Spring 4-8-2016

Outside Ownership in the Hedge Fund Industry

Kevin Mullally

doi: https://doi.org/10.57709/8457782

Outside Ownership in the Hedge Fund Industry

BY

Kevin Andrew Mullally

A Dissertation Submitted in Partial Fulfillment of the Requirements for the Degree

Of

Doctor of Philosophy

In the Robinson College of Business

Of

Georgia State University

GEORGIA STATE UNIVERSITY
ROBINSON COLLEGE OF BUSINESS
2016

ACCEPTANCE

This dissertation was prepared under the direction of the Kevin Mullally Dissertation Committee. It has been approved and accepted by all members of that committee, and it has been accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Business Administration in the J. Mack Robinson College of Business of Georgia State University.

Richard Phillips, Dean

DISSERTATION COMMITTEE

Dr. Vikas Agarwal
Dr. Conrad Ciccotello
Dr. Gerald Gay
Dr. Harley Ryan

ACKNOWLEDGEMENT

This dissertation and PhD would not have been completed without the help of many people. I am grateful to the finance faculty at Georgia State University for their attention, help, and guidance throughout the process. Specifically, thank you to my dissertation committee of Vikas Agarwal, Conrad Ciccotello, Gerry Gay, and Chip Ryan. I especially thank Chip Ryan for taking a shot by admitting me to this program six years ago. I thank Vikas Agarwal for being the best advisor, mentor, and friend anyone could ask for. I thank my fellow PhD students for their friendship and being there throughout the process.

I thank my parents for their constant encouragement and support throughout this journey. This dissertation is dedicated to my wife, Ashley, and my daughter, Chandler, who are the inspiration for me to do what I do.

Most importantly, I thank the Lord Jesus Christ for the talent, will, and perseverance to finish this dissertation and the PhD program in general.

ABSTRACT

Outside Ownership in the Hedge Fund Industry

BY

Kevin Andrew Mullally

APRIL 2, 2016

Committee Chair: Dr. Vikas Agarwal

Major Academic Unit: Finance

I examine the impact of hedge fund managers selling ownership stakes in their firms to outside owners. Funds with outside owners do not subsequently outperform a matched sample of funds but do attract higher flows, suggesting that managers sell stakes to obtain strategic growth partners. The flow impact is greater for i) funds with lower prior flows or performance, ii) smaller funds, and iii) funds with more reputable outside owners. Outsiders also monitor their investments as funds with outside owners reduce their returns management. The reduction in return management is stronger after the 2008 financial crisis when institutions' reputations are more tarnished. Combined, the results indicate that outside ownership benefits managers, outsiders, and fund investors.

Outside Ownership in the Hedge Fund Industry

Kevin A. Mullally*

February 2016

ABSTRACT

I examine the impact of hedge fund managers selling ownership stakes in their firms to outside owners. Funds with outside owners do not subsequently outperform a matched sample of funds but do attract higher flows, suggesting that managers sell stakes to obtain strategic growth partners. The flow impact is greater for i) funds with lower prior flows or performance, ii) smaller funds, and iii) funds with more reputable outside owners. Outsiders also monitor their investments as funds with outside owners reduce their returns management. The reduction in return management is stronger after the 2008 financial crisis when institutions' reputations are more tarnished. Combined, the results indicate that outside ownership benefits managers, outsiders, and fund investors.

JEL Classification: G23, D83, L25

Keywords: Hedge funds; ownership; growth; monitoring

* Kevin Mullally is with the J. Mack Robinson College of Business, Georgia State University, 35 Broad Street, Suite 1229, Atlanta, GA 30303. Tel: 404 413 7318. Email: kmullally1@gsu.edu. I am indebted to my advisor, Vikas Agarwal, for his time and guidance on this project. I am also grateful for the comments and suggestions from my dissertation committee members, Conrad Ciccotello, Gerry Gay, and Chip Ryan. This paper has also benefitted from comments from seminar participants at Georgia State University, the Federal Reserve Bank of Richmond, North Carolina State University, the University of Alabama, Florida International University, Auburn University, the University of Nebraska, Pepperdine University, Lehigh University, and Temple University. I also thank Elizabeth Case, Daniel Greene, Pab Jotikasthira, Linlin Ma, Ron Masulis, Honglin Ren, Yuehua Tang, Neng Wang, and Haibei Zhao for their feedback on this paper.

Introduction

The majority of hedge fund firms are private companies. The firms' founders are the firm's general partners or its managing members, depending on whether the firm is structured as a partnership or a limited liability corporation (LLC). These founders initially own claims to 100% of the firms' equity, which equals the management and incentive fee revenues the funds generate minus the costs and expenses they incur. However, managers often sell part of their equity in exchange for early stage capital or to monetize their human capital. In fact, 15% of the hedge fund firms in my sample sell an equity claim to an outside owner.[1] The outsiders purchasing these claims are often large, well-known financial institutions such as Blackstone, Goldman Sachs, and J.P. Morgan. The prevalence of these sales and the outsiders' identities suggest that these arrangements may occur for strategic reasons. In this paper, I study the determinants and effects of outside ownership in hedge fund firms.

I develop and test three hypotheses regarding outside ownership in hedge fund firms: 1) timing and talent-picking, 2) growth, and 3) monitoring. The first hypothesis – *timing and talent-picking* – predicts that either the inside or outside owner has the ability to predict a future change in performance. More specifically, this hypothesis proposes that inside owners sell stakes as a way of exiting before their funds' performance declines. Alternatively, outside owners may have talent-picking ability and purchase stakes because they can identify hedge fund firms whose performance will subsequently improve. Prior literature provides evidence that certain parties have the ability to forecast future fund performance (Ding et al. (2009), Ozik and Sadka (2015), Jorion and Schwarz (2015)).

[1] Throughout the paper I will refer to a hedge fund firm's managers and founders as "inside owners" and the non-founders purchasing these stakes as "outside owners." Figure 1 contains a picture of a sample deal and the change in the firm's cash flow rights.

The second hypothesis – *growth* – proposes that inside owners sell stakes to obtain a strategic partner who can help increase firm size. Press releases announcing purchases of equity stakes in hedge fund firms often cite the desire for growth as a reason for these arrangements.[2] Both inside and outside owners have incentive to increase the size of the business since the value of their claims increases with firm size.[3] There are multiple ways an outside owner can help the insider grow his firm. First, outside owners may provide the capital, infrastructure, or expertise necessary to open new funds or expand to new strategies. Second, the outsider's decision to purchase a stake in a given inside owner may certify the insider's quality and thus help him attract higher flows to his fund(s). Because hedge funds are lightly regulated and not required to publicly report their performance, potential investors must conduct extensive due diligence to mitigate the high level of operational risk associated with investing in hedge funds. The fact that an outsider is willing to purchase a stake in a given insider signals to potential investors that the insider has triggered no major red flags during this process.[4] Finally, the outsider may also market and distribute the insider's funds to his own clients.[5]

My third hypothesis – *monitoring* – predicts that outside owners monitor the insider's actions once they purchase their ownership stake. News articles and press releases often note that managers sell stakes to obtain the outsider's assistance with regulatory compliance and back

[2] For example, see the following article announcing Context Capital's purchase of a stake in Betzwood Partners: http://www.finalternatives.com/node/17031. The following is a quote from Karen Batchelder, a director at Context: "We develop investment ideas and seed them and then go out and raise third-party capital."

[3] Recent studies by Liang and Schwarz (2011), Yin (2013), and Fung et al (2015) find that managers take action to increase assets under management even if doing so adversely impacts performance.

[4] See studies by Brown et al (2008, 2009, 2012) on operational risk. Conversations with practitioners confirm that extensive due diligence is conducted before outsiders decide to purchase a stake.

[5] The following is a quote from the press release announcing Credit Suisse's decision to purchase a stake in York Capital: "Credit Suisse expects to enter into non-exclusive arrangements to provide distribution services for York funds."

office support which suggests that outsiders will have the ability to observe the insider's actions.[6] Further, because their reputations now partially depend on the insiders' behavior, outsiders also have incentive to monitor operational risk. Specific examples of operational risk include return management and outright fraud (Agarwal, Daniel, and Naik (2011); Bollen and Pool (2012); Dimmock and Gerken (2012, 2015)).

I test these hypotheses using data from two main sources. The first source is Form ADV, a required Securities and Exchange Commission (SEC) filing for registered investment advisors with at least $150 million in assets under management. Investment advisors are required to report in Form ADV the identities of all officers and other parties who own at least 5% of the company. Most importantly for my study, companies are required to disclose the date on which each party first acquired its ownership claim. The information provided in Schedule A allows me to precisely identify when changes in firm ownership structure occurred and examine their determinants and consequences. The second data source is a union of four commercially available hedge fund databases: Lipper TASS, Hedge Fund Research (HFR), EurekaHedge, and Morningstar.

I begin my analysis by modeling the determinants of an outside owner purchasing an equity stake in a hedge fund. To do so, I estimate multinomial logistic models which allow the determinants of partial and full stake sales to differ. Outsiders are more likely to purchase a partial stake in a fund if it has high past performance but lower past flows. I interpret these findings as consistent with the *growth* hypothesis. If the insider was performing well and attracting flows, he would have seemingly little incentive to reduce his own equity stake. If a

[6] For example, see "Big Investors Buying Stakes for Hedge-Fund Fees," Eric Uhlfelder (Barron's), November 22, 2014. http://www.barrons.com/articles/big-investors-buying-stakes-for-hedge-fund-fees-1416632633.

fund was performing poorly and also not receiving flows, that fund would likely not be an attractive investment for prospective outside owners.

The results from the determinants regressions indicate that these transactions are not random events. For this reason, simply comparing the group of funds with an outside owner to the entire group of funds with outside owners is not an appropriate identification strategy. To control for this selection effect, I use one-to-one, nearest neighbor propensity score matching to construct a sample of control funds (or firms) that have not sold a stake to an outside owner but have similar observable characteristics to those funds that have sold a stake at a given date. The remainder of my analysis compares the group of funds with an outside owner to this matched control group.

I conduct a series of tests of the *timing and talent-picking* hypothesis by examining fund performance after an outside owner purchases his stake. I compare the performance of the funds selling a partial stake to an outside owner to the performance of the control group of funds. Overall, the performance of these two groups is not statistically different in the two-year period after the stake is sold. This result provides preliminary evidence against the *timing and talent-picking* hypothesis.

Next, I compare the relative performance of several subsamples in an attempt to provide support for the *timing and talent-picking* hypothesis. First, if an insider is selling a stake because he anticipates poor performance, one would expect his fund's future performance to be negatively related to the size of the stake sold. However, I find no evidence that funds whose inside owners sell full stakes subsequently underperform their counterparts. Moreover, there is no statistically significant difference in the subsequent performance of the funds selling partial and full stakes. Second, I compare the performance of various subsets of funds and outside

owners more or less likely to have timing ability. I argue that older funds and outsiders with more experience purchasing stakes in hedge funds are more likely to have timing and talent-picking ability, respectively. I find no evidence to support this claim. Older funds selling stakes do not exhibit significantly larger underperformance than do younger funds selling stakes. Outsiders with more experience purchasing hedge fund stakes are not able to pick funds that subsequently outperform. As a final test of the *timing and talent-picking* hypothesis, I examine whether outsiders with experience managing alternative investments (e.g., private equity firms or hedge fund firms) choose funds with better future performance. My results indicate that this subset of investors does possess this ability; funds purchased by outside owners with experience managing alternative investments have statistically higher levels for three out of four performance measures. Overall, my results provide only limited support for the *timing and talent-picking* hypothesis.

I begin testing the *growth* hypothesis by examining insiders' propensity to expand. My results indicate that hedge fund firms with an outside owner are i) more likely to open a new fund, ii) more likely to expand into a new strategy, and iii) open more new funds and more new strategies in the two-year period after they sell a stake. Next, I see if funds with outside owners attract higher flows. My results indicate that funds selling partial stakes experience approximately 6.90 – 11.22% higher annual flows compared to their matched counterparts. Considering that the mean fund in my sample receives annual flows of 8.40%, this effect is highly economically significant. Most importantly, the increase in flows is incremental to the effects of past and contemporaneous performance and prior fund flows.

If managers sell equity stakes to obtain help growing their funds, I expect that the impact on flows should be greater for funds most in need of help attracting capital. Indeed, funds with

lower prior flows and lower assets under management experience statistically larger increases in subsequent flows than do funds with higher past flows, higher past performance, and more assets under management funds. I also expect that more reputable outside owners and those with asset management divisions (e.g., distribution services in place) will have a greater impact on fund flows. Indeed, funds selling stakes to outside owners with more experience buying stakes in hedge funds receive significantly higher flows than those funds selling to less experienced outsiders. Moreover, funds that sell to outsiders with asset management divisions also receive higher flows as compared to those selling to outsiders without asset management divisions. Taken together, the results on expansion and fund flows provide strong evidence in favor of the *growth* hypothesis.

My last set of tests examines the *monitoring* hypothesis. First, I find that funds with outside owners engage in less return management than does the matched sample of funds without outside owners. It is important to note that these differences only arise in the periods after the outside owners purchase their stakes. If the outside owners are concerned with protecting their own reputations, I expect the reduction in return management to be particularly large when outsiders' reputations are more fragile and when outsiders are more reputable. Indeed, I find that i) the reduction in return management is larger for deals completed after the 2008 financial crisis and ii) for funds associated with more reputable outsiders. Funds with outside owners are also significantly less likely to be charged with fraud by the SEC. The reduction in agency problems provides a potential explanation for why investors allocate more capital to funds with outside owners even though these funds do not outperform their peers.

Taken together, my results provide the most support for the *growth* and *monitoring* hypotheses. The results indicate that these arrangements benefit all parties involved. The increase

in fund flows increases the value of the hedge fund firms' equity which is beneficial to both the inside and outside owners. Fund investors also benefit as they experience a reduction in operational risk.

This study makes several contributions to the extant literature. To my knowledge, my paper is the first to examine changes in hedge fund firms' ownership structures and how these changes impact their performance, flows, and operational risk.[7] As mentioned earlier, 15% of the hedge fund firms in my sample have sold a stake to an outside owner, meaning that this practice is relatively common. Further, a Deloitte industry outlook report suggests that the frequency of these sales will continue to increase as hedge fund managers (e.g., inside owners) look for ways to expand or institutionalize their businesses or exit their firms.[8] For these reasons, it is important that academics, investors, and regulators gain a better understanding of a phenomenon that is impacting the hedge fund industry and appears will do so even more moving forward.

Second, my study uncovers a new channel through which hedge fund managers raise capital. Researchers have traditionally focused on the relations between flows and fund performance and contractual characteristics (Ding et al. (2009), Lim, Sensoy, and Weisbach (2015), Baquero and Verbeek (2015)). However, scholars have begun to investigate other ways managers can reduce investors' search costs and attract higher fund flows. Lu et al. (2015) find that mutual fund companies also managing hedge funds are more likely to advertise when hedge fund flows are low. They find that these advertising expenditures lead to an increase in hedge fund flows despite these funds underperforming in the future. Jorion and Schwarz (2015) suggest that hedge funds report to multiple commercial databases as a way of lowering investors' search

[7] Dimmock, Gerken, and Marietta-Westberg (2015) examine how managerial ownership is allocated in investment advisors but do not examine the impact of ownership structure and do not focus on outside ownership.

[8] The report can be downloaded at http://www2.deloitte.com/us/en/pages/financial-services/articles/2015-alternative-investment-outlook.html#.

costs and find that, in some cases, doing so increases the flows they receive. My study adds to this literature by documenting that hedge fund managers can also attract more capital by selling an equity stake to a outsider.

Finally, my paper adds to a nascent literature on the governance of hedge funds. Clifford, Ellis, and Gerken (2015) study hedge fund boards and provide evidence that the presence of outside directors governs and certifies fund managers. Their paper also suggests that directors with many board seats take actions to protect their own reputations. The findings in my paper complement and add to theirs. Specifically, I find that outside owners are associated with a reduction in agency problems and also argue that these effects are driven by the outsider's desire to protect his reputational capital.

The rest of the paper proceeds as follows. Section I describes the data sources. Section II investigates the determinants of outside ownership. Section III studies the impact of outside ownership on fund performance. Section IV explores the growth generated from outside ownership. Section V examines the outside owner's monitoring role and Section VI concludes.

I. Data Sources and Variable Construction

A. Data Sources

The data used in this study primarily comes from two sources. First, I modify the algorithm of Joenväärä, Kosowski, and Tolonen (2014) to consolidate the TASS, Hedge Fund Research (HFR), EurekaHedge, and Morningstar hedge fund databases (henceforth, the "union database") and to classify fund strategies.[9] This procedure yields a database of 31,152 funds and 2,315,984 monthly returns from 1994-2014. Figure 2 contains a Venn diagram of the overlap of

[9] Joenväärä, Kosowski, and Tolonen (2014) aggregate these databases by consolidating funds if their returns are correlated at the 99% level. I also require funds to have assets under management within 10% of each other to be consolidated.

the four databases. Because the phenomenon of outside owners taking stakes in hedge fund managers began in the early 2000s, I focus my attention on the period of 2000-2014. This restriction leaves a sample of 29,838 funds and 2,072,856 monthly returns.

[Insert Figure 2 here]

The second source of data I use is Form ADV filings. Starting from 2011, all U.S. hedge fund advisers with more than $150 million in AUM are required to register with the SEC and to file Form ADV.[10] I use the name of a fund's management company to merge the union database to the database of Form ADV filings available on the Investment Adviser Public Disclosure (IAPD) website.[11] I retain only those funds whose company i) files Form ADV and ii) is classified as a hedge fund company using the criteria of Brunnermeier and Nagel (2004). This requirement reduces my sample of hedge funds to 9,972 funds managed by 2,311 distinct companies. After eliminating funds with missing data, my final sample includes 6,707 funds managed by 1,945 hedge fund companies.

Schedules A and B of Form ADV contain information on investment advisors' ownership structures. Direct owners are disclosed in Schedule A of Form ADV; indirect owners are listed in Schedule B.[12] Companies are required to disclose the ownership stakes of all executives, directors, and any other parties owning at least 5% of the company in Schedule A. The schedules do not provide the exact percentage each party owns but instead provide codes corresponding to ranges of ownership (e.g., 0 – 5%, 5 – 10%, 10 – 25%, 25 – 50%, 50 – 75%, and over 75%). Investment companies are required to provide information regarding each owner's role in the

[10] The level of assets under management funds can have before being required to file Form ADV has changed over time. Papers by Brown et al. (2008), Dimmock, Gerken, and Marietta-Westberg (2015), and Jiang (2015) also use Form ADV and provide more background and historical information about this mandatory filing.
[11] The IAPD website address is: http://www.adviserinfo.sec.gov/IAPD/Content/Search/iapd_Search.aspx.
[12] Schedule A of Form ADV requires firms to list the ownership claims of all directors and executive officers as well as any other parties who own 5% or more of the firm. Schedule B lists those who hold a 25% or greater interest in a party listed in Schedule A. Appendix B provides an example of Form ADV Schedules A and B and details the data collection process.

company and the date on which the owner first acquired his status. For each outside owner, I note the owner's identity, the date he obtained his status, and the size of his stake. I classify all stakes above 75% as full stakes.[13] I am able to identify 315 hedge fund firms disclosing an outside owner.

There is one limitation of using Form ADV. Because a historical archive of Schedules A and B is not currently available, my sample does not include any stakes that were purchased and sold prior to my first download of the ADV filings. To mitigate this concern, I conduct Factiva news searches for each hedge fund and fund company in my sample to see if they have sold a stake. These searches identify an additional 100 companies with an outside owner. The vast majority of these cases are "seed" deals in which a new fund sells a claim to their profit in exchange for initial capital. If a fund company sells multiple equity stakes over time, I retain only the first instance. In total, my sample contains 243 companies and 1,138 funds that have an outside owner.[14] These figures represent 15% and 17% of the total number of fund companies and funds in my sample, respectively.

It is perhaps not surprising that the number of deals completed each year has increased with the size of the hedge fund industry. Figure 3 plots the number of stakes sold along with the estimated number of hedge fund firms in existence each year from 1994-2013. The correlation between the two series is 0.911.

[Insert Figure 3 here]

[13] I verify this assumption by reading news articles for each deal I identify.
[14] I exclude the deals conducted prior to the year 2000. If I include deals prior to 2000, I have 272 deals.

