Does Fund Size Affect Private Equity Performance? Evidence from Donations to Private Universities

Abhishek Bhardwaj[1] Abhinav Gupta[2] Sabrina T. Howell[3] Kyle E. Zimmerschied[4]

[1]Tulane [2]UNC Chapel Hill [3]NYU—HBS & NBER [4]Missouri

Roadmap of Talk

Motivation

- Important institutions—pension & sovereign funds, university endowments—rely on PE's historically strong performance

  (Brown et al., 2020; Korteweg, 2019)

- Does this strong performance persist within a firm?
  - Before early 2000s: Yes
  - After early 2000s
    - ⋆ Poor performance persists
    - ⋆ But high performance does not
  - Coincident with rising fund sizes at top firms

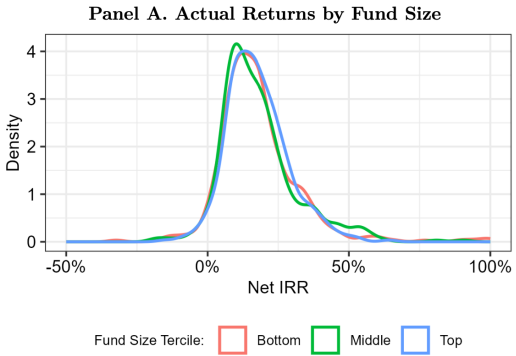
- Fund sizes poised to grow further as industry creates vehicles for broad-based retail access

  (Garcia, 2024)

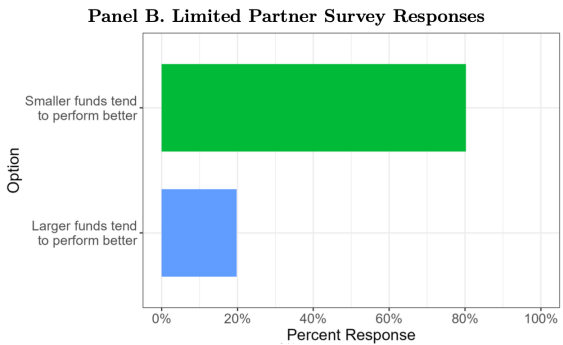
- **Does PE performance scale?**
  - **When firms raise larger funds, do they sacrifice returns?**

Puzzle: Average Performance by Size Contrasts with LP Opinions

- No relation between fund size and returns on average (in our data)



- Yet 83% of surveyed LPs think small funds perform better



Why Do We Need Causal Analysis?

- Existing studies correlate fund size and performance: Results are mixed
  - Insignificant (Kaplan and Schoar 2005, Robinson and Sensoy 2013, Harris et al. 2014, Rossi 2019)
  - Positive (Chung et al., 2012; Metrick and Yasuda, 2010; Robinson and Sensoy, 2016)
  - Negative (Braun et al., 2023; Humphery-Jenner, 2012; Lopez-de Silanes et al., 2015; Pastor et al., 2015)

- Challenge: High quality GPs will enjoy more LP demand
  - Incentives (e.g. fees) to raise larger funds $\Rightarrow$ **High-quality GPs sort into larger funds**

If We Overcome Selection Bias, Two Forces at Play

- Good managers might have economies of scale if
  - Unconstrained access to good deals
  - Advantageous relationships with creditors
- Or diseconomies of scale if
  - Forced to write bigger checks (capacity constraints)
  - Forced to do worse deals (deal supply constraints)
  - Managers spread too thin (human capital constraints)
  - More fee income reduces effort (quiet life)

Paper in Nutshell

- Identify a causal relationship by instrumenting for fund size with donations to private universities
  - Relationships sticky: Donations $\Rightarrow$ Endowment commitments to relationship GPs
  - Donations uncorrelated with PE or macro markets
  - Commitments signal GP quality to relatively unsophisticated LPs
- **Show decreasing returns: 1% size increase reduces net IRR by 0.1pp**
  - Top quartile growth (expand by $600 million between funds), implies 3.2pp lower IRR (relative to 18% mean)
- Why?
  - Larger funds do larger deals, which perform worse
  - No change in risk, in part because additional deals are more levered

Roadmap of Talk

Data

- Private university donations
  - Form 990, to maintain nonprofit status
- Private university fund holdings
  - Form 990-T, to disclose unrelated business income
  - Enhances by $> 50\%$ Preqin university-GP links
- Fund and deal information from Preqin, Pitchbook & large fund of funds

  Summary Statistics
  - Private university LPs account for $\approx 5\%$ of capital committed to PE funds

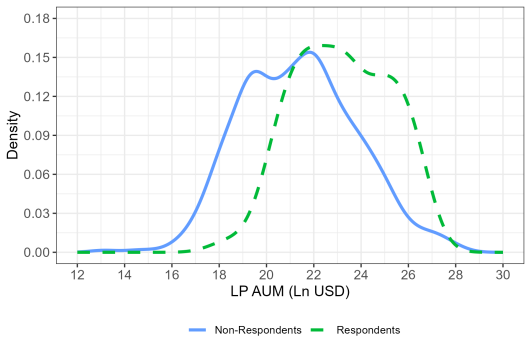
FORM 990-T (2005/2006) Baylor University #74-1159753 May 31, 2006

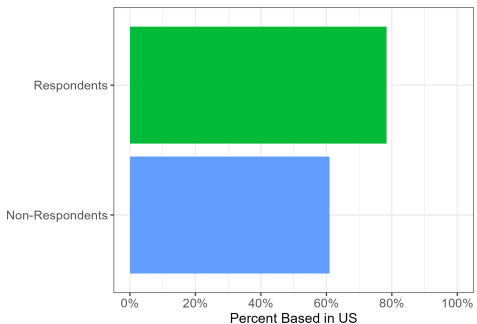
Part I, Line 5 Income (Loss) From Partnerships

