



What Do We Know About Institutional-Quality Hedge Funds? *

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Abstract

Using publicly available sources such as trade press and Form ADV filings, we compile a list of 561 “institutional-quality” hedge fund managers that each have at least 1 billion USD in primary hedge fund assets under management. We examine the availability of historical return information for funds operated by these managers and find 152 managers (27.1%) are not represented in commercial databases. Utilizing an alternative data source (PivotalPath) increases analyzable managers by 15.6%. Consistent with recent research based on confidential Form PF filings, we confirm that commercial databases exclude better-performing institutional-quality funds. The augmented dataset yields a fund sample with an alpha 0.8 percentage points higher and an adjusted R-squared 0.05 lower (using a 7-factor risk model) as well as 3.6 percentage points more fund life covered and a more recent set of funds. Funds unique to PivotalPath have alpha 2.4 percentage points higher, adjusted R-squared 0.11 lower, and are significantly larger when compared to funds unique to commercial databases.

1 Introduction

A recent research paper by Barth et al. (2023) evaluates the completeness of commercial hedge fund databases by comparing publicly available information with confidential regulatory data provided by funds on the SEC’s Form PF. The results are striking. It appears that commercial data sets exclude more than 2 trillion USD in AUM from funds that are required to report their performance to regulators. Furthermore these “hidden” hedge funds have higher alphas, lower exposure to market risk factors, and less flow sensitivity to performance – all of which are desirable characteristics to investors. In addition, the Barth et al. (2023) research finds that the vast majority of funds in the commercial dataset do not report on Form PF which suggests that the commercial databases contain many funds not available to outside investors or operated by small firms that are unlikely to be of interest to institutional allocators. This research raises some important questions for those analyzing hedge funds without access to confidential regulatory data

*We thank PivotalPath for providing data for this analysis.

– specifically, i) how can those seeking to do analysis of hedge funds limit their sample to funds that are of “institutional-quality” and ii) how might the gaps in commercial databases be filled to generate an appropriate data universe for analysis?

In this research note we take a first pass at a methodology to help answer these two questions. Specifically, we attempt to identify all active institutional-quality fund managers in Form ADV. We then collect returns data from either a commercial dataset or PivotalPath, a proprietary hedge fund intelligence and analytics platform. By comparing characteristics of funds that we can observe in ADV through 2023Q2, commercial databases, and PivotalPath, we can gain insights into the feasibility of building a representative database of institutional-quality funds without access to Form PF data.

Our analysis starts by using publicly available sources such as trade press and Form ADV filings to compile a list of asset managers that each have at least 1 billion USD in primary hedge fund assets under management (AUM). While this is an admittedly arbitrary cut-off, our discussions with institutional investors in hedge funds suggest this is a reasonable size cutoff for firms they would consider investing with. We then restrict the sample in two ways. First, we consider only recent ADV-filing funds under the working assumption that all institutional-quality funds will have filed a recent Form ADV. Second, we consider only funds for which we can obtain historical returns data since these are the funds that form the backbone of hedge fund performance analytics. With this set of analyzable ADV-filing hedge funds, we compare gross asset value (GAV) covered, number of monthly of returns covered, mean monthly return, alpha from a 7-factor model, R-squared, and the information ratio among different slices of commercial databases from 2013-2022.¹

2 Identifying Institutional-Quality Funds

Firms. To create our list of institutional-quality funds, we scour the internet for lists of the largest hedge fund managers. We also collect all Form ADV filings and attempt to identify firms with more than 1 billion USD in primary hedge fund AUM.² To date, we have been able to identify 561 active firms meeting the 1 billion USD in AUM threshold.³ Next, we identify whether these firms are represented in a commercial dataset, PivotalPath, or Form ADV.⁴ The results are presented in Figure 1.

¹We utilize gross asset value (GAV) as our measure of fund size because Form ADV filings do not provide estimates of assets under management (AUM) at the fund level. Given the significant differences between GAV and AUM for some funds, we prefer AUM, but that is not possible for much of our analysis.

²Our list of managers is provided as an appendix and we welcome feedback on firms that are included and/or excluded.

³We group a primary firm and its subsidiaries into a single firm. For example, we consider Man Group and its subsidiaries like Man-AHL to be a single firm despite being different legal entities in some ways.

