Strategic Capital Deployment in Private Equity

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ABSTRACT

Private equity fund general partners (GPs) strategically adjust their investment strategies in response to early returns. Funds experiencing higher early returns in the fund life cycle subsequently shift away from riskier investments in later years and experience lower returns. After early success, funds become more selective and concentrated, reducing exposure to high-risk sectors while focusing investments within preferred sectors and geographies. Early winners also commit larger portions of capital to later deals and hold these investments for longer periods. In contrast, funds with very low early returns do the opposite. Despite making low-return and low-risk investments later on, funds with strong early returns still outperform over the life of the fund and raise their next fund faster. These findings are consistent with GPs using early success in a fund to raise a next fund sooner and then turning their attention to this next fund.

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I. Introduction

A longstanding debate in corporate finance concerns how ownership structure shapes managerial horizons and investment behavior. Jensen (1989) and subsequent work argue that private ownership shields firms from the short-term performance pressures characteristic of public equity markets, enabling managers to make value-enhancing long-term investments. By design, private equity (PE) funds appear to reinforce this logic: their closed-end structure, long fund life, and focus on illiquid private investments should insulate general partners (GPs) from immediate performance pressures. Yet, I show that PE funds are not immune to these agency costs. Because GPs must periodically raise new funds, their ability to secure capital hinges critically on demonstrating interim returns to limited partners (LPs). This dynamic creates distinct short-term incentives within an otherwise long-horizon asset class.

GPs act as financial intermediaries by exercising control over capital deployment on behalf of passive LPs. Although both GPs and LPs benefit from strong fund performance, the contractual and economic structure of PE funds creates agency frictions that can drive a wedge between the two parties' interests. These frictions arise because maximizing GP utility is not entirely aligned with maximizing LPs' risk-adjusted returns within a single fund as GPs must jointly consider performance-based carried interest, management fees, and the ability to raise future funds. Crucially, these agency costs are dynamic. GPs make a series of interrelated decisions across the fund life-cycle such as which deals to pursue, how quickly to deploy capital, how much attention to devote to existing versus new investments, when to exit current deals, and when to begin fundraising for the next fund. These choices are shaped not only by market conditions and the performance of current investments, but also by the GP's evolving incentives as they transition from managing the present fund to securing their long-run franchise value through future funds.

While prior work has examined aspects of GP compensation and fundraising behavior (e.g., Metrick and Yasuda (2010), Chung et al. (2012), Barber and Yasuda (2017)), much remains unexplored in regards to how fundraising incentives shape GP behavior within the fund during the critical early part of the fund, or investment period, when decisions have both immediate and forward-looking consequences. How GPs make decisions during this initial stage of the fund is one important way agency conflicts arise. This subject has been the subject of much speculation by

industry participants, especially around when fundraising begins for a next fund and what happens to the attention and incentives of GPs once the next fund is raised.

The institutional details of the PE fund structure provides a unique setting to understand how agency conflicts present themselves. Most PE funds are organized as closed-end limited partnerships, with a fixed life span, often ten years, and a defined investment period of typically four to five years. LPs commit capital upfront, which is not collected immediately but rather drawn down, or "called", over time by the GP as individual investment opportunities are identified. During this investment window, the GP exercises broad discretion over which deals to pursue, how much capital to allocate, and how quickly to deploy it. Compensation consists of an annual management fee, typically a fixed percentage of committed or invested capital, and carried interest or "carry", a share of the profits above a hurdle return. A typical fee structure would have a 2% management fee and 20% carried interest, with an 8% hurdle rate. As such, GPs benefit both from the size of the fund under management as well as the performance of the investments in portfolio companies. These investments are typically held for three to seven years prior to exit while the GP executes its value-creation strategy. Importantly, GPs often start trying to raise a successor fund before the current fund is fully invested and always before all capital is returned to LPs, creating overlapping fund cycles and potential intertemporal conflicts of interest with different sets of LPs.

The two primary sources of lifetime income for GPs are (1) the management fee and carried interest in the current fund and (2) the potential combined stream of fees and carry in future funds. Furthermore, these sources of income are very much interconnected. The GP's ability raise a future fund is highly dependent on the performance of the current fund (Chung et al. (2012)). This potential future income is important to GPs both from the large windfall in the carried interest but also in the on-going management fees (Metrick and Yasuda (2010)), which increase with fund size, giving GPs the incentive to ensure they do not jeopardize this lucrative future revenue stream. As such, GPs must decide how to balance risk in order to obtain the returns needed to maximize the probability of raising the next fund, while at the same time trying to maximize carry of the current fund. Higher returns earlier in a fund life cycle can alleviate some of the pressure points of this trade off as this creates the positive signaling that potential future LPs need to participate in follow-on funds (Lerner et al. (2007), Hochberg et al. (2013)). These early high returns however may change the incentives for GPs around the capital deployment in the funds' subsequent investments.

In this paper, I evaluate the impact of early investment returns in a fund on the subsequent risk selection choices by GPs in later deals.

I start by proposing a simple model to aid the intuition and to motivate the empirical analysis. Given a GP's desire to raise a future fund, it follows that a GP also prefers to fundraise and start the next fund sooner rather than later in order to start collecting the additional management fee. The larger the follow-on fund, the larger the management fee. Limited Partner Agreements (LPAs) typically stipulate requirements the GP must meet before raising the next fund, such as a minimum portion of committed capital invested ($\approx 70\%$, Hüther (2023)) or a minimum rate of return. These factors potentially change the GP's incentives around the risk profile of early investments (Brown et al. (2023)) and when to exit early investments (Barber and Yasuda (2017), Chakraborty and Ewens (2017)). The model assumes that the GP selects the level of risk on each investment, trading off additional carried interest from their current fund against the franchise value of raising their next fund. Carried interest is awarded only if average returns exceed a contractually agreed upon hurdle rate, while fundraising requires surpassing a separate interim threshold. In this setting, the GP's problem is dynamic: early success makes it easier to raise their next fund quickly, while waiting until the end of the current fund delays continuation and reduces the relative value of the next fund. The model predicts that GPs who achieve high early returns will subsequently reduce risk to secure carried interest, while those who fall short will increase risk in later deals in an attempt to "gamble for resurrection" and preserve the option of returning to the fundraising market. Essentially, GPs will try to generate strong returns early in the fund to lock in fundraising prospects and then de-risk in later investments. These effects should be magnified for funds of young GPs, in that no prior track record or reputation capital is available.

Using fund-level and deal-level data on PE buyout funds from the MSCI Private Capital Universe, I test the model predictions. I find that GPs tend to pursue higher-risk investments early in the fund life cycle, as indicated by the higher return volatility of early successful funds. After achieving above-average returns on initial investments, GPs subsequently reduce risk exposure. In contrast, funds with weak early performance increase risk-taking over the investment period in an effort to catch up. These effects are most pronounced for funds with early successful exits, which can be marketed to prospective LPs as credible performance signals. Consistent with this shift in strategy, GPs of early successful funds later increase both sector and geographic concentration.

They also commit a larger fraction of capital to follow-on investments and hold portfolio companies for longer durations. Together, these patterns suggest that dynamic risk selection across the life of the fund helps explain the limited performance persistence observed in buyout funds.

Funds with strong early performance generally sustain their advantage, achieving higher final returns relative to funds with weak early outcomes. They also raise their next fund more quickly and it is on average larger than their current fund. These patterns suggest that GPs with strong early performance deploy capital strategically in order to meet contractual thresholds, after which they shift focus toward raising their next fund. By doing so, they begin collecting management fees sooner, even if it means forgoing higher potential returns for current LPs in the later stages of the fund. Back-of-the-envelope calculations indicate that if early high-return funds were to maintain the same level of performance, the foregone carry from current LPs would be outweighed by the value of earlier management fees in the next fund. This tradeoff highlights the central agency conflict: GPs capture private benefits while LPs bear the opportunity cost, potentially leaving considerable value unrealized. At the same time, the extent of this conflict must be evaluated in light of the contractual features of PE funds, which are designed to mitigate agency frictions (Axelson et al. (2009)).

A central challenge in studying private equity investment behavior is disentangling whether early fund performance influences subsequent investment decisions, or whether both are jointly driven by underlying GP skill or market conditions. To address this concern, I develop an instrumental variables strategy that isolates exogenous variation in early fund performance driven by sector-specific public market return shocks. Specifically, I interact the public equity returns of the GP's prior fund's dominant sector with the two-year period of the current fund to construct a Bartik-style instrument for interim performance. This approach exploits the fact that interim private equity valuations are partially marked to public market comparables and thus sensitive to sector-level movements (e.g., Brown et al. (2019)). Under this specification, I find evidence that funds with higher early returns subsequently invest in lower risk deals, that are larger, shorter duration, and more industry concentrated. The IV estimates allow me to identify whether early performance—when driven by factors external to GP skill—causally impacts how managers deploy capital, take risk, and construct portfolios in the later stages of the fund's life cycle.

Another question pertains to the issue of timing and persistence as GP's adjust their investment

strategies in response to early performance signals. I study this by tracking how funds change their risk exposure following the realization of early returns. To capture the timing of these shifts, I implement a quarterly event-study difference-in-differences design that compares funds with strong early returns to those without, at the end of the second year of the funds' investment period. This approach allows the observation of not just whether GPs respond to early success, but when those adjustments occur, how persistent they are, and whether any differences emerge even before the milestone. I find that within a year of high early returns, funds tend to deploy capital faster than their low return counterparts, with more deals, both in the number and size of deals. These GPs likewise begin exiting more deals and are more likely to have raised their funds within two years. I find evidence that the deals entered into after high early returns reduce the return of exisiting deals for a given quarter with corresponding lower standard deviations. I find GPs adjust their investment strategies in response to early returns rather than following a prespecified plan. The results provide new evidence on how interim performance feeds into dynamic capital deployment decisions within private equity, with implications for both agency dynamics between GPs and LPs and the broader question of how private capital is allocated over time.

This paper contributes to a growing literature on the investment choices of private equity GPs and the incentives they face around fundraising. GPs seek to present strong performance early-on in order to quickly attract limited partner commitments in subsequent funds. Brown et al. (2019) argue that while GPs may attempt to manipulate net asset values (NAVs) or reported returns around fundraising, such efforts are generally unsuccessful because LPs can distinguish higher quality managers from weaker ones. Other papers emphasize the role of signaling in the fundraising process (Hüther (2023), Chakraborty and Ewens (2017), Barber and Yasuda (2017), Hochberg et al. (2013), Chung et al. (2012), Metrick and Yasuda (2010), Bhardwaj et al. (2024)). My paper contributes to this literature by suggesting that GPs may attempt to increase apparent performance before fundraising not through manipulation, but instead by altering their investment strategy toward higher risk projects. I also contribute to the literature on portfolio construction in private equity (e.g. Brown et al. (2023)) and highlight implications of early returns. Finally, I add to the discussion of private equity performance and persistence (Kaplan and Schoar (2005), Harris et al. (2023), Cong and Xiao (2021), Nanda et al. (2020)) by providing another potential channel that explains the lack of persistence within buyout funds.

Understanding the impact of high returns on early investments has important consequences. A relationship between early fund performance and subsequent portfolio risk selection reveals how GPs balance the tradeoff between signaling quality and preserving long-term fund value. Early performance thus operates as a signaling device, in the tradition of Ross (1977) and Myers and Majluf (1984), that conveys information about GP incentives to both LPs and entrepreneurs. For LPs, observing strong early returns provides information not only about expected fund performance but also about the likely risk profile of later investments, which can shape allocation decisions and interact with the denominator effect.[1] These dynamics also have implications for the availability of capital to innovative firms, as changing GP risk selection in response to early success may alter funding opportunities. Moreover, as the secondary market for private equity funds becomes more liquid, LPs that attempt to buy into funds with strong early returns under the belief that such performance predicts higher overall outcomes may find themselves exposed to the subsequent general underperformance of high-early-return funds later in the fund life cycle.

The paper proceeds as follows. Section II outlines the theoretical model and discusses the relevant predictions to be tested. Section III describes the MSCI Private Capital Universe Holdings data used in the analysis. Section IV presents the empirical results, and Section V concludes.

II. Model

In this section I present a stylized model of GP investment behavior to aid the intuition and generate testable hypotheses for the empirical analysis. A private equity (PE) general partner (GP) gains utility from the returns of the current fund and future funds. There is a tension between wanting to maximize current fund returns and the chance at future returns with the next fund. The GP wants higher returns early in the fund life to aid the fundraising efforts of the next fund (Chung et al. (2012)), which occurs in the middle of the current fund. It follows that a GP wants to fundraise and start the next fund sooner to start collecting additional management fees and potential carry. The larger the follow-on fund, the larger the baseline management fee of that fund.

[1]The denominator effect in investment management occurs when portfolio weights shift mechanically due to valuation changes in other asset classes. For example, if public equity markets fall in value, the overall portfolio denominator decreases. If private equity valuations remain unchanged, the portfolio weight allocated to private equity rises, potentially exceeding policy thresholds and creating rebalancing needs.

Limited Partner Agreements (LPAs) may stipulate requirements the GP must meet before raising the next fund, such as a minimum portion of committed capital invested ($\approx 70\%$, Hüther (2023)) or minimum rate of return. These factors potentially change the GP's incentives around the risk profile of early investments (Brown et al. (2023)) and when to exit (Barber and Yasuda (2017), Chakraborty and Ewens (2017)).

The model assumes a GP raises capital from LPs to invest in holdings through a fund at $t = 0$. The fund has a finite life, $T = 2$ periods, until the GP must close the fund and fully distribute value back to the LPs. The GP is paid under a standard payment structure where the GP receives a management fee, which is a fixed percentage of the total size of the fund, and a performance fee or carried interest, a portion of the fund's returns over a determined hurdle rate. The GP wants to maximize its expected utility, which depends on the current fund's returns and the continuation value from raising the next fund. The ability to raise the next fund is a function of the returns of the current fund, which is determined by the returns of the portfolio companies. Fundraising for the next fund occurs in the middle of the current fund's life. GP's with fund returns above a threshold are able to successfully fundraise and therefore increase their continuation value. The GP chooses in each $t < T$, between higher risk investments or lower risk.

The timeline of the model is as follows. At time $t = 0$, the GP chooses an initial investment a_0 that can be either high risk (H) or low risk (L). At time $t = 1$, the outcome of this investment, R_1, is realized. If the return is sufficiently high, $R_1 \geq \kappa$, the GP is able to raise Fund 2 immediately, yielding a continuation value V_1. Otherwise, the GP has the option to raise Fund 2 later at $t = 2$ if the cumulative fund return is above the threshold κ, but at a discounted value $V_2 = \delta V_1$ with $\delta \in (0, 1)$. At $t = 1$, regardless of whether Fund 2 is raised, the GP makes a second investment a_1, again choosing between H and L. At $t = 2$, the second outcome R_2 is realized, and carried interest is determined by the average return $\bar{R} = (R_1 + R_2)/2$.

There are two types of GPs, $\theta \in \{G, B\}$. Good GPs succeed with probability p_G when choosing the high-risk investment, while bad GPs succeed with lower probability $p_B < p_G$. A high-risk investment yields r_H with probability p_θ and zero otherwise, while the low-risk investment yields $r_L \in (0, r_H)$ deterministically. Type is private information and not observed by LPs, who instead only observe realized returns. LPs are assumed to be price takers and GPs are able to fundraise successfully if average fund returns are above the threshold $\kappa \in (r_L, r_H/2)$. This condition allows

for fundraising to occur either at $t = 1$ if $R_1 = r_H$ or at $t = 2$ for the return paths $(R_1, R_2) \in \{(0, R_H), (r_L, r_H)\}$.

