Investing Outside the Box:
Evidence from Alternative Vehicles in Private Capital

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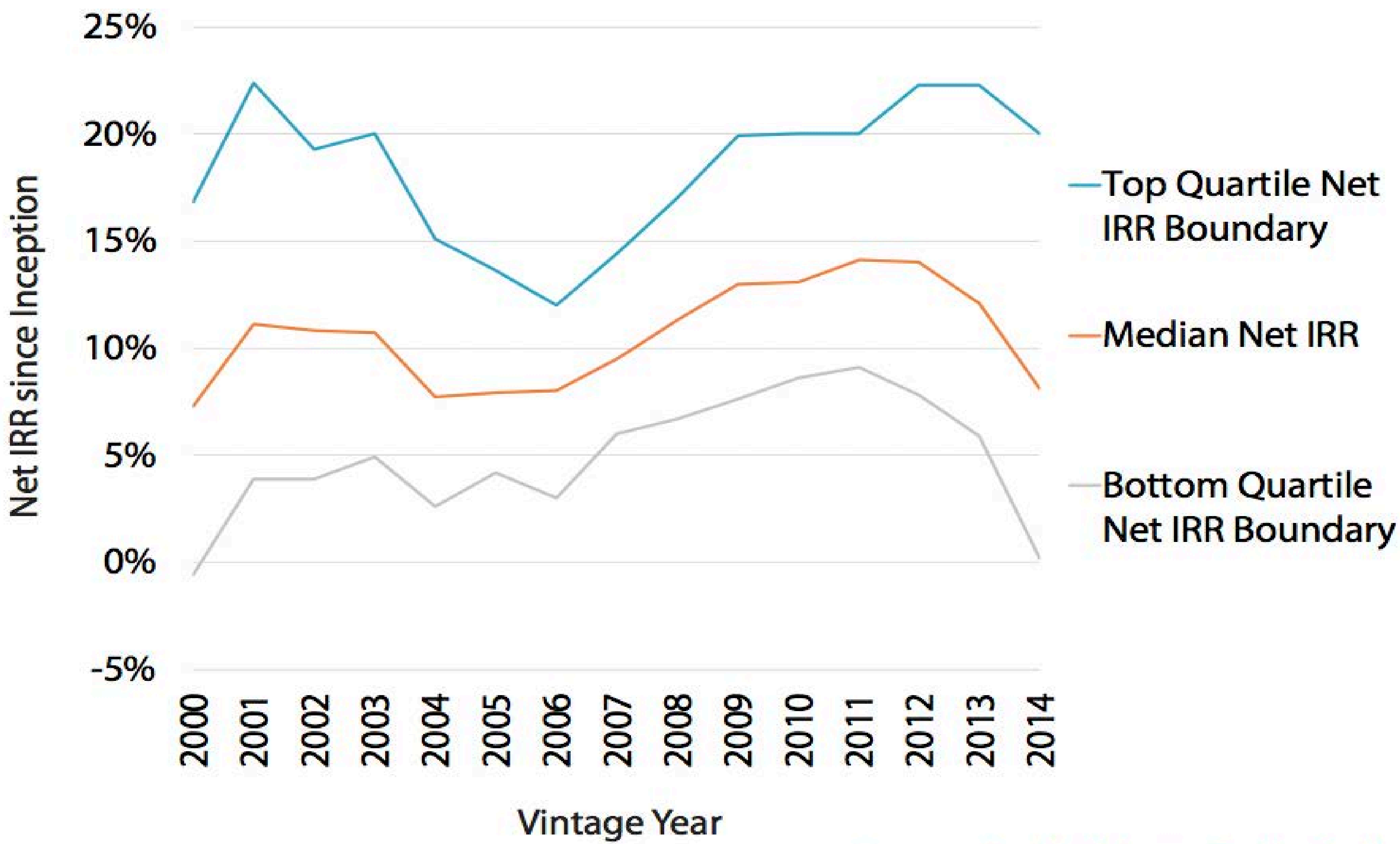
Revisiting the "Private Equity Puzzle"

- Earlier research documents a surprising anomaly in private equity: LPs earn large and predictable alphas
  - PE returns are persistent; top funds grew slowly, Kaplan and Schoar (2005), Harris et al (2014)
  - Fees do not vary significantly across funds or LPs in the same fund, Gompers and Lerner (2002)