Table 1 contains statistics related to these deals. The majority of these deals (79%) involve outside owners purchasing a partial equity stake.[15] Hedge fund firms are the most frequent stake buyers in my sample (35.30% of deals), followed by banks (21.98%), private equity firms (15.02%), and other asset management firms (12.09). Various other parties such as pension funds, insurance companies, individual investors, and financial services firms, comprise the remaining 24.38% of the sample. The hedge fund firms selling stakes range in age from new firms (49.66% of the sample firms) to firms that have been in existence for over 10 years (12.07%). Similarly, 47.79% of the hedge fund firms in my sample have reported AUM of less than $100 million in the union database while approximately 29.78% of my sample firms have AUM over $2 billion.

[insert Table 1 here]

B. Variable Construction

I compute and use four performance measures. *Net Return* is the fund's average monthly net-of-fee return in the previous 24 months. *Style-Adjusted Return* is a fund's net return minus the equally-weighted average return of funds following the same strategy, averaged over the previous 24 months. *Sharpe Ratio* is the 24-month average of a fund's monthly excess returns (e.g., its return minus the risk-free rate) divided by the standard deviation of its returns over the same period. Lastly, I estimate *Alpha* by regressing the fund's net returns on the seven factors described in Fung and Hsieh (2004). Specifically, I estimate the following regression to obtain *Alpha*:

[15] I am not able to precisely identify the size of the stakes outsiders receive when seeding a fund but assume that they receive partial stakes. This assumption does not impact my analysis since these funds are only included when I examine flows to new funds.

$$R_{j,s} = \alpha_{j,t} + \sum_{k=1}^{7} \hat{\beta}_{j,k,t-1} F_{k,s} + \varepsilon_{j,s}, \;\; s = t-24, \ldots, t-1 \qquad (1)$$

where *s* and *t* indicate months, *j* indicates funds, *R* is the monthly return of fund *j*, and the vector *F* is the vector of monthly returns for the seven Fung & Hsieh (2004) factors. *Return Volatility* is the standard deviation of the fund's previous 24 monthly return observations. *Flow* is calculated as:

$$Flow_{i,t} = \frac{\left(AUM_{i,t} - AUM_{i,t-1} \times \left(1 + Return_{i,t}\right)\right)}{AUM_{i,t-1}} \qquad (2)$$

I also examine two measures of operational risk. The first is *December Spike*, which equals the difference in a fund's average December returns (gross, net, or residual) minus the difference in its average return for the other eleven months of the year. Second, I follow Dimmock and Gerken (2012) to collect data on incidences of fraud by downloading and reading SEC litigation releases, administrative proceedings, and complaints. I define *Fraud* equal to 1 if a fund is found one of these cases and 0 otherwise.

I also include several fund and company characteristics as control variables. *Size* is calculated as the natural logarithm of 1 plus the fund's AUM. *Delta* and *Vega* are the dollar changes in the manager's compensation for a 1% increase in return and return volatility, respectively, following the algorithm of Agarwal, Daniel, and Naik (2009). *Management Fee* (*Incentive Fee*) is the percentage of AUM (profits) the manager receives as compensation. *Offshore* is an indicator variable equal to 1 if the fund is domiciled outside of the U.S. and 0 otherwise. *Lockup* is the number of months an investor is required to commit his capital after investment. *High Water Mark* is an indicator variable equal to 1 if the fund has a high water mark provision and 0 otherwise. *Star Fund* is an indicator variable equal to 1 if a fund's company has a "star" fund in its roster. A fund is considered to be a "star" if its *Alpha* is in the

top 5% of all alphas for the previous 24-month period, following Nanda, Wang, and Zheng (2004). *# Top Service Providers* is equal to 0, 1, 2, or 3 and is the number of the fund's service providers (administrator, auditor, and prime broker) are in the top five in how much hedge fund business they conduct.[16]

C. Summary Statistics

Panel A of Table 2 presents summary statistics. 1,138 (243) out of 6,707 (1,945) funds (companies) have an outside owner. This number represents 17% (15%) of the funds (companies) in the sample. The summary statistics for the performance and volatility variables are comparable to those reported in recent hedge fund studies (e.g., Aragon and Nanda (2012), Sun, Wang, and Zheng (2012)). I use the natural logarithm of many of my variables to mitigate concerns about skewness impacting my results. Specifically, I use the natural logarithms of fund size and fund age in my empirical analyses.

[Insert Table 2 here]

Panel B of Table 2 contains the results of *t*-tests comparing funds and fund companies with and without outside owners at their inception dates. Funds with outside owners have lower incentive fees, shorter lockup periods, are more likely to be domiciled offshore, and are less likely to have a high water mark provision. Companies with outside owners launch with more funds and more AUM. These results suggest that there are significant differences between the two groups of fund companies as early as inception.

II. Determinants of Outside Ownership

[16] I obtained these rankings from www.insitutionalalpha.com.

I begin my analysis of the determinants of outside ownership by comparing funds selling partial stakes to funds selling full stakes. Panel A of Table 3 contains results from *t*-tests that compare various characteristics at the time the outside owner purchases his stake.[17] Funds selling partial stakes have significantly higher levels of past performance than do funds selling full stakes for three out of four performance variables. Managers selling partial stakes also have higher *Delta* and are also more likely to have a high water mark provision in place.

Next, I estimate multinomial logistic models in which the dependent variable, *Stake*, is equal to 0 if the inside owner does not sell a stake at *t*, 1 if the insider sells a partial stake at date *t*, and 2 if the manager sells a full stake at date *t*. In this way, the base group is the set of funds without an outside owner and I can compare the determinants of a partial stake sale to those of a full stake sale. Specifically, I estimate the following regression:

$$Pr(Stake \cong 0_{i,t}) =$$

$$f(Perf_{i,t-24,t-1},\ Flows_{i,t-24,t-1},\ Size,\ StarFund_{i,t-1}, Delta_{i,t-1},\ Vega_{i,t-1}, \quad (3)$$

$$ReturnVolatility_{i,t-24,t-1},\ X_i,\ Style\ Dummies,\ YearDummies)$$

where X_i includes time-invariant fund characteristics such as *Lockup*, *High Water Mark*, and *Offshore*. The results are presented in Panel B of Table 3. The odd (even) columns contain the coefficients for funds selling partial (full) stakes.[18]

[Insert Table 3 here]

The results are most consistent with the *growth* hypothesis. Past performance is both an economically and statistically significant determinant of a manager selling a partial stake but is

[17] I also examine whether the managers selling stakes have prior work experience with the company buying the claim. I find that that they do in 14% of the cases.

[18] For robustness, I have also estimated company-level regressions by calculating equally weighted averages of the performance and characteristics of the funds within each company. I have also estimated fund-level logit, fund-level conditional logit models by year, and linear probability models where the dependent variable is equal to 1 if the manager sells a stake of any size and 0 otherwise. The results are robust to these specifications and are shown in Appendix C, Tables C1-C4.

unrelated to the likelihood a manager sells a full stake. Using the coefficient estimates in Column 1 of Panel B as an example, a one-standard-deviation increase in *Net Return* increases the probability a manager attracts an outside owner buyer by 34.80%. This result suggests that outside owners are more likely purchase partial stakes in funds whose managers have recently performed well. Outsiders purchasing full stakes appear to be unconcerned about the manager's prior performance since the sale of a full stake likely indicates that the manager will exit.[19]

The coefficients on past fund flows are negative and statistically significant at the 5% level for the partial stake cases. Using column (1) of Panel B as an example, the coefficient on *Flows* is -0.0398 with a *t*-statistic of -2.37. Economically, this means that a one-standard-deviation increase in fund flows decreases the probability a manager sells a partial stake by 13.44%. This result is consistent with the *growth* hypothesis as it indicates that managers are more likely to sell a stake when they are unable to attract fund flows. Funds belonging to families that contain a "star" fund are also less likely to sell either full or partial stakes. I interpret this result as consistent with the *growth* hypothesis since Nanda, Wang, and Zheng (2004) document that mutual funds with a "star" in their fund family attract higher inflows.

Outside owners also purchase partial equity stakes in funds whose managers have higher-powered performance incentives. The coefficient on *Delta* (*Vega*) is positive (negative) and statistically significant at the 1% (5%) level in all cases. It appears that outside owners prefer to purchase stakes in funds whose managers have incentives that should continue to induce higher performance and lower risk-taking. The coefficient on *Lockup Period* is also negative and

[19] I verify this assumption by reading news articles and examining ADVs around the ownership change. I find that, of the 47 companies selling full stakes for which I have ADV data before and after the change, 34 experience a management change. The CEOs and CIOs of the companies selling stakes often sign employment agreements that require them to remain with the firm for a few years and then exit thereafter.

statistically significant. Shorter lockup periods further incentivize the manager since investors can more easily withdraw their capital should the manager deliver poor performance.

III. Outside Ownership and Fund Performance

A. Matched Sample Creation

The results in Section II above provide strong evidence that outside ownership does not occur randomly. For this reason, simply comparing the group of funds with an outside owner to the entire group of funds without outside owners is not an appropriate identification strategy. To control for this selection effect, I use one-to-one nearest neighbor propensity score matching to construct samples of control funds (or firms) that follow the same strategy and have not sold a stake to an outside owner at the same date.[20] I compare the values of the independent variables used in the determinants regression for the two groups of funds and find that all but two, age and vega, are not significantly different.[21]

The remainder of my analysis compares the group of funds (firms) with an outside owner to this matched control group of funds (firms) without an outside owner. I examine the impact of the outside owner in the two-year period after the stake is sold. It is important to note that this matching process only takes into account information available at time *t*. For this reason, it is

[20] A caveat to my analysis is that propensity score matching does not control for unobservable variables. This limitation means that I cannot eliminate the possibility that some variable correlated with the outsider owners' decisions to purchase stakes also explains the subsequent effects I observe.

[21] The univariate comparisons of the variables in the determinants models can be found in Appendix C, Table C5. Although the age of the two groups is statistically different, the magnitude of the difference in the natural logarithm of age is only 0.10.

possible that a fund selling a stake to an outside owner at date *t* is matched to a fund that does not sell a stake at time *t* but does so at another point in the future.

B. Tests of the Timing and Talent-picking Hypothesis

I begin my analysis of the effects of these ownership changes by examining subsequent fund performance. If the insiders (outsiders) involved in these transactions have the ability to time their exit (choose subsequent outperformers), funds with outside owners should underperform (outperform) the matched sample of funds. I test this prediction of the *timing and talent-picking* hypothesis by estimating the following linear regression:

$$Perf_{i,t+1,t+24} = \alpha + \beta_1 OutsideOwner_{i,t} + \beta' X_{i,t} + YearFE + StyleFE + \varepsilon_i \quad (4)$$

where the dependent variable, $Perf_{i,t+1,t+24}$, is one of the four measures of fund performance used throughout the paper. $OutsideOwner_{i,t}$ is an indicator variable equal to 1 for the funds with outside owners and 0 otherwise and $X_{i,t}$ contains fund-level characteristics such as fund size, *High Water Mark*, *Management Fee*, *Incentive Fee*, *Offshore*, and the fund's prior performance and flows. I present the results of these regressions in Table 4.

[insert Table 4 here]

Panel A contains the results for funds that sell partial stakes and Panel B contains the results for funds selling full stakes. There is no evidence that either group of funds has performance that is different than their peers; the coefficients on *OutsideOwner* are statistically insignificant for all specifications. If insiders are selling stakes to exit funds that will subsequently underperform, one would expect the underperformance to be particularly severe when funds sell full stakes. I find no evidence that this is the case. Moreover, there is no

statistically significant difference in the coefficients on *Outside Owner* for partial and full stake groups.

B.1. Subsample Analyses of the Timing and Talent-Picking Hypothesis

The results in Table 4 indicate that, on average, neither the inside nor the outside owners possess the ability to predict future fund performance. However, there may be subsets of insiders or outsiders that possess this ability. I argue that older funds, outsiders with more experience buying hedge fund stakes, and outsiders with experience managing alternative investments are more likely to possess timing or talent-picking ability.[22] To test this idea, I estimate the regression in equation (4) separately for each subsample of funds and then compare the coefficients on *Outside Owner* using *F*-tests.

I present the results of these tests in Table 5. Panel A contains the results when funds are divided based on whether they are in the top quartile of fund age; Panel B contains the results when funds are divided whether their outside owner is in the top quartile of experience; Panel C contains the results when funds are divided based on whether their outside owner has experience managing alternative investments. I find no evidence that either insiders' or outsiders' experience has impact on their ability to time their exit or pick superior funds, respectively. In seven out of eight cases, the coefficients on *Outside Owner* are not significantly different. The only case in which the coefficients on *Outside Owner* are significantly different for the two groups is in column 2 of Panel A. In this case, the subsequent performance of the older funds is higher than that of their younger counterparts, a result that contradicts the notion that older funds can predict a subsequent performance decline.

[Insert Table 5 here]

[22] I use fund age as a proxy for manager experience since hedge fund managers leave their funds.

The results in Panel C of Table 5 indicate that funds selling stakes to outside owners with experiencing managing alternative investments outperform those funds whose outside owners lack this experience. The difference in the coefficients on *Outside Owner* is statistically significant for three out of four performance measures. For example, funds with outside owners that possess alternatives experience have 0.154% higher *Style-Adjusted Returns* per month than their matched counterparts. Funds that sell an equity stake to an outside owner without alternatives experience underperform their peers by 0.218% per month. This difference of 0.372% is statistically significant at the 1% level.

Combined, the results in Tables 4 and 5 provide limited support for the *timing and talent-picking hypothesis*. This result is consistent with studies that find limited evidence of a "smart money" effect in which investors have the ability to forecast future fund performance (Sapp and Tiwari (2004), Frazzini and Lamont (2008), Ramadorai (2013), Baquero and Verbeek (2015)). Taken together, the results in this section seem to suggest that outside ownership has little impact on fund performance.

IV. Outside Ownership and Firm Growth

A. Company Expansion

If the desire for expansion is one of the insiders' motives in selling stakes, fund companies with outside owners should be more likely to open a new fund and more likely to expand into new strategies after the outside owner arrives. I test this claim by estimating the following logistic regressions:

$$Pr\left(NewFund_{i,t}\right) = f\left(OutsideOwner_{i,t},\, X'\right) \tag{5}$$

$$Pr\left(NewStrategy_{i,t}\right) = f\left(OutsideOwner_{i,t},\, X'\right) \tag{6}$$

where $NewFund_{i,t}$ is an indicator variable equal to 1 if company *i* opens a new fund in month *t* and 0 otherwise. $NewStrategy_{i,t}$ is an indicator variable equal to 1 if company *i* expands to a new strategy in month *t* and 0 otherwise. $OutsideOwner_{i,t}$ is the main independent variable of interest and is equal to 1 for companies with an outside owner and 0 for the matched sample of companies without an outside owner. *X* is a vector of company-level control variables calculated by equally-weighting the funds the company manages.

[Insert Table 6 here]

Columns 1 and 2 in Table 6 contain the results of the logistic models. The coefficient on $OutsideOwner_{i,t}$ is positive and statistically significant both when the dependent variable is $NewFund_{i,t}$ and $NewStrategy_{i,t}$. The economic impact of the outside owner on companies' likelihood of expansion is large. Specifically, the addition of the outside owner increases the likelihood of a manager opening a new fund (new strategy) by 66.6% (112%). The outside owner's impact is incremental to that of company performance, flows, and other characteristics. I also estimate OLS regressions in which the dependent variables are the number of new funds and number of new strategies each company opens in the 24-month period after the outside owner purchases a stake. These results are presented in columns 3 and 4 of Table 6. The results of these tests indicate that companies with outside owners open approximately 0.5 (0.2) more new funds (new strategies) than do their matched counterparts in the subsequent 24-month period.[23]

B. Ability to Attract Fund Flows

[23] These results are also robust to the use of probit and tobit models, respectively. The results of these tests can be found in Appendix C, Table C6. I also estimate conditional logit models for the probability that companies open new funds and new strategies. The results hold for the probability of opening a new fund but become statistically insignificant for the probability of opening a new strategy.

Another way the outside owner can assist with growth is through an increase in fund flows. As mentioned earlier in the paper, many press releases announcing these deals note that the outside owners will provide distribution services for the insider's funds. I compare the flows received by funds with outside owners to those received by the control samples of funds by estimating the following OLS regression:

$$Flow_{i,[t+1,t+24]} = \alpha + \beta_1 OutsideOwner_{i,t} + \beta' X + +\varepsilon_i \quad (7)$$

where *OutsideOwner* is the key variable of interest. *X* is a vector of control variables that includes each fund's past and contemporaneous performance, past flows, size, age, management and incentive fee, lockup period, and indicator variables equal to one if the fund is domiciled offshore and has a high water mark provision. I also include strategy and year fixed effects in the regressions. The results are presented in Table 7.

[Insert Table 7 here]

Columns (1) and (2) contain the results when funds matched by propensity score while columns (3) and (4) contain the results when funds are matched only on past flows. The coefficient on *OutsideOwner* is positive and statistically significant at the 5% level for all specifications. The magnitude of the coefficient ranges from 0.575 to 0.934, meaning that funds selling partial stakes to an outside owner attract 0.575 – 0.935% higher flows per month than do their matched counterparts in the 24 months following the stake sale. This increase is equivalent to 6.90 – 11.22% higher flows on an annual basis. This impact is economically significant as the mean (median) fund in my sample receives flows of 8.40% (3.12%) per year. All specifications include both past and contemporaneous fund performance, meaning that the outside owner's impact on flows is incremental to that of the funds' performance. These results suggest that

outside owners do help insiders attract higher flows and are consistent with the *growth* hypothesis.

It is also possible that the outsider owner is purchasing a stake at the company-level and simultaneously investing at the fund-level meaning that the flow impact I am documented is not driven by the funds received capital from new investors. To mitigate this concern, I estimate the regression in equation 5 using monthly flows at the dependent variable and include dummy variables based on whether the given flow observation is 1-6, 7-12, or 13-24 months after the date the outsider purchases his stake. I also include interactions of these dummy variables with *Outside Owner*. If the documented increase in flows is driven by the outside owners also directing capital into the funds, I would expect the coefficient on the interaction of *Outside Owner* and the dummy for the 1-6 month period to be positive and statistically significant. I do not find this to be the case; the increase in flows is concentrated in the 13-24 month period after the stakes are sold.[24]

B.1. Subsample Analyses of the Outsiders' Impact on Fund Flows

If insiders are selling stakes because they believe that the outside owner can help increase assets under management, one would expect the flow impact to be greater for funds less able to attract flows on their own. To test this conjecture, I divide my sample of funds into subsamples based on whether they are above or below the median of two variables that measure a fund's prior ability to attract capital: past flows and fund size. I argue that funds with funds with lower prior flows and smaller funds are less able to attract flows than funds with higher past flows and larger funds, respectively. I estimate the regression in equation (6) separately for the two groups

[24] This result can be found in Table C7 of Appendix C.

of funds and test the difference of the coefficients on *OutsideOwner* using an *F*-test. Table 8 contains the results.

[Insert Table 8 here]

Panel A contains the results when funds are divided based on past flows and Panel B contains the results when funds are divided by size. Three findings merit mention. First, funds with below median levels of the two proxy variables earn 1.57 – 1.94% higher flows per month than do their matched counterparts after the outside owner's arrival. Second, funds with above median levels of these variables do not receive statistically higher flows than their matched counterparts. Finally, the coefficients on *OutsideOwner* is statistically different at the 5% level when funds are divided based on past flows while the difference is marginally significant (*p*-value = .123) when funds are divided based on size.

Finally, I examine whether certain types of outsiders have a greater impact on fund flows. To begin, I ask whether more reputable outside owners have a bigger impact on fund flows. To test this prediction, I use the outside owner's experience purchasing hedge fund stakes as a proxy for reputation.[25] I divide my sample of outside owners based on whether they are in the top quartile of the number of deals completed. As in my earlier analysis, I estimate the regression of equation (5) separately for each subsample of funds (e.g., those funds with more experienced outside owners and those associated with less experienced outsiders) test the equality of the coefficients on *OutsideOwner*. Panel A of Table 9 contains the results.

[Insert Table 9 here]

Funds selling stakes to more experienced outsiders attract 1.91% higher flows per month than their counterparts. The coefficient on *OutsideOwner* for this group of funds is significant at

[25] Gompers and Lerner (2000) and Demiroglu and James (2010) use experience as a proxy for reputation in the venture capital setting.

the 1% level. Funds selling stakes to less experienced outsiders attract 0.28% higher flows per month than their matched counterparts but this difference is not statistically significant. The difference in the coefficients on *OutsideOwner* (1.91 – 0.28 = 1.63%) is significant at the 5% level.[26]

I also test whether outside owners with asset management divisions have a greater impact on fund flows. My argument is that firms with asset management divisions likely have distribution networks in place that will increase flows to hedge fund firms. Indeed, funds that sell to asset management firms experience a 0.82% higher flows per month than do their matched counterparts. Funds that sell stakes to outsiders without asset management divisions do not receive statistically higher flows than their matched counterparts.

