How do private equity fees vary across public pensions?

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Motivation

- Public pensions increasingly invest in private equity and real estate
  → $1 trillion in capital flows since mid-2000s (Ivashina and Lerner, 2018)

- Active debate on fees, which are known to be large (~4-7% per year)
  (Gompers and Lerner, 1999; Metrick and Yasuda, 2010; Phalippou et al., 2018)

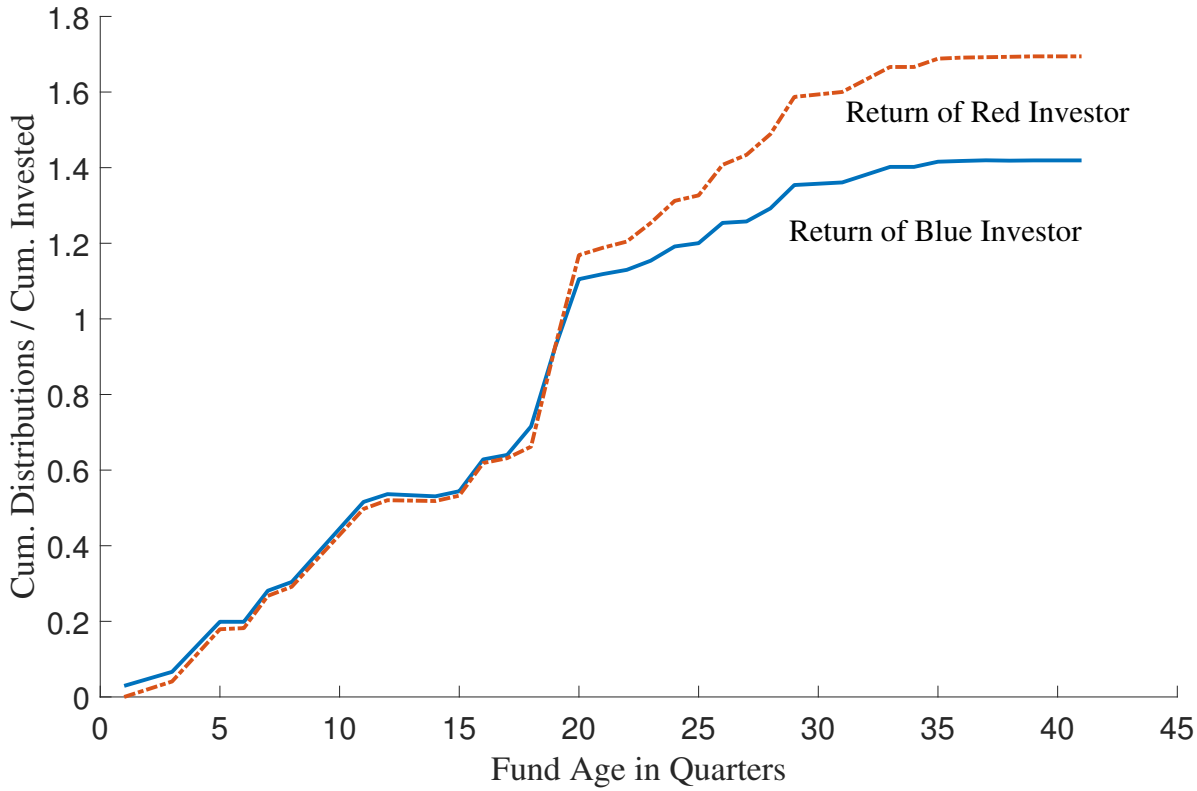
- Yet very little systematic analysis of costs in private markets, mainly because contracts are privately negotiated and fees are often not recorded

- Empirical hurdles to research on fee economics highlighted by recent SEC investigations of disclosure practices in private equity

This paper

- We sidestep the lack of direct data on fees by comparing net-of-fee returns of multiple pensions invested in the *same* private-market fund

- Data example → investors in the same fund with different realized returns:



Main Findings

1. Sizable within-fund variation in net-of-fee returns, likely due to fees

2. Most funds have 2-3 tiers of investors in terms of fees
   → Plus estimates of how fixed and performance fees differ across tiers

3. Some pensions pay higher fees in all of their PE funds ("pension effects")

4. Observables (e.g., size) account for a modest amount of these pension effects
   → Several implications for theories of fee determination

Institutional Background

- General partners (GPs) manage PE funds and limited partners (LPs) provide the bulk of capital