Name	EIN	UBIT Amount
AG Private Equity Partners II	05-0538891	74,354
American Private Equity Partners, L.P.	75-2906244	(31,747)
BIV Capital Partners, L.P.	71-0882125	(20,322)
HRJ Capital Real Estate II, L.P.	01-0823703	7,492
Chase Capital Partners Private Equity Fund of Funds II, Ltd.	98-0227519	5,288
Kayne Anderson Energy Fund III (Q.P.) L.P.	83-0407922	21,664
Midmark Equity Partners II, L.P.	22-3687123	(230,473)
Midstate Bancorp, Inc.	73-0736860	164
OCM Principal Opportunities Fund III, L.P.	20-0679312	(37,252)
Permal Private Equity Opportunities II, L.P.	51-0507610	(133)
Private Advisors Small Company Buyout Fund, L.P.	54-2025625	8,290
Reservoir Capital Investment Partners, L.P.	72-1599720	(358)
Southport Energy Plus Partners, L.P.	06-1531979	(54,256)
	Total	(257,289)

Survey of LPs

- Emailed investment officers at 1,129 LP institutions, 81 responses
  - 44 Pension Funds
  - 22 Foundations
  - 4 Insurance Companies
  - 3 Sovereign Wealth Funds
  - 1 Family Office





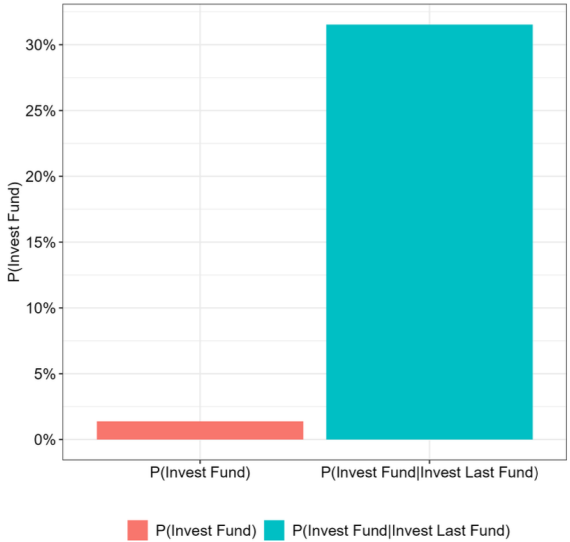
Roadmap of Talk

Private University Donations as Instrument for Fund Size

- Private universities rely on donations ($\approx$20% of total revenues in our sample)
- Endowment investment sensitive to this non-financial income
  (Binfare and Zimmerschied, 2024; Dimmock, 2012; Rosen and Sappington, 2016)
- Instrument: $\text{Gifts}_{p,t-2}$ = Sum of gifts to private universities **related** to GP p in year $t-2$
  - Related: University invested in p's prior fund with vintage $t-7$ to $t-3$
  - Standardized so coeff interpreted as impact of 1 s.d. change in donations at GP level
  - Want donations just before & during fundraising $\Rightarrow$ Lag donations by 2 yrs relative to fund's first investment
- Gifts tend to reflect bequest motives and idiosyncratic donor wealth
  - Little correlation across universities or with relevant market factors

Sticky Relationships

- GPs with university endowment relationships tend to keep them
  - E.g. universities 25x more likely to invest in follow-on fund if invested in the prior fund
- **New capital ⇒ more likely deployed with relationship GPs**



Role of Signaling

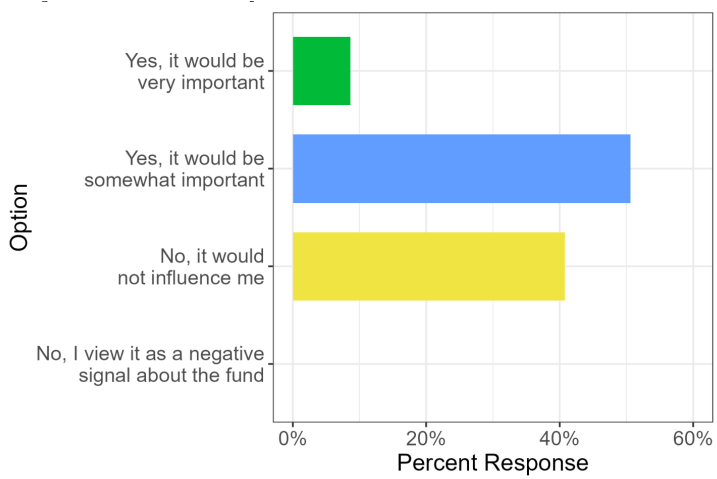
- Donation-driven increases in private university commitments alone would not substantially increase fund size

- **When private university with pre-existing investment in GP commits to follow-on fund**
  $\Rightarrow$ **Credible signal of GP quality to other potential investors**
  - Considered prestigious investors who cultivate long-term, stable relationships—and thus good information about—their PE managers (Gilbert and Hrdlicka, 2015; Lerner et al., 2008, 2007)
  - Contrasts with pension funds, which face political pressures on compensation, struggle to invest in best managers (Hochberg and Rauh, 2013)

- Consistent with certification: Donation inflows (the instrument) predict more fund LPs
  - Driven by relatively less sophisticated "follower" LPs (pensions & public universities) Results