⁴We use the same set of commercial databases as Barth et al. (2023). Their paper also provides a detailed discussion of coverage relative to Forms PF and ADV.

VENN DIAGRAM: FIRMS WITH AT LEAST 1 BILLION USD IN AUM

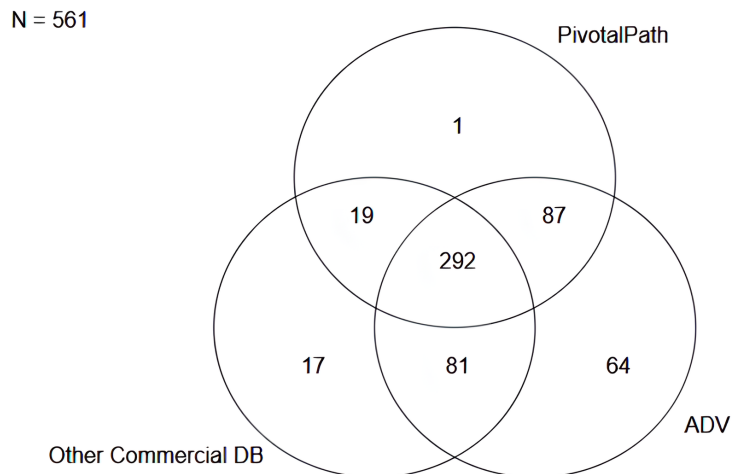


FIGURE 1: PivotalPath covers 379 ADV-filing fund managers compared to 373 for other databases.

Interestingly, 36 out of 409 managers (8.8%) found in commercial databases are not found in Form ADV. These could be foreign firms that are not required to report to the SEC or funds operating under a different name in the U.S. which we have yet to identify. Of these 36, we were able to identify 19 in PivotalPath. 20 out of 399 managers (5.0%) found in PivotalPath are not found in ADV, whereas 88 managers (22.1%) were available in PivotalPath, but not a commercial database. We identify 64 managers (11.4%) that are only observed in ADV. About half of the managers (292) are present in all three data sources. Importantly, 152 managers (27.1%) are not represented in the commercial databases.

Funds. We next collect data on the funds associated with these managers, obtaining data on 6,901 hedge funds; we restrict our Form ADV sample to funds with filings since 2022 (i.e. recently “active” funds). The results are shown in Figure 2. Note that any fund we could identify as a UCITS or a fund of funds was removed from the sample.⁵

The majority of these hedge funds (3,624) are only in Form ADV and not any commercial database. However, manual inspection of these funds indicates that many are not primary funds available to outside investors. For example, many are master-feeder relationships, “funds-of-one”, special purpose funds, fund-of-funds, and the like. The PivotalPath data has 757 hedge funds, 631 (83.4%) of which are ADV-filing; whereas commercial databases have 3,045 hedge funds, but only 1,033 (36.8%) are ADV-filing. Of PivotalPath’s 631 ADV-filing hedge funds, 191 are unique to PivotalPath. The other databases have 593 unique ADV-filing funds. These results suggest that a simple count of funds appears to distort more than clarify the picture; consequently, we instead turn to considering only funds for which we can obtain performance data.

⁵Specifically, we removed 45 fund of funds from commercial databases, 447 UCITS from commercial databases, and 2 UCITS from PivotalPath.

VENN DIAGRAM: FUNDS OF FIRMS WITH AT LEAST 1 BILLION USD IN AUM

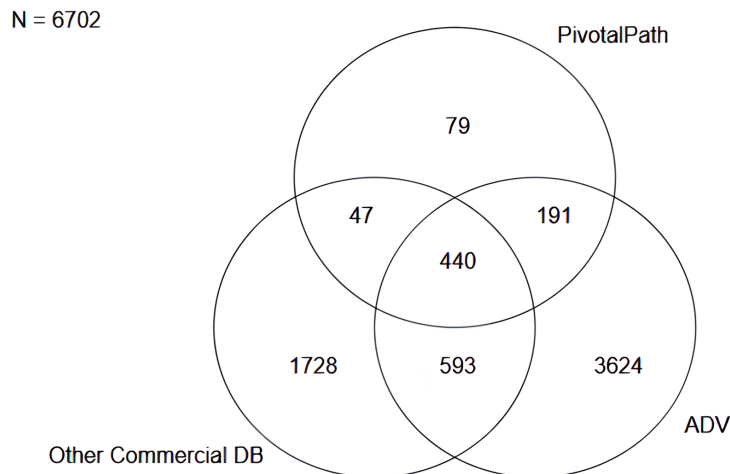


FIGURE 2: PivotalPath covers 631 recent ADV-filing funds from large managers compared to 1,033 for other databases.

