The Motherhood Penalty in the Mutual Fund Industry

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Abstract

Using novel data on female fund managers' maternity leaves, we document a motherhood penalty in the mutual fund industry. After childbirth, mothers experience a 22.1% decline in industry participation, and conditional on staying in the mutual fund industry, face a 33.2% and 10.3% reduction in leadership positions and fund management responsibilities, respectively. We find that mothers' performance declines only temporarily around childbirth. In particular, funds of managers entering motherhood underperform by 2.6 percentage points p.a. during pregnancy and the first six months after returning from maternity leave. During this period, we find fewer company visits and less active portfolio management. The negative performance effect disappears six months after returning to work, but children impose persistent penalties on women's careers in the mutual fund industry.

JEL-Classification Codes: J13, J16, G11, G23

Keywords: Mutual fund performance, motherhood penalty, women's careers

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1 Introduction

Despite the grand gender convergence, women continue to experience different labor market outcomes than men (Goldin, 2014). They are particularly underrepresented in high-paying jobs and industries, such as finance. Existing research highlights that the differential impact of children on the career trajectories of women relative to men plays a significant role in the persistence of gender inequality in the labor market. In particular, parenthood imposes a substantial and persistent motherhood penalty[2] on wages, hours worked, and participation rates of women, while men do not experience comparable effects (Kleven, Landais, and Søgaard, 2019, Kleven, Landais, Posch, Steinhauer, and Zweimüller, 2019).

Our understanding of the mechanisms underlying the motherhood penalty is still limited. One candidate explanation is that women who become mothers are (expected to be) less committed to their careers, i.e., the motherhood penalty could result from lower job performance around childbirth (Correll, Benard, and Paik, 2007, He, Li, and Han, 2023). However, to establish that lower job performance explains the motherhood penalty, it is crucial to examine actual performance changes around childbirth. Unfortunately, performance changes around motherhood are usually not observable due to lack of data.

Using novel data on Chinese female fund managers' maternity leaves from 2008 to 2022, we document a motherhood penalty in the mutual fund industry. Most importantly, the data also provide a unique opportunity to examine performance changes around childbirth. In China, mutual fund companies are required to report and disclose fund management leaves and changes, and their reasons. Specifically, they need to inform the China Securities Regulatory Commission and disclose relevant information about when and why a manager leaves if the leave length exceeds thirty days.[3] This allows us to determine the day on which female fund managers enter maternity leave, infer the approximate time of when they became pregnant, and observe their career

[2]The term "motherhood penalty" is often used interchangeably with "child penalty". For consistency, we will use "motherhood penalty" throughout the paper.

[3]According to the Announcement of the China Securities Regulatory Commission (CSRC) 2009 No.3 it is compulsory for a fund to release a report to the CSRC and release the information to the public if a fund manager takes a leave that is longer than 30 days. The same requirement applies if the managing role is taken by another manager. There is no clear guidance concerning the return of managers from temporary leaves, but for 93% of our observations, the fund company reports whether the manager returns or decides to leave the company.

trajectories within the mutual fund industry after maternity leave. We can also precisely measure performance changes around childbirth, as daily fund returns are available to construct various performance measures.

We first examine whether and how motherhood influences the extensive margin of labor supply and demand in the mutual fund industry. That is, we ask whether children have an impact on female managers' participation rates in the mutual fund industry. Our analysis shows that, prior to childbirth, the participation rates of female managers who become a parent and those managers who do not follow a similar trajectory. However, within three years after childbirth, the participation rate of mothers declines by approximately 22.1% relative to the mean.

Conditional on staying in the mutual fund industry, mothers experience a reduction in both leadership positions and fund management responsibilities. In particular, three years after childbirth, female managers experience a reduction of 33.2% relative to the mean in the number of leadership positions and a reduction of 10.3% relative to the mean in the number of fund management responsibilities, respectively.

Our data do not allow us to disentangle supply (mothers' choices) and demand (employers' decisions) explanations for the motherhood penalty in the mutual fund industry. However, we can examine whether the motherhood penalty can be, at least in part, linked to performance changes around childbirth. Childbirth-related distractions, such as the psychological and physiological consequences of pregnancy, delivery, and breastfeeding, as well as childcare responsibilities may prevent female managers from devoting full attention to their work after becoming a mother.

To examine performance changes associated with motherhood, we run event studies of fund performance around childbirth, controlling for fund and manager characteristics, as well as fund, manager, and time (month) fixed effects. We find that during pregnancy, the performance of female fund managers decreases by about 0.23 to 0.24 percentage points, respectively, depending on the factor model used. In the first six months after returning from maternity leave, fund performance of female fund managers is about 0.19 to 0.2 percentage points lower. For the period between six and thirty-six months after returning from maternity leave, performance rebounds to pre-pregnancy levels. Altogether, the performance dip over pregnancy and the first six months after returning from maternity leave amounts to about 2.6 percentage points per annum. Rela-

tive to the mean, this represents a 34% to 56% dip, depending on the factor model used. Thus, the effects are economically sizable but short-lived. The performance changes are also confined to single-managed funds only, i.e., we do not find any performance changes for team-managed funds. This is in line with the view that individual manager actions are more relevant for single-managed funds.

One concern is that our findings may be driven by endogenous timing of pregnancy. For example, female fund managers might time their motherhood to coincide with business cycle downturns to reduce the opportunity cost of having children. To address such concerns, we use a matching approach to select a plausible counterfactual of how performance would have evolved absent childbirth. In a matched-sample difference-in-differences setting surrounding childbirth, we again find that on average, female fund managers entering motherhood underperform their matched peers over pregnancy and the first six months after returning to work by 1.7 to 1.9 percentage points per annum. For the period between six to thirty-six months after returning from maternity leave, we find no performance differences between fund managers with and without children. Again, we find no performance deterioration for team-managed funds. In summary, our matched sample results further strengthen the notion that managers who become mothers are only temporarily impaired from devoting full attention to work. These findings challenge the notion that children limit the career advancement of new mothers due to persistent changes in performance. Already six months post-childbirth, new mothers' performance again aligns with that of other fund managers.

Lastly, we examine whether the performance dip can be explained by changes in manager actions around childbirth. We document that the negative impact of entering motherhood on fund performance is strongest for busy managers who manage a larger number of funds simultaneously. These managers, once pregnant, pursue a less active portfolio management strategy, and make fewer corporate site visits to listed companies, the latter of which have been shown to be a predictor of superior fund performance due to information acquisition (Hong, Zhuang, Kang, and Wang, 2019, Lee, 2023, Quan, Xiang, Li, and Tan, 2023).

Our paper contributes to different strands of literature. First, our results contribute to the literature on gender imbalances in finance in general, and the mutual fund industry in particular.

Women are underrepresented in academic finance (Sherman and Tookes, 2022), corporate boardrooms (Niessen-Ruenzi and Zimmerer, 2021), hedge fund portfolio management (Aggarwal and Boyson, 2016), and the mutual fund industry (Niessen-Ruenzi and Ruenzi, 2019). Our paper provides an additional explanation for the low number of women in the mutual fund industry. Despite the temporary nature of the childbirth-related performance decline, our results suggest that having children has a persistently negative impact on women's careers in the mutual fund industry. This suggests that motherhood may be an obstacle to a successful career in fund management[4].

Second, we relate to the body of literature examining the impact of parenthood on women's labor market outcomes. Previous research has documented that having children imposes large and persistent penalties on women's careers across various countries and time periods (Kleven, Landais, Posch, Steinhauer, and Zweimüller, 2019, Kleven, Landais, and Søgaard, 2019, Kleven, Landais, and Leite-Mariante, 2023). Such career penalties are not borne by men to the same extent, and existing research suggests a causal link with childbearing (Lundborg, Plug, and Rasmussen, 2017). To the best of our knowledge, we are the first to document a motherhood penalty in the mutual fund industry, which is characterized by high-skilled professionals and high wages. Moreover, understanding motherhood-related changes in the mutual fund industry is important as mutual funds substantially impact the capital allocation in the economy and therefore may affect other industries as well.

Third, we add to the literature on how personal life experiences affect the work performance of professional money managers. Fund managers' skills (Kacperczyk and Seru, 2007, Kacperczyk, Nieuwerburgh, and Veldkamp, 2014) and efforts (Bowles and Evans, 2023) matter for fund performance. Consistent with these findings, the previous literature shows that disruptions and life events such as, e.g., marriage and divorce (Lu, Ray, and Teo, 2016), childcare duties due to school closures during the COVID-19 pandemic (Ain Tommar, Kolokolova, and Mura, 2022), family deaths (Liu, Sulaeman, Shu, and Yeung, 2023), and racial-ethnic animosity (Agarwal, Jiang, Luo, and Zou, 2023) significantly impact fund performance. Our data on maternity leave events allows us to expand this literature by studying performance changes of female mutual fund man-

[4]Unfortunately, we do not observe one single parental leave by a male manager. However, an extensive body of research suggests that children do not significantly affect the career trajectories of men (Kleven, Landais, and Søgaard, 2019, Kleven, Landais, Posch, Steinhauer, and Zweimüller, 2019).

agers around childbirth and career implications for these managers.

Investigating the motherhood penalty and performance changes around childbirth for working mothers provides valuable insights into the sources of persistent gender inequalities in the labor market more broadly and in the mutual fund industry specifically. Although the temporary performance decline surrounding childbirth rebounds only six months after returning to work, our findings reveal that new mothers experience a decline in industry participation, lower promotion prospects, and fewer fund management responsibilities years after entering motherhood. This phenomenon may arise from new mothers either not actively seeking employment and promotions or fund companies hesitating to employ and promote them due to perceived performance concerns related to child-rearing responsibilities. While we cannot differentiate supply and demand effects more broadly, our results should alleviate employers' potential concerns that child-rearing causes persistent career distractions for women. Six months after returning from maternity leave, new mothers do not perform differently from other fund managers anymore.

2 Institutional Background

The Chinese mutual fund industry serves as a well-suited laboratory for examining the impact of childbirth on women's performance and career trajectories for several reasons. First, the *Guidance on the Management of Fund Management Firms' Managers (No. 3 Announcement)*, issued by the China Securities Regulatory Commission (CSRC) on March 17, 2009, and effective from April 1, 2009, requires mutual fund companies to publicly disclose when a fund manager is absent from a fund for more than 30 days. This disclosure obligation includes maternity leave, as such leaves typically exceed 30 days. China's national maternity leave policy guarantees female employees a minimum of 98 days of paid maternity leave. Many provinces provide additional paid maternity leave, ranging from 60 to 90 extra days. For instance, women in Shanghai and Beijing are entitled to a total of 158 days of paid maternity leave, while Guangdong grants a total of 178 days. Maternity leave generally begins 15 days before the expected due date. During maternity leave, managers are replaced by one or more interim fund managers who assume their management role for the duration of the leave. The performance during the temporary leave is still attributed to the on-

leave manager.[5] Our data also allows us to identify the interim managers and their performance, which we account for in robustness tests.

Second, active portfolio management requires a high level of managerial attention since stock prices move quickly and a large number of portfolio firms needs to be monitored regularly. As a result, fund managers' skill (Kacperczyk and Seru, 2007, Kacperczyk, Nieuwerburgh, and Veldkamp, 2014) and efforts (Bowles and Evans, 2023) significantly affect fund performance. This is particularly true for the Chinese mutual fund industry, where managers of actively managed funds can achieve large alphas (Chen and Chi, 2018, Chi, Liu, and Qiao, 2022, Chi, He, Wu, and Yin, 2022). Consequently, any distractions from fund management responsibilities related to childbirth are likely to be reflected in lower fund performance. The mutual fund industry provides us with daily information on fund returns, such that managers' performance changes surrounding childbirth events can be measured at a high frequency.

Finally, China's mutual fund industry has grown rapidly over the past three decades and is becoming increasingly important. By the end of 2022, the industry comprised 10,491 mutual funds with total net assets under management amounting to 25.7 trillion Chinese Yuan (3.8 trillion USD). Despite this development, female representation within the Chinese mutual fund industry remains low. Understanding the reasons for and obstacles to women's representation in this expanding industry is crucial, as mutual funds play a significant role in the capital allocation within the economy.

3 Data and Descriptive Statistics

Before conducting our main analyses, we provide a detailed overview of the Chinese mutual fund market. We document fund and manager characteristics as well as maternity leave events.

3.1 Fund and manager characteristics

Our primary data source is the RESSET Mutual Fund database, which is a survivor-bias-free database for Chinese open-ended mutual funds. The database provides information on daily re-

[5] Officially, the on-leave manager remains responsible for the fund, and her name appears in the periodic reports released during the leave.

turns and quarterly total net assets, as well as fund characteristics such as fund type, investment style, fund age, and fees. Furthermore, we obtain data on fund management structures and individual fund managers, including their name, gender, age, career path within the fund industry, and educational background.

Our study covers the time period from January 2008 to December 2022. We choose January 2008 as the starting point, as we observe the first maternity leave in 2011 and we include a pre-treatment-period of 36 months in our analyses.[6] We focus on actively-managed equity, bond, and hybrid funds and exclude money market funds and index funds. This ensures that the fund managers we observe take an active part in determining fund performance.

In Table 1, we present descriptive statistics for fund and manager characteristics. The number of funds in our sample increases from 375 in 2008 to 8,269 in 2022, reflecting the remarkable expansion of the Chinese mutual fund market over the past years. With the first open-ended fund emerging in 2001, China's mutual fund industry is relatively young but has grown considerably since its inception. The average fund age and size in our sample are 3.7 years and 1,520 million RMB (roughly 228 million USD), respectively. Over the period from 2008 to 2022, we identify a total of 9,520 distinct funds.

Throughout the entire sample period, single-managed funds account for approximately 62.5% of the mutual fund industry in China, indicating that Chinese mutual funds are predominantly managed by individual managers. This stands in contrast to the U.S. mutual fund industry, where team management has become the prevailing management structure (Adams, Nishikawa, and Rao, 2018, Patel and Sarkissian, 2017). Consequently, the average number of managers per fund in our sample is 1.3. It is also worth highlighting that in the Chinese mutual fund industry managers of actively managed funds can achieve substantial alphas. In our sample, the average monthly raw return is 0.58%, while average monthly abnormal returns range from 0.38% to 0.6%, depending on the factor model applied. These figures are consistent with findings reported in other studies using Chinese mutual fund data (e.g., Chen and Chi, 2018, Chi, Liu, and Qiao, 2022, Chi, He, Wu, and Yin, 2022).

[6]While disclosure rules regarding maternity leaves came into effect on April 1^{st} 2009, the first maternity leave in our data is observed in 2011, presumably because the number of female fund managers is particularly small at the beginning of our sample.

Table 1—FUND AND MANAGER SUMMARY STATISTICS

	Mean	STD	Median	P1	P99
Fund-level summary statistics (N = 471,370)					
Fund size (in millions)	1519.519	2496.298	550.448	4.876	14473.509
Fund age (in years)	3.712	3.558	2.583	0.000	15.667
Fund flows	0.097	0.967	-0.022	-0.894	7.100
Raw return (in %)	0.575	4.618	0.339	-13.649	16.072
1F Abnormal return (in %)	0.379	2.723	0.160	-7.462	9.976
3F Abnormal return (in %)	0.602	2.458	0.213	-5.911	9.464
Total risk (in %)	3.527	3.170	3.011	0.041	11.940
Idiosyncratic risk (in %)	1.846	1.728	1.416	0.042	7.188
β_{Market}	0.783	3.156	0.560	-10.289	11.773
Number of managers	1.328	0.543	1.000	1.000	3.000
Manager-level summary statistics (N = 215,702)					
Manager age (in years)	36.069	4.807	35.500	27.833	49.917
Manager tenure (in years)	1.612	1.370	1.292	0.000	6.292
Manager is female	0.217	0.412	0.000	0.000	1.000
Manager has PhD	0.121	0.326	0.000	0.000	1.000
Manager has master's only	0.841	0.366	1.000	0.000	1.000
Manager has bachelor's only	0.038	0.190	0.000	0.000	1.000
Industry participation	0.565	0.496	1.000	0.000	1.000
# Leadership positions	0.464	0.845	0.000	0.000	3.000
Probability of leadership position	0.291	0.454	0.000	0.000	1.000
# Fund management responsibilities	2.189	1.99	1.500	0.333	9.000
Probability of single management	0.703	0.457	1.000	0.000	1.000

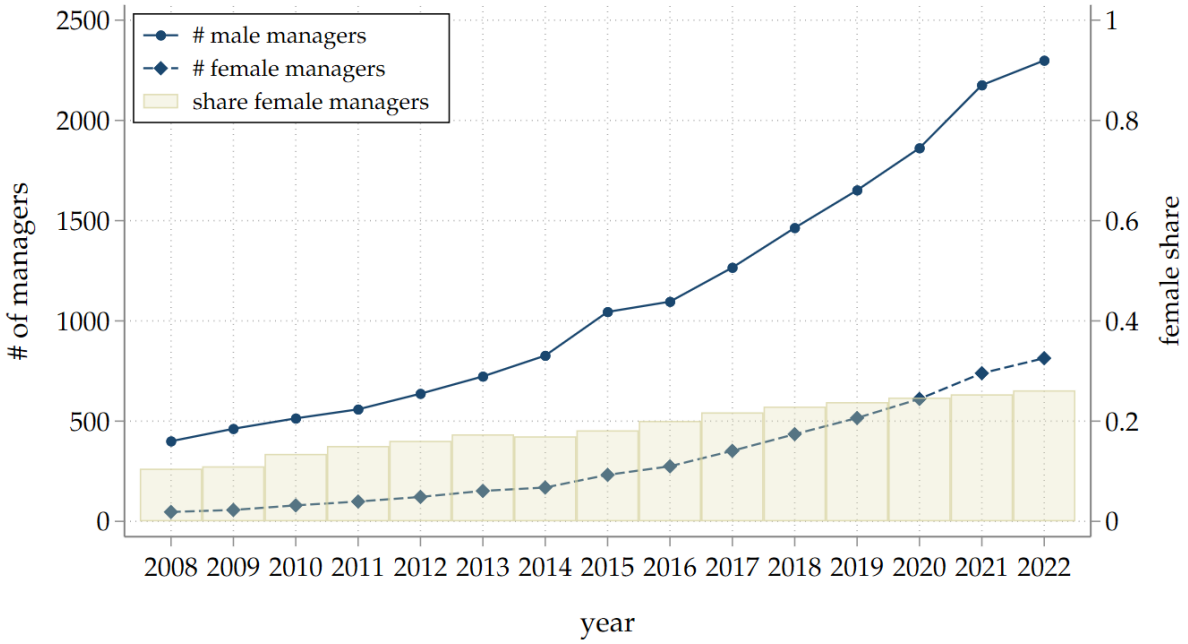
Notes: The table reports pooled fund-level and manager-level summary statistics for all bond, equity, and hybrid funds between January 2008 and December 2022. Fund-level summary statistics are based on 471,370 fund-month observations, while manager-level summary statistics are based on 215,702 manager-month observations. All variables are described in detail in Appendix Table A1.

