly outside the hedge fund industry or even the finance industry altogether. Hence, they may stand to lose more firm-specific human capital than employees in low or medium-level positions, which require fewer fund-specific skills. So, the lack of a scarring effect for medium-ranked professionals does not allow us to disregard the “career risk” hypothesis altogether.

To dig deeper into the rationale of the post-liquidation career slowdown, we exploit the heterogeneity in funds’ relative performance before liquidation, by estimating the following variant of equation (3):

$$\Delta y_{it-\tau} = \sum_{k=-5}^5 \theta_k^{low} L_{it-\tau}^k + \sum_{k=-5}^5 \theta_k^{norm} L_{it-\tau}^k \times P_{jt-\tau} + \theta^{norm} P_{jt-\tau} + \alpha + \epsilon_{it}, \quad (4)$$

where  $P_{jt-\tau}$  is a “normal performance” indicator, namely, a dummy variable equal to 1 if fund  $j$ ’s monthly return was not more than 1% below the relevant benchmark return in the three years before liquidation, i.e. its pre-liquidation performance was broadly in line with the respective benchmark. Hence, the coefficients  $\theta_k^{low}$  (shown in columns 1, 3 and 5) measure the changes in careers associated with liquidations pre-

ceded by abnormally “low performance”, and the coefficients  $\theta_k^{norm}$  (shown in columns 2, 4 and 6) capture the incremental effect of liquidations preceded by “normal performance”. The coefficient  $\theta^{norm}$  of the normal-performance indicator  $P_{jt-\tau}$  absorbs the direct impact of poor fund performance on career outcomes, and the constant  $\alpha$  the trend in job level changes, in salaries or the baseline.

The estimates of specification (2) are shown in Table 9, which presents the results for each of the three regressions in two columns due to space constraints: those for the job level change regression are in columns 1 and 2, those for the salary change regression in columns 3 and 4, and those for company switches in columns 5 and 6. Overall, the table shows that the “scarring effects” identified in Table 7 arise only in connection with the liquidation of funds with a poor relative performance in the three years before liquidation.

**[Insert Table 9]**

Following poor relative performance, liquidation is followed by a drop in the average job level of 0.20 notches after one year, and by an average salary drop of \$9,438 after one year and a further \$5632 drop in the subsequent year. The liquidations of funds formerly performing broadly in line with the respective benchmark have smaller and less precisely estimated effects on their employees’ subsequent careers. Again, the most striking effect concerns company switches: following poor relative performance, liquidation is followed by increases of 18, 15, 6 and 9 percentage points in the frequency of company switches in the four years after liquidation. Hence the total cumulative increase in the probability of a company switch in the four years after the liquidation of a low-performing fund amounts to 48 percentage points. Instead, employees of funds liquidated after a normal performance do not feature a significant change in mobility after the liquidation: their differential cumulative change in mobility over the four years after liquidation is  $-51$  percentage points (as shown in column 6), which offsets the 48 percentage points mobility increase estimated for the employees of underperforming funds.

To sum up, the thrust of the evidence is consistent with the idea that the “scarring effects” of fund liquidations are mostly the result of “market discipline” penalizing underperforming managers with substantial decision-making power over the fund prior to its liquidation, rather than the materialization of “career risk”.

## 5 Conclusions

Using data on 1,627 individuals who held positions in hedge funds at some point during their work histories, we investigate the extent to which their careers are sensitive to funds' relative performance.

We find that careers are shaped by fund performance at two critical stages: when individuals are initially hired by a hedge fund, and when – if ever – the fund is liquidated. They experience a significant acceleration of their career upon being hired by hedge funds, especially if these recently performed strongly relative to their benchmark. Such funds keep overperforming after hiring, more so than non-hiring funds. This evidence suggests assortative matching between better funds and more talented professionals.

Conversely, careers are significantly and permanently damaged by fund liquidations. This “scarring effect” affects only the top managers of these funds, and is concentrated in those that underperform significantly their respective benchmarks before liquidation. Hence, the post-liquidation career slowdown appears linked to the reputational loss of employees with strong decision power in formerly underperforming funds, rather than to the disruption of fund-specific human capital caused by fund liquidation.

On the whole, our results reveal a new facet of market discipline in asset management, which operates via the managerial labor market: on one hand, a strong relative performance enables a fund to have a comparative advantage in hiring talented and sought-after managers; on the other, substantial underperformance followed by the fund's liquidation exposes its top managers to a permanent setback in their subsequent career and compensation. Hence, the managerial labor market provides incentives that complement those within the boundary of the firm, such as performance-sensitive compensation and retention policies.

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## 7 Tables and Figures

**Table 1: Job Levels and Salaries**

We classify the jobs held by the professionals in our sample along two dimensions: the position of each job within the corporate hierarchy, and the typical salary associated with each job title and sector. We first match the job titles reported by professionals in their curricula with the Standard Occupational Classification (SOC) produced by the Bureau of Labor Statistics (BLS). Then, in order to create a measure of the position of an employee in the job ladder, we group the SOC codes into 6 bins, meant to capture different degrees of decision-making power. We use the Occupational Employment Statistics (OES) to identify the average annual salary associated in 2016 to each SOC code in 6 sectors: (i) asset management (AM), (ii) commercial banking and other lending institutions (CB); (iii) financial conglomerates, defined as institutions encompassing lending, insurance and/or asset management (CO); (iv) insurance (IN); (v) other finance, which includes mainly financial consultancies and portfolio advisors (OF); and non-financial firms and institutions, including government, supranational institutions and stock exchanges (NF). The end result is an imputed salary for each professional-year observation in our sample.