- Terms are privately negotiated in a limited partnership agreement (LPA)

- Two building blocks of fee structures (e.g., Robinson and Sensoy, 2013):
  - Fixed annual management fee, typically 1-2.5% of committed capital
  - Variable performance fee (carry), typically 10-30% of fund profits

- PE funds generally have a fixed start and end date (10-15 year life)
  - This structure makes it is reasonable to compare returns within a fund

Data

- Amount invested and **net-of-fee** distributions of individual pension investments into private markets from Preqin (1990 - 2019)

- Mainly sourced through FOIA requests
  - We have audited the Preqin data with our own direct FOIA requests
  - Near perfect match in terms of data quality

- **Fees** include management, performance, and any other cost borne by LPs

- Merge with publicly available information from pension funds' annual reports on pension size, broad portfolio composition, etc.

Measuring Returns and Sample Definitions

- Measure net-of-fee-return using multiple on invested capital (aka TVPI):

$$r_t^M := \underbrace{\frac{\text{Cumulative Distributions}_t}{\text{Cumulative Invested}_t}}_{r_t^D} + \frac{\text{Net Asset Value}_t}{\text{Cumulative Invested}_t}$$

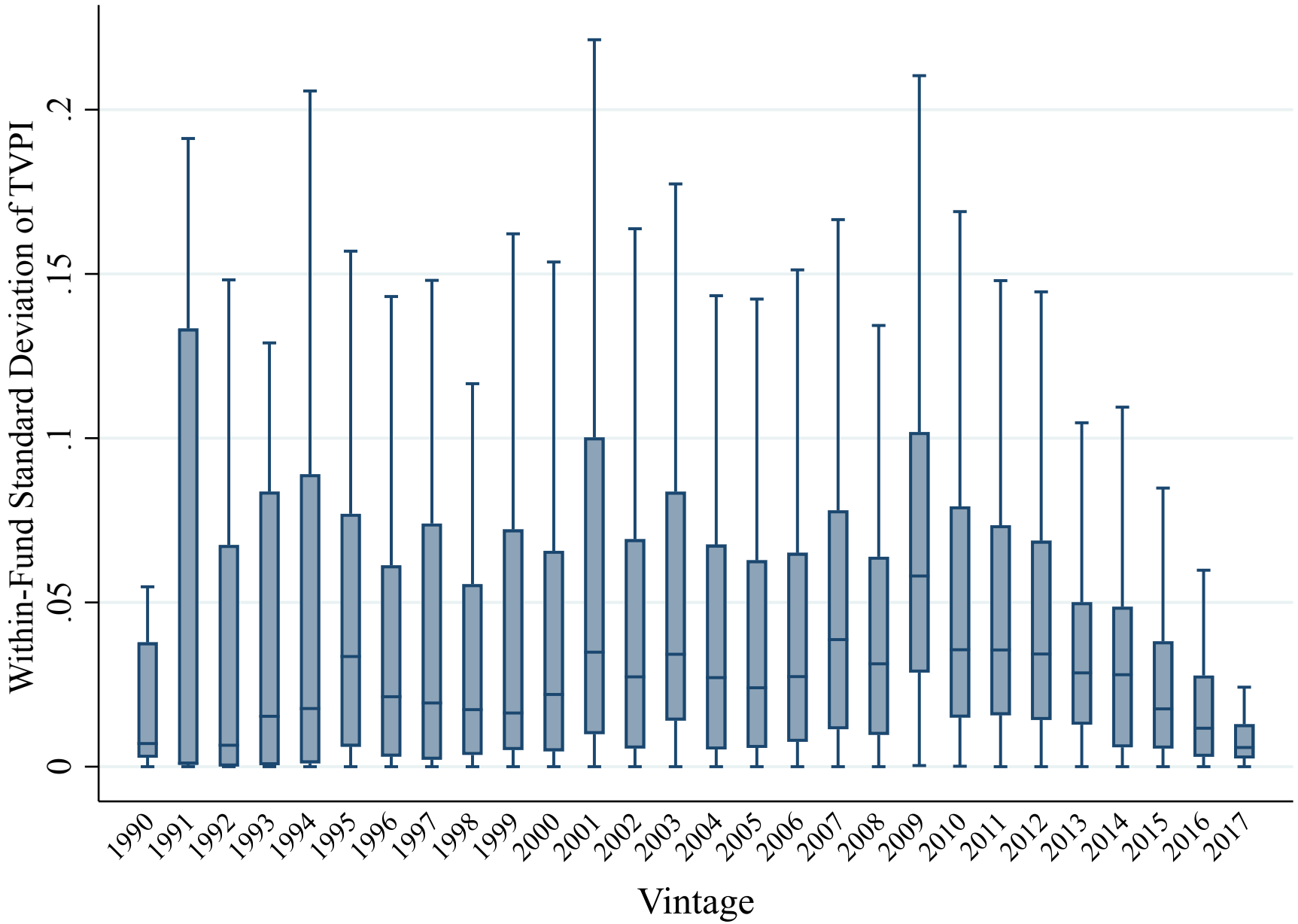
- Simplest return measure and harder to distort relative to IRR

