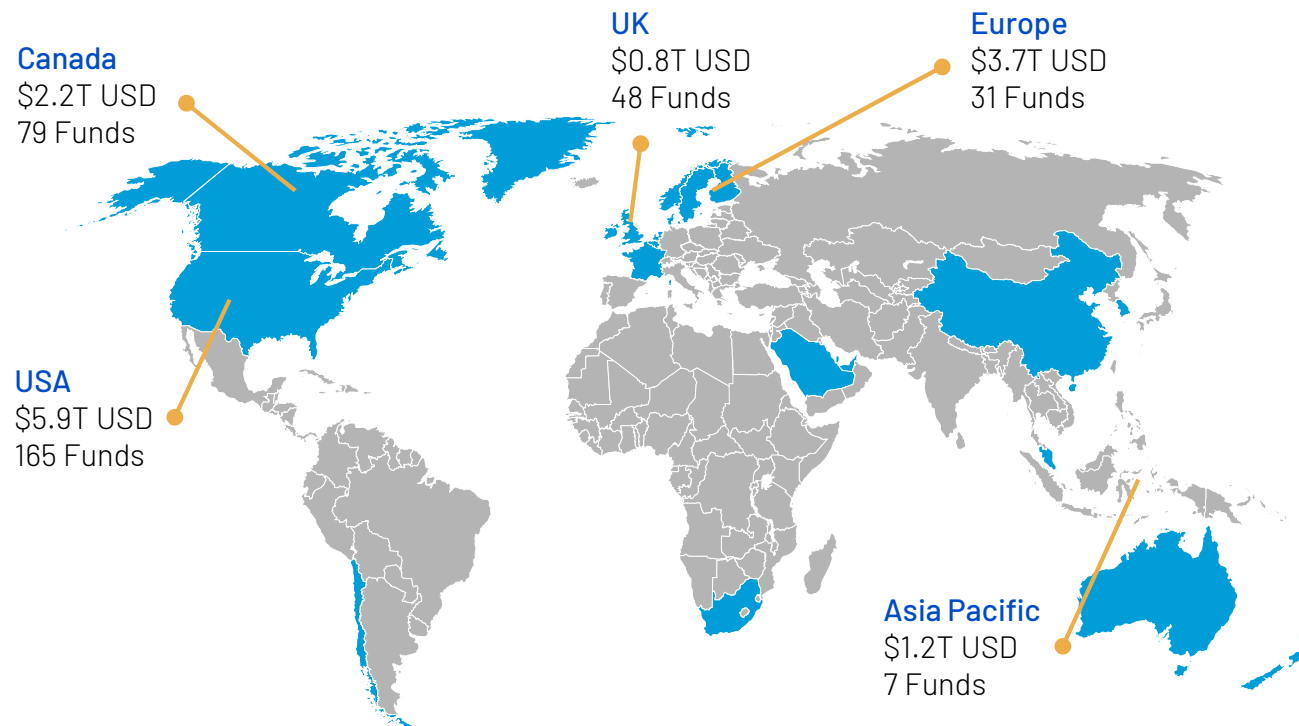




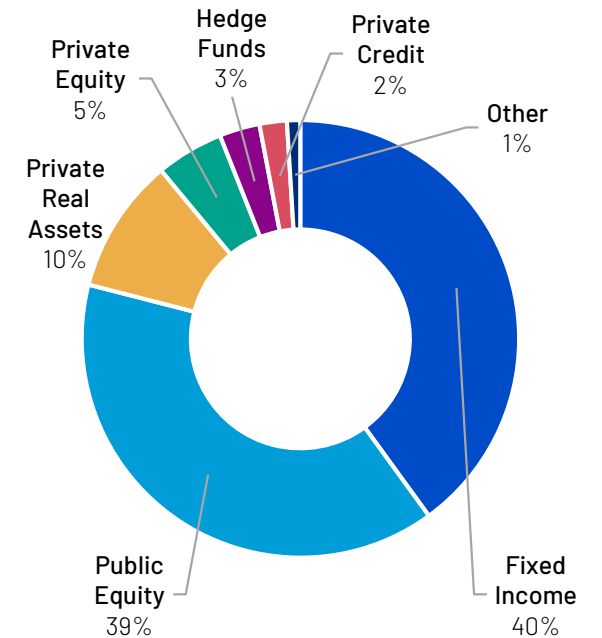
Managing Costs and Optimizing Performance