Job Level	Description	2016 Average Salary (USD)	Examples of job titles
6	CEOs	238,628	CEO, executive director, founder, managing director, managing partner
5	Top executives	233,207	CFO, CIO, COO, CRO, deputy CEO, partner, vicepresident
4	First/Mid Officers & Managers	180,710	director of sales, head of investor relations, investment manager
3	Professionals	115,667.1	analyst, portfolio manager
2	Technicians, Sales Workers, Administrative Support Workers	106,254	trader, credit officer
1	Craft Workers, Operatives, Labors & Helpers, Service Workers	22,500	assistant, intern

**Table 2: Descriptive Statistics**

The data are drawn from individual resumes available on a major professional networking website, together with information available on Bloomberg, Businessweek and companies' websites. Education level variables are indicators for the highest degree held by the professional. Subject variables are indicators for the subject of the highest degree held by the professional. The quality of highest degree is defined on the basis of QS Ranking. We build three indicators for whether the university where the professional obtained her highest degree is ranked among the top 15, 16-40 and below 40, respectively. Cohort dummies are defined on the basis of the starting date of the first job reported in the resume. Sector variables are dummies that take value equal to one if the professional works in that sector, and zero else. AM stands for asset management; CB for commercial banking and other lending institutions; CO for financial conglomerates; IN stands for insurance; OF for other financial companies and NF for non-finance companies. The job level is meant to capture different degrees of decision making-power and takes values from one (bottom of the hierarchy) to six (CEO). Salary is the average annual salary associated in 2016 to each SOC code in the six sectors described above. CEO is a dummy variable indicating whether an individual is a CEO (=1) or not (=0). Switch company is an indicator for whether an individual at time  $t$  reports to work for another company relative to the previous year. For fractions the complement to one is the fraction of not available data.

	Obs.	Mean	Median	St. Dev.
Education Level				
High school	1,627	0.00	0	0.06
College	1,627	0.40	0	0.49
Master	1,627	0.42	0	0.49
JD or PhD	1,627	0.03	0	0.16
Subject and quality of highest degree				
Econ or Finance	1,627	0.60	1	0.49
Science or Engineering	1,627	0.08	0	0.27
Ranked top 15	1,627	0.17	0	0.37
Ranked 16-40	1,627	0.07	0	0.25
Ranked below 40	1,627	0.42	0	0.49
Cohort				
1962-1979	1,627	0.04	0	0.19
1980-1989	1,627	0.21	0	0.41
1990-1999	1,627	0.46	0	0.50
2000-2013	1,627	0.29	0	0.45
Male	1,576	0.84	1	0.37

**Table 2 continued: Descriptive Statistics**

	Obs.	Mean	Median	St. Dev.
Sector				
AM	34,768	0.71	1	0.45
CB	34,768	0.07	0	0.25
CO	34,768	0.01	0	0.09
IN	34,768	0.02	0	0.13
OF	34,768	0.02	0	0.16
NF	34,768	0.17	0	0.38
Careers variables				
Job level	35,006	4.53	4	1.38
Salary, USD	34,818	189,082.73	217,950	59,433.99
CEO	35,006	0.40	0	0.49
Switch company	35,006	0.13	0	0.33

**Table 3: Fund Performance Measures**

The table presents summary statistics for the yearly returns of hedge funds in the TASS database. Hedge funds are classified according to their strategies, as described by TASS and grouped in 6 classes (columns 1-6). Panel A shows the mean and standard deviation of yearly percentage return of the benchmarks, defined as the average yearly return of the funds in the respective class for the whole sample period. Panel B shows the average range of variation of fund relative returns, defined as the difference between a fund's yearly percentage return and the yearly percentage return of the respective benchmark, and the number of funds in each class.

	Relative Value	Security Selection	Multi-process	Directional Traders	Fund of Funds	Other
Panel A: Benchmark Returns (%)						
Mean	10.1	20.9	15.1	23.8	14.6	18.6
St. Dev.	9.9	18.2	10.3	30.7	17.8	24.8
Panel B: Fund Relative Returns (%)						
Range	162.2	951.2	1,656.8	345.6	516.4	493.8
N. funds	1,106	5,614	4,147	2,497	7,105	2,230

**Table 4: Job Level Change upon Hiring and Hedge Fund Performance**

The table presents the estimated relationship between changes in job level upon hiring and hedge fund performance. Past Performance is the average difference between fund  $j$  percentage return and the average return of its benchmark in the three years preceding hiring, and Past Benchmark is the average percentage return of all funds in  $j$ 's class in the three years before hiring. Job level takes values from one (bottom of the hierarchy) to six (CEO). Male is a dummy equal to one if the professional is male and 0 else. Ranked top 15 is a dummy equal to one if the institution where the professional got his highest degree is ranked among the top 15 universities according to QS. Graduate degree is a dummy equal to one if the professional has a graduate degree and equal to zero else. Experience is the level of experience of the professional at the time of hiring and  $\log(\text{AUM})$  is the logarithm of the average assets under management of the hiring fund. Robust standard errors are shown in parentheses below the respective coefficients: \* denotes  $p < 0.10$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

Dependent variable: Job Level Change upon Hiring				
	(1)	(2)	(3)	(4)
Constant	3.287*** (0.181)	2.782*** (0.178)	2.941*** (0.355)	3.032*** (0.386)
Past Performance	0.059** (0.028)	0.055** (0.028)	0.056* (0.029)	0.056* (0.030)
Past Benchmark	0.115 (0.078)	0.133* (0.076)	-0.036 (0.103)	-0.097 (0.107)
Previous Job Level	-0.667*** (0.038)	-0.777*** (0.043)	-0.751*** (0.043)	-0.741*** (0.046)
Male		0.457*** (0.116)	0.380*** (0.117)	0.344*** (0.132)
Ranked top 15		0.256* (0.136)	0.207 (0.141)	0.209 (0.147)
Graduate degree		0.142 (0.099)	0.160 (0.100)	0.210* (0.107)
Experience		0.041*** (0.008)	0.045*** (0.008)	0.045*** (0.009)
Log(AUM)				0.018 (0.030)
Year Effects	No	No	Yes	Yes
N. observations	545	529	529	475

**Table 5: Salary Change upon Hiring and Hedge Fund Performance**

The table presents the estimated relationship between changes in salary upon hiring and hedge fund performance. Past Performance is the average difference between fund  $j$ 's percentage return and the average return of its benchmark in the 3 years before hiring, and Past Benchmark is the average percentage return of all funds in  $j$ 's class in the 3 years before hiring. Salary is the average annual salary associated in 2016 to each SOC code in the six sectors listed in Table 2. Male equals 1 if the professional is male and 0 otherwise. Ranked Top 15 equals 1 if the institution where the professional received his/her highest degree ranks among the top 15 universities according to QS. Graduate Degree equals 1 if the professional holds a graduate degree and 0 otherwise. Experience is the number of years of work experience of the professional at the time of hiring. Log(AUM) is the logarithm of the average assets under management of the hiring fund. Robust standard errors are shown in parentheses below the respective coefficients: \* denotes  $p < 0.10$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