  (Andonov, Hochberg, and Rauh 2018)

- Within-fund variation in r_t^M or r_t^D based on the latest available data
  - This "core sample" is unique at the investor-fund level
  - See the internet appendix for detailed sample criteria

- $515 bn invested by 231 pensions in 2,535 funds managed by 931 GPs

Clear within-fund variation in net-of-fee returns (i.e., fees)



Assessing the magnitude of within-fund fee dispersion

- Pension p's potential gain in fund f had it paid the lowest fee:

$$d_{pf} := \underbrace{a_{pf}}_{\text{Amount Invested}} \times \underbrace{\left(r_f^{max} - r_{pf}\right)}_{\text{Incremental return gain}}$$

  where r_f^{max} is maximum net-of-fee return in fund f

- Can aggregate potential gains (as % invested) in any subsample:

$$G = \frac{\sum_{p,f} d_{pf}}{\sum_{p,f} a_{pf}}$$

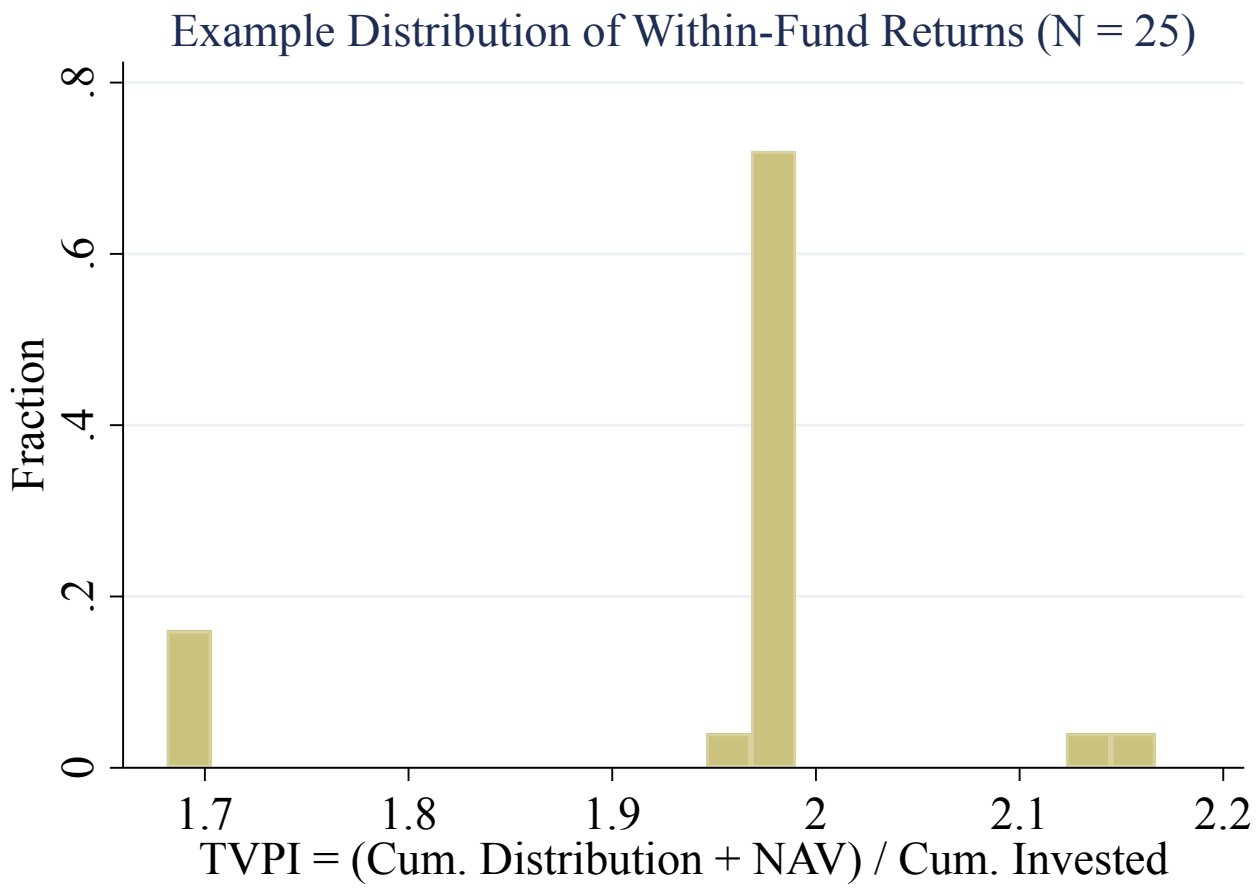
- $G \approx$ **\$8.50 per \$100** invested → **\$44 billion** in potential dollar gains
  - \$4.69 per \$100 even in most conservative subsample