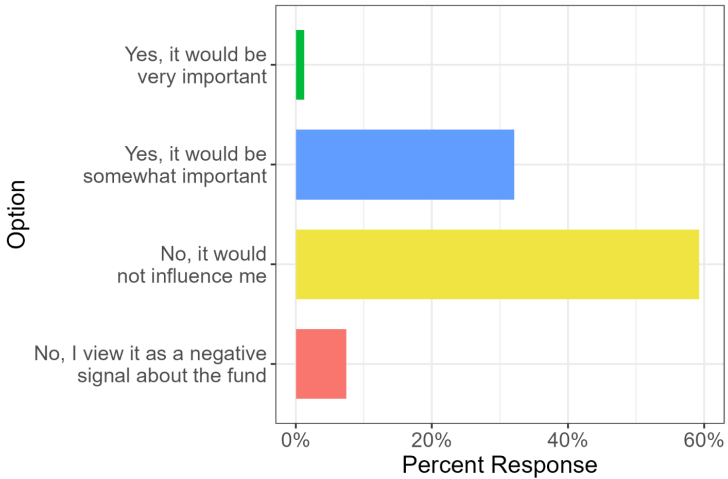
Survey: Certification Impact of Private University Commitments

"Suppose you were considering investing in a fund and you were informed that a large private university endowment had already committed to that fund. Would this increase your chances of investing?"



Survey: Contrast with Public Pension Commitments

"Suppose you were considering investing in a fund and you were informed that a government pension fund had already committed to that fund. Would this increase your chances of investing?"



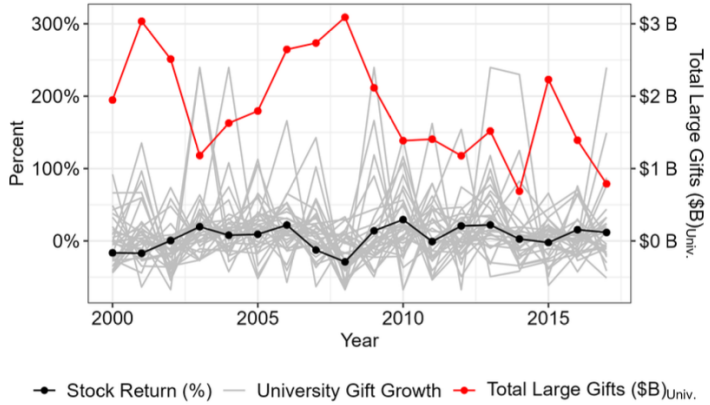
Exclusion Restriction:
Donations affect Fund Returns only through Endowment Allocations

- Alternative story: Market factors affect both giving and fund returns

Evidence against the alternative story

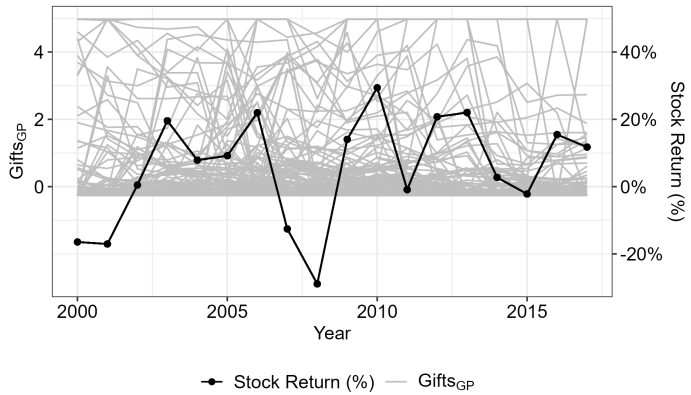
- Find no 1st or 2nd stage result using:
  - Donations to universities that are not connected with the GP Results
  - Donations based on randomized connections Results
- Instrument does not predict GP's prior performance, number of past funds, time since last fund, and fee structure Exclusion Tests
- Results are robust to excluding donors in the finance or PE industries Results
- Donations have wide dispersion and little correlation with market returns

University Level Donations and Market Return



- Donation growth for 30 largest private universities & gifts $>$ \$1 million for all private universities vs. annual, value-weighted CRSP stock market return

General Partner-Level Connected University Donations and Market Return



- Instrument (standardized donations at GP level) & its average Vs. annual, value-weighted CRSP stock market return

Roadmap of Talk

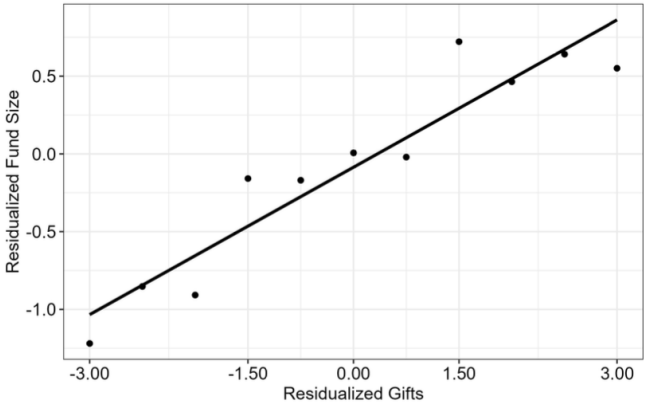
First Stage Design

- Regress fund size on GP-level donations to relationship universities

$$\text{Fund Size}_{f(p,t)} = \gamma \text{Gifts}_{p,t-2} + \delta_1 \text{Prior IRR}_{p,t-1} + \delta_2 \text{Controls}_{p,t} + \alpha_p + \alpha_r + \alpha_i + \alpha_{l,t} + \varepsilon_f$$