Combined, the results in this section provide strong evidence supporting the *growth* hypotheses. Fund companies with partial outside owners open more new funds and expand to more new strategies relative to companies without outside owners. Funds selling a partial stake to an outside owner also receive higher flows than their counterparts without outside owners. The flow effect is stronger for funds less able to attract capital on their own and for funds selling to more reputable outside owners and outside owners with better distribution networks in place.

V. Outside Owners as Monitors

The *monitoring hypothesis* posits that outsiders have incentives to monitor the inside owner and reduce actions that increase the operational risk investors face. Specifically, outside owners may monitor and reduce return management and outright fraud since being associated with a hedge fund with high levels of these behaviors may have adverse reputational effects for

[26] I also examined whether the flow impact is greater during times of high industry/strategy volatility and low industry/strategy performance. I found that the flow impact was greater during these times but the differences are not statistically significant. These results can be found in Appendix C, Table C9.

the outsider. Outside owners often provide back office support and help with regulatory compliance as part of these deals which suggests that they would have the ability to observe and monitor the insiders' actions.

A. Returns Management

Next, I examine whether outside owners reduce returns management. Agarwal, Daniel, and Naik (2011) document that, on average, hedge funds' gross returns are about 1% higher in December than they are in other months. The authors also find that managers with higher compensation incentives have larger December spikes and suggest that this type of return management is done so that these managers can charge higher fees. These findings suggest that return management represents a source of operational risk that adversely impacts fund investors. Investors who exit the fund in a month other than December are also adversely affected since part of the return they should be receiving is allocated to December returns. Finally, Cici, Kempf, and Puetz (2013) and Dimmock and Gerken (2015) find that funds with higher December spikes are also more likely to report equity valuations that deviate from true closing prices and are more likely to have other forms of return misreporting. Combined, these findings suggest that a reduction of return misreporting represents a form of monitoring that benefits hedge fund investors.

To test whether the presence of an outside owner is associated with lower return management, I augment the main regression specification in Agarwal, Daniel, and Naik by adding four independent variables. Specifically, I estimate the following linear regression using observations from the two years before and after the outside owner arrives:

$$Return_{i,m} = \alpha + \beta_1 December + \beta_2(December \times OutsideOwner \times After) + \beta_3(December \times After) + \beta_4(December \times OutsideOwner) + \beta_5 OutsideOwner + \delta' Controls + \varepsilon_i \quad (8)$$

where the dependent variable, *Return*, is fund *i*'s net, gross, or Fung and Hsieh (2004) residual return in month *m*. *December* is an indicator equal to 1 if the return observation is for the month of December and 0 otherwise. *After* is an indicator variable equal to 1 if the observation occurs after the outside owner arrives and 0 otherwise. *Controls* is a vector of control variables that includes the fund's delta, the return necessary to reach the threshold net asset value (e.g., *Moneyness*), an indicator variable (*Non-December Quarter End*) equal to 1 for non-December quarter ends and 0 otherwise, past 12-month return volatility, two lagged returns, and the other fund characteristics used throughout this paper. The coefficient of interest is β_2; a negative and statistically significant indicates that the outside owner reduces return management. B_4, the coefficient on *December* × *Outside Owner* captures the level of return management funds with an outside owner engaged in *prior* to the outsider's arrival. If outside owners simply pick funds that had lower levels of return management prior to the stake sale, one would expect β_4 to be negative and statistically significant and β_2 to be statistically insignificant.

[Insert Table 10 here]

Panel A of Table 10 contains the results. First, the coefficients on *December* are positively and highly statistically significant for each dependent variable, consistent with Agarwal, Daniel, and Naik (2011). The coefficient on *December* is 0.846 in Column 1, meaning that funds' gross returns are, on average, 0.846% higher in the month of December. Most importantly, β_2 is negative and statistically significant at the 5% level for all three dependent variables, meaning that funds with outside owners have lower December spikes after the outside owners arrive. For

the gross return regression, the coefficient of -0.595 on *December* × *OutsideOwner* × *After* means that the December spikes of funds with outside owners are 0.595% lower after the outsider takes his stake. The coefficient on *December* × *OutsideOwner* mitigates concerns that outside owners are simply selecting funds with lower ex-ante levels of return management as it is not statistically significant in any of the three regressions.

A.1. Subsample Analyses on Return Management Effects

The results in Table 10 suggest that outside ownership is associated with a reduction in return management. I conduct subsample analyses to provide some evidence that outside owners at least partially cause this reduction. To begin, I examine changes in return smoothing behavior based on whether the stake sale was completed before or after 2008. I argue that both funds and outside owners will be more conscious of their reputations after 2008 because of the financial crisis and the Madoff fraud incident. To test this conjecture, I estimate the regression described in Equation 8 separately for deals completed before and after 2008 and present the results in Table 11, Panel A.[27]

To begin, if funds were in general reducing return management after 2008, the coefficient on *December* would be statistically lower for the regression after 2008. I do not find this pattern in the data. Using gross returns as an example, the coefficients on *December* for the pre- and post-2008 periods are 0.782 and 0.852, respectively, and are not statistically different. If outside owners were more concerned about their reputations after the financial crisis, the Madoff scandal, and discussions about potential legislation, I expect that they would have a larger impact on return management after 2008. That is, the coefficient on *December* × *OutsideOwner* × *After* should be significantly more negative in the post-2008 period. I find this to be the case; in all

[27] Deals completed in 2008 are included in the before period.

three regressions, the coefficient on *December* × *OutsideOwner* × *After* in the post-2008 period is statistically lower than it is in the pre-2008 period.

Next, I divide the sample of funds based on the outsider's reputation (e.g., experience) and estimate the regression in Equation 8 separately for the high and low reputation outsiders. Panel B of Table 11 contains the results of these regressions. I expect that outsiders with better reputations would have a greater impact on return management. That is, I expect that the coefficient on *December* × *OutsideOwner* × *After* to be more negative for funds selling stakes to more reputable outsiders. I find that this is the case for all three dependent variables, though the difference in coefficients is only statistically significant when residual returns are used as the dependent variable.

B. Outright Fraud

I follow Dimmock and Gerken (2012) to collect data on incidences of fraud by downloading and reading SEC litigation releases, administrative proceedings, and complaints. I am able to identify 338 hedge funds accused of committing various types of fraud, 155 of which I can match to the union database. I find that funds with outside owners have a 0.32% unconditional probability of committing fraud while funds without outside owners have a 0.72% probability. This difference of 0.40% is statistically significant at the 1% level. Focusing only on the sample of funds with outside owners and the propensity score matched sample, the difference in probability is 1.36% and is statistically significant at the 5% level.

Combined, the results in Section V strongly suggest that the presence of an outside owner is associated with a reduction in operational risk. Not only do the results strongly support the *monitoring* hypothesis, they also provide a potential explanation for why investors allocate more

capital to funds with outside owners in spite of the fact that these funds do not outperform the matched sample. It is possible that investors are allocating additional capital to these funds because they believe that the outside owners have screened and will monitor the insiders with whom they associate.

V. Conclusion

In this paper, I examine the determinants and effects of changes in hedge fund companies' ownership structure. My results indicate that hedge fund managers sell equity stakes to acquire partners who help them grow their firms. Despite the fact that I find little evidence of future outperformance, fund companies that sell stakes to outside owners open more new funds, expand to more new strategies, and attract higher flows. These effects are particularly strong when a fund was previously more growth-constrained and when the outside owner is more reputable. Outside owners appear to take an active monitoring role in these funds to protect their own reputations as funds with outside owners reduce return management and are less likely to commit outright fraud. Taken together, my findings suggest all parties involved benefit from these arrangements. The increase in firm size leads to an increase in value of both the inside and outside owners' equity claims. Fund investors benefit from these arrangements as they experience a decrease in operational risk.

REFERENCES

Agarwal, Vikas, Naveen D. Daniel, and Narayan Y. Naik, 2009, Role of managerial incentives and discretion in hedge fund performance, *Journal of Finance* 64, 2221-2256.

Agarwal, Vikas, Naveen D. Daniel, and Narayan Y. Naik, 2011, Do hedge funds manage their reported returns?, *Review of Financial Studies* 24, 3282-3320.

Aragon, George O. and Vikram Nanda, 2012, Tournament behavior in hedge funds: high-water marks, fund liquidation, and managerial stake, *Review of Financial Studies* 25, 937-974.

Baquero, Guillermo and Marno Verbeek, 2015, Hedge fund flows and performance streaks: how investors weigh information, Working paper, ESMT and Erasmus University.

Bollen, Nicolas P.B. and Veronika K. Pool, 2012, Suspicious patterns in hedge fund returns and the risk of fraud, *Review of Financial Studies* 25, 2674-2702.

Brown, Keith C., W.V. Harlow, and Laura T. Starks, Of tournaments and temptations: an analysis of managerial incentives in the mutual fund industry, *Journal of Finance* 51, 85-110.

Brown, Stephen J., William N. Goetzmann, and James M. Park, 2001, Careers and survival: competition and risk in the hedge fund and CTA industry, *Journal of Finance* 56, 1869-1886.

Brown, Stephen J., William N. Goetzmann, Bing Liang, and Christopher Schwarz, 2008, Mandatory disclosure and operational risk: Evidence from hedge fund registration, *Journal of Finance* 63, 2785-2815.

Brown, Stephen J., William N. Goetzmann, Bing Liang, and Christopher Schwarz, 2009, Estimating operational risk for hedge funds: The ω-score, *Financial Analysts Journal* 65, 43-53.

Brown, Stephen J., William N. Goetzmann, Bing Liang, and Christopher Schwarz, 2012, Trust and delegation, *Journal of Financial Economics* 103, 221-234.

Brunnermeier, Markus K., and Stefan Nagel, 2004, Hedge funds and the technology bubble, *Journal of Finance* 59, 2013-2040.

Chevalier, Judith and Glenn Ellison, 1997, Risk taking by mutual funds as a response to incentives, *Journal of Political Economy* 105, 1167-1200.

Cici, Gjergji, Alexander Kempf, and Alexander Puetz, 2013, The valuation of hedge funds' equity positions, Working paper, The College of William and Mary and University of Cologne.

Clifford, Christopher P., Jesse A. Ellis, and William C. Gerken, 2015, Hedge fund boards and the market for independent directors, Working paper, University of Kentucky and North Carolina State University.

Demiroglu, Cem and Christopher M. James, 2010, The role of private equity group reputation in LBO financing, *Journal of Financial Economics* 96, 306-330.

Dimmock, Stephen G. and William C. Gerken, 2012, Predicting fraud by investment managers, *Journal of Financial Economics* 105, 153-173.

Dimmock, Stephen G. and William C. Gerken, 2015, Regulatory oversight and return misreporting by hedge funds, *Review of Finance*, forthcoming.

Dimmock, Stephen G., William C. Gerken, and Jennifer Marietta-Westberg, 2015, What determines the allocation of managerial ownership within firms?, *Journal of Corporate Finance* 30, 44-64.

Ding, Bill, Mila Getmansky, Bing Liang, and Russ Wermers, 2009, Share restrictions and investor flows in the hedge fund industry, Working paper, University of Massachusetts Amherst, SUNY Albany, and University of Maryland.

Frazzini, Andrea and Owen A. Lamont, 2008, Dumb money: mutual fund flows and the cross-section of stock returns, *Journal of Financial Economics* 88, 299-322.

Fung, William and David A. Hsieh, 2004, Hedge fund benchmarks: A risk-based approach, *Financial Analysts Journal* 60, 65-80.

Fung, William, David A. Hsieh, Narayan Y. Naik, and Melvyn Teo, 2015, Growing the asset management franchise: evidence from hedge fund firms, Working paper, Duke University, London Business School, and Singapore Management University.

Gompers, Paul and Josh Lerner, 2000, Money chasing deals? The impact of fund inflows on private equity valuations, *Journal of Financial Economics* 55, 281-325.

Huang, Jennifer, Clemens Sialm, and Hanjiang Zhang, 2011, Risk shifting and mutual fund performance, *Review of Financial Studies* 24, 2575-2616.

Jiang, Wenxi, 2015, Leveraged speculators and asset prices, Working paper, The Chinese University of Hong Kong.

Joenväärä, Juha, Robert Kosowski, and Pekka Tolonen, 2014, The effect of investment constraints on hedge fund investor returns, Working paper, University of Oulu and Imperial College.

Jorion, Philippe and Christopher Schwarz, 2015, Who are the smartest investors in the room? Evidence from U.S. hedge funds solicitation, Working paper, University of California at Irvine.

Liang, Bing and Christopher Schwarz, 2011, Is pay-for-performance effective? Evidence from the hedge fund industry, Working paper, University of Massachusetts-Amherst and University of California at Irvine.

Lim, Jongha, Berk A. Sensoy, and Michael S. Weisbach, 2015, Indirect incentives for hedge fund managers, *Journal of Finance*, forthcoming.

Lu, Yan, Debanjan Mitra, David Musto, and Sugata Ray, 2015, Alternative marketing for alternative investments, Working paper, University of Florida and University of Pennsylvania.

Nanda, Vikram, Z. Jay Wang, and Lu Zheng, 2004, Family values and the star phenomenon: strategies of mutual fund families, *Review of Financial Studies* 17, 667-698.

Ozik, Gideon and Ronnie Sadka, 2015, Skin in the game versus skimming the game: governance, share restrictions, and insider flows, *Journal of Financial and Quantitative Analysis*, forthcoming.

Ramadorai, Tarun, 2013, Capacity constraints, investor information, and hedge fund returns, *Journal of Financial Economics* 107, 401-416.

Sapp, Travis and Ashish Tiwari, 2004, Does stock return momentum explain the "smart money" effect?, *Journal of Finance* 59, 2605-2622.

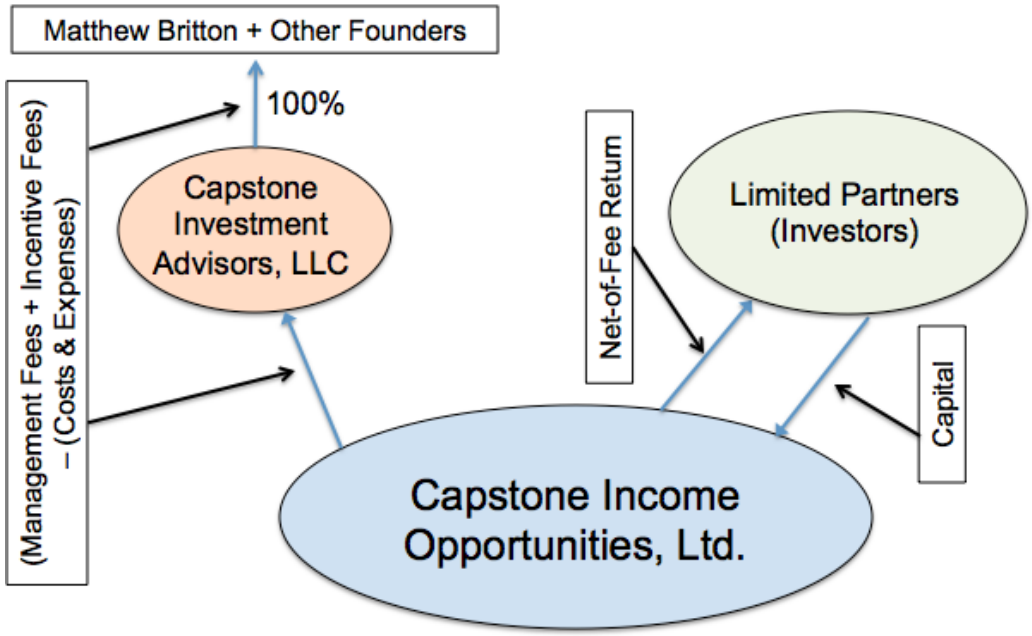
Sun, Zheng, Ashley Wang, and Lu Zheng, 2012, The road less traveled: strategy distinctiveness and hedge fund performance, *Review of Financial Studies* 25, 96-143.

Yin, Chengdong, 2013, The optimal size of hedge funds: conflict between investors and fund managers, Working paper, Purdue University

Figure 1
Typical Hedge Fund Structure Before and After a Stake Sale

This figure contains diagrams of the structure of Capstone Investment Advisors, LLC before and after it sold a stake to Dyal Capital Partners in May 2013.

Before:



After:

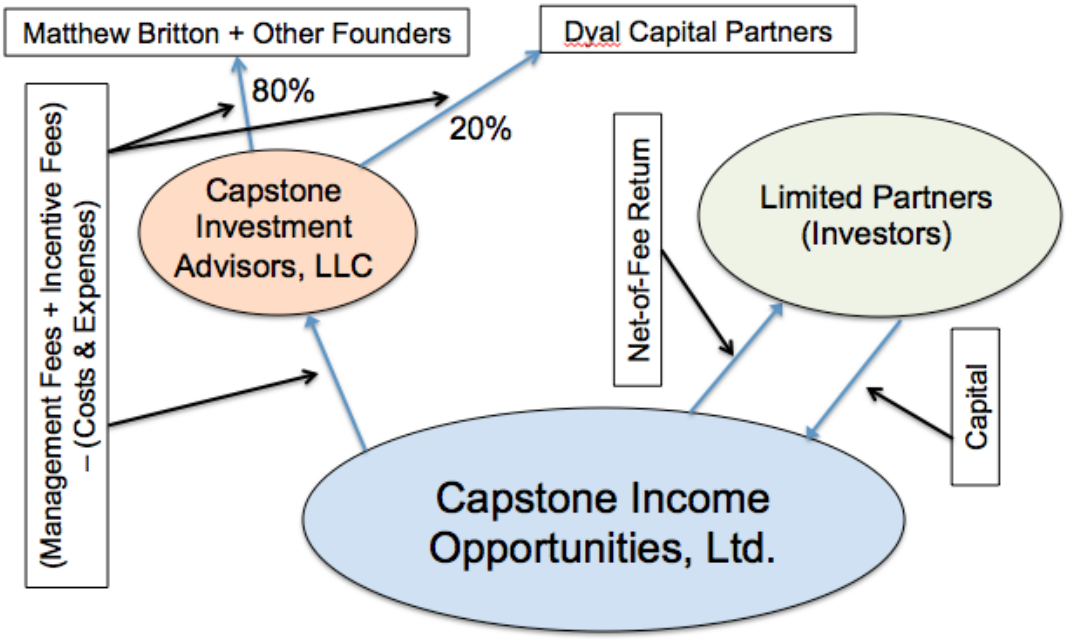


Figure 2
Venn Diagram of the Union Hedge Fund Database

The Union Hedge Fund Database contains a sample of 31,152 hedge funds and funds-of-funds by merging four commercial databases: Eureka, HFR, Morningstar, and Lipper TASS. This figure shows the percentage of funds covered by each database individually and by all possible combinations of multiple databases.