At the manager level, the summary statistics reveal that fund managers are highly educated, with approximately 84% holding a master's degree and around 12% holding a PhD. The average manager in our sample is 36 years old and has a tenure of 1.6 years. Over the entire sample period, our sample comprises 4,663 unique managers. Notably, female representation is relatively low, accounting for about 21.7%.

Figure 1 plots the total number of (female) managers (lines) and the share of female managers (bars). The absolute number of female managers rises from just 47 in 2008 to 814 in 2022, and

the fraction of female managers rises from 10.5% in 2008 to 26.1% in 2022. Overall, the figure illustrates that women, who make up around 49% of China's population in 2022 (World Bank, 2022), are significantly underrepresented in China's mutual fund industry. Despite some progress over time, the relative representation of women remains low and has stagnated in recent years. The picture is similar to that documented in the US mutual fund industry. Niessen-Ruenzi and Ruenzi (2019) report that the proportion of equity funds managed by women was around 10% for the years 1992 to 2009.

Figure 1—DISTRIBUTION OF FEMALE AND MALE MANAGERS OVER TIME



Notes: The figure illustrates the distribution of female and male managers over time. The solid line represents the total number of male managers, while the dashed line represents the total number of female managers. The bars indicate the share of female managers as a percentage of the total number of managers. Data are taken from the RESSET Survivor-Bias-Free Chinese Mutual Fund database. The sample includes all bond, equity, and hybrid funds between January 2008 and December 2022.

To analyze the impact of motherhood on managers' career trajectories in the mutual fund industry, we compute several career outcomes. Industry participation is a binary variable equal to one if a manager is responsible for at least one fund in a given month. Managers who leave the mutual fund industry are classified as non-participants until the end of the sample period after their leave, ensuring that the variable accurately captures turnover in the industry. The average likelihood of participating in the mutual fund industry is 56%, reflecting relatively high fluctua-

tion.

We also collect information on the start and end dates of managers' leadership positions from the *Fund Management Company's Executive Introduction* database in RESSET.[7] This information is merged with our manager sample using fund company and manager names. As shown in Table 1, each manager holds on average 0.46 leadership positions, and 29.1% of managers hold at least one leadership position.

To examine fund management responsibilities, we calculate the total number of funds managed by a manager in each month. In case of a team-managed fund, we account for the fraction of the managed fund as $\frac{1}{\#co-managers}$. Moreover we compute the probability of single-management to account for changes in management structures. On average, a manager manages 2.19 funds and the probability of single management is 70.3%.

3.2 Maternity leaves

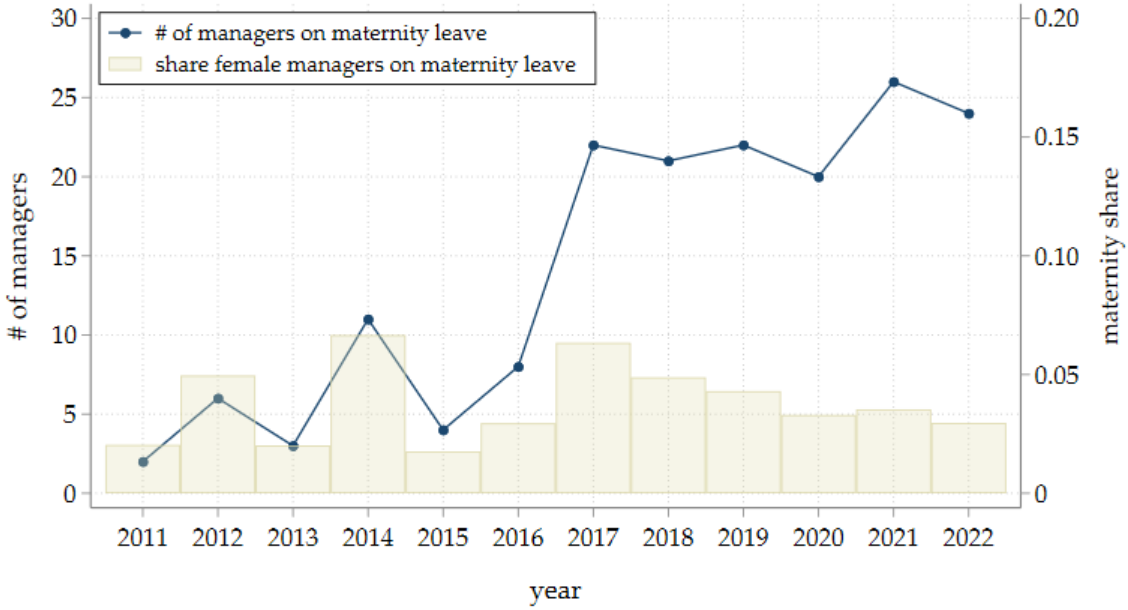
The RESSET Mutual Fund database allows us to track the career paths of individual managers over time. If a manager permanently or temporarily leaves a fund, the database records the leave date, the reason for leave, the replacement manager(s), and, in certain cases, the expected return date or length of leave, as well as the actual return date (if applicable). Maternity leaves are typically categorized as temporary leaves, even if the manager ultimately decides not to return. Therefore, we search the reports for phrases such as "temporary leave", "stop temporarily", "leave temporarily", or "temporarily replacing" to specifically identify temporary leaves. In total, we identify 974 distinct fund events classified as temporary leaves. To identify maternity leave events, we manually examine the reports to determine if they mention the term "maternity leave". This manual check allows us to identify 833 maternity leave events.[8] After restricting maternity leaves to managers in charge of bond, equity, and hybrid funds as well as discarding few cases in which funds have subsequent maternity leaves we are left with 536 unique fund-level maternity leaves.

In Figure 2, we present the distribution of the total number (line) and share (bars) of female

[7]The database includes seven types of leadership positions: director of the board, member of the investment strategy committee, member of the supervisory board committee, executive or vice executive, chief economist or other technology leader, leadership positions of the Communist Party of China within the company (relevant for state-owned fund companies), and other management positions.

[8]The remaining events are either sick leaves or cases where we cannot determine the reason for the leave. To ensure a precise analysis, we only include events that we can identify as maternity leaves without any doubt.

Figure 2—MATERNITY LEAVES OVER TIME



Notes: The figure illustrates maternity leaves over time. The line illustrates the number of female fund managers on maternity leave and the bars illustrate the share of female fund managers on maternity leave as a fraction of all female managers. We do not observe a single parental leave by a male manager. Data are taken from the RESSET Survivor-Bias-Free Chinese Mutual Fund database. The sample includes all maternity leaves of bond, equity, and hybrid funds between January 2008 and December 2022. We choose January 2011 as the starting date for the graph, as we observe to few maternity leaves before 2011. We identify maternity leaves by manually checking whether the reports disclosed for manager leaves contain the term "maternity leave".

managers on maternity leave over time. In our sample, the first maternity leaves take place in the year 2011. In particular, the number of managers on maternity leave increases from 2 in 2011 to 24 in 2022. From 2016 onward, we observe a pronounced and persistent increase in the number of maternity leaves, coinciding with the end of the Chinese one-child policy. However, due to the continuously growing absolute number of female managers, the relative proportion of maternity leaves remains low, averaging at 3.3%. Overall, we observe 177 unique managers who go on maternity leave during our sample period. The overall number of managers on maternity leave is lower than the number of maternity leaves at the fund level, as some managers who go on maternity leave are responsible for several funds simultaneously.

In China, the maternity protection period typically starts around 15 days before the due date. Consequently, we estimate the approximate pregnancy date by considering the starting date of managers' leaves due to childbirth. We observe the date of return from maternity leave for 400 out

of the 536 maternity leaves. In 68 cases, the manager permanently leaves the fund within one year after going on maternity leave. 51 maternity leaves in our sample occur in mid to end of 2022 so that the return date is not observable in our sample. For the remaining 17 cases, no return date is reported.

The average length of maternity leave in our sample is 5 months. With the exception of two managers, who are excluded from our analysis, managers take maternity leave only once during the sample period. Unfortunately, we do not observe managers' biographical information or family status when they enter the mutual fund industry. However, given China's low fertility rate, it is likely that the births observed in our data are predominantly first-child births.

4 The Motherhood Penalty in the Mutual Fund Industry

In this section, we examine whether and how having children impacts female managers' careers in the mutual fund industry. To address this question, we analyze industry participation, leadership positions, and fund management responsibilities at the manager level. For each manager who becomes a mother, we define the twelve months surrounding childbirth as $t = 0$. Following Kleven, Landais, and Søgaard (2019), we estimate the following event study specification for each manager m and year t:

$$Y_{mt} = \sum_{\substack{t=-3 \\ t\neq -1}}^{3} \beta_t \times \mathbb{1}\left(t \textit{ years from childbirth}\right) + \gamma \textit{ Treated} + \Phi_{mt} + \varepsilon_{mt}, \tag{1}$$

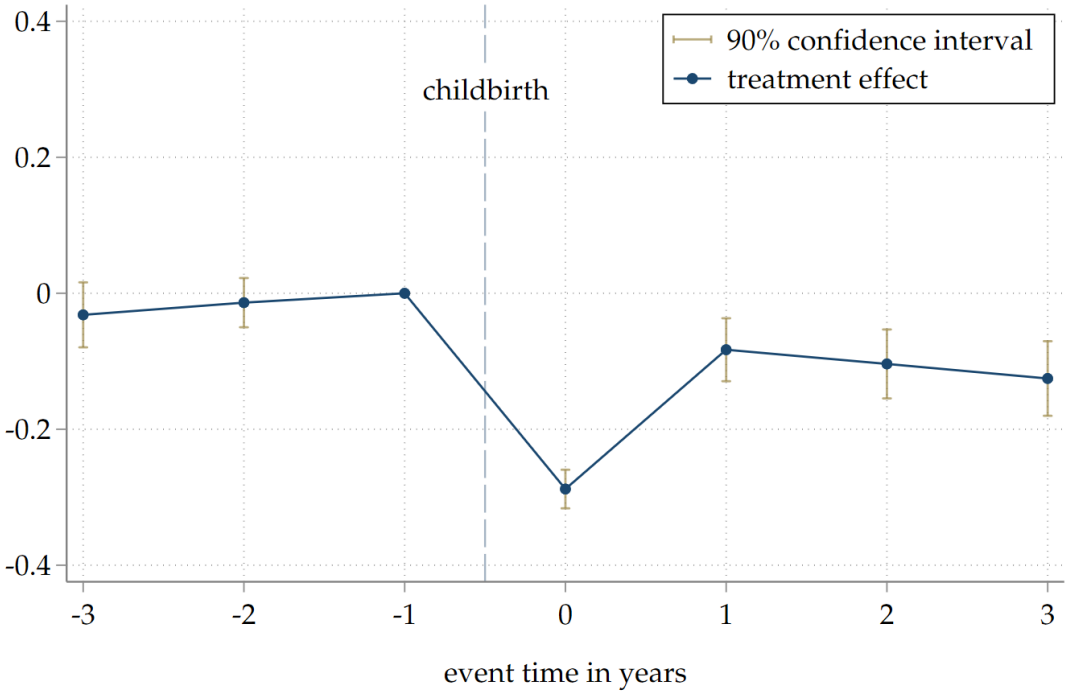
where Y_{mt} denotes the outcome of interest. $\sum_{\substack{t=-3 \\ t\neq -1}}^{3} \beta_t \times \mathbb{1}\left(t \textit{ years from childbirth}\right)$ indicates the set of event-time dummies running from three years before to up to three years after childbirth. We omit the event time dummy at $t = -1$ such that the effects are estimated relative to the year preceding childbirth. *Treated* is an indicator that takes the value of one if the fund manager becomes a mother during the sample period, and Φ_{mt} denotes month-by-cohort, month-by-age, and manager fixed effects. Note that unlike Kleven, Landais, and Søgaard (2019), our data does not allow us to estimate the effect of motherhood relative to fatherhood specifically. Instead, we estimate the effect of

children relative to all (female) managers who do not become parents during our sample period.

4.1 Extensive margin: participation effects

We start by investigating whether motherhood affects the extensive margin of equilibrium labor supply and demand in the mutual fund industry. That is, we ask whether children have an impact on female managers' participation rates in the mutual fund industry. The effect on industry participation is estimated unconditional on employment status, i.e., managers leaving the mutual fund industry are treated as non-participants until the end of the sample period after their leave.

Figure 3—THE MOTHERHOOD PENALTY ON INDUSTRY PARTICIPATION RATES



Notes: The figure compares participation in the mutual fund industry of managers with versus without childbirth in the mutual fund industry. The estimates represent coefficients from event studies around childbirth, while controlling for manager age, industry entry cohort, and time trends. For each manager entering motherhood, we denote the year of childbirth by $t = 0$ and define the other event periods accordingly. We omit the event time dummy at $t = -1$ such that the effects are estimated relative to the year preceding childbirth. The effect on industry participation is estimated unconditional on employment status, i.e., managers leaving the mutual fund industry are treated as non-participants until the end of the sample period after their leave. The 90 percent confidence intervals are based on standard errors clustered at the manager level.

Figure 3 plots the impact of children on participation rates across event time. The 90 percent

confidence intervals are based on standard errors clustered at the manager level. We observe that participation rates of managers who enter motherhood and managers who do not become a parent evolve in parallel before childbirth, i.e., there are no differences in trends. The coefficient estimates are close to zero and statistically insignificant. However, in the year of childbirth, participation rates of managers who enter motherhood drop significantly relative to untreated managers. In particular, mothers experience an immediate drop in participation rates of around 29 percentage points in $t = 0$ relative to the year before childbirth and relative to the control group of untreated managers. In the years following the initial decline, the participation rate of managers who become mothers recovers slightly, but never returns to its initial level. Three years after the year of childbirth, the participation rate of mothers has stabilized at around 12.5 percentage points below its level in $t = -1$ relative to the control group. Relative to the mean participation rate, this represents a reduction by 22.1%. Thus, the motherhood penalty on participation in the mutual fund industry is economically sizable and persists over the medium to long term [9]. In Appendix Figure A2, we show that the results also hold if we estimate the effect of motherhood relative to female managers only.

The persistent effect on participation rates in the mutual fund industry contrasts with evidence for China as a whole, where labor participation rates recover relatively quickly to pre-motherhood levels (e.g., Kleven, Landais, and Leite-Mariante, 2023, Meng, Zhang, and Zou, 2023). However, it is in line with evidence specifically for large cities – where our fund managers are primarily located – such as Beijing, where motherhood penalties tend to be more pronounced and persistent compared to rural areas (Kleven, Landais, and Leite-Mariante, 2023). The underlying rationale for this variation in motherhood penalties is that the degree of urbanization serves as a proxy for the structure of the labor market, with jobs in rural areas presumed to be more family-friendly, while jobs in urban areas are presumed to be more competitive.

Overall, the results indicate that motherhood is associated with human capital loss for the mutual fund industry, as mothers drop out of the industry. Lundborg, Plug, and Rasmussen (2017) document that women document that new mothers change into lower-paid jobs that are closer to

[9] In Appendix Figure A1, we additionally show participation effects for an event study horizon that includes six years after the year of childbirth. However, the majority of childbirth events in our sample occurs as of the year 2017, so that the coefficient estimates for the later event periods are estimated on a lower number of observations.

home. Liu, Makridis, Ouimet, and Simintzi (2023) provide evidence that offering female-friendly benefits, such as extended maternity leave, can improve the retention of female talent and potentially enhance firm value.