- Condition on GP raising a next fund (i.e., intensive margin)
- Fixed effects control for:
  - GP firm (α_p)
  - Fund's targeted region (α_r) & industry (α_i)
  - Regional trends (GP Location $\times$ Vintage Year ($\alpha_{l,t}$))
- Time-varying controls:
  - GP's past performance (Prior $\text{IRR}_{p,t}$)
  - Number & value of funds raised in $t-1$ and earlier
  - Average size of funds raised prior during the year $t-1$ and earlier
  - Number of years since the last PE fund was raised
- Double cluster standard errors at the GP and vintage year level

Visual First Stage: Fund Size vs. Donations



- Graph shows binscatter of donations and fund size, both fully residualized with regression controls
- Regression results: Implies a \$1 increase in donations $\rightarrow$ \$0.81 increase in fund size

Roadmap of Talk

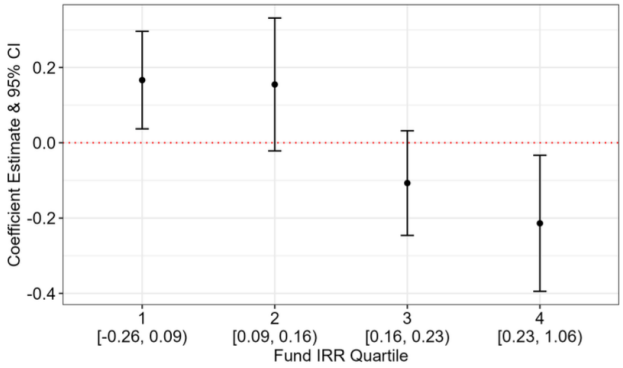
IV Results: Causal Effect of Fund Size on Returns

	Panel A: Net IRR				
	(1)	(2)	(3)	(4)	(5)
Fund Size ($ Billion)	-0.070** [0.032]	-0.063* [0.032]	-0.059** [0.022]	-0.062** [0.022]	-0.053** [0.024]
Prior IRR				-0.202** [0.093]	-0.247** [0.090]
F-Statistic	21.32	23.94	36.48	36.65	30.73
Observations	1231	1231	1231	1231	1231
General Partner F.E.	Yes	Yes	Yes	Yes	Yes
Region & Industry F.E.	No	Yes	Yes	Yes	Yes
Year × GP Region F.E.	No	No	Yes	Yes	Yes
GP Controls	No	No	No	No	Yes
Y-mean	0.18	0.18	0.18	0.18	0.18

- Col 5: 1% size increase reduces net IRR by 0.1pp
  - Top quartile growth (expand by $600m between funds) ⇒ 3.2pp lower IRR (mean is 18%)
- Similar for multiple Results & lots of robustness tests Results
- OLS (i.e., non-instrumented, average) results are small, insignificant, negative Results

Is there a Risk-Return Tradeoff in this Causal Impact?

IV Effect of Increases in Fund Size on Fund Return Distribution



Regression Results for IRR and Multiple

- **No:** Larger funds might be less risky on average, but entire return distribution shifts leftward as instrumented fund size increases

What is the mechanism?

- **Primary culprit for lower returns is larger deals, which tend to underperform**
- Show causal positive effect on deal size Results
  - E.g. a 1% increase in fund size increases the average deal size by about $0.4 million (0.4% relative to the mean)
- Larger deals have lower returns, both in OLS and IV models Results
  - E.g. a 1% increase in deal size ($1.36 million) reduces a deal's gross IRR by 0.19 pp
  - No effect on risk Results
  - Deal size channel accounts for $> 60\%$ of total decline in fund-level returns stemming from bigger fund size

Targeting and Operational Improvement

- One middle market investor: Smaller deals have "more room for growth" (Shi, 2025)
- At entry (just after LBO): larger targets are more profitable but more indebted
- Larger deals experience lower profitability growth and no change in leverage

	Deal Selection		Operational vs Financial Engineering	
	EBITDA/ Ent. Value	Debt/ Ent. Value	Δ EBITDA/ Ent. Value	Δ Debt/ Ent. Value
	(1)	(2)	(3)	(4)
Deal Size ($100 Millions)	0.03***	0.13**	-0.02**	0.01
	[0.01]	[0.05]	[0.01]	[0.05]
F-Statistic	32.09	38.29	24.77	33.78
Observations	4850	4784	4320	4361
Year × GP Location F.E.	Yes	Yes	Yes	Yes
General Partner F.E.	Yes	Yes	Yes	Yes
Region & Industry F.E.	Yes	Yes	Yes	Yes
GP Controls	Yes	Yes	Yes	Yes
Y-mean	0.10	0.33	-0.02	-0.05

Are Managers Stretched Too Thin?

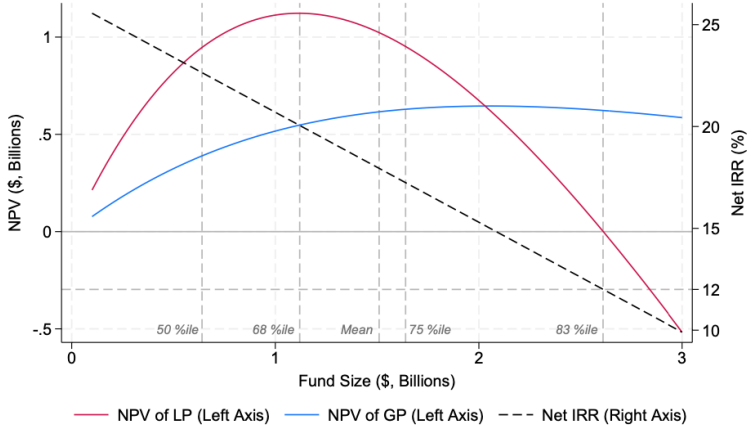
- Larger funds also increase the number of deals Results
- But human capital constraints don't seem to explain result
  - Bigger funds hire more partners to compensate Results
  - Additional partners are no less experienced Results
- Also: no evidence that larger funds have more sectoral or geographical diversification Results