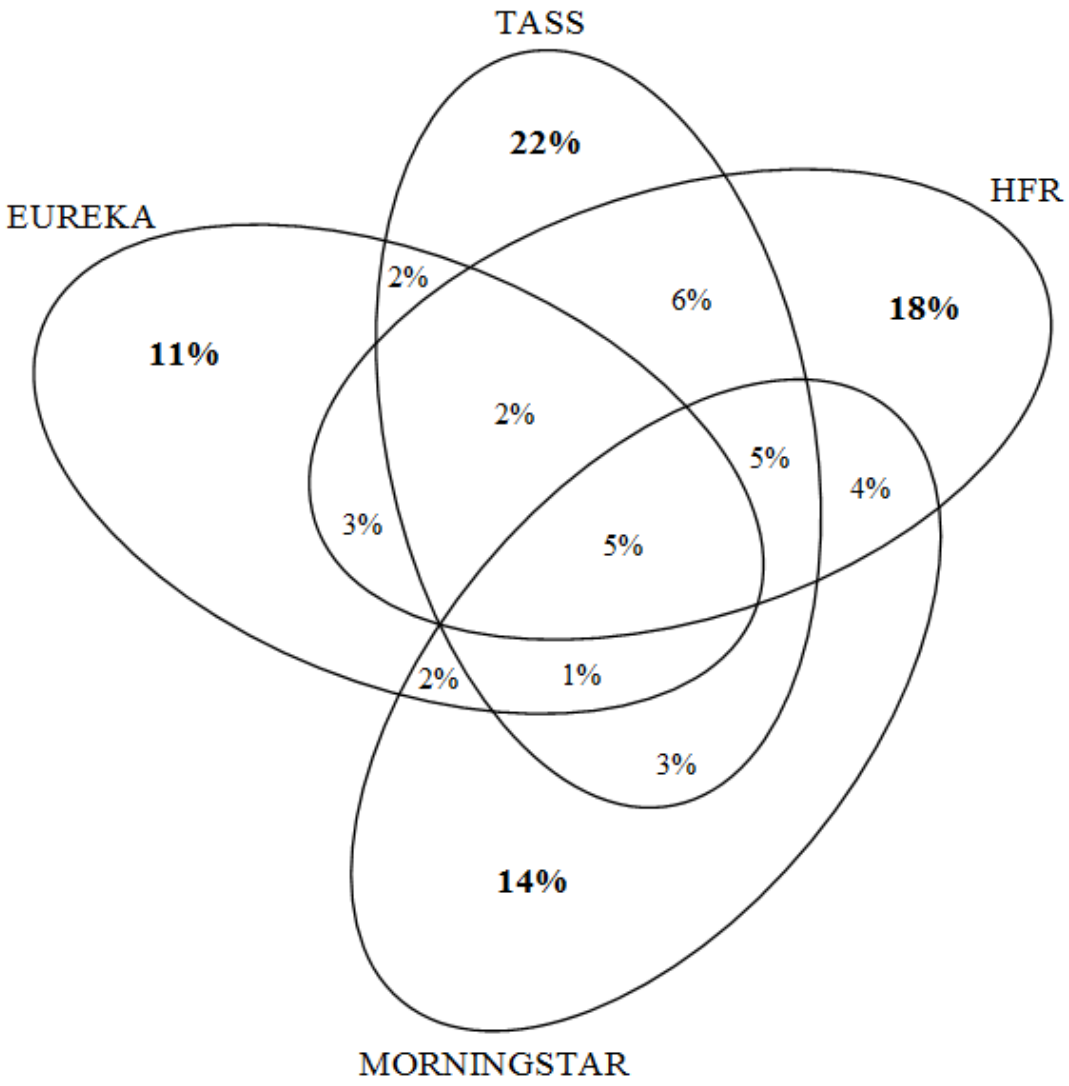


Figure 3
 # Deals vs. # Hedge Fund Companies

This figure plots the number of deals completed each year and the number of hedge fund companies reporting to the TASS, HFR, EurekaHedge, and Morningstar databases from 1994-2013. The correlation between the number of deals completed and the number of hedge fund companies each year is 0.911.

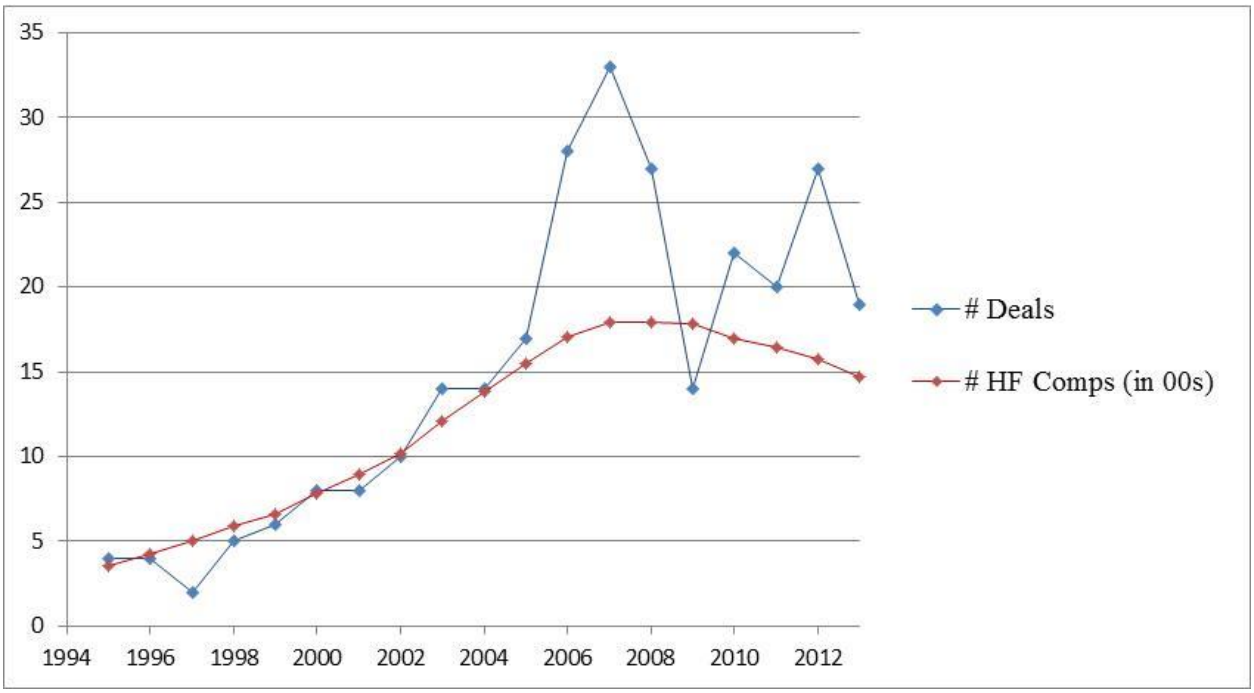


Table 1: Deal Frequency and Statistics

This table contains statistics about the deals in my sample. Panel A contains the number of deals completed each year. Panel B contains the breakdown of the size of the stakes purchased. Panel C provides information on the identities of the outside owners that purchase these stakes. Panel D provides a breakdown of the ages of the hedge fund firms selling these stakes.

Panel A. Year-by-Year Breakdown

Year	# Deals	% of Deals
<=1994	6	2.21%
1995	5	1.85%
1996	4	1.48%
1997	2	0.74%
1998	4	1.48%
1999	8	2.95%
2000	12	4.43%
2001	10	3.69%
2002	13	4.80%
2003	20	7.38%
2004	19	7.01%
2005	22	8.12%
2006	23	8.49%
2007	26	9.59%
2008	25	9.23%
2009	13	4.80%
2010	17	6.27%
2011	14	5.17%
2012	17	6.27%
2013	11	4.06%

Panel B. Size of the Stakes Purchased

Stake Range	# Deals	% of Deals
5-10%	15	8.28%
10-25%	55	20.22%
25-50%	36	13.24%
50-75%	31	11.40%
Over 75%	57	20.96%
Unknown	78	28.68%

Panel C. Identities of Outside Owners

Outsider Type	#	% of Deals
Hedge Fund Firms	97	35.53%
Comm. Banks/BHCs	60	21.98%
Private Equity Firms	41	15.02%
Asset Management	33	12.09%
Other	21	7.69%
Insurance Companies	12	4.40%
Financial Services	9	3.30%

Panel D. Ages of Companies Selling Stakes

Company Age	#	% of Deals
Age>10 Years Old	35	12.07%
5<=Age<=10	46	15.86%
2<=Age<=5	47	16.21%
Age<2	144	49.66%

Panel E. Reported AUM of Companies Selling Stakes

Company Size	#	% of Deals
Size> $2 bill.	81	29.78%
$1 bill. - $2 bill.	18	6.62%
$500 mil. - $1 bill.	14	5.15%
$100 mil. - $500 mil.	28	10.29%
Size<$100 mil.	130	47.79%
Missing	1	0.37%

Table 2: Summary Statistics

Panel A of this table contains the summary statistics for the variables used in my analysis. The definitions for these variables are contained in Appendix A1. All variables are winsorized at the 1% and 99% levels. Panel B contains the results of *t*-tests and Wilcoxon tests comparing the means and medians of the variables for funds and companies with and without outside stakeholders. All company-level variables in Panel B are calculated at the company's inception. Differences marked with ***, **, and * are significant at the 1%, 5%, and 10% level, respectively.

Panel A. Summary Statistics

	Mean	Median	Std. Dev.	Min.	1st Pctl.	25th Pctl.	75th Pctl.	99th Pctl.	Max.	N
Fund-Level Variables										
Outside BH (0/1)	0.19	0.00	0.39	0.00	0.00	0.00	0.00	1.00	1.00	6707
Net Return (% p.m.)	0.48	0.51	0.83	-6.68	-2.32	0.18	0.84	2.68	6.57	6707
Style-Adj. Return (% p.m.)	-0.07	-0.03	0.87	-9.20	-2.82	-0.36	0.26	2.36	10.16	6707
Sharpe Ratio (Annual)	1.04	0.69	4.17	-22.81	-2.20	0.17	1.33	9.72	240.67	6707
Alpha (% p.m.)	0.32	0.29	0.61	-2.01	-1.46	0.03	0.60	2.30	3.26	6707
Avg. Flow (% p.m.)	0.55	0.27	3.16	-10.16	-7.43	-0.97	4.25	11.60	21.20	6707
Return Volatility (% p.m.)	9.73	7.91	6.55	0.07	0.93	4.99	12.92	30.71	47.34	6707
AUM ($ millions)	182.26	56.98	360.29	0.68	0.68	17.92	176.46	2021.25	3243.48	6707
Delta ($ millions)	0.20	0.05	0.41	0.00	0.00	0.01	0.19	2.21	2.74	5923
Vega ($ millions)	0.04	0.01	0.07	0.00	0.00	0.00	0.04	0.33	0.56	5923
Management Fee (%)	1.457	1.50	0.53	0.00	0.00	1.00	2.00	3.00	3.00	6707
Incentive Fee (%)	15.20	20.00	7.46	0.00	0.00	10.00	20.00	25.00	25.00	6707
Lockup Period (Months)	3.96	0.00	6.30	0.00	0.00	0.00	12.00	25.00	25.00	6707
High Water Mark (0/1)	0.77	1.00	0.42	0.00	0.00	1.00	1.00	1.00	1.00	6707
Offshore (0/1)	0.621	1.00	0.49	0.00	0.00	0.00	1.00	1.00	1.00	6707
Company-Level Variables										
Outside BH (0/1)	0.15	0.000	0.35	0.00	0.00	0.00	0.00	1.00	1.00	1945
Number of Funds	1.87	1.09	2.04	1.00	1.00	1.00	2.00	6.00	15.00	1945
Company Size (in $mil)	395.77	104.95	928.17	0.68	1.20	30.85	355.58	4599.20	19007.05	1945
Company Inception Year	2000.42	2002.00	6.12	1980.00	1983.00	1997.00	2005.00	2011.00	2012.00	1945

Panel B. Univariate Tests

	Outside BH = 1		Outside BH = 0		Differences	
	Mean	Median	Mean	Median	Mean	Median
Fund-Level Characteristics						
Management Fee (%)	1.47%	1.50%	1.45%	1.5%	0.02%	0.00%
Incentive Fee (%)	13.00%	20.00%	15.65%	20.00%	-2.65%***	0.00%***
Lockup Period (Months)	2.85	0.00	4.18	0.00	-1.33***	0.00%***
High Water Mark	0.644	1.000	0.794	1.000	-0.15***	0.00%***
Leverage (0/1)	0.549	1.000	0.588	1.000	-0.039**	0.00%***
Offshore (0/1)	0.773	1.000	0.590	1.000	0.183***	0.00%***
Company-Level Characteristics						
Number of Funds	1.86	1.00	1.52	1.00	0.34***	0.00***
Company Size (in $mil)	62.97	17.76	26.60	6.44	36.37***	11.32***
Company Inception Year	1999.34	2000	2000.54	2002	-1.20***	-2.00***

Table 3: Determinants of Outside Ownership

This table contains results on the determinants of outside ownership. Panel A contains *t*-tests and Wilcoxon tests of the differences in means and medians of key variables for funds selling full versus partial stakes. Panel B contains the results of fund-level multinomial logistic regressions used to predict the sale of either a partial stake or full stake to an outside owner. The base outcome in Panel B is that the hedge fund does not sell a stake. The outcome variable equals one if the hedge fund sells a partial stake. The outcome variable equals two if the hedge fund sells a full stake to an outside owner. The outcome occurs at time *t* and all independent variables are from the two-year period prior to time *t*. The odd-numbered models predict the outcome of a partial stake sale. The even-numbered models predict the outcome of a full stake sale. All continuous variables are winsorized at the 1% and 99% levels. All regressions include year and strategy dummies. Standard errors are clustered at the fund-level and adjusted for heteroskedasticity and *z*-statistics are reported below the coefficients in parentheses. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level respectively.

Panel A. Univariate Comparisons

	Partial		Full		Difference	
	Mean	Median	Mean	Median	Mean	Median
Net Return (% p.m.)	0.78%	0.70%	0.58%	0.51%	0.20%**	0.19%***
Sharpe Ratio	1.05	0.96	0.76	0.76	0.30**	0.20*
Style-Adj. Return (% p.m.)	0.18%	0.18%	0.13%	0.04%	0.05%	0.12%**
Alpha (% p.m.)	0.48%	0.39%	0.29%	0.16%	0.19%**	0.23%***
Flows (% p.m.)	1.03%	0.05%	0.97%	-0.02%	0.05%	0.06%
Size	4.60	4.74	4.62	4.74	-0.01	0.00
Star Fund (0/1)	0.08	0.00	0.07	0.00	0.01	0.00
Delta ($millions)	0.41	0.08	0.27	0.06	0.15**	0.02
Vega ($millions)	0.05	0.00	0.06	0.01	-0.01	-0.01
Lockup Period (months)	2.90	0.00	2.92	0.00	-0.03	0.00
High Water Mark (0/1)	0.78	1.00	0.66	1.00	0.12***	0.00***
Return Volatility (% p.m.)	2.71%	2.08%	2.23%	1.54%	0.48%**	0.54%***
Age (years)	6.83	6.33	7.01	5.92	-0.19	0.41
Offshore (0/1)	0.72	1.00	0.78	1.00	-0.06	0.00

Panel B. Multinomial Logistic Regressions – Fund-Level

Outcome: Odd columns=partial stake, Even columns=full stake

	Performance = Net Return		Performance = Sharpe Ratio		Performance = Style-adj. Return		Performance = Alpha	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$Performance_{[t-24,t-1]}$	0.322***	0.099	0.190***	-0.032	0.260***	0.115	0.392***	0.286
	(4.81)	(0.57)	(3.43)	(-0.31)	(3.76)	(0.58)	(4.72)	(1.56)
$Flows_{[t-24,t-1]}$	-0.040**	-0.021	-0.040**	-0.018	-0.037**	-0.021	-0.040**	-0.024
	(-2.36)	(-0.82)	(-2.41)	(-0.69)	(-2.24)	(-0.82)	(-2.42)	(-0.96)
$Size_{[t-1]}$	0.086*	0.225***	0.084	0.229***	0.087*	0.224***	0.085	0.219***
	(1.65)	(3.30)	(1.61)	(3.40)	(1.67)	(3.32)	(1.62)	(3.21)
Star Fund (0/1)	-0.962***	-1.213**	-0.854***	-1.158**	-0.928***	-1.221**	-1.105***	-1.360***
	(-4.53)	(-2.46)	(-4.14)	(-2.31)	(-4.26)	(-2.50)	(-4.93)	(-2.74)
$Delta_{[t-1]}$	0.248***	-0.130	0.255***	-0.105	0.265***	-0.129	0.248***	-0.148
	(2.94)	(-0.48)	(2.99)	(-0.39)	(3.21)	(-0.47)	(2.93)	(-0.54)
$Vega_{[t-1]}$	-1.397**	1.023	-1.340**	0.961	-1.427***	1.030	-1.374**	1.051
	(-2.52)	(0.93)	(-2.44)	(0.88)	(-2.59)	(0.94)	(-2.49)	(0.95)
Lockup Period (months)	-0.030***	-0.001	-0.031***	-0.000	-0.030***	-0.001	-0.030***	-0.002
	(-2.73)	(-0.06)	(-2.74)	(-0.01)	(-2.70)	(-0.06)	(-2.68)	(-0.10)
High Water Mark (0/1)	-0.107	-0.444*	-0.111	-0.443*	-0.108	-0.445*	-0.116	-0.451*
	(-0.69)	(-1.86)	(-0.72)	(-1.86)	(-0.70)	(-1.87)	(-0.75)	(-1.88)
$ReturnVolatility_{[t-24,t-1]}$	-0.017	-0.007	0.003	-0.008	-0.016	-0.008	-0.012	-0.005
	(-1.43)	(-0.31)	(0.26)	(-0.28)	(-1.32)	(-0.33)	(-1.07)	(-0.21)
$Age_{[t-1]}$	-0.324***	-0.602***	-0.327***	-0.612***	-0.330***	-0.601***	-0.316***	-0.589***
	(-3.14)	(-3.16)	(-3.16)	(-3.20)	(-3.17)	(-3.15)	(-3.06)	(-3.08)
Offshore (0/1)	0.451***	0.619**	0.447***	0.602**	0.441***	0.621**	0.448***	0.632**
	(3.00)	(2.34)	(2.97)	(2.29)	(2.92)	(2.35)	(2.97)	(2.39)
# Top Service Providers	0.049	0.283**	0.056	0.280**	0.048	0.282**	0.047	0.287**
	(0.69)	(2.15)	(0.80)	(2.12)	(0.69)	(2.15)	(0.67)	(2.18)
Strategy Dummies	YES	YES	YES	YES	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES	YES	YES	YES	YES
Observations	297,047		297,047		297,047		297,047	
Pseudo R^2	0.081		0.080		0.080		0.082	

Table 4: Timing and Talent-picking
Outside Ownership and Fund Performance

This table contains results of multivariate regressions estimating the relation between outside ownership and hedge fund performance. The sample consists of funds selling a stake to an outside owner and the propensity score matched sample of funds. Panel A contains the results for the sample of existing funds selling partial stakes. Panel B contains the results for the sample of existing funds selling full stakes. The dependent variable in each case is a measure of performance, computed for the 24-month period after the arrival of an outside owner. The variable of interest is *Outside Owner*, which is an indicator variable equal to 1 for funds with an outside owner and 0 otherwise. The independent variable of interest is *Outside Owner*, which is an indicator variable equal to 1 for funds with an outside owner and 0 otherwise. The independent variables are past and contemporaneous net returns, past flows, lagged fund size, age, and time-invariant fund characteristics (Management Fee, Incentive Fee, Lockup Period, and indicator variables for offshore domicile and the presence of a high water mark provision). Standard errors are adjusted for heteroskedasticity and *t*-statistics are reported below the coefficients in parentheses. All regressions contain strategy and year fixed effects. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A. Performance of Funds Selling Partial Stakes

	Net Return	Sharpe Ratio	Sty-Adj. Return	Alpha
	(1)	(2)	(3)	(4)
Outside Owner (0/1)	-0.019	-0.045	-0.004	-0.039
	(-0.30)	(-0.81)	(-0.05)	(-0.57)
$Net\ Return_{[t-24,t-1]}$	0.155***	0.178***	0.106**	0.213***
	(3.02)	(3.68)	(2.31)	(4.42)
$Flows_{[t-24,t-1]}$	-0.020***	-0.015**	0.016	0.000
	(-2.68)	(-2.19)	(1.45)	(0.06)
$Size_{[t-1]}$	-0.006	-0.002	-0.001	0.004
	(-0.32)	(-0.12)	(-0.03)	(0.19)
$Age_{[t-1]}$	-0.072	-0.031	-0.086	-0.031
	(-1.14)	(-0.57)	(-1.01)	(-0.46)
Management Fee (%)	-0.012	0.081	-0.245***	0.083
	(-0.16)	(1.14)	(-2.63)	(1.31)
Incentive Fee (%)	-0.002	0.004	0.007	0.002
	(-0.34)	(0.73)	(0.77)	(0.29)
Lockup Period (months)	0.003	0.003	0.009	0.013**
	(0.50)	(0.69)	(1.09)	(2.12)
Offshore (0/1)	-0.105	-0.070	-0.042	0.050
	(-1.51)	(-1.09)	(-0.42)	(0.65)
High Water Mark (0/1)	0.091	0.078	-0.089	-0.000
	(1.10)	(1.06)	(-0.79)	(-0.00)
Strategy FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	474	474	474	440
R^2	0.324	0.139	0.380	0.253

Panel B. Performance of Funds Selling Full Stakes

	Net Return	Sharpe Ratio	Sty-Adj. Return	Alpha
	(1)	(2)	(3)	(4)
Outside Owner (0/1)	-0.078	-0.047	-0.134	0.007
	(-0.95)	(-0.57)	(-0.85)	(0.06)
$Net\ Return_{[t-24,t-1]}$	-0.033	-0.030	0.059	0.042
	(-1.02)	(-0.96)	(0.82)	(1.06)
$Flows_{[t-24,t-1]}$	-0.118	0.047	-0.019	0.049
	(-1.48)	(0.56)	(-0.12)	(0.45)
$Size_{[t-1]}$	-0.082	0.060	0.239	0.257**
	(-1.00)	(0.71)	(1.47)	(2.13)
$Age_{[t-1]}$	0.001	0.013	-0.012	-0.020*
	(0.15)	(1.38)	(-0.70)	(-1.67)
Management Fee (%)	0.005	0.008	0.030*	0.016
	(0.65)	(0.97)	(1.93)	(1.43)
Incentive Fee (%)	0.035	0.001	-0.266	-0.029
	(0.30)	(0.01)	(-1.18)	(-0.18)
Lockup Period (months)	-0.042	-0.046	0.186	0.118
	(-0.43)	(-0.41)	(0.89)	(0.82)
Offshore (0/1)	0.146*	0.045	0.191*	-0.010
	(1.76)	(0.66)	(1.74)	(-0.08)
High Water Mark (0/1)	-0.021*	-0.003	-0.037*	-0.018
	(-1.80)	(-0.24)	(-1.94)	(-1.27)
Strategy FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	156	156	155	151
R^2	0.410	0.407	0.552	0.304

Table 5: Timing and Talent-picking
Performance of Subsamples of Funds

This table contains results of multivariate regressions that examine the impact of outside ownership on fund performance for various subsamples. Funds are then divided into subsamples based on a given characteristic. Panel A divides funds based on fund age. Panel B divides funds based on the experience of the outside owner that buys a stake. Panel C divides funds based on whether the outside owner has experience managing alternatives experience. The dependent variable in each case is *Flows*, computed for the 24-month period after the outside owner's arrival. I report the coefficients on *Outside Owner*, an indicator variable equal to 1 for funds with an outside owner and 0 otherwise, for each subsample of funds. The control variables are as defined in Table 4. All regressions contain strategy and year fixed effects. Standard errors are adjusted for heteroskedasticity and *t*-statistics are reported below the coefficients in parentheses. The final two rows contain the difference in the coefficients on *Outside Owner* for in columns 1 and 2 and the *p*-value for the *F*-test of the difference. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level respectively.