4.2 Intensive margin: career implications

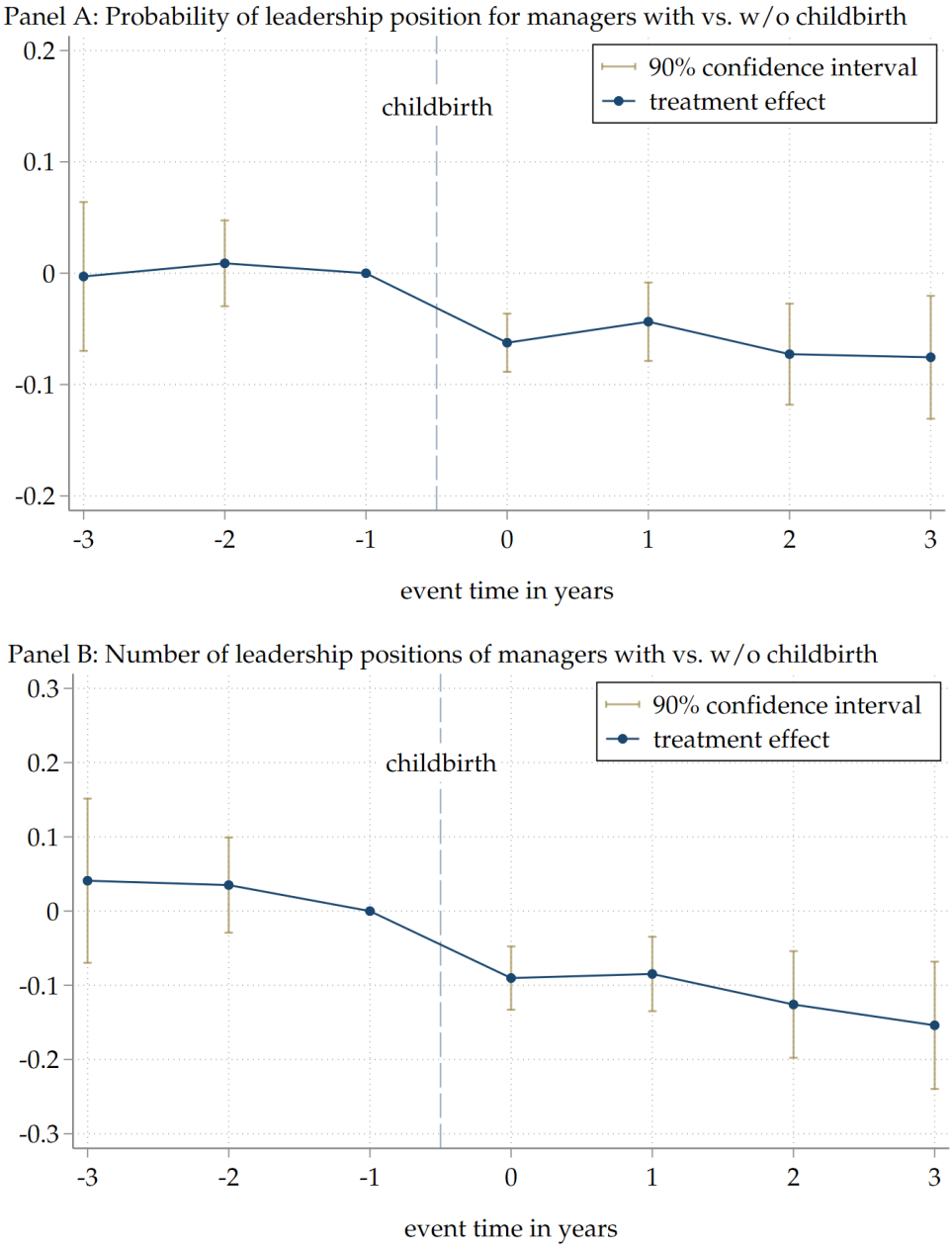
After having examined the extensive margin of equilibrium labor supply and demand in the mutual fund industry, we investigate the effect of motherhood on the intensive margin by examining leadership positions and fund management responsibilities. The effects are estimated conditional on employment in the mutual fund industry.

Leadership positions. We start by examining the impact of motherhood on leadership positions at the fund company. In particular, we examine the effect of children on the number of leadership positions and the probability of holding at least one leadership position by estimating equation (1) conditional on employment in the mutual fund industry.

The results are illustrated in Figure 4. The 90 percent confidence intervals are based on standard errors clustered at the manager level. Panel A illustrates the impact of childbirth on the likelihood of holding at least one leadership position. We observe that the career trajectories of managers with an without childbirth evolve similarly before childbirth. However, as of the year of childbirth, the probability of holding a leadership position decreases for new mothers relative to childless managers and relative to the year preceding childbirth. In particular, the probability of holding a leadership position drops by 6.2 percentage points for new mothers in year $t = 0$. Three years after the year of childbirth, the probability of holding a leadership position is reduced by 7.5 percentage points relative to the year before childbirth and relative to their peers. The economic magnitude of this effect is large. The results suggest that within three years after the year of childbirth, the likelihood of holding a leadership position is reduced by 25.9% relative to the average likelihood of holding to a leadership position. The coefficient estimate is significant at the 5% level.

Panel B illustrates the impact of childbirth on total number of leadership positions held by a fund manager. As managers can be appointed to more than one leadership position, and taking on more responsibility is generally associated with career progression, this analysis provides insights

Figure 4—THE MOTHERHOOD PENALTY ON LEADERSHIP POSITIONS



Notes: The figure compares the career trajectories of managers with versus without childbirth in the mutual fund industry. The estimates represent coefficients from event studies around childbirth, while controlling for manager age, industry entry cohort, and time trends. For each manager entering motherhood, we denote the year of childbirth by $t = 0$ and define the other event periods accordingly. We omit the event time dummy at $t = -1$ such that the effects are estimated relative to the year preceding childbirth. The effects are estimated conditional on being employed in the mutual fund industry. The 90 percent confidence intervals are based on standard errors clustered at the manager level.

into the career advancement of new mothers. As in Panel A, the effects are estimated conditional on employment. In parallel with the evolution of the probability of holding a leadership position, the average number of leadership positions held by managers who become mothers decreases as of $t = 0$ relative to the year preceding childbirth and relative to the control group. Three years after childbirth, female managers hold on average 0.15 fewer positions, which corresponds to a substantial 33.2% reduction compared to the average number of leadership positions held by managers in the sample. This effect is statistically significant at the 1% level.

Overall, our findings suggest that, conditional on staying in the mutual fund industry, female managers are less likely to hold leadership positions and, on average, hold fewer such positions. These effects extend beyond the year of childbirth and persist over the following three years. In Appendix Figure A3, we show that the impact of motherhood on leadership positions remains qualitatively and quantitatively unchanged when we estimate the effect relative to female managers only.

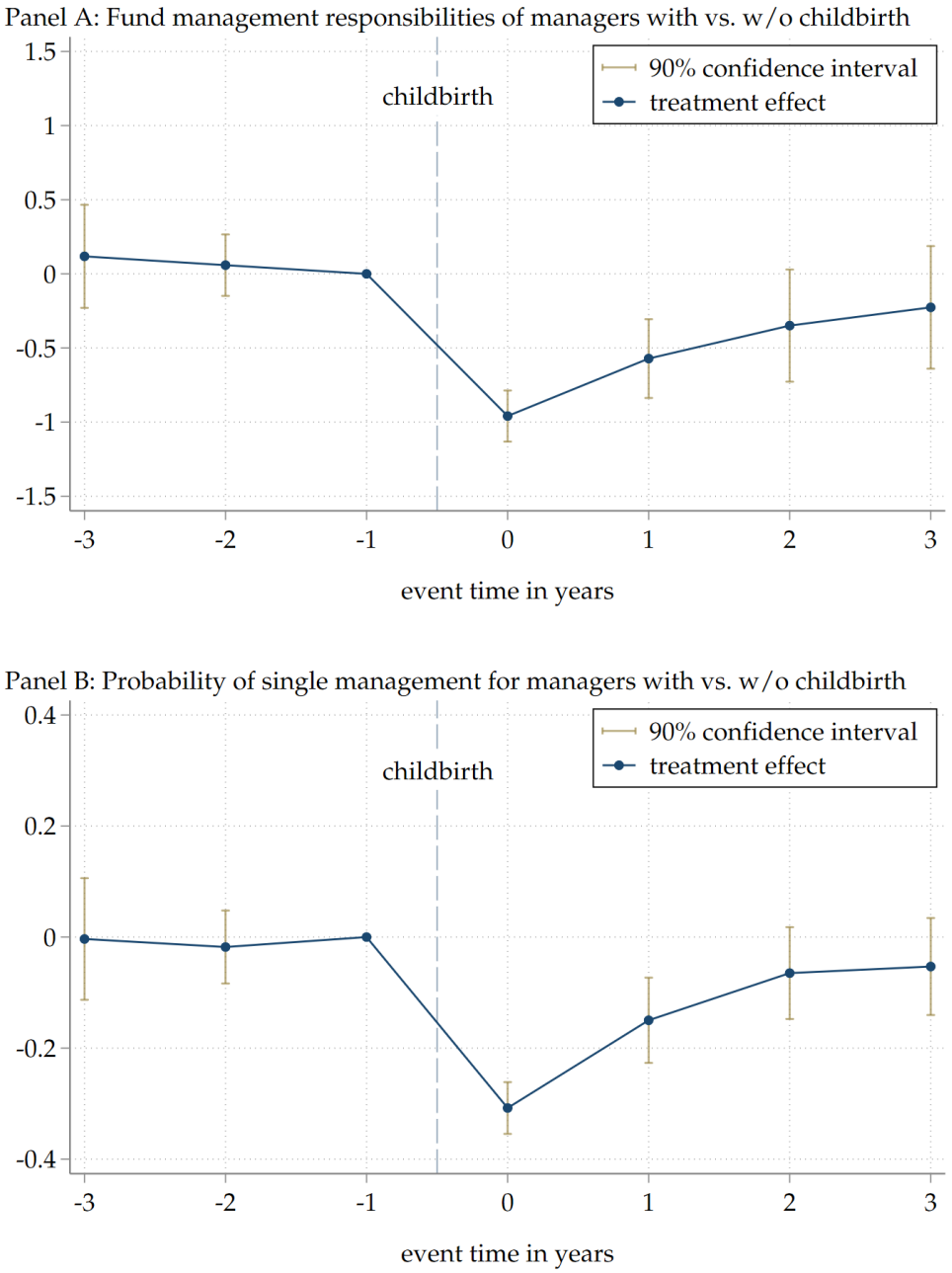
Fund management responsibilities. In a next step, we examine the effect of motherhood on fund management responsibilities. The results are illustrated in Figure 5. The 90 percent confidence intervals are based on standard errors clustered at the manager level.

As illustrated in Panel A, we find a decrease in total fund management responsibilities by 0.96 in $t = 0$. Three years after the year of childbirth, the decrease in fund management responsibilities amounts to 0.23. Relative to the average number of fund management responsibilities, this represents a decrease by 10.3%.

To uncover the potential sources of this decrease, we also examine the effect of motherhood on the probability of single management in Panel B. We find an initial drop by 30.8 percentage points. Over time, the effect becomes less pronounced, but three years after childbirth, the probability is still reduced by 5.3 percentage points, which represents a reduction by 7.6% relative to the mean.

In Appendix Figure A4 we show the the results are unchanged if we estimate the effect of motherhood on management responsibilities relative to female managers only.

Figure 5—THE MOTHERHOOD PENALTY ON MANAGEMENT RESPONSIBILITIES

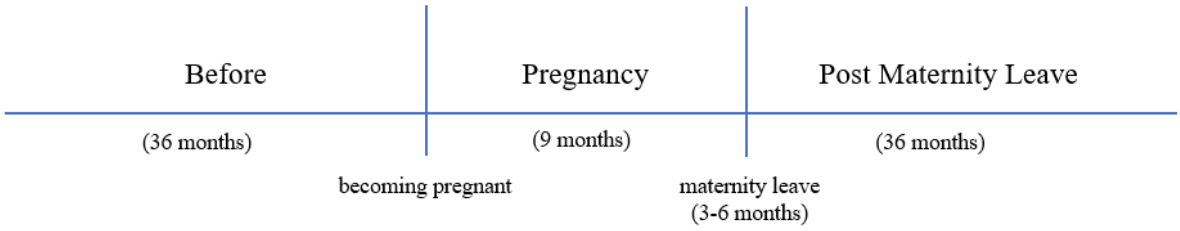


Notes: The figure compares the career trajectories of managers with versus without childbirth in the mutual fund industry. The estimates represent coefficients from event studies around childbirth, while controlling for manager age, industry entry cohort, and time trends. For each manager entering motherhood, we denote the year of childbirth by $t = 0$ and define the other event periods accordingly. We omit the event time dummy at $t = -1$ such that the effects are estimated relative to the year preceding childbirth. The effects are estimated conditional on being employed in the mutual fund industry. The 90 percent confidence intervals are based on standard errors clustered at the manager level.

5 Performance Changes around Childbirth

To estimate the impact of motherhood on the performance of female mutual fund managers, we adopt a quasi-experimental approach based on event studies around childbirth. In particular, we observe managers who become mothers during three different time periods. The *Before* period refers to the 36 months prior to pregnancy. The *Pregnancy* $(0 \leq t_P < 9)$ period refers to the months from becoming pregnant to the beginning of managers' maternity leave, and lasts about 9 months. *Post Maternity Leave* refers to the 36 months after returning from maternity leave. Figure 6 illustrates our empirical setting.

Figure 6—Event Periods around Childbirth



Notes: This figure illustrates the different event periods during which we observe managers who become mothers. The *Before* period refers to the 36 months prior to pregnancy. The *Pregnancy* period refers to the months between becoming pregnant and the start of maternity leave, and lasts a maximum of 9 months. *Post Maternity Leave* refers to the 36 months after returning from maternity leave.

We are interested in performance changes during the 9-month *Pregnancy* period because potential pregnancy-related distractions, such as regular check-ups, and common physical symptoms of pregnancy, such as fatigue and sleep disturbances, may temporarily prevent managers from focusing on their work responsibilities (Warren and Brewis, 2004, Jarvis and Nelson-Piercy, 2014). Pregnant managers' effective working hours may also be reduced compared to pre-pregnancy levels due to legal prohibitions on overtime or night work during late pregnancy[10]. In addition, medical research documents that some pregnant women suffer from psychological problems in and immediately after pregnancy (Shorey, Chee, Ng, Chan, San Tam, and Chong, 2018).

Our choice of the length of the *Post Maternity Leave* period (and the symmetric *Before* period)

[10]The Labor Law of the People's Republic of China prohibits overtime and night work for employees after seventh month of pregnancy.

is guided by the fact that most childcare centers in China do not accept children under the age of three. Instead, public kindergartens or preschools are designed for children between the ages of three and six (Wang, Zhang, Yu, Hu, and Yang, 2021). Consequently, childcare responsibilities are likely to be highest in the first three years after birth. Guryan, Hurst, and Kearney (2008) document that mothers generally take on significantly more childcare responsibilities than fathers. In line with this view, Ahammer, Glogowsky, Halla, and Hener (2023) document that childbirth has a much greater negative impact on the mental health of mothers than fathers, as being the primary caregivers is typically associated with cognitive load and mental stress. Similarly, Jiang and Yang (2022) document for the Chinese labor market that fertility has significant negative effects on the physical and mental health of women of childbearing age. Our setting ensures that the *Post Maternity Leave* period effectively captures the potential changes in performance induced by heightened childcare responsibilities for mothers after giving birth.

To allow for a more in-depth analysis and to account for differential effects during the *Post Maternity Leave* period, we examine three sub-periods: *Post Maternity Leave* ($0 < t_{PM} \leq 6$), *Post Maternity Leave* ($6 < t_{PM} \leq 12$) *Post Maternity Leave* ($12 < t_{PM} \leq 36$). We decide to split the *Post Maternity Leave* period at 6 and 12 months for the following rationale: Breastfeeding mothers in China are entitled to lactation breaks until their child reaches the age of one[11]. These breaks could affect the performance of working mothers by reducing effective working hours and distracting from work responsibilities. The Chinese government promotes the World Health Organization's recommendation of exclusive breastfeeding for the first six months of an infant's life among Chinese mothers (China State Council, 2015, 2021). China is one of the largest consumers of infant formula, so the rates and duration of (exclusive) breastfeeding are relatively low, and the majority of women (exclusively) breastfeed their infants for (six) twelve months after giving birth (Yang, Lai, Yu, Duan, Pang, Jiang, Bi, Wang, Zhao, and Yin, 2016). Therefore, we conjecture that the first six to twelve months after returning from maternity leave are likely to capture the distractions induced by breastfeeding and lactation breaks, depending on the length of maternity leave taken by the mother.

[11]Since 1988, female employees in China have been entitled to two half-hour breaks per day to breastfeed their children under the age of one when they return to work.

5.1 Performance measures

We measure fund performance using monthly abnormal returns based on different factor models. First, we use a one factor model. Barber, Huang, and Odean (2016) document that investors pay most attention to market risk when evaluating funds. Moreover, Dickerson, Mueller, and Robotti (2023) demonstrate that the bond CAPM is not dominated by either traded- or non traded-factor models. As our sample includes equity, hybrid and bond funds, we use a combined factor model that includes an equity market factor and a bond market factor. The market factor is the value-weighted excess return of stocks listed in mainland China, and the information is taken from the RESSET Stock database. The bond factor is taken from WIND, a leading commercial financial information provider in China, and is the daily return of the ChinaBond Composite Index Full Price Index. For each fund f, manager m, and trading day d, we estimate rolling-window regressions of the form

$$(RET_{fms} - r_{fs}) = \alpha_{fm} + \beta_{fm}^{MKT} MKT_s + \beta_{fm}^{B} B_s + \varepsilon_{fms} \tag{2}$$

using daily returns of the past 12 months ($-365 \leq s \leq d-1$). MKT_s and B_s denote the stock market and bond market factors, respectively. Then, we use the factor loadings, $\hat{\beta}_{fm}^{MKT}$ and $\hat{\beta}_{fm}^{B}$, factor realizations, MKT_d and B_d, and the excess return of day d, $RET_{fmd} - r_{fd}$, to compute the abnormal return on day d,

$$AR_{fmd} = (RET_{fmd} - r_{fd}) - \hat{\beta}_{fm}^{MKT} MKT_d - \hat{\beta}_{fm}^{B} B_d. \tag{3}$$

Finally, we aggregate daily abnormal returns at a monthly frequency. For our second performance measure, we combine the equity and bond market factors with the size and value factors suggested by Liu, Stambaugh, and Yuan (2019). We follow the same procedure as with the combined one factor model.