- Puzzle: why do managers leave "alpha" on the table?
  - Berk and Green (2004) argue if managers differ in their skill and technology is decreasing returns-to-scale, higher skill managers should manage larger funds and extract more rents
  - But if LPs differ in their attractiveness and sophistication, more powerful and attractive LPs should match with better GPs. Within the offerings of a given GP, there should be differentiation in the vehicles that are offered to LPs of different types

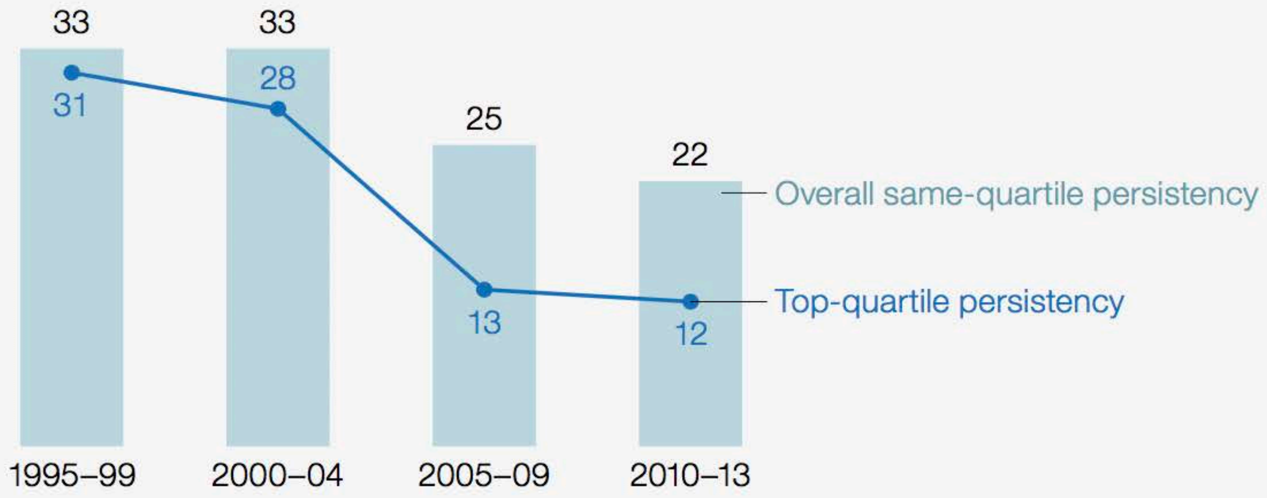
Interquartile Ranges Still Very High



Source: Preqin Private Equity Online

Falling Persistence of Returns

Private equity funds in same quartile as immediate predecessor, %



Note: Persistency is measured with immediate successor fund (eg, Asia Buyout Partners IV would be successor to Asia Buyout Partners III).

