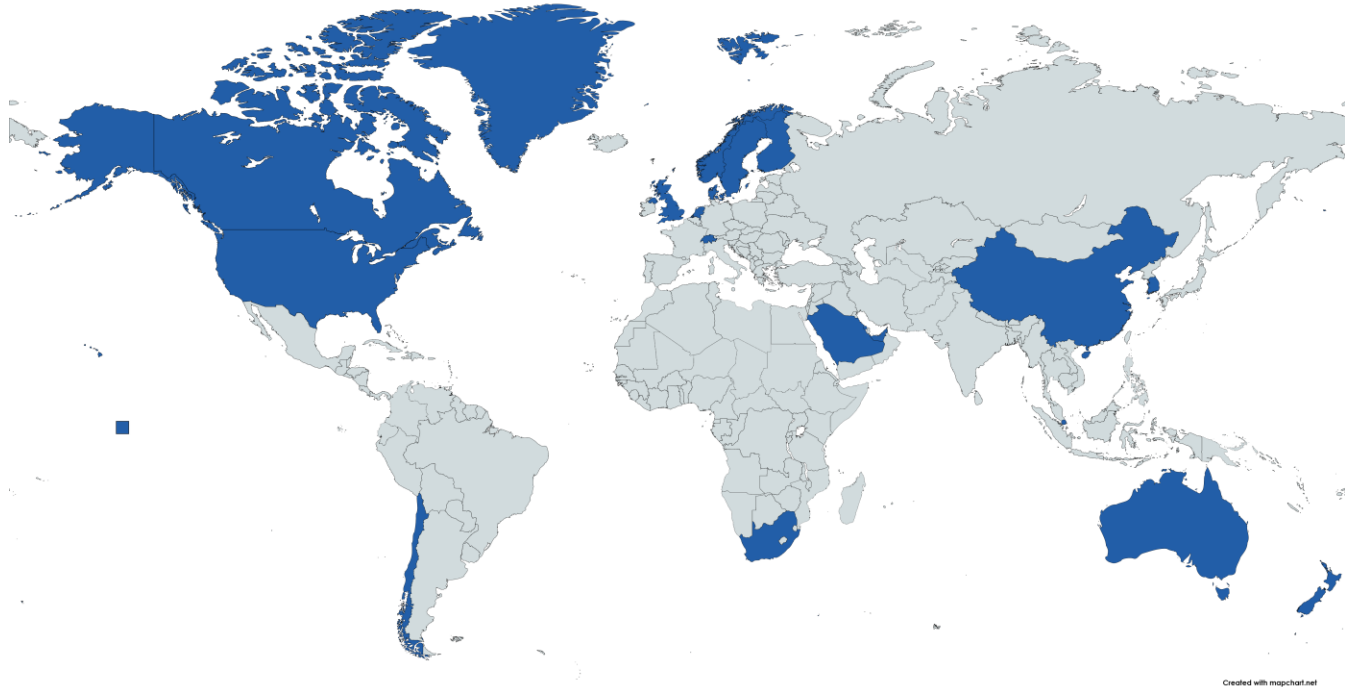


THE ECONOMICS OF INTERNALIZATION

Mike Heale

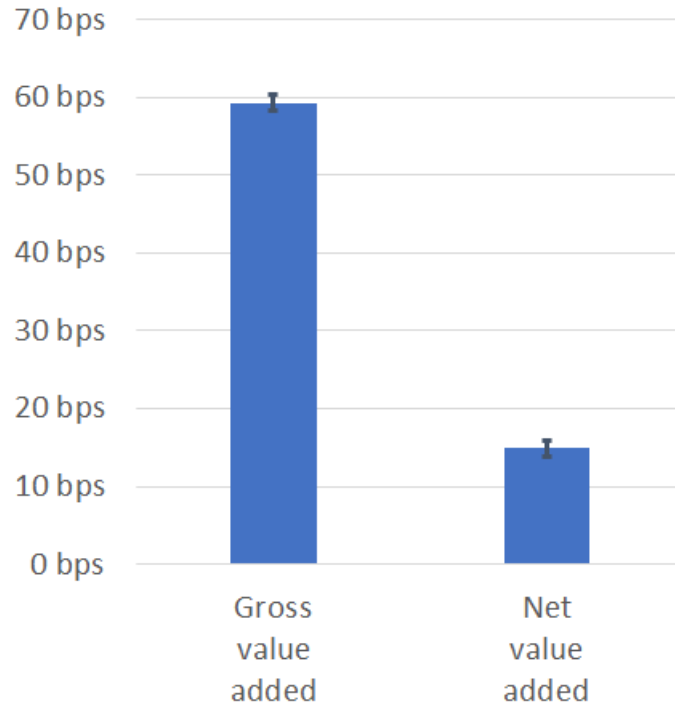
Principal, CEM Benchmarking

Insights are drawn from the CEM investment database.