5.2 Event studies around childbirth

To capture performance changes around childbirth, we conduct analyses at the fund-manager-month level to be able to account for different fund types and management structures. In particu-

lar, we run the following multivariate regression for each fund f, manager m, and month t:

$$
\begin{aligned}
Performance_{fmt} = \; & \beta_0 + \beta_1 \textit{ Pregnancy } (0 \leq t_P < 9) + \beta_2 \textit{ Post Maternity Leave } (0 < t_{PM} \leq 6) \\
& + \beta_3 \textit{ Post Maternity Leave } (6 < t_{PM} \leq 12) \\
& + \beta_4 \textit{ Post Maternity Leave } (12 < t_{PM} \leq 36) \\
& + \beta_5 \; X_{fmt} + \Phi_{fmt} + \varepsilon_{fmt},
\end{aligned} \tag{4}
$$

where $Performance_{fmt}$ denotes raw monthly returns or monthly abnormal returns, *Pregnancy* $(0 \leq t_P < 9)$ refers to the months from becoming pregnant to the start of maternity leave, *Post Maternity Leave* $(0 < t_{PM} \leq 6)$, *Post Maternity Leave* $(6 < t_{PM} \leq 12)$, and *Post Maternity Leave* $(12 < t_{PM} \leq 36)$ are indicators for the sub-periods after returning from maternity leave, X_{fmt} are fund and manager controls such as fund size, fund age, fund type, manager education, and manager age, while Φ_{fmt} denotes various sets of fixed effects such as month fixed effects, fund fixed effects, and manager fixed effects. The benefit of this specification is that the coefficient estimates are estimated specifically for treated funds. Hence, it amounts to a before-after comparison for the set of funds affected by childbirth, controlling for several potential confounds.

We conjecture that the effect of childbirth on performance is concentrated in cases where the actions and efforts of the affected manager play a significant role in driving performance. To capture this, we differentiate between single-managed funds and team-managed funds, where affected managers share fund management responsibilities with co-managers. We account for this distinction by including an additional interaction term (*Team Fund*) in the above-stated formula.

Table 2 presents our first set of results. In columns (1) to (3), we employ monthly abnormal returns based on the combined one factor model, referred to as *1F Abnormal Return*, as the dependent variable. In columns (4) to (6), we use monthly abnormal returns based on the combined three factor model, referred to as *3F Abnormal Return*. All specifications include controls for various fund and manager characteristics, as well as month fixed effects to capture time trends. In our more restrictive specifications, we saturate the model with fund manager fixed effects and fund fixed effects, respectively. Fund fixed effects account for time-invariant heterogeneity across fund types and individual funds, while manager fixed effects control for unobserved constant manager

Table 2—EVENT STUDIES OF FUND PERFORMANCE AROUND CHILDBIRTH

	1F Abnormal Return			3F Abnormal Return		
	(1)	(2)	(3)	(4)	(5)	(6)
Pregnancy ($0 \leq t_P < 9$)	-0.198**	-0.173*	-0.233**	-0.174**	-0.187**	-0.235**
	(0.080)	(0.097)	(0.108)	(0.075)	(0.093)	(0.110)
Post Maternity Leave ($0 < t_{PM} \leq 6$)	-0.147*	-0.097	-0.204	-0.082	-0.108	-0.192
	(0.089)	(0.114)	(0.126)	(0.108)	(0.129)	(0.147)
Post Maternity Leave ($6 < t_{PM} \leq 12$)	0.234*	0.287*	0.166	0.227	0.217	0.126
	(0.137)	(0.169)	(0.205)	(0.145)	(0.165)	(0.204)
Post Maternity Leave ($12 < t_{PM} \leq 36$)	-0.010	0.077	-0.046	0.018	-0.009	-0.087
	(0.111)	(0.170)	(0.200)	(0.125)	(0.165)	(0.210)
Pregnancy ($0 \leq t_P < 9$) × Team Fund	0.159	0.107	0.123	0.159	0.124	0.135
	(0.100)	(0.103)	(0.108)	(0.098)	(0.100)	(0.110)
Post Maternity Leave ($0 < t_{PM} \leq 6$) × Team Fund	0.150	0.046	0.038	0.128	0.040	0.010
	(0.114)	(0.118)	(0.127)	(0.133)	(0.134)	(0.149)
Post Maternity Leave ($6 < t_{PM} \leq 12$) × Team Fund	-0.177	-0.281*	-0.316*	-0.101	-0.197	-0.260
	(0.159)	(0.169)	(0.188)	(0.168)	(0.166)	(0.186)
Post Maternity Leave ($12 < t_{PM} \leq 36$) × Team Fund	-0.013	-0.135	-0.213	0.013	-0.079	-0.177
	(0.135)	(0.134)	(0.156)	(0.152)	(0.145)	(0.169)
Log(Fund Size)	0.032***	0.020*	0.005	0.023	0.001	-0.015
	(0.012)	(0.011)	(0.019)	(0.015)	(0.012)	(0.021)
Team Fund	-0.081	0.032		-0.131*	0.013	
	(0.064)	(0.061)		(0.068)	(0.065)	
Fund Age	0.009	0.007		0.032***	0.016*	
	(0.007)	(0.007)		(0.009)	(0.008)	
Equity Fund	0.644***	0.223*		0.926***	0.274**	
	(0.132)	(0.119)		(0.148)	(0.129)	
Hybrid Fund	0.330***	0.191***		0.466***	0.167***	
	(0.042)	(0.047)		(0.048)	(0.054)	
Manager Age	0.003			0.006		
	(0.006)			(0.008)		
Manager has PhD	-0.018			-0.059		
	(0.095)			(0.125)		
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Manager FE	No	Yes	Yes	No	Yes	Yes
Fund FE	No	No	Yes	No	No	Yes
N	15546	15546	15544	14456	14456	14452
R^2	0.133	0.150	0.139	0.129	0.157	0.151

Notes: This table reports coefficients from multivariate regressions of fund performance around childbirth. Fund performance metrics analyzed include monthly abnormal returns calculated using a combined factor model that includes (i) an equity market factor and a bond market factor (1F) (ii) an equity market factor, a bond market factor, and the size and value factors suggested by Liu, Stambaugh, and Yuan (2019). The factor loadings are estimated over the last 36 months. Both return measures are expressed in percent. The independent variables include five indicator variables which represent different time periods. *Before* refers to the 36 months before becoming pregnant and is omitted from the regression. *Pregnancy* ($0 \leq t_P < 9$) refers to the months between becoming pregnant and the start of maternity leave, and lasts a maximum of 9 months. *Post Maternity Leave* ($0 < t_{PM} \leq 6$), *Post Maternity Leave* ($6 < t_{PM} \leq 12$), and *Post Maternity Leave* ($12 < t_{PM} \leq 36$) are indicators for the sub-periods after returning from maternity leave. *Team Fund* is an indicator variable equal to one if the fund is managed by more than one manager simultaneously. The other independent variables are described in Appendix Table A1. Standard errors clustered at the fund level are reported in parentheses. *, **, and ***, indicate statistical significance at the 10%, 5%, and 1% level, respectively.

characteristics.

Our results for single-managed funds suggest that the ability of female managers to generate (abnormal) returns is constrained during pregnancy, as captured by the negative coefficient estimates on *Pregnancy* $(0 \leq t_P < 9)$. Notably, the more restrictive model specifications lead to larger coefficient estimates in terms of magnitude. In particular, they indicate that pregnancy reduces a manager's monthly abnormal return by between 0.23 percentage points and 0.24 percentage points, on average, relative to pre-pregnancy levels. In annual terms, managers experience an average performance decrease of between 2.8 and 2.9 percentage points during pregnancy. The coefficient estimates are statistically significant at conventional levels across specifications. The results are in line with the view that pregnancy-related distractions impair managers' ability to focus on work responsibilities.

Consistent with the view that the time and effort costs associated with childrearing are highest for very young children, we also find modest evidence that female managers' performance is impaired in the first six months after returning from maternity leave relative to their pre-pregnancy performance. In our most stringent specifications, the coefficient estimate on *Post Maternity Leave* $(0 < t_{PM} \leq 6)$ ranges from -0.19 to -0.2 percentage points. In annual terms, the ability of female fund managers to generate abnormal returns is reduced by 2.3 to 2.5 percentage points during the first six months after returning from maternity leave. However, the coefficients lack statistical significance.

With an average monthly abnormal return of 0.38% to 0.6%, depending on the factor model used, the effect sizes are economically meaningful. In annualized terms, we find a deterioration in fund performance during pregnancy and in the first six months after returning to work, of about 2.6 percentage points [12].

To put the economic significance into perspective, we compare our findings to those documented in the broader literature on how personal life experiences affect the work performance of professional money managers. For instance, Agarwal, Jiang, Luo, and Zou (2023) show that racial-ethnic animosity during the COVID-19 pandemic reduces the monthly performance of female Asian managers by 0.2 percentage points. Similarly, Lu, Ray, and Teo (2016) report that

[12]The compounded annual returns for the fifteen months are calculated based on Table 3 columns (3), $((1-0.00233)^9 \times (1-0.00204)^6)^{12/15} - 1$, and (6), $((1-0.00235)^9 \times (1-0.00192)^6)^{12/15} - 1$.

divorces are associated with an annualized performance decline of 4.3% for hedge funds. These magnitudes are comparable to our effects.

Overall, the results indicate that fund managers are falling behind their pre-pregnancy performance during pregancy and in the first six months after returning from maternity leave. It is important to note that the decline in (abnormal) returns measures the relative performance of fund managers with respect to their own expected return, given their past return history. Hence, it can be interpreted as the opportunity cost of motherhood. This opportunity cost can be negative even if the actual performance is positive.

Notably, becoming a mother does not prevent managers from performing well at work in the medium and long term. After six months from returning to work, managers performance rebounds to pre-pregnancy levels. The coefficient estimates on *Post Maternity Leave* $(6 < t_{PM} \leq 12)$ and *Post Maternity Leave* $(12 < t_{PM} \leq 36)$ are mostly positive and statistically insignificant. These results are in line with the view that childbirth-related efforts only hinder women from devoting full attention to work responsibilities when alternative childcare arrangements cannot yet effectively take over childrearing duties.

In line with the conjecture that childbirth affects fund performance primarily in cases where the actions and efforts of managers who become mothers play a crucial role, we find no performance changes around childbirth for team-managed funds. The coefficient estimates for the interaction terms with *Team Fund* generally have the opposite sign of the baseline coefficients, and tests of the combined effect of the baseline and team fund coefficients yield insignificant results.

The controls for fund size and fund age are positively correlated with returns and abnormal returns. This finding may be due to the tremendous growth of the Chinese mutual fund market over the past few decades. In contrast to the US mutual fund market, the Chinese market may not yet have reached the point of diminishing returns to scale. However, the coefficient estimates are relatively small, indicating a modest effect only. We also find that equity and hybrid funds have higher returns than bond funds. Manager age and education do not seem to play a major role in determining fund returns, as the coefficient estimates are insignificant and negligible in magnitude.

As a robustness check, we also estimate Equation (4) separately for the pregnancy and post-

maternity leave periods. As shown in Appendix Tables A2 and A3, the results remain qualitatively and quantitatively unchanged. In addition, in Appendix Table A4 we show that our results also hold if we measure performance by raw monthly returns or using a combined factor model that includes Chinese Fama French three factors and a bond market factor. Moreover, we control for the quality of the interim manager that takes over fund management responsibilities during maternity leave by including interim manager fixed effects in all specifications. As can be seen in Appendix Table A5, the results still obtain.

5.3 Difference-in-differences analysis

To test for robustness, we present a difference-in-differences extension of our event study approach, where the effect of childbirth is estimated relative to a set of matched control funds. While the multivariate regression results reported in Table 2 control for several confounds, it might still be that our findings are driven by endogenous timing of pregnancy. For example, female fund managers might time their motherhood to coincide with business cycle downturns to reduce the opportunity cost of having children. To address such concerns, we use a matching approach to select a plausible counterfactual of how performance would have evolved absent childbirth.

Specifically, for each fund in the treatment group, we identify two control funds that are as similar as possible to the treated fund ex ante. To construct the matched control group, we use several matching criteria. First, we require the control fund to be of the same fund type and investment style as the treated fund. Second, out of the remaining candidates, we select the two nearest neighbors based on fund fund size and fund age. The two nearest neighbors are the funds with the lowest Mahalanobis distance to the treated fund across these matching characteristics. We match with replacement; i.e., we allow for a control fund to be matched to more than one treated fund. This matching procedure is designed to ensure that control funds are highly similar to treated funds before treatment.

The final matched sample contains 45,522 manager-fund-month observations. 16,588 observations belong to the treatment group and 28,934 belong to the control funds. To illustrate the similarity between treatment and control funds, Table A6 reports means and differences in various fund characteristics for our treatment and matched control groups in the pre-treatment period.

The last column reports the *t*-statistic of the difference-in-means test with standard errors clustered at the fund level. It is evident that there are no major differences in fund characteristics between the treatment and the control group pre-treatment. We conclude that our control group closely matches treated funds on all relevant criteria and is therefore likely to provide a reliable counterfactual of how treated funds would have evolved in the absence of childbirth.

The identifying assumption is that treated funds, in the absence of a childbirth event, would have evolved similarly to the set of untreated funds. As observing the treatment group absent treatment in the post-treatment period is not possible, we evaluate whether treated and control funds share parallel trends before the treatment, i.e., whether they do not differ in their abnormal returns prior to pregnancy. The summary statistics presented in Table A6 support this notion. To bolster the evidence supporting the parallel trends assumption, we present evidence that abnormal returns are not statistically different between treated and control funds over the six half-year pre-event windows in Table A7. There are no statistically significant differences between treatment and control funds in any of the sub-periods and for any of the performance measures.

We run the following difference-in-differences regressions on the matched sample:

$$
\begin{aligned}
Performance_{fmt} = {} & \beta_0 + \beta_1 \textit{ Pregnancy } (0 \leq t_P < 9) \times \textit{Treated}_{fm} \\
& + \beta_2 \textit{ Post Maternity Leave } (0 < t_{PM} \leq 6) \times \textit{Treated}_{fm} \\
& + \beta_3 \textit{ Post Maternity Leave } (6 < t_{PM} \leq 12) \times \textit{Treated}_{fm} \\
& + \beta_4 \textit{ Post Maternity Leave } (12 < t_{PM} \leq 36) \times \textit{Treated}_{fm} \\
& + \beta_5 \textit{ Pregnancy } (0 \leq t_P < 9) + \beta_6 \textit{ Post Maternity Leave } (0 < t_{PM} \leq 6) \\
& + \beta_7 \textit{ Post Maternity Leave } (6 < t_{PM} \leq 12) \\
& + \beta_8 \textit{ Post Maternity Leave } (12 < t_{PM} \leq 36) \\
& + \beta_9 \textit{ Treated}_{fm} + \beta_{10} X_{fmt} + \Phi_{fmt} + \varepsilon_{fmt},
\end{aligned} \tag{5}
$$

where variable definitions for *Pregnancy*, *Post Maternity Leave* $(0 < t_{PM} \leq 6)$, *Post Maternity Leave* $(6 < t_{PM} \leq 12)$, *Post Maternity Leave* $(12 < t_{PM} \leq 36)$, $\textit{Treated}_{fm}$, and X_{fmt} are as in Equations (4). Notably Φ_{fmt} now denotes month-by-cohort fixed effects, fund fixed effects, and manager fixed effects. That is, we compare treatment funds with their matched control funds

within each month, while also accounting for unobserved fund and manager heterogeneity.

Table 3 presents the estimation results from Equation (5). Our primary variables of interest are the interaction terms *Pregnancy* $(0 \leq t_P < 9) \times$ *Treated*$_{fm}$, *Post Maternity Leave* $(0 < t_{PM} \leq 6) \times$ *Treated*$_{fm}$, *Post Maternity Leave* $(6 < t_{PM} \leq 12) \times$ *Treated*$_{fm}$, and *Post Maternity Leave* $(12 < t_{PM} \leq 36) \times$ *Treated*$_{fm}$, which capture the treatment effect for single-managed funds over the different event periods. Overall, the results indicate that even after accounting for the performance of the matched funds in our control group, managers who become mothers experience a short-term drop in performance around childbirth. Relative to the period before pregnancy and relative to the set of control funds, abnormal returns of managers who become mothers are temporarily negatively affected by childbirth-related efforts, as indicated by the negative interaction terms on *Pregnancy* $(0 \leq t_P < 9) \times$ *Treated*$_{fm}$ and *Post-Maternity Leave* $(0 < t_{PM} \leq 6) \times$ *Treated*$_{fm}$.

Compared to the evidence presented in Table 2, these results represent a lower bound to the coefficient estimates. Although somewhat smaller in magnitude, the effects are still economically meaningful and statistically significant in the majority of cases. In particular, our most restrictive specifications indicate that, compared to the period before pregnancy and compared to the funds in the control group, managers experience an average performance decline of between 0.15 and 0.16 percentage points during pregnancy and between 0.13 and 0.15 percentage points within the first six months after returning from maternity leave, respectively. In annualized terms, we find that managers entering motherhood underperform their matched peers by 1.7 to 1.9 percentage points[13].

Moreover, consistent with the evidence presented in Table 2, the performance of treated managers rebounds to pre-pregnancy levels in the medium and long term. The coefficient estimates on *Post-Maternity Leave* $(6 < t_{PM} \leq 12) \times$ *Treated*$_{fm}$ and *Post-Maternity Leave* $(12 < t_{PM} \leq 36) \times$ *Treated*$_{fm}$ are statistically insignificant in all cases. In these later months after childbirth, alternative childcare arrangements might take over some of the childrearing duties, allowing managers to devote more time to work again. Overall, these results further strengthen the notion that the performance dip for single-managed funds is only temporary.

As in Table 2, we observe no performance changes around childbirth for team-managed funds.

[13]The compound returns for the fifteen months are calculated based on Table 5 Panel A columns (3), $((1-0.00146)^9 \times (1-0.00129)^6)^{12/15} - 1$, and (6), $((1-0.00163)^9 \times (1-0.00145)^6)^{12/15} - 1$.