Source: Preqin; McKinsey analysis

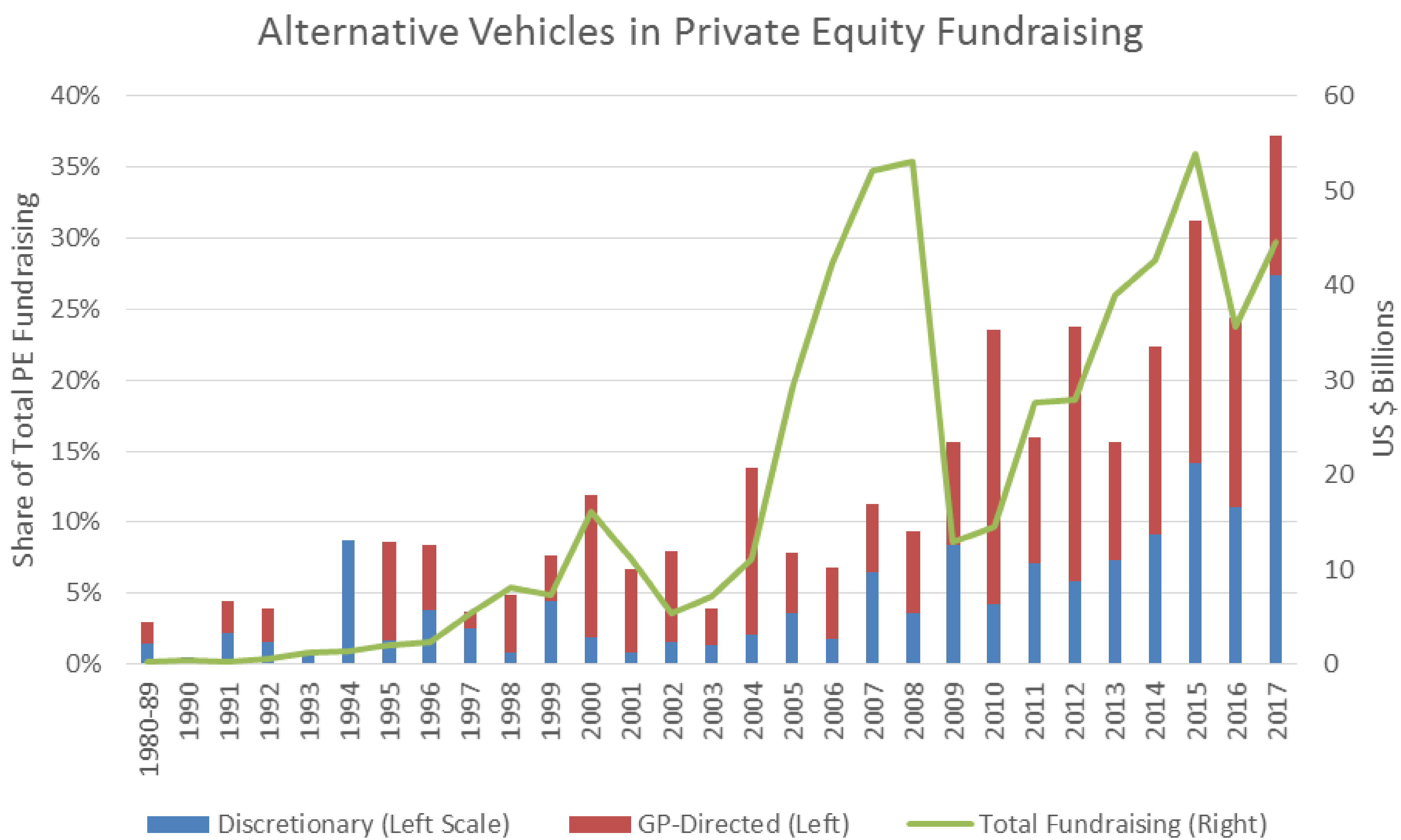
Is the Old Puzzle Disappearing?

- The best groups may capitalize on their reputation and offer differentiated products
  - **Bargaining:** Groups with excess demand by LPs might be willing to set up alternative vehicle for less premier LPs to invest with them. These LPs might be willing to accept slightly lower returns, since their outside options are also lower than for the top LPs.
  - **Financial Sophistication**: Some LPs may not understand if they are being offered inferior opportunities

- Private capital groups could achieve the differentiation of fund returns suggested by theory, if they adjust:
  - Transaction fees across investment vehicles or
  - Asset quality across investment vehicles.

"We structured the LPA so it won't make any sense to you."

A New Margin of Differentiation



Note: 1980-89 and 2017 (partial year) fundraising totals are annualized.

Barriers to Academic Assessment

- Despite the intense real-world interest, study is challenging.
  - Even the services that track these markets, such as Burgiss, Cambridge Associates, and Preqin, focus on documenting the performance of main funds rather than alternative vehicles.

- Only exception are studies which focus on select samples of direct investments by limited partners:
  - Fang, Ivashina, and Lerner (2015) analyzed co-investments and solo investments using information from only seven large LPs.
  - Braun, Jenkinson, and Schemmerl (2017) looked at co-investments recorded in the CapitalIQ database, which only captures a (potentially non-random) selection of transactions.

Our Data

- Work with State Street Bank, one of largest custodians in the world
  - 112 global LPs investing in PE between 1980 and mid-2017:
    - Over half a trillion dollar of capital commitments (5-10% of total).
    - Over 20 thousand distinct investments.
    - Mix between main funds and alternative vehicles.