How do Results Compare with LP Perceptions? (Survey, N=81)

Panel A. Responses from participants who believe smaller funds outperform

Panel B. Responses from participants who believe larger funds outperform

Calibrated Relationship: How Fund Size Affects GP and LP NPV



- As fund size increases (x-axis), plot relationship with: NPVs of LP and GP (left x-axis) & Net IRR (right y-axis)
- Use regression estimate & sample moments; assume 8% hurdle rate, 20% carried interest, immediate capital deployment net of a 2% fixed fee, 12% discount rate for LP and GP carry (Andonov & Rauh 2022), & 4% risk-free rate for GP fees

Roadmap of Talk

Takeaways for LP allocators: Some Caveats

- Results don't imply that big funds should necessarily be avoided
- What do our results imply?
  - If average fund grows beyond about $2.6 billion, **holding all else constant**, the size increase would drive NPV below zero
  - Raw correlations showing little difference in returns across fund sizes reflect fact that larger funds are not the "average fund" (may have better managers or investment opportunities)
- If LP faces same **manager/thesis + larger fund $\Rightarrow$ Trade-off**
  - **Can deploy more capital**
  - **But face lower returns**

Takeaways: Big Picture

- Larger funds lead GPs to enjoy a "quieter life"
  - Earn more fees not tied to performance
  - Invest in larger deals with less scope for operational engineering
- Sheds light on
  - How GP incentives can diverge from those of LPs
  - How career concerns and fee structures can shape portfolio construction and returns
- Takeaways for industry and policymakers
  - Results help explain decline of top quartile performance persistence
  - As more money flows in (e.g. retail) and funds become larger
    - Causal effect should dominate
    - Unless the industry can compensate with better investment opportunities or managerial talent

Roadmap of Talk

Summary Statistics

	N	Mean	SD	Min	p25	Median	p75	Max
Panel A: University Statistics								
Raw Gifts ($ Billions)	1868	0.11	0.17	0.00	0.02	0.04	0.12	1.69
Endowment ($ Billions)	1463	2.47	4.78	0.00	0.58	0.92	1.87	39.23
Number Investments	1868	11.95	10.26	1.00	4.00	9.00	16.00	55.00
Number of GPs	1868	6.41	5.46	1.00	3.00	5.00	8.00	33.00
Panel B: Fund-Level Statistics								
Private University Giving								
Raw Gifts ($ Billions)	1231	0.22	0.39	0.00	0.00	0.03	0.24	1.74
Gifts_{GP}	1231	-0.02	0.91	-0.51	-0.51	-0.43	0.02	4.09
Linked Private Universities	1231	1.56	2.31	0.00	0.00	1.00	2.00	9.00
Δ Linked Private Universities	1231	0.03	0.74	-2.00	0.00	0.00	0.00	2.00
Fund Characteristics								
Fund Size ($ Billions)	1231	1.51	2.06	0.10	0.30	0.64	1.64	8.50
Net IRR	1231	0.18	0.13	-0.26	0.09	0.16	0.23	1.06
Net Multiple	1180	1.91	0.70	0.21	1.49	1.76	2.17	6.87
Prior IRR	1231	0.15	0.10	-0.10	0.10	0.13	0.20	0.67
Comparison with Prior Fund								
Δ Fund Size ($ Billions)	1174	0.19	1.89	-8.30	-0.26	0.10	0.60	8.24
% Δ Fund Size	1174	1.06	3.20	-0.98	-0.45	0.21	1.10	42.33

(Continued on next page)

Summary Statistics (Continued)

Panel B: Fund-Level Statistics								
	N	Mean	SD	Min	p25	Median	p75	Max
Investor Characteristics								
University LP's	1231	0.99	1.60	0.00	0.00	0.00	1.00	6.00
Private University LP's	1231	0.57	1.05	0.00	0.00	0.00	1.00	4.00
Pension LP's	1231	4.01	5.39	0.00	0.00	2.00	6.00	19.00
Total LP Investors	1231	5.19	6.41	0.00	0.00	3.00	7.00	22.00
% University LP	920	0.23	0.31	0.00	0.00	0.09	0.35	1.00
% Private University LP	920	0.14	0.24	0.00	0.00	0.00	0.20	1.00
Deal Characteristics								
Average Deal Size ($ Millions)	837	98.47	112.17	0.34	21.16	55.42	124.94	490.66
Number of Deals	837	19.15	19.42	1.00	8.00	14.00	23.00	131.00
Number of Sub-Sectors	837	8.72	7.40	0.00	1.00	8.00	13.00	29.00
Number of States	837	9.39	8.43	1.00	2.00	7.00	16.00	27.00
Number of Regions	837	1.90	1.04	1.00	1.00	2.00	2.00	5.00
Time Last Deal (Years)	837	4.57	2.55	0.00	3.00	4.00	6.00	13.00
Fund Team Data								
Partners	837	7.33	5.22	1.00	4.00	7.33	9.00	26.00
$\frac{Deals}{Partners}$	837	4.33	6.18	0.14	1.67	3.00	4.33	79.00
$\frac{\text{Fund Size (\$ Billions)}}{Partners}$	837	0.44	0.69	0.00	0.13	0.32	0.44	10.80
Panel C: Deal-Level Statistics								
Deal Performance Characteristics								
Gross IRR	8748	0.21	0.40	-0.64	0.01	0.19	0.40	1.24
Net Multiple	8531	2.04	0.63	0.63	1.61	1.91	2.35	3.59
Deal Characteristics at Entry								
Deal Size ($ Millions)	8748	136.08	159.31	0.11	29.30	73.66	181.84	793.50
Time to Entry	8748	2.12	1.64	0.00	1.00	2.00	3.00	7.00
Age	8522	25.09	28.30	0.00	7.00	16.00	32.00	138.00
Enterprise Value ($ Millions)	5107	912.64	1,315.91	14.65	116.49	327.41	1,007.10	4,782.00
$\frac{EBITDA}{\text{Enterprise Value}}$	4850	0.10	0.07	-0.19	0.07	0.10	0.13	0.37
$\frac{EBITDA}{Debt}$	4675	3.59	4.65	-16.00	1.66	4.01	5.81	22.36
$\frac{EBITDA}{\text{Enterprise Value}}$	4784	0.33	0.33	-0.71	0.10	0.41	0.57	0.88
Entry-to-Exit Deal Changes								
$\Delta \frac{EBITDA}{\text{Enterprise Value}}$	4320	-0.02	0.08	-0.37	-0.04	-0.02	0.01	0.34
$\Delta \frac{Debt}{\text{Enterprise Value}}$	4361	-0.05	0.31	-0.76	-0.23	-0.08	0.08	1.33

