Investment Office Roadmap

Performance and Cost Effectiveness

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Investment Committee

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Agenda

- Investment Management Cost Drivers
- INVO Cost Structure vs. Peer Benchmarks
- INVO Cost Trends
- Key Accomplishments and Next Steps

CalPERS Investment Office Strategic Priorities

- Performance: Achieve our target rate of return without exposing the fund to the undue risk of major drawdown
- Plumbing: Develop and implement the systems, controls and processes necessary to assure the integrity of operations
- People: Ensure that we have the right number of people with the right skills to enable investment performance improvement and control of operations

The INVO Roadmap is a set of objectives, initiatives and milestones to achieve these priorities

INVO Roadmap

Improving cost effectiveness is a strategic objective in the INVO Roadmap.

Investment Performance	• Restructure the portfolio to deliver consistent risk-adjusted investment returns.
Capital Allocation	• Implement a risk-based, dynamic asset allocation approach.
Investment Risk Management	• Establish a comprehensive risk management system and practices to measure, manage, and communicate investment risks.
Organization, Systems and Controls	• Design, develop and implement a robust operating model that minimizes complexity, improves transparency and strengthens processes, systems and controls. • Reduce operational risk by developing a risk aware culture with clear metrics and operational risk management processes/governance.
Cost Effectiveness	• Enhance cost effectiveness of the investment program to improve net returns on assets.
Talent Management	• Enhance our ability to attract, develop and retain a highly-skilled, diverse and motivated team to ensure the success of the Investment Office.

INVO Cost Effectiveness Objective

Enhance cost effectiveness of the investment program to improve net returns on assets.

FROM	TO
Management Reporting: Inadequate reporting systems and data for effective cost management	Automated financial reporting system; development of timely and meaningful financial reports
Cost Awareness: Limited understanding of total cost to manage the CalPERS portfolio	Comprehensive knowledge of total costs being incurred to manage portfolio
Fee Reduction: Insufficient focus on management and consulting fees paid	Focus on fee reduction and value for cost: development of monitoring processes that track and communicate cost saving efforts
Cost Management: Budget process that incented use of external managers and consultants	Greater flexibility to manage use of external vs. internal resources in the best interest of the fund
Benchmarking: Difficult to compare cost performance against relevant peers	Development of meaningful benchmarking statistics and outperform relevant peers per unit of value

INVO Cost Drivers

1. Private vs. Public Assets	Private is Higher Cost than Public
2. External vs. Internal Management	External is generally Higher Cost than Internal
3. Breadth and Type of Investment Strategies/Activities	More Complex, High Volume is Higher Cost than Simpler, Low Volume

Absolute size is not necessarily a cost driver.
However, size tends to correlate with complexity, which is a cost driver.

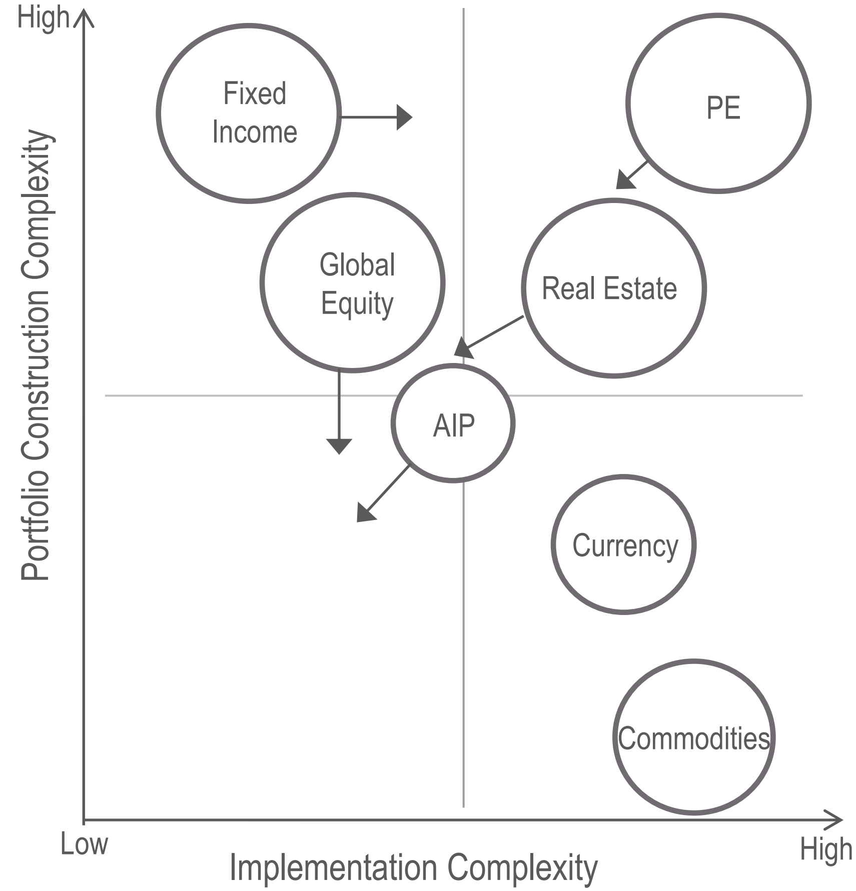
INVO Cost Drivers: Reducing Complexity

- Asset Classes are focused on restructuring portfolios; in general, moving down the scale of implementation and portfolio construction complexity