3 Returns and Coverage

Of the 561 recent ADV-filing hedge fund managers in our sample, we have returns data during 2013-2022 for 398 of them, 90 unique to PivotalPath and 60 unique to the other databases.⁶ In terms of funds, we have returns data for 669 of the 7,582 total potential funds we identified. Of these, 127 are unique to PivotalPath and 199 unique to the other databases. This slice of data is of particular practical importance because it captures hedge funds that are both “real” and analyzable, thereby forming the set of funds available for detailed performance analysis. Mean returns and GAV coverage for this sample are shown in Table 1, where each fund GAV is the median of its GAV filings (provided the fund has at least one Form ADV filing since 2022).

From a firm-level perspective, PivotalPath can account for 76.9% of firm GAV and 53.9% of fund GAV in their database; the other databases can account for 72.2% of firm GAV with 49.8% of fund GAV. The firm/fund discrepancy comes from a typical firm having multiple hedge funds listed in Form ADV, but only having a subset of funds with returns that we can associate with a specific fund. This points out an inherent limitation to the Form ADV data which can be very difficult to associate with a specific fund product or strategy (as noted above we see funds-of-one and cryptic fund names). This issue is further complicated by the difficulty of determining which ADV-filed funds (e.g. feeders, masters, parallel funds, etc) really belong to the same primary hedge fund. Accordingly, we can consider firm GAV coverage to be an upper-bound and fund GAV coverage to be a lower-bound in terms of coverage by the databases.⁷

⁶We only count funds that have at least one return since 2022, at least 12 returns overall, and at least as many observations as missing values.

⁷The lower-bound/upper-bound interpretation does not hold when considering funds and firms unique to Pivotal-

AVERAGE GAV COVERAGE AND ANNUALIZED RETURNS, 2013-2022

Source	Firm GAV Coverage	Fund GAV Coverage	Returns
Any	100.0%	100.0%	6.4%
PP and Comm	64.9%	41.3%	7.7%
PP and ADV	76.9%	53.9%	8.5%
Comm and ADV	72.2%	49.8%	7.7%
PP Only	11.9%	12.6%	9.5%
Comm Only	7.2%	8.5%	5.1%
All PP			8.1%
All Comm			6.1%
ADV Only	15.9%	37.6%	

TABLE 1: GAV is the gross asset value for funds as reported in Form ADV for subsets of funds that appear in PivotalPath (PP) and Commercial (Comm) databases with ADV activity since 2022. We use fund-month returns available for each category to create an average monthly return for each category and then report the annualized monthly return.

These GAV coverages can be interpreted in light of fund counts in a number of different ways, the importance of which depends on the interests of the reader. First, the other databases have about 3.2 times the number of funds found in PivotalPath, but those extra 1,655 funds still leave the other databases with only 92.4% of PivotalPath’s GAV worth of analyzable ADV-filing hedge funds. To that end, we can directly compare the analyzable GAV per fund, all-inclusive: PivotalPath funds average 3.5 times the analyzable GAV of funds in other databases.

Second, we can consider PivotalPath and the other databases to be substitutes and compare their unique analyzable funds directly: the unique funds found in PivotalPath average 1.7 times the GAV of the unique funds found in the other databases. Third, we can consider the additive value of PivotalPath’s unique funds to the total collection of funds already found in the other databases: the GAV per unique PivotalPath fund averages 1.5% more than funds found in the other databases. These results are all consistent with findings in Barth et al. (2023) that many funds in the commercial databases are small or redundant (e.g., varying only by share class).

Table 1 also reports the mean annualized monthly returns over the full sample period. The average returns for the entire sample of funds is 6.4 percent. Looking at returns conditional on database coverage reveals some important differences and importantly, that funds available in PivotalPath have returns that are about 2 percentage points higher than funds in the commercial databases. When examining the unique funds in each data source, we find that those funds unique to PivotalPath outperform those unique to the other databases by 4.4 percentage points. We look at risk-adjusted returns below.