- Focus on difference between <u>main funds</u> and alternative vehicles:
  - Most alternative vehicles can be classified by who makes the investment
  - <u>GP-directed funds:</u> parallel vehicles that invest in similar securities as the main funds and the GP retains key decision-making powers. (819 funds)
  - <u>Discretionary funds:</u> LPs have some discretion to invest in one or more transactions. (883 funds)

Matching Data

- Identify vehicles associated with the main funds of private capital groups
  - TPG Global Advisors' July 2017 filing of Firm ADV with the U.S. Securities and Exchange Commission identified in Section 7B nearly 100 affiliated entities. While some of these were clearly identifiable from their titles (e.g., TPG Parallel III), many had far less obvious names (e.g., Arrow Ridge Capital Master Fund, FoF Partners III-B, and MLS (B&C) AIV 1-B).

- We identify 3,620 "main funds": typically, eight-to-ten year limited partnerships.
- Using State Street's "standardized name convention" process, we identified 6,068 unique investment vehicles with associated LP and GP names.

Assessing Sample Representativeness

- Harris et al. (2016) reports performance from Burgiss data.

- Replicate calculations by only using U.S. funds in vintage years through 2010 and comparing performance against the S&P 500, but calculating performance through mid-2017.

- Obtain very similar numbers to theirs:
  - Our average PME for buyout funds across all vintage years (calculated using 944 funds, to their 781) is 1.22, as compared to their 1.20.
  - Our average PME for venture funds (computed using 669 funds, to their 1095) is 1.44, as compared to their 1.35.

Differences in Alternative Vehicle Use

- Substantial more reliance on alternative vehicles for buy-out and private debt groups; much less in VC

- Smaller funds far less likely to use alternative vehicles
  - Only 7% of alternative vehicles (2% of capital) are offered by funds in the lowest tercile

- North American GPs use alternative vehicles more
  - Almost 10 times as likely to use alternative vehicles compared to Europe

Performance by Vehicle Type

					Russell 3000 KS PME
Vehicle type	N	25%	50%	75%	Weighted Average
Main	3562	1.23	0.97	0.77	1.02
Main AV-Associated	679	1.20	0.97	0.76	1.02
Discretionary	840	1.23	0.99	0.77	0.99
GP-Directed	799	1.24	1.01	0.81	0.97

			IRR		
Vehicle type	N	25%	50%	75%	Weighted Average
Main	3562	0.17	0.09	0.00	0.09
Main AV-Associated	679	0.17	0.09	0.00	0.10
Discretionary	840	0.24	0.10	-0.01	0.09
GP-Directed	799	0.22	0.12	0.03	0.11

Performance Relative to Main Fund

- Comparison of the performance of alternative vehicles against the main fund of the same partnership.
  - Compute the difference in the PME between the performance of each alternative and that of the main fund(s) raised by the same group immediately prior to the launch of the alternative vehicle.
  - 58% of the alternative vehicles are matched to a main fund begun in the same year as the vehicle

- The results are robust to the use of alternative methodologies:
  - Shorter matching window.
  - Using average of prior main funds.
  - Excluding private debt, offshore funds, and recent funds.

Performance Related to Main Funds

Vehicle type	N	Weighted average	p-value	Average	p-value	median
All	1433	-0.066	0.001	-0.006	0.795	0.004
Discretionary	725	-0.016	0.657	0.004	0.912	0.012
GP-Directed	708	-0.101	0.000	-0.016	0.499	0.001

Heterogeneity in Performance

- The identity of the LP matters:
  - Funds-of-funds had consistently negative relative performance across all three measures.
  - Public pensions were also consistent underperformers.
  - Insurance and finance institutions, in contrast did quite well in their alternative investments.

- In regressions, LPs with historically high performance also do better in selecting alternative vehicles, which may suggest the persistence of skill effect:
  - Consistent with Cavagnaro et al. 2017.