Carried interest pays $c \cdot \bar{R}$, with $c \in (0, 1)$, if $\bar{R} \geq r^*$ and zero otherwise, where the hurdle rate r^* satisfies

$$r_H > \tfrac{r_H + r_L}{2} > r^* > \tfrac{r_H + 0}{2} > r_L.$$

This ordering ensures that both early and late investment choices matter for performance compensation. Carried interest is only paid to the GP earning a high return in either R_1 at $t = 1$, early success, or R_2 at $t = 2$, late success, while also avoiding any failed deals $R_t = 0$. The return paths $(r_H, r_H), (r_L, r_H), (r_H, r_L)$ each satisfy the condition for earning carry.

The GP gains utility from both the carried interest from Fund 1 as well as the continuation value from successfully raising their next fund, Fund 2. Formally, the GP's utility is

$$U = \mathbf{1}\left\{\tfrac{R_1 + R_2}{2} \geq r^*\right\} c \cdot \bar{R} + \mathbf{1}\left\{F_t = 1\right\} V_t$$

where $F_t \in \{0, 1\}$ indicates whether Fund 2 is successfully raised at time $t \in \{1, 2\}$ and corresponds to the respective continuation value $V_t \in \{V_1, V_2\}$.

To characterize equilibrium behavior, I consider the GP's problem by backward induction. Suppose first that the GP has an early success, $R_1 = r_H$. In this case, the interim fundraising threshold is met $r_H > \kappa$ and Fund 2 is raised at $t = 1$, providing continuation value V_1. At this point, the GP's choice of a_1 affects only carried interest, since the fundraising outcome is already secured. If the GP chooses the safe investment (L), the final average return is $(r_H + r_L)/2 > r^*$, guaranteeing carried interest of $c \cdot \frac{r_H + r_L}{2}$, giving utility of

$$U(H, L \mid R_1 = r_H) = V_1 + c \cdot \frac{r_H + r_L}{2}$$

If instead the GP chooses the risky investment, then the final average return, $\bar{R}$ is equal to r_H with probability p_θ and carried interest of $c \cdot r_H$ is earned since $r_H > \kappa$, or $\frac{r_H}{2}$ with probability $(1 - p_\theta)$ and carried interest is not earned since $r_H > \kappa$. As such, the expected utility is

$$U(H, H \mid R_1 = r_H) = p_\theta(V_1 + c r_H) + (1 - p_\theta) V_1$$

A comparison of $U(H, L \mid R_1 = r_H)$ and $U(H, H \mid R_1 = r_H)$ provides insight into the GP's investment choice at $t = 2$ following early success. First consider if GPs prefer L to H after early success, which requires $U(H, L \mid R_1 = r_H) \geq U(H, H \mid R_1 = r_H)$, or equivalently $r_L \geq (2p_\theta - 1)r_H$. Thus, the preference for L at $t = 2$ is sustained when the probability of success, the return of H, or the combination thereof is sufficiently low. For values $p_\theta < 0.5$ the condition holds trivially. Comparative statics illustrating the levels of p_θ required for this de-risking to hold with varying values of r_L and r_H are presented in top panels of Figure 1. Given the nature of PE deal returns, the characterization of a low probability of success for high risk deals, i.e. low p_θ, seems plausible and leads to the hypothesis below.

HYPOTHESIS 1: ***De-risking after early success***. *GPs of funds with high returns on early investments will subsequently reduce risk in later investments.*

Next, suppose the GP has an early failure, $R_1 = 0$. In this case, Fund 2 cannot be raised at $t = 1$, and the only path to continuation is through a late success that delivers average return above the threshold κ. If the GP chooses L, then $\bar{R} = r_L/2$. As such, carry is not earned ($r_L/2 < r^*$) nor is Fund 2 obtained ($r_L/2 < \kappa$) and the GP gains no utility. If the GP chooses H, then with probability p_θ the second investment succeeds, yielding $\bar{R} = r_H/2 > \kappa$ allowing Fund 2 to be raised at $t = 2$. However, carry is not earned as $r_H/2 < r^*$. Expected utility in this case is $p_\theta(V_2)$, which strictly dominates the safe strategy. Thus, GPs always gamble for resurrection after early failure.

A similar logic applies when $R_1 = r_L$. Although the first return is positive, it does not meet the interim fundraising threshold. If the GP chooses L again, then $\bar{R} = r_L < r^*$, and no carry is paid and Fund 2 is not raised, given $r_L < \kappa$, and the GP gains no utility. If the GP chooses H, then with probability p_θ the second investment succeeds, yielding $\bar{R} = (r_L + r_H)/2$, which exceeds both the thresholds r^* and κ, thereby carry is earned and Fund 2 is raised at $t = 2$. The expected utility for selecting $a_1 = H$ in this case is strictly positive and therefore dominates the choice of $a_1 = L$ Hence, after an early low return, the GP again prefers to take risk in the second investment.

HYPOTHESIS 2: ***Gamble for resurrection***. *GPs with low early returns increase risk in later deals to attempt successful performance and future fundraising.*

Turning back to the initial choice at $t = 0$, the GP anticipates these continuation strategies. If

the GP starts with H, then with probability p_θ there is an early success, leading to Fund 2 at $t = 1$ and secure carry through subsequent de-risking. With probability $(1 - p_\theta)p_\theta$, the GP fails initially but succeeds on the second investment, leading to Fund 2 at $t = 2$. Expected utility is therefore

$$U(H) = p_\theta\Big(V_1 + c \cdot \tfrac{r_H + r_L}{2}\Big) + (1 - p_\theta)p_\theta(V_2)$$

If instead the GP starts with L, then interim fundraising fails, and the only path to continuation is a late success on the second investment. With probability p_θ, the sequence (r_L, r_H) occurs, yielding Fund 2 at $t = 2$ and carry based on $(r_H + r_L)/2$. Expected utility in this case is

$$U(L) = p_\theta\big(V_2 + c\tfrac{r_H + r_L}{2}\big).$$

Now consider if GPs prefer H over L at $t = 0$, which requires $U(H) > U(L)$:

$$p_\theta\Big(V_1 + c \cdot \tfrac{r_H + r_L}{2}\Big) + (1 - p_\theta)p_\theta(V_2) \;\geq\; p_\theta\Big(V_2 + c \cdot \tfrac{r_H + r_L}{2}\Big)$$

which further simplifies to:

$$V_1 \;\geq\; p_\theta V_2$$

Because $V_1 > V_2$ and $p_\theta < 1$, it follows that $U(H) > U(L)$. The bottom-left panel in Figure 1 demonstrate how for all values of $p - \theta$ and for $\delta < 1$ this preference of $U(H)$ holds. Thus, in equilibrium the GP always chooses high risk initially, de-risks after early success, and takes risk otherwise.

HYPOTHESIS 3: ***Riskier deals first***. *GPs have a preference for higher risk in the fund's early investments.*

The model generates several empirical predictions. First, if GPs with early success de-risk, consistent with the idea that once fundraising is secured maximizing carry dominates, then I expect the data to show funds with high early returns will have subsequent lower return standard deviations in later deals. Second, GPs with early failure or low returns gamble for resurrection in order to raise next fund, characterized by higher returns and higher standard deviation of returns in later deals. In addition to return characteristics, the data should show changes in the deal characteristics, such

as size, sector, and geographies, to indicate the GPs change in capital deployment, rather than simple mean reversion. Third, fundraising timing is sensitive to early outcomes: GPs with early success raise their next fund sooner, while others must wait in the hopes to succeed later. Fourth, while early success funds do not maintain within-fund deal performance persistence, these fund will still outperform on fund-level average returns. Finally, comparative statics presented in Figure 1, suggest that a lower discount factor δ amplify the incentive to take early risk and then switch to safety after success, as such the effects will be larger for younger GPs, or GPs with less track-record, who have the most continuation value uncertainty resolution by locking-in access to future funds.

III. Data

To test the model's predictions, I use fund-level and holdings-level data on private equity buyout funds from the MSCI Private Capital Universe, with performance information available through 2023 Q4. This dataset is relatively new in the private capital literature and offers detailed insights that inform both established and emerging research questions. An overview of the MSCI Private Capital Universe holdings dataset is provided in Brown et al. (2020), which documents its creation and structure.

Determining the sequencing of holdings within a fund is critical for the analysis. Accordingly, I restrict the sample to holdings that include a valid fund identifier. After applying this restriction and requiring valid investment dates, I obtain a base sample of more than 16,000 holdings. To ensure consistent managerial incentives and comparability in risk-taking behavior, I further limit the sample to buyout funds located in North America. Although these funds invest globally, approximately 10% of their holdings are outside North America. Finally, I include only funds with vintages between 1999 and 2018, which allows me to compare the early and later stages of a fund's life while excluding those still in their investment period. I also exclude funds that have invested in fewer than three or more than 50 holdings.

Holding-level and fund-level performance are measured using either the internal rate of return (IRR) or the Kaplan-Schoar public market equivalent (PME), as developed in Kaplan and Schoar (2005). As emphasized by Harris et al. (2014), the choice of benchmark can substantially affect PME-based performance measures. To better align private market returns with appropriate public

market comparables, I benchmark each holding's performance to an equity index relevant to its geography. Specifically, I use the MSCI USA Net Total Return Index for holdings located in North America and the MSCI World ex USA Net Total Return Index for holdings outside North America.

As part of the filtering process, I remove funds that are missing deal size or PME information. To avoid excessively reducing the sample size, I assume that funds missing holding size or PME data for one or two holdings can be safely estimated as follows: (1) total deal size is calculated as the difference between total fund contributions and the sum of observed deal sizes, divided by the number of missing deals in the fund; and (2) holding-level PME is set equal to the vintage mean PME. These assumptions affect only 2% of holdings and prevent the exclusion of nearly 2,000 observations for affected funds that would otherwise be dropped. I further limit the sample to funds that have invested more than 25% but less than 200% of their committed capital. Overall, this yields a final sample of 6,010 holdings across 432 funds. From this, I create a subsample of funds designated as "young GP funds", defined as those with a fund series number of three or less – representing funds managed by less established GPs, as identified in the fund-level dataset. One caveat is that the holdings-level dataset may not include every fund within the MSCI Private Capital Universe and therefore may capture only a subset of early funds rather than all of a manager's early vehicles. This suggests that the subsequent analysis is likely conservative in its estimates. The young GP subsample includes 3,168 holdings across 251 funds. Table I reports summary statistics for both samples.

Variables are defined as follows:[2] *Deal Duration* is measured as the difference, in years, between the entry year and the exit year. *Deal Year* groups each fund's holdings by the year of the fund's life in which the investment occurred. For example, deals made in the second year of a fund have a *Deal Year* value of 2. For the analysis, I collapse deal years greater than or equal to five and reassign all such holdings a *Deal Year* value of 5. *Deal Fraction of Fund* is calculated as the total deal size of a holding divided by the sum of observed deal sizes for all holdings within the fund.

Early Winner, *Early Loser*, and *Early Success* are dummy variables equal to 1 if the condition is met and 0 otherwise. A holding is classified as an *Early Winner* if it belongs to a fund in which the maximum PME of deals made during the first two years exceeds the 75th percentile of early-deal

[2] As an item of note, the terms "deal" and holding" are used interchangeably throughout.

PMEs within the fund's vintage. Similarly, a holding is classified as an *Early Loser* if it belongs to a fund in which the maximum PME of early deals falls below the 25th percentile within the vintage. A holding receives an *Early Success* equal to 1 if it belongs to a fund in which the average PME of all deals made in the first two years exceeds the vintage mean of early-deal PMEs.

Early Top and *Early Bottom* are dummy variables equal to 1 if the fund's early-period average return falls in the top or bottom quartile, respectively, and 0 otherwise. *Early Top* funds therefore have an average return across all holdings during the first two years in the top quartile, while *Early Bottom* funds have an average return across those holdings in the bottom quartile.

I also define additional measures of early fund performance. One evaluates Distributions to Paid-In Capital (DPI) at the fund level. *Early High DPI* and *Early Low DPI* are dummy variables equal to 1 if the condition is met and 0 otherwise. *Early High DPI* funds are those in the top quartile of DPI at the end of year 2, while *Early Low DPI* funds are those in the bottom quartile at the same point in time.

Although not reported in Table I, I also define interim return variables using the interim fund-level PME at the end of fund year 2. These variables, *Interim Success*, *Interim Top*, and *Interim Bottom*, are constructed analogously to their "Early" return counterparts.

High Risk Sector is a dummy variable equal to 1 if a holding belongs to one of the three highest-risk sectors, and 0 otherwise. Sector classification is based on the MSCI Private Capital Universe, which divides holdings into 12 sectors. Holdings flagged as *High Risk Sector* account for approximately 50% of all deals and belong to the sectors with the highest holding-level TPVI return standard deviations. These sectors are "Health Care", Information Technology", and "Consumer Discretionary", with an average TPVI of 2.61 and an average standard deviation of 2.44, compared to the other sectors, which have an average TPVI of 2.24 and an average standard deviation of 2.07.

In addition, I measure sector and geography concentration within a fund using the Herfindahl-Hirschman Index (HHI). *Sector HHI* captures sector-level concentration, while *Geography HHI* captures U.S. state-level concentration. Both indices are calculated for all deals as well as for deals made before or after year 2.

Panel B presents fund-level variables, which are described as follows. *Fraction Invested* is the sum of all deal sizes in a fund divided by the fund's total committed capital. *Fund Duration* is

the value-weighted sum of *Deal Duration*s within the fund. *Fund PME* is the value-weighted sum of *Holding PME*s in the fund. *Next Fund Time* measures the number of years between the start of the GP's current fund and the start of the GP's next fund, based on fund inception dates in the MSCI Private Capital Universe fund-level data. *Next Fund Size*, measured in $B, is the total committed capital of the GP's subsequent fund according to the fund sequencing in the dataset. *All N. America* is a dummy variable equal to 1 if all deals in a fund are located in North America, and 0 otherwise.

Throughout the analysis, I use the term "risk" as a convenient shorthand for the dispersion of investment outcomes rather than in the traditional asset-pricing sense of market beta. In private equity, risk at the deal level is difficult to measure directly because individual investments are illiquid, infrequently valued, and subject to idiosyncratic shocks. The empirical measures I use—such as sector exposure, investment concentration, and the incidence of large losses or gains—are intended to capture variation in the dispersion of returns across deals within a fund. This concept of risk reflects how GPs themselves think about risk: not as covariance with market factors, but as the uncertainty in potential performance outcomes across their portfolio.

IV. Empirical Analysis

I next turn to the empirical analysis and relate the model predictions to actual fund decisions, using the MSCI Private Capital Universe holdings-level dataset described in Section III. As discussed in Section II, the model predicts that GPs respond to early performance pressure by pursuing a higher-risk capital deployment strategy in their initial investments. When early returns are high, the GP is expected to shift toward lower-risk investments later in the fund's life cycle. Conversely, when early returns are low, the GP is likely to maintain a higher-risk strategy and may even increase exposure to risk in subsequent investments.