We also look at coverage within funds. Table 2 shows monthly returns coverage over the 120 month window being analyzed. Overall, PivotalPath funds average 3.9 more months of returns coverage per fund when compared to other databases. PivotalPath does have fewer funds overall,

Path or other databases. For example, GAV of a *fund* unique to PivotalPath might not be GAV of a *firm* that is unique to PivotalPath; that fund GAV becomes part of “PP and Comm” instead of “PP Only” under “Firm GAV Coverage”.

but the preceding GAV coverages suggest that this is because the other databases cover a larger number of less substantial hedge funds. When comparing funds covered by both, PivotalPath has returns coverage for 5.9 more months, on average. When looking at funds unique to each, other commercial databases have returns coverage for 3.1 more months, on average.

Monthly coverage might not be the best metric, however, since funds younger than 10 years old clearly cannot be covered for all 120 months in the sample; a higher proportion of young funds in coverage would therefore give the impression of worse coverage in terms of months alone. To that end, we also calculate months covered as a percentage of the life of a fund, also reported in Table 2. PivotalPath has 97.7% coverage of fund life compared to 94.1% of other databases; combining all of the data yields 98.7% coverage of fund life. Looking at shared funds, PivotalPath covers 97.2% compared to 91.9% from other databases; combining all of the data yields 99.4% coverage of fund life. PivotalPath covers its unique funds for 98.7% of their lifetime compared to 97.6% for other databases. These numbers suggest that not only does PivotalPath have better coverage per fund in absolute terms, but it also covers more recent hedge funds on average, which is to say, its sample of funds is more up-to-date.

FUNDS COVERAGE, 2013-2022

Source	Funds	Months Per Fund	Total Months	Coverage Per Fund
All Funds				
Combined	636	100.3	63,806	98.7%
PP	437	101.6	44,388	97.7%
Comm	509	97.7	49,721	94.1%
Shared Funds				
Combined	310	108.1	33,522	99.4%
PP	310	105.9	32,833	97.2%
Comm	310	100.0	30,992	91.9%
Unique Funds				
PP Only Funds	127	91.0	11,555	98.7%
Comm Only Funds	199	94.1	18,729	97.6%

TABLE 2: PivotalPath tends to cover more months per fund and a larger percentage of fund life, although it has fewer funds in coverage.

4 Fund Risks and Alphas

Differences in returns across datasets could be a function of fund riskiness and not representative of differences in risk-adjusted performance. To account for potentially different risk profiles, we also estimate a 7-factor regression model for each group of funds and report results in Table 3. The last two columns are of most interest because they show the differences in risk factors for the funds that report to either just PivotalPath or just a commercial database.

In terms of factor risk loadings, those funds only in the commercial databases have signifi-

TABLE 3: 7-Factor Regression Results. Dependent Variable: Monthly Returns

	(1)	(2)	(3)	(4)	(5)	(6)
	Either	PP and Com	All PP	All Com	PP, not Com	Com, not PP
Global Stocks	0.296***	0.252***	0.280***	0.282***	0.365***	0.337***
Global Bonds	0.052	0.008	0.002	0.068	-0.029	0.175**
Commodities	0.040***	0.040**	0.038**	0.042***	0.031	0.047***
Small Stocks (SMB)	0.057*	0.040	0.053*	0.049*	0.096**	0.065*
Value Stocks (HML)	0.054	0.055	0.042	0.066*	0.002	0.084**
Momentum	0.039*	0.056**	0.051*	0.040*	0.041	0.009
Illiquidity	0.120***	0.113***	0.125***	0.111***	0.160***	0.108***
Alpha (Annualized)	4.953***	5.330***	5.484***	4.729***	6.034***	3.605***
Adjusted R-squared	0.845	0.798	0.802	0.853	0.778	0.887
Information Ratio	0.625	0.681	0.647	0.637	0.519	0.450

Estimated over 120 months from 2013-2022

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Standard errors are Newey-West HAC-robust with 1 lag

cantly higher exposures to global bonds, commodities, and the equity value factor. The funds reporting only to PivotalPath have somewhat higher loading on the Pastor-Stambaugh illiquidity factor. We also note that the adjusted R-squared for funds only reporting to PivotalPath is about 0.11 lower than for funds only reporting to commercial databases. This suggests that the funds only in PivotalPath have a larger idiosyncratic return component and thus are likely to provide better diversification for broad portfolios. This result is consistent with the findings of Barth et al. (2023) which documents that funds filing form PF and not in commercial databases have lower betas and “tighter exposures to systematic risks.”