Dependent variable: Salary Change upon Hiring				
	(1)	(2)	(3)	(4)
Constant	160,852.071*** (7,067.062)	45,028.594*** (7,965.920)	179,243.890*** (15,699.935)	179,846.734*** (16,840.921)
Past Performance	1,049.557 (1,091.055)	1,262.003 (1,110.718)	1,341.233 (1,202.098)	1,443.762 (1,249.709)
Past Benchmark	5,106.214* (3072.146)	5,514.968* (3063.700)	-1,852.990 (4,540.262)	-4,225.800 (4,728.522)
Previous Salary	-0.759*** (0.035)	-0.819*** (0.038)	-0.803*** (0.039)	-0.788*** (0.042)
Male		7,478.788 (5,055.870)	5,150.841 (5,237.678)	4,098.576 (5,802.585)
Ranked Top 15		7,721.168 (5,586.324)	7,375.881 (5,852.286)	8,683.402 (6,065.162)
Graduate Degree		2,597.448 (4,112.841)	3,216.110 (4,281.806)	5,554.141 (4,586.801)
Experience		1,526.083*** (344.069)	1635.869*** (356.964)	1,511.323*** (377.870)
Log(AUM)				1,628.142 (1,277.730)
Year Effects	No 543	No 527	Yes 527	Yes 474

**Table 6: Persistence of Hedge Fund Performance**

The table shows the estimated relationship between current and past average monthly relative performance. The dependent variable is the average monthly performance over a 3-year window that starts with the hiring year. The relative performance of funds that do not hire professionals in our sample is computed over the same years as that of hiring funds, so as to match the two samples as closely as possible in time. Past Performance is the average difference between fund  $j$ 's percentage return and the average return of its benchmark in the 3 years before hiring. Hiring equals 1 for funds that hire professionals in our sample and 0 otherwise. Log(AUM) is the logarithm of assets under management. Class Effects are indicators for the class to which hedge funds belong (Relative value, Security selection, Multi-process, Directional traders, Fund of funds, Other). Robust standard errors are shown in parentheses below the respective coefficients: \* denotes  $p < 0.10$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

Dependent variable: Hedge Fund Performance				
	(1)	(2)	(3)	(4)
Past Performance	0.066*** (0.008)	0.068*** (0.008)	0.069*** (0.008)	0.069*** (0.008)
Past Performance $\times$ Hiring	0.083** (0.038)	0.085** (0.038)	0.082** (0.038)	0.084** (0.038)
Log(AUM)	0.056*** (0.005)	0.058*** (0.005)	0.057*** (0.005)	0.058*** (0.005)
Year Effects	No	No	Yes	Yes
Class Effects	No	Yes	No	Yes
N. observations	9,614	9,535	9,614	9,535
N. hiring funds	711	705	711	705



**Table 7: Career Effect of Liquidations**

The table reports the estimated  $\theta$  coefficients in equation (3). Liquidation equals 1 in the liquidation year, and 0 otherwise. Liquidation- $t$  and liquidation+ $t$  respectively equal 1  $t$  years before and after liquidation, and 0 otherwise. The equation is estimated using data for the 5 years before and after liquidation for the professionals who experience it. The job level ranges from 1 (bottom) to 6 (top). Salary is the average annual salary associated in 2016 to each SOC code in the six sectors in Table 2. Switch company is an indicator for whether in year  $t$  an individual works for a different company from year  $t - 1$ . Dependent variables are expressed in changes relative to the previous year. Mean at  $t = -1$  is the mean of the dependent variable in year before the liquidation. The standard errors shown in parentheses are clustered at individual level: \* denotes  $p < 0.10$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

	Job Level Change (1)	Salary Change (2)	Company Switch (3)	Job Level change (4)	Salary Change (5)	Company Switch (6)
Constant	0.06* (0.04)	2,701.40* (1,973.40)	0.13*** (0.02)	0.01 (0.05)	-1,822.71 (2,357.56)	0.04 (0.03)
Liquidation-5	0.04 (0.05)	835.23 (2,237.75)	0.01 (0.02)	0.02 (0.05)	-405.59 (2,168.26)	-0.02 (0.02)
Liquidation-4	0.03 (0.04)	1,434.97 (1,990.70)	-0.01 (0.02)	0.01 (0.05)	381.07 (2,170.10)	-0.03 (0.02)
Liquidation-3	0.02 (0.04)	1,336.97 (1,969.54)	-0.03 (0.02)	0.00 (0.04)	617.48 (2,086.33)	-0.05* (0.02)
Liquidation-2	0.02 (0.04)	1,727.34 (1,778.33)	-0.02 (0.02)	0.01 (0.04)	1,502.88 (1,891.73)	-0.03 (0.02)
Liquidation	-0.03 (0.04)	-2,350.84 (1,791.40)	-0.02 (0.02)	-0.03 (0.04)	-2,161.90 (1,924.13)	-0.02 (0.02)
Liquidation+1	-0.12** (0.05)	-5,426.90** (2,176.42)	0.08*** (0.03)	-0.12** (0.05)	-5,012.36** (2,341.59)	0.09*** (0.03)
Liquidation+2	-0.07 (0.04)	-3,554.20* (1,942.44)	0.04 (0.02)	-0.06 (0.05)	-2,749.48 (2,149.18)	0.05* (0.02)
Liquidation+3	-0.03 (0.04)	-1,484.59 (1,757.54)	0.00 (0.02)	-0.01 (0.05)	-102.67 (2,005.56)	0.02 (0.02)
Liquidation+4	-0.05 (0.04)	-3,882.03** (1,936.22)	0.01 (0.02)	-0.03 (0.05)	-2,195.20 (2,319.98)	0.03 (0.03)

(continues)

**Table 7: Career Effect of Liquidations** (continued)

	Job Level	Salary	Company	Job Level	Salary	Company
	Change	Change	Switch	Change	Change	Switch
	(1)	(2)	(3)	(4)	(5)	(6)
Liquidation+5	-0.06 (0.04)	-2,737.57 (1,973.40)	-0.03 (0.02)	-0.04 (0.05)	-738.89 (2,357.56)	0.01 (0.03)
Year effects	No	No	No	Yes	Yes	Yes
Person effects	No	No	No	Yes	Yes	Yes
Mean at $t = -1$	0.06	2701.4	0.13	0.06	2,701.4	0.13
N. individuals	429	428	429	429	428	429
N. observations	4,353	4,333	4,353	4,353	4,333	4,353