The CEM investment database has 30 years of detailed asset owner cost and performance history. Over 300 pension, SWF and other asset owners, with aggregate assets of about USD\$11 trillion, currently participate in the database.

Funds in the CEM database have added value over the long term – both before and after costs.



Before costs, the amount of active management is the only characteristic of funds that add more value.

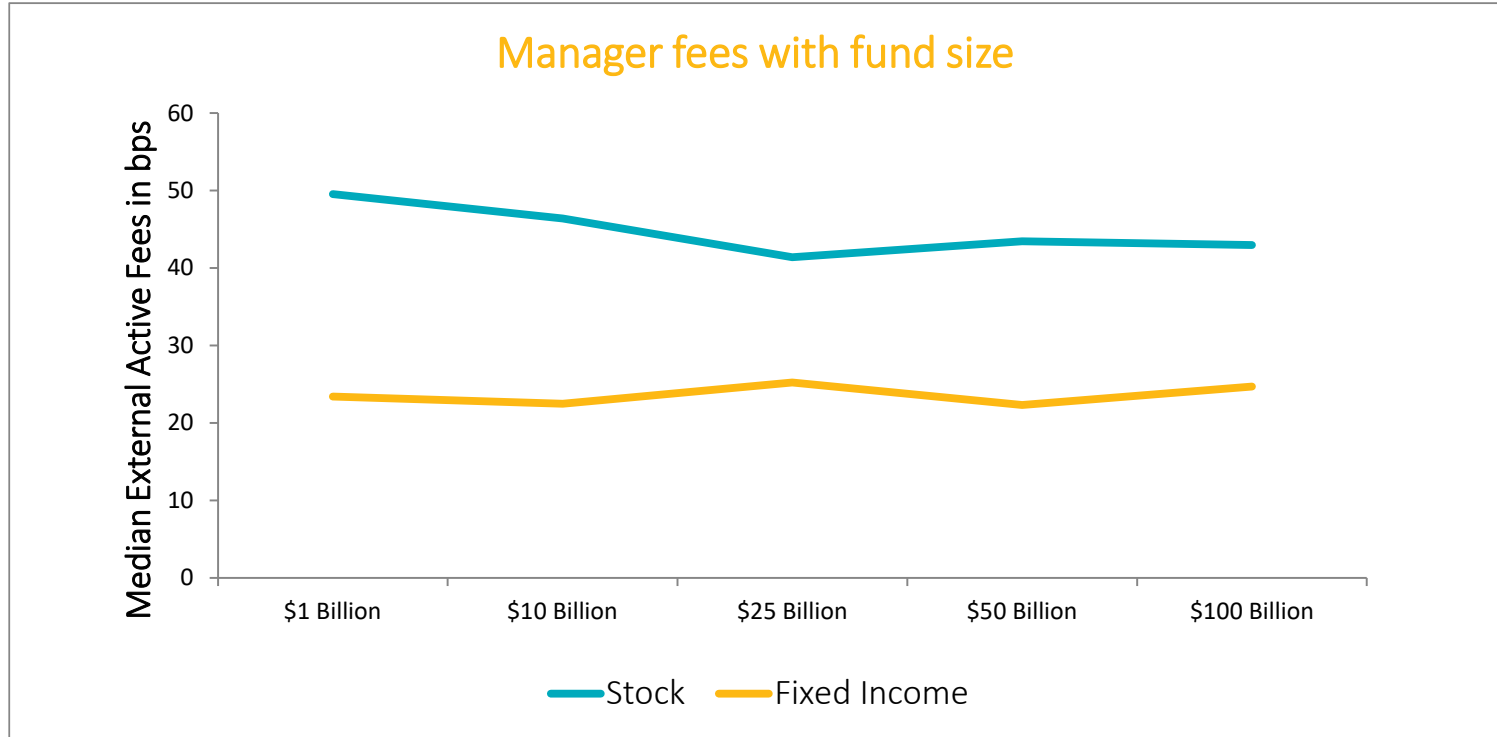
Variable [†]	Gross value added		Impact (bps)	How important
	Impact (bps)	How important		
Size (per 10-fold change)	1.6			
Percent internal [†]	7.3	*		
Percent active[†]	71.7	***		

[†] Impact of percent internal / percent active is the difference between a portfolio that is zero percent internal / active and one that is 100% internal / active.