The annualized alpha for the entire sample is about 5.0 percentage points with an adjusted R-squared of 0.85. Interestingly, funds unique to PivotalPath have an annualized alpha of 6.0 percentage points which is 2.4 percentage points higher than funds that only report to a commercial database. This difference in alphas is on par with that identified by Barth et al. (2023) which finds that funds filing Form PF, but not in commercial data sets, have an annual difference in median alpha of 2.83 percentage points.

The risk and performance results flow through to higher information ratios for funds that only report to PivotalPath versus those only reporting to a commercial database.⁸ Specifically, the information ratio of funds unique to PivotalPath is 0.07 higher than those unique to the other databases. We conclude that on a risk-adjusted basis, funds in PivotalPath outperform those in the other databases in terms of both active return and correlation to the market.

Finally, we consider the results for just the full set of funds in the combined commercial databases (“All Com”) and the smaller, but potentially more representative, set of funds in Piv-

⁸We calculate information ratios as the estimated alphas divided by the standard deviation of the residuals of the 7-factor regression model.

otalPath (“All PP”). We find that the annualized returns and information ratios of the PivotalPath funds are notably higher. In addition, the PivotalPath funds look very similar in terms of risk and performance to the set of funds that are only in both data sources (“PP and Com”) and decidedly better than the set of funds in both data sources (“Either”). These findings closely mirror the analogous results in Barth et al. (2023) for funds that only are observed in Form PF.

5 Conclusion

Combining the results presented in this research note, we can conclude that examining only funds in commercial databases results in a biased view of historical hedge fund risk and return. Including proprietary sources of hedge fund data, such as that found on platforms like PivotalPath, can close the gap between performance measured using just commercial data sets and that obtained from confidential regulatory data. In this sense, a careful analysis of institutional-quality hedge funds appears feasible, but requires consideration of which funds comprise the sample under study. Given these important preliminary results, we hope to further refine our definition of institutional-quality funds and expand our set of available performance data in future iterations of this project.

References

Barth, Daniel, Juha Joenväärä, Mikko Kauppila, and Russ Wermers (2023) “A Bias-Free Assessment of the Hedge Fund Industry: A New Evaluation of Total Assets, Alphas, and the Flow-Performance Relation,” *OFR WP*, 20–01, <https://dx.doi.org/10.2139/ssrn.3544181>.

Appendix: Current List of Institutional-Quality Hedge Fund Managers

Our list of hedge fund managers with at least 1 billion USD in AUM follows, although not all listed managers have Form ADV filings and therefore not all listed managers are included in the main analysis. If you have comments on this list, please contact the authors.

36 South Capital Advisors	Asgard Asset Management
400 Capital Management	Aspect Capital
A.R.T. Advisors	Aspex Management
Abdiel Capital	Assenagon Asset Management
Abrams Capital	Astignes Capital Asia
ACG Wealth	Athos Capital
Adage Capital Management	Atlantic Investment Management
Adam Capital	Aurelius Capital Management
AKO Capital	Autonomy Capital
Albar Capital	Avenue Capital Group
Alcentra	Avidity Partners
Alken Asset Management	Aviva Investors
Alkeon Capital	Avoro Capital Advisors
AllianceBernstein	Axonic Capital
Alpha Wave Global	Bahia Asset Management
Alphadyne Asset Management	Bain Capital
AlphaSimplex Group	Baker Brothers Investments
Alpine Associates	Balyasny Asset Management
Alpstone Capital	Bardin Hill Investment Partners
Alua Capital Management	Basswood Capital Management
Alyeska Investment Group	The Baupost Group
Amber Capital	Bayview Asset Management
Amber Hill Group	Brasil Capital
Amia Capital	Beach Point Capital Management
Amundi	Benefit Street Partners
Allspring Global Investments	BFAM Partners (Hong Kong)
Anatole Investment Management	AS Birch Grove
Anchorage Capital Group	BlackGold Capital Management
TPG Angelo Gordon	BlackRock
ANIMA Holding	Blackstone / GSO Capital Partners
Anomaly Capital Management	Bloom Tree Partners
Antipodes	Blue Diamond Asset Management
Appaloosa Management	RBC BlueBay Asset Management
AQR Capital Management	BlueSpruce Investments
Arcadia Funds	Boothbay Fund Management
Asia Research & Capital Management	Boundary Creek Advisors
Ardevora Asset Management	Boussard & Gavaudan
Arena Investors	Bracebridge Capital
Aristeia Capital	Bradescor Asset Management
ArrowMark Partners	Braidwell
Arrowstreet Capital	Brevan Howard
Artemis Investment Management	Brevet Capital Management