We work with ~500 pension plans and asset owners including many of the largest funds

CEM database at-a-glance



CEM database average asset mix (2020)



Fund Types

- DB & DC funds; Sovereign Wealth Funds; Foundations, Endowments; Other asset owners

Clients

- Fiduciaries; Senior management, Strategy and Finance teams

Geography

- Funds from 20+ countries

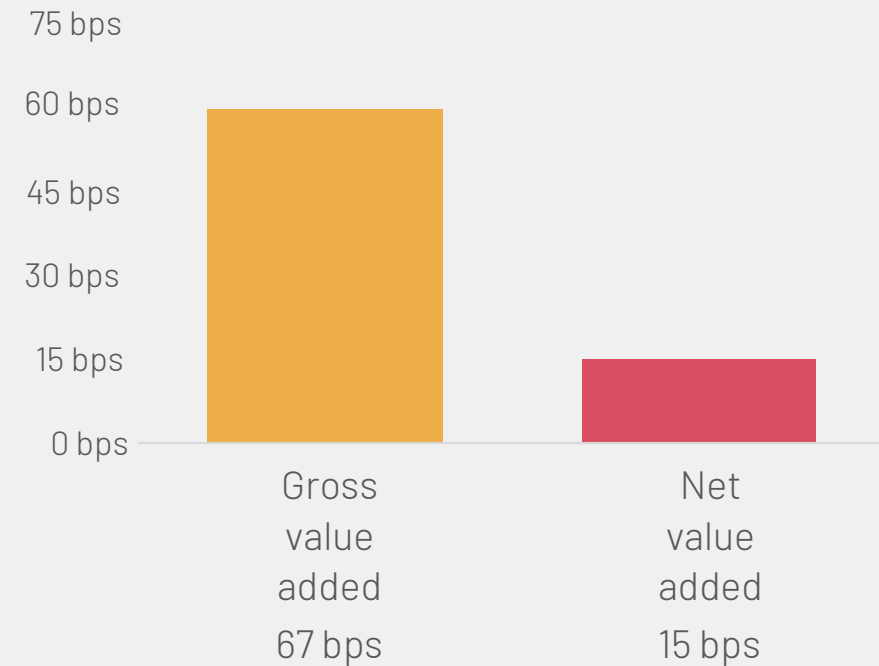
Participating Assets

- USD \$14 trillion AUM in the 2020 global IBS database

Active management has added value

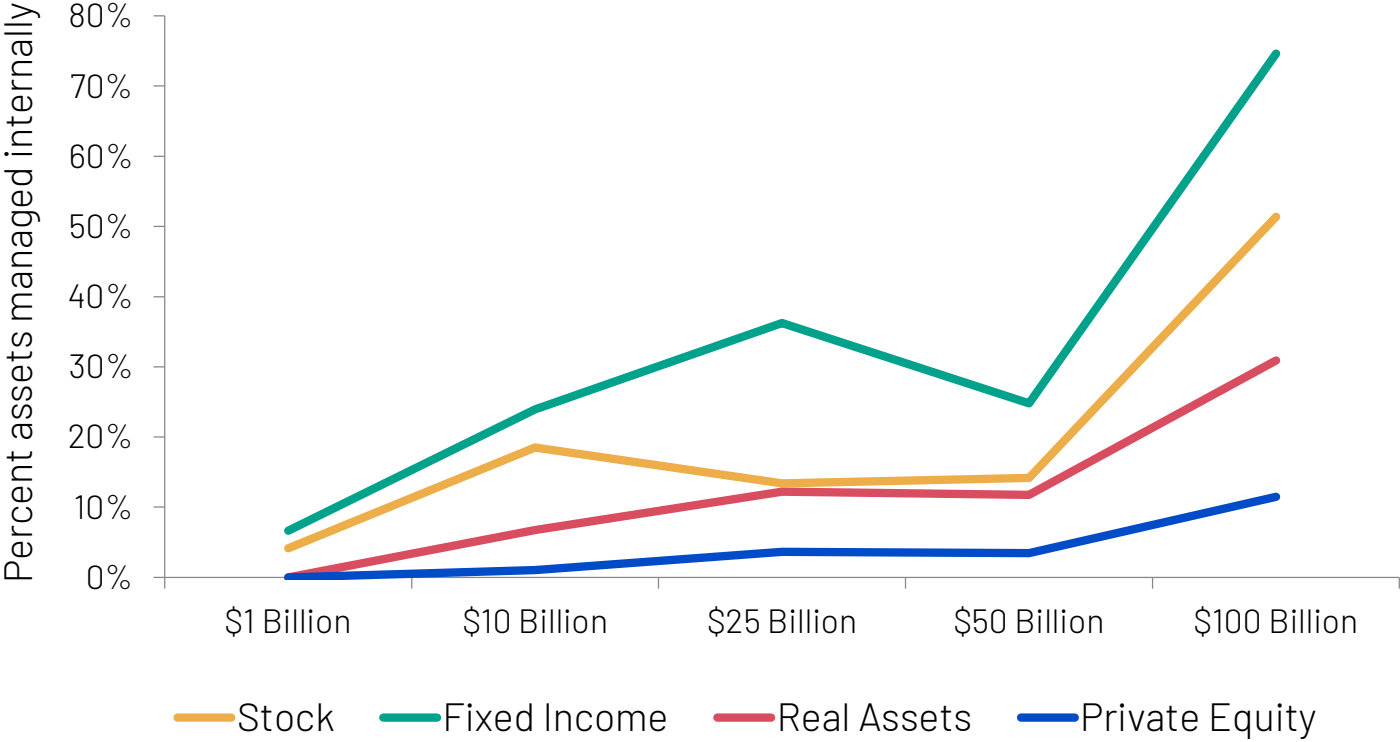
- NVA has averaged 15 bps
- Costs consume ~75% of GVA
- Characteristics of funds that do better are:
 - More active management
 - Lower cost implementation
 - More internal management
 - Less Fund of Funds

