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Limited Attention, Marital Events and Hedge Funds*

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Abstract

We explore the impact of limited attention by analyzing the performance of hedge fund managers who are distracted by marital events. We find that marriages and divorces are associated with significantly lower fund alpha, during the six-month period surrounding and the two-year period after the event. Busy managers who manage multiple funds and who are not part of a team are more affected by marital transitions. Inattentive managers place fewer active bets relative to their style peers, load more on index stocks, exhibit higher *R*-squareds with respect to systematic factors, and are more prone to the disposition effect.

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1. Introduction

"Almost a quarter of British motorists admit that they have been so distracted by roadside billboards of semi-naked models that they have dangerously veered out of their lanes."

–Reuters (London), November 2005

"One of my No. 1 rules as an investor is as soon as … I find out that [a] manager is going through divorce, [I] redeem immediately. Because the emotional distraction that comes from divorce is so overwhelming. … You can automatically subtract 10 to 20 percent from any manager if he is going through divorce."

–Paul Tudor Jones II, May 2013[1]

Due to limited attention, motorists are apparently unable to drive within their respective lanes while processing information contained in sexy billboards. Does limited attention also compromise investors' ability to navigate financial markets? The academic literature has shown that limited investor attention impacts market prices and participants in the following ways. Limited attention shapes investor behavior, causing investors to underreact to earnings announcements (Hirshleifer, Lim, and Teoh, 2009) and purchase high volume and high return stocks (Barber and Odean, 2008). Market participants suffering from limited attention neglect important economic links between supplier and consumer firms (Cohen and Frazzini, 2008) and long-term demographic information (DellaVigna and Pollet, 2007), thereby engendering stock

[1] Jones founded and manages the Tudor Investment Corporation, which has $11.4 BN under management. Jones made the statement at a panel discussion at his alma mater, the University of Virginia. See "Hedge fund legend: if one of my managers is getting divorced, I'll pull my money out," Business Insider, 23 May 2013 and "Tudor said to open first macro hedge fund in decade," Bloomberg, 2 July 2012.

return predictability. Investor inattention drives firm behavior; firms are incentivized to release disappointing earnings news on Fridays so as to take advantage of under-reaction by distracted investors (DellaVigna and Pollet, 2009). Limited attention can explain category learning (Peng and Xiong, 2006), style investing (Barberis and Shleifer, 2003; Teo and Woo, 2004) and comovement (Barberis, Shleifer, and Wurgler, 2005), and has other asset pricing implications (Hendershott et al., 2013). Yet, there is little evidence to suggest that investor inattention *directly* compromises investment performance. This paper fills this void by analyzing the impact of limited attention on the investment performance of hedge fund managers.

The hedge fund industry is an interesting laboratory for investigating the impact of limited attention as the complex and dynamic trading strategies that hedge fund managers employ, which may involve short sales, leverage, and derivatives, often impose extraordinary demands on their time.[2] Consequently, hedge fund investors, such as Paul Tudor Jones II, highly value a fund manager's ability to stay focused in the investment game. Yet, to raise capital and achieve critical mass, hedge fund managers are often side-tracked by capital raising activities such as speaking at hedge fund conferences, attending capital introduction events, and meeting individual investors. Moreover, as her business grows, a hedge fund manager may find it increasingly difficult to concentrate on her investment duties given the day-to-day demands associated with running a large asset management firm. Indeed, to sharpen their ability to focus in stressful market conditions, some prominent hedge fund managers such as Ray Dalio of Bridgewater Associates have taken to meditation.[3]

[2] See "Red Bull-fueled all-nighters put Fortress fund on top," Bloomberg, 17 July 2013.
[3] See "To make a killing on Wall Street, start meditating," Bloomberg, 28 May 2014. According to Lazar et al., (2005), meditation experience is associated with increased cortical thickness, suggesting that meditation improves attention, sensory processing, and stress management.

Motivated by Jones's claim, we examine the impact of marital events on hedge fund managers' performance using 98 marriages and 76 divorces from publicly available, court-reported data. We argue that marriage and divorce are deeply personal events that distract fund managers from their investment duties.[4] In line with Jones's statement, we find that money managers significantly underperform during a divorce. In the six-month period surrounding a divorce, hedge fund managers underperform by 4.33 percent per annum relative to the pre-divorce period.[5] After adjusting for co-variation with the Fung and Hsieh (2004) seven factors, the underperformance during the divorce increases to 7.79 percent per annum. The deleterious effects of a divorce extend beyond the six-month event window. Hedge funds continue to underperform by a risk-adjusted 2.29 percent per annum up to two years post divorce. The distraction induced by a marriage has a similar effect on investment performance. In the six-month period surrounding a marriage, hedge fund managers underperform by an annualized 3.13 percent relative to the 21-month period before the event window. After adjusting for co-variation with the Fung and Hsieh (2004) seven factors, the underperformance during a marriage worsens to an annualized 5.10 percent. Moreover, for the two-year period post marriage, hedge funds continue to underperform by an annualized 3.16 percent after adjusting for risk.

Our results are not driven by the usual factors that explain hedge fund returns. Even after controlling for a myriad of factors that explain fund performance including fund incentives (Agarwal, Daniel, and Naik, 2009), share restrictions (Aragon, 2007), age (Aggarwal and Jorion, 2010), and size (Berk and Green, 2004), we find that both divorce and marriage are associated

[4] Paul Tudor Jones II, in clarifying remarks after the University of Virginia panel discussion, noted that "life events, such as birth, divorce, death of a loved one and other emotional highs and lows are obstacles to success in this specific field of finance (managing global macro hedge funds)." See "Investor Paul Tudor Jones says mothers can't be top traders" ABC News, 24 May 2013. This suggests that, for hedge fund managers at least, a marriage may not be so helpful for investment performance.

[5] Inferences do not change when we experiment with shorter or longer event windows.

with significant deteriorations in investment performance. The findings are also not artifacts of the decline in hedge fund risk-adjusted performance over time (Fung and Hsieh, 2004). We match our sample of marital event funds with other hedge funds based on performance in the pre-event window. We find that relative to this matched fund sample, hedge fund alpha wanes by an annualized 10.03 percent during a marriage and 11.70 percent during a divorce. We also discuss several alternative explanations for our findings and show that these endogeneity stories are unlikely to drive the bulk of our results.

Are marital events more impactful for busy managers who can ill afford the distractions associated with such events? To investigate, we stratify fund managers into high and low bandwidth groups based on the number of funds managed and on whether a fund manager is part of a team, and re-do our multivariate regression analysis. We find that marriages and divorces hurt the performance of managers who control at least two funds more than that of managers running only one fund. Similarly, marital transitions are associated with strong and statistically significant reductions in performance for funds with low bandwidth fund managers who do not belong to a team. Conversely, funds that are team-managed experience more modest and statistically unreliable reductions in performance during marital transitions. These results are broadly consistent with the limited attention view.

We also explore the potential channels through which marital events engender deteriorations in investment performance. Consistent with the limited attention hypothesis, we find that fund managers trade less actively during marital transitions. They are more likely to herd with their investment style, load up more on index stocks, increase their *R*-squareds with respect to systematic factors, and reduce their Active Share vis-à-vis the S&P 500. In line with Titman and Tiu (2011), Cremers and Petajisto (2009), and Kacpercyzk, Sialm and Zheng (2005),

we find that such trading behavior is associated with poorer fund performance. In addition, we find that inattentive hedge fund managers are less disciplined, in the sense that they are more susceptible to the disposition effect. In the spirit of Odean (1998), we show that this behavior may hurt fund performance.

Our work sheds light on how limited investor attention brought about by marital events can impact investment performance. By doing so, we contribute to academic debate on the value of active management in the hedge fund industry. Malkiel and Saha (2005) and Griffin and Xu (2009) report that hedge funds do not outperform their benchmarks on average. Getsmansky, Lo, and Makarov (2004) argue that whatever performance persistence found by Brown, Goetzmann, and Ibbotson (1999) and Agarwal and Naik (2000) can be ascribed to illiquidity-induced serial correlation in returns. Yet, more recent work, by explicitly accounting for luck (Kosowski, Naik, and Teo, 2007), re-examining performance persistence (Jagannathan, Malakhov, and Novikov, 2010), conditioning on macroeconomic variables (Avramov et al., 2011), and analyzing confidential holdings (Agarwal et al., 2013), has found evidence of skill. Our work allows us to weigh-in on the debate, since if performance is largely due to luck, it should not matter to fund performance whether a fund manager is distracted or not. The results suggest that just like motivated (Agarwal, Daniel, and Naik, 2009), emerging (Aggarwal and Jorion, 2010), and geographically proximate (Teo, 2009) fund managers, attentive fund managers also tend to outperform.

The results also speak to the extant literature on marriage and productivity. The traditional Becker (1973) view in the marriage literature posits that marriage increases long-term

productivity via the division of labor.[6] Consistent with this view, Korenman and Neumark (1991) show that married men make more than unmarried men. Cornaglia and Feldman (2011) and Bellas and Toutkoushian (1999) find that married baseball players and academics deliver higher batting averages and publish more research papers, respectively, than their unmarried counterparts. We complement this literature by showing, at least in the context of investment management, that marriage can be disruptive to short-term productivity because the event distracts fund managers from their investment activities.[7]

This study echoes related work in corporate finance that assesses the impact of CEO vacation travel (Yermack, 2014), family deaths (Bennedsen, Pérez-González, and Wolfenzon, 2010), and hospitalizations (Bennedsen, Pérez-González, and Wolfenzon, 2012) on firm outcomes. In particular, Bennedsen, Pérez-González, and Wolfenzon (2010, 2012) find that when CEOs are sidetracked by deaths in their immediate families or by their own medical conditions, firm operating profitability, investment, and sales growth decline. Like Yermack (2014) and Bennedsen, Pérez-González, and Wolfenzon (2010, 2012), we assess the impact of personal events on the professional lives of managers. Consistent with Bennedsen, Pérez-González, and Wolfenzon (2010, 2012), we find that managers are a key determinant in firm profitability.