Panel A. Fund Age

	Avg. Return	Sharpe Ratio	Style-Adj. Return	Alpha
	(1)	(2)	(3)	(4)
Non-Top Quartile Age	-0.014	-0.133	-0.031	-0.001
	(-0.19)	(-1.25)	(-0.46)	(-0.02)
Top Quartile Age	-0.096	0.438**	-0.141	-0.232
	(-0.67)	(2.18)	(-1.12)	(-1.34)
Difference (Below - Above)	0.082	-0.571**	0.11	0.231
p-value (diff.)	0.613	0.0120	0.443	0.222

Panel B. Outside Owner Experience

	Avg. Return	Sharpe Ratio	Style-Adj. Return	Alpha
	(1)	(2)	(3)	(4)
Non-Top Quartile Experience	-0.009	0.065	-0.036	0.008
	(-0.11)	(0.59)	(-0.51)	(0.09)
Top Quartile Experience	-0.041	-0.038	-0.112	-0.122
	(-0.39)	(-0.25)	(-1.19)	(-1.06)
Difference (Below - Above)	0.032	0.103	0.076	0.130
p-value (diff.)	0.806	0.580	0.519	0.365

Panel C. Outside Owners' Experience Managing Alternatives

	Avg. Return	Sharpe Ratio	Style-Adj. Return	Alpha
	(1)	(2)	(3)	(4)
Alternatives Experience	0.107	0.154	0.154**	0.022
	(1.25)	(1.28)	(2.16)	(0.25)
No Alternatives Experience	-0.121	-0.149	-0.218***	-0.074
	(-1.47)	(-1.09)	(-2.61)	(-0.74)
Difference (Below - Above)	0.228*	0.303*	0.372***	0.096
p-value (diff.)	0.053	0.095	0.001	0.461

Table 6: Growth
Impact of Outside Ownership on Expansion

This table contains results of regressions examining the impact of outside ownership on firms' ability to expand. The sample consists of fund companies with an outside owner and the propensity score matched sample of companies without an outside owner. The dependent variable in column 1 (2) is *New Fund* (*New Strategy*), an indicator variable equal to 1 if a firm opens a new fund (new strategies) in a given month. The dependent variable in column 3 (4) is *# New Funds* (*# New Strategies*), which is equal to the number of new funds (new strategies) the fund company opens in the 24-months after the outside owner purchases his stake. The control variables are defined as in Table 4. All regressions contain strategy and year fixed effects. Standard errors are adjusted for heteroskedasticity and clustered at the fund company level and *t*-statistics are reported below the coefficients in parentheses. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level respectively.

Panel A. Companies' Decisions to Open New Funds

	Logistic Regressions		OLS Regressions	
	(1)	(2)	(3)	(4)
	New Fund	New Strategy	# New Funds	# New Strategies
Outside Owner (0/1)	0.588**	0.772*	0.497*	0.180**
	(2.32)	(1.90)	(1.76)	(2.09)
$Net\ Return_{[t-24,t-1]}$	-0.040	-0.254	-0.016	-0.032
	(-0.20)	(-1.08)	(-0.07)	(-0.46)
$Flows_{[t-24,t-1]}$	0.048	0.042	0.057	0.004
	(1.51)	(1.06)	(1.65)	(0.44)
$Size_{[t-1]}$	0.315***	0.356***	0.222**	0.076*
	(4.21)	(3.20)	(2.33)	(1.79)
$Age_{[t-1]}$	0.000	-0.004	0.000	-0.001
	(0.39)	(-0.84)	(0.28)	(-1.48)
Management Fee (%)	0.608*	0.384	0.782*	0.241
	(1.65)	(0.71)	(1.97)	(1.56)
Incentive Fee (%)	0.000	0.131**	-0.010	0.011**
	(0.01)	(2.38)	(-0.42)	(2.06)
Lockup Period (months)	-0.014	0.020	-0.026	-0.009
	(-0.69)	(0.44)	(-1.16)	(-0.78)
Offshore (0/1)	0.776**	-0.033	0.601*	-0.009
	(2.18)	(-0.05)	(1.88)	(-0.11)
High Water Mark (0/1)	-1.254*	-0.398	-0.103	0.103
	(-1.86)	(-0.63)	(-0.22)	(0.64)
Year Dummies/Year FE	YES	YES	YES	YES
Observations	4,634	3,997	184	184
Pseudo R^2/ R^2	0.128	0.100	0.189	0.188

Table 7: Growth
Outside Ownership and Fund Flows

This table contains results of multivariate regressions that examine the impact of outside ownership on hedge fund flows. Panel A contains the results for existing funds that sell partial ownership claims to outside owners. The dependent variable in each case is *Flow*, computed for the 24 months after the outside owner's arrival. The independent variable of interest is *Outside Owner*, which is an indicator variable equal to 1 for funds with an outside owner and 0 otherwise. The independent variables are past and contemporaneous net returns, past flows, lagged fund size, age, and time-invariant fund characteristics (Management Fee, Incentive Fee, Lockup Period, and indicator variables for offshore domicile and the presence of a high water mark provision) as defined in Table 4. All regressions contain strategy and year fixed effects. Standard errors are robust to heteroskedasticity and *t*-statistics are reported below the coefficients in parentheses. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level respectively.

	Propensity Score Matched		Past Flow Matched	
	(1)	(2)	(3)	(4)
Outside Owner (0/1)	0.603**	0.575**	0.924***	0.911***
	(2.19)	(2.06)	(2.83)	(2.78)
$Net\ Return_{[t-24,t-1]}$	0.687***	0.650***	0.638***	0.668***
	(3.06)	(2.83)	(2.72)	(2.78)
$Net\ Return_{[t+1,t+24]}$	0.776***	0.749***	0.001	0.001
	(3.69)	(3.53)	(0.36)	(0.55)
$Flows_{[t-24,t-1]}$	0.019	-0.002	0.311***	0.316***
	(0.48)	(-0.04)	(7.69)	(7.48)
$Size_{[t-1]}$	-0.449***	-0.402***	-0.349***	-0.406***
	(-5.27)	(-4.45)	(-3.55)	(-3.83)
$Age_{[t-1]}$		-0.442		0.258
		(-1.55)		(0.77)
Management Fee (%)		-0.149		0.237
		(-0.46)		(0.65)
Incentive Fee (%)		-0.024		0.016
		(-0.88)		(0.51)
Lockup Period (months)		0.005		-0.048
		(0.20)		(-1.52)
Offshore (0/1)		-0.017		0.312
		(-0.05)		(0.78)
High Water Mark (0/1)		0.198		-0.156
		(0.55)		(-0.35)
Strategy FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	447	447	456	456
R^2	0.249	0.256	0.309	0.320

Table 8: Growth
Subsamples of Funds

This table contains results of multivariate regressions that examine how the flow impact of the outside owner varies with funds' growth constraints. The sample consists of funds with an outside owner and the propensity score matched sample of funds. The funds are then divided into subsamples based on whether they are above or below the sample median of a given characteristic. Panel A contains the regressions in which funds are divided based on past flows. Panel B contains the regressions in which funds are divided based on past performance. Panel C contains the regressions in which funds are divided based on size. The dependent variable in each case is *Flows*, computed for the 24-month period after the outside owner's arrival. The independent variable of interest is *Outside Owner*, which is an indicator variable equal to 1 for funds with an outside owner and 0 otherwise. The control variables are defined as in Table 4. All regressions contain strategy and year fixed effects. Standard errors are adjusted for heteroskedasticity and *t*-statistics are reported below the coefficients in parentheses. The final two rows contain the difference in the coefficients on *Outside Owner* for in columns 1 and 2 and the *p*-value for the *F*-test of the difference. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level respectively.

Panel A. Funds Divided by Flows

	(1) Above Median Flows	(2) Below Median Flows
Outside Owner (0/1)	-0.041	1.942***
	(-0.07)	(2.84)
$Net\ Return_{[t-24,t-1]}$	0.673	-0.138
	(1.48)	(-0.31)
$Net\ Return_{[t+1,t+24]}$	0.808**	0.702
	(2.04)	(1.31)
$Flows_{[t-24,t-1]}$	0.034	0.057
	(0.56)	(0.26)
$Size_{[t-1]}$	-0.559***	-0.826***
	(-3.15)	(-3.75)
$Age_{[t-1]}$	0.002	0.003
	(0.26)	(0.35)
Management Fee (%)	-0.435	0.007
	(-0.71)	(0.01)
Incentive Fee (%)	0.009	-0.092
	(0.16)	(-1.59)
Lockup Period (months)	-0.062	-0.037
	(-1.20)	(-0.71)
Offshore (0/1)	-0.579	0.505
	(-0.83)	(0.61)
High Water Mark (0/1)	-0.633	0.096
	(-0.85)	(0.11)
Strategy FE	YES	YES
Year FE	YES	YES
Difference (Above − Below)	-1.983**	
p-value (Diff.)	0.025	

Panel B. Funds Divided by Size

	(1) Above Median Size	(2) Below Median Size
Outside Owner (0/1)	0.221	1.572**
	(0.38)	(2.39)
$Net\ Return_{[t-24,t-1]}$	0.107	0.416
	(0.24)	(1.01)
$Net\ Return_{[t+1,t+24]}$	0.495	-0.161
	(1.08)	(-0.41)
$Flows_{[t-24,t-1]}$	0.003	-0.135**
	(0.03)	(-2.54)
$Size_{[t-1]}$	-0.199	-0.762***
	(-0.66)	(-3.13)
$Age_{[t-1]}$	0.002	-0.007
	(0.38)	(-0.88)
Management Fee (%)	-0.199	-0.732
	(-0.36)	(-1.06)
Incentive Fee (%)	0.047	-0.057
	(0.82)	(-1.00)
Lockup Period (months)	-0.091*	-0.095*
	(-1.77)	(-1.74)
Offshore (0/1)	-0.182	0.235
	(-0.25)	(0.33)
High Water Mark (0/1)	-0.289	1.048
	(-0.39)	(1.23)
Strategy FE	YES	YES
Year FE	YES	YES
Difference (Above − Below)	-1.351	
p-value (Diff.)	0.123	

Table 9: Growth
Subsamples of Outside Owners

This table contains results of multivariate regressions that examine how the various characteristics of the outside owners impact fund flows. The sample consists of funds with an outside owner and the propensity score matched sample of funds. In Panel A, funds are divided based on whether the outside owner purchasing the stake is in the top quartile of experience buying hedge fund stakes. In Panel B, funds are divided based on whether the outside owner also has an asset management division. The dependent variable in each column is *Flows*, computed for the 24-months after the outside owner's arrival. The independent variable of interest is *Outside Owner*, which is an indicator variable equal to 1 for funds with an outside owner and 0 otherwise. The control variables are the same as those in Table 4. All regressions contain strategy and year fixed effects. Standard errors are adjusted for heteroskedasticity and *t*-statistics are reported below the coefficients in parentheses. The final two rows contain the difference in the coefficients on *Outside Owner* for in columns 1 and 2 and the *p*-value for the *F*-test of the difference. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level respectively.

Panel A. Outside owner Experience

	(1) Top Quartile Experience	(2) Non-Top Quartile Experience
Outside Owner (0/1)	1.908***	0.278
	(2.99)	(0.61)
Other Controls	YES	YES
Strategy FE	YES	YES
Year FE	YES	YES
Difference (Top – Non-Top)	1.63**	
p-value (Diff.)	0.037	

Panel B. Outside Owner w/Asset Management Division

	(1) Asset Management	(2) No Asset Management
Outside Owner (0/1)	0.820**	0.215
	(2.20)	(0.47)
Other Controls	YES	YES
Strategy FE	YES	YES
Year FE	YES	YES
Difference (Top – Non-Top)	0.605	
p-value (Diff.)	0.304	

Table 10: Monitoring
Outside Ownership and Returns Management

This table contains results of multivariate regressions estimating the relation between outside ownership and returns management. The dependent variable in each model is *Return*, which is equal to the fund's monthly gross return, net return, or residual from the Fung & Hsieh (2004) 7-factor model. The variable of interest is *December* × *Outside Owner* × *After*, where *December* is an indicator variable equal to 1 if the return observation is from December and 0 otherwise, *Outside Owner* is an indicator variable equal to 1 for funds with an outside owner and 0 otherwise, and *After* is an indicator variable equal to 1 for the year after the outside owner arrives and 0 otherwise. The control variables are the same as those in Table 3 of Agarwal, Daniel, and Naik (2011). Standard errors are adjusted for heteroskedasticity and clustered at the fund level and *t*-statistics are reported below the coefficients in parentheses. All regressions contain strategy and year fixed effects. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

	Y = Gross Return	Y = Net Return	Y=Residual
	(1)	(2)	(3)
December	0.846***	0.898***	0.470***
	(6.64)	(6.12)	(4.83)
December × Outside Owner × After	-0.595**	-0.572**	-0.382**
	(-2.23)	(-2.05)	(-1.97)
December × Outside Owner	-0.248	-0.242	-0.162
	(-1.40)	(-1.25)	(-1.27)
December × After	0.145	0.108	0.030
	(0.79)	(0.55)	(0.23)
Outside Owner (0/1)	-0.047	-0.035	-0.063*
	(-1.21)	(-0.91)	(-1.70)
Non-December Quarter End (0/1)	-0.180***	-0.203***	-0.106***
	(-4.84)	(-5.08)	(-3.27)
$Moneyness_{m-1}$	0.916***	1.355***	0.059
	(3.02)	(4.20)	(0.27)
$Delta_{m-1}$	0.032	0.013	-0.019
	(0.95)	(0.37)	(-0.70)
$CSVol_m$	0.005**	0.004*	0.013***
	(2.43)	(1.92)	(9.58)
$ReturnVolatility_{m-1}$	0.035***	0.023***	0.018***
	(5.44)	(3.36)	(3.61)
Y_{m-1}	0.191***	0.232***	0.053***
	(16.35)	(13.11)	(4.85)
Y_{m-2}	0.077***	0.084***	0.024*
	(6.77)	(6.13)	(1.89)
Other Controls	YES	YES	YES
Style FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	28,472	28,510	28,510
R^2	0.064	0.078	0.024

Table 11: Monitoring
Subsample Analyses of Returns Management Effects

This table contains results of multivariate regressions estimating the relation between outside ownership and returns management. The dependent variable in each model is *Return*, which is equal to the fund's monthly gross return, net return, or residual from the Fung & Hsieh (2004) 7-factor model. The variable of interest is *December* × *Outside Owner* × *After*, where *December* is an indicator variable equal to 1 if the return observation is from December and 0 otherwise, *Outside Owner* is an indicator variable equal to 1 for funds with an outside owner and 0 otherwise, and *After* is an indicator variable equal to 1 for the year after the outside owner arrives and 0 otherwise. The control variables are the same as those in Table 3 of Agarwal, Daniel, and Naik (2011). Panel A contains the results when the sample is divided based on whether the ownership change occurs before or after 2008. Panel B contains the results when the sample is divided based on outsider reputation. Standard errors are adjusted for heteroskedasticity and clustered at the fund level and *t*-statistics are reported below the coefficients in parentheses. All regressions contain strategy and year fixed effects. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively

Panel A. Returns Management Before vs. After 2008

	Gross Return	Net Return	Residual
December (After 2008)	0.852***	0.962***	0.062
	(3.82)	(3.72)	(0.39)
December (Before 2008)	0.782***	0.785***	0.795***
	(5.56)	(4.78)	(6.98)
December x Outside Owner x After (After 2008)	-1.439***	-1.341***	-1.183***
	(-3.28)	(-2.96)	(-3.15)
December x Outside Owner x After (Before 2008)	-0.104	-0.135	0.043
	(-0.34)	(-0.41)	(0.21)
December x Outside Owner (After 2008)	0.578*	0.561	0.213
	(1.80)	(1.61)	(1.01)
December x Outside Owner (Before 2008)	-0.224	-0.272	-0.140
	(-1.15)	(-1.37)	(-0.89)
December (After – Before 2008)	0.070	0.177	-0.733**
December × Outside Owner × After (After – Before 2008)	-1.335**	-1.206**	-1.226***
December × Outside Owner (After – Before 2008)	0.802**	0.833**	0.353
Other Controls	YES	YES	YES
Strategy FE	YES	YES	YES
Year FE	YES	YES	YES

Panel B. Outsider Reputation and Returns Management

	Gross Return	Net Return	Residual
December (High Reputation)	0.912***	0.833***	0.542***
	(5.00)	(4.84)	(3.85)
December (Low Reputation)	0.849***	0.772***	0.505***
	(5.30)	(5.05)	(4.37)
December x Outside Owner x After (High Rep.)	-0.639	-0.576	-0.842**
	(-1.49)	(-1.44)	(-2.42)
December x Outside Owner x After (Low Rep.)	-0.502	-0.517	-0.058
	(-1.53)	(-1.63)	(-0.28)
December x Outside Owner (High Rep.)	-0.198	-0.172	-0.098
	(-0.66)	(-0.63)	(-0.48)
December x Outside Owner (Low Rep.)	0.312	0.320	0.035
	(1.44)	(1.55)	(0.22)
December (High – Low Reputation)	0.063	0.061	0.037
December × Outside Owner × After (High – Low Reputation)	-0.137	-0.059	-0.784*
December × Outside Owner (High – Low Reputation)	-0.510	-0.492	-0.133
Other Controls	YES	YES	YES
Strategy FE	YES	YES	YES
Year FE	YES	YES	YES

Appendix A:
Definition of Variables

Variable	Description
Performance Variables	
Net Return	Average net-of-fee return for the previous 24 months
Style-Adjusted Return	24-month average of the monthly return of fund *i* minus the mean return of all funds in its style.
Alpha	Alpha measure calculated using equation (1). The model used is the Fung and Hsieh (2004) 7-factor model
Sharpe Ratio	24-month average of a fund's monthly excess returns (e.g., its return minus the risk-free rate) divided by the standard deviation of its returns over the same period.
Flow	Calculated as $\left(AUM_t - AUM_{t-1} \times (1+r_t)\right) / AUM_{t-1}$
Star Fund	Indicator equal to 1 if a fund's family contains a fund that is in the top 5th percentile of Alpha for the previous 24-month period
Risk-Taking Variables	
Return Volatility	Standard deviation of the past 24 months' net-of-fee returns
Idiosyncratic Volatility	Standard deviation of the residuals from the regression estimated from equation (1)
Systematic Volatility	Square root of the difference between a fund's total and idiosyncratic return variances.
Tail Risk Exposure	An indicator variable equal to 1 if the fund's returns are negatively and statistically significantly explained by the put option factor of Agarwal and Naik (2004) and 0 otherwise.
Company/Fund Characteristics	
Size	Natural logarithm of 1 + assets under management if assets under management are disclosed
Age	Calculated as the number of months from the fund/company's inception date
Offshore	Indicator variable equal to 1 if the fund is domiciled offshore; 0 otherwise
Lockup Period	The number of months from the time of initial investment before an investor can withdraw his capital.
High Water Mark	Indicator variable equal to 1 if the fund has a high water mark provision; 0 otherwise
Management Fee	The percentage of the assets under management the manager receives as compensation
Incentive Fee	The percentage of the fund's profits the manager receives as compensation
Delta	The expected dollar change in the manager's compensation for a 1% change in NAV.
Vega	The expected dollar change in the manager's compensation for a 1% change in standard deviation

Appendix B
Data Collection Process: Form ADV Example

This table contains a sample from Form ADV detailing explaining my data construction process. Panel A contains an example of Schedule A and Panel B contains an example of Schedule B. Both examples are taken from the Form ADV filed by Capstone Investment Advisors on February 27, 2015.