Annual gross and net value added

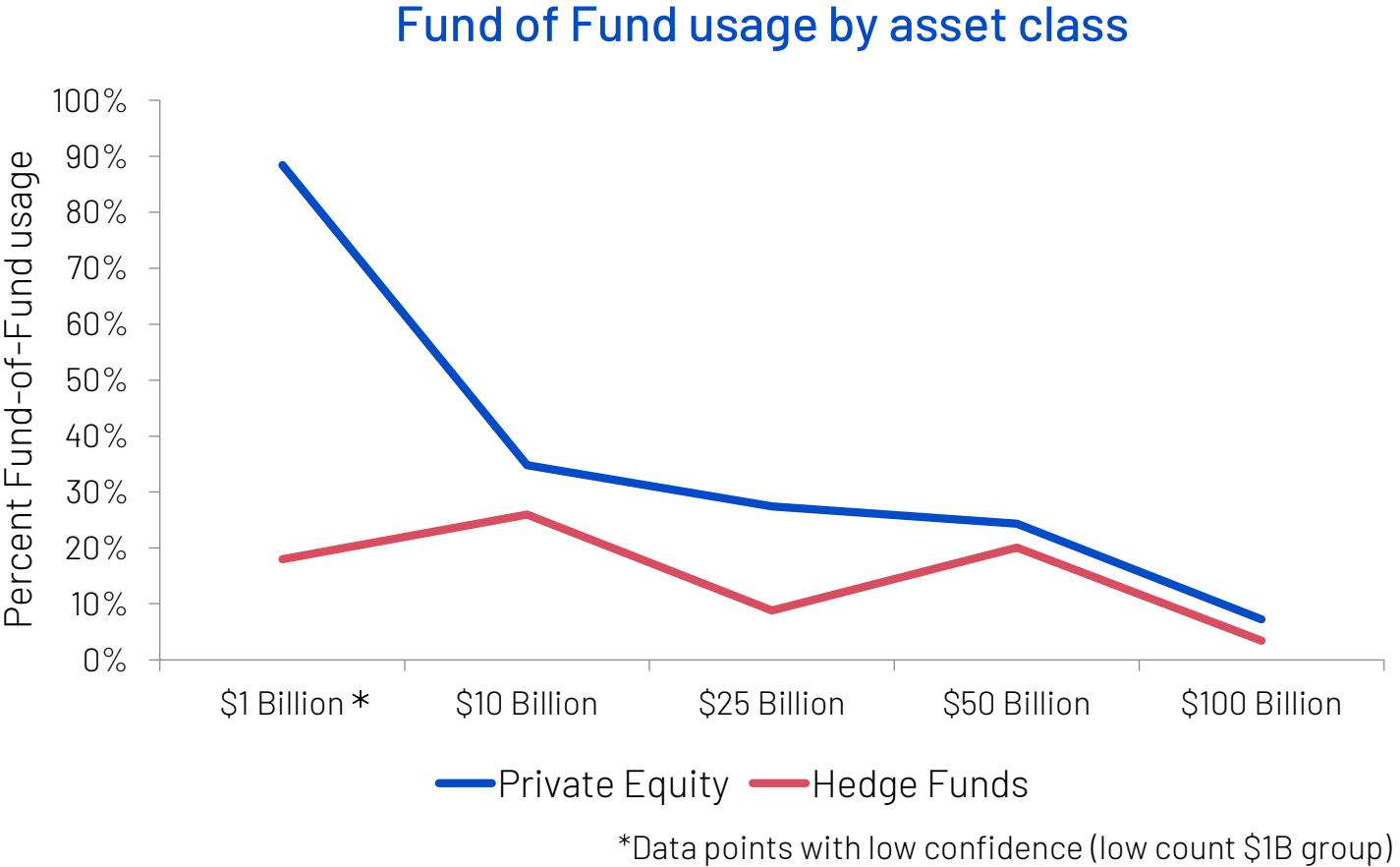


Large funds are lower cost and have higher NVA primarily due to more internal implementation

Average % assets managed internally by size band



Large funds also use less high-cost Fund of Fund structures



Who do you think will pull further and faster?



Private Equity Cost Load*

Internal:
45 bps

Direct LP and Co-Invest:
454 bps

Fund of Funds:
545 bps

* Median 2020 Canadian universe costs, based on NAV, and including gross management fees, carried interest and monitoring costs.

Implementation style is particularly important for private assets. Internal is best, Fund of Funds erode value*

Net Value Add by Implementation Style - Private Assets



	Internal	Funds	Fund of Funds
■ Hedge Funds	0.00%	-1.66%	-2.17%
■ Infrastructure	2.85%	-1.15%	-2.61%
■ Private Equity	1.00%	-1.62%	-3.38%
■ Real Estate	1.68%	-1.28%	-4.04%

* Long term NVA in the CEM database. Standardized CEM public-market-based benchmarks are used.

Asset class returns* for illiquid assets vary considerably by fund size

Total AUM	U.S. Large Cap	U.S. Small Cap	Non-U.S. Stock	U.S. Broad Fixed	Real Estate	Listed REITs	Hedge Funds/TAA	PE
Under \$2 Billion	7.89	8.55	6.51	5.69	6.16	8.42	4.52	8.22
\$2-\$10 Billion	8.27	8.94	6.74	5.81	6.59	8.69	4.36	10.10
Over \$10 Billion	8.19	8.84	6.69	5.62	7.13	8.16	4.82	11.45

* Selected asset class average net returns for U.S. public funds in the CEM database from 1998 to 2020. On average, the sample includes 104 funds.