If the model holds, the effect should be strongest for young GP funds. Brown et al. (2023) examine portfolio management within a fund and find that returns are highest for deals made early in the fund, declining over the fund life cycle. Similarly, the standard deviations of these returns are largest for early deals and subsequently decline for later deals. Figure 2 presents the distribution of deal performance by entry year within a fund. I observe a similar pattern of generally decreasing

returns and standard deviations across holding years for the full sample.

Although median holding PMEs are similar between young GP funds and all funds, the standard deviation is higher for young GP funds in each entry year of the holdings sequence. Interestingly, the highest median holding PME occurs in year 3 for both young GP funds and the full sample, but the effect is most pronounced for young GP funds, suggesting a potential change in capital deployment strategy at this stage of the fund life cycle. The shift between years 2 and 3 provides suggestive evidence that some funds are reducing risk while others are reaching for higher returns, supporting the decision to evaluate early returns based on investments made in years 1 and 2 of the fund.

While examining the overall distribution of holding returns provides initial insight, the next step is to differentiate funds based on their early returns. Figure 3 presents the standard deviation of holding PME by entry year for four measures of early fund success, as described in Section III. I find that funds with higher early returns are associated with a downward trend in standard deviations in subsequent years. Conversely, funds with low early returns exhibit increasing standard deviations for later deals.

A closer examination of the statistical significance of these changes in risk is presented in Table II. Each row in the table represents a separate regression for a given measure of interim performance and its effect on the average final PME (columns 1–2, 5–6) and the semi-standard deviation of final PMEs (columns 3–4, 7–8) for both early and late deals. I find that in all cases, the level of risk, as measured by the semi-standard deviation of returns, moves in the predicted direction. This also holds when observing the standard deviation of returns. Funds with higher early returns exhibit a reduction in the risk of later investments, while funds with low early returns show an increase in risk for subsequent deals. For example, *Interim Success* funds have a semi-standard deviation of returns of 0.211 for early deals, statistically significant at the 1% level, which decreases to -0.026 for later deals. The effect is stronger for young GP funds, with a reduction from 0.245 to -0.048. Likewise, I find *Interim Bottom* funds demonstrate the increase in risk as seen by a shift in the semi-standard deviation of returns from a negative coefficient, -0.125, in early deals to a positive coefficient, 0.027, for later deals.

A. *Regression Analysis on GP Risk Selection*

The ideal dataset to test my hypothesis would include precise measures of both GP skill and the GP's risk assessment for each holding. While such measures do not exist, I use proxies derived from the MSCI Private Capital Universe fund-level and holdings-level datasets. Focusing on the funds of younger GPs allows for comparisons among firms that are relatively similar in reputation. I additionally include a control for *Fund Size*, as higher-skilled GPs may have access to larger funds, consistent with Chung et al. (2012).

As a first approach, I employ the following difference-in-difference design to test the risk choices of GPs following early returns:

$$RiskFactor_{ij} = \beta_0 + \beta_1 EarlyReturn_j + \beta_2 AfterYear2_{ij} + \beta_3 (EarlyReturn_j \times AfterYear2_{ij}) + \gamma X_{ij} + \alpha_i + \delta_j + \theta_j + \varepsilon_{ij} \quad (1)$$

where $RiskFactor_{ij}$ denotes the risk characteristic of deal i made by fund j. Again, the term "risk" is used as a convenient shorthand for characteristics that influence the dispersion of investment outcomes. The variable $EarlyReturn_j$ is an indicator equal to 1 if fund j meets the relevant early return measure, as described in Section III, and 0 otherwise. $AfterYear2_{ij}$ is an indicator equal to 1 if the deal occurred after year 2 of fund j's life, and 0 otherwise. The interaction term $EarlyReturn_j \times AfterYear2_{ij}$ captures the difference-in-difference estimate of interest, with β_3 measuring the effect of strong early fund performance on subsequent deal-level risk-taking. The model includes deal-level or fund-level controls X_{ij}, as well as fixed effects for deal geography (α_i), fund vintage year (δ_j), and general partner (θ_j) to account for unobserved heterogeneity. Standard errors are corrected for clustering at the GP level.

To proxy the GP's choice of risk in selecting holdings, the analysis leverages various aspects of the MSCI Private Capital Universe data, including industry sector classifications. As described in Section III, higher-risk sectors are defined as those with above-average standard deviations in holding PMEs. A GP seeking to increase risk in the early stage of a fund may choose to invest more heavily in these riskier sectors, which are known for the potential of higher returns along with

higher return volatility.

To further test the relationship between early returns and changes in risk-taking, I estimate regressions to examine the impact of the interaction between early holding returns and the propensity to invest in higher-risk sectors. Table III reports results for all funds, using two characterizations of early returns: early maximum return (columns 1–4) and early average return (columns 5–8). In this analysis, early returns are measured relative to the opposite portion of the distribution; for example, the top quartile is compared against the bottom half.

I find that funds experiencing higher early returns subsequently reduce overall fund risk by moving away from higher-risk sectors. Columns 1–2 show that holdings in *Early Winner* funds are 7.3% less likely to be in higher-risk sectors, even after accounting for geography and fund vintage fixed effects and including controls for *Deal Size*, *Fund Size*, *Deal Duration*, and an *Exit* dummy variable indicating fully exited deals. For *Early Top* funds (columns 5–6), I find a similar negative coefficient of -6.3%, although with a p-value of 0.108, this falls just outside the conventional 10%-level cutoff for statistical significance.

I also find positive but statistically insignificant coefficients for the low early return measures (columns 3–4 and 7–8). In column 4, *Early Loser* funds appear to move toward higher-risk sectors after low early returns with a larger coefficient than *Early Bottom* funds, suggesting the presence of heterogeneous incentives across the distribution and type of early returns. These results provide directional evidence that funds with high early returns reduce risk in later deals, while funds with low early returns increase risk exposure, at least in terms of sector selection.

I further examine GP investment choices following early investment outcomes by analyzing sector concentration for deals made after year 2 of the fund life cycle. To do so, I calculate a *Sector HHI* measure, which accounts for the distribution of holdings across available sectors relative to the total number of deals executed after year 2. Table IV reports results for all funds (columns 1–3) and young GP funds (columns 4–6), enabling a direct comparison between funds with high and low early returns for each measure of early performance.

I find that *Early High DPI* funds tend to increase the *Sector HHI* of subsequent investments, whereas *Early Low DPI* funds tend to reduce it, as shown in column 1 with a 6.9% higher concentration for high DPI funds. Similarly, *Early Winner* funds exhibit an 8.9% greater sector concentration compared to *Early Loser* funds. These effects are stronger for young GP funds, and

all four interaction-term estimates are statistically significant at the 5% level. I find no significant relationship for *Early Success* funds or when comparing *Early Top* and *Early Bottom* funds.

This finding suggests a potential avenue of GP behavior that contrasts with a straightforward reduction in risk following early returns. Brown et al. (2023) show that increased sector concentration is correlated with higher semi-standard deviations of holding PMEs, thus raising downside risk. One possible explanation is that GPs with early high returns prefer to concentrate in what has been successful, which may initially appear less risky than diversifying into other sectors. However, this strategy may ultimately increase the potential for larger losses in the latter part of the fund.

Table V presents results for U.S. state concentration, measured by *Geography HHI*, for later deals following early returns. Similar to *Sector HHI*, I find that funds with higher early returns are more likely to make subsequent investments in portfolio companies located in the same states. For example, *Early High DPI* funds show a 5.1 percentage point increase in concentration relative to *Early Low DPI* funds, statistically significant at the 5% level. *Early Winner* funds exhibit a 10.6 percentage point increase compared to *Early Loser* funds, statistically significant at the 1% level.

Given a median *Geography HHI* of 0.28 for deals after year 2, these changes represent substantial increases over the average fund, amounting to 18% and 38%, respectively. *Early Top* versus *Early Bottom* funds also show positive loadings, though neither is statistically significant. The pattern is similar for young GP funds, with larger magnitudes observed for the coefficients.

Another lever a GP can use to adjust the risk of holdings is the fraction of the fund allocated to each deal. Brown et al. (2023) find that the largest deals in a fund are typically the safest. If funds with higher early returns seek to mitigate risk in the later years of the fund, they should increase the fraction of the fund invested in subsequent deals, while the opposite should hold for funds with lower early returns. I test this hypothesis and report the results in Table VI.

In this regression, I examine the interaction of early returns on deals made after year two of a fund's life. I find that, in general, funds with high early returns tend to make larger deals in the later part of the fund. Consistent with a GP turning attention to the next fund, managing a smaller number of deals becomes easier, creating an incentive to concentrate the remaining capital of the current fund into larger investments. Comparing early high return funds to early low return funds, I observe an increase of 0.2%–0.9% for all funds and 0.8%–1.3% for young GP funds. *Early Winner* funds show a statistically significant increase of 0.7% relative to *Early Loser* funds. Funds

with the highest average holding returns, *Early Top* funds, show an increase of 0.9%, the largest among all funds, which holds for young GP funds as well. These results provide suggestive evidence supporting the hypothesis that GPs allocate a larger portion of the fund to investments perceived as less risky following early high returns.

A GP may also strategically choose when to exit a holding in a manner that affects fund risk. Table VII reports the impact of early returns on the duration of deals made in the later part of the fund life cycle. I find that, across all measures of early returns, funds with high early returns subsequently invest in longer-duration deals. This may reflect GPs selecting deals that naturally take longer to reach fruition or deliberately delaying exits, thereby postponing the incorporation of these later deal returns into total fund performance, similar to the mechanism described in Chakraborty and Ewens (2017). In this strategy, including these longer-duration deals in an older fund while reserving shorter-duration, higher-risk deals for a new fund would be a more strategic allocation of attention and risk across funds. Interaction-term coefficients are statistically significant in all cases, with larger magnitudes observed for young GP funds.

One avenue for future research is to incorporate GP investment selection using portfolio company-level data from the MSCI Private Capital Universe Holdings Fundamentals dataset. This dataset includes company-level information for Buyout and VC holdings, such as revenue and EBITDA. As the dataset is still new and under development, further exploration will be required to ensure the validity of any results. Although a regression table is not presented here, a preliminary finding is that early high return funds appear to hold higher leverage ratios in portfolio companies after year 2 compared to non-early high return funds. While this result requires further analysis, it suggests that GPs may choose to apply more leverage to less risky assets (Bhardwaj et al. (2024), Myers (2001)), thereby weighting the final fund return toward these investments.

B. Impact on Holding Performance in Later Years

Prior literature has found that interim fund performance does not persist for buyout funds (see Bhardwaj et al. (2024), Brown et al. (2023), Harris et al. (2023)). I also examine the impact of high early returns on the performance of subsequent deals and report the regression results in Table VIII. These results align with previous findings, showing that funds with higher early returns do not necessarily continue to outperform. Interestingly, funds with lower early returns tend to perform

better in later deals.

The effects are strongest for young GP funds, potentially suggesting that GP risk selection into safer, yet lower-returning investments leads to weaker performance after high early returns. Interaction-term coefficients are statistically significant at the 1% level for most measures, with a notable exception for *Early High DPI* compared to *Early Low DPI*. Although the coefficient is negative in this case, it indicates a possible deviation in investment choice that mitigates noticeable underperformance. Overall, the sign and magnitude of the coefficients, combined with the findings above, provide insight into the lack of within-fund performance persistence.

C. Fund Level Outcomes

Table IX presents fund-level outcomes for each of the three measures of early returns. The signs of the coefficients suggest that, despite the lack of within-fund performance persistence shown in Table VIII, funds with high early returns ultimately tend to outperform in overall fund PME and raise their next fund more quickly and at a larger size compared to funds with low early returns. These patterns hold both across all funds and for young GP funds. However, attention to statistical significance reveals important differences, indicating more nuanced outcomes.

Panel A in Table IX presents findings on final fund PME. I find strong statistical significance at the 1% level for two out of the three early return measures, namely *Early Winner* vs *Early Loser* and *Early Top* vs *Early Bottom*, presented in columns (2)-(3). Outperformance by the high early return funds, in the range of 0.406–0.529 in final fund-level PME, suggests a shift from low early returns to high early returns, corresponding to approximately one standard deviation (0.45) increase in final fund PME.

The combination of outperformance in fund-level PME and underperformance in deal-level PME of deals made later in the fund life suggests that, in these cases, funds with higher early returns are successfully deploying capital strategically, effectively "coasting to the finish" and providing their LPs with higher average returns. However, LPs invested in these high early return funds may have been positioned to earn even higher returns had the GP not made such strategic moves following a strong start to the fund. These patterns hold for young GP funds as well, with increased magnitudes on the coefficient loadings, except for *Early Winner* vs *Early Loser*.

For the third measure of early returns, *Early High DPI* vs *Early Low DPI*, I observe both

a decrease in statistical significance and in magnitude, as shown in column (1) for all funds and column (4) for young GP funds. This suggests that the ability to return more of the fund to LPs early in the fund life, while seen as a positive signal, is not necessarily indicative of final fund performance.

High early return funds use their early success to return to the fundraising market sooner, but not necessarily to raise a larger fund, relative to low early return funds. Panels B and C in Table IX present the findings regarding the timing and size of a GP's next fund. I find that *Early Winner* and *Early Top* funds are able to raise their next fund 7–9 months sooner on average relative to their respective low early return counterparts, significant at the 1%–5% level.

While a negative loading is observed for *Early High DPI* vs *Early Low DPI* funds in column (1) of Panel B, the magnitude is less than half of those found in columns (2)-(3) and is not statistically distinguishable from zero. These effects are magnified for young GP funds in columns (4)-(6), where the reduction in time to raise the next fund exceeds 12 months for statistically significant coefficients. In the case of *Early Winner* and *Early Top* funds, high early returns allow these funds to raise their next fund over a year sooner than their low early return counterparts.

Assuming a 2% management fee and a median next *Fund Size* of \$1.13 billion across all funds and \$0.71 billion for young GP funds (see Table I), a back-of-the-envelope calculation suggests additional fees of approximately \$14–\$20 million in present value. Taking *Early Winner* funds as an example, with a median *Fund Size* of \$750 million and a fraction of deals after year two of 0.59, maintaining the early deal median PME of 1.435 (not reported here) for later deals would translate into roughly \$12.75 million in performance fees (20%) for the GP and approximately \$140 million in additional cash returned to LPs. While this trade-off may be advantageous for GPs, LPs bear the brunt of the choice, particularly if they cannot participate in the GP's next fund. Further consideration is needed on the ultimate effects and potential impact on agency conflicts, which should be mitigated given the fund structure, as noted in Axelson et al. (2009).

I find in Panel C that *Early High DPI* funds raise statistically larger next funds, at the 10% level, compared to their low early return counterparts, while the other measures of early returns generally do not, at least not with statistical significance. The loadings across all measures are positive, suggesting some level of positive correlation, with magnitudes smaller for young GP funds. In column (3), I find evidence that *Early Top* funds raise an average of \$364.6 million more in

their next fund relative to *Early Bottom* funds. Assuming a 2% management fee, this difference translates to an additional $7.3 million annually for the GP's next fund. Given the point estimates in columns (1) and (4), these correspond to additional fees of $13.2 million and $8.6 million annually, respectively, on average in a GP's next fund, despite the lack of outperformance in the current fund.

D. Instrumental Variables Approach

While the prior difference-in-difference analysis provides an initial approach to establishing how early fund performance relates to capital deployment in later deals, these estimates may not be fully disentangled from underlying GP skill or unobserved deal quality, and therefore may not reflect the causal impact of early returns. To address this issue, I implement a Bartik-style instrumental variables approach to isolate exogenous variation in a fund's early returns, based on the fund's exposure to sector-specific public market returns during the first two years of its life.