The remainder of this paper is organized as follows: Section 2 provides a description of the data and methodology. Section 3 reports the results from the empirical analysis. Section 4 presents robustness tests while Section 5 concludes.

[6] For example, in a married household, one partner focuses on cooking, cleaning, and childcare. Unencumbered by such demands, the other partner focuses exclusively on work, thereby raising productivity.

[7] We note however that in the long-term marriage can still be helpful for productivity, as suggested by Becker (1973). Our results do not speak to the long-term effects of marriage.

2. Data and methodology

We evaluate the impact of hedge funds using monthly net-of-fee returns and assets under management data of live and dead hedge funds reported in the TASS, Morningstar, HFR, and BarclayHedge data sets from January 1990 to December 2012.[8] Because TASS, Morningstar, HFR, and BarclayHedge started distributing their data in 1994, the data sets do not contain information on funds that died before December 1993. This gives rise to survivorship bias. We mitigate this bias by focusing on data from January 1994 onward.

In our fund universe, we have a total of 31,542 hedge funds, of which 18,295 are live funds and 13,247 are dead funds. However, due to concerns that funds with multiple share classes could cloud the analysis, we exclude duplicate share classes from the sample.[9] This leaves a total of 26,811 hedge funds, of which 15,550 are live funds and 11,261 are dead funds. The funds are roughly evenly split between TASS, Morningstar, HFR, and BarclayHedge. While 5,805 funds appear in multiple databases, many funds belong to only one database. Specifically, there are 6,595, 5,317, 4,847 and 4,247 funds unique to the TASS, Morningstar, HFR, and BarclayHedge databases, respectively. This highlights the advantage of obtaining data from more than one source. In addition to monthly return and size information, our sample also captures data on fund characteristics such as management fee, performance fee, redemption period, lock-up period, investment style, leverage indicator, high-water mark indicator, fund age, and fund

[8] The results are robust to using pre-fee returns. To derive pre-fee returns it is important to match each capital outflow to the relevant capital inflow when calculating the high water mark and the performance fee. In our pre-fee return calculation, we assume as per Appendix A of Agarwal, Daniel, and Naik (2009) that capital leaves the fund on a first-in, first-out basis. To side-step this issue, we prefer to work with the cleaner, reported net-of-fee returns in the paper.

[9] Inferences do not change when we include multiple share classes of the same fund in the analysis.

location.[10]

We hand collect money managers' marital records from several data sources. The primary data source is Lexis-Nexis court record searches, and this is supplemented by Internet searches. For each money manager, we start by performing a name search in Lexis-Nexis using the first name, middle initials, and last name. If there are multiple matches with the same middle initials, we use other Internet public sources to identify possible spouses, and then locate the correct marriage/divorce records. The matches are also confirmed by cross checking the marriage location with the city and state of the manager's management firm.

We are able to obtain marriage and divorce records for the following 13 states: Arizona, California, Colorado, Connecticut, Florida, Georgia, Kentucky, Nevada, North Carolina, Ohio, Pennsylvania, Texas, and Virginia, which publicly disclose marital records. The remaining states do not disclose marriage and divorce data publicly.[11] The search results in 857 marriages and 251 divorces for 786 hedge fund managers. Table 1 presents the distribution of marriages and divorces by state, as well as the divorce rates for each state.[12] The overall divorce to marriage ratio is lower than that of the general American public (2 marriages for each divorce) but this is consistent with the lower divorce rate that Isen and Stevenson (2010) document for more highly educated segments of the public. One caveat is that many of the hedge fund managers married

[10] For funds in multiple databases, we follow a priority rule and only keep the observations from the highest priority database. We adopt the following priority rule for our fund data: TASS > Morningstar > HFR > BarclayHedge. We are motivated by the observation in Joenväärä, Kosowski, and Tolonen (2014) that TASS was the most widely used database by hedge fund researchers. They base their observation on 76 papers published in five frequently cited finance journals. We re-do our baseline multivariate regression results using three alternative priority rules: (i) Morningstar > HFR > BarclayHedge > TASS, (ii) HFR > BarclayHedge > TASS > Morningstar, and (iii) BarclayHedge > TASS > Morningstar > HFR, and find virtually identical results.

[11] For example, New York State restricts access to marriage records to "the spouses [and] other persons who have a: (1) documented judicial or other proper purpose or (2) New York State Court Order." (see http://www.health.ny.gov/vital_records/marriage.htm)

[12] It is possible for a marriage in one state to be dissolved in another, leading to observations such as two divorces and zero marriages for the state of Arizona.

and divorced prior to the start of our sample period, i.e., before 1994. Therefore the effective sample for the event study is smaller. Moreover, we require that a hedge fund manager reports returns during the one-year period before and the one-year period after the event. This allows us to conduct matched sample analyses where we match funds based on performance in the pre-event window. After applying this inclusion criterion, we are left with an effective sample of 98 marriages and 76 divorces on which to conduct our event study.[13]

Following Agarwal, Daniel, and Naik (2009), we classify funds into four broad investment styles: Security Selection, Multi-process, Directional Trader, and Relative Value. Security Selection funds take long and short positions in undervalued and overvalued securities, respectively, and reduce systematic risks in the process. Usually, they take positions in equity markets. Multi-process funds employ multiple strategies that take advantage of opportunities created by significant transactional events, such as spin-offs, mergers and acquisitions, bankruptcy reorganizations, recapitalizations, and share buybacks. Directional Trader funds bet on the direction of market prices of currencies, commodities, equities, and bonds in the futures and cash market. Relative Value funds take positions on spread relations between prices of financial assets and aim to minimize market exposure.

Hedge fund data are susceptible to many biases (Fung and Hsieh, 2000; 2009). These biases stem from the fact that, due to the lack of regulation of hedge funds, inclusion in hedge fund databases is voluntary. As a result, there is a self-selection bias. For instance, funds often undergo an incubation period in which they rely on internal funding before seeking capital from outside investors. Incubated funds with successful track records then go on to list in various

[13] The limited number of marital events during our sample period biases against us finding statistical significance when we run our empirical tests.

hedge fund databases while the unsuccessful funds do not, resulting in an incubation bias. Separate from this, when a fund is listed on a database, it often includes data prior to the listing date. Again, because successful funds have a strong incentive to list and attract capital inflows, these backfilled returns tend to be higher than the non backfilled returns. In the analysis that follows, we will repeat the baseline tests after dropping the first 12 months of return data from each fund so as to ensure that the results are robust to backfill and incubation bias.

Throughout this paper, we model the risks of hedge funds using the Fung and Hsieh (2004) seven-factor model. The Fung and Hsieh factors are the excess return on the Standard and Poor's (S&P) 500 index (*SNPMRF*); a small minus big factor (*SCMLC*) constructed as the difference between the Wilshire small and large capitalization stock indices; the yield spread of the US ten-year Treasury bond over the three-month Treasury bill, adjusted for duration of the ten-year bond (*BD10RET*); the change in the credit spread of Moody's BAA bond over the ten-year Treasury bond, also appropriately adjusted for duration (*BAAMTSY*); and the excess returns on portfolios of lookback straddle options on currencies (*PTFSFX*), commodities (*PTFSCOM*), and bonds (*PTFSBD*), which are constructed to replicate the maximum possible return from trend following strategies (see Fung and Hsieh, 2001) on their respective underlying assets.[14] These seven factors have been shown by Fung and Hsieh (2004) to have considerable explanatory power on hedge fund returns.

[14] David Hsieh kindly supplied these risk factors. The trend following factors can be downloaded from http://faculty.fuqua.duke.edu/~dah7/DataLibrary/TF-Fac.xls.

3. Empirical results

3.1. Cross-sectional analysis

As a prelude to exploring the impact of marital events on hedge fund performance, we stratify hedge funds into four groups by fund manager marital status at the end of the sample. The four groups include (1) single managers who have never been married, i.e., those with no marriage records (2) married managers who have never been divorced, i.e., those with a single marriage record and no divorce records (3) divorced managers who married once, i.e., those with a single marriage record and a single divorce record (4) managers who have been married multiple times, i.e., those with multiple marriage records. Next, we evaluate differences in fund characteristics, returns, alpha, flows, total risk, and idiosyncratic risk between these groups of managers, where total risk is the standard deviation of monthly fund returns while idiosyncratic risk is the standard deviation of the monthly residuals from the Fung and Hsieh (2004) seven-factor model. Factor loadings are estimated using a 24-month rolling window.

The results reported in Table 2 indicate that single managers who have never been married tend to take on greater total risk and idiosyncratic risk than all other managers. For example relative to managers who have been married multiple times, single managers deliver raw returns that are 31.0 basis points more volatile and abnormal returns that are 28.3 basis points more volatile per month. These results are broadly consistent with Love (2010) and Roussanov and Savor (2014) who find that single men tend to take on more risk than unmarried men. The view is that single fund managers take on greater risk so as to increase their status in the marriage market. However, the differences are either marginally statistically significant (i.e., significant at the ten percent level) in the case of total risk or unreliably different from zero in the

case of idiosyncratic risk. Therefore, it is hard to make inferences from these cross-sectional results.

[Insert Table 2 here]

While there are no discernible differences in returns and alphas across the four groups of fund managers, the differences in fund characteristics and flows reported in Table 2 yield some interesting insights. We find that single fund managers who have never been married tend to manage funds with shorter lock-ups and greater inflows than fund managers who have had multiple marriages. One view is that single fund managers, to accumulate wealth and raise their status in the marriage market, are highly focused on raising capital. To attract capital, these managers offer less onerous redemption terms to their investors. Another view is that managers with multiple marriages tend to be distracted by their obligations to their ex-partners and children from previous marriages, and are less focused on growing the fund management company.