Excess PME of Alternative Vehicles By LP

LP type	Vehicle type	N	Weighted Average	p-Value	Average	p-Value	Median
Fund-of-Funds	Discretionary	35	-0.144	0.025	-0.107	0.385	-0.075
	GP-Directed	89	-0.106	0.088	-0.078	0.374	-0.021
Foundation & Endowment	Discretionary	53	0.064	0.420	0.026	0.773	-0.039
	GP-Directed	74	-0.028	0.319	0.002	0.949	0.005
Insurance & Financial institution	Discretionary	162	0.177	0.002	0.247	0.000	0.081
	GP-Directed	390	0.013	0.677	0.050	0.187	0.020
Private Pension	Discretionary	29	0.195	0.002	-0.041	0.723	0.027
	GP-Directed	54	-0.001	0.985	-0.045	0.567	-0.016
Public Pension	Discretionary	390	-0.083	0.205	-0.044	0.470	0.038
	GP-Directed	120	-0.065	0.122	0.023	0.606	0.013
Sovereign Wealth Fund	Discretionary	102	0.082	0.093	-0.005	0.933	-0.086
	GP-Directed	100	-0.213	0.004	-0.220	0.004	-0.063

Matching Between LPs and GPs

- Positive assortative matching between LPs and GPs
  - Top LPs receive better returns than lower performance LPs, even holding constant the identity of the GP
  - The identity of LPs matter for bargaining and ability to select investments

- Dependent variable is PME of each investment by an individual LP in an alternative vehicle.
  - PME of alternative vehicle with above median LP-GP match is 0.38 points higher than base category of below-median GP–LP
  - Larger for LP-discretionary vehicles

Matching Between LPs and GPs

Panel A: Alternative vehicle PME.

	LP+GP+	LP+GP-	LP-GP+	LP-GP-
All	1.12	0.93	0.94	0.76
Discretionary	1.19	0.89	0.91	0.68
GP-Directed	1.05	0.95	0.96	0.80

Panel B: Alternative vehicle adjusted excess PME.

	LP+GP+	LP+GP-	LP-GP+	LP-GP-
All	0.08	0.11	-0.23	-0.11
Discretionary	0.26	0.03	-0.28	-0.12
GP-Directed	-0.08	0.16	-0.20	-0.10

Adjusting for Outside Opportunities of LPs

Panel C: Alternative vehicle PME less the weighted average PME of main funds invested in during the prior five years.

	LP+GP+	LP+GP-	LP-GP+	LP-GP-
All	0.10	-0.11	0.10	-0.03
Discretionary	0.22	-0.16	0.12	-0.06
GP-Directed	-0.01	-0.09	0.10	-0.02

PMEs of Alternative Vehicles Vary by Match

Variables	All alternative vehicles		Discretionary		GP-Directed	
GP_size_{Middle}	0.229		-0.069		0.424	
	(0.312)		(0.649)		(0.294)	
GP_size_{Top}	0.149		-0.309		0.437	
	(0.306)		(0.637)		(0.288)	
$GP\_strategy_{VC}$	0.025		-0.053		0.116	
	(0.043)		(0.080)		(0.044)***	
$GP\_strategy_{Debt}$	0.002		0.167		-0.100	
	(0.033)		(0.061)***		(0.034)***	
$LP\_PME(+)GP\_PME(-)$	0.181	0.023	0.246	-0.004	0.174	0.042
	(0.039)***	(0.023)	(0.083)***	(0.043)	(0.037)***	(0.025)*
$LP\_PME(-)GP\_PME(+)$	0.185	0.122	0.274	0.244	0.162	0.066
	(0.034)***	(0.026)***	(0.073)***	(0.054)***	(0.032)***	(0.026)**
$LP\_PME(+)GP\_PME(+)$	0.376	0.265	0.588	0.399	0.263	0.200
	(0.034)***	(0.024)***	(0.072)***	(0.048)***	(0.033)***	(0.025)***
Observations	3615	3364	1544	1468	2071	1896
Adjusted R-squared	0.041	0.038	0.064	0.054	0.036	0.034

Wrapping Up

- Broad look at transactions involving assets outside the traditional fund structure:
  - Alternative vehicles have been a rapidly growing part of LP portfolios over the past decades
  - Document the disparity in performance across LPs and GPs in such vehicles

- Consistent with a story of assortative matching
  - GPs differentiate the returns of the vehicles they offer to LPs, based on the LPs’ outside options
  - Bargaining and LP sophistication play important role

Thank you!