Bridger Capital
 Bridgewater Associates
 Brigade Capital Management
 Brilliance Capital Management
 Broad Peak Investment Advisers
 Broad Bay Capital Management
 Brummer & Partners
 Bybrook Capital
 Cadian Capital Management
 Polus Capital Management
 Camden Asset Management
 Campbell & Co.
 Candlestick Capital
 Candriam
 Canyon Partners
 CapeView Capital
 Capital Fund Management
 Capstone Investment Advisors
 Capula Investment Management
 Carlisle Management Company
 Carlson Capital
 Carmignac
 Caspian Capital
 Castle Hook Partners
 Cat Rock Capital Management
 Caxton Associates
 Centerbridge Partners
 Cerberus Capital Management
 Cevian Capital
 Chatham Asset Management
 Chenavari Investment Managers
 Cheyne Capital Management
 Chilton Investment Company
 China Orient Asset Management Corporation
 CIFIC Asset Management
 Cinctive Capital
 Citadel
 Clean Energy Transition
 Clear Sky Advisers
 CloudAlpha Capital Management
 Clough Capital Partners
 Coast Asset Management
 Coatue
 Columbus Hill Capital Management
 Complus Asset Management
 Connor, Clark & Lunn Investment Management
 Conservative Concept Portfolio Management
 Contour Asset Management
 Contrarian Capital Management
 Corbin Capital Partners
 Corvex Management
 Covalis Capital
 CQS
 Crabel Capital Management
 Crane Asset Management
 Credit Suisse
 Crestline Investors
 Crestwood Capital Management
 Cryder Capital Partners
 Cyrus Capital Partners
 D1 Capital Partners
 Danske Invest
 Darsana Capital Partners
 Davidson Kempner Capital Management
 The D. E. Shaw Group
 Deer Park Road Management Company
 Deerfield Management
 DG Partners
 Diameter Capital Partners
 Discovery Capital Management
 DNCA Finance
 dormouse
 Dorsal Capital Management
 DoubleLine
 Driehaus Capital Management
 DW Partners
 Dymon Asia Capital
 Eagle Point Credit Management
 East X
 Echo Street Capital
 Egerton Capital
 Eisler Capital
 EJJ Capital
 Elan Capital Management
 Element Capital Management
 ELEVA Capital
 Ellington Management Group
 Elliott Investment Management
 Eminence Capital
 Empyrean Capital Partners
 EMS Capital
 Emso Asset Management
 Endeavour Capital Advisers
 Engaged Capital
 Episteme Capital
 ExodusPoint Capital Management
 Farallon Capital Management
 Foundation Credit
 FengHe Fund Management
 Field Street Capital Management
 FIFTHDELTA
 Finepoint Capital
 Fir Tree Partners
 First Beijing
 First Quadrant
 Forada
 Formuepleje
 FORT
 Fortress Investment Group
 Franchise Capital Management
 Fulcrum Asset Management
 Galena Asset Management
 GAM Investments
 Garda Capital Partners
 Gates Capital Management
 Gavea Investimentos
 Gavekal Capital
 GCI Asset Management
 Gemsstock
 Gen2 Partners
 Ghisallo Capital Management
 Gladstone Capital Management
 Glazer Capital Management
 Glen Point Capital