3.2. Event study

In this section, we explore the impact of marriage and divorce on the investment performance of hedge fund managers. At the same time we also examine the effects of such marital events on manager risk-taking and capital raising behavior. In that effort, we define the event period as the six-month period surrounding a marriage or a divorce.[15] The "before" period is the period that starts two years before the marital event and ends just before the event window. The "after" period is the period that starts just after the event window and ends two years after the event. Therefore, the before and after windows each spans 21 months. Our choice of the event window is guided by our view that the activities associated with a marriage (e.g., wedding

[15] To clarify, if a fund manager gets married in May, the event period runs from February to July of the same year.

preparations, honeymoon, purchase of a matrimonial home, and childbirth) and divorce (e.g., legal proceedings to determine alimony, custody of children, and division of matrimonial assets) are likely to take place over a period of time.[16]

Next, we evaluate differences in returns, alphas, flows, total risk, and idiosyncratic risk between the aforementioned periods in event time. The univariate performance results reported in Table 3 are broadly in line with the view expounded by Paul Tudor Jones II. Relative to the period before a marriage, marriage reduces returns by 3.13 percent per annum and lowers alpha by 5.10 percent per annum. The underperformance is not confined to the event window. After adjusting for co-variation with the Fung and Hsieh (2004) risk factors, fund managers continue to underperform by an annualized 3.16 percent up to two years after the marriage. The impact of divorce is comparable to that of marriage. Relative to the period before a divorce, divorce precipitates a 4.33 percent per annum reduction in returns and a 7.79 percent per annum drop in alpha. Risk-adjusted returns recover by 5.50 percent per annum post event. Still two years after the divorce, post-event window alphas continue to lag pre-event window alphas by an annualized 2.29 percent.[17]

[Insert Table 3 here]

The comparison of risk-taking behavior before and after a marriage yields results that echo those from the prior literature and corroborate the findings from Table 2 on risk-taking. We find that in the period after a marriage, total risk decreases by an annualized 1.34 percent and

[16] Our baseline inferences do not change when we specify a longer 12-month event period and correspondingly shorter 18-month before and after periods or when we employ a shorter 1-month event period and correspondingly longer 23-month before and after periods.

[17] While our sample consists of predominantly male fund managers, we note that there are two female managers who tied the knot during our sample period. For these two female managers, the average impact of marriage on fund performance is consistent with that for the entire sample. In particular, their average annualized fund alpha drops from 9.72 percent in the pre-event period to 6.12 percent in the event period, and subsequently to -5.52 percent in the post-event period.

idiosyncratic risk shrinks by an annualized 1.85 percent relative to the period before a marriage. The former is significant at the ten percent level, while the latter is statistically significant at the one percent level. This suggests that fund managers tend to take on less risk after marriage. However, we do not witness an opposite effect post divorce. Contrary to the predictions of the Love (2010) model, risk taking does not increase after a divorce. The point estimates in Table 3 indicate that risk taking by hedge fund managers actually decreases following a divorce, although the effects are not reliably different from zero. We note also that flows tend to peak during the marital event and decline after the event, perhaps in reaction to the decline in performance.

One concern is that our findings may be driven by other factors known to explain hedge fund returns. For example, single managers may be highly motivated to raise capital so as to increase their status in the marriage market. Post marriage, these managers will have to grapple with the increased assets under management and the resultant diseconomies of scale, which may make it difficult for the manager to outperform. To address such concerns, we estimate the following multivariate regression on fund performance for both marriage and divorce events:

$$\begin{aligned} ALPHA_{im} = \propto + & \beta_1 EVENT_{im} + \beta_2 AFTER_{im} + \beta_3 MGTFEE_i + \beta_4 PERFFEE_i + \beta_5 HWM_i \\ & + \beta_6 LOCKUP_i + \beta_7 LEVERAGE_i + \beta_8 AGE_{im-1} + \beta_9 REDEMPTION_i \\ & + \beta_{10} \log(FUNDSIZE_{im-1}) + \varepsilon_{im} \end{aligned}$$

where $ALPHA_{im}$ is Fung and Hsieh (2004) seven-factor alpha for fund *i* and month *m* with factor loadings estimated over the last 24 months, *EVENT* is an indicator variable that takes a value of one in the six-month period starting three months prior to the marital event and ending three months after the marital event, and a value of zero otherwise, *AFTER* is an indicator variable that

takes a value of one in the 21-month period starting three months after the marital event and ending two years after the event, and a value of zero otherwise, *MGTFEE* is fund management fee, *PERFFEE* is fund performance fee, *HWM* is fund high-water mark indicator, *LOCKUP* is fund lock-up period, *LEVERAGE* is fund leverage indicator, *AGE* is fund age since inception, *REDEMPTION* is fund redemption period, and log(*FUNDSIZE*) is the natural logarithm of fund assets under management. We also estimate regressions on fund returns and fund total risk.[18]

[Insert Table 4 here]

Table 4 reports the coefficient estimates from the multivariate regressions. The coefficient estimates on *EVENT* and *AFTER* dummies in the marriage regressions indicate that after controlling for other variables that explain fund performance, marriage reduces hedge fund alpha by an annualized 7.30 percent over the event window and by an annualized 3.42 percent up to two years after the event. Similarly, the coefficient estimates on the *EVENT* and *AFTER* dummies in the divorce regressions reveal that divorce precipitates a 5.66 percent drop in annualized hedge fund alpha over the event window and a 3.29 percent drop in annualized hedge fund alpha up to two years after the event. The coefficient estimates on the control variables dovetail broadly with prior research. Consistent with Aggarwal and Jorion (2010), returns and alpha are negatively correlated with fund age. Also, in the spirit of Agarwal, Daniel, and Naik (2009), high performance fee funds outperform low performance fee funds. In response to concerns about backfill and incubation bias, we re-estimate the regressions after removing the

[18] Fund total risk is the standard deviation of monthly fund returns estimated over each non-overlapping period: before, event, and after. Hence for each marital event, the number of observations for the risk regression is significantly lower than those for the return and alpha regressions.

first 12 months of returns after inception for each fund. Our findings are robust to this adjustment.[19]

The regressions in Table 4 are estimated only for the event funds during the 48-month period surrounding the marital event. The benefit of doing so is that the coefficient estimates on the control variables will be estimated specifically for the event funds. This specification caters for the possibility that the event funds are more susceptible to say capacity constraints than the rest of the fund population. The downside is that the regression coefficients are estimated with lower precision. As a robustness check, we also estimate the Table 4 regressions on the full sample of funds and find qualitatively similar results. Marriage and divorce still engender significant deteriorations in performance under that regression specification.

While the multivariate regression results reported in Table 4 control for a host of variables that explain fund performance, there may be concerns that we have not adequately accounted for possible time trends in hedge fund performance. For example, Fung and Hsieh (2004) provide evidence that the average hedge fund alpha has diminished over time. The reduction in alpha over time may explain why we find that hedge fund risk-adjusted performance wanes post marriage and post divorce. Moreover, such a time trend in performance may be driven by industry or macroeconomic factors that are tangential to the fund level control variables employed in the Table 4 regressions. To allay concerns that a time trend in fund performance is driving our results, we employ a "difference-in-differences" methodology and

[19] Our results are robust to including past one-year fund performance (returns or alpha) as an additional independent variable in the regressions.

match each fund with a marital event with another fund based on fund performance in the before period.[20] Next, we estimate the following multivariate regression:

$$\begin{aligned} ALPHA_{im} = \propto + & \beta_1 EVENT_{im} + \beta_2 AFTER_{im} + \beta_3 TREATMENT_{im} * BEFORE_{im} \\ & + \beta_4 TREATMENT_{im} * EVENT_{im} + \beta_5 TREATMENT_{im} * AFTER_{im} \\ & + \beta_6 MGTFEE_i + \beta_7 PERFFEE_i + \beta_8 HWM_i + \beta_9 LOCKUP_i + \beta_{10} LEVERAGE_i \\ & + \beta_{11} AGE_{im-1} + \beta_{12} REDEMPTION_i + \beta_{13} \log(FUNDSIZE_{im-1}) + \varepsilon_{im} \end{aligned}$$

where *TREATMENT* is an indicator variable that takes a value of one if the fund manager experiences a marital event, i.e., the fund is in the treatment group, and takes a value of zero if the fund is in the control group. *BEFORE* is an indicator variable that takes a value of one in the 21-month period starting two years prior to the marital event and ending three months before the marital event, and a value of zero otherwise. The rest of the variables are as previously defined. Note that *BEFORE*, *EVENT*, and *AFTER* variables are defined for each matched fund based on the date of the marital event for the original fund that the matched fund is linked to. We also estimate the analogous regression on returns to check that our results are not driven by our risk adjustment methodology. The standard errors in the regressions are clustered by fund in line with Petersen (2009) and Rogers (1993) so as to account for the firm effect, which could be present in hedge fund data given that hedge fund returns are often serially correlated.[21]

[20] Funds are matched based on returns for the return regressions and based on alpha for the alpha regressions. For each event fund, a matched fund is chosen to minimize the difference in performance during the before period. To be considered as a matched fund, we require that a non-event fund reports returns during the period starting 12 months prior to the event to 12 months after the event.

[21] The results are weaker but qualitatively similar when we cluster by fund and year or when we employ fund and year dummies in the regressions. Specifically, when we cluster by both fund and year, the coefficient estimates on *EVENT* and *AFTER* are all negative and statistically significant at the five percent level in the alpha regressions, except for that on *AFTER* in the marriage regression, which is statistically different from zero at the ten percent level. When we employ fund and year dummies, the coefficient estimates on *EVENT* and *AFTER* are again negative and statistically significant at the five percent level, save for that on *AFTER* in the marriage regression, which is statistically indistinguishable from zero at the ten percent level.

The coefficient estimates from the regression on the matched sample are reported in Table 5. They indicate that even after accounting for the performance of the matched funds in our control group, hedge fund alpha for the funds in our treatment group still wanes post marriage and post divorce. Relative to the period before a marriage and relative to the funds in the control group, annualized hedge fund alpha declines by 10.03 percent during the marriage event window and by 3.92 percent in the post-event window period. Likewise, compared to the period before a divorce and compared to the funds in the control group, annualized hedge fund alpha wanes by 11.70 percent during the divorce event window and by 7.78 percent in the post event window period. These results provide strong evidence that the distractions associated with marital events are detrimental to professional portfolio management.