**Table 8: Career Effect of Liquidations, by Initial Job Level**

The table reports estimates for the career effect of liquidations separately for employees with job level 5 or 6 and those with job level 3 or 4 three years before liquidation. Liquidation equals 1 in the liquidation year, and 0 otherwise. Liquidation- $t$  and liquidation+ $t$  respectively equal 1  $t$  years before and after liquidation, and 0 otherwise. The equation is estimated using data for two years before and five years after the liquidation date for the professionals who experience it. The job level ranges from 1 (bottom) to 6 (top). Salary is the average annual salary associated in 2016 to each SOC code in the six sectors in Table 2. Switch company is an indicator for whether in year  $t$  an individual works for a different company from year  $t - 1$ . Dependent variables are expressed in changes relative to the previous year. Mean at  $t = -1$  is the mean of the dependent variable in year before the liquidation. The standard errors shown in parentheses are clustered at individual level: \* denotes  $p < 0.10$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

	Initial job level: 5 or 6			Initial job level: 3 or 4		
	Job Level Change (1)	Salary Change (2)	Company Switch (3)	Job Level Change (4)	Salary Change (5)	Company Switch (6)
Constant	-0.06* (0.03)	-2,259.38* (1,159.25)	0.04*** (0.01)	0.13*** (0.05)	6289.69*** (2707.66)	0.22*** (0.03)
Liquidation-2	0.05 (0.03)	2,446.30** (1,152.55)	0.02 (0.02)	-0.00 (0.07)	1107.96 (3636.41)	-0.07* (0.04)
Liquidation	0.03 (0.04)	1,228.22 (1,390.73)	0.03 (0.02)	-0.06 (0.07)	-4323.63 (3740.48)	-0.06 (0.05)
Liquidation+1	-0.15** (0.07)	-5918.12** (2,991.62)	0.18*** (0.03)	-0.04 (0.08)	-4146.21 (3640.98)	0.01 (0.05)
Liquidation+2	-0.07 (0.05)	-2,821.36 (2,308.82)	0.12*** (0.03)	-0.05 (0.07)	-2880.51 (3578.75)	-0.04 (0.04)
Liquidation+3	0.02 (0.05)	1,828.23 (1,894.02)	0.07*** (0.03)	-0.01 (0.07)	-2209.30 (3359.24)	-0.04 (0.04)
Liquidation+4	0.01 (0.05)	-396.04 (2,098.94)	0.04 (0.02)	-0.08 (0.07)	-7150.75** (3517.04)	-0.06 (0.05)
Liquidation+5	-0.02 (0.05)	-637.86 (2,117.61)	0.04 (0.02)	-0.04 (0.08)	-3190.54 (3873.02)	-0.07 (0.05)
Mean at $t = -1$	-0.06	-2,259.38	0.04	0.13	6289.69	0.22
N. individuals	213	212	213	174	174	174
N. observations	1,582	1,569	1,582	1,292	1,288	1,292

**Table 9: Career Effect of Liquidations and Hedge Fund Performance**

The table reports estimates for the career effect of liquidations after poor and normal relative performance, respectively. For each dependent variable the estimates shown in the two corresponding columns (e.g., columns 1 and 2) are estimated using a single regression model. Low Performance identifies funds whose monthly return is at least 1% lower than the benchmark return in the three years before liquidation. Columns 1, 3 and 5 show the estimated coefficients of the pre- and post liquidation dummies for such funds. Normal-Low Performance identifies funds whose monthly return is no less than 1% below the benchmark return in the three years before liquidation: columns 2, 4 and 6 show the estimated coefficients of the interaction between Normal Performance indicator  $P_{t-\tau}^j$  and the pre- and post liquidation dummies. Liquidation equals 1 in the year of liquidation and 0 otherwise. Liquidation- $t$  and liquidation+ $t$  respectively equal 1  $t$  years before and after liquidation, and 0 otherwise. The equation is estimated using data for 5 years before and 5 years after the liquidation date for the professionals who experience it. The job level ranges from 1 (bottom) to 6 (top). Salary is the average annual salary associated in 2016 to each SOC code in the six sectors in Table 2. Switch company is an indicator for whether in year  $t$  an individual works for a different company from year  $t - 1$ . Dependent variables are expressed in changes relative to the previous year. Mean at  $t = -1$  is the mean of the dependent variable in year before the liquidation. The standard errors shown in parentheses are clustered at individual level: \* denotes  $p < 0.10$ , \*\*  $p < 0.05$ , and \*\*\*  $p < 0.01$ .