Table 3—MATCHED-SAMPLE DIFFERENCE-IN-DIFFERENCES ANALYSES ON FUND PERFORMANCE AROUND CHILDBIRTH

	1F Abnormal Return			3F Abnormal Return		
	(1)	(2)	(3)	(4)	(5)	(6)
Pregnancy ($0 \leq t_P < 9$) × Treated	-0.142**	-0.138*	-0.146*	-0.134*	-0.144*	-0.163**
	(0.069)	(0.074)	(0.076)	(0.070)	(0.079)	(0.081)
Post Maternity Leave ($0 < t_{PM} \leq 6$) × Treated	-0.168*	-0.123	-0.129	-0.125	-0.138	-0.145
	(0.088)	(0.102)	(0.104)	(0.103)	(0.120)	(0.122)
Post Maternity Leave ($6 < t_{PM} \leq 12$) × Treated	-0.134	-0.075	-0.081	-0.063	-0.032	-0.041
	(0.178)	(0.185)	(0.188)	(0.195)	(0.195)	(0.198)
Post Maternity Leave ($12 < t_{PM} \leq 36$) × Treated	-0.114	-0.026	-0.030	-0.107	-0.013	-0.017
	(0.139)	(0.147)	(0.150)	(0.188)	(0.192)	(0.195)
Pregnancy ($0 \leq t_P < 9$) × Treated × Team Fund	0.182**	0.135	0.130	0.190**	0.179*	0.187*
	(0.088)	(0.096)	(0.099)	(0.090)	(0.099)	(0.102)
Post Maternity Leave ($0 < t_{PM} \leq 6$) × Treated × Team Fund	0.098	0.054	0.049	0.098	0.131	0.111
	(0.124)	(0.140)	(0.149)	(0.140)	(0.155)	(0.166)
Post Maternity Leave ($6 < t_{PM} \leq 12$) × Treated × Team Fund	0.087	0.054	0.033	0.171	0.185	0.161
	(0.208)	(0.220)	(0.227)	(0.227)	(0.231)	(0.240)
Post Maternity Leave ($12 < t_{PM} \leq 36$) × Treated × Team Fund	0.166	0.128	0.106	0.208	0.167	0.133
	(0.177)	(0.195)	(0.206)	(0.217)	(0.223)	(0.233)
Team Fund	0.055	0.115		0.069	0.146	
	(0.054)	(0.119)		(0.062)	(0.126)	
Treated × Team Fund	-0.057	0.105		-0.080	0.025	
	(0.060)	(0.092)		(0.064)	(0.096)	
Treated	0.093**			0.061		
	(0.041)			(0.045)		
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Month-by-Event FE	Yes	Yes	Yes	Yes	Yes	Yes
Manager FE	No	Yes	Yes	No	Yes	Yes
Fund FE	No	No	Yes	No	No	Yes
N	36717	36714	36711	34525	34518	34514
R^2	0.475	0.487	0.461	0.457	0.476	0.448

Notes: This table reports coefficients from matched sample difference-in-differences analyses on fund performance around childbirth. Fund performance metrics analyzed include monthly abnormal returns calculated using a combined factor model that includes (i) an equity market factor and a bond market factor (1F) (ii) an equity market factor, a bond market factor, and the size and value factors suggested by Liu, Stambaugh, and Yuan (2019). The factor loadings are estimated over the last 36 months. Both return measures are expressed in percent. Each fund in the treatment group is matched with two control funds. The matching procedure is presented in Section 5.3. *Treated* is an indicator variable that takes a value of one if the fund manager becomes a mother during the sample period. *Pregnancy* ($0 \leq t_P < 9$) refers to the months between becoming pregnant and the start of maternity leave, and lasts a maximum of 9 months. *Post Maternity Leave* ($0 < t_{PM} \leq 6$), *Post Maternity Leave* ($6 < t_{PM} \leq 12$), and *Post Maternity Leave* ($12 < t_{PM} \leq 36$) are indicators for the sub-periods after returning from maternity leave. We include the same control variables as in Table 2. Standard errors clustered at the fund level are reported in parentheses. *, **, and ***, indicate statistical significance at the 10%, 5%, and 1% level, respectively.

In most cases, the coefficient estimates for the interaction terms with *Team Fund* exhibit an opposite sign to the baseline coefficients, and tests of the joint effect of the baseline and team fund coefficients reveal no statistically significant impact. This is consistent with the notion that childbirth impacts fund performance when the actions and efforts of mothers play a pivotal role in determining fund performance.

5.4 What explains the performance decline?

In this section, we explore the mechanisms behind the temporary drop in performance observed for female managers of single-managed funds who become mothers. Specifically, we investigate whether entering motherhood temporarily prevents female managers from fully focusing on their work responsibilities.

First, we test whether the performance decline is more pronounced for busy managers who oversee a relatively large number of funds simultaneously, and we confirm that the decline is confined to single-managed funds. Second, we use data on managers' site visits to portfolio companies to assess whether the frequency of these visits decreases around childbirth. Third, we examine whether female managers who become mothers adopt less active management strategies. Finally, we test whether our findings could be driven by redemption pressure from investors.

Fund manager busyness. To measure manager busyness, we take advantage of the granularity of the RESSET mutual fund database, which provides detailed information on fund management structures. We suspect that fund managers who are responsible for multiple funds may be more time-constrained than their colleagues with fewer funds under management. We perform a simple median split at the time of pregnancy and classify managers who simultaneously manage more than the median number of single-managed funds as busy managers[14]. In Table 4, we report coefficients from multivariate regressions of fund performance around childbirth after sorting treated managers by the number of funds they manage.

We find that the impact of childbirth is confined to instances where the fund manager can ill afford distractions. In particular, the coefficient estimates on *Pregnancy* $(0 \leq t_P < 9)$ and *Post-*

[14]The median number of funds under management is four.

Table 4—FUND PERFORMANCE AROUND CHILDBIRTH SORTED BY MANAGER BUSYNESS

	1F Abnormal Return			3 F Abnormal Return		
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: #funds > p50						
Pregnancy ($0 \leq t_P < 9$)	-0.204**	-0.238*	-0.277**	-0.188**	-0.261**	-0.297**
	(0.086)	(0.127)	(0.134)	(0.082)	(0.126)	(0.134)
Post Maternity Leave ($0 < t_{PM} \leq 6$)	-0.073	-0.087	-0.164	-0.073	-0.130	-0.204
	(0.080)	(0.136)	(0.136)	(0.077)	(0.141)	(0.144)
Post Maternity Leave ($6 < t_{PM} \leq 12$)	0.152	0.132	0.048	0.123	0.040	-0.033
	(0.108)	(0.175)	(0.171)	(0.122)	(0.183)	(0.181)
Post Maternity Leave ($12 < t_{PM} \leq 36$)	-0.097	-0.134	-0.175	-0.241**	-0.361	-0.376
	(0.097)	(0.208)	(0.208)	(0.117)	(0.230)	(0.238)
Pregnancy ($0 \leq t_P < 9$) × Team Fund	0.226**	0.224**	0.239*	0.230**	0.230**	0.264**
	(0.108)	(0.113)	(0.122)	(0.105)	(0.109)	(0.122)
Post Maternity Leave ($0 < t_{PM} \leq 6$) × Team Fund	0.184	0.129	0.106	0.276**	0.202	0.199
	(0.123)	(0.123)	(0.129)	(0.127)	(0.127)	(0.135)
Post Maternity Leave ($6 < t_{PM} \leq 12$) × Team Fund	-0.096	-0.147	-0.236	0.031	-0.023	-0.107
	(0.137)	(0.141)	(0.148)	(0.157)	(0.154)	(0.159)
Post Maternity Leave ($12 < t_{PM} \leq 36$) × Team Fund	0.052	0.011	-0.130	0.268*	0.239	0.103
	(0.126)	(0.143)	(0.153)	(0.153)	(0.173)	(0.175)
N	8468	8468	8467	7840	7840	7837
R^2	0.092	0.098	0.099	0.096	0.107	0.116
Panel B: #funds < p50						
Pregnancy ($0 \leq t_P < 9$)	-0.089	-0.041	-0.121	-0.078	-0.062	-0.092
	(0.120)	(0.137)	(0.163)	(0.114)	(0.134)	(0.169)
Post Maternity Leave ($0 < t_{PM} \leq 6$)	-0.142	-0.075	-0.231	-0.065	-0.060	-0.132
	(0.125)	(0.159)	(0.207)	(0.155)	(0.183)	(0.236)
Post Maternity Leave ($6 < t_{PM} \leq 12$)	0.218	0.293	0.113	0.199	0.259	0.176
	(0.186)	(0.227)	(0.308)	(0.196)	(0.223)	(0.313)
Post Maternity Leave ($12 < t_{PM} \leq 36$)	-0.017	0.102	-0.129	0.046	0.096	0.001
	(0.152)	(0.220)	(0.315)	(0.157)	(0.204)	(0.322)
Pregnancy ($0 \leq t_P < 9$) × Team Fund	-0.001	-0.109	-0.100	-0.016	-0.081	-0.115
	(0.160)	(0.161)	(0.171)	(0.160)	(0.159)	(0.179)
Post Maternity Leave ($0 < t_{PM} \leq 6$) × Team Fund	0.131	-0.045	-0.030	0.054	-0.071	-0.125
	(0.169)	(0.176)	(0.203)	(0.200)	(0.201)	(0.237)
Post Maternity Leave ($6 < t_{PM} \leq 12$) × Team Fund	-0.215	-0.374	-0.381	-0.189	-0.345	-0.422
	(0.225)	(0.237)	(0.273)	(0.236)	(0.231)	(0.269)
Post Maternity Leave ($12 < t_{PM} \leq 36$) × Team Fund	-0.100	-0.320	-0.378	-0.097	-0.307	-0.440*
	(0.198)	(0.197)	(0.239)	(0.203)	(0.191)	(0.238)
N	9023	9023	9021	8446	8446	8444
R^2	0.169	0.183	0.168	0.163	0.188	0.174
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Manager FE	No	Yes	Yes	No	Yes	Yes
Fund FE	No	No	Yes	No	No	Yes

Notes: This table reports coefficients from multivariate regressions of fund performance around childbirth after sorting treated managers by the number of funds they manage. Fund performance metrics analyzed include monthly abnormal returns calculated using a combined factor model that includes (i) an equity market factor and a bond market factor (1F) (ii) an equity market factor, a bond market factor, and the size and value factors suggested by Liu, Stambaugh, and Yuan (2019). The factor loadings are estimated over the last 36 months. Both return measures are expressed in percent. We include the same independent variables as in Table 2. Panel A reports results for managers with above-median busyness, while Panel B reports results for managers with below-median busyness. Standard errors clustered at the fund level are reported in parentheses. *, **, and ***, indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Maternity Leave ($6 < t_{PM} \leq 12$) are always negative and in most cases statistically significant for busy managers (Panel A), while they are insignificant and small in economic terms for the sample of non-busy managers (Panel B).

During the periods *Post Maternity Leave* ($6 < t_{PM} \leq 12$) and *Post Maternity Leave* ($12 < t_{PM} \leq 36$) both busy and non-busy managers show no performance differences relative to the pre-pregnancy period and relative to the set of control funds. The coefficient estimates are insignificant in most cases, both for busy and non-busy managers. Overall, the results support the notion that childbirth events temporarily distract fund managers from their work responsibilities and that busy managers are more affected by these distractions.

The manager sort also confirms that the impact of motherhood on performance is concentrated in single-managed funds. Consistent with the notion that childbirth impacts fund performance mainly when the actions and efforts of mothers play a material role in determining fund performance, we observe no performance changes around childbirth for team-managed funds. In most instances, the interaction term coefficients for *Team Fund* have an opposite sign compared to the baseline coefficients, and tests of the combined effect of the baseline and team fund coefficients show no statistically significant impact.

Corporate site visits. Next, we examine the frequency of treated managers' online and on-site visits to portfolio companies over time. Company visits and related social interactions are key channels for information gathering, and evidence suggests that information acquisition through such visits positively impacts fund performance (Hong, Zhuang, Kang, and Wang, 2019, Lee, 2023, Quan, Xiang, Li, and Tan, 2023). Therefore, a reduction in company visits may provide a potential explanation for the temporary decline in fund returns around childbirth.

To investigate this channel, we use manager-level data from the China Stock Market & Accounting Research Database (CSMAR). Since July 2012, firms listed on the Shenzhen exchange have been required to report investor and analyst visits to their companies[15]. We merge the CSMAR dataset with our data using fund firm names and manager names.

Given the potential differences between face-to-face and online interactions, we distinguish be-

[15]Firms listed on the Shenzhen exchange account for 55.8% of listed firms by number and 41.1% by market value among all mainland-listed firms.

Table 5—FREQUENCY OF COMPANY VISITS AROUND CHILDBIRTH

	Total Visits		On-Site Visits		Online Visits	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: 2012 – 2022						
Pregnancy ($0 \leq t_P < 9$)	-0.086**	-0.070	-0.045***	-0.043**	-0.041*	-0.028
	(0.034)	(0.051)	(0.017)	(0.020)	(0.024)	(0.043)
Post Maternity Leave ($0 < t_{PM} \leq 6$)	-0.069	-0.056	-0.035	-0.030	-0.034	-0.026
	(0.048)	(0.088)	(0.021)	(0.031)	(0.037)	(0.070)
Post Maternity Leave ($6 < t_{PM} \leq 12$)	-0.027	-0.045	-0.022	-0.023	-0.005	-0.022
	(0.056)	(0.107)	(0.024)	(0.035)	(0.048)	(0.100)
Post Maternity Leave ($12 < t_{PM} \leq 36$)	0.155*	0.141	-0.001	-0.004	0.156**	0.146
	(0.090)	(0.141)	(0.025)	(0.045)	(0.075)	(0.120)
N	6454	6453	6454	6453	6454	6453
R^2	0.061	0.297	0.016	0.158	0.077	0.255
Panel B: 2012 – 2019						
Pregnancy ($0 \leq t_P < 9$)	-0.038**	-0.044	-0.045**	-0.058**	0.006	0.015
	(0.019)	(0.028)	(0.018)	(0.028)	(0.006)	(0.010)
Post Maternity Leave ($0 < t_{PM} \leq 6$)	-0.042	-0.038	-0.040	-0.052	-0.002	0.013
	(0.031)	(0.042)	(0.026)	(0.045)	(0.010)	(0.018)
Post Maternity Leave ($6 < t_{PM} \leq 12$)	-0.034	-0.036	-0.040*	-0.059	0.006	0.023
	(0.033)	(0.044)	(0.024)	(0.043)	(0.015)	(0.028)
Post Maternity Leave ($12 < t_{PM} \leq 36$)	0.009	0.010	-0.010	-0.034	0.019	0.045
	(0.042)	(0.060)	(0.032)	(0.061)	(0.019)	(0.039)
N	3952	3951	3952	3951	3952	3951
R^2	0.011	0.211	0.022	0.173	-0.002	0.067
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Manager FE	No	Yes	No	Yes	No	Yes

Notes: This table reports coefficients from multivariate regressions of fund managers' company visits around childbirth. We aggregate our fund-manager panel to the manager level, so that the dependent variables, *On-site visits* and *Online visits*, are the number of times a manager visits listed companies on-site and online within one month. An event is categorized as an online visit if the meeting takes place via a digital method, e.g., via email, phone, or online meetings. Panel A includes all observations from July 2012 (when the company visit data starts) to the end of our sample period, while Panel B excludes the COVID-19 years. We include the same independent variables as in Table 2. *, **, and ***, indicate statistical significance at the 10%, 5%, and 1% level, respectively.

tween on-site and online company visits[16]. Figure A5 plots the number of total on-site and online portfolio company visits over time, respectively. It can be observed that the number of online visits increased significantly during the COVID-19 pandemic. To account for altered company visit patterns over time, we analyze the frequency of on-site and online company visits around childbirth both for the sample period preceding January 2020, the onset of the COVID-19 pandemic in China, and for the entire sample period. Over the entire sample period from 2012 to 2022, the average

[16]We identify online meetings by searching meeting descriptions or addresses for keywords such as "email," "phone," "website," "app," or "online meeting room."

number of total site visits per manager and month is 0.27. This corresponds to an average of 0.085 on-site visits and 0.18 online visits per manager per month.

As the site visit data is at the manager level, we estimate an equivalent to the multivariate panel regression in Equation 4 at the manager level. We present the results in Table 5. Panel A documents the estimation results for the entire sample period, while Panel B documents the results for the period preceding the COVID-19 pandemic. We find a decrease in the frequency of on-site and online visits by fund managers around the time of childbirth. Specifically, the results in columns (4) and (6) of Panel A show an average decrease of 0.043 and 0.028 in monthly on-site visits and monthly online visits, respectively, during the pregnancy period. In economic terms, this corresponds to a reduction of 50.6% and 15.5% relative to the mean, respectively. Notably, Panel B reveals that the reduction in online visits during pregnancy in concentrated in the post-COVID-19 period. Moreover, we find some evidence of reduced company visit frequency in the first months after returning from maternity leave, but the diminishes after one year.

Overall, the findings suggest a temporary reduction in information acquisition through company visits around childbirth, paralleling the temporary changes in performance documented in Chapters 5.2 and 5.3.

Trading behavior. Distracted managers may pursue a less active portfolio management strategy. Existing research suggests that such behavior could be detrimental to fund performance (Kacperczyk, Sialm, and Zheng, 2005, Cremers and Petajisto, 2009). Alternatively, the performance dip around childbirth could be due to a change in fund managers' risk preferences, as parenthood is generally associated with an increase in risk aversion (Görlitz and Tamm, 2020). To assess the extent to which the decline in fund performance around childbirth is due to less active portfolio management or a change in risk preferences, we construct measures of fund manager activity and risk-taking and estimate multivariate regressions similar to Equation 4. Unfortunately, we cannot examine changes in fund managers' portfolios in this context because this information is not available at a sufficient granularity.[17]

[17]We only observe fund managers' portfolio holdings on a semi-annual basis. Since we are interested in examining the mechanisms underlying monthly performance changes, the semi-annual data do not allow us to perform granular analyses of the underlying mechanisms.