Panel A. Schedule A

Schedule A

Direct Owners and Executive Officers

1.Complete Schedule A only if you are submitting an initial application or report. Schedule A asks for information about your direct owners and executive officers. Use Schedule C to amend this information.

2.Direct Owners and Executive Officers. List below the names of:

(a)each Chief Executive Officer, Chief Financial Officer, Chief Operations Officer, Chief Legal Officer, Chief Compliance Officer(Chief Compliance Officer is required if you are registered or applying for registration and cannot be more than one individual), director, and any other individuals with similar status or functions;

(b)if you are organized as a corporation, each shareholder that is a direct owner of 5% or more of a class of your voting securities, unless you are a public reporting company (a company subject to Section 12 or 15(d) of the Exchange Act);

Direct owners include any *person* that owns, beneficially owns, has the right to vote, or has the power to sell or direct the sale of, 5% or more of a class of your voting securities. For purposes of this Schedule, a *person* beneficially owns any securities: (i) owned by his/her child, stepchild, grandchild, parent, stepparent, grandparent, spouse, sibling, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, sharing the same residence; or (ii) that he/she has the right to acquire, within 60 days, through the exercise of any option, warrant, or right to purchase the security.

(c)if you are organized as a partnership, all general partners and those limited and special partners that have the right to receive upon dissolution, or have contributed, 5% or more of your capital;

(d)in the case of a trust that directly owns 5% or more of a class of your voting securities, or that has the right to receive upon dissolution, or has contributed, 5% or more of your capital, the trust and each trustee; and

(e)if you are organized as a limited liability company ("LLC"), (i) those members that have the right to receive upon dissolution, or have contributed, 5% or more of your capital, and (ii) if managed by elected managers, all elected managers.

3.Do you have any indirect owners to be reported on Schedule B? (•) Yes ( ) No

4.In the DE/FE/I column below, enter "DE" if the owner is a domestic entity, "FE" if the owner is an entity incorporated or domiciled in a foreign country, or "I" if the owner or executive officer is an individual.

5.Complete the Title or Status column by entering board/management titles; status as partner, trustee, sole proprietor, elected manager, shareholder, or member; and for shareholders or members, the class of securities owned (if more than one is issued).

6.Ownership codes are: NA - less than 5% B - 10% but less than 25% D - 50% but less than 75%
A - 5% but less than 10% C - 25% but less than 50% E - 75% or more

7.(a)In the *Control Person* column, enter "Yes" if the *person* has *control* as defined in the Glossary of Terms to Form ADV, and enter "No" if the *person* does not have *control*. Note that under this definition, most executive officers and all 25% owners, general partners, elected managers, and trustees are *control persons*.

(b)In the PR column, enter "PR" if the owner is a public reporting company under Sections 12 or 15(d) of the Exchange Act.

(c)Complete each column.

FULL LEGAL NAME (Individuals: Last Name, First Name, Middle Name)	DE/FE/I	Status	Date Status Acquired MM/YYYY	Ownership Code	Control Person	PR	*CRD* No. If None: S.S. No. and Date of Birth, IRS Tax No. or Employer ID No.
BRITTON, PAUL, MATTHEW	I	MANAGER & CHIEF EXECUTIVE OFFICER	03/2007	E	Y	N	4473988
LUCAS, JOSEPH, JOHN	I	PRESIDENT & CHIEF OPERATING OFFICER	01/2011	NA	Y	N	1286014
MCGANN, ROBERT, VINCENT	I	CHIEF FINANCIAL OFFICER	04/2008	NA	Y	N	4814733
BENSLEY, ADAM, MICHAEL	I	CHIEF COMPLIANCE OFFICER & GENERAL COUNSEL	03/2012	NA	Y	N	5239266
DYAL CAPITAL PARTNERS (A), LP	DE	MEMBER	05/2013	B	Y	N	46-0525083

I use the Perl programming language to extract the rows of each Schedule A and then manually examine each table to find parties in Schedule A with the DE and FE designations. In this example, we can see that a group called "Dyal Capital Partners" has a 10-25% stake in Capstone.

Panel B. Schedule B

Schedule B

Indirect Owners

1. Complete Schedule B only if you are submitting an initial application. Schedule B asks for information about your indirect owners; you must first complete Schedule A, which asks for information about your direct owners. Use Schedule C to amend this information.
2. Indirect Owners. With respect to each owner listed on Schedule A (except individual owners), list below:
   (a) in the case of an owner that is a corporation, each of its shareholders that beneficially owns, has the right to vote, or has the power to sell or direct the sale of, 25% or more of a class of a voting security of that corporation;

   For purposes of this Schedule, a *person* beneficially owns any securities: (i) owned by his/her child, stepchild, grandchild, parent, stepparent, grandparent, spouse, sibling, mother-in-law, father-in-law, son-in-law, daughter-in-law, brother-in-law, or sister-in-law, sharing the same residence; or (ii) that he/she has the right to acquire, within 60 days, through the exercise of any option, warrant, or right to purchase the security.
   (b) in the case of an owner that is a partnership, all general partners and those limited and special partners that have the right to receive upon dissolution, or have contributed, 25% or more of the partnership's capital;
   (c) in the case of an owner that is a trust, the trust and each trustee; and
   (d) in the case of an owner that is a limited liability company ("LLC"), (i) those members that have the right to receive upon dissolution, or have contributed, 25% or more of the LLC's capital, and (ii) if managed by elected managers, all elected managers.
3. Continue up the chain of ownership listing all 25% owners at each level. Once a public reporting company (a company subject to Sections 12 or 15(d) of the Exchange Act) is reached, no further ownership information need be given.
4. In the DE/FE/I column below, enter "DE" if the owner is a domestic entity, "FE" if the owner is an entity incorporated or domiciled in a foreign country, or "I" if the owner is an individual.
5. Complete the Status column by entering the owner's status as partner, trustee, elected manager, shareholder, or member; and for shareholders or members, the class of securities owned (if more than one is issued).
6. Ownership codes are: C - 25% but less than 50% E - 75% or more
   D - 50% but less than 75% F - Other (general partner, trustee, or elected manager)
7. (a) In the *Control Person* column, enter "Yes" if the *person* has *control* as defined in the Glossary of Terms to Form ADV, and enter "No" if the *person* does not have *control*. Note that under this definition, most executive officers and all 25% owners, general partners, elected managers, and trustees are *control persons*.
   (b) In the PR column, enter "PR" if the owner is a public reporting company under Sections 12 or 15(d) of the Exchange Act.
   (c) Complete each column.

FULL LEGAL NAME (Individuals: Last Name, First Name, Middle Name)	DE/FE/I	Entity in Which Interest is Owned	Status	Date Status Acquired MM/YYYY	Ownership Code	Control Person	PR	*CRD* No. If None: S.S. No. and Date of Birth, IRS Tax No. or Employer ID No.
NB DYAL ASSOCIATES LP	FE	DYAL CAPITAL PARTNERS (A) LP, DYAL OFFSHORE INVESTORS LP, DYAL OFFSHORE INVESTORS II LP	GENERAL PARTNER	04/2010	F	Y	N	98-0657386
DYAL U.S. LLC	DE	DYAL CAPITAL PARTNERS (A), LP	LIMITED PARTNER	02/2010	D	Y	N	27-2302032
DYAL OFFSHORE INVESTORS LP	FE	DYAL U.S. LLC	MEMBER	02/2010	D	Y	N	98-0657373
DYAL OFFSHORE INVESTORS II LP	FE	DYAL U.S. LLC	MEMBER	04/2012	C	Y	N	80-0804852
NB DYAL GP HOLDINGS LLC	DE	NB DYAL ASSOCIATES LP	MANAGING MEMBER	02/2010	E	Y	N	27-2302165
NB ALTERNATIVES GP HOLDINGS LLC	DE	NB DYAL GP HOLDINGS LLC	MANAGING MEMBER	02/2010	E	Y	N	80-0357937
NB ALTERNATIVES HOLDINGS LLC	DE	NB ALTERNATIVES GP HOLDINGS LLC	MANAGING MEMBER	05/2009	E	Y	N	80-0357916
NBSH ACQUISITION, LLC	DE	NEUBERGER BERMAN GROUP LLC	MEMBER	05/2009	D	Y	N	26-4383171
LEHMAN BROTHERS HOLDINGS INC.	DE	NEUBERGER BERMAN GROUP LLC	MEMBER	02/2009	C	Y	N	13-3216325
NEUBERGER BERMAN GROUP LLC	DE	NB ALTERNATIVES HOLDINGS LLC	MANAGING MEMBER	05/2009	E	Y	N	61-1591182

I also use the Perl programming language to extract the rows of Schedule B. Schedule B identifies who is behind the non-individual entities in Schedule A. Many times the general partners of these investment advisors have set up limited liability corporations (LLCs) or other vehicles to ensure that they are not personally liable for any losses the company sustains. I examine Schedule B to confirm that the entity listed in Schedule A (in this case, Dyal Capital Partners) is not simply a collection of the firm's executives. In this example, after tracing the ownership of Dyal Capital Partners, I can see that this is ultimately a private equity fund that is owned and managed by Neuberger Berman. Internet searches also confirm that Dyal is indeed a fund managed by Neuberger Berman.

Appendix C – "Outside Ownership in the Hedge Fund Industry" – Additional Tables

Table of Contents

Table C1

Fund-level Multinomial Logistic Models w/Different Specifications

This table contains results of fund-level multinomial logistic regressions used to predict the sale of either a partial stake or full stake to an outside owner. The base outcome is that the hedge fund does not sell a stake. The outcome variable equals one if the hedge fund sells a partial stake. The outcome variable equals two if the hedge fund sells a full stake to an outside owner. The outcome occurs at time *t* and all independent variables are from the two-year period prior to time *t*. The odd-numbered models predict the outcome of a partial stake sale. The even-numbered models predict the outcome of a full stake sale. All continuous variables are winsorized at the 1% and 99% levels. Panel A contains models estimated using gross-of-fee returns. Panel B contains models excluding *Star Fund*. Panel C contains models that use squared performance terms rather than *Star Fund*. Panel D contains models excluding performance measures. All regressions include year and strategy dummies. Standard errors are clustered at the fund-level and adjusted for heteroskedasticity and *z*-statistics are reported below the coefficients in parentheses. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level respectively.

Panel A. Gross-of-fee Returns

Outcome: Odd columns=partial stake, Even columns=full stake

	Performance = Return		Performance = Sharpe		Performance = Sty-adj. Return		Performance = Alpha	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$Performance_{[t-24,t-1]}$	0.262***	0.040	0.120**	-0.058	0.220***	0.048	0.330***	0.173
	(4.14)	(0.22)	(2.34)	(-0.53)	(3.38)	(0.23)	(4.29)	(0.92)
$Flows_{[t-24,t-1]}$	-0.039**	0.008	-0.037**	0.011	-0.037**	0.008	-0.040**	0.005
	(-2.26)	(0.31)	(-2.15)	(0.44)	(-2.16)	(0.31)	(-2.33)	(0.21)
$Size_{[t-1]}$	0.104*	0.246***	0.104*	0.249***	0.104*	0.245***	0.102*	0.242***
	(1.92)	(3.53)	(1.94)	(3.61)	(1.93)	(3.56)	(1.90)	(3.46)
Star Fund (0/1)	-0.873***	-1.046**	-0.746***	-1.007**	-0.847***	-1.050**	-1.015***	-1.145**
	(-3.99)	(-2.15)	(-3.55)	(-2.02)	(-3.76)	(-2.17)	(-4.38)	(-2.38)
$Delta_{[t-1]}$	0.259***	-0.112	0.277***	-0.090	0.273***	-0.112	0.257***	-0.126
	(3.03)	(-0.41)	(3.27)	(-0.34)	(3.26)	(-0.41)	(2.99)	(-0.46)
$Vega_{[t-1]}$	-1.593***	0.875	-1.568***	0.819	-1.613***	0.879	-1.574***	0.889
	(-2.73)	(0.78)	(-2.73)	(0.73)	(-2.78)	(0.79)	(-2.71)	(0.79)
Lockup Period (months)	-0.028**	-0.011	-0.027**	-0.011	-0.027**	-0.012	-0.027**	-0.012
	(-2.36)	(-0.50)	(-2.32)	(-0.46)	(-2.33)	(-0.50)	(-2.33)	(-0.52)
High Water Mark (0/1)	-0.096	-0.378	-0.103	-0.377	-0.098	-0.379	-0.106	-0.384
	(-0.60)	(-1.51)	(-0.64)	(-1.50)	(-0.61)	(-1.51)	(-0.66)	(-1.52)
$ReturnVolatility_{[t-24,t-1]}$	-0.014	-0.015	0.002	-0.018	-0.013	-0.015	-0.010	-0.014
	(-1.14)	(-0.56)	(0.15)	(-0.57)	(-1.04)	(-0.57)	(-0.88)	(-0.51)
$Age_{[t-1]}$	-0.371***	-0.665***	-0.385***	-0.676***	-0.377***	-0.665***	-0.364***	-0.654***
	(-3.25)	(-3.05)	(-3.36)	(-3.08)	(-3.28)	(-3.03)	(-3.18)	(-2.98)
Offshore (0/1)	0.359**	0.623**	0.349**	0.605**	0.352**	0.624**	0.360**	0.633**
	(2.33)	(2.34)	(2.25)	(2.28)	(2.28)	(2.33)	(2.33)	(2.37)
# Top Service Providers	0.111	0.216	0.118*	0.213	0.111	0.215	0.110	0.217
	(1.56)	(1.57)	(1.65)	(1.55)	(1.56)	(1.56)	(1.54)	(1.58)
Style & Year Dummies	YES	YES	YES	YES	YES	YES	YES	YES
Observations	270,291		270,291		270,291		270,291	
Pseudo R^2	0.0823		0.0817		0.0813		0.0833	

Panel B. Models without Star Fund

Outcome: Odd columns=partial stake, Even columns=full stake

	Performance = Return		Performance = Sharpe		Performance = Sty-adj. Return		Performance = Alpha	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$Performance_{[t-24,t-1]}$	0.214***	-0.005	0.155***	-0.065	0.149*	0.009	0.205***	0.112
	(2.71)	(-0.03)	(2.78)	(-0.56)	(1.85)	(0.05)	(2.62)	(0.67)
$Flows_{[t-24,t-1]}$	-0.037**	-0.018	-0.039**	-0.015	-0.035**	-0.018	-0.036**	-0.020
	(-2.24)	(-0.63)	(-2.35)	(-0.53)	(-2.11)	(-0.64)	(-2.22)	(-0.71)
$Size_{[t-1]}$	0.086*	0.224***	0.084*	0.227***	0.088*	0.224***	0.086*	0.220***
	(1.80)	(2.74)	(1.75)	(2.78)	(1.84)	(2.73)	(1.80)	(2.68)
$Delta_{[t-1]}$	0.249***	-0.123	0.248***	-0.103	0.264***	-0.125	0.254***	-0.140
	(3.11)	(-0.52)	(3.08)	(-0.43)	(3.32)	(-0.52)	(3.18)	(-0.58)
$Vega_{[t-1]}$	-1.364**	1.027	-1.313**	0.971	-1.395**	1.033	-1.361**	1.066
	(-2.47)	(1.06)	(-2.38)	(1.00)	(-2.53)	(1.06)	(-2.47)	(1.10)
Lockup Period (months)	-0.026**	0.002	-0.027**	0.003	-0.026**	0.002	-0.026**	0.002
	(-2.32)	(0.12)	(-2.38)	(0.16)	(-2.29)	(0.12)	(-2.26)	(0.10)
High Water Mark (0/1)	-0.090	-0.434*	-0.094	-0.435*	-0.091	-0.434*	-0.094	-0.435*
	(-0.60)	(-1.85)	(-0.63)	(-1.85)	(-0.61)	(-1.85)	(-0.62)	(-1.86)
$ReturnVolatility_{[t-24,t-1]}$	-0.023**	-0.013	-0.007	-0.016	-0.021*	-0.013	-0.021*	-0.014
	(-1.99)	(-0.54)	(-0.61)	(-0.67)	(-1.81)	(-0.55)	(-1.81)	(-0.60)
$Age_{[t-1]}$	-0.309***	-0.605***	-0.309***	-0.613***	-0.316***	-0.604***	-0.307***	-0.597***
	(-2.77)	(-3.01)	(-2.77)	(-3.05)	(-2.83)	(-3.01)	(-2.75)	(-2.98)
Offshore (0/1)	0.385***	0.560**	0.391***	0.548**	0.377***	0.561**	0.377***	0.567**
	(2.69)	(2.05)	(2.73)	(2.00)	(2.64)	(2.05)	(2.64)	(2.07)
# Top Service Providers	0.049	0.290**	0.055	0.285**	0.048	0.290**	0.048	0.293**
	(0.69)	(2.17)	(0.78)	(2.13)	(0.69)	(2.17)	(0.68)	(2.20)
Style & Year Dummies	YES	YES	YES	YES	YES	YES	YES	YES
Observations	297,047		297,047		297,047		296,599	
Pseudo R^2	0.0823		0.0817		0.0813		0.0833	

Panel C. Models using squared performance measures

Outcome: Odd columns=partial stake, Even columns=full stake

	Performance = Return		Performance = Sharpe		Performance = Sty-adj. Return		Performance = Alpha	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$Performance_{[t-24,t-1]}$	1.124***	-0.345	0.504***	0.215	0.808***	-0.521	0.695***	-0.208
	(5.40)	(-1.02)	(4.11)	(0.88)	(4.20)	(-1.52)	(3.81)	(-0.63)
$Perf^2_{[t-24,t-1]}$	-0.392***	0.155	-0.103***	-0.108	-0.390***	0.294*	-0.252***	0.171
	(-4.47)	(1.21)	(-3.07)	(-1.23)	(-3.53)	(1.90)	(-2.85)	(1.17)
$Flows_{[t-24,t-1]}$	-0.043***	-0.015	-0.042**	-0.018	-0.041**	-0.014	-0.039**	-0.018
	(-2.60)	(-0.54)	(-2.54)	(-0.62)	(-2.46)	(-0.48)	(-2.39)	(-0.62)
$Size_{[t-1]}$	0.087*	0.224***	0.083*	0.222***	0.084*	0.228***	0.084*	0.222***
	(1.79)	(2.75)	(1.73)	(2.72)	(1.75)	(2.78)	(1.75)	(2.71)
$Delta_{[t-1]}$	0.258***	-0.121	0.246***	-0.098	0.260***	-0.108	0.257***	-0.138
	(3.20)	(-0.51)	(3.05)	(-0.41)	(3.24)	(-0.45)	(3.21)	(-0.57)
$Vega_{[t-1]}$	-1.516***	1.042	-1.407**	0.923	-1.395**	0.977	-1.409**	1.074
	(-2.70)	(1.08)	(-2.52)	(0.94)	(-2.53)	(1.01)	(-2.54)	(1.11)
Lockup Period (months)	-0.027**	0.003	-0.027**	0.003	-0.027**	0.004	-0.026**	0.002
	(-2.39)	(0.15)	(-2.35)	(0.16)	(-2.40)	(0.19)	(-2.28)	(0.12)
High Water Mark (0/1)	-0.099	-0.432*	-0.096	-0.432*	-0.094	-0.435*	-0.099	-0.435*
	(-0.66)	(-1.84)	(-0.64)	(-1.84)	(-0.63)	(-1.85)	(-0.66)	(-1.85)
$ReturnVolatility_{[t-24,t-1]}$	-0.006	-0.023	-0.009	-0.018	-0.017	-0.021	-0.011	-0.022
	(-0.54)	(-0.89)	(-0.81)	(-0.74)	(-1.50)	(-0.85)	(-0.98)	(-0.88)
$Age_{[t-1]}$	-0.317***	-0.605***	-0.312***	-0.613***	-0.321***	-0.603***	-0.314***	-0.594***
	(-2.85)	(-3.01)	(-2.80)	(-3.05)	(-2.88)	(-3.00)	(-2.82)	(-2.96)
Offshore (0/1)	0.411***	0.544**	0.397***	0.556**	0.395***	0.539**	0.391***	0.553**
	(2.87)	(1.99)	(2.78)	(2.02)	(2.77)	(1.97)	(2.73)	(2.02)
# Top Service Providers	0.050	0.289**	0.048	0.283**	0.049	0.287**	0.047	0.295**
	(0.71)	(2.16)	(0.68)	(2.12)	(0.70)	(2.14)	(0.66)	(2.21)
Style & Year Dummies	YES	YES	YES	YES	YES	YES	YES	YES
Observations	297,047		297,047		297,047		296,599	
Pseudo R^2	0.0804		0.0780		0.0783		0.0775	

Panel D. Models without Performance Measures

Outcome: Odd columns=partial stake, Even columns=full stake		
	(1)	(2)
$Flows_{[t-24,t-1]}$	-0.031*	-0.019
	(-1.91)	(-0.68)
$Size_{[t-1]}$	0.094**	0.228***
	(1.97)	(2.76)
Star Fund (0/1)	-0.773***	-1.169**
	(-3.61)	(-2.26)
$Delta_{[t-1]}$	0.292***	-0.115
	(3.71)	(-0.48)
$Vega_{[t-1]}$	-1.476***	0.991
	(-2.68)	(1.02)
Lockup Period (months)	-0.029**	-0.001
	(-2.51)	(-0.03)
High Water Mark (0/1)	-0.104	-0.443*
	(-0.70)	(-1.89)
$ReturnVolatility_{[t-24,t-1]}$	-0.009	-0.006
	(-0.81)	(-0.25)
$Age_{[t-1]}$	-0.349***	-0.608***
	(-3.13)	(-3.04)
Offshore (0/1)	0.413***	0.609**
	(2.89)	(2.23)
# Top Service Providers	0.045	0.281**
	(0.65)	(2.12)
Style & Year Dummies	YES	
Observations	297,047	
Pseudo R^2	0.0783	

Table C2

Fund-Level Logistic Models – Partial and Full Stakes Combined

This table contains results of logistic regressions on the determinants of outside ownership. The dependent variable in each column is *Sell*, a dummy variable equal to 1 if a fund sells a stake to an outside owner at time *t* and 0 otherwise. All independent variables are calculated based on the the two-year period prior to time *t*. All continuous variables are winsorized at the 1% and 99% levels. All regressions include year and strategy dummies. Standard errors are clustered at the fund-level and adjusted for heteroskedasticity. *Z*-statistics are reported below the coefficients in parentheses. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level respectively.