Sector-level public indices serve as a plausibly exogenous shock to early fund performance, since GPs cannot influence them and private equity outcomes are strongly linked to public market conditions (Brown et al. (2019); Axelson et al. (2009)). I instrument a fund's interim performance in the first two years with the cumulative return of the public market index corresponding to the GP's prior fund's predominant sector. For example, if a GP's prior fund was concentrated in the healthcare sector, the current fund is assumed to have greater exposure to the cumulative public healthcare index return over its first two years. Sector-specific indices are constructed from CRSP and Compustat, as described in Brown et al. (2025).

The key identifying assumption is that sector-level public market returns influence investment activity after year 2 only through their effect on early fund performance, and not directly. I evaluate this assumption in three ways. First, I test whether sector returns predict post-year-2 outcomes once early performance is controlled for, and find no evidence of a direct effect. Second, I examine correlations between the instrument and predetermined fund characteristics at inception (such as fund size and GP experience) and find no systematic relationship. Finally, I conduct placebo tests using randomly assigned unrelated sectors and find no association between these returns and fund outcomes. I find strong first-stage results, reported alongside the main estimates below, that confirm sector-specific public market conditions in a fund's early life significantly influence its early returns, consistent with prior findings in the literature. Together, these validity checks support the

exclusion restriction and help mitigate concerns that sector shocks are simply proxies for unobserved GP or fund attributes.

I utilize IV regressions to estimate the effects of interim fund returns on fund-level characteristics and the performance of later deals using the following specification:

$$InterimPerf_j = \pi_0 + \pi_1 SectorReturn_j + \pi_2 X_j + u_j \tag{2}$$

$$Outcome_j = \alpha + \beta_1 \widehat{InterimPerf}_j + \gamma X_j + \varepsilon_j \tag{3}$$

where $InterimPerf_j$ is the observed fund performance at the end of fund-life year 2, $SectorReturn_j$ is the instrument, defined as the public sector index return of the sector corresponding to fund j's prior fund, $Outcome_j$ is the post-year 2 outcome for fund j, such as performance or risk characteristics, $\widehat{InterimPerf}_j$ is the instrumented interim performance, X_j are controls such as *Fund Size*, and u_j and ε_j are error terms. Standard errors are clustered at the GP level to account for potential correlations among funds managed by the same GP.

Table X presents the IV regression estimates for the performance metrics of later deals. For this analysis, I utilize the interim IRR, as this unit of measurement provides a direct relation to the percentage return of the public markets. As such, the main independent variable, $\widehat{InterimIRR}$, is the instrumented interim fund IRR, or the fund IRR at the end of year 2 in the fund's life as estimated by the first-stage regression. The performance metrics of later deals are the dependent variables and include *IRR Mean*, *IRR Std Dev*, and *IRR Semi-Std Dev*. The *IRR Mean* is the fund-level mean IRR of later deals and is reported in columns (1)-(2). *IRR Std Dev*, reported in columns (3)-(4), is the fund-level standard deviation of later deals IRR. *IRR Semi-Std Dev*, in columns (5)-(6), is the fund-level semi-standard deviation of later deals IRR. These analyses show that following higher early returns, funds subsequently make investments in deals with returns statistically indistinguishable from their lower early return fund counterparts. These later deals are also found to have lower risk, as measured by both the standard deviation and semi-standard deviation (or downside risk), statistically significant at the 1% level. Taken together, an exogenous shock to early returns impacts fund manager capital deployment strategy by shifting away from risk in the collective group of later deals.

I now use the same IV approach on the interim fund IRR to estimate the deal characteristics of later deals for funds with higher early returns. These estimates are provided in Table XI, and again $\widehat{InterimIRR}$ is the main independent variable. Columns (1)-(2) show the impact of higher fund returns on mean deal size, measured as a fraction of the fund size. I find positive loadings for *Frac of Fund*, statistically significant at the 1% level, suggesting that funds invest in slightly larger deals following higher early returns. These deals are also more concentrated within industry sectors and U.S. state geography, as demonstrated by the statistically significant and positive coefficient estimates in columns (5)-(6) for the *Sector HHI* and columns (7)-(8) for the *Geography HHI*.

As for how long portfolio companies are held in later deals, columns (3)-(4) in Table XI suggest that a one-unit increase in the instrumented fund interim IRR entices a GP to invest in deals that exit approximately a month sooner on average. In the prior difference-in-difference analysis, we found that funds with higher early returns invested in longer-term deals than their lower early return counterparts. It may be the case that funds with early high returns experience different incentives at different parts of the fund life cycle, suggesting the need for further analysis into the dynamics of change in later deals, which I explore below.

Overall, the IV results build upon the prior difference-in-difference findings. While the DiD analysis captures the average differences across higher and lower early return funds in the later deals, the IV analysis isolates potentially exogenous variation in the interim returns, suggesting that early returns in a fund causally influence a fund manager's subsequent capital deployment.

E. Quarterly Difference-in-Difference Approach

I further explore the impacts of early fund returns on later deal investment behavior by implementing a dynamic difference-in-difference analysis using quarterly fund observations, with deal characteristics aggregated to the fund level. While the prior tests of pre- versus post-period averages provide a foundation on which to build, this quarterly approach allows for uncovering the dynamic evolution of capital deployment by observing the timing and persistence of effects following higher early returns. I run the analysis under the following specification:

$$Outcome_{jq} = \sum_{k \neq 0} \beta_k \left(EarlyReturn_j \mathbf{1} \left\{ RelQtr_{jq} = k \right\} \right) \tag{4}$$
$$+ \beta_j EarlyReturn_j + \sum_{k \neq 0} \lambda_k \mathbf{1} \left\{ RelQtr_{jq} = k \right\} + \gamma X_{jq} + \delta_j + \varepsilon_{jq}$$

where the dependent variable $Outcome_{jq}$ denotes the outcome characteristic of fund j in relative quarter q, aggregated from the characteristics of deals executed in that period. The variable $EarlyReturn_j$ is an indicator equal to one for the early return characterization of fund j, and zero otherwise. The variable $RelQtr_{jq}$ represents the number of quarters relative to the end of year two in fund j's life, where $q = 1$ indicates the first post-treatment quarter, and negative values represent pre-treatment quarters. Quarter $q = 0$ is omitted as the baseline.

The coefficients β_k capture the difference in fund-level risk between early-winning and non-early-winning funds in each relative quarter k, relative to the baseline quarter $q = 0$. The coefficients λ_k control for time dynamics common across all funds in each relative quarter. The specification also includes a vector of fund-level controls X_{jq}, as well as fixed effects δ_j for fund vintage year, GP, and quarter date to account for time-invariant heterogeneity. Standard errors are clustered at the GP level.

Under this more granular quarterly setting, I am able to compare the timing of the GP's fundraising with concurrent deal activity in the fund. Contractual agreements between the GPs and LPs typically stipulate requirements that the current fund must meet before the GP is able to raise the next fund, such as a minimum portion of committed capital invested. For funds with early high returns, the GP would then also need to deploy the remaining required capital in order to begin the next round of fundraising. As such, I would expect to see an increased amount of either deal volume or deal size following early high returns and prior to another fund being active for the GP.

Figure 4 presents a visual representation of the quarterly regression estimates for fund investment characteristics following early returns. In all four charts, the pre-period coefficients are statistically indistinguishable from zero, supporting the parallel trends assumption. The top-left chart depicts *After Next Fund*, a dummy variable (0/1) indicating whether the quarter occurs after

the fund manager's next fund, and represents the likelihood that the GP has already successfully raised another fund. Consistent with my previous findings, I again find that GPs of early high return funds are more likely to raise their next fund sooner, as demonstrated by the positive coefficient loadings in the post-period and statistical significance starting at $q = 8$, or during fund-year 4. This aligns with the prior results on the timing of average next fund closings, suggesting that these effects are driven by early successful GPs able to fundraise off their early wins.

Likewise, these funds start to enter more deals 3 to 4 quarters after the high early returns, increasing the cumulative fraction of the fund deployed relative to their counterparts, as shown in the top-right and bottom-left charts. Here, *Deal Entry Total* is the cumulative number of deals entered through the specified quarter, and *Cumulative Fraction of Fund Invested* is the sum of deal sizes of entered deals through the quarter divided by the fund size. The bottom-right chart shows *Deal Exit Total*, the cumulative number of deals exited by the fund through the specified quarter, and demonstrates that higher early return funds begin harvesting their deals sooner, locking in early success a few quarters before raising their next fund, potentially providing marketing material to aid in fundraising.

Figure 5 provides evidence of the changes implemented by funds with high early returns. In these charts, I observe a clear shift from pre- to post-period strategy implementation. The top two charts depict the quarterly concentration as measured by the *Sector HHI* and *Geography HHI*, as defined in Section III. Notably, early high return funds move from less concentrated in industry and geography in the pre-period to more concentrated in the post-period, suggesting fund managers are incentivized to increase concentration relative to prior deals. I find statistically significant positive coefficients for the vast majority of the post-period, with concentration increasing during the 5-6 quarters following early high returns and then stabilizing for the remainder of the post-period. This timing aligns with the previously discussed patterns of fund deal activity. Taken together, GPs of high early return funds subsequently deploy more capital sooner and into more similar sectors and geographies.

Additionally, *Deal Duration* increases and deals also grow in size. The bottom two charts show the average *Deal Duration* (the length of time the fund is invested in the portfolio company) and *Holding Fraction of Fund* (the proportion of deal size to the fund's total committed capital). The timing corresponds with earlier results indicating when GPs shift their investment strategy,

roughly coinciding with fundraising for the next fund. The positive coefficients become statistically significant around 4-6 quarters after high early returns, and together with the increase in deal entries and exits, suggest that GPs invest in larger deals held for longer durations while exiting prior smaller deals with shorter durations. For these early high return funds, these findings provide additional support for the strategy of exiting early successful deals around the next fund's fundraising while retaining later, larger deals, particularly once the GP's next fund is active.

I next examine the dynamic trend in performance for deals around early returns, reported in Figure 6. The dependent variables are *Final Holding PME*, the mean final PME of deals currently active in a given quarter, and *Holding PME Semi-Std Dev*, the semi-standard deviation of a fund's active holdings, as described in Section III. Relative to quarter 0, the deals active in a fund's portfolio exhibit lower returns and lower risk. In each subsequent quarter, both PME and semi-standard deviation monotonically decrease. Following early success, funds appear to shift away from riskier investments, as earlier high-risk, high-return deals are exited and replaced with new lower-risk, lower-return deals. Interestingly, I find that *Early Winner* funds' active deals experience the lowest levels of returns and risk during the same quarters in which the GP's next fund is active, suggesting a potential shift in the GP's focus from the current fund to the subsequent fund.

F. General Discussion and Future Work

Overall, I find that GPs adjust their investment strategies in response to early returns rather than adhering to a predetermined plan. The results provide new evidence that interim fund performance informs dynamic capital deployment decisions within private equity, with implications for both agency dynamics between GPs and LPs and the broader allocation of private capital over time.

The evidence shows that funds with strong early performance are significantly more likely to launch their next fund within two to three years of their initial high returns. These funds deploy capital more rapidly through new and larger deals, accelerating investment activity in the period leading up to re-entering the fundraising market. In these cases, GPs seek to meet their contractual obligations to existing LPs by deploying the required amount of capital from the current fund before being permitted to market a new fund. At the same time, early winners exhibit distinct shifts in portfolio composition, with concentration increasing soon after high early returns and continuing

through the fundraising window. This initial concentration likely reflects GPs entering into deals that require less due diligence, thereby reducing transaction costs. The effect is amplified as earlier successful deals are exited to showcase realized returns during fundraising. Later deals, by contrast, tend to remain in the portfolio longer, as the GP no longer faces incentives to quickly generate favorable returns. Consequently, I observe a clear downward shift in the performance and risk profile of active deals as capital is redirected toward safer, lower-return opportunities leading up to the launch of the next fund.

These patterns suggest that GPs actively manage both the risk profile and the pacing of investments to balance current fund outcomes against future fundraising objectives. This behavior aligns with the theoretical mechanisms developed earlier in the paper and supports the motivating hypotheses. Despite the governance advantages of private ownership relative to public markets, GPs in private equity funds still face dynamic agency conflicts. Early success reduces the need to take additional risk once the GP's ability to establish franchise value through future fundraising is secured. This, in turn, creates incentives to lock in interim performance—so as not to jeopardize carried interest—resulting in lower returns in the later stages of the fund. In contrast, funds with poor early performance are more likely to take on additional risk, or "gamble for resurrection," as they attempt to recover prior losses through later deals. By doing so, they increase their chances of raising a future fund or, in extreme cases, qualifying for carried interest in the current fund.

While I do find an average increase in performance for later deals among early underperforming funds, this improvement is accompanied by higher levels of return volatility. In particular, I observe an increase in the semi-standard deviation of returns, which captures exposure to downside risk. This indicates that although the average early low-return fund achieves stronger performance in its later deals, this pattern is far from universal. Some funds successfully execute a strategic turnaround, while others may have been better off liquidating and returning the remaining capital to their LPs. Future research could examine which types of funds are able to implement this shift effectively and which are not. The same dynamic holds for funds with strong early performance. While the average early high-return fund continues to outperform in measures of final fund performance, some still fall to the lower tail of the distribution. In both cases, GP behavior reflects not only underlying investment fundamentals but also the intertemporal trade-offs embedded in their compensation and career incentives.

The empirical results provide strong evidence consistent with dynamic agency costs within private equity funds. While carried interest and management fees are intended to align GP and LP objectives, the findings indicate that GPs also respond to implicit incentives tied to future fundraising opportunities. These incentives drive systematic changes in deal selection, investment timing, and exit behavior that may not maximize LP value within the current fund. In particular, the tendency of successful GPs to exit strong-performing deals early and reallocate capital toward safer assets highlights a potential misalignment between what is optimal for the GP's lifetime earnings and what is optimal for LP returns. The accelerating timing of exits for successful deals may reflect short-term incentives rather than long-term value maximization. Although GPs are typically sophisticated investors who understand the long-term nature of their holdings, the incentive to generate realized returns may lead them to forgo potential future growth in already successful investments, effectively passing those opportunities on to the next buyer.

From the LP perspective, these dynamics carry several important implications. First, GPs' emphasis on interim performance can reduce overall fund profitability, potentially costing LPs tens of millions of dollars in foregone distributions based on back-of-the-envelope estimates. Even in isolation, this effect is economically meaningful. When considered across the many combinations in which LPs invest—across winner and loser funds, multiple GPs, and different vintage years—the aggregate impact may be substantial.

Second, shifts in capital deployment pace and deal risk alter the effective exposure of LP portfolios to different stages of the private equity cycle, introducing variation in realized risk and returns across funds depending on fundraising timing.

Finally, these patterns may also create pricing distortions in secondary markets. Funds that appear "safe" or de-risked around or after fundraising periods may reflect agency-driven portfolio rebalancing rather than genuine improvements in underlying fundamentals. At the same time, such pricing dynamics could create opportunities for sophisticated LPs to rebalance their private equity exposure profitably. By monitoring secondary market activity, LPs could potentially distinguish early winners from early losers within a given vintage. In doing so, LPs with sufficient capital might selectively purchase positions in early-loser funds to capture the predicted outperformance of their later deals.