Back

OLS Results

Panel A: All Funds IRR					
	Net IRR				
	(1)	(2)	(3)	(4)	(5)
Fund Size ($ Billions)	-0.002	-0.002	-0.005*	-0.006*	-0.005*
	[0.004]	[0.005]	[0.003]	[0.003]	[0.002]
Prior IRR				-0.215**	-0.253***
				[0.079]	[0.081]
Observations	1758	1758	1758	1758	1758
General Partner F.E.	Yes	Yes	Yes	Yes	Yes
Region & Industry F.E.	No	Yes	Yes	Yes	Yes
Year × GP Region F.E.	No	No	Yes	Yes	Yes
GP Controls	No	No	No	No	Yes
Y-mean	0.18	0.18	0.18	0.18	0.18

Panel B: All Funds Multiple					
	Net Multiple				
	(1)	(2)	(3)	(4)	(5)
Fund Size ($ Billions)	-0.010	-0.015	-0.006	-0.005	-0.002
	[0.014]	[0.013]	[0.011]	[0.011]	[0.011]
Prior Multiple				-0.118***	-0.131***
				[0.028]	[0.035]
Observations	1890	1890	1890	1890	1890
General Partner F.E.	Yes	Yes	Yes	Yes	Yes
Region & Industry F.E.	No	Yes	Yes	Yes	Yes
Year × GP Region F.E.	No	No	Yes	Yes	Yes
GP Controls	No	No	No	No	Yes
Y-mean	1.87	1.87	1.87	1.87	1.87

Back

First Stage Regressions

	Fund Size ($ Billions)				
	(1)	(2)	(3)	(4)	(5)
Gifts_{GP}	0.418***	0.409***	0.321***	0.322***	0.314***
	[0.090]	[0.084]	[0.071]	[0.071]	[0.055]
Prior IRR				0.228	0.245
				[0.648]	[0.708]
F-Statistic	21.38	23.99	37.79	37.96	32.16
Observations	1231	1231	1231	1231	1231
General Partner F.E.	Yes	Yes	Yes	Yes	Yes
Region & Industry F.E.	No	Yes	Yes	Yes	Yes
Year × GP Region F.E.	No	No	Yes	Yes	Yes
GP Controls	No	No	No	No	Yes

Back

Exclusion Restriction Tests

	Prior IRR	Log(Number of Funds Raised)	Time Since Last Fund	Carried Interest	Management Fee
	(1)	(2)	(3)	(4)	(5)
Gifts_{GP}	-0.001	0.006	0.069	-0.001	0.039
	[0.005]	[0.004]	[0.070]	[0.002]	[0.041]
Prior IRR		-0.022	-0.352	-0.039	0.139
		[0.022]	[0.425]	[0.035]	[0.254]
Observations	1231	1231	1231	269	149
General Partner F.E.	Yes	Yes	Yes	Yes	Yes
Region & Industry F.E.	Yes	Yes	Yes	Yes	Yes
Year × GP Region F.E.	Yes	Yes	Yes	Yes	Yes
GP Controls	Yes	Yes	Yes	Yes	Yes
Y-mean	0.15	2.23	2.30	0.17	1.78

Back

IV Results: Robustness Tests Part 1

	Net IRR			
Instrument Variable	Coefficient	Standard Error	F-Statistic	Observations
1. Base Specification				
Gifts_{GP}	-0.053**	0.024	32.16	1231
2. Sampling Choices				
A. 1990-2017				
Gifts_{GP}	-0.058**	0.027	21.73	1372
B. Include GP's With and Without Relationships				
Gifts_{GP}	-0.056**	0.021	32.80	1758
C. Exclude 10 Largest GP's by Proceeds Raised				
Gifts_{GP}	-0.060*	0.030	21.34	1056
D. Require Non-Missing Deal Data				
Gifts_{GP}	-0.038*	0.022	31.66	837
E. Exclude Funds $\geq$ 90th Percentile of # Deals				
Gifts_{GP}	-0.042*	0.021	18.13	736
F. Exclude Funds $\leq$ 10th Percentile of Fund Size				
Gifts_{GP}	-0.050*	0.025	44.52	1105
G. Exclude Funds $\geq$ 90th Percentile of Fund Size				
Gifts_{GP}	-0.111**	0.047	19.55	1107
H. Include Relationship Controls				
Gifts_{GP}	-0.046*	0.025	45.93	1231
I. Include Funds Regardless of Size				
Gifts_{GP}	-0.047*	0.023	29.64	1403