Characterizing Fee Dispersion

1. How do fee structures vary within a typical fund?

2. Are some pensions “top tier” investors in the sense that they consistently pay lower fees? What determines status?

Investor tiers



- Clear bunching of returns → investors in a fund are tiered in terms of fees
- Machine learning methods suggest **90% of funds have 2-3 tiers of investors**

What differs across investor tiers in a fund? A stylized example

- Compare net-of-fee returns r in a fund that has two tiers, A and B:

$$\begin{aligned}\Delta_t &:= r_{At} - r_{Bt} \\ &= (m_B - m_A) \times t + (c_B - c_A) \times \max(g_t - 1, 0)\end{aligned}$$

  m is mgmt fee, c is perfm. fee, and g_t is the fund's gross-of-fee return at t

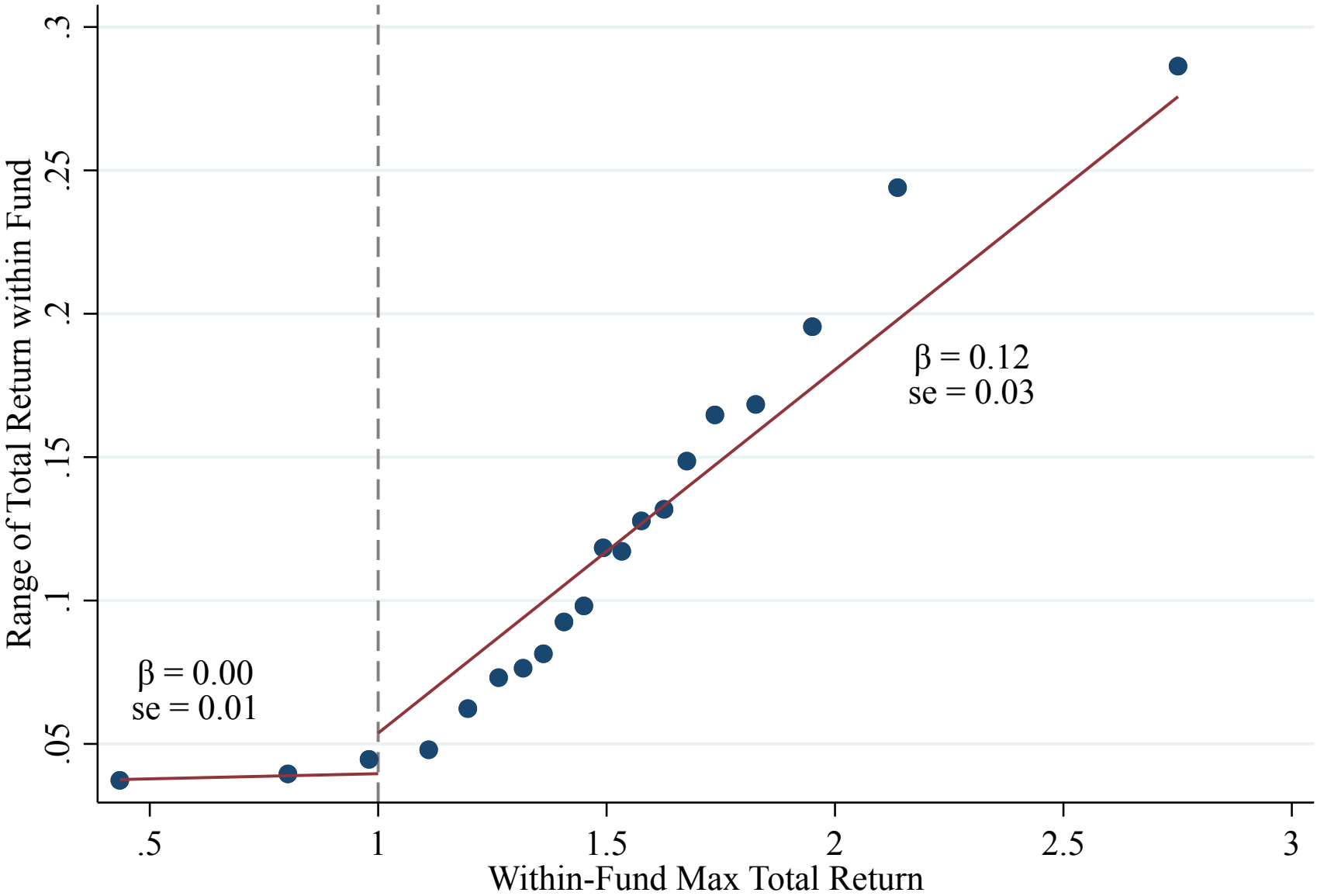
- Differences in c are pinned down by sensitivity of Δ_t to fund profitability:

$$\frac{\partial \Delta}{\partial g_t} = \begin{cases} 0 & \text{if } g_t < 1 \\ c_B - c_A & \text{if } g_t \geq 1 \end{cases}$$

- Differences in m are pinned down by sensitivity of Δ_t to age

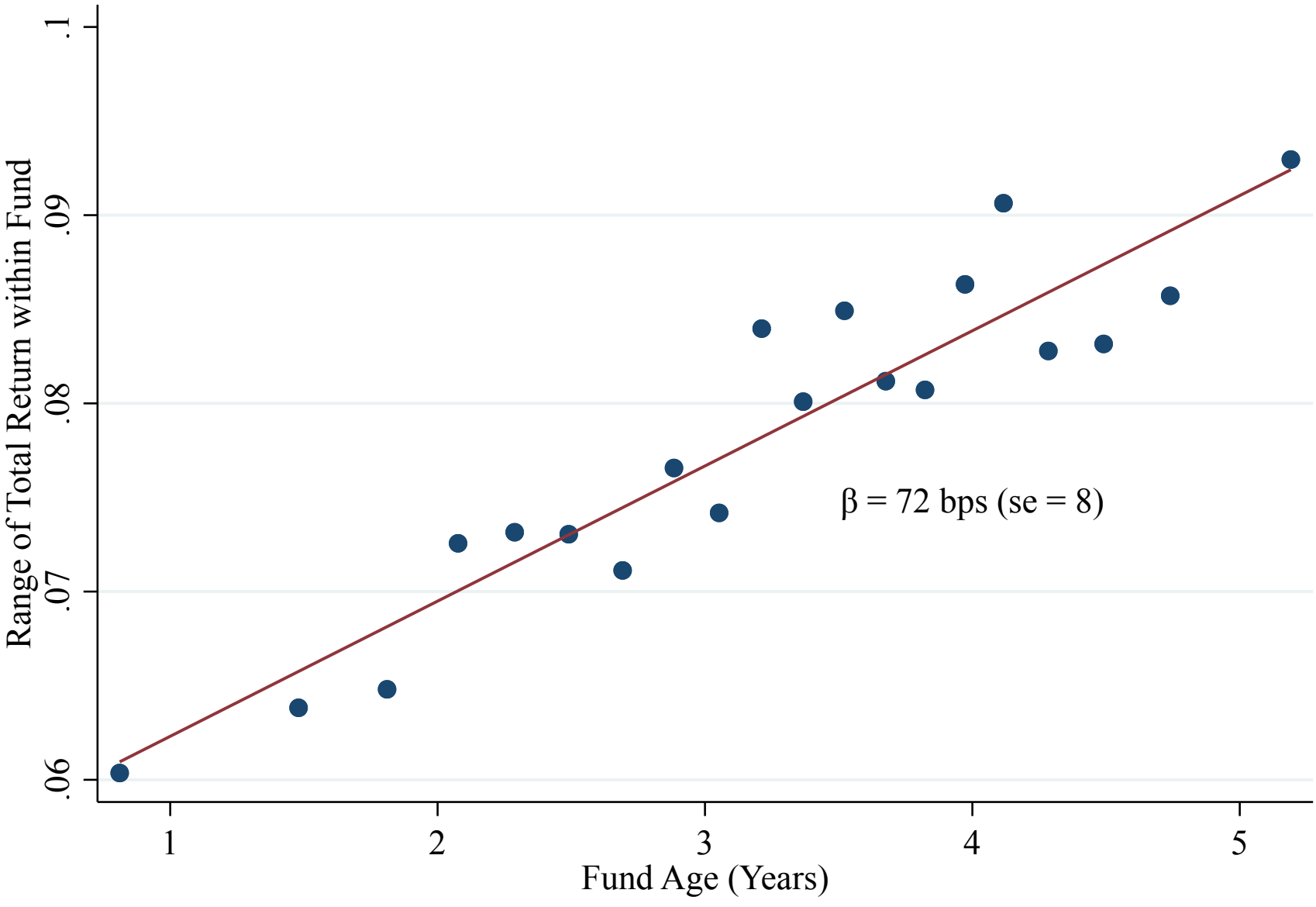
  $\rightarrow$ $m_B - m_A$ also easier to detect when fund is young, before c is charged