Naturally, any such strategy would require careful consideration of the risks inherent in sec-

ondary market transactions, including the steep discounts typically observed in these markets (see Nadauld et al. (2019)). These discounts may limit the value of exiting early-winner funds but could enhance the upside from acquiring early-loser positions. More research is needed to fully understand the nuances and feasibility of such strategies and how they might improve LPs' overall allocation decisions.

Taken together, the results reveal how fundraising incentives shape the timing, risk, and composition of private equity investments in ways consistent with agency conflicts, despite claims to the contrary. They underscore that even in a setting with sophisticated investors and high-stakes compensation contracts, intertemporal incentives tied to future fundraising can meaningfully distort behavior. For LPs, these findings highlight the need to consider the full life cycle of GP incentive—beyond the carried interest and management fees of the current fund—when designing contracts, evaluating interim performance, or deciding whether to commit to a GP's future funds. More broadly, the results suggest that strategic responses to early performance within a fund have implications for the aggregate allocation of private capital, influencing when and how risk is taken across the broader economy. In periods of general market downturns or booms, shifts in GP risk-taking may amplify or dampen overall market risk levels.

Looking ahead, several questions remain about the broader consequences of these dynamic responses to early returns by GPs. While my results document how GPs adjust investment behavior around fundraising, future work could explore the ultimate costs to LPs, the effects on portfolio company outcomes, and whether similar incentive-driven patterns arise in other private capital asset classes. Understanding these changes could help clarify how the agency conflicts I identify translate into real economic outcomes and inform how investors and policymakers design incentives in delegated asset management more broadly. I expound on these potential avenues for future research below.

An important direction for my future research is to further examine the broader implications of GP behavior for both investors and portfolio companies. My findings suggest that early fund performance has a significant influence on subsequent GP decision-making, particularly in how managers allocate risk in later deals. This raises the question: what is the cost of these strategic choices to limited partners? Back-of-the-envelope calculations indicate that foregone distributions could reach tens of millions of dollars, reflecting the economic stakes associated with GPs' adjust-

ments in risk-taking and deal timing to preserve or enhance fundraising prospects. I hope that future work can measure these costs more precisely, for example by examining secondary market pricing of fund interests or comparing realized distributions across funds with differing early return profiles. Such analysis would help quantify the potential financial consequences of the observed early performance effects on LPs' realized outcomes.

I am also interested in whether GP incentives translate into measurable effects on portfolio companies. My results show that underperforming funds often pursue riskier investments later in the fund's life cycle—consistent with a "gamble for resurrection" motive—while early winners tend to reduce risk and focus on preserving returns. Understanding whether these behavioral adjustments influence portfolio company operations, financial performance, or strategic decisions could shed light on the broader consequences of fund-level agency conflicts. With new data from the MSCI Private Capital Universe on portfolio company fundamentals, I hope to examine whether GP risk-shifting behavior is reflected at the investee level, providing insight into the extent to which GP incentives shape real economic outcomes beyond fund performance.

Finally, I aim to explore whether similar dynamics emerge in other investment contexts. Incentive structures that link early performance to future fundraising likely exist in venture capital, real estate, and infrastructure investing, though the magnitude and expression of such behavior may differ depending on deal frequency, outcome observability, and return structures. By contrast, credit-focused strategies may present a less straightforward environment for these incentives due to the more fixed nature of debt returns. Investigating these questions across asset classes could reveal the generality of the mechanisms I observe in private equity and provide a richer understanding of how fund manager incentives drive agency costs, shape investment behavior, and influence outcomes.

V. Conclusion

In this study, I evaluate how early returns influence GPs' incentives around risk-taking and capital deployment. GPs face a trade-off: high early fund returns increase carried interest or performance fees, but may affect the probability of raising future funds. Early success also serves as a signal of skill, particularly for young GPs with limited track records. I find evidence that

GPs prefer higher-risk investments at the start of a fund, as indicated by the higher standard deviation of early successful deals. Following strong early performance, GPs subsequently reduce risk, whereas funds with poor early performance increase risk over the fund life cycle in an effort to achieve higher returns.

During this risk adjustment, GPs of early success funds increase sector and geography concentration in later deals and often allocate a larger fraction of the fund to each investment. I find suggestive evidence that these larger, lower-risk holdings are leveraged more heavily, indicating GP confidence in these investments. High early return funds generally maintain their initial advantage and achieve higher final fund-level PME, while also raising their next fund faster, though not necessarily larger, than low early return funds. These effects are dynamic, unfolding over the quarters surrounding the GP's next fundraising.

Taken together, the evidence suggests that GPs may strategically deploy capital to lock in early success, "coasting" toward the fund's conclusion and accelerating the collection of management fees, potentially at the expense of higher returns for LPs in later deals. This dynamic risk selection may also help explain the lack of performance persistence observed in buyout funds.

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Tables and Figures

Table I. Summary Statistics

This table presents summary statistics for all funds and for young GP funds in the sample of North American private equity buyout funds with vintages from 1999 to 2018, using performance data through 2023:Q4. Variable definitions are provided in Section III. Data are sourced from the MSCI-Burgiss Manager Universe.

	All Funds				Young GP Funds			
	N	*Mean*	*Median*	*SD*	*N*	*Mean*	*Median*	*SD*
Panel A: Holding-level								
Entry Year	6010	2013	2014	5.76	3166	2012	2013	6.13
Deal Duration	6010	5.50	5.00	3.09	3166	5.56	5.00	3.24
Deal Year	6010	2.93	3.00	1.42	3168	2.92	3.00	1.45
Deal Year (raw)	6010	3.08	3.00	1.71	3166	3.08	3.00	1.76
After Year 2	6010	0.59	1.00	0.49	3168	0.59	1.00	0.49
Holding PME	6010	1.56	1.27	1.54	3168	1.60	1.25	1.64
Deal Size ($B)	6010	0.13	0.06	0.23	3168	0.06	0.03	0.11
Deal Fraction of Fund	6010	0.07	0.06	0.05	3168	0.07	0.06	0.06
Early High DPI	6010	0.23	0.00	0.42	3168	0.23	0.00	0.42
Early Low DPI	6010	0.29	0.00	0.46	3168	0.35	0.00	0.48
Early Winner	6010	0.21	0.00	0.41	3168	0.24	0.00	0.43
Early Loser	6010	0.28	0.00	0.45	3168	0.30	0.00	0.46
Early Success	6010	0.45	0.00	0.50	3168	0.45	0.00	0.50
Early Top	6010	0.22	0.00	0.41	3168	0.24	0.00	0.43
Early Bottom	6010	0.28	0.00	0.45	3168	0.26	0.00	0.44
Exit	6010	0.66	1.00	0.47	3168	0.70	1.00	0.46
After Next Fund	6010	0.27	0.00	0.44	3168	0.18	0.00	0.38
High Risk Sector	6010	0.49	1.00	0.50	3168	0.50	0.50	0.50
Panel B: Fund-level								
Fund Vintage	432	2012	2013	5.39	251	2011	2013	5.60
Fund Total Deals	432	13.92	12.00	7.56	251	12.62	11.00	7.12
Fraction Invested	432	0.95	0.93	0.17	251	0.93	0.91	0.18
Fund Duration	432	5.66	5.51	1.89	251	5.70	5.66	1.96
Fund PME (val-wtd)	432	1.32	1.27	0.45	251	1.32	1.29	0.47
Fund Size ($B)	432	1.73	0.75	2.68	251	0.82	0.49	1.01
Sector HHI	432	0.38	0.31	0.22	251	0.41	0.34	0.22
Geography HHI	387	0.17	0.15	0.10	226	0.19	0.16	0.11
Next Fund Time (Yrs)	379	3.74	3.74	2.07	212	4.33	4.30	1.99
Next Fund Size ($B)	379	2.94	1.13	4.30	212	1.13	0.71	1.12
All N. America	432	0.58	1.00	0.49	251	0.66	1.00	0.48

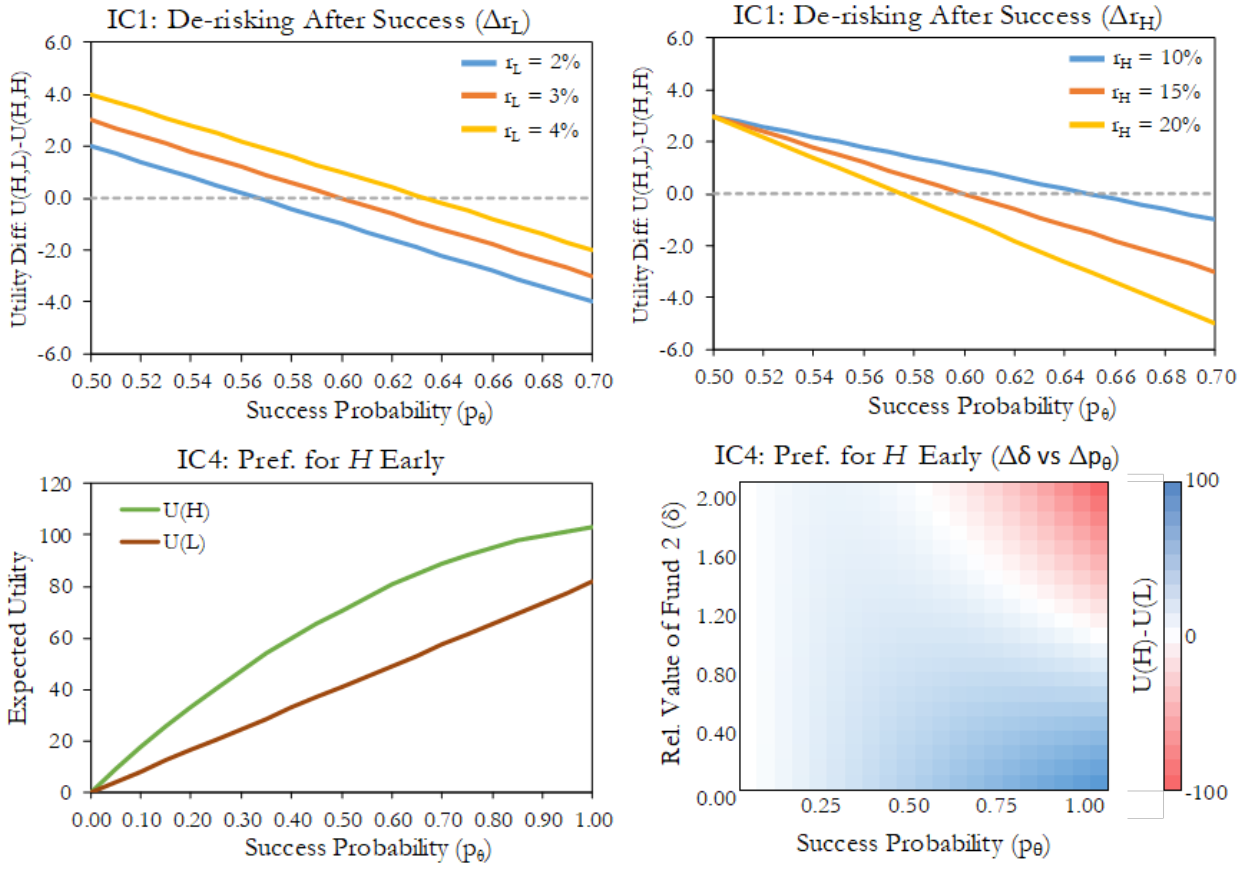

Figure 1. Model Comparative Statics

This figure presents comparative statics of GP investment incentives. The top-left and top-right panels plot the difference in utility from de-risking after early success, $U(H, L \mid R_0 = r_H) - U(H, H \mid R_0 = r_H)$ (IC1), as a function of the probability of success p_θ for varying levels of r_L (top-left) and r_H (top-right). The bottom-left panel shows the expected utility at $t = 0$ (IC4) for choosing high-risk (H) versus low-risk (L) investments across values of p_θ. The bottom-right panel presents a heatmap of the difference $U(H) - U(L)$ across (p_θ, δ) combinations, illustrating how the continuation value from Fund 2 shapes the GP's initial risk-taking decision. All other parameters are set to $r_L = 0.03$, $r_H = 0.15$, $c = 0.2$, $r^* = 0.08$, $\kappa = 0.05$, $V_1 = 1$, and $\delta = 0.8$, unless otherwise indicated. The model is discussed in Section II and Appendix A.

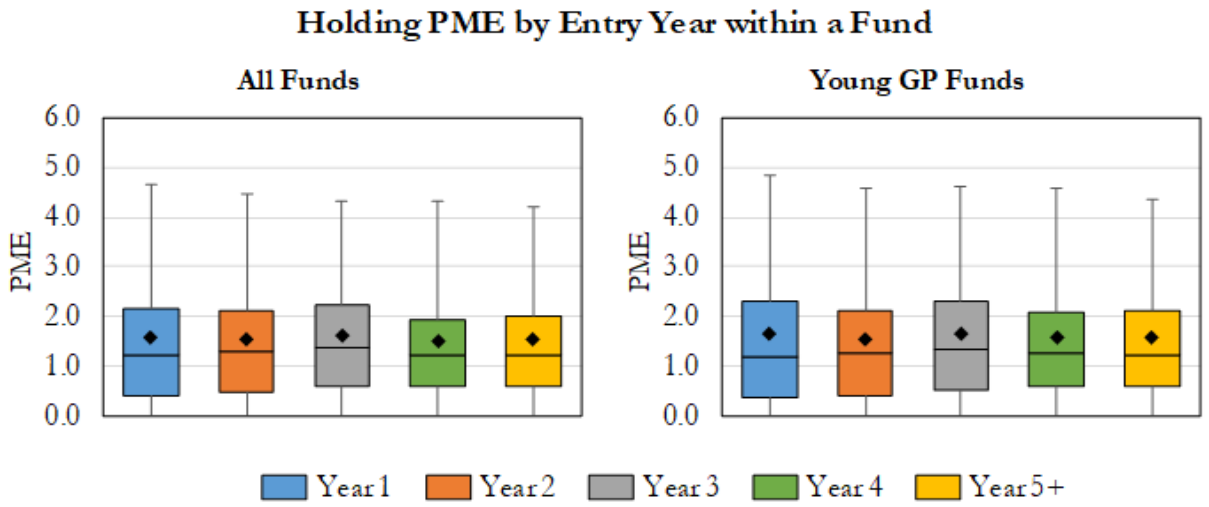

Figure 2. Distribution of Deal Performance

This figure presents the distribution of deal performance within the same holding year. Distributions are shown for two samples: (i) young GP funds and (ii) the full sample of North American private equity buyout funds with vintages from 1999 to 2018. Performance data extend through 2023:Q4. Performance is measured using the Kaplan–Schoar Public Market Equivalent (PME), calculated based on equity-by-geography public market benchmarks, as described in Section III. Variables are likewise defined in Section III. Data are sourced from the MSCI–Burgiss Manager Universe.