	Perf. = Net Return	Perf. = Sharpe	Perf. = Sty. Adj.	Perf. = Alpha
	(1)	(2)	(3)	(4)
Lag Performance	0.295***	0.232***	0.146***	0.383***
	(4.72)	(3.50)	(2.97)	(5.12)
Lag Flow	-0.035**	-0.033**	-0.035**	-0.037***
	(-2.54)	(-2.39)	(-2.50)	(-2.64)
Log(AUM)	0.117***	0.118***	0.118***	0.116***
	(2.76)	(2.78)	(2.77)	(2.71)
Star Fund (0/1)	-1.012***	-0.977***	-0.906***	-1.160***
	(-5.22)	(-4.94)	(-4.77)	(-5.73)
Delta	0.196**	0.212***	0.205**	0.193**
	(2.43)	(2.68)	(2.54)	(2.40)
Vega	-0.883*	-0.910*	-0.852*	-0.862*
	(-1.84)	(-1.90)	(-1.78)	(-1.80)
Lockup	-0.024**	-0.024**	-0.024**	-0.024**
	(-2.47)	(-2.44)	(-2.46)	(-2.44)
High Water Mark (0/1/)	-0.197	-0.198	-0.198	-0.206
	(-1.53)	(-1.54)	(-1.55)	(-1.60)
Return Volatility	-0.016	-0.015	0.000	-0.011
	(-1.47)	(-1.36)	(0.04)	(-1.07)
Age	-0.387***	-0.393***	-0.393***	-0.379***
	(-4.23)	(-4.27)	(-4.29)	(-4.13)
Offshore (0/1)	0.487***	0.478***	0.481***	0.487***
	(3.74)	(3.66)	(3.68)	(3.73)
# Top Service Providers	0.097	0.096	0.101	0.096
	(1.56)	(1.54)	(1.64)	(1.54)
Style Dummies	YES	YES	YES	YES
Year Dummies	YES	YES	YES	YES
Observations	295,341	295,341	295,341	294,895
Pseudo R2	0.0602	0.0592	0.0591	0.0615

Table C3
Fund-Level Conditional Logistic Models

This table contains results from yearly conditional logistic regressions modeling the determinants of outside ownership. The dependent variable in each column is *Sell*, which is equal to 1 if the hedge fund sells a stake to an outside owner at time *t* and 0 otherwise. All independent variables are calculated based on the the two-year period prior to time *t*. All continuous variables are winsorized at the 1% and 99% levels. All regressions include year and strategy dummies. Standard errors are clustered at the fund-level and adjusted for heteroskedasticity and *z*-statistics are reported below the coefficients in parentheses. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level respectively.

Panel A. Year Conditional Logistic Regressions

	Perf. = Net Return	Perf. = Sharpe	Perf. = Sty. Adj.	Perf. = Alpha
	(1)	(2)	(3)	(4)
Lag Performance	0.295***	0.146	0.232**	0.382***
	(2.96)	(1.56)	(2.08)	(3.54)
Lag Flow	-0.035**	-0.035**	-0.033**	-0.037**
	(-2.11)	(-2.06)	(-2.00)	(-2.18)
Log(AUM)	0.117*	0.118*	0.118*	0.116*
	(1.88)	(1.86)	(1.88)	(1.87)
Star Fund (0/1)	-1.012**	-0.906**	-0.977**	-1.160***
	(-2.41)	(-2.31)	(-2.34)	(-2.81)
Delta	0.196***	0.205***	0.212***	0.193***
	(3.73)	(3.86)	(3.80)	(3.45)
Vega	-0.883	-0.852	-0.909	-0.862
	(-1.32)	(-1.30)	(-1.35)	(-1.29)
Lockup	-0.024*	-0.024*	-0.024*	-0.024*
	(-1.72)	(-1.70)	(-1.70)	(-1.79)
High Water Mark (0/1/)	-0.197	-0.198	-0.198	-0.206
	(-0.69)	(-0.70)	(-0.70)	(-0.72)
Return Volatility	-0.016	0.000	-0.015	-0.011
	(-0.72)	(0.02)	(-0.65)	(-0.49)
Age	-0.387***	-0.393***	-0.393***	-0.379***
	(-2.74)	(-2.76)	(-2.79)	(-2.65)
Offshore (0/1)	0.487***	0.481***	0.478***	0.487***
	(3.15)	(3.14)	(3.10)	(3.11)
# Top Service Providers	0.097	0.101	0.096	0.096
	(1.33)	(1.45)	(1.32)	(1.31)
Style Dummies	YES	YES	YES	YES
Year Dummies	NO	NO	NO	NO
Observations	297,047	297,047	297,047	296,599
Pseudo R2	0.0321	0.0310	0.0309	0.0334

Table C4

Fund-Level Linear Probability Models

This table contains results of linear regressions modeling the determinants of outside ownership. The dependent variable in each column is *Sell*, a dummy variable equal to 1 if a fund sells a stake to an outside owner at time *t* and 0 otherwise. All independent variables are calculated based on the the two-year period prior to time *t*. All continuous variables are winsorized at the 1% and 99% levels. All regressions include year and strategy dummies. Standard errors are clustered at the fund-level and adjusted for heteroskedasticity. *Z*-statistics are reported below the coefficients in parentheses. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level respectively.

	Perf. = Net Return	Perf. = Sharpe	Perf. = Sty. Adj.	Perf. = Alpha
	(1)	(2)	(3)	(4)
Lag Performance	0.000***	0.000***	0.000***	0.000***
	(4.56)	(3.69)	(2.63)	(5.23)
Lag Flow	-0.000***	-0.000***	-0.000***	-0.000***
	(-2.73)	(-2.62)	(-2.72)	(-2.80)
Log(AUM)	0.000***	0.000***	0.000***	0.000***
	(2.81)	(2.85)	(2.84)	(2.72)
Star Fund (0/1)	-0.001***	-0.001***	-0.001***	-0.001***
	(-6.57)	(-6.21)	(-6.07)	(-7.14)
Delta	0.000**	0.000**	0.000**	0.000**
	(2.07)	(2.13)	(2.04)	(2.04)
Vega	-0.002*	-0.002*	-0.002*	-0.002*
	(-1.87)	(-1.88)	(-1.80)	(-1.80)
Lockup	-0.000**	-0.000**	-0.000**	-0.000***
	(-2.55)	(-2.54)	(-2.55)	(-2.61)
High Water Mark (0/1/)	-0.000	-0.000	-0.000	-0.000
	(-1.46)	(-1.47)	(-1.47)	(-1.52)
Return Volatility	-0.000	-0.000	0.000	-0.000
	(-0.66)	(-0.69)	(0.56)	(-0.41)
Age	-0.001***	-0.001***	-0.001***	-0.001***
	(-4.36)	(-4.40)	(-4.41)	(-4.26)
Offshore (0/1)	0.001***	0.001***	0.001***	0.001***
	(3.86)	(3.78)	(3.78)	(3.88)
# Top Service Providers	0.000	0.000	0.000	0.000
	(1.31)	(1.28)	(1.33)	(1.27)
Style FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	297,047	297,047	297,047	296,599
Pseudo R2	0.001	0.001	0.001	0.001

Table C5

Company-Level Multinomial Logistic Models

This table contains results of company-level multinomial logistic regressions used to predict the sale of either a partial stake or full stake to an outside owner. The base outcome is that the hedge fund firm does not sell a stake. The outcome variable equals one if the hedge fund sells a partial stake. The outcome variable equals two if the hedge fund sells a full stake to an outside owner. The outcome occurs at time *t* and all independent variables are from the two-year period prior to time *t*. The odd-numbered models predict the outcome of a partial stake sale. The even-numbered models predict the outcome of a full stake sale. All continuous variables are winsorized at the 1% and 99% levels. All regressions include year and strategy dummies. Standard errors are clustered at the fund-level and adjusted for heteroskedasticity and *z*-statistics are reported below the coefficients in parentheses. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level respectively.

Outcome: Odd columns=partial stake, Even columns=full stake								
	Performance = Net Return		Performance = Sharpe Ratio		Performance = Style-adj. Return		Performance = Alpha	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$Performance_{[t-24,t-1]}$	0.307**	0.064	0.209**	-0.088	0.169	0.147	0.362*	0.044
	(2.21)	(0.23)	(2.33)	(-0.50)	(1.13)	(0.50)	(1.88)	(0.14)
$Flows_{[t-24,t-1]}$	-0.052*	-0.003	-0.051*	0.005	-0.047*	-0.005	-0.053*	-0.002
	(-1.92)	(-0.07)	(-1.84)	(0.11)	(-1.75)	(-0.11)	(-1.92)	(-0.05)
$Size_{[t-1]}$	0.211**	0.252**	0.231***	0.262**	0.202**	0.252**	0.213**	0.251**
	(2.39)	(2.18)	(2.66)	(2.04)	(2.32)	(2.12)	(2.41)	(2.12)
Star Fund (0/1)	-0.150	-0.079	-0.257	-0.075	-0.028	-0.141	-0.294	-0.078
	(-0.37)	(-0.11)	(-0.70)	(-0.11)	(-0.07)	(-0.21)	(-0.64)	(-0.11)
$Delta_{[t-1]}$	0.093***	-0.154	0.090***	-0.148	0.098***	-0.156	0.094***	-0.152
	(2.90)	(-0.81)	(2.79)	(-0.78)	(3.12)	(-0.82)	(2.94)	(-0.80)
$Vega_{[t-1]}$	-0.529**	0.427	-0.525**	0.406	-0.528**	0.438	-0.526**	0.424
	(-2.10)	(0.76)	(-2.05)	(0.71)	(-2.13)	(0.78)	(-2.10)	(0.76)
Lockup Period (months)	-0.748	-0.397	-0.753	-0.333	-0.710	-0.420	-0.745	-0.390
	(-1.16)	(-0.32)	(-1.17)	(-0.27)	(-1.10)	(-0.34)	(-1.15)	(-0.32)
High Water Mark (0/1)	-0.438	-1.092**	-0.456	-1.092**	-0.416	-1.091**	-0.457	-1.094**
	(-1.29)	(-2.29)	(-1.33)	(-2.29)	(-1.22)	(-2.31)	(-1.34)	(-2.27)
$ReturnVolatility_{[t-24,t-1]}$	-0.060**	-0.018			-0.055**	-0.019	-0.056**	-0.016
	(-2.56)	(-0.59)			(-2.40)	(-0.63)	(-2.47)	(-0.49)
$Age_{[t-1]}$	-0.354*	-0.810*	-0.364*	-0.815*	-0.340*	-0.807*	-0.356*	-0.810*
	(-1.77)	(-1.89)	(-1.82)	(-1.90)	(-1.70)	(-1.89)	(-1.78)	(-1.90)
Offshore (0/1)	0.581*	0.399	0.596*	0.398	0.580*	0.405	0.572*	0.397
	(1.89)	(0.81)	(1.95)	(0.81)	(1.87)	(0.83)	(1.86)	(0.81)
# Top Service Providers	-0.006	0.109	-0.026	0.098	0.008	0.115	-0.009	0.109
	(-0.04)	(0.47)	(-0.20)	(0.43)	(0.06)	(0.51)	(-0.07)	(0.48)
Year Dummies	YES	YES	YES	YES	YES	YES	YES	YES
Observations	131,192		131,192		131,192		131,192	
Pseudo R^2	0.0625		0.0615		0.0599		0.0627	

Table C6

Verification of Match Quality

This table contains univariate comparisons of characteristics of the group of funds with outside owners to the control group of funds they are matched to via propensity score matching. The differences in the mean values of each group are compared using *t*-tests.

	Control	Treatment	Control - Treatment
Net Return (% p.m.)	0.77%	0.79%	-0.02%
Style-Adj. Return (% p.m.)	0.15%	0.17%	-0.02%
Sharpe Ratio (Annual)	1.10	1.03	0.07
Alpha (% p.m.)	0.43%	0.48%	-0.05%
Average Flow (% p.m.)	0.82%	0.84%	-0.02%
Return Volatility (% p.m.)	2.61%	2.74%	-0.13%
Log(1 + AUM ($ millions))	18.54	18.47	0.07
Delta ($ millions)	0.44	0.5	-0.06
Vega ($ millions)	0.03	0.05	-0.02*
Lockup Period (Days)	100.29	92.22	8.07
High Water Mark (0/1)	0.75	0.79	-0.04
Offshore (0/1)	0.65	0.7	-0.05
Log(1 + Age (in months))	4.44	4.30	0.14***
Star Fund (0/1)	0.08	0.09	-0.01
# Top Service Providers	1.22	1.34	-0.12

Table C7

Performance Tests without Size Control

This table contains the results when the tests in Tables 4 and 5 of the main paper are repeated omitting the lagged size variable. Panel A contains the results for the repeat of Table 4. Panels B-D contains the results for the repeat of Table 5.

Panel A. Table 4 Tests without Lagged Size

	Avg. Return	Sharpe Ratio	Style-Adj. Return	Alpha
	(1)	(2)	(3)	(4)
Outside Owner (0/1)	-0.046	-0.004	-0.045	-0.031
	(-0.78)	(-0.05)	(-0.81)	(-0.48)
Performance $_{t-1}$	0.158***	0.106**	0.178***	0.152***
	(3.12)	(2.33)	(3.69)	(3.30)
Flows	-0.025***	0.016	-0.015**	0.004
	(-2.70)	(1.46)	(-2.26)	(0.41)
Age	-0.071	-0.086	-0.032	-0.034
	(-1.17)	(-1.05)	(-0.61)	(-0.53)
Management Fee	0.007	-0.245***	0.081	0.031
	(0.10)	(-2.65)	(1.14)	(0.55)
Incentive Fee	-0.004	0.007	0.004	-0.002
	(-0.64)	(0.77)	(0.73)	(-0.29)
Lockup Period	0.002	0.009	0.003	0.014**
	(0.30)	(1.10)	(0.70)	(2.35)
Offshore (0/1)	-0.107	-0.043	-0.071	0.088
	(-1.60)	(-0.44)	(-1.14)	(1.21)
High Water Mark (0/1)	0.093	-0.089	0.078	0.061
	(1.17)	(-0.79)	(1.06)	(0.70)
Style FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	466	473	474	467
R-squared	0.336	0.380	0.139	0.231

Panel B. Table 5, Panel A – Fund Age Subsamples w/o Lagged Size

	Avg. Return	Sharpe Ratio	Style-Adj. Return	Alpha
	(1)	(2)	(3)	(4)
Non-Top Quartile Age	-0.015	-0.139	-0.030	0.000
	(-0.20)	(-1.32)	(-0.44)	(0.01)
Top Quartile Age	-0.096	0.457**	-0.138	-0.144
	(-0.67)	(2.28)	(-1.09)	(-0.94)
Difference (Below - Above)	0.081	-0.596***	0.108	0.144
p-value (diff.)	0.615	0.009	0.452	0.401

Panel C. Table 5, Panel B – Outsider Experience Subsamples w/o Lagged Size

	Avg. Return	Sharpe Ratio	Style-Adj. Return	Alpha
	(1)	(2)	(3)	(4)
Non-Top Quartile Experience	-0.068	-0.074	-0.103	-0.062
	(-0.66)	(-0.51)	(-1.10)	(-0.57)
Top Quartile Experience	-0.015	0.065	-0.033	-0.028
	(-0.19)	(0.59)	(-0.47)	(-0.33)
Difference (Below - Above)	-0.053	-0.139	-0.07	-0.034
p-value (diff.)	0.679	0.447	0.552	0.804

Panel D. Table 5, Panel C – Outsider Alternatives Experience Subsamples w/o Lagged Size

	Avg. Return	Sharpe Ratio	Style-Adj. Return	Alpha
	(1)	(2)	(3)	(4)
Alternatives Experience	0.090	0.146	0.146**	0.035
	(1.03)	(1.26)	(2.03)	(0.40)
No Alternatives Experience	-0.113	-0.145	-0.224***	-0.030
	(-1.35)	(-1.03)	(-2.68)	(-0.31)
Difference (Below - Above)	0.203*	0.291	0.370***	0.065
p-value (diff.)	0.094	0.11	0.001	0.617

Table C8

Performance Tests using Gross-of-Fee Returns

This table repeats the tests in Table 4 using gross returns to calculate all performance variables.

	Gross Return	Gross Sharpe Ratio	Style-Adj. Gross Return	Gross Alpha
	(1)	(2)	(3)	(4)
Outside Owner (0/1)	-0.000	-0.067	-0.000	-0.001
	(-0.23)	(-0.60)	(-0.44)	(-1.46)
Performance $_{t-1}$	0.138**	0.233***	0.130**	0.309***
	(2.19)	(4.33)	(2.34)	(4.99)
Flows	-0.000**	-0.010	-0.000	0.000
	(-2.02)	(-0.56)	(-0.92)	(0.28)
Size	-0.000	-0.039	0.000	0.000
	(-1.36)	(-1.06)	(0.03)	(0.05)
Age	-0.000	-0.022	-0.000	-0.002**
	(-0.55)	(-0.20)	(-0.01)	(-2.04)
Management Fee	-0.001	-0.339***	0.001	0.001
	(-0.68)	(-2.96)	(1.07)	(0.87)
Incentive Fee	-0.000	0.001	0.000	0.000
	(-0.35)	(0.04)	(1.21)	(0.06)
Lockup Period	0.000	0.005	0.000	0.000
	(0.46)	(0.48)	(0.64)	(1.45)
Offshore (0/1)	-0.001	0.030	-0.001	0.001
	(-1.26)	(0.24)	(-0.99)	(0.86)
High Water Mark (0/1)	0.001	-0.191	0.001	0.000
	(0.92)	(-1.40)	(0.80)	(0.26)
Style FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	350	335	347	350
R-squared	0.322	0.438	0.147	0.265

Table C9
Expansion Effects –Probit & Tobit Models

This table contains results of regressions examining the impact of outside ownership on firms' ability to expand. The sample consists of fund companies with an outside owner and the propensity score matched sample of companies without an outside owner. The dependent variable in column 1 (2) is *New Fund* (*New Strategy*), an indicator variable equal to 1 if a firm opens a new fund (new strategies) in a given month. The dependent variable in column 3 (4) is *# New Funds* (*# New Strategies*), which is equal to the number of new funds (new strategies) the fund company opens in the 24-months after the outside owner purchases his stake. The regressions in columns 1 and 2 are probit models while columns 3 and 4 are tobit models in Panel A. Panel B contains conditional logistic regressions. The control variables are defined as in Table 4. All regressions contain strategy and year dummies. Standard errors are adjusted for heteroskedasticity and clustered at the fund company level and *t*-statistics are reported below the coefficients in parentheses. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level respectively.