Estimate of avg. difference in effective performance fee ≈ 12 pp



Note: Binscatter adjusts for age effects

Estimate of avg. difference in effective management fees ≈ 72 bps



Note: Binscatter adjusts for return effects

Are there top-tier pensions in terms of fees?

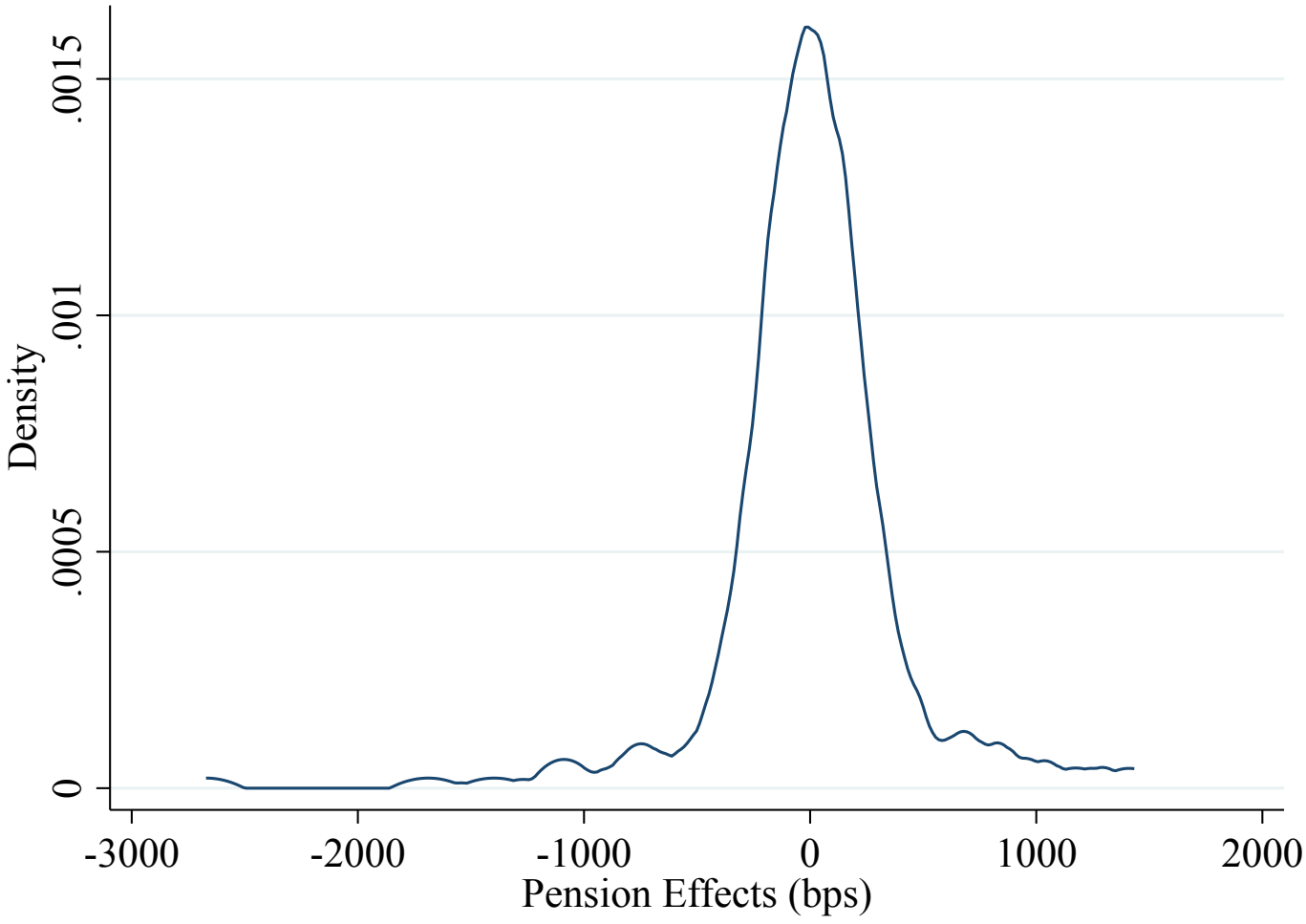
Test using a fixed-effects regression:

$$r_{pf} = \underbrace{\alpha_f}_{\text{Fund fixed effect}} + \underbrace{\theta_p}_{\text{Pension fixed effect}} + \varepsilon_{pf}$$

	Pension-Effects ($\theta_1 = ... = \theta_K$)				
Min. Age	F	p	p^*	K	N
1	5.41	<0.01	<0.01	205	10,848
4	5.23	<0.01	<0.01	191	8,493
8	4.13	<0.01	<0.01	158	4,923

- p^* based on random assignment of returns within funds
- **Consistently reject the null of no pension effects** ($\theta_1 = ... = \theta_K$)

How large are pension effects?

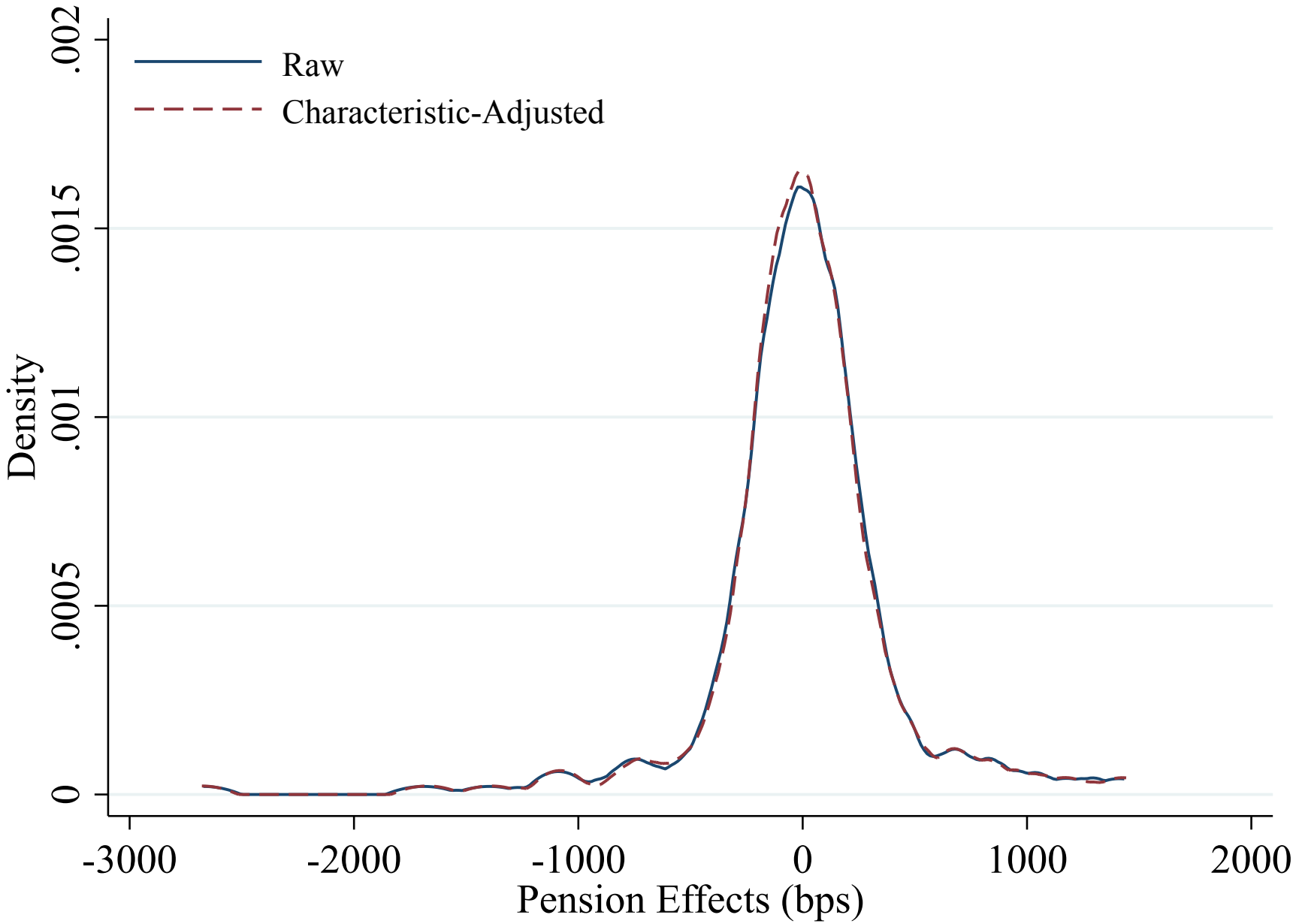


- $\sigma(\theta_p) \approx 523$ bps, compared to average within-fund range ≈ 900 bps
- p10 vs. p90 pension in fees $\approx$ p50 vs. p60 PE fund returns

Why do some pensions consistently pay lower fees?

- We augment our fixed effects regression with observables X_{pf}
- This lets us assess several potential mechanisms:
  1. Some LPs lower the cost of raising capital (e.g., signaling effects)
     → Pension size, share of the fund, initial commitment date
  2. LP preferences/governance
     → Pension risk aversion (e.g., cash holdings)
     → Variables that capture political agency frictions (Andonov et al. 2018)
  3. LP experience, bargaining position, and search costs
     → Size, proxies for PE experience, and LP-GP relationships
- Also verify in the paper that measurement error and bespoke investment structures like co-investment are unlikely to explain pension effects

Characteristics and pension effects



Implications for fee economics

- Pension effects are largely unexplained by observables
- This suggests similar pensions pay consistently different fees
- Implications for potential mechanisms:
  1. Some LPs lower the cost of raising capital
     → Then mostly orthogonal to size and our proxy for commit date
  2. LP preferences/governance
     → No evidence for risk aversion and some for board composition
     → LPs could have heterogeneous beliefs
  3. LP experience, bargaining position, and search costs