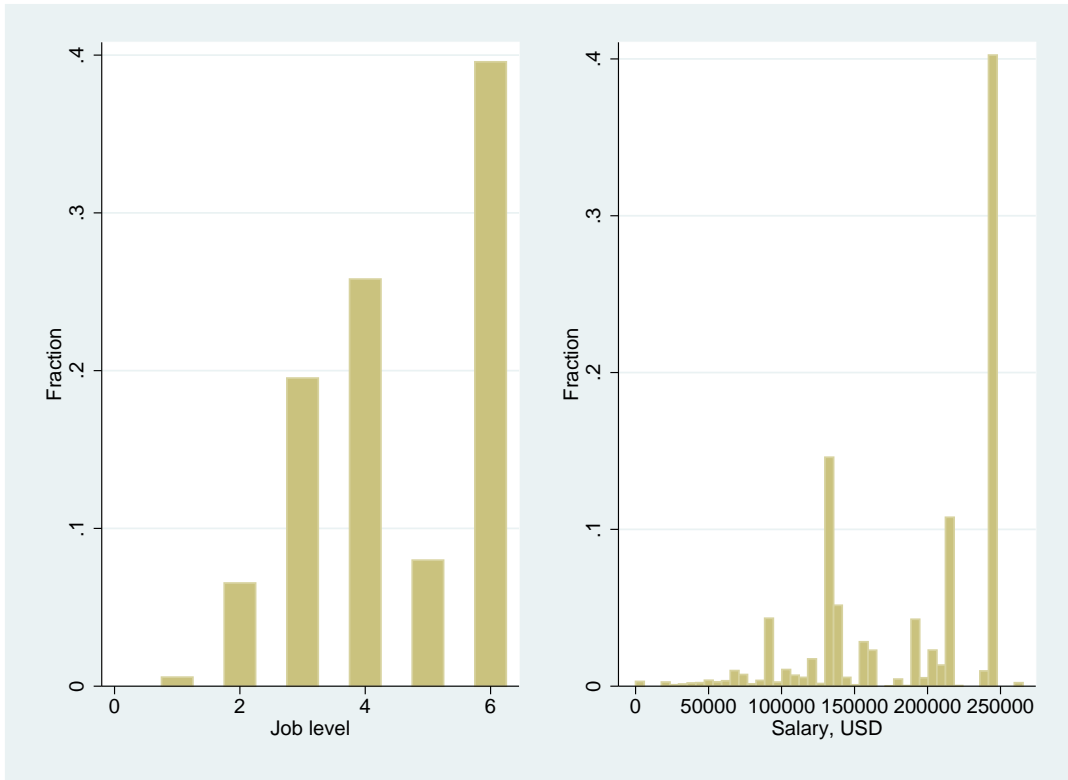
	Job Level Change		Salary Change		Company Switch	
	(1)	(2)	(3)	(4)	(5)	(6)
Hedge fund performance	Low	Normal-Low	Low	Normal-Low	Low	Normal-Low
Liquidation-5	0.03 (0.06)	0.02 (0.09)	-1,405.54 (2,615.58)	3283.97 (4015.98)	0.05 (0.03)	-0.05 (0.05)
Liquidation-4	0.01 (0.06)	0.02 (0.08)	-1,035.66 (2,609.19)	3602.72 (3719.47)	0.03 (0.03)	-0.06 (0.04)
Liquidation-3	0.09 (0.06)	-0.11 (0.08)	1,756.71 (3,524.25)	-620.20 (4250.89)	0.06* (0.04)	-0.14*** (0.05)
Liquidation-2	0.05 (0.05)	-0.05 (0.07)	4,47.91 (2,453.10)	1880.84 (3396.36)	0.01 (0.03)	-0.04 (0.04)
Liquidation	-0.04 (0.03)	0.01 (0.06)	-2,534.88 (1,892.02)	271.13 (3118.69)	-0.04** (0.02)	0.03 (0.04)
Liquidation+1	-0.20*** (0.08)	0.11 (0.10)	-9,437.59*** (3,517.34)	5832.42 (4457.60)	0.18*** (0.04)	-0.14** (0.05)

(continues)

**Table 9: Career effect of liquidations and hedge fund performance**  
(continued)

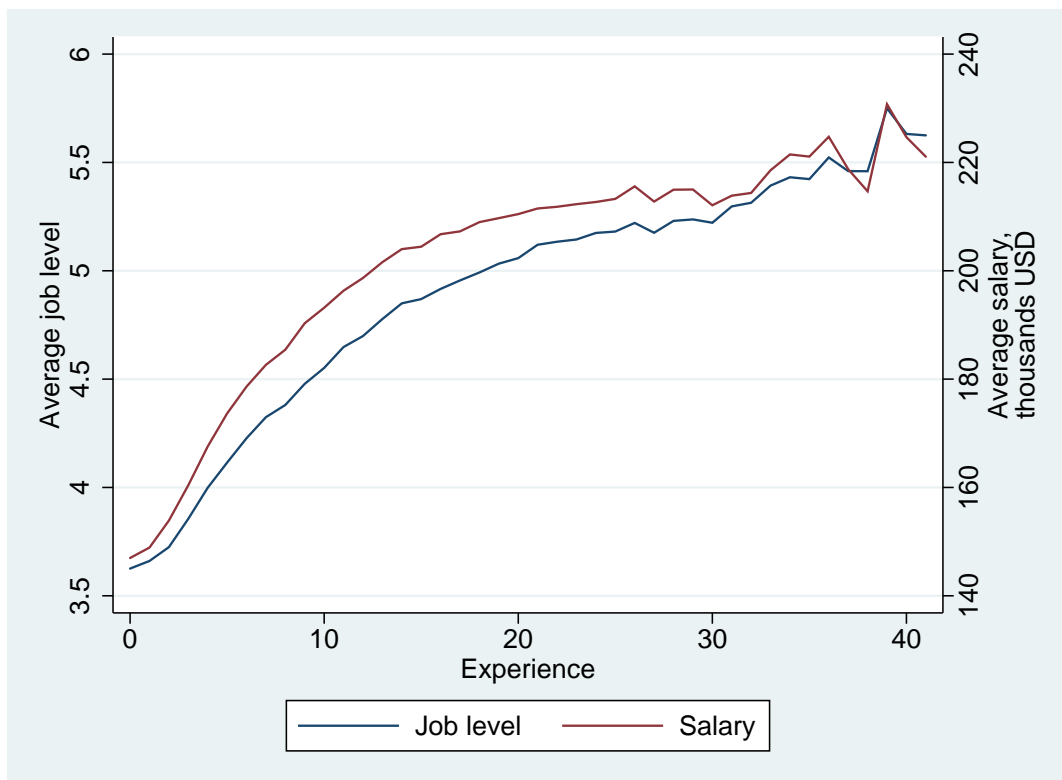
	Job Level Change		Salary Change		Company Switch	
	(1)	(2)	(3)	(4)	(5)	(6)
Hedge fund performance	Low	Normal-Low	Low	Normal-Low	Low	Normal-Low
Liquidation+2	-0.07 (0.07)	-0.00 (0.09)	-5,632.29* (2,893.06)	3009.90 (3828.53)	0.15*** (0.04)	-0.17*** (0.05)
Liquidation+3	-0.02 (0.04)	-0.01 (0.07)	-2,272.67 (2,298.95)	1144.00 (3280.46)	0.06* (0.03)	-0.08* (0.04)
Liquidation+4	-0.05 (0.07)	-0.01 (0.09)	-5,678.09 (3,565.50)	2,608.42 (4,252.97)	0.09** (0.04)	-0.12** (0.05)
Liquidation+5	-0.02 (0.04)	-0.06 (0.07)	-3,123.42 (2,347.41)	561.17 (3,534.87)	-0.01 (0.03)	-0.03 (0.04)
Normal performance		0.04 (0.05)		-425.81 (2,599.26)		0.11*** (0.03)
Constant		0.03		2,990.99		0.05
		0.03		1,830.69		0.02
Mean at $t = -1$		0.06		2,701.4		0.13
N. individuals		429		428		429
N. observations		4,353		4,333		4,353