[Insert Table 5 here]

3.3. Fund manager bandwidth

To further understand the underlying reasons why hedge fund performance suffers when fund managers marry or divorce, we stratify our sample based on fund manager bandwidth. We hypothesize that marital events have a greater impact on managers who have lower bandwidth and can therefore ill afford the distractions associated with marital transitions. We take advantage of the fact that the hedge fund manager to fund mapping is not always one to one. Hedge fund managers often manage more than one fund within a hedge fund firm. In addition, some funds are team-managed while other funds are not. We classify fund managers managing multiple funds or managers who are not part of a team as low bandwidth managers and fund

managers managing one fund or fund managers who are part of a team as high bandwidth managers.[22]

In Table 6, we report the multivariate regression results after sorting managers by the number of funds that they manage and after sorting funds by the number of managers. We find that consistent with the limited attention hypothesis, the impact of both marriage and divorce are confined to instances where fund manager bandwidth is low, i.e., when a manager runs two or more funds or when a fund is not managed by a team. For example, during a marriage, managers simultaneously managing two or more funds suffer a statistically significant 15.34 percent reduction in annualized risk-adjusted performance, while those running only one fund witness a modest and statistically unreliable 4.60 percent drop in annualized performance. During a divorce, managers running two or more funds experience a statistically significant reduction in annualized alpha of 10.88 percent while managers controlling only one fund experience an increase in annualized alpha of 4.14 percent that is statistically indistinguishable from zero. Similarly, the impact of marital transitions on fund alpha for fund managers who are not part of a team is about two to three times as large as that for fund managers who operate in a team. Moreover, the coefficient estimates on the *EVENT* and *AFTER* variables for the former fund managers are statistically significant at the five percent level while those for the latter are statistically indistinguishable from zero. These results are consistent with the view expounded by Jones that life events distract professional money managers from their investment activities.

[22] Of the 98 marriages that we analyze, 32 are associated with managers managing one fund while 66 are associated with managers managing multiple funds. In addition, 43 are linked to single manager funds while 55 are linked to team managed funds. Of the 76 divorces that we analyze, 35 are associated with managers running one fund while 41 are associated with managers running multiple funds. Moreover, 30 are connected to funds managed by a single manager while 46 are connected to funds managed by teams.

They indicate that marital events are most detrimental to busy managers who can least afford such distractions in their professional lives.

[Insert Table 6 here]

3.4. Style-, index-, and factor-hugging activity

How do marital events and the distractions that come with those events engender deteriorations in investment performance for hedge fund managers? One view is that time constrained fund managers may simply place fewer active bets relative to their peers or load up more on index stocks. Kacpercyzk, Sialm and Zheng (2005), Cremers and Petajisto (2009), and Titman and Tiu (2011) suggest that such behavior is likely to be detrimental to fund alpha. Another view is that distracted fund managers become less disciplined and more susceptible to behavioral biases such as the disposition effect. Odean (1998) shows that the disposition effect, or the propensity to hold on to one's losses and realize one's gains, can hurt investment performance as disposition-inclined investors sell winner stocks (gains) which subsequently appreciate in price and hold on to loser stocks (losses) which subsequently depreciate in price.

To investigate, we construct four trading behavior metrics to measure how active a fund manager is: *DEVIATESTYLE*, *NONSPRATIO*, *NRSQUARED*, and *ACTIVESHARE*. The metric *DEVIATESTYLE* is the absolute difference in fund factor loadings relative to those of its investment style, summed over the Fung and Hsieh (2004) seven factors. Investment style returns are the equal-weighted average of all funds in an investment style. A higher *DEVIATESTYLE* score indicates that a fund places more active bets relative to its investment style peers. *NONSPRATIO*, derived from quarterly stock holdings, is the ratio of the number of

non S&P 500 index stocks bought in a quarter to the total number of new positions in the quarter. A higher *NONSPRATIO* score indicates that a fund is loading up less on S&P 500 index stocks. *NRSQUARED* is the one minus the R-squared from the regression of fund excess returns against the Fung and Hsieh (2004) seven factors. *ACTIVESHARE* is Active Share as defined in Cremers and Petajisto (2009) relative to the S&P 500. The trading behavior metrics are defined such that an increase in any of them represents a more active portfolio. We compute *DEVIATESTYLE*, *NONSPRATIO*, *NRSQUARED*, and *ACTIVESHARE* for the before, event, and after periods.

The findings, reported in Panels A and B of Table 7, indicate that style-, index-, and factor-hugging activity increases during marital transitions. Relative to the before period, *DEVIATESTYLE* decreases by 29 percent and 38 percent in the after period following a marriage and a divorce, respectively. Similarly, relative to the before period, *NONSPRATIO* decreases by 11 percent and 10 percent in the after period following a marriage and a divorce, respectively. Likewise, relative to the before period, *NRSQUARED* decreases by 12 percentage points and 10 percentage points in the after period following a marriage and a divorce, respectively. Finally, relative to the before period, *ACTIVESHARE* falls by 2.4 percentage points and 2.1 percentage points in the after period following a marriage and a divorce, respectively. The decrease in *DEVIATESTYLE*, *NRSQUARED*, and *ACTIVESHARE* are statistically different from zero at the five percent or one percent level for both marriage and divorce while the decrease in *NONSPRATIO* is statistically different from zero at the one percent level for marriage.[23] We also match our event funds with control funds based on the relevant trading behavior metric and perform a difference-in-differences analysis. The findings reported in Panels C and D of Table 7

[23] Note that we do not find that hedge funds trade less during marital transitions. Turnover per se does not decrease during or post marriage or divorce. There is also little evidence to suggest that hedge fund managers deliberately time their marriages and divorces to coincide with periods of lower trading activity. For example, we do not find that the marriages or divorces cluster around the summer months. We note that, based on our sample, marriages are more likely in April, July, and November while divorces are more likely in June and September.

indicate that our results are not simply a by-product of industry-wide trends in trading behavior. In unreported results that are available upon request, we show that decreases in *NONSPRATIO*, *NRSQUARED*, and *ACTIVESHARE* are associated with statistically significant declines in fund alpha for our sample of marital event funds. These results are broadly consistent with those of Kacpercyzk, Sialm, and Zheng (2005), Cremers and Petajisto (2009), and Titman and Tiu (2011).

[Insert Table 7 here]

3.5. Disposition effect

To test the view that hedge fund managers are more susceptible to the disposition effect around marital events, we obtain stock holdings information from the Thomson Financial 13-F holdings database for the fund managers in our sample. Next, we evaluate the difference between the proportion of losses realized (PLR) and the proportion of gains realized (PGR) for the before, event, and after periods. Our analysis follows Odean (1998). We define PLR as the number of realized losses divided by the number of realized losses plus the number of paper (unrealized) losses, and PGR as the number of realized gains divided by the number of realized gains plus the number of paper (unrealized) gains. Realized gains, paper gains, realized losses, and paper losses are aggregated over time for each period (i.e., before, event, and after) and over all funds. We compute *t*-statistics that test the null hypothesis that the differences in proportions are equal to zero assuming all realized gains, paper gains, realized losses, and paper losses result from independent decisions. To calculate the *t*-statistics, the standard error for the difference in proportions PGR and PLR is:

$$\sqrt{\frac{PGR(1-PGR)}{n_{rg}+n_{pg}}+\frac{PLR(1-PLR)}{n_{rl}+n_{pl}}}$$

where n_{rg}, n_{pg}, n_{rl}, and n_{pl} are the number of realized gains, paper gains, realized losses, and paper losses.

[Insert Table 8 here]

The results from the disposition effect tests are reported in Table 8. They indicate that hedge fund managers are more prone to the disposition effect during a marriage and during a divorce. The difference between PLR and PGR is positive and statistically different from zero at the one percent level during the before period prior to a marriage, suggesting that hedge fund managers are not afflicted by the disposition effect during that time. Yet during the event period, we find that the difference between PLR and PGR is negative and statistically different from zero at the one percent level. This indicates that hedge fund managers are susceptible to the disposition effect during the marriage event. In particular, in the six-month period surrounding a marriage, they realize 51.1 percent of their gains but only 45.2 percent of their losses. However, the impact of marriage on the propensity of hedge fund managers to hold on to their losses and realize their gains does not extend beyond the marriage event period. We find that the difference between PLR and PGR is negative but statistically indistinguishable from zero during the post-marriage after period. We note that the change in the difference between PLR and PGR is statistically significant at the one percent level when we go from the before period to the event period and when we go from the before period to the after period.

Divorces, unlike marriages, appear to have a more durable impact on the hedge fund manager's susceptibility to the disposition effect. We find that hedge fund managers are prone to

the disposition effect before, during, and after a divorce. Moreover, the propensity to hold on to losses and realize gains increases as we move from the period before a divorce to the period after a divorce. During the before period, hedge fund managers realize 33.8 percent of their gains and 31.5 percent of their losses. The spread between PGR and PLR increases as we move to the event period, where hedge fund managers realize 41.5 percent of their gains but only 37.0 percent of their losses. In the after period, the gap between PGR and PLR increases marginally from 4.5 percent to 4.6 percent. The change in the difference between PLR and PGR is statistically different from zero at the ten percent level when we move from the before period to the event period and statistically different from zero at the five percent level when we move from the before period to the after period. These results indicate that the propensity to hold on to losses and realize gains increases during a divorce. They also suggest that the effect of a divorce on manager trading behavior is stronger and more durable than that of a marriage. The fact that PLR is less than PGR before a divorce but not before a marriage suggests also that unlike that of a marriage the impact of a divorce may manifest up to two years prior to the event itself. These results are not surprising, given that it may take a few years to finalize a divorce, especially when there are disagreements over child custody or the division of matrimonial assets, and the divorce is contested in court. In unreported results that are available upon request, we show that consistent with Odean (1998), increases in the propensity towards the disposition effect are associated with statistically significant declines in fund alpha for our sample of marital event funds.