(Continued on next page)

IV Results: Robustness Tests Part 2

Net IRR				
Instrument Variable	Coefficient	Standard Error	F-Statistic	Observations
3. Instrument and Dependent Variable Choices				
A. Use Continuous Measure of Gifts				
$Gifts_{GP}$	-0.052**	0.023	32.78	1231
B. Use IPEDs' Measure of Gifts, Grants, and Contracts				
$Gifts_{GP}$	-0.055*	0.028	18.83	1231
C. Use Million Dollar Gifts				
$Gifts_{GP}$	-0.059*	0.031	10.77	1231
D. Instrument for Log(Fund Size)				
$Gifts_{GP}$	-0.103**	0.039	29.68	1231
4. Adjust Fixed Effects				
A. Exclude Year F.E.'s				
$Gifts_{GP}$	-0.104***	0.028	34.70	1231
B. Include Linear Time Trend				
$Gifts_{GP}$	-0.070***	0.018	20.93	1231
C. Include PE Annual Funds Raised				
$Gifts_{GP}$	-0.100***	0.026	36.11	1231
D. Include Year Fixed Effects				
$Gifts_{GP}$	-0.058**	0.024	27.27	1231
E. Include GP State × Year F.E.'s				
$Gifts_{GP}$	-0.058**	0.025	16.86	1184

Back

IV Results: Causal Effect of Fund Size on Returns

	Panel B: Net Multiple				
	(1)	(2)	(3)	(4)	(5)
Fund Size ($ Billions)	-0.227***	-0.179***	-0.281***	-0.290***	-0.251**
	[0.077]	[0.060]	[0.083]	[0.083]	[0.091]
Prior Multiple				-0.079	-0.093
				[0.049]	[0.054]
F-Statistic	19.35	23.31	50.31	48.78	34.95
Observations	1306	1306	1306	1306	1306
General Partner F.E.	Yes	Yes	Yes	Yes	Yes
Region & Industry F.E.	No	Yes	Yes	Yes	Yes
Year × GP Region F.E.	No	No	Yes	Yes	Yes
GP Controls	No	No	No	No	Yes
Y-mean	1.88	1.88	1.88	1.88	1.88

Back

IV Effect Excluding Financial or PE Donors from First Stage

Exclude Gifts From:	Net IRR					
	PE Donors			Finance-Related Donors		
	(1)	(2)	(3)	(4)	(5)	(6)
Fund Size ($ Billion)	-0.07**	-0.07**	-0.06**	-0.06**	-0.06**	-0.05*
	[0.03]	[0.03]	[0.03]	[0.02]	[0.02]	[0.02]
Prior IRR		-0.20**	-0.25**		-0.20**	-0.25**
		[0.10]	[0.09]		[0.09]	[0.09]
F-Statistic	26.86	26.78	25.14	28.94	28.88	26.81
Observations	1231	1231	1231	1231	1231	1231
General Partner F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Region & Industry F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Year × GP Region F.E.	Yes	Yes	Yes	Yes	Yes	Yes
GP Controls	No	No	Yes	No	No	Yes
Y-mean	0.18	0.18	0.18	0.18	0.18	0.18

Back

IV Effect of Fund Size on Deal Characteristics

	Deal Size	# Deals	Time to Last Deal	# Sub Sectors	# States	# Regions
	(1)	(2)	(3)	(4)	(5)	(6)
Fund Size ($ Billions)	23.45***	7.00***	1.09***	0.35	0.68	0.27
	[6.83]	[1.95]	[0.29]	[0.78]	[1.63]	[0.16]
Prior IRR	-4.40	-1.61	-0.72	-1.84	-0.34	0.35
	[29.48]	[7.36]	[1.25]	[2.33]	[2.64]	[0.34]
F-Statistic	31.52	31.52	31.52	31.52	31.60	31.52
Y-mean	98.47	19.15	4.57	8.72	9.39	1.90

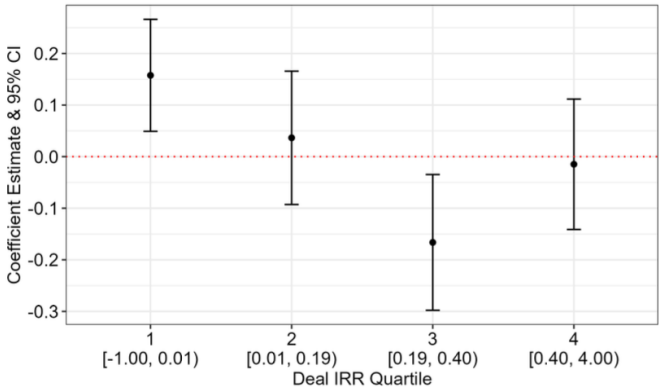
Back

IV Effect of Deal Size on Deal Returns

	Gross IRR	Bottom Quartile	2^{nd} Quartile	3^{rd} Quartile	Top Quartile
	(1)	(2)	(3)	(4)	(5)
Deal Size ($100 Millions)	-0.14*	0.16***	0.03	-0.17**	-0.03
	[0.07]	[0.06]	[0.07]	[0.07]	[0.06]
F-Statistic	22.99	22.99	22.99	22.99	22.99
Observations	8748	8748	8748	8748	8748
Deal Sector F.E.	Yes	Yes	Yes	Yes	Yes
Year × GP Location F.E.	Yes	Yes	Yes	Yes	Yes
General Partner F.E.	Yes	Yes	Yes	Yes	Yes
Region & Industry F.E.	Yes	Yes	Yes	Yes	Yes
GP Controls	Yes	Yes	Yes	Yes	Yes
Y-mean	0.21	0.25	0.25	0.25	0.25