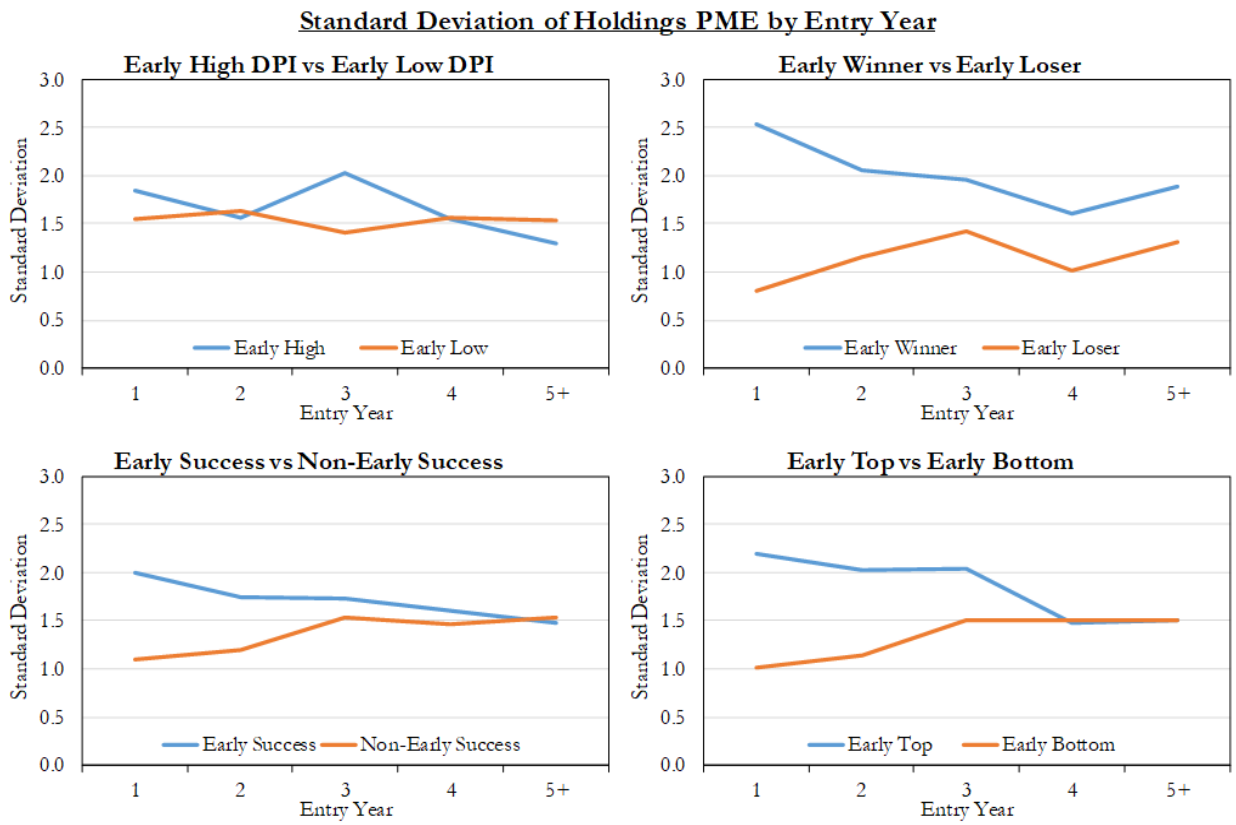

Figure 3. Dispersion of Deal Performance by Early Fund Outcomes
This figure presents the standard deviation of PME for deals made within the same holding year, comparing four fund classifications: (i) Early High DPI vs. Early Low DPI, (ii) Early Winner vs. Early Loser, (iii) Early Success vs. Non–Early Success, and (iv) Early Top vs. Early Bottom funds. The sample includes North American private equity buyout funds with vintages from 1999 to 2018, with performance data extending through 2023:Q4. *PME* is measured as the Kaplan–Schoar Public Market Equivalent, calculated using equity-by-geography public market benchmarks, as described in Section III. Other variables are likewise defined in Section III. Data are sourced from the MSCI–Burgiss Manager Universe.

Table II. Performance and Risk of Deals by Interim Fund Returns

This table presents point estimates from regressions of the average PME and PME semi-standard deviation of both early and late deals on categories of interim returns, where each row represents a separate regression. The sample includes North American private equity buyout funds with vintages from 1999 to 2018, utilizing performance data through 2023:Q4. The independent variables are dummy indicators for classifications of *Early High DPI*, *Early Low DPI*, *Interim Success*, *Interim Top*, and *Interim Bottom*. Controls include *Exit Dummy*, *Deal Size*, *Fund Size*, and *Deal Duration*. All variables are described in Section III. All regressions include fixed effects for fund vintage, and standard errors are clustered at the GP level. t-statistics are reported in parentheses. The symbols *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. Data are sourced from the MSCI–Burgiss Manager Universe. *Note:* Each row provides estimates from separate regressions.

	All Funds				Young GP Funds			
	Final PME Mean		Final PME Semi-S.D.		Final PME Mean		Final PME Semi-S.D.	
	Early Deals	Late Deals	Early Deals	Late Deals	Early Deals	Late Deals	Early Deals	Late Deals
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Early High DPI dummy	0.177**	-0.037	0.099	0.013	0.219**	-0.067	0.138	0.057
	(2.05)	(0.51)	(1.57)	(0.27)	(1.87)	(0.66)	(1.49)	(0.84)
Early Low DPI dummy	-0.227***	-0.007	-0.062	0.047	-0.217*	0.020	-0.004	0.009
	(2.71)	(0.11)	(1.06)	(0.98)	(1.80)	(0.21)	(0.05)	(0.14)
Interim Success dummy	0.442***	-0.042	0.211***	-0.026	0.556***	-0.116	0.245***	-0.048
	(5.82)	(0.71)	(4.03)	(0.67)	(5.49)	(1.19)	(3.36)	(0.80)
Interim Top dummy	0.547***	0.036	0.298***	0.031	0.613***	-0.071	0.370***	0.085
	(6.42)	(0.55)	(4.31)	(0.63)	(4.37)	(0.65)	(3.43)	(1.11)
Interim Bottom dummy	-0.280***	-0.015	-0.125**	0.027	-0.434***	-0.041	-0.152**	-0.007
	(3.37)	(0.23)	(2.32)	(0.63)	(4.10)	(0.40)	(2.06)	(0.11)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vintage FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,010	6,010	6,010	6,010	3,166	3,166	3,166	3,166

Table III. Investment in Higher-Risk Sectors

This table presents point estimates from regressions of a high-risk sector dummy on the interaction between a fund's early returns and deals occurring after year 2 of the fund's life. The sample includes North American private equity buyout funds with vintages from 1999 to 2018, using performance data through 2023:Q4. The dependent variable, *High-Risk Sector*, equals 1 if a deal belongs to a sector ranking in the top group based on both average holding returns and the standard deviation of holding-level TVPI, as described in Section III. *Early Returns* is a dummy variable indicating designation as an *Early Winner*, *Early Loser*, *Early Top*, or *Early Bottom* fund. In this analysis, the *Early Returns* indicator compares the top quartile against the bottom half of the distribution. Controls include *Exit Dummy*, *Deal Size*, *Fund Size*, and *Deal Duration*. Variables are defined in Section III. All regressions include fixed effects for geography and fund vintage. Standard errors are clustered at the fund level. *t*-statistics are reported in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Data are sourced from the MSCI-Burgiss Manager Universe.

	Dependent Variable: High-Risk Sector							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Early Returns dummy	0.094**	0.085**	-0.029	-0.033	0.019	0.008	0.009	0.009
	(2.71)	(2.45)	(0.75)	(0.84)	(0.41)	(0.19)	(0.22)	(0.21)
After Year 2 dummy	0.027	0.026	-0.043*	-0.043*	0.013	0.013	-0.027	0.031
	(1.39)	(1.38)	(1.86)	(1.96)	(0.63)	(0.66)	(1.16)	(1.45)
Early Returns × After Year 2	-0.068**	-0.073**	0.023	0.028	-0.058	-0.063	0.004	0.012
	(2.16)	(2.29)	(0.64)	(0.79)	(1.49)	(1.61)	(0.10)	(0.34)
Early Returns Variable	Early Winner		Early Loser		Early Top		Early Bottom	
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Geography FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vintage FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,513	4,513	4,513	4,513	4,513	4,513	4,513	4,513
R-squared	0.014	0.020	0.011	0.013	0.013	0.018	0.016	0.019

Table IV. Investment Sector Concentration

This table presents point estimates from regressions of the sector concentration of post-year-2 holdings (measured by the Sector HHI) on the interaction between a fund's early returns and deals occurring after year 2 of the fund's life. Columns (1–3) report results for all funds, and columns (4–6) for young GP funds. The sample includes North American private equity buyout funds with vintages from 1999 to 2018, using performance data through 2023:Q4. The dependent variable, *Sector HHI*, measures the concentration of sectors among deals completed after year 2 of a fund's life cycle. *Early Returns* is a dummy variable indicating designation as an *Early High DPI*, *Early Low DPI*, *Early Winner*, *Early Loser*, *Early Top*, or *Early Bottom* fund. Controls include *Exit Dummy*, *Deal Size*, *Fund Size*, and *Deal Duration*. Variables are defined in Section III. All regressions include fixed effects for geography, sector, and fund vintage. GP fixed effects are included where noted. Standard errors are clustered at the GP level. t-statistics are reported in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Data are sourced from the MSCI-Burgiss Manager Universe.

	All Funds			Young GP Funds		
	Dependent Variable: Sector HHI					
	(1)	(2)	(3)	(4)	(5)	(6)
Early Returns dummy	-0.059**	-0.087***	0.010	-0.023	-0.170***	-0.083**
	(2.52)	(3.56)	(0.38)	(0.70)	(4.51)	(2.08)
After Year 2 dummy	-0.068***	-0.079***	-0.045**	-0.089***	-0.132***	-0.073**
	(3.52)	(3.56)	(2.17)	(0.30)	(3.93)	(1.98)
Early Returns × After Year 2	0.069***	0.089***	-0.015	0.078**	0.135***	0.001
	(2.57)	(3.07)	(0.51)	(1.97)	(3.10)	(0.01)
Early Returns Variable	H. DPI vs L. DPI	Winner vs Loser	Top vs Bottom	H. DPI vs L. DPI	Winner vs Loser	Top vs Bottom
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Geography FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Vintage FE	Yes	Yes	Yes	Yes	Yes	Yes
GP FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,010	6,010	6,010	3,166	3,166	3,166
Adj. R-squared	0.664	0.664	0.660	0.691	0.697	0.688

Table V. Geography Concentration

This table presents point estimates from regressions of the geographic concentration of post-year-2 holdings (measured by U.S. State HHI) on the interaction between a fund's early returns and deals occurring after year 2 of the fund's life. Columns (1–3) report results for all funds, and columns (4–6) for young GP funds. The sample includes North American private equity buyout funds with vintages from 1999 to 2018, using performance data through 2023:Q4. The dependent variable, *State HHI After Year 2*, measures the concentration of deals across U.S. states for deals completed after year 2 of a fund's life cycle. *Early Returns* is a dummy variable indicating designation as an *Early High DPI*, *Early Low DPI*, *Early Winner*, *Early Loser*, *Early Top*, or *Early Bottom* fund. Controls include *Exit Dummy*, *Deal Size*, *Fund Size*, and *Deal Duration*. Variables are defined in Section III. All regressions include fixed effects for geography, sector, and fund vintage. GP fixed effects are included where noted. Standard errors are clustered at the GP level. t-statistics are reported in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Data are sourced from the MSCI-Burgiss Manager Universe.

	All Funds			Young GP Funds		
	Dependent Variable: U.S. State HHI					
	(1)	(2)	(3)	(4)	(5)	(6)
Early Returns dummy	-0.059	-0.086***	-0.021	-0.043	-0.129***	-0.049
	(1.44)	(4.35)	(1.00)	(1.37)	(4.49)	(1.49)
After Year 2 dummy	-0.074***	-0.125***	-0.088***	-0.101***	-0.161***	-0.123***
	(4.46)	(6.54)	(4.89)	(4.52)	(6.10)	(4.52)
Early Returns × After Year 2	0.051**	0.106***	0.023	0.067*	0.126***	0.035
	(2.03)	(4.07)	(0.85)	(1.87)	(3.30)	(0.86)
Early Returns Variable	H. DPI vs L. DPI	Winner vs Loser	Top vs Bottom	H. DPI vs L. DPI	Winner vs Loser	Top vs Bottom
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Geography FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Vintage FE	Yes	Yes	Yes	Yes	Yes	Yes
GP FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,163	5,163	5,163	2,785	2,785	2,785
Adj. R-squared	0.431	0.447	0.431	0.517	0.531	0.516

Table VI. Deal Size

This table presents point estimates from regressions of deal size, measured as a fraction of the fund, on the interaction between a fund's early returns and deals occurring after year 2 of the fund's life. Columns (1–3) report results for all funds, and columns (4–6) for young GP funds. The sample includes North American private equity buyout funds with vintages from 1999 to 2018, using performance data through 2023:Q4. The dependent variable, *Deal Size Fraction of Fund*, is defined as the holding deal size divided by the total observed holding investments. *Early Returns* is a dummy variable indicating designation as an *Early High DPI*, *Early Low DPI*, *Early Winner*, *Early Loser*, *Early Top*, or *Early Bottom* fund. Variables are described in Section III. Standard errors are clustered at the GP level. t-statistics are reported in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Data are sourced from the MSCI-Burgiss Manager Universe.

	All Funds			Young GP Funds		
	Dependent Variable: Deal Size as Fraction of Fund Size					
	(1)	(2)	(3)	(4)	(5)	(6)
Early Returns dummy	0.004	-0.009**	-0.004	-0.003	-0.008	-0.004
	(0.87)	(2.51)	(1.02)	(0.54)	(1.30)	(0.62)
After Year 2 dummy	0.003	0.001	-0.001	-0.001	-0.001	-0.004
	(1.05)	(0.13)	(0.30)	(0.04)	(0.09)	(0.95)
Early Returns × After Year 2	0.002	0.007*	0.009**	0.011**	0.008	0.013**
	(0.49)	(1.88)	(2.42)	(2.27)	(1.39)	(2.27)
Early Returns Variable	H. DPI vs L. DPI	Winner vs Loser	Top vs Bottom	H. DPI vs L. DPI	Winner vs Loser	Top vs Bottom
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Geography FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Vintage FE	Yes	Yes	Yes	Yes	Yes	Yes
GP FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,010	6,010	6,010	3,166	3,166	3,166
Adj. R-squared	0.309	0.310	0.310	0.323	0.323	0.324

Table VII. Deal Duration

This table presents point estimates from regressions of holding duration on the interaction between a fund's early returns and deals occurring after year 2 of the fund's life. Columns (1–3) report results for all funds, and columns (4–6) for young GP funds. The sample includes North American private equity buyout funds with vintages from 1999 to 2018, using performance data through 2023:Q4. The dependent variable, *Deal Duration*, is defined as the number of years between the investment date and exit date of a holding. *Early Returns* is a dummy variable indicating designation as an *Early High DPI*, *Early Low DPI*, *Early Winner*, *Early Loser*, *Early Top*, or *Early Bottom* fund. Variables are described in Section III. Standard errors are clustered at the GP level. t-statistics are reported in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Data are sourced from the MSCI-Burgiss Manager Universe.