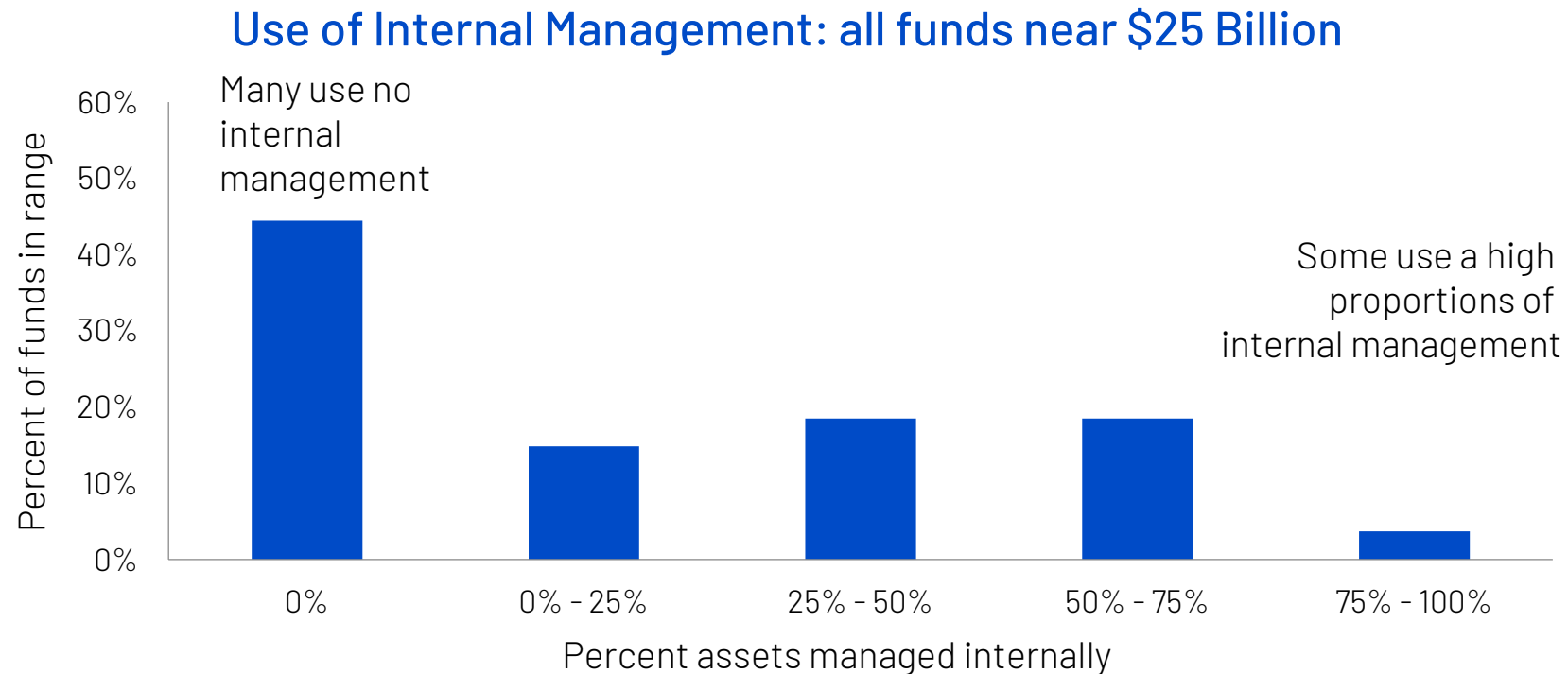
Implications for small funds: Don't chase into asset classes that are cost prohibitive to implement

- A major reason for lower returns in private assets was higher cost implementation structures, especially more Fund of Funds.
- There are good alternatives to private market assets:
 - Small Cap Stock had a high correlation to Private Equity and was a better performing asset class for small U.S. public funds.
 - Listed Real Estate had a high correlation to private Real Estate and was a better performing asset class for all three fund size groups.