3.6. Alternative explanations

An alternative explanation for our findings is that marriage and to a lesser extent divorce are life choices with an element of timing. Given this, it could be that fund returns are driving

these marital decisions, rather than the marital events affecting returns. This could manifest itself in a number of ways:

First, marriage would likely by preceded by good returns and divorces by bad returns. Even if divorces have no effect on fund returns, performance persistence (Kosowski, Naik, and Teo, 2007; Jagannathan, Malakhov, and Novikov, 2010) could explain why divorces are followed by poor returns. Similarly, even if marriages have no impact on fund performance, mean reversion could explain why marriages tend to lead inferior performance. Still, it is difficult to understand why returns persist during a divorce but mean revert during a marriage.

Second, there could be a virtuous or vicious cycle between professional and personal life. For example, a slight marital tension leads to poor investment decisions, which lead to lower returns, which in turn increase marital stress, and so on. We cannot precisely isolate the personal and professional lives of hedge fund managers. While we couch our results in terms of the "effect" of marriage and divorce on performance, there is likely to be some element of feedback. We do, however, note that marriages and divorces are deeply personal events. More importantly, this endogeneity story cannot explain as well why performance wanes post marriage as it can explain why returns decline post divorce.

Third, to the extent that participants in the marriage can forecast future returns and strategically time decisions to optimize over future projected returns, we may observe similar empirical outcomes to those documented, even if marriages and divorces have absolutely no effect on performance. For example, the spouse of a fund manager may foresee a rough patch one to two years ahead and may push for a divorce preemptively. While this story may explain our divorce findings, it cannot explain our marriage findings. A similarly strategic and prescient fiancé of a fund manager would certainly be reluctant to tie the knot immediately after having

been blessed with the foreknowledge that fund returns will hit a rough patch one to two years later.

In a related story, hedge fund managers may be able to forecast changes in financial market conditions. For example, suppose a fund manager believes that market conditions are going to be tough for his strategy in the next one or two years. This causes him to feel depressed. As a result, he proposes to his significant other and marries so as to bring some compensatory joy into his life.[24] This story, however, does not explain the divorce results as well as the marriage results. Managers who believe that future market conditions are going to be unconducive for their investment strategies are less likely to file for divorce since doing so will add undue stress onto themselves.

The first two alternative explanations advanced above are based largely on the view that fund performance leads marriage and divorce. To investigate, we test the determinants of marriage and divorce by estimating the following multivariate logistic regressions on the probability of marriage and divorce:

$$MARRIAGE_{im} =$$

$$\propto +\beta_1 ALPHA_{im-1,m-12} + \beta_2 FLOW_{im-1,m-12} + \beta_3 ALPHA_{im-13,m-24}$$
$$+ \beta_4 FLOW_{im-13,m-24} + \beta_5 MGTFEE_i + \beta_6 PERFFEE_i + \beta_7 HWM_i$$
$$+ \beta_8 LOCKUP_i + \beta_9 LEVERAGE_i + \beta_{10} AGE_{im-1} + \beta_{11} REDEMPTION_i$$
$$+ \beta_{12} \log (FUNDSIZE_{im-1}) + \varepsilon_{im}$$

[24] We thank the anonymous referee for suggesting this reverse causality story.

$$DIVORCE_{im} =$$

$$\propto +\beta_1 ALPHA_{im-1,m-12} + \beta_2 FLOW_{im-1,m-12} + \beta_3 ALPHA_{im-13,m-24}$$
$$+ \beta_4 FLOW_{im-13,m-24} + \beta_5 MGTFEE_i + \beta_6 PERFFEE_i + \beta_7 HWM_i$$
$$+ \beta_8 LOCKUP_i + \beta_9 LEVERAGE_i + \beta_{10} AGE_{im-1} + \beta_{11} REDEMPTION_i$$
$$+ \beta_{12} \log (FUNDSIZE_{im-1}) + \varepsilon_{im}$$

where $MARRIAGE_{im}$ is an indicator variable that takes a value of one when fund manager *i* marries in month *m* and takes a value of zero otherwise, $DIVORCE_{im}$ is an indicator variable that takes a value of one when fund manager *i* divorces in month *m* and takes a value of zero otherwise, and the other variables are as previously defined. We also estimate analogous multivariate logistic regressions with *RETURN* in place of *ALPHA* to ensure that the risk-adjustment methodology is not driving our results. The logistic regressions are estimated for all funds with return, flow, and fund characteristics information that are based in the 13 states for which we have marriage and divorce records (see Table 1). The regression sample therefore includes both event and non-event funds. This allows us to capture any cross-sectional variation in say, fund performance or flows, between event and non-event funds.

[Insert Table 9 here]

The results reported in Table 9 broadly indicate that neither fund return nor fund alpha have a statistically reliable impact on the probability of marriage and divorce. The sign of the coefficient estimates on the *RETURN* and *ALPHA* variables suggest that, in line with our prior intuition, good fund performance leads marriage and poor fund performance leads divorce. However, all the coefficient estimates on *RETURN* and *ALPHA* are statistically indistinguishable at the ten percent level except for that on $ALPHA_{im-13,m-24}$ in the marriage regression,

indicating that only fund alpha two years ago exerts a modestly significant impact on the probability of a marriage.[25] Because fund performance closer to the event date has no reliable impact on the probability of marriage and divorce, this provides little support for the view that fund performance determines marriage and divorce.

These results are not surprising given the findings from the social psychology and labor economics literature. Jonason, Li, and Madson (2011) show that it is not so much the access to valuable resources per se that makes a mate desirable, rather it is the deeper and more meaningful underlying traits that allow one to earn those resources that matter for mate selection. Similarly, Charles and Stephen (2004) find that strictly speaking, it is not evidence about the economic well-being of a couple after an earnings shock that increases the probability of a divorce but rather new information that the earnings shock sends about the partner's fitness as a mate (i.e., discipline and temperament) that impacts the divorce decision. Since such character traits matter for mate selection and divorce, and a short bout of good or poor investment performance is unlikely to signal changes in such underlying qualities, it is unsurprising that we do not find a statistically reliable relationship between past one- or two-year fund performance and the probability of marriage and divorce.

Nonetheless, these findings do not completely eliminate the possibility that endogeneity or feedback effects may be partially responsible for our results. For example, the divorce results may still be partially driven by the negative feedback loop between poor investment performance and marital distress or by perceptive spouses filing for divorce to preempt a bad patch of returns. The marriage results may be partially driven by fund managers trying to create joy in their lives

[25] Interestingly, we find that a decrease in fund flows is associated with an increase in divorce rates two years later. One view is that marital problems leading to a divorce could have distracted fund managers and hampered capital raising efforts as early as two years prior to the event.

to compensate for poor investment performance in the face of tough financial market conditions. Taken as a whole, the results in this paper, especially the findings on fund manager bandwidth, trading behavior, disposition, and return implications around marital events, are more in keeping with the limited attention hypothesis.[26] Still, we acknowledge the role that the afore-mentioned alternative explanations may play in driving at least some of our findings.

4. Robustness tests

4.1. Varying the event window

In our baseline results, we employed an event period of six months (starting three months before and ending three months after the marital event). We also used a before period that starts two years prior to the event and ends three months before the event, as well as an after period that starts three months after the event and ends two years after the event. To gauge the sensitivity of our results to these specifications, we vary the length and composition of the overall event window. In the first alternative specification, we consider a longer 12-month event period and corresponding shorter 18-month before and after periods. In the second alternative specification, we keep the event period at six months but extend both the before and after periods to 33 months so that the before period starts three years prior to and ends three months before the event while the after period starts three months after and ends three years after the event. Finally, in the third alternative specification, we shorten the event period to one month. As with the baseline specification, the before period starts two years prior to the event and the after period ends two years post event. The results from the multivariate regression analysis with these

[26] For example, it is not clear why managers whose spouses file preemptively for divorce will trade less actively during a divorce and be hurt by their style-, benchmark-, and factor-hugging activity. It is also not clear why managers who forecast a bad patch in performance and marry to derive some compensatory joy in their lives will succumb more to the disposition effect during a marriage and be hurt by their lack of trading discipline.

alternative event window specifications are reported in Panels A, B, and C of Table 10. They indicate that our baseline results are robust to changes in the length and composition of the overall event window.

[Insert Table 10 here]

4.2. Manager manipulation of fund returns

There are concerns that managers may be incentivized to manipulate fund returns around a marriage and a divorce. For instance, to minimize the assets that her spouse can legally lay a claim on, a fund manager going through a divorce may be incentivized to understate returns. Similarly, a fund manager who is getting married may be incentivized to overstate returns prior to the marriage. Bollen and Pool (2008, 2009) find evidence to suggest that hedge fund managers delay reporting losses to attract investors. However, it is not clear whether they also manipulate returns to minimize the proportion of wealth that their ex-spouses can lay claim on. It is also not clear how such return manipulation by the fund manager will materially affect our results, since we primarily find that fund performance deteriorates in the six-month period surrounding a marriage and a divorce. Moreover, the manipulation story predicts that fund performance improves post divorce, which squarely goes against our baseline findings in Table 4.

Nonetheless, to address such concerns, we redo the multivariate regression analysis for the sample of fund returns derived from firm stock return holdings reported in the Thomson Financial 13-F holdings data. We argue that there is less scope for manipulation in the verifiable 13-F filings data that are reported to the SEC. The results on the returns derived from stock holdings data are reported in Panel D of Table 10. The number of observations falls by about 44 percent when we analyze the sample of fund returns derived from stock holdings data.

Nonetheless the coefficient estimates on fund returns and alpha in the event window indicate that manager manipulation of fund returns does not drive our results. Hedge funds continue to underperform in the six-month period surrounding a marital event, when we analyze the manipulation-free return sample. One caveat when we run the analysis on firm stock return holdings is that while the impact on fund performance extends to the post event window for marriage, it does not extend to the post event window for divorce.

4.3. Additional risk factors

The presence of additional risk factors could cloud the analyses. To cater for hedge fund exposure to option based strategies (Mitchell and Pulvino, 2001), we augment the Fung and Hsieh (2004) model with out-of-the-money S&P 500 call and put option-based factors from the Agarwal and Naik (2004) model and re-estimate the alpha regressions in Table 4. The coefficient estimates on the *EVENT* and *AFTER* variables remain economically and statistically significant after the inclusion of these two additional risk factors. Our results are also robust to augmenting the Fung and Hsieh model with the Pástor and Stambaugh (2003) liquidity factor to account for hedge fund exposure to liquidity risk (Sadka, 2010; Teo, 2011; Aragon and Strahan, 2012) and with an emerging markets risk factor based on the MSCI Emerging Markets Index.[27] These results are reported in Panels E and F of Table 10.