	All Funds			Young GP Funds		
	Dependent Variable: Deal Duration (Years)					
	(1)	(2)	(3)	(4)	(5)	(6)
Early Returns dummy	-0.341*	-0.518**	-1.052***	-0.152	-0.569*	-0.862**
	(1.65)	(2.27)	(4.93)	(0.50)	(1.86)	(2.48)
After Year 2 dummy	-1.703***	-1.630***	-1.679***	-1.634***	-1.799***	-1.648***
	(11.03)	(8.15)	(10.35)	(7.33)	(7.71)	(6.25)
Early Returns × After Year 2	0.716***	0.641**	0.699***	0.874**	1.061***	0.867**
	(2.77)	(2.17)	(2.64)	(2.11)	(2.59)	(2.09)
Early Returns Variable	H. DPI vs L. DPI	Winner vs Loser	Top vs Bottom	H. DPI vs L. DPI	Winner vs Loser	Top vs Bottom
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Geography FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Vintage FE	Yes	Yes	Yes	Yes	Yes	Yes
GP FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,010	6,010	6,010	3,166	3,166	3,166
Adj. R-squared	0.320	0.319	0.322	0.309	0.309	0.307

Table VIII. Deal Performance

This table presents point estimates from regressions of holding PME on the interaction between a fund's early returns and deals occurring after year 2 of the fund's life. Columns (1–3) report results for all funds, and columns (4–6) for young GP funds. The sample includes North American private equity buyout funds with vintages from 1999 to 2018, using performance data through 2023:Q4. The dependent variable, *PME*, is calculated as the Kaplan-Schoar PME using equity × geography public market benchmarks, as described in Section III. *Early Returns* is a dummy variable indicating designation as an *Early High DPI*, *Early Low DPI*, *Early Winner*, *Early Loser*, *Early Top*, or *Early Bottom* fund. Controls include *Exit Dummy*, *Deal Size*, *Fund Size*, and *Deal Duration*. Variables are described in Section III. All regressions include fixed effects for geography, sector, and fund vintage. GP fixed effects are denoted when used in each column. Standard errors are clustered at the GP level. *t*-statistics are reported in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Data are sourced from the MSCI-Burgiss Manager Universe.

	All Funds			Young GP Funds		
	Dependent Variable: Holding PME					
	(1)	(2)	(3)	(4)	(5)	(6)
Early Returns dummy	0.072	0.922***	1.217***	-0.196	0.744***	1.283***
	(0.69)	(10.48)	(14.57)	(1.28)	(5.34)	(8.02)
After Year 2 dummy	-0.056	0.291***	0.485***	-0.043	0.416***	0.667***
	(0.67)	(4.31)	(7.08)	(0.36)	(4.34)	(6.26)
Early Returns × After Year 2	-0.105	-0.845***	-1.322***	-0.101	-1.081***	-1.557***
	(0.94)	(7.04)	(12.57)	(0.60)	(6.35)	(10.00)
Early Returns Variable	H. DPI vs L. DPI	Winner vs Loser	Top vs Bottom	H. DPI vs L. DPI	Winner vs Loser	Top vs Bottom
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Geography FE	Yes	Yes	Yes	Yes	Yes	Yes
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes
Vintage FE	Yes	Yes	Yes	Yes	Yes	Yes
GP FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6,010	6,010	6,010	3,166	3,166	3,166
Adj. R-squared	0.122	0.137	0.147	0.116	0.130	0.141

Table IX. Fund-Level Outcomes Following Early Returns

This table presents point estimates from regressions of fund-level outcome variables on a fund's early holdings returns. Columns (1–4) report results for all funds, and columns (5–8) for young GP funds. The sample includes North American private equity buyout funds with vintages from 1999 to 2018, using performance data through 2023:Q4. In Panel A, *Fund PME* is the dependent variable, calculated as the value-weighted average of a fund's holdings' Kaplan-Schoar PME, determined using equity × geography public market benchmarks. In Panel B, *Time to Next Fund* is the dependent variable, defined as the number of days between the start of a GP's current fund and the GP's next fund. In Panel C, *Size of Next Fund* is the dependent variable, defined as the total committed capital (in $ millions) of the GP's next fund. *Early Returns* is a dummy variable indicating designation as an *Early High DPI*, *Early Low DPI*, *Early Winner*, *Early Loser*, *Early Top*, or *Early Bottom* fund. Controls include *Fund Size*, *Fund Duration*, *Fund Fraction Invested*, and *Fund Total Deals*. Variables are described in Section III. All regressions include fixed effects for fund vintage. Standard errors are clustered at the GP level. *t*-statistics are reported in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Data are sourced from the MSCI-Burgiss Manager Universe.

	All Funds			**Young GP Funds**		
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A - *Dependent Variable:* Value-Weighted Fund Final PME					
Early Returns dummy	0.026	0.406***	0.529***	0.007	0.377***	0.551***
	(0.46)	(7.07)	(9.43)	(0.09)	(4.61)	(7.07)
Observations	432	432	432	251	251	251
Adj. R-squared	0.148	0.260	0.342	0.114	0.201	0.305
	Panel B - *Dependent Variable:* Time to Next Fund (Days)					
Early Returns dummy	-106.1	-285.2***	-235.3**	-113.9	-369.9***	-382.6***
	(1.08)	(3.45)	(2.54)	(0.92)	(3.21)	(3.16)
Observations	379	379	379	212	212	212
Adj. R-squared	0.213	0.237	0.225	0.168	0.203	0.192
	Panel C - *Dependent Variable:* Size of Next Fund ($MM)					
Early Returns dummy	686.0*	198.9	364.6	429.5*	36.2	189.4
	(1.68)	(0.68)	(0.95)	(1.94)	(0.22)	(1.31)
Observations	379	379	379	212	212	212
Adj. R-squared	0.430	0.426	0.425	0.325	0.296	0.300
Early Returns Variable	H. DPI vs L. DPI	Winner vs Loser	Top vs Bottom	H. DPI vs L. DPI	Winner vs Loser	Top vs Bottom
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Vintage FE	Yes	Yes	Yes	Yes	Yes	Yes

Table X. Instrumented Interim IRR: Performance of Later Deals

This table presents point estimates from instrumental variables (2SLS) regressions of fund-level later deal performance on the instrumented interim fund IRR, measured at the end of fund-year 2. The sample includes North American private equity buyout funds with vintages from 1999 to 2018, using performance data through 2023:Q4. The main independent variable, $\widehat{InterimIRR}$, is the instrumented interim fund IRR. The dependent variables are as follows: *IRR mean* (columns 1–2) is the fund-level mean IRR of later deals; *IRR Std. Dev.* (columns 3–4) is the fund-level standard deviation of later deal IRRs; *IRR Semi-Std. Dev.* (columns 5–6) is the fund-level semi-standard deviation of later deal IRRs. Controls for *Fund Size* are included when indicated. Variables are described in Section III. Standard errors are clustered at the GP level. t-statistics are reported in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Data are sourced from the MSCI-Burgiss Manager Universe.

	IRR Mean		IRR Std. Dev.		IRR Semi-Std. Dev.	
	(1)	(2)	(3)	(4)	(5)	(6)
$\widehat{InterimIRR}$	0.001	0.001	-0.010***	-0.011***	-0.010***	-0.010***
	(0.37)	(0.39)	(2.88)	(2.98)	(2.68)	(2.69)
Controls	No	Yes	No	Yes	No	Yes
Clustered S.E.	Yes	Yes	Yes	Yes	Yes	Yes
Observations	343	343	337	337	339	339
First-stage F-stat	14.26	14.25	13.72	13.77	13.61	13.62

Table XI. Instrumented Interim IRR: Risk Characteristics of Later Deals

This table presents point estimates from instrumental variables (2SLS) regressions of later deal characteristics on the instrumented interim fund IRR, measured at the end of fund-year 2. The sample includes North American private equity buyout funds with vintages from 1999 to 2018, using performance data through 2023:Q4. The dependent variables are as follows: *Frac. of Fund* (columns 1–2) is the average deal size of later deals as a fraction of fund size; *Deal Dur.* (columns 3–4) is the average deal duration, measured in years, of later deals; *Sector HHI* (columns 5–6) is the fund-level industry sector concentration of later deals; *U.S. State HHI* (columns 7–8) is the fund-level geographic concentration, by U.S. state, of later deals. Controls for *Fund Size* are included when indicated. Variables are described in Section III. Standard errors are clustered at the GP level. t-statistics are reported in parentheses. The symbols *, **, and *** indicate statistical significance at the 10%, 5%, and 1% levels, respectively. Data are sourced from the MSCI-Burgiss Manager Universe.

	Frac. of Fund (%)		Deal Dur. (Years)		Sector HHI		U.S. State HHI	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\widehat{InterimIRR}$	0.139***	0.118***	-0.083***	-0.082***	0.007***	0.007**	0.003***	0.003***
	(3.36)	(3.21)	(3.34)	(3.44)	(2.75)	(2.46)	(3.14)	(2.97)
Controls	No	Yes	No	Yes	No	Yes	No	Yes
Clustered S.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3082	3082	3082	3082	3082	3082	2593	2593
First-stage F-stat	17.58	17.59	17.56	17.57	17.58	17.59	14.71	14.69

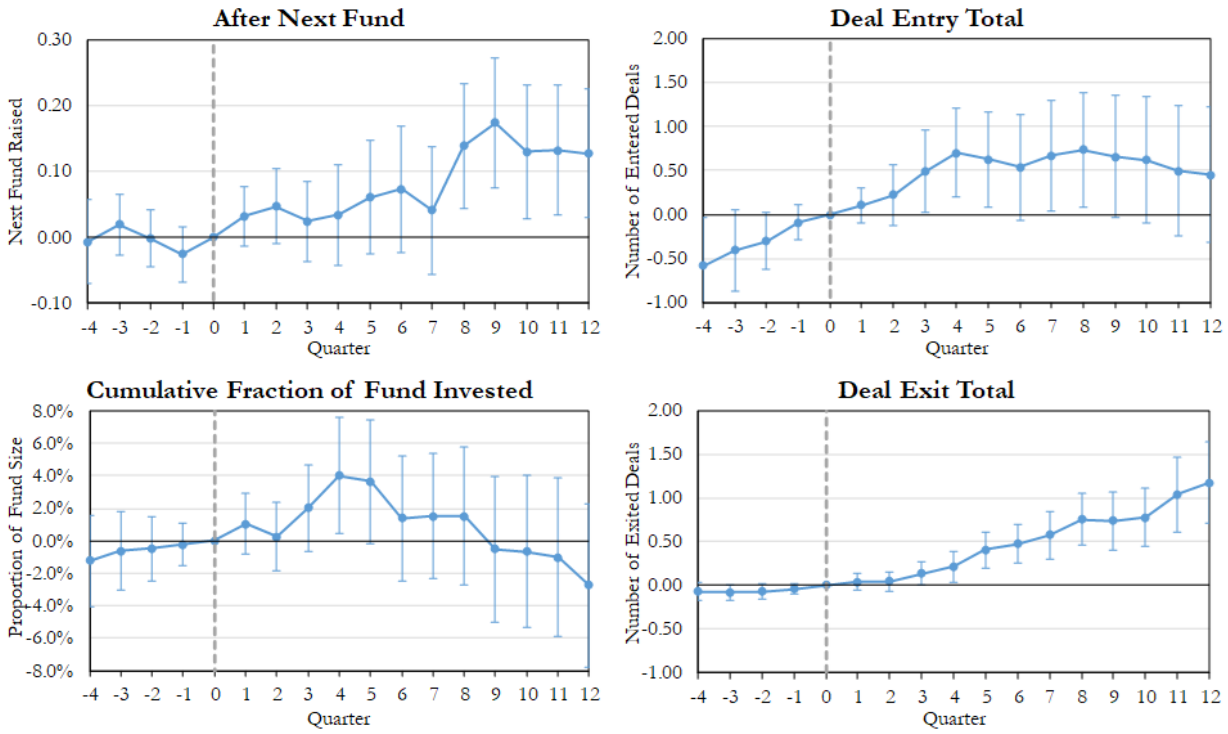

Figure 4. Quarterly Fund Characteristics around Early Returns
This figure presents regression estimates from quarterly difference-in-difference regressions comparing funds with high early returns (*Early Winner* funds) against other funds. The sample includes North American private equity buyout funds with vintages from 1999 to 2018, using performance data through 2023:Q4. The dependent variables are as follows: *After Next Fund* is a dummy variable (0/1) indicating whether the quarter comes after the fund manager's next fund; *Deal Entry Total* is the cumulative number of deals entered in the fund through the specified quarter; *Cumulative Fraction of Fund Invested* is the sum of deal sizes of entered deals through the quarter divided by the fund size; *Deal Exit Total* is the cumulative number of deals exited by the fund through the specified quarter. Regression controls include *Fund Size*, *Fund Duration*, *Fund Fraction Invested*, and *Fund Total Deals*. Variables are described in Section III. All regressions include fixed effects for fund vintage, GP, and quarter date. Standard errors are clustered at the GP level. Ninety percent confidence intervals are also presented. Data are sourced from the MSCI-Burgiss Manager Universe.

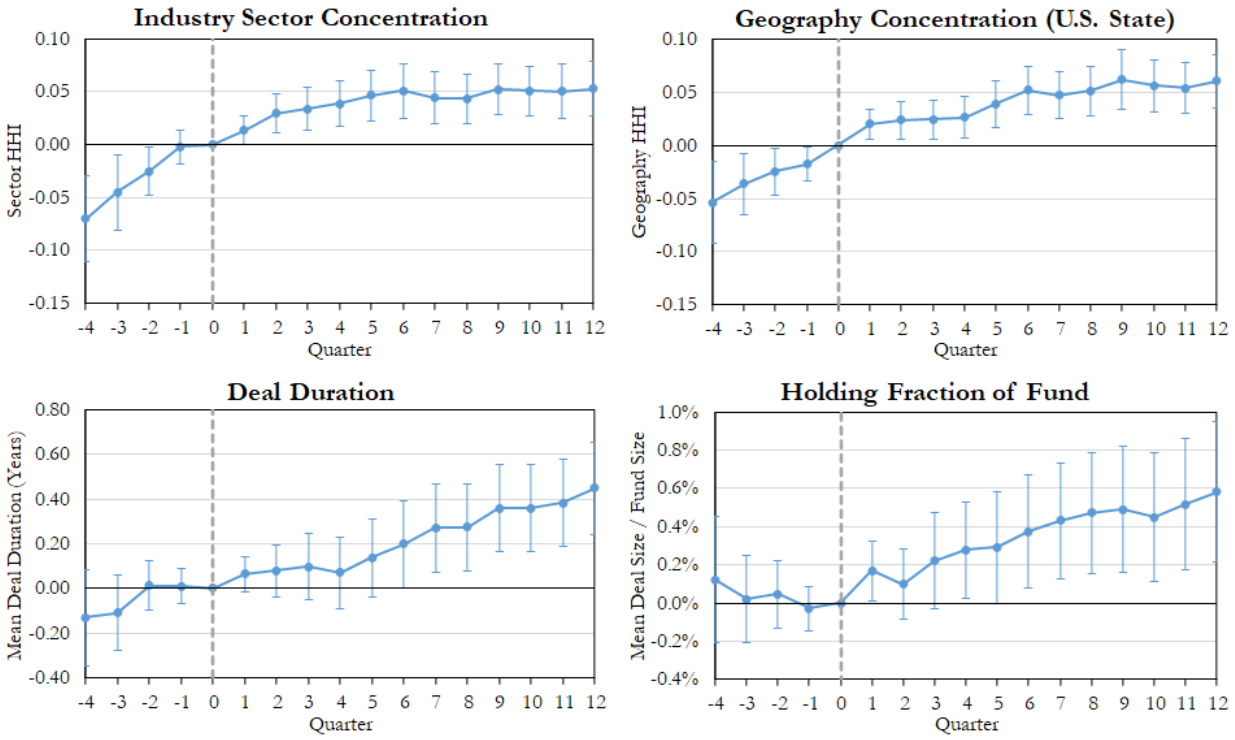

Figure 5. Quarterly Deal Characteristics around Early Returns
This figure presents regression estimates from quarterly difference-in-difference regressions comparing funds with high early returns (*Early Winner* funds) against other funds. The sample includes North American private equity buyout funds with vintages from 1999 to 2018, using performance data through 2023:Q4. Regression controls include *Fund Size*, *Fund Duration*, *Fund Fraction Invested*, and *Fund Total Deals*. Variables are described in Section III. All regressions include fixed effects for fund vintage, GP, and quarter date. Standard errors are clustered at the GP level. Ninety percent confidence intervals are also presented. Data are sourced from the MSCI-Burgiss Manager Universe.