Panel A. Probit & Tobit

	Probit Regressions		Tobit Regressions	
	(1)	(2)	(3)	(4)
	New Fund	New Strategy	# New Funds	# New Strategies
Outside Owner (0/1)	0.588**	0.772*	1.410**	1.347***
	(2.32)	(1.90)	(2.13)	(7.78)
$Net\ Return_{[t-24,t-1]}$	-0.040	-0.254	-0.116	0.015
	(-0.20)	(-1.08)	(-0.20)	(0.10)
$Flows_{[t-24,t-1]}$	0.048	0.042	0.129**	0.056***
	(1.51)	(1.06)	(2.03)	(5.90)
$Size_{[t-1]}$	0.315***	0.356***	0.775***	0.585***
	(4.21)	(3.20)	(3.56)	(53.92)
$Age_{[t-1]}$	0.000	-0.004	-0.000	-0.014***
	(0.39)	(-0.84)	(-0.20)	(-9.07)
Management Fee (%)	0.608*	0.384	0.950	1.344***
	(1.65)	(0.71)	(1.06)	(10.53)
Incentive Fee (%)	0.000	0.131**	-0.011	0.106***
	(0.01)	(2.38)	(-0.19)	(9.52)
Lockup Period (months)	-0.014	0.020	-0.069	-0.021
	(-0.69)	(0.44)	(-1.10)	(-1.40)
Offshore (0/1)	0.776**	-0.033	0.999	0.125
	(2.18)	(-0.05)	(1.16)	(0.57)
High Water Mark (0/1)	-1.254*	-0.398	0.294	1.126***
	(-1.86)	(-0.63)	(0.26)	(5.06)
Year Dummies	YES	YES	YES	YES
Observations	4,634	3,997	184	184
Pseudo R^2	0.128	0.105	0.0876	0.224

Panel B. Conditional Logit

	Conditional Logit	
	(1)	(2)
	New Fund	New Strategy
Outside Owner (0/1)	0.576**	0.717
	(2.11)	(1.14)
$Net\ Return_{[t-24,t-1]}$	0.118	0.416
	(0.43)	(0.85)
$Flows_{[t-24,t-1]}$	0.050	0.090**
	(0.96)	(2.00)
$Size_{[t-1]}$	0.272	0.196
	(1.50)	(0.73)
$Age_{[t-1]}$	-0.000	0.000
	(-0.38)	(0.04)
Management Fee (%)	0.429	0.638
	(0.90)	(1.01)
Incentive Fee (%)	-0.003	0.106*
	(-0.09)	(1.72)
Lockup Period (months)	-0.209	0.358
	(-0.32)	(0.39)
Offshore (0/1)	0.117	2.293
	(0.18)	(1.55)
High Water Mark (0/1)	-0.040	0.065
	(-1.26)	(0.99)
Year Dummies	YES	YES
Observations	2,736	954
Pseudo R^2	0.040	0.087

Table C10

Base Flow Results using other Propensity Score Matched Samples

This table contains the results in which the tests in Table 7 are repeated using the alternate propensity score matched samples in which funds are matched by Sharpe ratio, average style-adjusted return, and alpha, respectively. The dependent variable in each case is *Flow*, computed for the 24 months after the outside owner's arrival. The independent variable of interest is *Outside Owner*, which is an indicator variable equal to 1 for funds with an outside owner and 0 otherwise. The independent variables fund size, age, and time-invariant fund characteristics (Management Fee, Incentive Fee, Lockup Period, and indicator variables for offshore domicile and the presence of a high water mark provision) as defined in Table 4. All regressions contain strategy and year fixed effects. Standard errors are robust to heteroskedasticity and *t*-statistics are reported below the coefficients in parentheses. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level respectively.

	Perf. = Sharpe		Perf. = Style-Adj. Returns		Perf. = Alpha	
	(1)	(2)	(3)	(4)	(5)	(6)
Outside Owner (0/1)	0.550**	0.518*	0.621**	0.599**	0.892***	0.880***
	(1.99)	(1.88)	(2.37)	(2.27)	(3.32)	(3.26)
$Performance_{[t-24,t-1]}$	0.611***	0.613***	0.824***	0.798***	0.265	0.212
	(4.30)	(4.23)	(3.82)	(3.67)	(1.44)	(1.14)
$Performance_{[t+1,t+24]}$	0.738***	0.762***	0.820***	0.787***	0.586***	0.595***
	(5.15)	(5.28)	(3.64)	(3.45)	(3.05)	(3.07)
$Flows_{[t-24,t-1]}$	0.070*	0.046	0.001	-0.008	0.063	0.023
	(1.83)	(1.14)	(0.02)	(-0.22)	(1.57)	(0.54)
$Size_{[t-1]}$	-0.541***	-0.515***	-0.219***	-0.177**	-0.300***	-0.222**
	(-6.21)	(-5.52)	(-2.75)	(-2.11)	(-3.74)	(-2.58)
$Age_{[t-1]}$		-0.592**		-0.198		-0.724***
		(-2.12)		(-0.77)		(-2.66)
Management Fee (%)		0.114		0.284		-0.111
		(0.39)		(0.86)		(-0.49)
Incentive Fee (%)		-0.054*		-0.010		-0.031
		(-1.75)		(-0.36)		(-1.04)
Lockup Period (months)		-0.029		0.014		-0.020
		(-1.17)		(0.58)		(-0.87)
Offshore (0/1)		0.039		-0.449		-0.469
		(0.12)		(-1.49)		(-1.54)
High Water Mark (0/1)		-0.222		-0.018		0.043
		(-0.62)		(-0.05)		(0.12)
Strategy FE	YES	YES	YES	YES	YES	YES
Year FE	YES	YES	YES	YES	YES	YES
Observations	456	456	456	456	456	456
R^2	0.223	0.235	0.294	0.310	0.250	0.258

Table C11

Impact of Outside Ownership on New Fund Flows

This table contains results of multivariate regressions that examine the impact of outside ownership on the flows to funds opened after the outside owner purchases his stake. The dependent variable in each case is *Flow*, computed for the 24 months after the outside owner's arrival. The independent variable of interest is *Outside Owner*, which is an indicator variable equal to 1 for funds with an outside owner and 0 otherwise. The independent variables fund size, age, and time-invariant fund characteristics (Management Fee, Incentive Fee, Lockup Period, and indicator variables for offshore domicile and the presence of a high water mark provision) as defined in Table 4. All regressions contain strategy and year fixed effects. Standard errors are robust to heteroskedasticity and *t*-statistics are reported below the coefficients in parentheses. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level respectively.

	All New Funds		Matched on Initial AUM	
	(1)	(2)	(3)	(4)
Outside Owner (0/1)	1.902***	1.548***	1.640**	1.582**
	(4.07)	(3.19)	(2.55)	(2.36)
Size	-1.636***	-1.801***	-1.659***	-1.866***
	(-21.77)	(-22.13)	(-6.08)	(-6.49)
Management Fee		0.698**		1.898**
		(2.33)		(2.11)
Inc. Fee		-0.002		-0.181*
		(-0.08)		(-1.84)
Lockup		0.012		0.042
		(0.60)		(0.77)
Offshore		1.713***		1.540*
		(5.71)		(1.78)
High Water Mark		0.541		0.768
		(1.22)		(0.63)
Style FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	2,765	2,505	444	400
R-squared	0.237	0.259	0.451	0.498

Table C12

Impact of Outside Ownership on Fund Flows

This table contains regressions in which the dependent variable is *Flows*. The regressions are estimated using monthly flows. The independent variables of interest for all regressions are interactions of *Outside Owner*, an indicator variable equal to 1 for funds with an outside owner and 0 otherwise, and variables indicating how far a given month is away from the date at which the outside owner purchased his stake. *Months 1-6* is equal to 1 if the month is between 1 and 6 months after the stake sale and 0 otherwise; *Months 7-12* is equal to 1 if the month is between 7 and 12 months after the stake sale and 0 otherwise; *Months 13-24* is equal to 1 if the month is between 13 and 24 months after the stake sale and 0 otherwise. All other controls are as defined previously in the paper.

	Flow	Flow
OutsideOwner × Months 1-6	-0.032	0.036
	(-0.06)	(0.07)
OutsideOwner × Months 7-12	1.117	1.173
	(1.14)	(1.18)
OutsideOwner × Months 13-24	0.851**	0.874**
	(1.97)	(1.97)
Past 1-yr. Performance	0.012***	0.012***
	(7.37)	(7.38)
Past 2-yr. Performance	0.000	0.000
	(0.14)	(0.06)
Past Flows	0.137***	0.130**
	(2.62)	(2.53)
Size	-0.564***	-0.538***
	(-3.60)	(-3.10)
Months 1-6	0.909**	0.918**
	(2.27)	(2.20)
Months 7-12	0.393	0.401
	(1.13)	(1.13)
Other Controls	NO	YES
Style FE	YES	YES
Year FE	YES	YES
Observations	12,527	12,527
R-squared	0.018	0.019

Table C13
Flow Impact on Various Subsamples

This table contains results of multivariate regressions that examine how the flow impact of the outside owner varies with various fund characteristics and industry conditions. The sample consists of funds with an outside owner and the propensity score matched sample of funds without outside owners. The funds are then divided into subsamples based on whether they are above or below the sample median of a given characteristic. Panel A contains the regressions in which funds are divided based on whether their strategy is opaque or not. Non-opaque strategies are CTAs, Funds of Funds, and Long Only Equity. The remaining strategies are considered opaque. Panel B (C) compares the flow impact during good and bad (high and low) strategy performance (volatility) years. Panel D (E) compares the flow impact during good and bad (high and low) industry performance (volatility) years. Panel F compares the flow impact based on the number of layers the outside owner uses to take its ownership stake. The dependent variable in each case is *Flows*, computed for the 24-month period after the outside owner's arrival. The independent variable of interest is *Outside Owner*, which is an indicator variable equal to 1 for funds with an outside owner and 0 otherwise. The control variables are defined as in Table 7 and are omitted for brevity. All regressions contain strategy and year fixed effects. Standard errors are adjusted for heteroskedasticity and *t*-statistics are reported below the coefficients in parentheses. The final row contains the difference in the reported coefficients. Coefficients marked with ***, **, and * are significant at the 1%, 5%, and 10% level respectively.

Panel A. Opaque vs. Non-Opaque Strategies

Treat × Opaque Strategies	0.746**
	(2.03)
Treat × Non-Opaque Strategies	0.210
	(0.50)
Diff.	0.536
p-value	0.338

Panel B. Below Median vs. Above Median Strategy Performance Years

Treat × Below Median Strategy Performance	0.806*
	(1.80)
Treat × Above Median Strategy Performance	0.398
	(1.00)
Diff.	0.408
p-value	0.488

Panel C. Above Median vs. Below Median Strategy Volatility Years

Treat × Above Median Strategy Volatility	0.716
	(1.36)
Treat × Below Median Strategy Volatility	0.567
	(1.59)
Diff.	0.149
p-value	0.813

Panel D. Below Median vs. Above Hedge Fund Industry Performance Years

Treat × Below Median Industry Performance	0.706*
	(1.65)
Treat × Above Median Industry Performance	0.431
	(1.06)
Diff.	0.408
p-value	0.635

Panel E. Above Median vs. Below Hedge Fund Industry Volatility Years

Treat × Above Median Industry Volatility	0.419
	(0.75)
Treat × Below Median Industry Volatility	0.584
	(1.71)
Diff.	-0.165
p-value	0.800

Panel F. Above Median vs. Below Median Number of Ownership Layers

Treat × Above Median Number of Layers	0.729*
	(1.76)
Treat × Below Median Number of Layers	0.752*
	(1.73)
Diff.	-0.023
p-value	0.969

Table C14: Monitoring
Outside Ownership and Return Management – Full Time Series

This table contains results of multivariate regressions estimating the relation between outside ownership and return management. The dependent variable in each model is *Return*, which is equal to the fund's monthly gross return, net return, or residual from the Fung & Hsieh (2004) 7-factor model. The variable of interest is *December* × *Outside Owner* × *After*, where *December* is an indicator variable equal to 1 if the return observation is from December and 0 otherwise, *Outside Owner* is an indicator variable equal to 1 for funds with an outside owner and 0 otherwise, and *After* is an indicator variable equal to 1 for the year after the outside owner arrives and 0 otherwise. The control variables are the same as those in Table 3 of Agarwal, Daniel, and Naik (2011). Standard errors are adjusted for heteroskedasticity and clustered at the fund level and *t*-statistics are reported below the coefficients in parentheses. All regressions contain strategy and year fixed effects. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

	Y = Gross Return	Y = Net Return	Y=Residual
	(1)	(2)	(3)
December	0.894***	0.914***	0.487***
	(10.67)	(10.49)	(7.09)
December × Outside Owner × After	-0.361*	-0.313	-0.300**
	(-1.90)	(-1.51)	(-2.09)
December × After	0.117	0.101	0.171*
	(0.97)	(0.77)	(1.89)
December × Outside Owner	-0.364***	-0.398***	-0.321***
	(-3.08)	(-3.09)	(-3.35)
Outside Owner (0/1)	-0.049	-0.036	-0.050*
	(-1.64)	(-1.23)	(-1.86)
Non-December Quarter End (0/1)	-0.141***	-0.143***	-0.026
	(-4.72)	(-4.39)	(-1.05)
$Moneyness_{m-1}$	-0.126	0.249	-0.536***
	(-0.69)	(1.12)	(-3.70)
$Delta_{m-1}$	0.015	-0.013	-0.013
	(0.57)	(-0.47)	(-0.58)
$CSVol_m$	0.006***	0.005***	0.014***
	(3.89)	(3.21)	(12.21)
$ReturnVolatility_{m-1}$	0.033***	0.029***	0.020***
	(7.42)	(5.80)	(5.26)
Y_{m-1}	0.170***	0.197***	0.073***
	(18.15)	(16.09)	(7.93)
Y_{m-2}	0.050***	0.054***	0.020**
	(6.45)	(6.33)	(2.20)
Other Controls	YES	YES	YES
Style FE	YES	YES	YES
Year FE	YES	YES	YES
Observations	59,604	59,774	59,774
R^2	0.055	0.060	0.026

Table C15
Subsample Analyses of Returns Management Effects

This table contains results of multivariate regressions estimating the relation between outside ownership and returns management. The dependent variable in each model is *Return*, which is equal to the fund's monthly gross return, net return, or residual from the Fung & Hsieh (2004) 7-factor model. The variable of interest is *December* × *Outside Owner* × *After*, where *December* is an indicator variable equal to 1 if the return observation is from December and 0 otherwise, *Outside Owner* is an indicator variable equal to 1 for funds with an outside owner and 0 otherwise, and *After* is an indicator variable equal to 1 for the year after the outside owner arrives and 0 otherwise. The control variables are the same as those in Table 3 of Agarwal, Daniel, and Naik (2011). Panel A contains the results when the sample is divided based on whether the ownership change occurs before or after 2003. Panel B contains the results when the sample is divided based on whether the fund company also has a change in board composition or compliance officer. Standard errors are adjusted for heteroskedasticity and clustered at the fund level and *t*-statistics are reported below the coefficients in parentheses. All regressions contain strategy and year fixed effects. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively

Panel A. Returns Management Before vs. After 2003

	Gross Return	Net Return	Residual
December (After 2003)	0.737***	0.801***	0.533***
	(5.76)	(6.57)	(5.68)
December (Before 2003)	0.837**	0.716*	0.440
	(2.05)	(1.88)	(1.39)
December x Outside Owner x After (After 2003)	-0.592**	-0.576**	-0.379*
	(-2.11)	(-2.15)	(-1.90)
December x Outside Owner x After (Before 2003)	-0.030	0.009	0.100
	(-0.05)	(0.02)	(0.21)
December x Outside Owner (After 2003)	0.162	0.150	-0.034
	(0.88)	(0.86)	(-0.26)
December x Outside Owner (Before 2003)	-0.043	-0.050	0.106
	(-0.08)	(-0.10)	(0.27)
December (After – Before 2003)	-0.100	0.085	0.093
December × Outside Owner × After (After – Before 2003)	-0.562	-0.585	-0.479
December × Outside Owner (After – Before 2003)	0.205	0.200	-0.140
Other Controls	YES	YES	YES
Strategy FE	YES	YES	YES
Year FE	YES	YES	YES

Panel B. Changes in Governance Structure
(115 out of 280 funds experience change, 71 do not, 94 are missing)

	Gross Return	Net Return	Residual
December (Governance Change)	0.996***	0.904***	0.714***
	(5.71)	(5.50)	(6.02)
December (No Governance Change)	0.379	0.339	0.316*
	(1.64)	(1.57)	(1.66)
December x Outside Owner x After (Governance Change)	-0.862**	-0.805**	-0.418
	(-2.59)	(-2.54)	(-1.47)
December x Outside Owner x After (No Governance Change)	0.068	0.033	-0.174
	(0.13)	(0.07)	(-0.56)
December x Outside Owner (Governance Change)	0.269	0.260	0.090
	(1.17)	(1.22)	(0.53)
December x Outside Owner (No Governance Change)	-0.219	-0.172	-0.130
	(-0.69)	(-0.60)	(-0.56)
December (Governance – No Governance)	0.617**	0.565**	0.398*
December × Outside Owner × After (Governance – No Governance)	-0.930	-0.838	-0.244
December × Outside Owner (Governance – No Governance)	0.488	0.432	0.220
Other Controls	YES	YES	YES
Strategy FE	YES	YES	YES
Year FE	YES	YES	YES

Table C16: Monitoring
Outside Ownership and Risk-Shifting

This table contains results of multivariate regressions estimating the relation between outside ownership and risk-shifting. The sample consists of funds with an outside owner and the propensity score matched sample of funds. The dependent variable in each model is *Risk Shift*, which is equal to the difference in the standard deviations of returns from the second half and the first half of a given year. The variable of interest is *Performance* × *Outside Owner* × *After*, where *Performance* is measured relative to the fund's own high water mark or other funds in a given year, following Aragon and Nanda (2012). *Outside Owner* is an indicator variable equal to 1 for funds with an outside owner and 0 otherwise, and *After* is an indicator variable equal to 1 for the year after the outside owner arrives and 0 otherwise. Panel A contains the results for the full sample of funds. Panel B contains the results when the sample is divided based on whether the ownership change occurs before or after 2008. Panel C contains the results when the sample is divided based on outsider reputation. Standard errors are adjusted for heteroskedasticity and clustered at the fund level and *t*-statistics are reported below the coefficients in parentheses. All regressions contain strategy and year fixed effects. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

Panel A. Full Sample

	Performance = Absolute		Performance = Relative	
	(1)	(2)	(3)	(4)
Performance	-0.394**	-0.361**	-0.591*	-0.586*
	(-2.39)	(-2.20)	(-1.73)	(-1.71)
Performance × Outside Owner × After	0.589**	0.595**	1.074***	1.069***
	(2.32)	(2.33)	(2.88)	(2.85)
Performance × After	0.407***	0.400**	0.745***	0.748***
	(2.61)	(2.57)	(3.02)	(3.03)
Performance × Outside Owner	-0.307	-0.296	-0.202	-0.201
	(-1.36)	(-1.32)	(-0.44)	(-0.44)
Outside Owner (0/1)	0.061	0.078	-0.070	-0.043
	(0.38)	(0.49)	(-0.27)	(-0.17)
Flow	-0.354***	-0.342***	-0.372***	-0.344***
	(-3.41)	(-3.30)	(-3.75)	(-3.47)
Δρ	-0.124	-0.142	-0.204**	-0.216**
	(-1.28)	(-1.42)	(-2.13)	(-2.20)
Lag Standard Deviation	-0.495***	-0.499***	-0.455***	-0.462***
	(-13.75)	(-13.92)	(-13.31)	(-13.61)
Other Control Variables	NO	YES	NO	YES
Style FE	YES	YES	YES	YES
Year FE	YES	YES	YES	YES
Observations	885	885	885	885
R^2	0.295	0.300	0.318	0.324