Implications for mid-sized funds: Consider acting like a larger fund

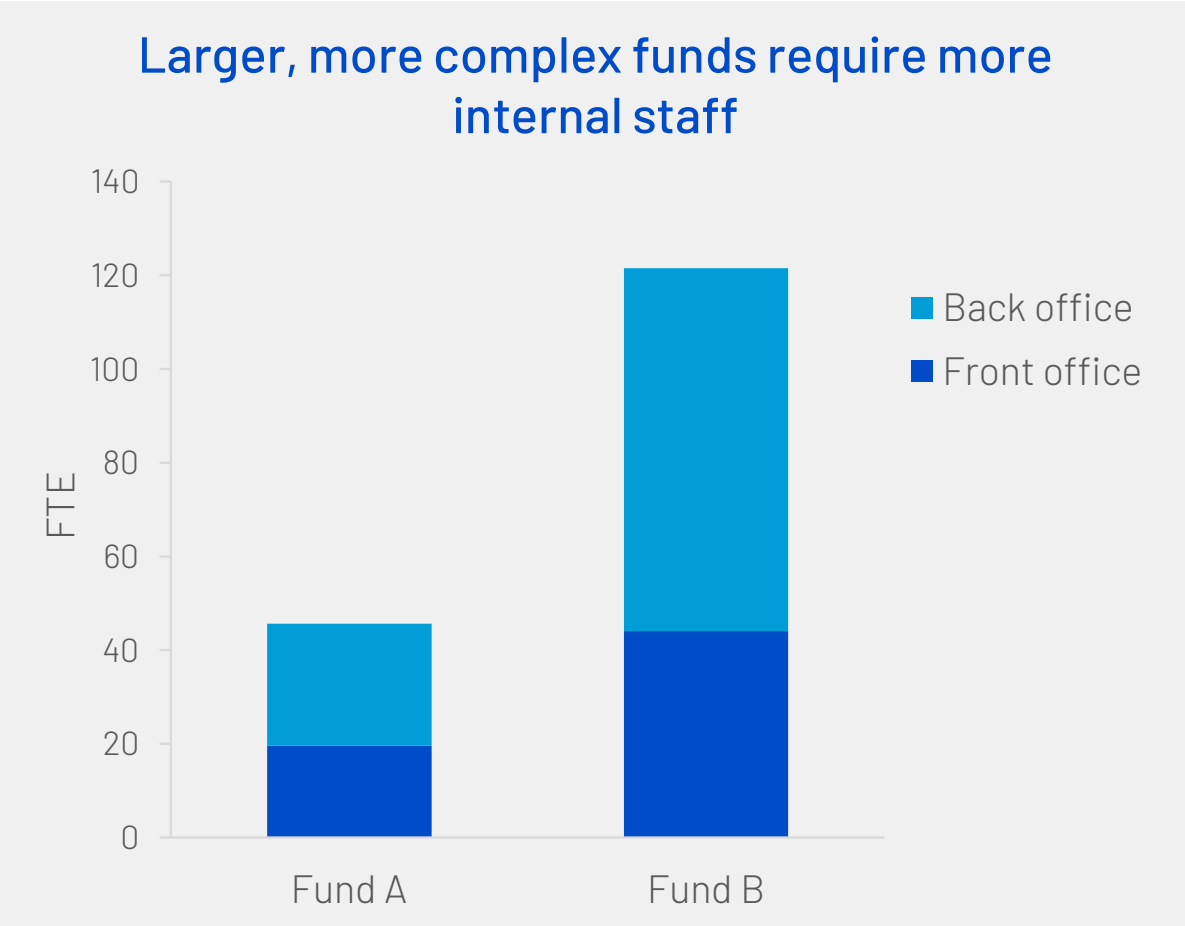
- Funds are most likely to use internal management for fixed income, followed by public stock. Use of internal management becomes significant at \$10B AUM.
- If you implement illiquid assets through Fund of Fund structures, question whether it makes sense.



Implications for large funds: Better performance has historically come from lower cost implementation: less Fund of Funds and more internal management

- However, more internal management means a bigger, more complex investment operation to manage as the exhibits on this page illustrate.
- There are also other important organizational considerations associated with internal management:
 - Governance and commitment
 - Appropriate compensation
 - Ability to attract and retain talent

	Fund A	Fund B
Total assets	\$50 billion	\$75 billion
Public asset allocation	80% (of which 5% managed internally)	75% (of which 40% managed internally)
Private asset allocation	20% (of which 0% managed internally)	25% (of which 20% managed internally)



Implications for all funds: Hedge Fund portfolios

- Hedge Funds were a lower performing asset class for all funds.
- Other CEM research has suggested:
 - Most pension funds had Hedge Fund portfolios that produced results that looked like stock-bond mixtures, but with significantly lower returns.
 - Fund of Funds underperform direct Hedge Fund portfolios.
 - The best performing Hedge Fund portfolios had lower correlations to stock-bond mixtures. Funds with Hedge Fund programs need above average insight into the sources of return in their portfolios.



Implications for all funds

- Having an optimal strategy does not guarantee success.
- Other factors matter a lot:
 - Governance structure and quality
 - Investment processes and risk management
 - Organizational structure, decision processes, culture, talent, compensation, etc.
- Investment performance is very noisy. Make investment strategy and program structure decisions based on empirical evidence and objective assessment of your capabilities.