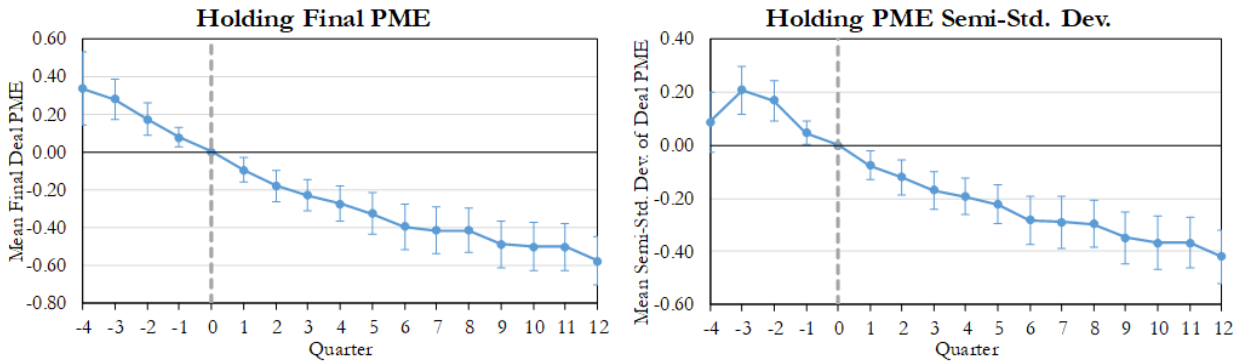

Figure 6. Quarterly Deal Performance around Early Returns

This figure presents regression estimates from quarterly difference-in-difference regressions comparing funds with high early returns (*Early Winner* funds) against other funds. The sample includes North American private equity buyout funds with vintages from 1999 to 2018, using performance data through 2023:Q4. The dependent variables are as follows: *Final Holding PME*, the mean PME of deals currently active in a given quarter, calculated as the Kaplan-Schoar PME using equity × geography public market benchmarks, and *Holding PME Semi-Std Dev*, the semi-standard deviation of a fund's active holdings, as described in Section III. Regression controls include *Fund Size*, *Fund Duration*, *Fund Fraction Invested*, and *Fund Total Deals*. Variables are described in Section III. All regressions include fixed effects for fund vintage, GP, and quarter date. Standard errors are clustered at the GP level. Ninety percent confidence intervals are also presented. Data are sourced from the MSCI-Burgiss Manager Universe.

Appendix A. Model Supplement

Here I include an overview of the derivations of the model as set forth in Section II.

A. Model Setup and Timeline

I adapt a dynamic agency model to study investment and fundraising behavior of general partners (GPs) in private equity (PE). In this setting, the potential investors, or limited partners (LPs), act as price-taking gatekeepers: GPs are able to raise a follow-on fund only if observable performance clears exogenous thresholds.

Timeline

Time	**Event Description**
$t = 0$	GP chooses first investment $a_0 \in \{H, L\}$.
$t = 1$	First outcome $R_1 \in \{r_H, r_L, 0\}$ realized. GP chooses second investment $a_1 \in \{H, L\}$. ▷ **Interim fundraising gate:** GP raises Fund 2 (value V_1) iff $R_1 \geq \kappa$.
$t = 2$	Second outcome $R_2 \in \{r_H, r_L, 0\}$ realized. ▷ **Final fundraising gate:** If no Fund 2 at $t = 1$, GP raises Fund 2 (value V_2) iff $\bar{R} \equiv (R_1 + R_2)/2 \geq \kappa$. Carried interest is earned if $\bar{R} \geq r^*$.

Types and Investment Skill

There are two types of GPs, indexed by $\theta \in \{G, B\}$, where:

- G (*good*) has success probability $p_G \in (0, 1)$ when choosing high risk,
- B (*bad*) has $p_B \in (0, p_G)$.

Type is private information and the LPs only observe performance outcomes.

Investment Technologies and Payoffs

Actions and returns: At $t = 0, 1$ GPs choose action a_t to invest in either a high risk (H) or low risk (L) portfolio company

- H: yields $r_H > 0$ w.p. p_θ, and 0 otherwise.
- L: yields deterministic $r_L \in (0, r_H)$.

Carried Interest: I assume a GPs and LPs set a contractual carry hurdle r^* with

$$r_H > \frac{r_H + r_L}{2} > r^* > \frac{r_H}{2} > r_L$$

Carried interest is awarded only if the average return across the two investments, $\bar{R} = (R_1 + R_2/2)$, meets the hurdle r^*, ensuring that both early and late investment choices matter for compensation.

Carried interest pays a portion $c \in (0, 1)$ of the investment return $c \cdot \bar{R}$, if $\bar{R} \geq r^*$, else 0. Under this assumption, carry is earned by GPs who achieve either early or late success, with no failed investments. The return paths $(r_H, r_H), (r_L, r_H), (r_H, r_L)$ each satisfy the condition for earning carry.

Fundraising: I also assume an exogenous threshold for raising the next fund (κ) with

$$\kappa \in (r_L, \frac{r_H}{2})$$

where the fundraising opportunity is awarded by the cumulative return of Fund 1 so that a single early success raises Fund 2 at $t = 1$, and late success after failure, return path $(0, r_H)$, also raises Fund 2 at $t = 2$ with $\bar{R} = \frac{r_H}{2} > \kappa$. Note that (r_L, r_H) also clears the final fundraising gate because $\bar{R} = \frac{r_L + r_H}{2} > \kappa$.

I assume GPs prefer to raise their next fund sooner. As such, Fund 2 delivers value V_1 if raised at $t = 1$, or V_2 if at $t = 2$, with $V_2 = \delta V_1$, $\delta \in (0, 1)$.

GP Utility: The GP's total payoff consists of carried interest from Fund 1 and the continuation value from raising Fund 2 if raised. Formally, the GP's utility is

$$U = \mathbf{1}\left\{\tfrac{R_1+R_2}{2} \geq r^*\right\} c \cdot \bar{R} + \mathbf{1}\left\{F_t = 1\right\} V_t$$

where $F_t \in \{0, 1\}$ indicates whether Fund 2 is successfully raised at time $t \in \{1, 2\}$ and corresponds to continuation value $V_t \in \{V_1, V_2\}$.

B. GP Incentive Compatibility and Utilities

We solve by backward induction to understand the GP's ex-ante preference for action path (a_0, a_1).

Step 1: GP's choice at $t = 1$ given R_1

Case 1: $R_1 = r_H$ (early success). The interim fundraising gate is met (V_1 realized), independent of a_1.

- If $a_1 = L$: $\bar{R} = \frac{r_H+r_L}{2} > r^* \Rightarrow$ carry is earned.

$$U(H, L \mid R_1 = r_H) = V_1 + c \cdot \frac{r_H + r_L}{2}$$

- If $a_1 = H$: $R_2 = r_H \Rightarrow \bar{R} = r_H$ with probability p_θ, and $R_2 = 0 \Rightarrow \bar{R} = \frac{r_H}{2}$ with probability $1 - p_\theta$. Given $r_H > r^* > \frac{r_H}{2}$, carry is only earned if $R_2 = r_H$:

$$U(H, H \mid R_1 = r_H) = p_\theta(V_1 + cr_H) + (1 - p_\theta)V_1$$

IC1 (de-risk after success). In order for the GP to prefer L to H after early success requires $U(H, L \mid R_1 = r_H) \geq U(H, H \mid R_1 = r_H)$:

$$V_1 + c \cdot \frac{r_H + r_L}{2} \;\geq\; p_\theta(V_1 + cr_H) + (1 - p_\theta)V_1$$

or equivalently

$$r_L \geq (2p_\theta - 1)r_H$$

Thus, the preference for L at $t = 2$ is sustained when the probability of success, the return of H, or the combination thereof is sufficiently low. For values $p_\theta < 0.5$ the condition holds trivially. The required probability of success, p^*, in order for indifference between the selection of L and H can be characterized by the following relationship between the returns on L and H:

$$p^* = \frac{1}{2} + \frac{r_L}{2r_H}$$

Case 2: $R_1 = 0$ **(early failure).** The interim fundraising gate is not met (V_1 not realized) and the GP can only earn V_2 for Fund 2 if raised at $t = 2$. If $a_1 = L$, then $\bar{R} = \frac{0+r_L}{2}$ and carry is not earned ($\frac{r_L}{2} < r^*$) and the final fundraising gate fails by assumption ($\frac{r_L}{2} < \kappa$), so no carry. Also the final fundraising gate is not met, so no Fund 2:

$$U(0, L) = 0$$

If $a_1 = H$, then with probability p_θ: $R_2 = r_H$, $\bar{R} = \frac{r_H}{2}$ so carry is not earned ($\frac{r_H}{2} < r^*$) however Fund 2 is raised at $t = 2$ ($\frac{r_H}{2} > \kappa$), and with probability $(1 - p_\theta)$: $R_2 = 0$, $\bar{R} = 0$, carry is not earned ($\bar{R} =< r^*$), Fund 2 is not raised ($\bar{R} =< \kappa$):

$$U(0, H) = p_\theta(V_2) + (1 - p_\theta)(0)$$

IC2 (gamble for resurrection). Requires $U(H, H \mid R_1 = 0) \geq U(H, L \mid R_1 = 0)$

$$p_\theta V_2 \ \geq \ 0$$

Given the values of p_θ and V_2 are both non-negative by assumption, this condition is always true. Resurrection comes by way of the continuation value of Fund 2 and not the carried interest in Fund 1.

Case 3: $R_1 = r_L$ **(took** L **at** $t = 0$**).** Interim fundraising gate not met (V_1 not realized) and the GP can only earn V_2 for Fund 2 if raised at $t = 2$. If $a_1 = L$, $\bar{R} = r_L < r^*$ and $\bar{R} < \kappa$ so carry is

not earned and Fund 2 is not raised:

$$U(r_L, L) = 0$$

If $a_1 = H$, then with probability p_θ: $R_2 = r_H$, $\bar{R} = \frac{r_L + r_H}{2}$ and carry is earned ($\frac{r_L + r_H}{2} > r^*$) and Fund 2 is raised at $t = 2$ ($\frac{r_L + r_H}{2} > \kappa$) , and with probability $1 - p_\theta$: $R_2 = 0$, $\bar{R} = \frac{r_L + 0}{2}$ carry is not earned ($\bar{R} =< r^*$), Fund 2 is not raised ($\bar{R} =< \kappa$):

$$U(r_L, H) = p_\theta\Big(V_2 + c \cdot \tfrac{r_H + r_L}{2}\Big) + (1 - p_\theta)(0)$$

IC3 (recover after low early return). Requires $U(L, H \mid R_1 = r_L) \geq U(L, L \mid R_1 = r_L)$

$$p_\theta\Big(V_2 + c \cdot \tfrac{r_H + r_L}{2}\Big) \;\geq\; 0$$

Similarly, given the values of p_θ, V_2, c, r_H, and r_L are all non-negative by assumption, this condition is always true.

Step 2: GP's choice at $t = 0$

Let the equilibrium continuation at $t = 1$ be: after $R_1 = r_H$, choose L; after $R_1 = 0$, choose H; after $R_1 = r_L$, choose H. Then:

Expected utility if choosing H at $t = 0$. With probability p_θ: $R_1 = r_H$ and then choose L; with probability $1 - p_\theta$: $R_1 = 0$ and then choose H:

$$U(H) = p_\theta\Big(V_1 + c \cdot \tfrac{r_H + r_L}{2}\Big) \;+\; (1 - p_\theta)\Big(p_\theta(V_2) + (1 - p_\theta)(0)\Big)$$

Expected utility if choosing L at $t = 0$. Then $R_1 = r_L$ and at $t = 1$ choose H (by IC3):

$$U(L) = p_\theta\Big(V_2 + c \cdot \tfrac{r_H + r_L}{2}\Big) \;+\; (1 - p_\theta)(0)$$

IC4 (take risk initially). The GP prefers H at $t = 0$ iff

$$U(H) \geq U(L)$$

i.e.

$$p_\theta\Big(V_1 + c \cdot \tfrac{r_H + r_L}{2}\Big) + (1 - p_\theta)p_\theta(V_2) \;\geq\; p_\theta\Big(V_2 + c \cdot \tfrac{r_H + r_L}{2}\Big)$$

equivalently:

$$V_1 + (1 - p_\theta)V_2 \;\geq\; V_2$$

which further simplifies to:

$$V_1 \;\geq\; p_\theta V_2$$

Given that $V_1 > V_2$ and $p_\theta < 1$, the above condition holds given the on-path choices at $t = 1$ with IC1, IC2, and IC3. Therefore, the preference for H at $t = 0$ is driven directly by the surplus value of raising Fund 2 earlier.

C. Equilibrium Characterization

Under the fundraising gates $r_L < \kappa \leq \frac{r_H}{2}$ and the return ordering $r_H > \frac{r_H + r_L}{2} > r^* > \frac{r_H}{2} > r_L$ the following strategy profile is a sequential equilibrium with price-taking LPs:

- $t = 0$: GP chooses H (IC4).
- $t = 1$:
  - If $R_1 = r_H$: GP chooses L (IC1). Fund 2 raised at $t = 1$ and carry is secured.
  - If $R_1 = 0$: GP chooses H (IC2).
    - If $R_2 = r_H$, Fund 2 raised at $t = 2$ but carry is not earned.
    - If $R_2 = 0$, Fund 2 not raised at $t = 2$ and carry is not earned.

Thus the on-path return sequence is $(r_H,\ r_L)$ with probability p_θ, and $(0,\ r_H)$ with probability $(1 - p_\theta)p_\theta$. In both cases, Fund 2 is successfully either at $t = 1$ after early success or at $t = 2$ after late success.

D. Empirical Predictions

- **De-risking after early success:** GPs with $R_1 = r_H$ switch to L, preserving carry.

- **Gamble for resurrection:** GPs with $R_1 = 0$ take risk at $t = 1$ to clear the fundraising gate.
- **Timing of fundraising:** Interim fundraising is concentrated among GPs with early r_H; others (if successful later) raise at $t = 2$.
- **Overall fund performance:** GPs with r_H at $t = 1$ still outperform late success GPs, $R_2 = r_H$, in terms of total average fund return at $t = 2$, with $\frac{r_H + r_L}{2} > \frac{r_H}{2}$.
- **Comparative statics:** Greater discounting of late fundraising (lower δ) or higher carry stakes (cr_H) strengthen incentives for early risk-taking followed by de-risking

Comparative statics are presented in Figure 1.