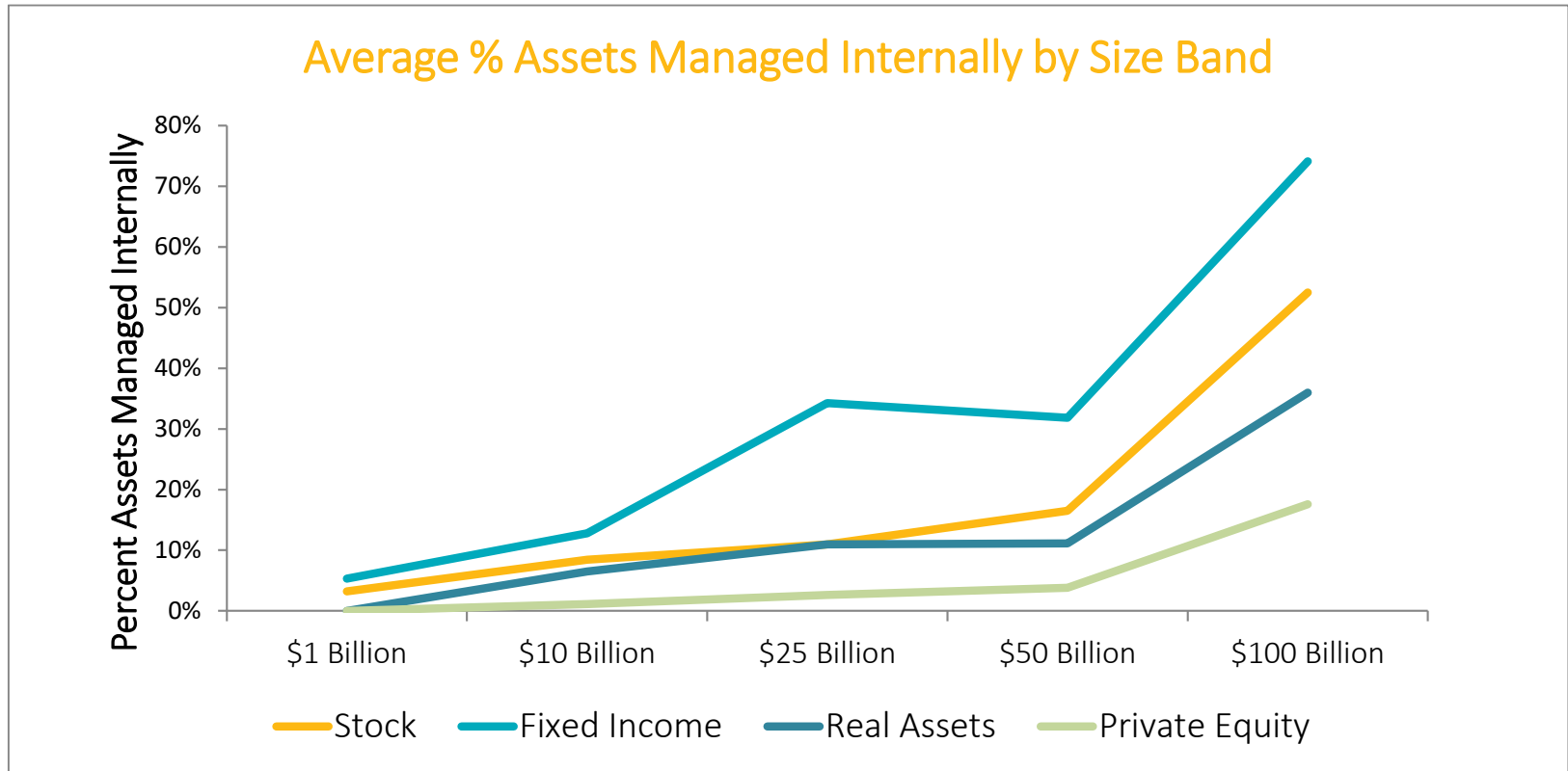
Net of costs, larger funds and funds with more internal management do better.