Figure 1: Distribution of job levels and salaries



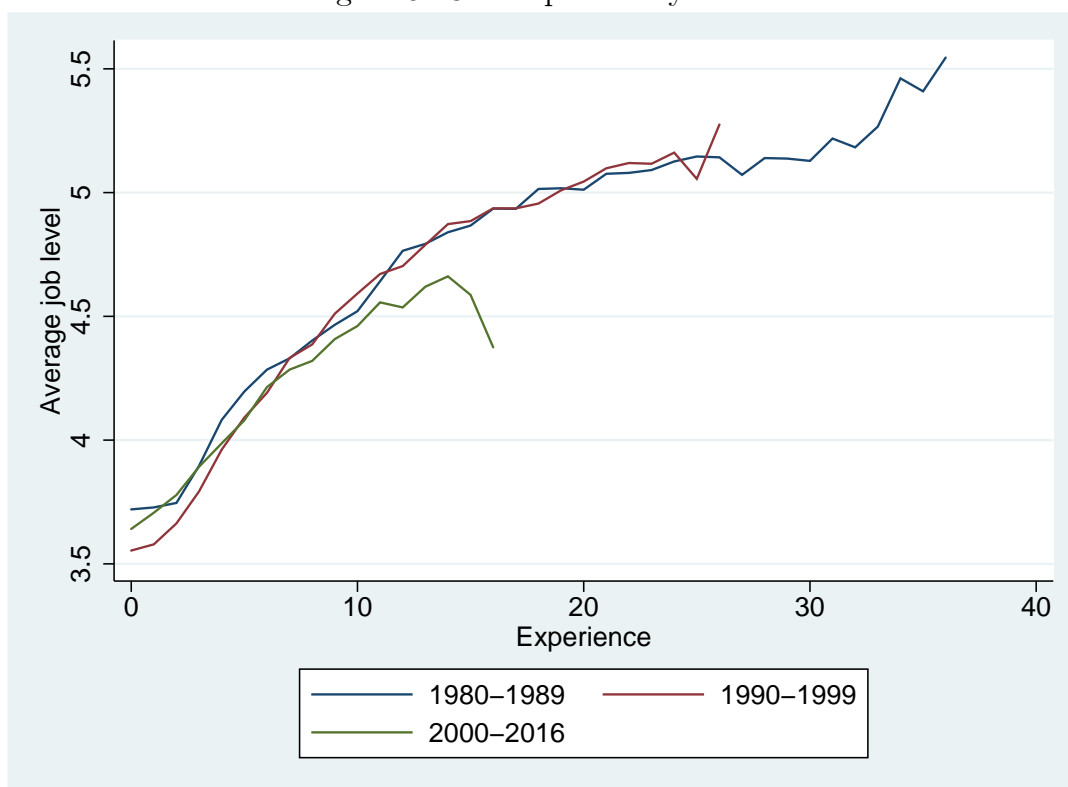
Note. The figure shows the distribution of job levels (left panel) and salaries (right panel). We first match the job titles reported by professionals in their curricula with the Standard Occupational Classification (SOC) produced by the Bureau of Labor Statistics (BLS). Then, in order to create a measure of the position of an employee in the job ladder, we group the SOC codes into the 6 following bins, meant to capture different degrees of decision-making power: Craft Workers, Operatives, Labors and Helpers, and Service Workers (coded as 1); Technicians, Sales Workers, and Administrative Support Workers (coded as 2); Professionals (coded as 3); First/Mid Officers and Managers (coded as 4); Top Executives (coded as 5, except for those coded as 6); CEOs, or other positions at the head of the corporate hierarchy (coded as 6). We use the Occupational Employment Statistics (OES) to identify the average annual salary associated in 2016 to each SOC code in 6 sectors: (i) asset management (AM), (ii) commercial banking and other lending institutions (CB); (iii) financial conglomerates, defined as institutions encompassing lending, insurance and/or asset management (CO); (iv) insurance (IN); (v) other finance, which includes mainly financial consultancies and portfolio advisors (OF); and non-financial firms and institutions, including government, supranational institutions and stock exchanges (NF).

Figure 2: Average career and salary profile



Note. The figure illustrates career paths by plotting the average job level and average salary against work experience. In order to build the variables we first match the job titles reported by professionals in their curricula with the Standard Occupational Classification (SOC) produced by the Bureau of Labor Statistics (BLS). Then, in order to create a measure of the position of an employee in the job ladder, we group the SOC codes into the 6 following bins, meant to capture different degrees of decision-making power: Craft Workers, Operatives, Labors and Helpers, and Service Workers (coded as 1); Technicians, Sales Workers, and Administrative Support Workers (coded as 2); Professionals (coded as 3); First/Mid Officers and Managers (coded as 4); Top Executives (coded as 5, except for those coded as 6); CEOs, or other positions at the head of the corporate hierarchy (coded as 6). We use the Occupational Employment Statistics (OES) to identify the average annual salary associated in 2016 to each SOC code in 6 sectors: (i) asset management (AM), (ii) commercial banking and other lending institutions (CB); (iii) financial conglomerates, defined as institutions encompassing lending, insurance and/or asset management (CO); (iv) insurance (IN); (v) other finance, which includes mainly financial consultancies and portfolio advisors (OF); and non-financial firms and institutions, including government, supranational institutions and stock exchanges (NF).