Glenview Capital	KLS Diversified Asset Management
GMO	Knighthood Capital Management
GMT Capital	Kora Management
GoldenTree Asset Management	Kuvari Partners
Gotham Asset Management	L1 Capital
Governors Lane	LFIS Capital
Graham Capital Management	Lake Bleu Capital (Hong Kong)
Gramercy Funds Management	Lakefront Asset Management
Graticule Asset Management Asia	Lakewood Capital Management
Greenlight Capital	Lancaster Investment Management
Greenvale Capital	Laurion Capital Management
Greenwoods Asset Management	Lazard Asset Management
Gresham Investment Management	Leadenhall Capital Partners
GSA Capital	LibreMax Capital
Guggenheim Investments	Light Sky Macro
Haidar Capital Management	Light Street Capital
Hawk Ridge Capital Management	Linden Advisors
HBK Capital Management	Litespeed Management
Hein Park Capital Management	LMR Partners
Helikon Investments	Locust Wood Capital
Hengistbury Investment Partners	Lodbrok Capital
HG Vora Capital Management	Lombard Odier Investment Managers
Highbridge Capital Management	Lone Pine Capital
Hildene Capital Management	Long Pond Capital
Himalaya Capital	LTS One
Hitchwood Capital Management	Luminus Management
HMI Capital Management	Luxor Capital Group
Holocene Advisors	Lynx Asset Management
Holowesko Partners	M&G Investments
Horizon Asset	MacKay Shield
Hound Partners	Magellan Financial Group
Hudson Bay Capital Management	Magnetar Capital
Hudson Structured Capital Management	Man Group
Ibiuna Investimentos	Maniyar Capital
Ichigo Asset Management	Marathon Asset Management
III Capital Management	Marble Bar Asset Management
Immersion Capital	Mariner Investment Group
Indaba Capital Management	Marshall Wace
Indus Capital Partners	Mason Capital Management
Intrinsic Edge Capital Management	Matrix Capital Management Company
Ionic Capital Management	Maverick Capital
iSAM	Medalist Partners
Ishana Capital	Melqart Asset Management (UK)
J Safra Asset Management Corporation	Menta Capital
Janchor Industrialist Investing	Meritage Group
Janus Henderson Investors	MFN Partners
Jericho Capital Asset Management	MidOcean Partners
JGP Global Gestao de Recursos	Millburn Ridgefield Corporation
JHL Capital Group	Millennium
JNE Partners	Miura Global Management
John Street Capital	MKP Capital Management
Junto Capital Management	Modular Asset Management
Jupiter Asset Management	Monarch Alternative Capital
Kadensa Capital	Mt. Lucas Management
Kayne Anderson Capital Advisors	BDT & MSD Partners
Kensico Capital Management	Mudrick Capital Management
Kepos Capital	Multicoin Capital
Key Square Capital Management (UK)	Munro Partners
King Street Capital Management	MY.Alpha Management
Kingdon Capital Management	Myriad Asset Management US
Kirkoswald Capital Partners	Napier Park
Kite Lake Capital	Naya Capital Management UK

Neo-Criterion Capital
 Nephila Capital
 Neuberger Berman
 Nine Masts Capital
 Nitorum Capital.
 Nordkinn Asset Management
 North Rock Capital Management
 Nut Tree Capital Management
 NWI Management
 Oaktree Capital Management
 Oasis Management Company
 Ocean Arete
 Oceanic Investment Management
 Oceanwood Capital Management
 UBS O'Connor
 OCP Asia
 Odey Asset Management
 One William Street Capital
 Optimas Capital
 Optimus Prime Fund
 OrbiMed
 Orbis Investments
 Orchard Global
 Ortus Capital Management
 Owl Creek Asset Management
 OxFORD Asset Management
 P/E Investments
 P2 Capital Partners
 PAG
 Palestra Capital Management
 Palmer Square Capital Management
 Palmerston Capital Management
 Palo Alto Investors
 Paloma Partners Management Company
 PanAgora Asset Management
 Pantera Capital
 PAR Capital Management
 Parallax Volatility Advisers
 Park West Asset Management
 Parsifal Capital Management
 Parvus Asset Management
 PDT Partners
 Pelham Capital
 Pental
 Penso Advisors
 Pentwater Capital Management
 Perbak Capital Partners
 Perceptive Advisors
 Permian Investment Partners
 Perpetual Investments
 Pershing Square Capital Management
 PFM Health Sciences
 PGIM
 Pharo Management
 Pictet Asset Management
 Picton Mahoney Asset Management
 PIMCO
 Pine River Capital Management
 PineBridge Investments
 Pinnacle Asset Management
 Pinpoint Asset Management
 Platinum Asset Management
 Pleiad Investment Advisors
 Plenisfer
 Point72
 PointState Capital
 Polar Asset Management Partners
 Polar Capital
 Polychain Capital
 Polygon Global Partners
 Polymer Capital
 Prime Capital Management
 PrimeStone Capital
 Prologue Capital
 Prophet Capital Asset Management
 Prudence Financial Group
 P. Schoenfeld Asset Management
 Psquared Asset Management
 QMS Capital Management
 Quantedge
 Quantitative Investment Management
 Qube Research & Technologies
 Quest Partners
 RA Capital Management
 Radcliffe Capital Management
 Red Cliff Asset Management
 Redmile Group
 Redwood Capital Management
 Regal Funds Management
 Renaissance Technologies
 RGM Capital
 Rhenman & Partners Asset Management
 Rimrock Capital Management
 Rivulet Capital
 Rock Springs Capital
 Rockhampton Management
 Rokos Capital Management
 Route One Investment Company
 ROW Asset Management
 RPIA
 Rubric Capital
 RV Capital Management
 S.W. Mitchell Capital
 Saba Capital Management
 Sagem Head Capital Management
 Samlyn Capital
 Sand Grove Capital Management
 Sandbar Asset Management
 Sandler Capital Management
 Sarissa Capital Management
 Sequoia Capital Global Equities
 Schonfeld
 Schroders
 Scopia Capital Management
 Sculptor Capital Management
 Sector Asset Management
 Securis Investment Partners
 Segantii Capital Management
 Select Equity Group
 Selwood Asset Management
 Senator Investment Group
 Senvest Management
 Mingshi Investment Management
 Shellback Capital