Variable	Gross value added		Net value added	
	Impact (bps)	How important	Impact (bps)	How important
Size (per 10-fold change)	1.6		7.6	**
Percent internal	7.3	*	22.1	**
Percent active	71.7	***	38.7	***

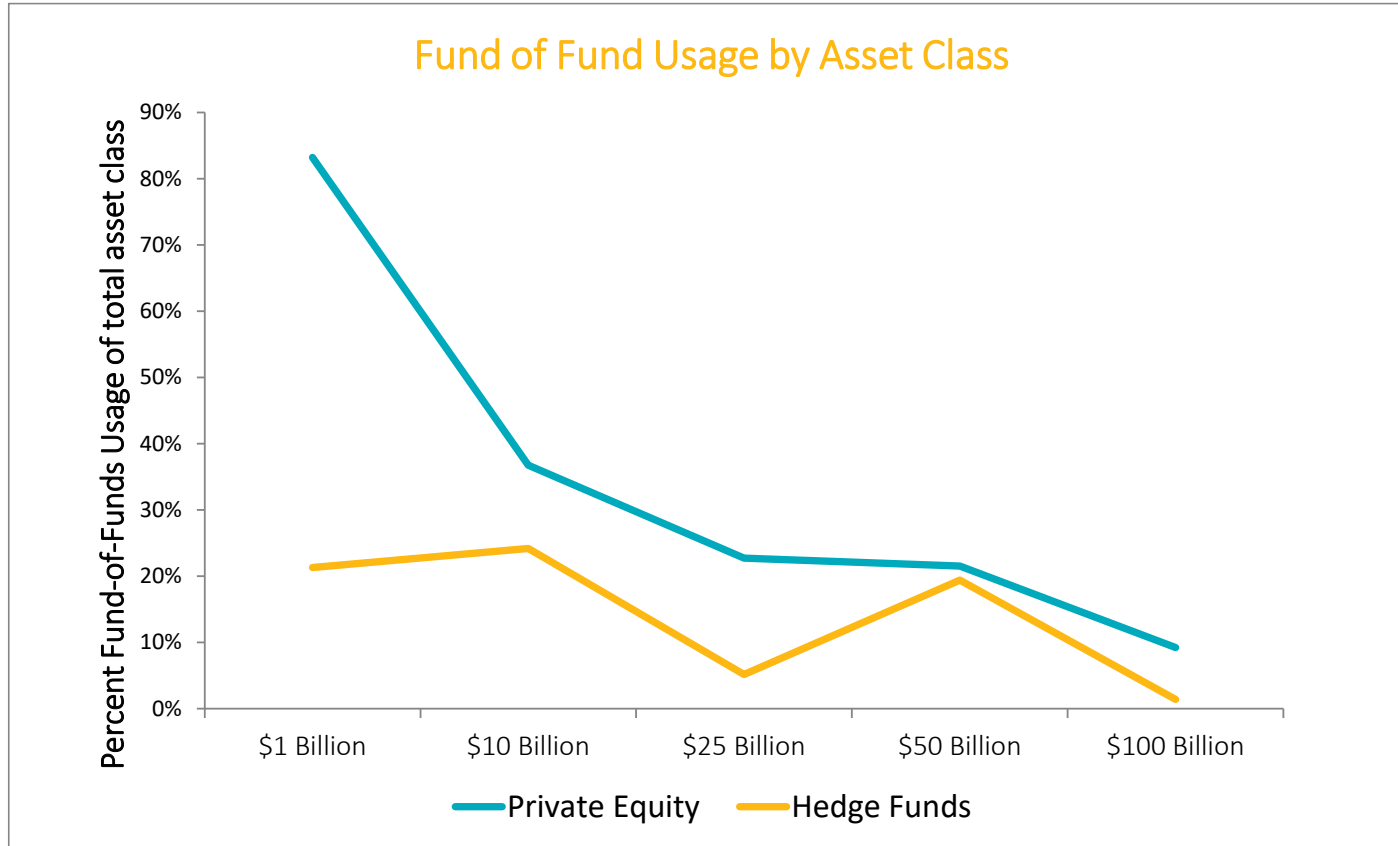
Larger funds have lower costs but lower external manager fees are not the main driver.



Larger funds use more low cost internal management.



Larger funds also use less high cost Fund of Funds.



Internal management is lower cost than external management but requires a lot more staff.