Table 6—TRADING BEHAVIOR AROUND CHILDBIRTH

	Total Risk			Non-Market Variation		
	(1)	(2)	(3)	(4)	(5)	(6)
Pregnancy ($0 \leq t_P < 9$)	-0.001	-0.040	0.043	-1.755	-3.544**	-3.513***
	(0.116)	(0.101)	(0.100)	(1.359)	(1.467)	(1.355)
Post Maternity Leave ($0 < t_{PM} \leq 6$)	0.121	0.096	0.258	0.609	-2.000	-1.324
	(0.173)	(0.162)	(0.168)	(2.091)	(2.462)	(2.372)
Post Maternity Leave ($6 < t_{PM} \leq 12$)	0.369	0.317	0.491**	0.045	-2.313	-1.320
	(0.227)	(0.202)	(0.207)	(2.496)	(3.042)	(2.977)
Post Maternity Leave ($12 < t_{PM} \leq 36$)	0.107	0.165	0.462**	5.455**	3.038	3.251
	(0.266)	(0.225)	(0.230)	(2.659)	(3.345)	(3.168)
Pregnancy ($0 \leq t_P < 9$) × Team Fund	-0.007	-0.011	0.011	1.498	3.681**	2.391
	(0.149)	(0.115)	(0.120)	(1.883)	(1.808)	(1.745)
Post Maternity Leave ($0 < t_{PM} \leq 6$) × Team Fund	0.114	0.049	0.071	-1.910	0.242	-1.396
	(0.212)	(0.161)	(0.160)	(2.679)	(2.573)	(2.390)
Post Maternity Leave ($6 < t_{PM} \leq 12$) × Team Fund	0.004	-0.106	-0.069	-0.905	2.362	-0.132
	(0.260)	(0.201)	(0.191)	(3.102)	(2.922)	(2.731)
Post Maternity Leave ($12 < t_{PM} \leq 36$) × Team Fund	0.199	0.011	0.020	-6.271*	-2.606	-4.516
	(0.293)	(0.215)	(0.193)	(3.259)	(2.819)	(2.761)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Manager FE	No	Yes	Yes	No	Yes	Yes
Fund FE	No	No	Yes	No	No	Yes
N	15597	15597	15595	13707	13707	13689
R^2	0.556	0.753	0.830	0.259	0.395	0.519

Notes: This table reports coefficients from multivariate regressions of fund risk and non-market variation for the set of treatment funds. *Total Risk* is the standard deviation of fund returns within a month, annualized by multiplying the square root of $252/12$. *Non-Market Variation* is calculated as one minus the R^2 from the regression of fund excess returns on the combined market factor model within a month. It thus represents the share of fund return variation that is not explained by market returns. Both measures are expressed in percent. The independent variables include five indicator variables which represent different time periods. *Before* refers to the 36 months before becoming pregnant and is omitted from the regression. *Pregnancy* ($0 \leq t_P < 9$) refers to the months between becoming pregnant and the start of maternity leave, and lasts a maximum of 9 months. *Post Maternity Leave* ($0 < t_{PM} \leq 6$), *Post Maternity Leave* ($6 < t_{PM} \leq 12$), and *Post Maternity Leave* ($12 < t_{PM} \leq 36$) are indicators for the sub-periods after returning from maternity leave. We include the same controls as in Table 2 *, **, and ***, indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Total Risk is the standard deviation of fund returns within a month, annualized by multiplying the square root of $252/12$. *Non-Market Variation* is calculated as one minus the R^2 from the regression of fund excess returns on the combined one factor model within a month. Thus, it represents the share of fund return variation that is not explained by market returns and increases indicate a more active portfolio. Both measures are expressed in percent. If the performance dip is due to less active portfolio management, we would rather expect to see fund managers tilt their portfolios towards the market portfolio. In case the change in portfolio management strategy is due to changes in risk preferences, we would also expect to see a change in total risk.

The results reported in Table 6, columns (4) to (6), indicate that managers of single-managed funds entering motherhood pursue a less active portfolio management strategy in the months surrounding childbirth. In particular, the coefficient estimates on *Pregnancy* $(0 \leq t_P < 9)$ are negative and significant in most cases. This indicates a decrease in the share of fund return variation that is not explained by the market during this period. The coefficient estimates on *Post Maternity Leave* $(0 < t_{PM} \leq 6)$ are still negative but insignificant. Columns (1) to (3) reveal that there are no changes in portfolio risk, indicating that this change trading behavior is not due to changes in risk preferences.

In the medium to long term the coefficient estimates for all outcome variables are insignificant in the vast majority of cases. Moreover, we find no changes around childbirth in trading behavior of team-managed funds, as the *Team Fund* interaction terms mostly feature signs that are opposite to the baseline results.

Overall, the evidence presented in Table 6 suggests that managers temporarily engage in less active portfolio management around childbirth and supports the notion that childbirth temporarily distracts managers from their job responsibilities. However, we find no indication for changes in risk attitudes.

Do fund investors withdraw their money? Another potential mechanism for the temporary performance decline of single-managed funds around childbirth is pressure from fund flows. Institutional investors, such as prominent clients of a fund family, may visit funds and acquire information about managers' pregnancies. Anticipating a decline in managers' performance, they may then withdraw their investments. Faced with such pressure, pregnant managers may increase portfolio liquidity, potentially hindering their performance.

To examine redemption pressure from institutional investors, we leverage a dataset on mutual fund investor information, available at the semi-annual level from the RESSET Mutual Fund database. We merge this dataset with our sample and analyze changes in the proportion of institutional investor holdings around childbirth. Our analysis relies on event study regressions for the set of single-managed treatment funds, where we observe a decline in performance. The results, presented in Appendix Table A8, suggest that institutional investor holdings do not change signifi-

cantly around childbirth. However, the semi-annual frequency of the data may obscure short-term fluctuations in redemption pressure during the months surrounding pregnancy and the manager's return to work. To address this limitation, we repeat the analysis using quarterly fund flows. We do not find significant changes in fund flows around childbirth, but the quarterly frequency of the data may still mask short-term changes in redemption pressure around childbirth.

6 Discussion and Conclusion

We investigate how pregnancy and motherhood affect the career trajectories and performance of female fund managers. We document that mothers experience a 22.1% decline in industry participation after childbirth, indicating human capital loss in the mutual fund industry. Conditional on staying in the mutual fund industry, mothers face a 33.2% and 10.3% reduction in leadership positions and fund management responsibilities, respectively. With respect to performance, we document that new mothers' performance declines only temporarily around childbirth and only in case where there are no co-managers. The performance decline starts during pregnancy and ends about six month after returning from maternity leave. In annualized terms, it amounts to 2.6 percentage points. The effect is stronger for busier fund managers who are in charge of more funds. We show that fund managers manage their portfolios less actively and reduce the number of corporate site visits during this time. For the period between six and thirty-six months after returning from maternity leave, we find no performance differences between fund managers with and without children anymore.

These findings already hint towards a disconnect between the rather persistent motherhood penalty on women's careers and temporary performance changes around childbirth in the mutual fund industry. In the following, and as a final step, we investigate at the fund manager level whether the magnitude of a female manager's underperformance around childbirth is connected to future career outcomes.

Table 7 reports the impact of becoming a mother (*Motherhood*) on different career outcomes, while accounting for the magnitude of fund managers' temporary performance dip. To capture the temporary performance dip, for each fund manager, we calculate the cumulative 3-factor abnormal return (*3F CAR*) over the period of pregnancy and the first six months after returning to

Table 7—THE MOTHERHOOD PENALTY AND PERFORMANCE

	Industry participation	# Leadership positions	Probability of leadership position	# Fund management responsibilities	Probability of single management
	(1)	(2)	(3)	(4)	(5)
Motherhood	-0.215***	-0.204**	-0.177**	-0.380	-0.137
	(0.047)	(0.082)	(0.073)	(0.380)	(0.099)
Motherhood × 3F CAR	0.009	-0.009	-0.008	0.057	-0.003
	(0.006)	(0.008)	(0.006)	(0.037)	(0.011)
3F CAR	-0.003	0.017	0.012	-0.019	0.008
	(0.004)	(0.012)	(0.009)	(0.031)	(0.008)
Month-by-Cohort FE	Yes	Yes	Yes	Yes	Yes
Month-by-Age FE	Yes	Yes	Yes	Yes	Yes
N	4340	4101	4101	4101	4101
R^2	0.136	0.167	0.063	0.004	-0.004

Notes: The table documents the motherhood penalty on industry participation, the number of leadership positions, the probability of holding a leadership position, the number of fund management responsibilities, and the probability of single management while accounting for the size of the performance dip. *3F CAR* represents the cumulative 3-factor abnormal return during pregnancy and the first six months after returning to work. *Motherhood* is a binary variable equal to one for the period following childbirth.

work. We then interact fund managers' underperformance with the time period when she enters motherhood, and link it to her future career outcomes. Looking at the interaction terms, it becomes evident that the size of the performance dip has no explanatory power for the motherhood penalty. Thus, female managers temporary underperformance does not seem to be the reason why they are more likely to leave the mutual fund industry afterwards and why they are less likely to climb the career ladder if they stay in the industry.

What potential explanations for the motherhood penalty in the mutual fund industry are left? It could either be the case that female fund managers decline promotion offers and actively seek for a less demanding job after they entered motherhood. Alternatively, fund management companies may not promote these managers, because they expect them to underperform if they take on a leadership position.

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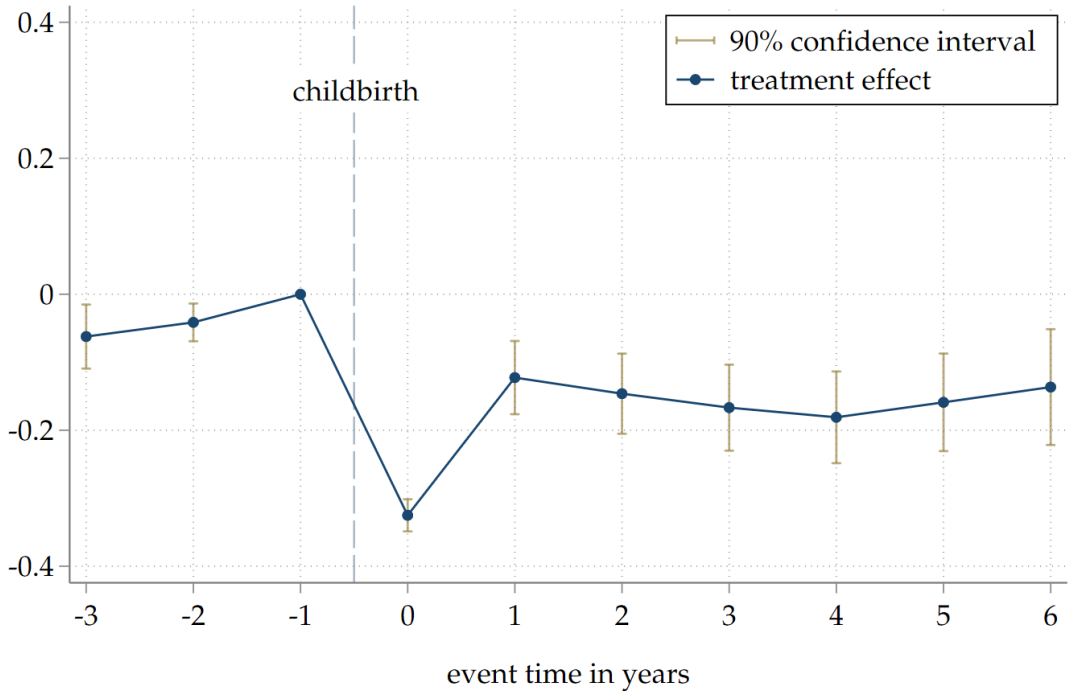
Online Appendix to:
The Motherhood Penalty in the Mutual Fund Industry

December 31, 2024

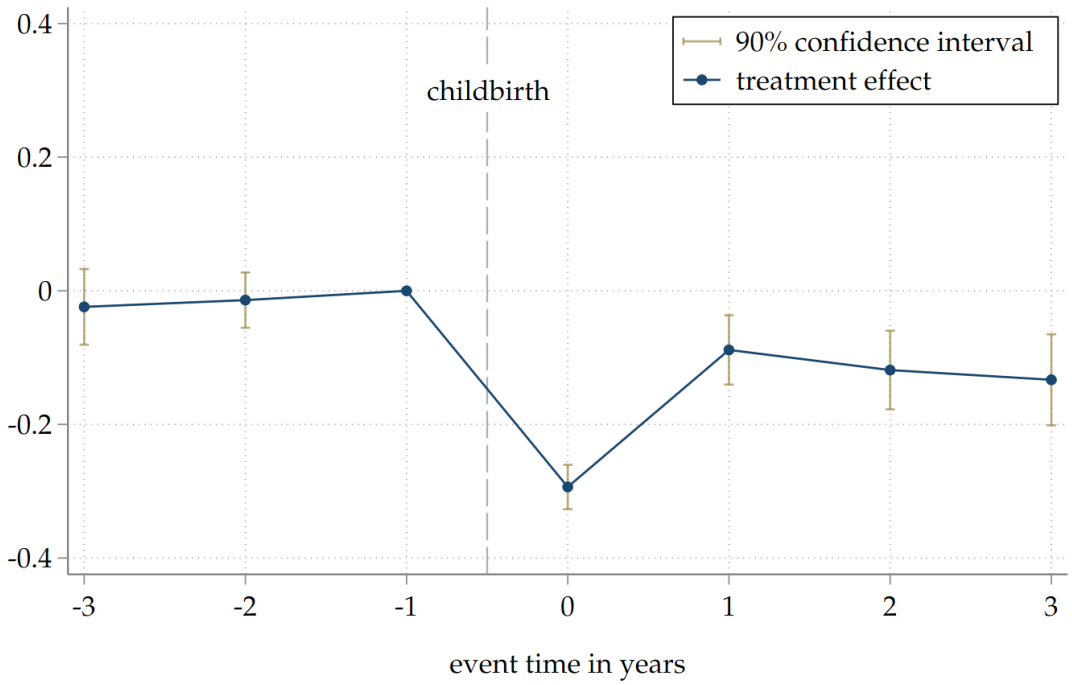
- Not for Publication -

Figure A1—THE MOTHERHOOD PENALTY ON INDUSTRY PARTICIPATION RATES OVER 6 YEARS POST-CHILDBIRTH



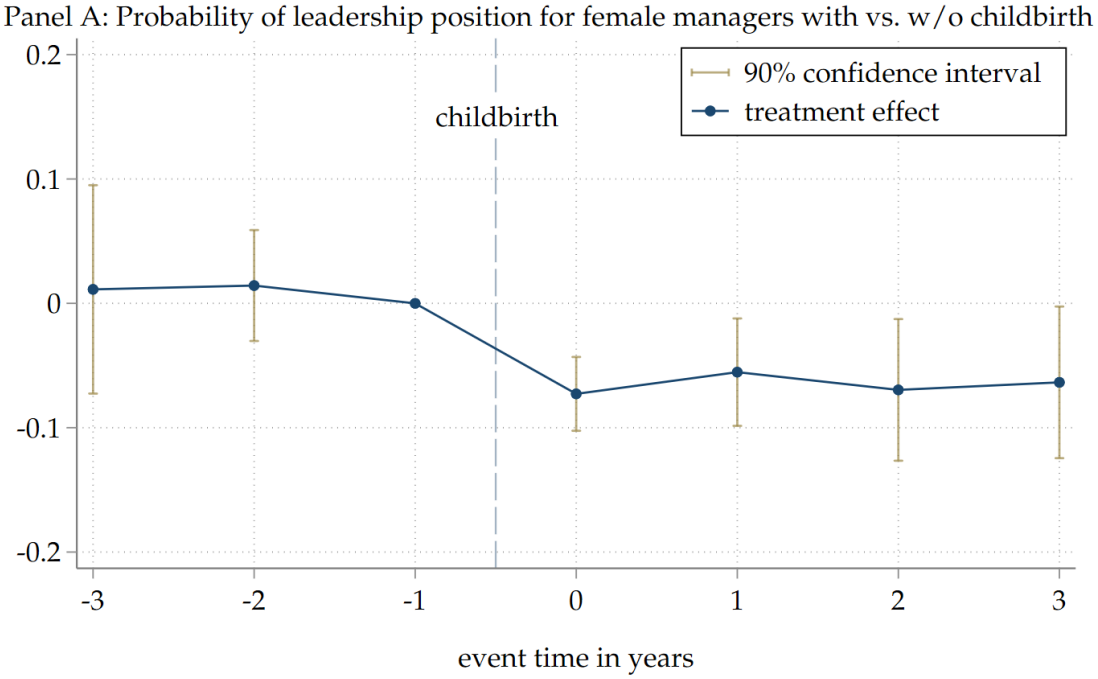
Notes: The figure compares participation in the mutual fund industry of managers with versus without childbirth in the mutual fund industry. The estimates represent coefficients from event studies around childbirth, while controlling for manager age, industry entry cohort, and time trends. For each manager entering motherhood, we denote the year of childbirth by $t = 0$ and define the other event periods accordingly. We omit the event time dummy at $t = -1$ such that the effects are estimated relative to the year preceding childbirth. The effect on industry participation is estimated unconditional on employment status, i.e., managers leaving the mutual fund industry are treated as non-participants until the end of the sample period after their leave. The 90 percent confidence intervals are based on standard errors clustered at the manager level.