Shenkman Capital Management
 Silver Point Capital
 Silver Rock Financial
 Simplex Asset Management
 SIR Capital Management
 Sirios Capital Management
 Skye Global Management
 Slate Path Capital
 SoMa Equity Partners
 Sona Asset Management
 Soroban Capital Partners
 Sound Point Capital Management
 Southern Ridges Capital
 Southpaw Asset Management
 SouthPeak Investment Management
 Southpoint Capital
 SPF Investment Management
 Sphera Funds Management
 SPX Capital
 SQN Investors
 Squarepoint Capital
 SRS Investment Management
 abrdn
 Starboard Value
 Statar Capital
 Steadfast Financial
 Steadview Capital
 Stevens Capital Management
 Strategic Value Partners
 Suvretta Capital Management
 Sylebra Capital
 Symmetry Investments
 Symphony Financial Partners
 Syquant Capital
 Systematica Investments
 Taconic Capital Advisors
 Tairen Capital
 TCI Fund Management
 Teleios Capital Partners
 Teng Yue Partners
 Tensile Capital Management
 Theleme Partners
 Think Investments
 Third Point
 Thunderbird Partners
 TIG Advisors
 Tiger Eye Capital
 Tiger Global Management
 Tiger Pacific Capital
 Tilden Park Capital Management
 Tor Investment Management
 Torq Capital Management
 Toscafund Asset Management
 TPG
 Transtrend
 Tree Line Advisors (Hong Kong)
 Tremblant Capital
 Trend Capital Management
 Tresidor Investment Management
 Trexquant Investment
 Trian Fund Management
 Trinity Street Asset Management
 Trivest Partners
 True Partner Holding
 TRUXT Investimentos
 TT International
 Tudor Group
 Turiya Capital
 TwentyFour Asset Management
 Twin Tree Capital Management
 Two Creeks Capital Management
 Two Sigma
 Tybourne Capital Management
 Tyrus Capital
 UG Investment Advisers
 Universa Investments
 Valiant Capital Partners
 Valley Forge Capital Management
 Value Partners Group
 ValueAct Capital
 Varadero Capital
 Varde Partners
 Varenne Capital Partners
 Verde Asset Management
 Verition Fund Management
 Versor Investments
 VGI Partners
 Obra Capital
 Viking Global Investors
 The Voleon Group
 Voloridge Investment Management
 Vontobel
 VR Capital Group
 Waha Capital
 Water Street Capital
 Waterfall Asset Management
 Weiss Asset Management
 Weiss Multi-Strategy Advisers
 Wellington Management
 Wexford Capital
 Whale Rock Capital Management
 White Oak Capital Partners
 Whitebox Advisors
 Willowbridge Associates Inc.
 Wilson Asset Management
 Winton
 Wolverine Asset Management
 Woodline Partners
 WT Asset Management
 XAIA Investment GmbH
 XN Capital
 York Capital Management
 ZAIS Group
 Zebedee Capital Partners
 Zimmer Partners
 Zweig-Dimenna Associates