Asset Class	Median Front Office FTE per \$1 BN USD	Median Cost* per \$1 BN USD
External Active Stock	0.27	\$4.6M
Internal Active Stock	1.26	\$1.0M
External Passive Stock	0.15	\$0.5M
Internal Passive Stock	0.21	\$0.3M
External Private Equity	0.87	\$41.6M
Internal Private Equity	4.01	\$4.0M

* Costs include an allocation of consulting, back-office and overhead costs. Performance fees are included. Transaction costs are excluded.

Funds with a lot of internal management also typically insource investment support activities.

Metric (Averages)	Degree of outsourcing/insourcing	
	Mostly outsourced	Mostly insourced
AUM (USD billions)	\$42	\$227
Total internal %	35%	72%
Public markets internal %	44%	82%
Private markets internal %	7%	59%
Front-office FTE	22	298
Back-office FTE	30	646
Total investment FTE	52	944
Sample activity FTE: IT/IS	4	198

The Canadian 'Maple 8' funds embrace internal management and private markets.

Asset Class	% Internally Managed	% Externally Managed	% External Fund of Fund
Public Equity	85%	15%	n/a
Public Fixed Inc.	99%	1%	n/a
Private Real Estate	85%	15%	0%
Private Infra.	92%	8%	0%
Private Equity	50%	49%	1%
Private Credit	65%	35%	0%
Total Fund	80%	20%	Close to 0%

- Median fund size is CAD\$155 billion
- Average of 45% of AUM in private markets
- Average of 80% active/20% passive
- Average investment FTE is 941:
 - 302 front-office
 - 639 back-office

Compensation is an important consideration.

The compensation table represents disclosure of base salary, annual incentive, long-term incentive and other compensation earned in 2018, 2019 and 2020 by the CEO, the CFO and the three other most highly compensated executives, excluding subsidiary companies.

Name and Principal Position	Year	Base Salary ¹ A	Annual Incentive B	Long-Term Incentive Allocation C	Total Direct Compensation ² A+B+C	Long-Term Incentive Paid D	Other ³ E	Change in Pension Value F	Total Compensation ⁴ A+B+D+E
Jo Taylor President and CEO ⁵ 2019 and 2018 amounts are in GBP	2020	\$556,346	\$1,461,100	\$3,200,000	\$5,217,446	\$3,060,920	\$1,077	\$201,400	\$5,079,444
	2019	355,741	1,014,800	2,280,000	3,650,541	1,597,000			2,967,541
	2018	326,308	901,700	1,600,000	2,828,008	1,240,100			2,468,108
David McGraw CFO	2020	425,000	471,600	800,000	1,696,600	883,000	833	469,300	1,780,433
	2019	440,423	487,000	700,000 100,000 ⁶	1,727,423	838,500	815		1,766,738
	2018	382,692	422,300	800,000	1,604,992	767,800	809		1,573,601
Ziad Hindo EMD and CIO	2020	469,231	1,181,100	2,700,000	4,350,331	2,658,600	921	942,500	4,309,852
	2019	457,500	1,378,200	2,700,000 700,000 ⁶	5,235,700	2,435,400	861		4,271,961
	2018	381,538	1,101,600	2,300,000	3,783,138	1,892,200	805		3,376,143
Jane Rowe ⁷ Vice Chair	2020	374,231	994,700	2,000,000	3,368,931	2,157,500	726	348,300	3,527,157
	2019	414,292	1,137,000	2,050,000	3,601,292	2,035,000	780		3,587,072
	2018	370,077	947,600	2,300,000	3,617,677	1,838,300	782		3,156,759
Ben Chan RMD, Asia-Pacific ⁸ All amounts are reported in HKD	2020	5,468,952	8,183,200	10,600,000	24,252,152	7,078,500	1,050,000		21,780,652
	2019	5,328,763	9,869,900	13,000,000	28,198,663	5,437,100	2,100,000		22,735,763
	2018	3,018,750	5,115,600	8,000,000	16,134,350	2,640,700	2,343,750		13,118,800

Important considerations for funds that want to move to or do more internal management:

About \$40B AUM is the inflection point for substantive internalization in public markets (many funds) and private markets (some funds).

You will have a lot more staff and a more complex organization to manage.

The empirical evidence is on your side. But investment performance is very noisy and more internal management does not guarantee superior performance.

Alignment issues to consider:

- ✓ Governance autonomy and quality
- ✓ Culture, talent and compensation
- ✓ How internal and external management will co-exist within your program