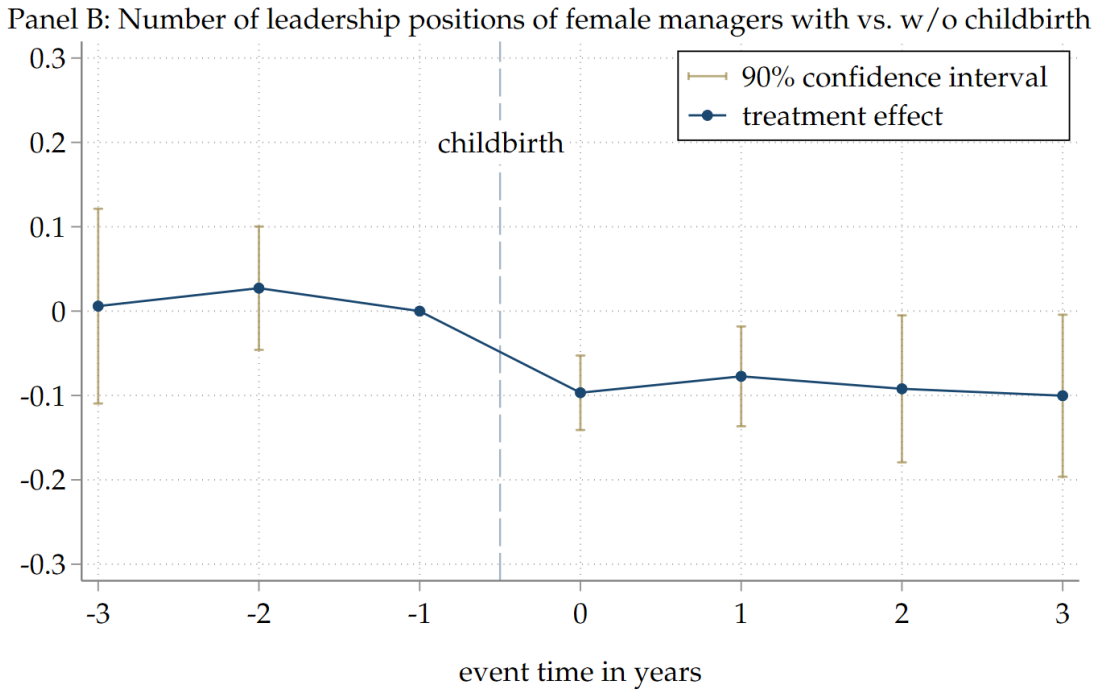
Figure A2—THE MOTHERHOOD PENALTY ON INDUSTRY PARTICIPATION RATES OF FEMALE MANAGERS WITH VS. W/O CHILDBIRTH



Notes: The figure compares participation in the mutual fund industry of female managers with versus without childbirth in the mutual fund industry. The estimates represent coefficients from event studies around childbirth, while controlling for manager age, industry entry cohort, and time trends. For each manager entering motherhood, we denote the year of childbirth by $t = 0$ and define the other event periods accordingly. We omit the event time dummy at $t = -1$ such that the effects are estimated relative to the year preceding childbirth. The effect on industry participation is estimated unconditional on employment status, i.e., managers leaving the mutual fund industry are treated as non-participants until the end of the sample period after their leave. The 90 percent confidence intervals are based on standard errors clustered at the manager level.

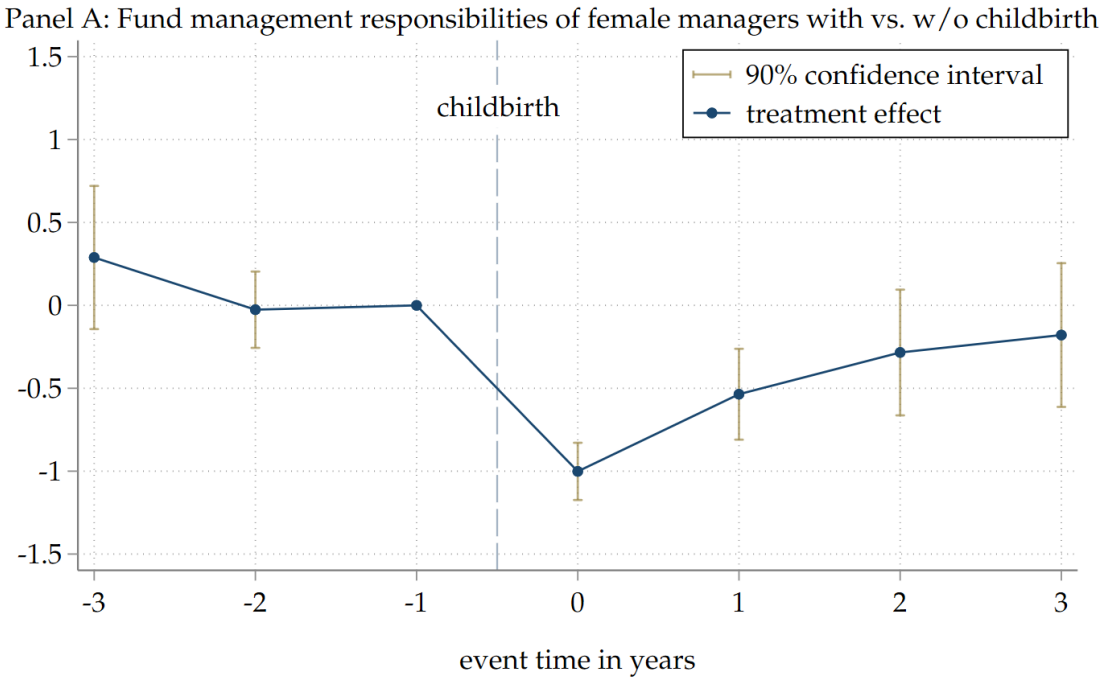
Figure A3—THE MOTHERHOOD PENALTY ON LEADERSHIP POSITIONS OF FEMALE MANAGERS

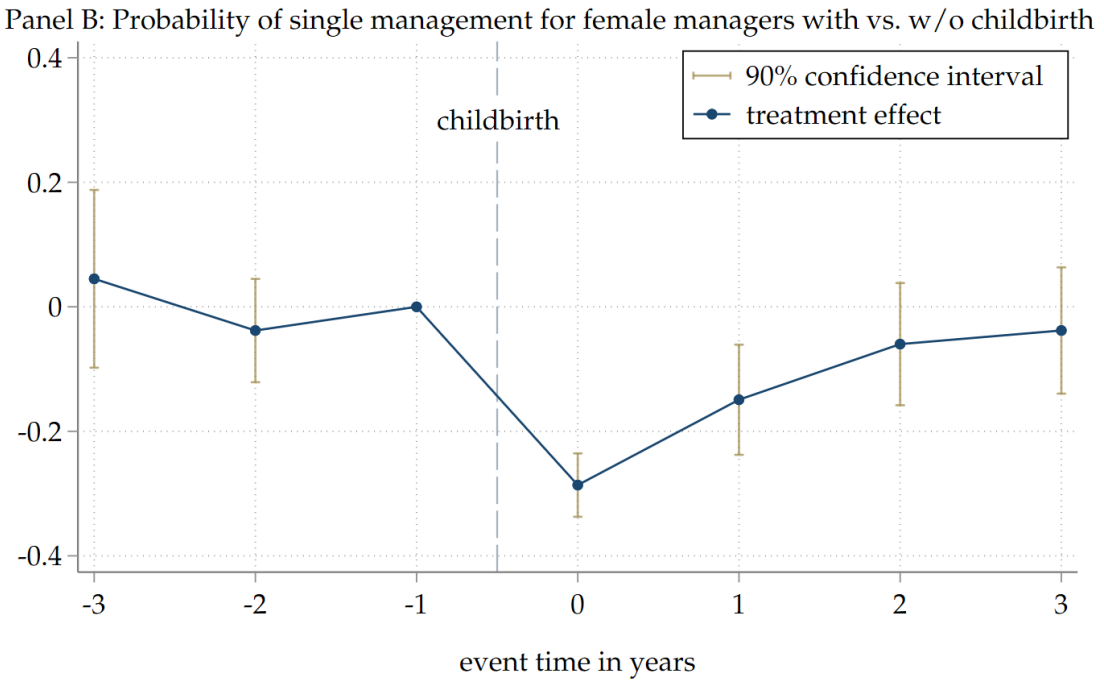




Notes: The figure compares the career trajectories of female managers with versus without childbirth in the mutual fund industry. The estimates represent coefficients from event studies around childbirth, while controlling for manager age, industry entry cohort, and time trends. For each manager entering motherhood, we denote the year of childbirth by $t = 0$ and define the other event periods accordingly. We omit the event time dummy at $t = -1$ such that the effects are estimated relative to the year preceding childbirth. The effects are estimated conditional on being employed in the mutual fund industry. The 90 percent confidence intervals are based on standard errors clustered at the manager level.

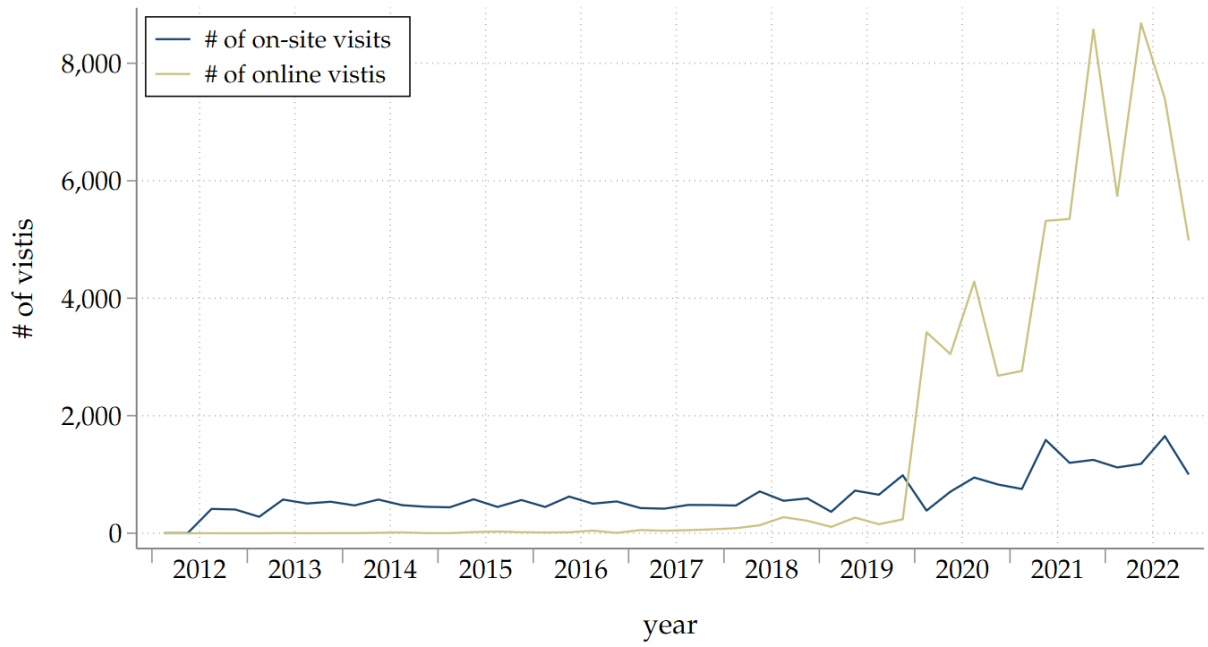
Figure A4—THE MOTHERHOOD PENALTY ON MANAGEMENT RESPONSIBILITIES





Notes: The figure compares the career trajectories of female managers with versus without childbirth in the mutual fund industry. The estimates represent coefficients from event studies around childbirth, while controlling for manager age, industry entry cohort, and time trends. For each manager entering motherhood, we denote the year of childbirth by $t = 0$ and define the other event periods accordingly. We omit the event time dummy at $t = -1$ such that the effects are estimated relative to the year preceding childbirth. The effects are estimated conditional on being employed in the mutual fund industry. The 90 percent confidence intervals are based on standard errors clustered at the manager level.

Figure A5—NUMBER OF SITE VISITS OVER TIME



Notes: This figure plots the number of total on-site and online portfolio company visits over time, respectively. The information on company visits is available from July 2012 for firms listed on the Shenzhen Stock Exchange. An event is categorized as an online visit if the meeting is held via a digital method, e.g., email, phone, or online meetings.

Table A1—DESCRIPTION OF VARIABLES

Variable Name	Description
Abnormal Return	Abnormal returns are calculated using a combined factor model that includes an equity market factor and a bond market factor. The factor loadings are estimated over the last 36 months.
β_{Market}	Sum of the coefficients on the market factors from the regression of daily fund returns on the combined market factor model within a month.
Bond Fund	Indicator variable equal to 1 for bond funds.
Equity Fund	Indicator variable equal to 1 for equity funds
Fund Age	Fund age in years at the end of a month.
# Funds	The number of funds that are single-managed under management in a month.
Fund Flows	Quarterly fund flows.
Fund Size	Total net asset under management in millions at the end of a month.
Hybrid Fund	Indicator variable equal to 1 for hybrid funds.
Idiosyncratic Risk	Standard deviation of the residuals from the regression of daily fund returns on the combined market factor model within a month, annualized by multiplying the square root of $252/12$. Both measures are expressed in percent.
Leadership Position	Dummy variable that is equal to 1 if a manager holds a leadership position in the fund firm, and 0 otherwise. Seven types of leadership positions include director of the board, a position in the committee of the investment strategy, a position in the committee of the supervisory board, Executives or Vice Executives, Chief economists or other technological leaders, a leadership position in the Communist Party of China, and other management positions.
# Leadership Positions	The number of leadership positions a fund manager holds in the fund firms. One manager can hold up to five leadership positions in our sample.

Variable Name	Description
Manager Age	Manager age in years. In cases where the birth year of a manager is not disclosed, we infer this information based on managers' career paths and educational backgrounds. If a manager has a Bachelor's degree only, we assume that the manager is aged 22 at the point of entering the fund industry for the first time. Before the year 2005, obtaining a Master's degree usually required three years of study. However, after 2005, many universities introduced two-year profession-oriented Master's programs and three-year academia-oriented programs. Initially, the proportion of two-year Master's degrees was relatively small but became dominant as of 2010. Therefore, if the manager obtained a PhD (Master's degree only) before 2014 (2010), we assume an age of 29 (25) at the point of entering the fund industry. If the PhD (Master's degree) was obtained after 2014 (2010), we assume that the manager is 28 (24) at the time of entering the mutual fund industry.
Manager has Bachelor's only	Indicator variable equal to one if manager's highest degree is a master's degree.
Manager has Master's only	Indicator variable equal to one if manager's highest degree is a master's degree.
Manager has PhD	Indicator variable equal to one if manager's highest degree is a PhD degree.
Manager Tenure	Tenure of a fund's manager in years.
Non-Market Variation	One minus the R^2 from the regression of fund excess returns on the combined market factor model within a month.
Onsite Visits	The number of onsite company visits in a month.
Online Visits	The number of online company visits in a month.
Participation Rate	Indicator variable equal to one if a manager manages at least one fund in a given month. In analyses conducted on an annual basis, monthly data are aggregated by averaging over the respective year.
Post Maternity Leave ($0 < t_{PM} \leq 6$)	Period spanning the first six months after returning from maternity leave.
Post Maternity Leave ($6 < t_{PM} \leq 12$)	Period between the sixth and twelfth month after returning from maternity leave.
Post Maternity Leave ($12 < t_{PM} \leq 36$)	Period between the twelfth and thirty-sixth month after returning from maternity leave.

Variable Name	Description
Pregnancy ($0 \leq t_P < 9$)	Period spanning the months between becoming pregnant and the start of maternity leave.
Raw Return	A fund's raw monthly return.
Total Risk	Standard deviation of fund returns within a month, annualized by multiplying the square root of $252/12$.
Treated	Indicator variable equal to one if the fund manager becomes a mother during our sample period.