[27] In unreported results, we split the states based on whether they adopted unilateral divorce laws. Unilateral divorce allows marriages to end where one person wants out of the marriage and the other person wants to remain married. Stevenson (2007) finds that the adoption of unilateral divorce laws reduces investment in all types of marriage-specific capital considered except home ownership. Newlywed couples in states that allow for unilateral divorce are less likely to support a spouse through school, more likely to have a wife in the labor force, and less likely to have a child. We find that unilateral divorce neither ameliorates nor heightens the impact of marital transitions on investment performance.

4.4 Pre-fee returns

To shed light on the debate on the value of active management in the hedge fund industry, it is also helpful if we also analyze fund pre-fee returns. To derive pre-fee returns, it is important to match each capital outflow to the relevant capital inflow when calculating the high water mark and the performance fee. In our pre-fee return calculation, we assume as per Appendix A of Agarwal, Daniel, and Naik (2009) that capital leaves the fund on a first-in, first-out basis.

Based on pre-fee returns, in the six-month period surrounding a divorce, hedge fund managers underperform by 3.76 percent per annum relative to the pre-divorce period. After adjusting for co-variation with the Fung and Hsieh (2004) seven factors, the underperformance during the divorce increases to 7.72 percent per annum. The pre-fee return spread is statistically significant at the five percent level while the pre-fee alpha spread is statistically significant at the one percent level. Similarly, in the six-month period surrounding a marriage, hedge fund managers underperform by 2.41 percent per annum relative to the pre-marriage period. After adjusting for co-variation with the Fung and Hsieh (2004) seven factors, the underperformance during the marriage increases to 4.49 percent per annum. The pre-fee return spread is statistically significant at the ten percent level while the pre-fee alpha spread is statistically significant at the one percent level. In addition, the baseline multivariate regression results with pre-fee returns reported in Panel G of Table 10 confirm that our findings are robust to the imputation of fund fees.

5. Conclusion

Limited investor attention plays a central role in empirical and theoretical work in financial economics. It forms the basis for research on category learning, style investing, and co-movement. It has been used to explain market reaction to and the timing of firm earnings announcements, investor stock purchase decisions, as well as the lead-lag pattern in stock returns between economically linked consumer and supplier firms. Yet evidence directly connecting limited investor attention to investment performance has remained elusive.

Using a novel data set of hedge fund manager marriages and divorces, this paper exploits variation on fund manager inattentiveness induced by marital events to estimate the effect of limited attention on investment performance. We argue that marital events are deeply personal events that distract fund managers from their investment activities. To our knowledge, this is the first empirical study that analyzes the impact of personal events on investment performance.

Our results empirically validate the Jones view that significant life events, such as divorce, are obstacles to success in the field of finance. We show that both marriage and divorce are associated with deteriorations in fund risk-adjusted performance. During the six-month period surrounding a marriage, fund alpha falls by 8.50 percent per annum. Similarly, during the six-month period around a divorce, fund alpha drops by 7.39 percent per annum. In line with the limited attention hypothesis, the impact of marriage and divorce is strongest for busy fund managers who manage multiple funds or who do not belong to a team.

How does limited investor inattention engender deteriorations in fund performance? We show that inattentive hedge fund managers make fewer active investment decisions. They are more likely to mimic the risk loadings of their investment style peers as well as load up more on S&P 500 index stocks. They also make poorer investment decisions and exercise less investment discipline. In particular, fund managers who are tying the knot or undergoing divorce tend to be susceptible to the disposition effect. They are more likely to hold on to their losses and realize their gains during that period.

Our findings therefore provide a starting point for understanding the impact of limited attention on professional money managers. Moreover, the results in this paper nicely support the notion of managerial skill in the hedge fund industry. After all, if hedge fund managers lack investment management skills, it should not matter for fund performance if managers are distracted by marital events.

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Table 1
Distribution of marital events for hedge fund managers

This table reports the distribution of marital events, i.e., marriages and divorces, by state. Divorce rate is the ratio of the number of divorces to the number of marriages within each state. The sample period is from January 1994 to December 2012.

State	Marriage		Divorce		Total		Divorce rate
	Number	Percentage	Number	Percentage	Number	Percentage	
Arizona	0	0.00	2	0.80	2	0.18	n/a
California	215	25.09	80	31.87	295	26.62	0.37
Colorado	38	4.43	0	0.00	38	3.43	0.00
Connecticut	216	25.20	41	16.33	257	23.19	0.19
Florida	144	16.80	68	27.09	212	19.13	0.47
Georgia	33	3.85	9	3.59	42	3.79	0.27
Kentucky	3	0.35	0	0.00	3	0.27	0.00
Nevada	10	1.17	2	0.80	12	1.08	0.20
North Carolina	22	2.57	9	3.59	31	2.80	0.41
Ohio	16	1.87	2	0.80	18	1.62	0.13
Pennsylvania	5	0.58	0	0.00	5	0.45	0.00
Texas	139	16.22	30	11.95	169	15.25	0.22
Virginia	16	1.87	8	3.19	24	2.17	0.50
Total	857	100	251	100	1,108	100	0.31

Table 2

Summary statistics

This table reports hedge fund characteristics grouped by the marital status of the fund manager. No marriage funds are those whose managers have no marital records within the 13 states for the sample period. Single marriage funds are those for whom we find only one marriage record for the fund manager. Single divorce funds are those for whom we find one marriage record and one divorce record for the fund manager. Multiple marriages funds are those for whom we find more than one marriage record and one divorce record for the fund manager. Management fee and performance fee are both in percentage. High-water mark is a dummy variable which takes a value of one if the hedge fund uses high-water mark and zero otherwise. Lock-up period is in days, conditional on non-zero records. Redemption period is in months. Leveraged is a dummy variable which takes a value of one if the hedge fund uses leverage and zero otherwise. Alpha is Fung and Hsieh (2004) seven-factor monthly alpha where factor loadings are estimated over the last 24 months. Total risk is the standard deviation of raw monthly returns, while idiosyncratic risk is the standard deviation of the monthly residuals from the seven-factor alpha regressions. Risk is estimated over the entire sample period. The sample period is from January 1994 to December 2012. * Significant at the 5% level; ** Significant at the 1% level.

Variable	No marriage (1)	Single marriage (2)	Single divorce (3)	Multiple marriages (4)	(1)-(2)	(1)-(3)	(1)-(4)
Number of funds	4,522	635	279	117			
Percentage of funds	81.43	11.44	5.02	2.11			
Management fee (%)	1.422	1.428	1.384	1.392	-0.006	0.038	0.029
Performance fee (%)	16.670	16.590	17.298	16.263	0.080	-0.628	0.407
High-water mark (dummy)	0.752	0.751	0.792	0.697	0.001	-0.040	0.055
Fraction of funds with lock-ups	0.352	0.443	0.470	0.402	-0.090**	-0.117**	-0.050
Lock-up period (days)	112.2	153.0	87.650	216.700	-40.8**	24.600	-104.5**
Redemption period (months)	2.359	2.552	2.336	2.082	-0.194	0.023	0.277
Leveraged (dummy)	0.601	0.606	0.667	0.778	-0.005	-0.066	-0.177**
Assets under management (US$m)	130.855	96.879	121.377	131.884	33.976	9.478	-1.028
Returns (%)	0.758	0.779	0.702	0.772	-0.021	0.056	-0.013
Alpha (%)	0.504	0.532	0.497	0.548	-0.027	0.007	-0.044
Flow (%)	1.785	2.492	1.620	1.355	-0.707**	0.165	0.430
Total risk (%)	3.705	3.689	3.454	3.395	0.016	0.251	0.310
Idiosyncratic risk (%)	2.487	2.460	2.218	2.204	0.027	0.269	0.283

Table 3
Univariate analysis of hedge fund manager marital events

This table reports univariate analysis of hedge fund performance and risk around marital events. Fund performance metrics analyzed include raw monthly returns and Fung and Hsieh (2004) seven-factor monthly alphas where factor loadings are estimated over the last 24 months. Flow is monthly fund net inflow in percentage. Total risk is the standard deviation of raw returns while the idiosyncratic risk is the residual from the factor regressions. Risk is estimated over each non-overlapping period: "before", "event", and "after". The "event" period is the six-month period spanning three months before and three months after the marriage/divorce event. The period "before" is the 21-month period before the event window and the period "after" is the 21-month period after the event window. Panel A reports results for marriage, while Panel B reports results for divorce. The sample period is from January 1994 to December 2012. * Significant at the 5% level; ** Significant at the 1% level.

	Before	Event	After	Event-Before	After-Event	After-Before
Panel A: Marriage						
Return	0.984	0.723	0.979	-0.261	0.256	-0.005
Alpha	1.023	0.598	0.760	-0.425**	0.162	-0.263**
Flow	2.138	2.628	0.846	0.490	-1.782*	-1.292*
Total risk	3.537	3.198	3.149	-0.339	-0.049	-0.388
Idiosyncratic risk	2.799	2.522	2.264	-0.277	-0.258	-0.535**
Panel B: Divorce						
Return	0.878	0.517	0.803	-0.361	0.286	-0.075
Alpha	0.750	0.101	0.559	-0.649**	0.458**	-0.191
Flow	0.670	1.205	0.792	0.535*	-0.413*	0.122
Total risk	2.990	2.845	2.823	-0.145	-0.022	-0.167
Idiosyncratic risk	1.838	1.604	1.647	-0.234	0.043	-0.191

Table 4
Regressions on hedge fund performance and risk

This table reports multivariate regression analysis of fund performance and risk. Dependent variables are RETURN, ALPHA, and RISK. ALPHA is Fung and Hsieh (2004) seven-factor monthly alpha for hedge funds where factor loadings are estimated over the last 24 months. RISK is standard deviation of monthly hedge fund returns estimated over each non-overlapping period associated with EVENT, and AFTER. The independent variables include three indicator variables which represent different periods. EVENT takes a value of one during the six-month period spanning three months before and three months after the marriage/divorce event. AFTER takes a value of one during the 21-month period after the event window. The other independent variables include fund characteristics such as management fee (MGTFEE), performance fee (PERFFEE), high water mark indicator (HWM), lock-up period in years (LOCKUP), redemption period in months (REDEMPTION), leverage indicator (LEVERAGE), fund age in years (AGE) and log of fund size (log(FUNDSIZE)). In the risk regression, we estimate AGE and FUNDSIZE as the average age and size of the fund, respectively, in each non-overlapping period. The *t*-statistics, derived from standard errors clustered by fund, are in parentheses. The sample period is from January 1994 to December 2012. *Significant at the 5% level; ** Significant at the 1% level.