Back

IV Effect of Increases in Deal Size on Deal Return Distribution



Back

IV Effect of Increases in Fund Size on Human Capital

	# Partners	$\frac{\#Deals}{Partner}$	$\frac{\overline{AUM}}{Partner}$
	(1)	(2)	(3)
Fund Size ($ Billions)	2.38***	0.16	0.12
	[0.80]	[1.00]	[0.17]
Prior IRR	0.54	3.76	-0.12
	[2.15]	[3.69]	[0.27]
F-Statistic	31.52	31.52	31.52
Observations	837	837	837
General Partner F.E.	Yes	Yes	Yes
Region & Industry F.E.	Yes	Yes	Yes
Year × GP Location F.E.	Yes	Yes	Yes
GP Controls	Yes	Yes	Yes
Y-mean	7.33	4.33	0.44

Back

Placebo Tests

	First Stage		Second Stage	
	Fund Size ($ Billions)		Net IRR	
Connections	None (1)	Randomized (2)	None (3)	Randomized (4)
Gifts	0.372 [0.331]	0.160 [0.096]		
Fund Size ($ Billions)			0.179 [0.211]	-0.111 [0.072]
Prior IRR	0.195 [0.738]	0.264 [0.736]	-0.298 [0.173]	-0.234* [0.112]
F-Statistic	-	-	1.27	2.79
Observations	1231	1231	1231	1231
General Partner F.E.	Yes	Yes	Yes	Yes
Region & Industry F.E.	Yes	Yes	Yes	Yes
Year × GP Region F.E.	Yes	Yes	Yes	Yes
GP Controls	Yes	Yes	Yes	Yes
Y-mean	1.51	1.51	0.18	0.18

Back

Effect on Types of LPs (Spillovers)

	Total LPs	Non-Sophisicated LPs	Private Univ.	Other LPs
	(1)	(2)	(3)	(4)
Gifts_{GP}	4.47***	2.98***	-0.01	0.46***
	[0.76]	[0.69]	[0.07]	[0.14]
Prior IRR	1.74	-0.33	0.26	1.11
	[8.82]	[7.91]	[0.40]	[1.20]
Observations	1231	1231	1231	1231
General Partner F.E.	Yes	Yes	Yes	Yes
Region & Industry F.E.	Yes	Yes	Yes	Yes
Year × GP Region F.E.	Yes	Yes	Yes	Yes
GP Controls	Yes	Yes	Yes	Yes
Y-mean	17.88	14.43	0.57	2.89

	Total LPs	Non-Sophisicated LPs	Private Univ.	Other LPs
	(1)	(2)	(3)	(4)
Fund Size ($ Billions)	14.22***	9.47***	-0.03	1.45***
	[3.06]	[2.28]	[0.21]	[0.45]
Prior IRR	-1.78	-2.67	0.27	0.75
	[6.94]	[5.51]	[0.39]	[0.87]
F-Statistic	32.21	32.21	32.21	32.21
Observations	1231	1231	1231	1231
General Partner F.E.	Yes	Yes	Yes	Yes
Region & Industry F.E.	Yes	Yes	Yes	Yes
Year × GP Region F.E.	Yes	Yes	Yes	Yes
GP Controls	Yes	Yes	Yes	Yes
Y-mean	17.88	14.43	0.57	2.89

Back

IV Effect on Return Distribution

Panel A: Net IRR

	Bottom Quartile	2^{nd} Quartile	3^{rd} Quartile	Top Quartile
	(1)	(2)	(3)	(4)
Fund Size ($ Billions)	0.173**	0.160	-0.158**	-0.176*
	[0.067]	[0.093]	[0.074]	[0.086]
Prior IRR	0.744**	-0.048	-0.086	-0.610***
	[0.276]	[0.240]	[0.189]	[0.201]
F-Statistic	32.16	32.16	32.16	32.16
Observations	1231	1231	1231	1231
General Partner F.E.	Yes	Yes	Yes	Yes
Region & Industry F.E.	Yes	Yes	Yes	Yes
Year × GP Location F.E.	Yes	Yes	Yes	Yes
GP Controls	Yes	Yes	Yes	Yes
Y-mean	0.25	0.25	0.25	0.25

Panel B: Net Multiple

	Bottom Quartile	2^{nd} Quartile	3^{rd} Quartile	Top Quartile
	(1)	(2)	(3)	(4)
Fund Size ($ Billions)	0.099*	0.158*	-0.087	-0.170**
	[0.054]	[0.082]	[0.088]	[0.075]
Prior Multiple	0.038	-0.007	-0.013	-0.019
	[0.029]	[0.027]	[0.034]	[0.032]
F-Statistic	34.95	34.95	34.95	34.95
Observations	1306	1306	1306	1306
General Partner F.E.	Yes	Yes	Yes	Yes
Region & Industry F.E.	Yes	Yes	Yes	Yes
Year × GP Location F.E.	Yes	Yes	Yes	Yes
GP Controls	Yes	Yes	Yes	Yes
Y-mean	0.25	0.26	0.24	0.24