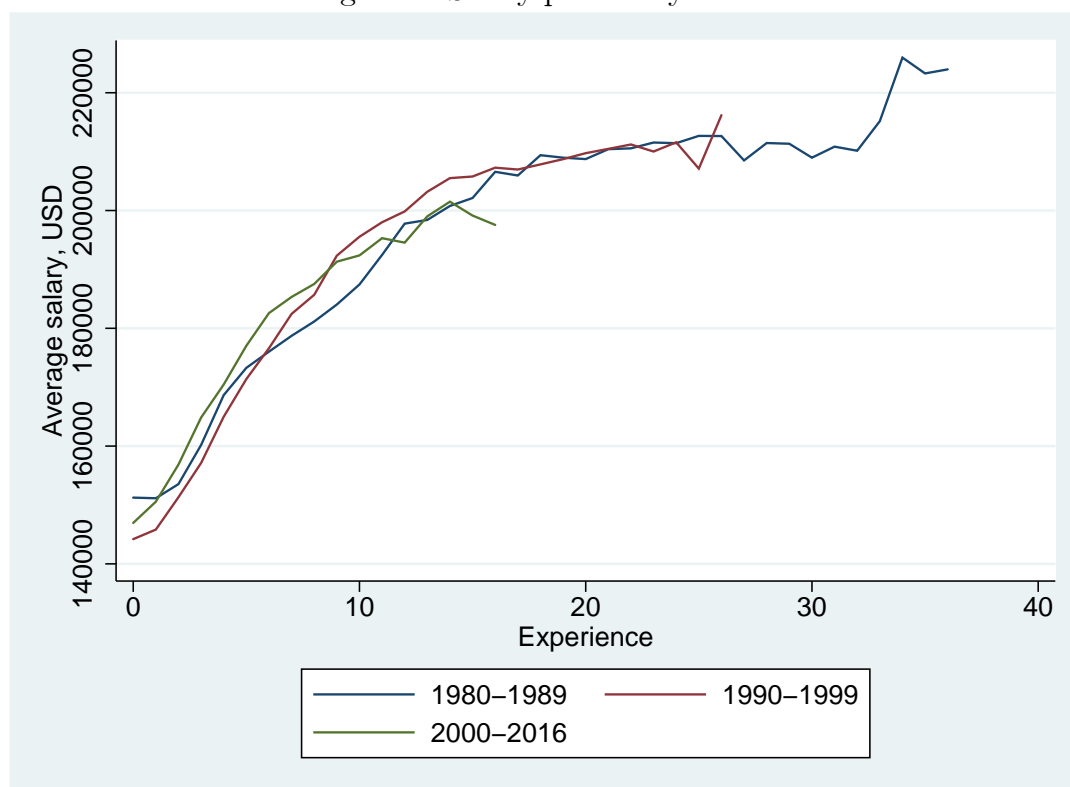
Figure 3: Career profiles by cohort



Note. The figure illustrates average job level against work experience by cohort. In order to build the job level variable we first match the job titles reported by professionals in their curricula with the Standard Occupational Classification (SOC) produced by the Bureau of Labor Statistics (BLS). Then we group the SOC codes into the 6 following bins, meant to capture different degrees of decision-making power: Craft Workers, Operatives, Labors and Helpers, and Service Workers (coded as 1); Technicians, Sales Workers, and Administrative Support Workers (coded as 2); Professionals (coded as 3); First/Mid Officers and Managers (coded as 4); Top Executives (coded as 5, except for those coded as 6); CEOs, or other positions at the head of the corporate hierarchy (coded as 6).