	Dependent variable					
	Marriage			Divorce		
Independent variables	RETURN	ALPHA	RISK	RETURN	ALPHA	RISK
EVENT	-0.453*	-0.608**	0.042	-0.072	-0.472*	0.016
	(-2.11)	(-3.02)	(0.11)	(-0.37)	(-2.14)	(0.05)
AFTER	-0.218	-0.285*	-0.155	0.076	-0.274*	-0.231
	(-1.43)	(-2.14)	(-0.58)	(0.54)	(-2.44)	(-1.00)
MGTFEE	-0.032	0.178*	1.191**	-0.273*	0.120	0.364*
	(-0.31)	(2.06)	(6.62)	(-2.45)	(1.33)	(2.10)
PERFFEE	0.020	0.003	-0.010	0.002	0.008	0.046**
	(1.77)	(0.30)	(-0.48)	(0.30)	(1.16)	(3.54)
HWM	0.222	0.145	-0.725	-0.352*	-0.073	-2.243**
	(0.97)	(0.70)	(-1.92)	(-1.99)	(-0.51)	(-7.90)
LOCKUP	-0.030	-0.034	-0.764	-5.910***	-0.937	20.368**
	(-0.13)	(-0.17)	(-1.83)	(-3.56)	(-0.69)	(7.38)
LEVERAGE	-0.271	-0.431**	-0.360	-0.016	-0.058	1.295**
	(-1.73)	(-2.91)	(-1.32)	(-0.10)	(-0.44)	(4.99)
AGE	-0.045*	-0.073**	-0.011	0.001	-0.042**	0.055*
	(-2.21)	(-3.51)	(-0.28)	(0.04)	(-4.02)	(2.42)
REDEMPTION	-0.033	-0.039	-0.073	-0.006	0.010	-0.192**
	(-1.08)	(-1.46)	(-1.34)	(-0.20)	(0.42)	(-4.06)
log(FUNDSIZE)	0.046	0.131**	-0.353**	0.007	0.000	-0.062
	(1.03)	(3.22)	(-4.39)	(0.21)	(0.01)	(-1.15)
R-squared	0.009	0.024	0.224	0.008	0.017	0.352
N	3,361	2,286	513	3,011	1,859	495

Table 5

Regressions on fund performance and risk with matched sample

This table reports multivariate regression analysis of fund performance with a matched sample. Dependent variables are raw monthly return (RETURN) and the Fung and Hsieh (2004) seven-factor monthly alpha (ALPHA). The independent variables include interactions of the treatment dummy (TREATMENT) with three indicator variables which represent different periods. EVENT takes a value of one during the six-month period spanning three months before and three months after the marriage/divorce event. BEFORE takes a value of one during the 21-month period before the event window. AFTER takes a value of one during the 21-month period after the event window. TREATMENT takes a value of one if the fund manager gets married or divorced in that month, and takes a value of zero if the fund is in the control group. Each fund in the treatment group is matched with a fund in the control group. The matched fund is chosen to minimize the absolute difference in performance during the "Before" period. The other independent variables include EVENT and AFTER as well as fund characteristics such as management fee (MGTFEE), performance fee (PERFFEE), high water mark indicator (HWM), lock-up period in years (LOCKUP), redemption period in months (REDEMPTION), leverage indicator (LEVERAGE), fund age in years (AGE) and the log of fund size (Log(FUNDSIZE)). The *t*-statistics, derived from standard errors clustered by fund, are in parentheses. The sample period is from January 1994 to December 2012. * Significant at the 5% level; ** Significant at the 1% level.

	Dependent variable			
	Marriage		Divorce	
Independent variables	RETURN	ALPHA	RETURN	ALPHA
TREATMENT*BEFORE	-1.233	-0.222	-0.014	-0.350
	(-1.62)	(-1.23)	(-0.06)	(-1.44)
TREATMENT*EVENT	-1.397**	-0.836*	-0.789*	-0.975*
	(-2.81)	(-2.40)	(-2.01)	(-2.32)
TREATMENT*AFTER	-1.160**	-0.327*	-0.143	-0.648*
	(-3.43)	(-2.12)	(-0.78)	(-2.04)
EVENT	-0.963	-1.120*	-0.761	-0.055
	(-1.85)	(-3.35)	(-1.96)	(-0.17)
AFTER	-1.062	-0.566**	0.048	-0.613**
	(-1.82)	(-3.74)	(0.30)	(-2.81)
MGTFEE	0.111	0.306**	0.210	0.059
	(0.54)	(6.49)	(1.09)	(0.39)
PERFFEE	0.011	0.004	0.012	0.017*
	(0.60)	(0.45)	(1.27)	(2.52)
HWM	-0.019	0.226	-0.136	-0.133
	(-0.05)	(1.15)	(-0.69)	(-0.69)
LOCKUP	0.817	0.183	0.516	-0.315
	(1.64)	(0.92)	(0.59)	(-0.97)
LEVERAGE	-0.020	-0.038	-0.034	-0.003
	(-0.39)	(-1.74)	(-1.56)	(-0.12)
AGE	0.166*	0.109**	0.104	-0.011
	(2.35)	(2.86)	(1.46)	(-0.12)
REDEMPTION	-0.252	-0.160	0.304	0.115
	(-1.32)	(-1.28)	(1.89)	(0.71)
Log(FUNDSIZE)	-0.045*	-0.039**	-0.008	-0.028*
	(-2.50)	(-3.02)	(-0.44)	(-2.31)
R-squared	0.021	0.040	0.016	0.038
N	5,052	3,600	5,413	3,171

Table 6
Regressions on performance for fund managers sorted by manager bandwidth

This table reports multivariate regression analysis of fund performance and risk. Dependent variables are raw monthly return and monthly alpha. Alpha is Fung and Hsieh (2004) seven-factor alpha for hedge funds. The independent variables include three indicator variables which represent different periods. EVENT takes a value of one during the six-month period spanning three months before and three months after the marriage/divorce event. BEFORE (omitted) takes a value of one during the 21-month period before the event window. AFTER takes a value of one during the 21-month period after the event window. The other independent variables include fund characteristics such as management fee, performance fee, high water mark indicator, lock-up period, redemption period, leverage indicator, fund age and fund size. Coefficient estimates on these control variables are omitted for brevity. The *t*-statistics, derived from standard errors clustered by fund, are in parentheses. The sample period is from January 1994 to December 2012. * Significant at the 5% level; ** Significant at the 1% level.

	Managers sorted by number of funds managed		Funds sorted by number of managers	
Independent variables	One fund	Two or more funds	Single manager	Team managed
Panel A: Event = Marriage; Dependent variable = Return				
EVENT	-0.222	-0.814**	-0.945**	-0.227
	(-0.62)	(-4.58)	(-5.41)	(-0.91)
AFTER	-0.517	-0.600**	-0.584**	-0.245
	(1.55)	(-6.10)	(-4.26)	(-1.41)
N	1,125	2,236	1,496	1,865
Panel B: Event = Marriage; Dependent variable = Alpha				
EVENT	-0.383	-1.278**	-0.786**	-0.307
	(-1.54)	(-4.36)	(-3.31)	(-1.09)
AFTER	-0.159	-0.618**	-0.553**	-0.129
	(-0.63)	(-5.65)	(-3.41)	(-0.68)
N	841	1,445	1,131	1,155
Panel C: Event = Divorce; Dependent variable = Return				
EVENT	0.303	-1.278**	-0.940*	-0.313
	(-0.43)	(-4.36)	(-2.32)	(-1.80)
AFTER	0.110	-0.61**	-0.537**	-0.153
	(-0.38)	(-5.65)	(-3.23)	(-1.22)
N	1,130	1,881	903	2,108
Panel D: Event = Divorce; Dependent variable = Alpha				
EVENT	0.345	-0.907**	-0.767**	-0.237
	(-0.81)	(-4.47)	(-3.02)	(-0.72)
AFTER	-0.418	-0.375**	-0.341**	-0.314
	(-1.58)	(-2.83)	(-2.32)	(-1.54)
N	847	1,012	893	966

Table 7
Style, index, and factor exposure analysis

This table reports analysis of hedge fund style, index, and factor exposure around marital events. The metrics analyzed include DEVIATESTYLE, NONSPRATIO, NRSQUARED, and ACTIVESHARE. DEVIATESTYLE measures style exposure and is the sum of the absolute deviations in fund Fung and Hsieh (2004) 7-factor betas relative to that of fund's investment style. NONSPRATIO is the ratio of the number of non S&P 500 index stocks added to a fund's portfolio relative to the total number of new positions in a quarter. NRSQUARED is one minus the R-squared from the regression of fund excess returns on the Fung and Hsieh (2004) 7 factors. ACTIVESHARE is Cremers and Petajisto (2006) Active Share measured against the S&P 500. The event window is the six-month period spanning three months before and three months after the marriage/divorce event. The "before" period is the period 21 months before the event window and the "after" period is the period 21 months after the event window. Panels A and C report results for marriage while Panels B and D report results for divorce. In Panels C and D we conduct a difference-in-differences analysis after matching funds based on the relevant trading behavior metric. The sample period is from January 1994 to December 2012. *Significant at the 5% level; **Significant at the 1% level.