Table A2—EVENT STUDIES OF FUND PERFORMANCE AROUND PREGNANCY

	1F Abnormal Return			3F Abnormal Return		
	(1)	(2)	(3)	(4)	(5)	(6)
Pregnancy ($0 \leq t_P < 9$)	-0.196**	-0.210**	-0.253**	-0.162**	-0.190*	-0.216*
	(0.077)	(0.103)	(0.118)	(0.071)	(0.098)	(0.119)
Pregnancy ($0 \leq t_P < 9$) × Team Fund	0.153	0.134	0.173	0.138	0.130	0.156
	(0.101)	(0.107)	(0.119)	(0.095)	(0.099)	(0.113)
Log(Fund Size)	0.010	0.012	-0.017	0.011	0.009	-0.015
	(0.013)	(0.014)	(0.028)	(0.015)	(0.014)	(0.027)
Team Fund	-0.094	-0.024		-0.134**	-0.055	
	(0.064)	(0.064)		(0.067)	(0.062)	
Fund Age	0.006	0.017*		0.028***	0.023**	
	(0.008)	(0.009)		(0.010)	(0.010)	
Equity Fund	0.491***	0.149		0.815***	0.224	
	(0.149)	(0.212)		(0.170)	(0.172)	
Hybrid Fund	0.344***	0.183***		0.408***	0.132**	
	(0.049)	(0.069)		(0.054)	(0.065)	
Manager Age	-0.006			-0.006		
	(0.007)			(0.008)		
Manager has PhD	-0.040			-0.089		
	(0.092)			(0.094)		
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Manager FE	No	Yes	Yes	No	Yes	Yes
Fund FE	No	No	Yes	No	No	Yes
N	8973	8973	8961	8689	8689	8679
R^2	0.129	0.148	0.130	0.125	0.151	0.138

Notes: This table reports coefficients from multivariate regressions of fund performance around pregnancy. Fund performance metrics analyzed include monthly abnormal returns calculated using a combined factor model that includes (i) an equity market factor and a bond market factor (1F) (ii) an equity market factor, a bond market factor, and the size and value factors suggested by Liu, Stambaugh, and Yuan (2019). The factor loadings are estimated over the last 36 months. Both return measures are expressed in percent. The independent variables include two indicator variables which represent different time periods. *Before* refers to the 36 months before becoming pregnant and is omitted from the regression. *Pregnancy* ($0 \leq t_P < 9$) refers to the months between becoming pregnant and the start of maternity leave. *Team Fund* is an indicator variable equal to one if the fund is managed by more than one manager simultaneously. The other independent variables are described in Appendix Table A1. Standard errors clustered at the fund level are reported in parentheses. *, **, and ***, indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table A3—EVENT STUDIES OF FUND PERFORMANCE AROUND MATERNITY

	1F Abnormal Return			3F Abnormal Return		
	(1)	(2)	(3)	(4)	(5)	(6)
Post Maternity Leave ($0 < t_{PM} \leq 6$)	-0.157*	-0.031	-0.219	-0.096	-0.038	-0.177
	(0.090)	(0.123)	(0.138)	(0.109)	(0.138)	(0.160)
Post Maternity Leave ($6 < t_{PM} \leq 12$)	0.202	0.323*	0.130	0.187	0.269	0.130
	(0.137)	(0.183)	(0.219)	(0.145)	(0.176)	(0.212)
Post Maternity Leave ($12 < t_{PM} \leq 36$)	-0.063	0.082	-0.126	-0.049	0.016	-0.113
	(0.111)	(0.184)	(0.215)	(0.123)	(0.176)	(0.220)
Post Maternity Leave ($0 < t_{PM} \leq 6$) × Team Fund	0.155	0.007	-0.023	0.124	-0.007	-0.065
	(0.114)	(0.122)	(0.141)	(0.133)	(0.138)	(0.166)
Post Maternity Leave ($6 < t_{PM} \leq 12$) × Team Fund	-0.152	-0.295*	-0.397**	-0.070	-0.200	-0.331*
	(0.161)	(0.171)	(0.198)	(0.169)	(0.166)	(0.193)
Post Maternity Leave ($12 < t_{PM} \leq 36$) × Team Fund	0.016	-0.119	-0.275*	0.038	-0.067	-0.249
	(0.133)	(0.130)	(0.163)	(0.150)	(0.144)	(0.179)
Log(Fund Size)	0.048***	0.020	0.014	0.042**	0.003	0.004
	(0.015)	(0.014)	(0.025)	(0.017)	(0.015)	(0.027)
Team Fund	-0.074	0.068		-0.123*	0.057	
	(0.063)	(0.061)		(0.068)	(0.067)	
Fund Age	0.019**	0.004		0.043***	0.016	
	(0.009)	(0.009)		(0.010)	(0.011)	
Equity Fund	0.852***	0.171		1.096***	0.262*	
	(0.138)	(0.135)		(0.163)	(0.155)	
Hybrid Fund	0.356***	0.181***		0.492***	0.171***	
	(0.050)	(0.053)		(0.055)	(0.061)	
Manager Age	0.011			0.014		
	(0.007)			(0.009)		
Manager has PhD	-0.026			-0.053		
	(0.128)			(0.176)		
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Manager FE	No	Yes	Yes	No	Yes	Yes
Fund FE	No	No	Yes	No	No	Yes
N	11627	11626	11614	10785	10784	10768
R^2	0.147	0.168	0.153	0.138	0.170	0.159

Notes: This table reports coefficients from multivariate regressions of fund performance around maternity events. Fund performance metrics analyzed include monthly abnormal returns calculated using a combined factor model that includes (i) an equity market factor and a bond market factor (1F) (ii) an equity market factor, a bond market factor, and the size and value factors suggested by Liu, Stambaugh, and Yuan (2019). The factor loadings are estimated over the last 36 months. Both return measures are expressed in percent. The independent variables include four indicator variables which represent different time periods. *Before* refers to the 36 months before becoming pregnant and is omitted from the regression. *Post Maternity Leave* ($0 < t_{PM} \leq 6$), *Post Maternity Leave* ($6 < t_{PM} \leq 12$), and *Post Maternity Leave* ($12 < t_{PM} \leq 36$) are indicators for the sub-periods after returning from maternity leave. *Team Fund* is an indicator variable equal to one if the fund is managed by more than one manager simultaneously. The other independent variables are described in Appendix Table A1. Standard errors clustered at the fund level are reported in parentheses. *, **, and ***, indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table A4—EVENT STUDIES OF FUND PERFORMANCE AROUND CHILDBIRTH

	Raw Return			FF3 Abnormal Return		
	(1)	(2)	(3)	(4)	(5)	(6)
Pregnancy ($0 \leq t_P < 9$)	-0.246**	-0.257**	-0.334**	-0.098	-0.093	-0.149*
	(0.106)	(0.125)	(0.142)	(0.061)	(0.078)	(0.090)
Post Maternity Leave ($0 < t_{PM} \leq 6$)	-0.111	-0.145	-0.277	-0.117	-0.102	-0.193
	(0.116)	(0.151)	(0.184)	(0.082)	(0.104)	(0.120)
Post Maternity Leave ($6 < t_{PM} \leq 12$)	0.322*	0.293	0.145	0.165	0.171	0.066
	(0.184)	(0.214)	(0.264)	(0.126)	(0.149)	(0.180)
Post Maternity Leave ($12 < t_{PM} \leq 36$)	0.173	0.215	0.043	-0.016	-0.001	-0.106
	(0.153)	(0.223)	(0.273)	(0.090)	(0.135)	(0.169)
Pregnancy ($0 \leq t_P < 9$) × Team Fund	0.215	0.194	0.221	0.108	0.066	0.093
	(0.132)	(0.136)	(0.145)	(0.079)	(0.082)	(0.089)
Post Maternity Leave ($0 < t_{PM} \leq 6$) × Team Fund	0.071	0.068	0.073	0.144	0.059	0.063
	(0.148)	(0.153)	(0.169)	(0.102)	(0.105)	(0.115)
Post Maternity Leave ($6 < t_{PM} \leq 12$) × Team Fund	-0.103	-0.103	-0.127	-0.088	-0.172	-0.188
	(0.217)	(0.221)	(0.240)	(0.143)	(0.146)	(0.161)
Post Maternity Leave ($12 < t_{PM} \leq 36$) × Team Fund	-0.169	-0.234	-0.282	0.049	-0.042	-0.098
	(0.182)	(0.192)	(0.217)	(0.108)	(0.109)	(0.129)
Log(Fund Size)	0.035**	0.032**	0.038	0.025**	0.015	0.004
	(0.014)	(0.014)	(0.026)	(0.011)	(0.010)	(0.017)
Team Fund	-0.060	0.016		-0.084	-0.003	
	(0.074)	(0.077)		(0.054)	(0.055)	
Fund Age	0.035***	0.023**		0.018**	0.013*	
	(0.009)	(0.009)		(0.007)	(0.007)	
Equity Fund	0.996***	0.428**		0.522***	0.160	
	(0.146)	(0.167)		(0.104)	(0.103)	
Hybrid Fund	0.444***	0.213***		0.318***	0.160***	
	(0.051)	(0.052)		(0.037)	(0.043)	
Manager Age	0.010			0.004		
	(0.008)			(0.005)		
Manager has PhD	-0.007			-0.026		
	(0.094)			(0.084)		
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Manager FE	No	Yes	Yes	No	Yes	Yes
Fund FE	No	No	Yes	No	No	Yes
N	15692	15692	15691	15470	15470	15468
R^2	0.317	0.324	0.311	0.090	0.106	0.093

Notes: This table reports coefficients from multivariate regressions of fund performance around childbirth. Fund performance metrics analyzed include raw monthly returns and FF3 abnormal returns. FF3 abnormal returns are calculated using a combined factor model that includes Chinese Fama French three factors and a bond market factor. The factor loadings are estimated over the last 36 months. Both return measures are expressed in percent. The independent variables include five indicator variables which represent different time periods. *Before* refers to the 36 months before becoming pregnant and is omitted from the regression. *Pregnancy* ($0 \leq t_P < 9$) refers to the months between becoming pregnant and the start of maternity leave, and lasts a maximum of 9 months. *Post Maternity Leave* ($0 < t_{PM} \leq 6$), *Post Maternity Leave* ($6 < t_{PM} \leq 12$), and *Post Maternity Leave* ($12 < t_{PM} \leq 36$) are indicators for the sub-periods after returning from maternity leave. *Team Fund* is an indicator variable equal to one if the fund is managed by more than one manager simultaneously. The other independent variables are described in Appendix Table A1. Standard errors clustered at the fund level are reported in parentheses. *, **, and ***, indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table A5—EVENT STUDIES OF FUND PERFORMANCE AROUND CHILDBIRTH

	1F Abnormal Return			3F Abnormal Return		
	(1)	(2)	(3)	(4)	(5)	(6)
Pregnancy ($0 \leq t_P < 9$)	-0.185*	-0.220*	-0.308**	-0.164	-0.218*	-0.289**
	(0.112)	(0.127)	(0.132)	(0.104)	(0.119)	(0.129)
Post Maternity Leave ($0 < t_{PM} \leq 6$)	-0.039	-0.096	-0.265*	0.016	-0.079	-0.221
	(0.124)	(0.153)	(0.150)	(0.139)	(0.160)	(0.167)
Post Maternity Leave ($6 < t_{PM} \leq 12$)	0.260	0.194	-0.014	0.279	0.167	-0.010
	(0.183)	(0.215)	(0.240)	(0.178)	(0.206)	(0.234)
Post Maternity Leave ($12 < t_{PM} \leq 36$)	0.064	-0.026	-0.280	0.042	-0.103	-0.299
	(0.176)	(0.233)	(0.234)	(0.162)	(0.216)	(0.235)
Pregnancy ($0 \leq t_P < 9$) × Team Fund	0.144	0.150	0.188	0.209	0.221*	0.236*
	(0.134)	(0.135)	(0.139)	(0.130)	(0.131)	(0.136)
Post Maternity Leave ($0 < t_{PM} \leq 6$) × Team Fund	-0.069	-0.066	-0.012	-0.088	-0.068	-0.039
	(0.151)	(0.153)	(0.159)	(0.163)	(0.163)	(0.175)
Post Maternity Leave ($6 < t_{PM} \leq 12$) × Team Fund	-0.212	-0.213	-0.150	-0.158	-0.138	-0.077
	(0.209)	(0.213)	(0.227)	(0.209)	(0.212)	(0.226)
Post Maternity Leave ($12 < t_{PM} \leq 36$) × Team Fund	-0.041	-0.041	-0.004	-0.039	-0.020	0.007
	(0.153)	(0.156)	(0.174)	(0.165)	(0.168)	(0.189)
Log(Fund Size)	0.034**	0.027*	0.029	0.014	0.010	0.023
	(0.015)	(0.016)	(0.025)	(0.018)	(0.018)	(0.027)
Team Fund	-0.024	-0.055		0.060	0.028	
	(0.093)	(0.096)		(0.094)	(0.095)	
Fund Age	-0.011	-0.009		0.011	0.014	
	(0.009)	(0.009)		(0.012)	(0.012)	
Equity Fund	0.130	0.132		-0.064	-0.030	
	(0.284)	(0.281)		(0.246)	(0.248)	
Hybrid Fund	0.228***	0.220***		0.179***	0.191***	
	(0.060)	(0.055)		(0.064)	(0.058)	
Manager Age	-0.028			-0.020		
	(0.039)			(0.048)		
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Interim Manager FE	Yes	Yes	Yes	Yes	Yes	Yes
Manager FE	No	Yes	Yes	No	Yes	Yes
Fund FE	No	No	Yes	No	No	Yes
N	9601	9601	9601	9133	9133	9133
R^2	0.162	0.162	0.147	0.168	0.168	0.154

Notes: This table reports coefficients from multivariate regressions of fund performance around childbirth. Fund performance metrics analyzed include monthly abnormal returns calculated using a combined factor model that includes (i) an equity market factor and a bond market factor (1F) (ii) an equity market factor, a bond market factor, and the size and value factors suggested by Liu, Stambaugh, and Yuan (2019). The factor loadings are estimated over the last 36 months. Both return measures are expressed in percent. The independent variables include five indicator variables which represent different time periods. *Before* refers to the 36 months before becoming pregnant and is omitted from the regression. *Pregnancy* ($0 \leq t_P < 9$) refers to the months between becoming pregnant and the start of maternity leave, and lasts a maximum of 9 months. *Post Maternity Leave* ($0 < t_{PM} \leq 6$), *Post Maternity Leave* ($6 < t_{PM} \leq 12$), and *Post Maternity Leave* ($12 < t_{PM} \leq 36$) are indicators for the sub-periods after returning from maternity leave. *Team Fund* is an indicator variable equal to one if the fund is managed by more than one manager simultaneously. The other independent variables are described in Appendix Table A1. Standard errors clustered at the fund level are reported in parentheses. *, **, and ***, indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table A6—SUMMARY STATISTICS FOR MATCHED SAMPLE

	All Funds	Treated Funds	Control Funds	Difference	t-stat
	N = 1,092	N = 490	N = 602		
Fund size (in millions)	1363.413	1522.235	1262.983	259.252	1.58
Fund age	2.677	2.608	2.720	-0.113	-0.49
Fund flows (in %)	12.866	12.606	13.031	-0.425	-0.14
Raw return (in %)	0.576	0.590	0.567	0.023	0.37
1F Abnormal return (in %)	0.370	0.391	0.356	0.035	0.68
3F Abnormal return (in %)	0.415	0.407	0.420	-0.013	-0.22
Bond fund	0.553	0.589	0.530	0.059	1.27
Equity fund	0.070	0.084	0.061	0.024	0.86
Hybrid fund	0.378	0.327	0.410	-0.083**	-1.94

Notes: This table reports average fund characteristics and differences in fund characteristics for funds with a maternity event (treatment group) and our matched control funds for the *Before* period. The matching procedure is presented in Section 5.3. The number of distinct funds in the treatment and control groups is displayed in the column header in parentheses. All variables are defined in detail in Table A1. Significance is calculated based on a two-sided t-test with standard errors clustered at the fund level. *, **, and ***, indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table A7—TESTING THE PARALLEL TRENDS ASSUMPTION

	Treated		Control		Difference	
	Mean	N	Mean	N	Mean	t-statistic
Panel A: 1F Abnormal Return						
$-36 \leq t_P < 0$	0.376	5370	0.334	11362	0.043	0.92
$-30 \leq t_P < 0$	0.398	5037	0.350	10707	0.047	0.91
$-24 \leq t_P < 0$	0.418	4571	0.361	9783	0.057	1.05
$-18 \leq t_P < 0$	0.423	3928	0.352	8430	0.071	1.29
$-12 \leq t_P < 0$	0.388	3070	0.347	6494	0.041	0.70
$-6 \leq t_P < 0$	0.341	1820	0.309	3780	0.033	0.45
Panel B: 3F Abnormal Return						
$-36 \leq t_P < 0$	0.386	5319	0.394	11244	-0.008	-0.16
$-30 \leq t_P < 0$	0.403	4987	0.407	10594	-0.004	-0.07
$-24 \leq t_P < 0$	0.424	4527	0.413	9682	0.010	0.18
$-18 \leq t_P < 0$	0.431	3889	0.409	8345	0.022	0.38
$-12 \leq t_P < 0$	0.406	3037	0.415	6429	-0.009	-0.15
$-6 \leq t_P < 0$	0.381	1799	0.399	3750	-0.018	-0.24

Notes: This table reports results of tests for differences in means for 1F and 3F abnormal returns between treated funds and non-treated matched control funds prior to pregnancy. The construction of the matched sample is described in Section 5.3. Standard errors are clustered at the fund level. *, **, and ***, indicate statistical significance at the 10%, 5%, and 1% level, respectively.

Table A8—INSTITUTIONAL FUND HOLDINGS AROUND CHILDBIRTH

	Institutional Holdings			Flows		
	(1)	(2)	(3)	(4)	(5)	(6)
Pregnancy ($0 \leq t_P < 9$)	2.503	5.577**	2.484	0.089	0.079	0.092
	(2.404)	(2.655)	(1.897)	(0.076)	(0.089)	(0.098)
Post Maternity Leave ($0 < t_{PM} \leq 6$)	6.497**	8.137*	4.631	0.151	0.147	0.146
	(3.241)	(4.492)	(3.459)	(0.102)	(0.138)	(0.162)
Post Maternity Leave ($6 < t_{PM} \leq 12$)	4.959	6.828	3.648	0.189	0.152	0.116
	(3.845)	(5.432)	(4.376)	(0.125)	(0.182)	(0.217)
Post Maternity Leave ($12 < t_{PM} \leq 36$)	6.409	7.481	1.520	0.096	0.041	0.023
	(4.745)	(7.054)	(5.580)	(0.090)	(0.195)	(0.225)
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Month FE	Yes	Yes	Yes	Yes	Yes	Yes
Manager FE	No	Yes	Yes	No	Yes	Yes
Fund FE	No	No	Yes	No	No	Yes
N	1754	1752	1734	5737	5735	5735
R^2	0.330	0.684	0.841	0.013	0.069	0.118

Notes: This table reports the estimates of multivariate regressions around childbirth on holdings of fund shares by institutional investors and quarlerly fund flows. The results are estimated for the single-managed treatment funds for which we find performance changes around childbirth. In columns (1) to (3), the dependent variable *Institutional Holdings* is the proportion of fund shares held by institutional investors. This information is semi-annual and can be observed for the end of June and December, respectively. In columns (4) to (6), the dependent variable *Inflows* is the fund inflow into the funds. Again, observations in June and December are used in the analysis. *Pregnancy* ($0 \leq t_P < 9$) refers to the months between becoming pregnant and the start of maternity leave. *Post Maternity Leave* ($0 < t_{PM} \leq 6$), *Post Maternity Leave* ($6 < t_{PM} \leq 12$), and *Post Maternity Leave* ($12 < t_{PM} \leq 36$) are indicators for the sub-periods after returning from maternity leave. Standard errors clustered at the fund level are reported in parentheses. *, **, and ***, indicate statistical significance at the 10%, 5%, and 1% level, respectively.