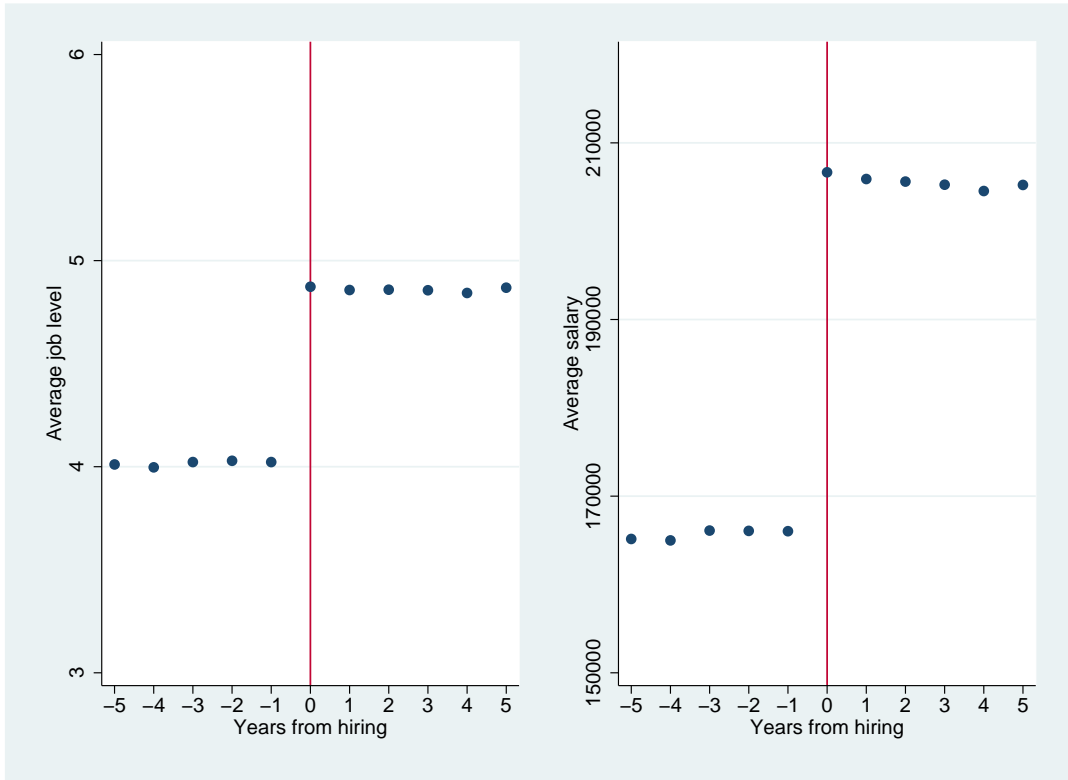


Figure 4: Salary profiles by cohort



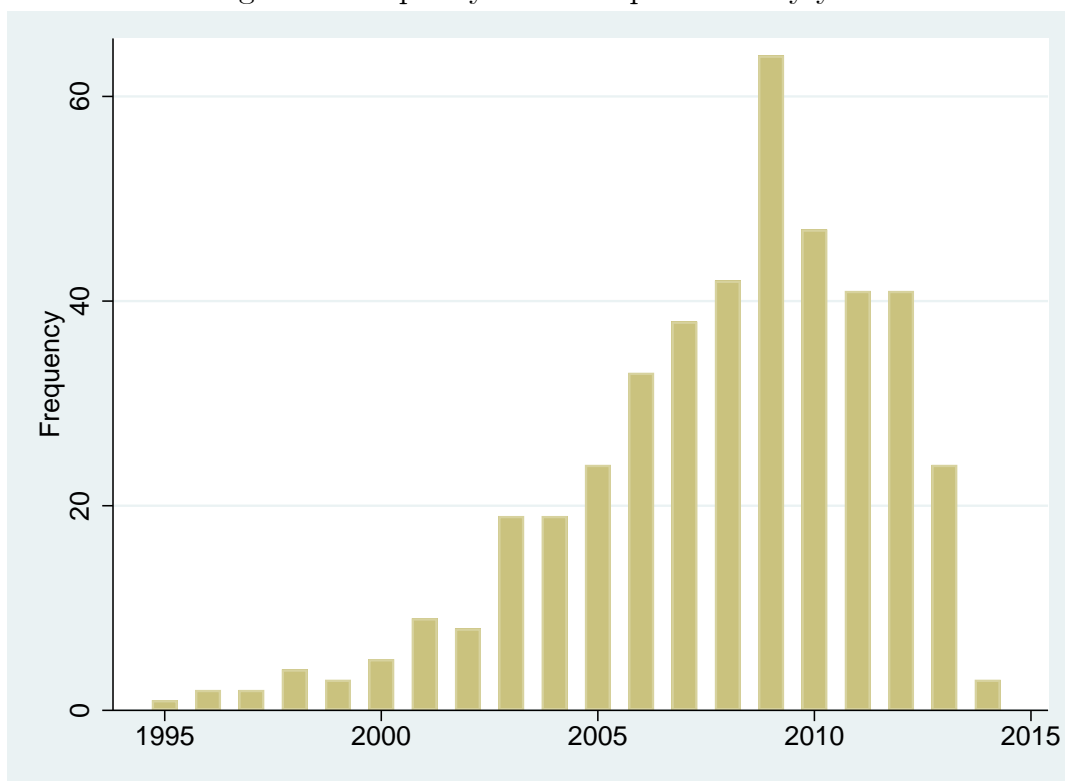
Note. The figure illustrates average salary against work experience by cohort. In order to build the salary measure we first match the job titles reported by professionals in their curricula with the Standard Occupational Classification (SOC) produced by the Bureau of Labor Statistics (BLS). Then we use the Occupational Employment Statistics (OES) to identify the average annual salary associated in 2016 to each SOC code in 6 sectors: (i) asset management (AM), (ii) commercial banking and other lending institutions (CB); (iii) financial conglomerates, defined as institutions encompassing lending, insurance and/or asset management (CO); (iv) insurance (IN); (v) other finance, which includes mainly financial consultancies and portfolio advisors (OF); and non-financial firms and institutions, including government, supranational institutions and stock exchanges (NF).

Figure 5: Hiring by a hedge fund



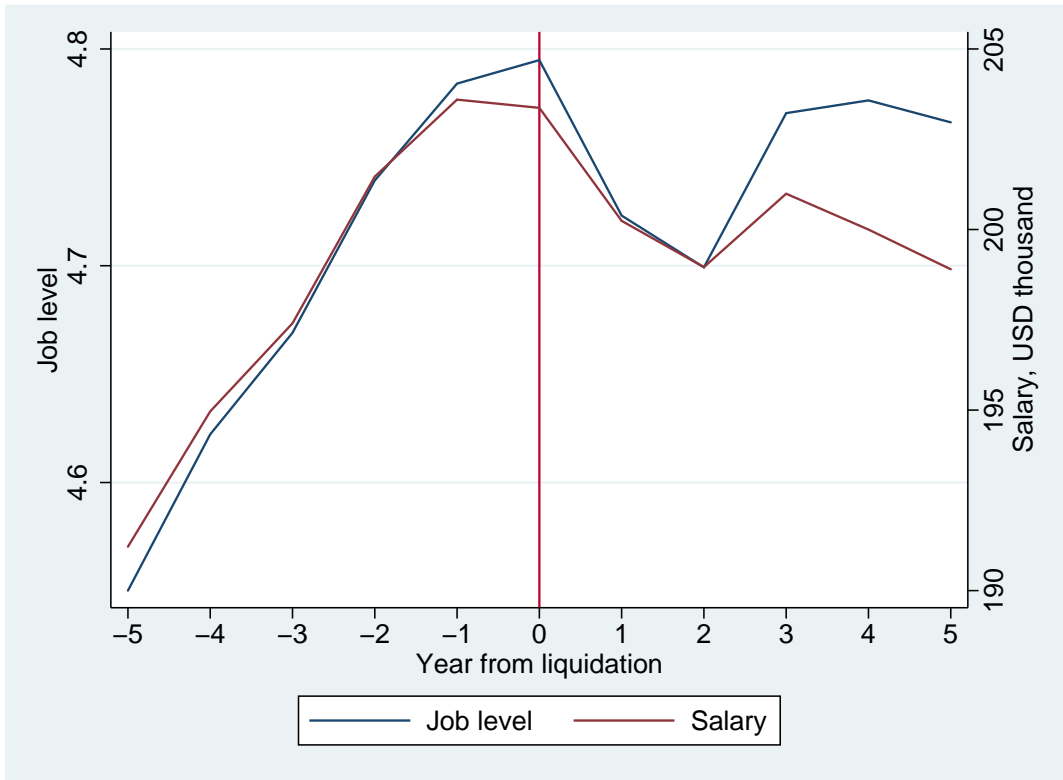
Note. The figure shows average job level (left panel) and average salary (right panel) in the five years before a professional is hired by a hedge fund and in the following five years. The job level is meant to capture different degrees of decision making-power and takes values from one (bottom of the hierarchy) to six (CEO). Salary is the average annual salary associated in 2016 to each SOC code in six sectors: (i) asset management; (ii) commercial banking and other lending institutions; (iii) financial conglomerates; (iv) insurance; (v) other financial companies; and (vi) non-finance companies.

Figure 6: Frequency of fund liquidations by year



Note. The figure plots the histogram of the years in which liquidations occur.

Figure 7: Career path and liquidation



Note. The figure shows average job level (left axis) and average salary (right axis) in the five years before a professional experiences a hedge fund liquidation and in the following five years. The job level is meant to capture different degrees of decision making-power and takes values from one (bottom of the hierarchy) to six (CEO). Salary is the average annual salary associated in 2016 to each SOC code in six sectors: i) asset management; ii) commercial banking and other lending institutions; iii) financial conglomerates; iv) insurance; v) other financial companies; and vi) non-finance companies.