Variable	Before	Event	After	Event-Before	After-Event	After-Before
Panel A: Marriage						
DEVIATESTYLE	19.541	14.827	13.896	-4.714**	-0.931	-5.645**
NONSPRATIO	0.648	0.645	0.608	-0.003	-0.037*	-0.040**
NRSQUARED	0.812	0.787	0.690	-0.030	-0.100**	-0.120**
ACTIVESHARE	0.526	0.514	0.502	-0.012	-0.012	-0.024*
Panel B: Divorce						
DEVIATESTYLE	16.194	12.753	10.064	-3.441**	-2.689**	-6.131**
NONSPRATIO	0.646	0.642	0.611	-0.004	-0.031	-0.035
NRSQUARED	0.704	0.643	0.602	-0.061*	-0.041	-0.102**
ACTIVESHARE	0.548	0.527	0.527	-0.021**	0.000	-0.021**
Panel C: Marriage (difference-in-differences with matched sample)						
DEVIATESTYLE	0.808	-4.668	-4.788	-5.476**	-0.120	-5.596**
NONSPRATIO	0.000	-0.001	-0.024	-0.001	-0.023*	-0.024*
NRSQUARED	0.047	-0.088	-0.145	-0.135**	-0.057	-0.192**
ACTIVESHARE	-0.001	-0.011	-0.024	-0.010	-0.013	-0.023*
Panel D: Divorce (difference-in-differences with matched sample)						
DEVIATESTYLE	1.628	-4.965	-5.830	-6.593**	-0.865	-7.458**
NONSPRATIO	0.000	0.003	-0.023	0.003	-0.026	-0.023
NRSQUARED	0.020	-0.026	-0.035	-0.046*	-0.009	-0.055*
ACTIVESHARE	0.001	-0.014	-0.011	-0.015*	0.003	-0.012*

Table 8
The disposition effect around marital events

This table compares the aggregate Proportion of Gains Realized (PGR) to the aggregate Proportion of Losses Realized (PLR), where PGR is the number of realized gains divided by the number of realized gains plus the number of paper (unrealized) gains, and PLR is the number of realized losses divided by the number of realized losses plus the number of paper (unrealized) losses. Realized gains, paper gains, realized losses, and paper losses are aggregated over time for each period (i.e., before, event, and after) and over all funds. The *t*-statistics test the null hypothesis that the differences in proportions are equal to zero assuming all realized gains, paper gains, realized losses, and paper losses result from independent decisions. The sample period is from January 1994 to December 2012. * Significant at the 5% level; ** Significant at the 1% level.

	Before	Event	After
Panel A: Marriage			
PLR	0.474	0.452	0.432
PGR	0.443	0.511	0.437
PLR-PGR	0.031**	-0.059**	-0.005
standard error	0.006	0.008	0.005
t-statistic	5.053	-7.171	-1.051
Panel B: Divorce			
PLR	0.315	0.370	0.379
PGR	0.338	0.415	0.425
PLR-PGR	-0.023**	-0.045**	-0.046**
standard error	0.008	0.011	0.006
t-statistic	-2.900	-4.094	-7.636

Table 9

Regressions on the probability of marriage and divorce amongst hedge fund managers

This table reports coefficient estimates from logistic regressions that analyze the determinants of marriage and divorce. Dependent variables are dummy variables which take a value of one if the fund manager marries or divorces in month *t*. Columns (1) and (2) present results for the marriage regressions while columns (3) and (4) present results for the divorce regressions. Explanatory variables include fund level performance, flows, and characteristics. $RETURN_{t-1,t-12}$, $ALPHA_{t-1,t-12}$, and $FLOW_{t-1,t-12}$ are average monthly performance and flows one year before the marriage/divorce event. $RETURN_{t-13,t-24}$, $ALPHA_{t-13,t-24}$, and $FLOW_{t-13,t-24}$ are average monthly performance and flows two years before the marriage/divorce month. ALPHA is Fung and Hsieh (2004) seven-factor alpha. The other independent variables include fund characteristics such as management fee (MGTFEE), performance fee (PERFFEE), high-water mark indicator (HWM), lock-up period in years (LOCKUP), redemption period in months (REDEMPTION), leverage indicator (LEVERAGE) and log of fund size (log(FUNDSIZE)). The *t*-statistics, derived from standard errors clustered by fund, are in parentheses. Marginal effects, that reveal the impact of a one standard deviation change in the independent variable on the probability of a marriage/divorce are in brackets. The sample period is from January 1994 to December 2012. * Significant at the 5% level; ** Significant at the 1% level.

	Dependent variable			
	MARRIAGE		DIVORCE	
Independent variables	(1)	(2)	(3)	(4)
$RETURN_{t-1,t-12}$	0.915		-5.770	
	(0.07)		(-0.73)	
	[0.02]		[-0.09]	
$ALPHA_{t-1,t-12}$		13.021		-5.043
		(1.15)		(-0.41)
		[0.18]		[-0.08]
$FLOW_{t-1,t-12}$	-0.245	-0.075	-0.131	0.205
	(-0.50)	(-0.11)	(-0.30)	(0.54)
	[-0.08]	[-0.02]	[-0.04]	[0.05]
$RETURN_{t-13,t-24}$	2.376		-5.668	
	(0.30)		(-0.60)	
	[0.04]		[-0.09]	
$ALPHA_{t-13,t-24}$		13.982		1.926
		(1.71)		(0.15)
		[0.19]		[0.01]
$FLOW_{t-13,t-24}$	-0.131	-0.412	-0.908**	-1.251
	(-0.44)	(-0.73)	(-2.63)	(-1.88)
	[-0.04]	[-0.13]	[-0.26]	[-0.34]
MGTFEE	0.506**	0.740**	-0.107	-0.083
	(4.95)	(7.17)	(-0.60)	(-0.32)
PERFFEE	-0.045	-0.066	0.027	0.034
	(-1.09)	(-1.37)	(0.47)	(0.35)
HWM	0.781	1.222	0.069	0.173
	(1.46)	(1.57)	(0.12)	(0.23)
LOCKUP	0.031	0.322	-2.279	-1.863
	(0.08)	(0.60)	(-1.53)	(-1.89)
LEVERAGE	-0.017	-0.295	-0.007	-0.146
	(-0.05)	(-1.22)	(-0.02)	(-0.34)
REDEMPTION	0.009	-0.015	0.069	0.072
	(0.09)	(-0.14)	(1.45)	(1.45)
log(FUNDSIZE)	-0.032	-0.019	-0.051	-0.023
	(-0.42)	(-0.17)	(-0.79)	(-0.25)
R-squared	0.0155	0.0371	0.0149	0.0154
N	157,820	105,943	157,820	105,943

Table 10
Robustness tests

This table reports multivariate regression analysis of fund performance. Dependent variables are raw monthly fund return and the Fung and Hsieh (2004) seven-factor monthly fund alpha. The independent variables include three indicator variables which represent different periods. Unless otherwise stated, the variable EVENT takes a value of one during the six-month period spanning three months before and three months after the marriage/divorce event. BEFORE (omitted) takes a value of one during the 21-month period before the event window. AFTER takes a value of one during the 21-month period after the event window. The other independent variables include fund characteristics such as management fee, performance fee, high water mark indicator, lock-up period, redemption period, leverage indicator, fund age and fund size. The *t*-statistics, derived from standard errors clustered by fund, are in parentheses. The sample period is from January 1994 to December 2012. * Significant at the 5% level; ** Significant at the 1% level.

	Dependent variable			
	Marriage		Divorce	
Independent variables	Return	Alpha	Return	Alpha
Panel A: Event period = 12 months; Before period = 1 year 6 mths; After period = 1 year 6 mths				
EVENT	-0.574**	-0.490**	-0.323*	-0.295
	(-3.58)	(-3.35)	(-2.42)	(-1.95)
AFTER	-0.200	-0.487**	-0.238	-0.455**
	(-1.38)	(-3.98)	(-1.90)	(-4.35)
Panel B: Event period = 6 mths; Before period = 2 years 9 mths; After period = 2 years 9 mths				
EVENT	-0.527**	-0.622**	-0.349	-0.493*
	(-2.71)	(-3.37)	(-1.90)	(-2.43)
AFTER	-0.509**	-0.417**	-0.166	-0.285**
	(-4.13)	(-3.87)	(-1.41)	(-3.20)
Panel C: Event period = 1 mth; Before period = 1 year 11 mths; After period = 1 year 11 mths				
EVENT	-0.722*	-0.568	-0.331	-0.320
	(-2.32)	(-1.91)	(-1.12)	(-0.97)
AFTER	-0.469**	-0.393**	-0.524**	-0.534**
	(-3.41)	(-3.21)	(-4.08)	(-5.25)
Panel D: Fund returns derived from 13F quarterly stock holdings				
EVENT	-0.125**	-0.045**	0.002	-0.242**
	(-6.61)	(-2.64)	(0.12)	(-3.29)
AFTER	-0.062**	-0.050**	0.004	0.074
	(-4.68)	(-3.95)	(0.32)	(1.38)
Panel E: FH 7-factor model augmented with the Agarwal and Naik (2004) OTM option-based factors				
EVENT	-0.453*	-0.714*	-0.072	-0.957**
	(-2.11)	(-2.43)	(-0.37)	(-3.46)
AFTER	-0.218	-0.776**	0.076	-0.537**
	(-1.43)	(-4.10)	(0.54)	(-2.86)
Panel F: FH 7-factor model augmented with the Pastor and Stambaugh (2003) liquidity factor and the MSCI emerging markets factor				
EVENT	-0.453*	-0.664*	-0.072	-0.747**
	(-2.11)	(-2.37)	(-0.37)	(-3.48)
AFTER	-0.218	-0.747**	0.076	-0.301*
	(-1.43)	(-4.06)	(0.54)	(-2.12)
Panel G: Pre-fee returns				
EVENT	-0.415	-0.553**	-0.051	-0.598**
	(-1.92)	(-2.91)	(-0.26)	(-4.02)
AFTER	-0.248	-0.278*	0.134	-0.222*
	(-1.62)	(-2.22)	(0.94)	(-2.19)