     → Must not load on observables

Another possibility: some pensions do not fully optimize on fees

- Would explain why pensions that should presumably have similar outside options, preferences, and information systematically pay different fees

- Several possible microfoundations:
  1. Agency frictions (non-political)
  2. State regulations prevents fee optimization
  3. Biased beliefs about GP skill or fund risk
  4. Confusion about cost structure embedded in contracts

- On #4: our evidence shows perform. fees vary within the typical fund
  - Yet only 5% of pensions mention perform. fees in annual reports
  - Even if fully tracked, ex-ante fee valuation is complex (Sorensen et al., 2014)

Robustness

- Measurement error
  - Audit via direct FOIA requests, plus hard to account for pension effects

- Alternative vehicles (e.g., coinvestment) and investor-specific mandates
  - Excluded from all analysis
  - Currently small part of public pension portfolios (likely to change)
  - Restrict to pre-2010 and smaller pensions

- Potential gains estimates:
  - Alternative return measures: cash multiple on investment (DVPI) and IRR
  - Lower bound on redistribution from fee dispersion

- Pension effects:
  - Similar results using DVPI
  - Additional controls:
    - Reporting on performance fees
    - Reported expectations of aggregate PE performance

Conclusion

- Within-fund variation in net-of-fee returns implies that fees vary across pensions in the same private equity fund

- Some pensions consistently pay lower fees relative to others, and the potential gains from better fee terms are large:
  - 5th percentile pension = $14.91 per $100 invested
  - 95th percentile pension = $1.12 per $100 invested
  - Aggregate potential gains are $44bn

- Evidence suggests some pensions likely overpay for access to private equity

- We are actively exploring these issues in follow-up work

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