- Focused on reducing number of managers/partners and eliminating small, non-value add programs

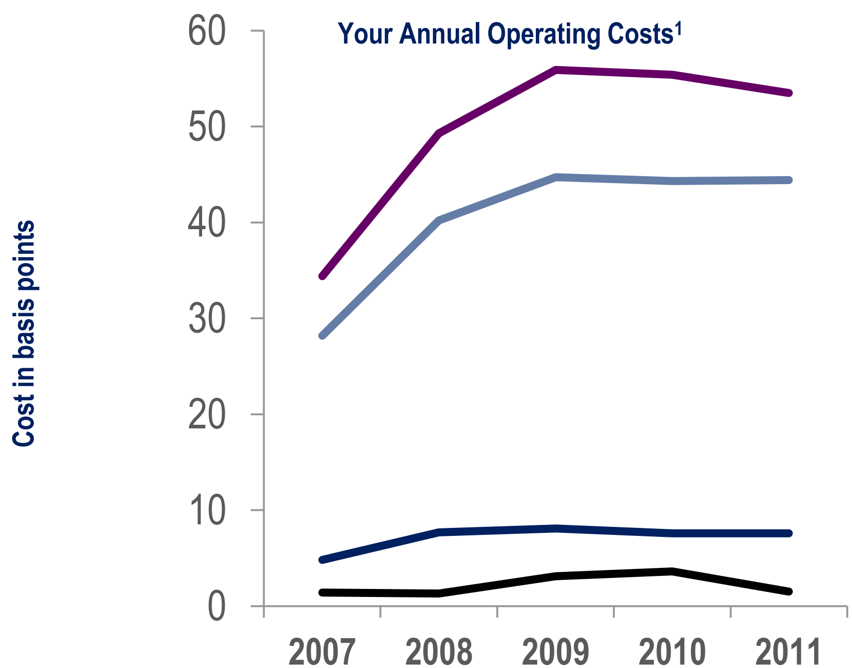
- Selectively adding complexity where significant value can be created (e.g. Private Equity co-invest; internalizing Fixed Income)

- Goal is not to completely eliminate complexity, but to “raise bar”; make more explicit trade-off decisions among cost, risk and return

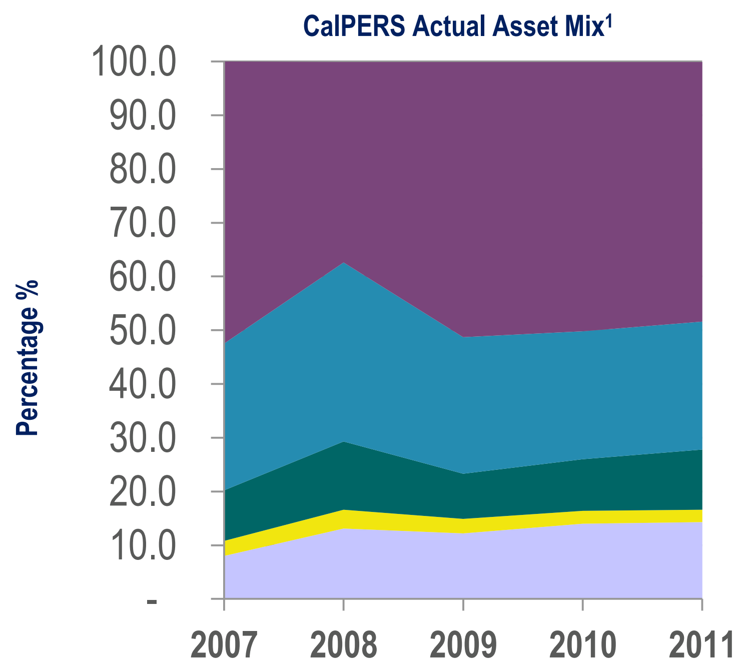


INVO 5-Year Cost Trend

Increase in total cost from 34.4 bps to 53.5 bps reflects increasing allocation to private assets and hedge funds. Private assets and hedge funds are 28% of total fund in 2011, versus 20% in 2007.



	2007	2008	2009	2010	2011
Total Cost	34.4	49.3	55.9	55.4	53.5
Oversight	1.4	1.3	3.1	3.6	1.5
Private Assets & Hedge Funds	28.2	40.2	44.7	44.3	44.4
Public Assets (ex Hedge Funds)	4.8	7.7	8.1	7.6	7.6



	2007	2008	2009	2010	2011
Stock	52.5	37.3	51.2	50.1	48.3
Fixed Income	27.3	33.3	25.4	23.8	23.8
Real Assets	9.4	12.7	8.4	9.6	11.2
Hedge Funds	2.8	3.5	2.7	2.4	2.3
Private Equity	8	13.1	12.2	14	14.3

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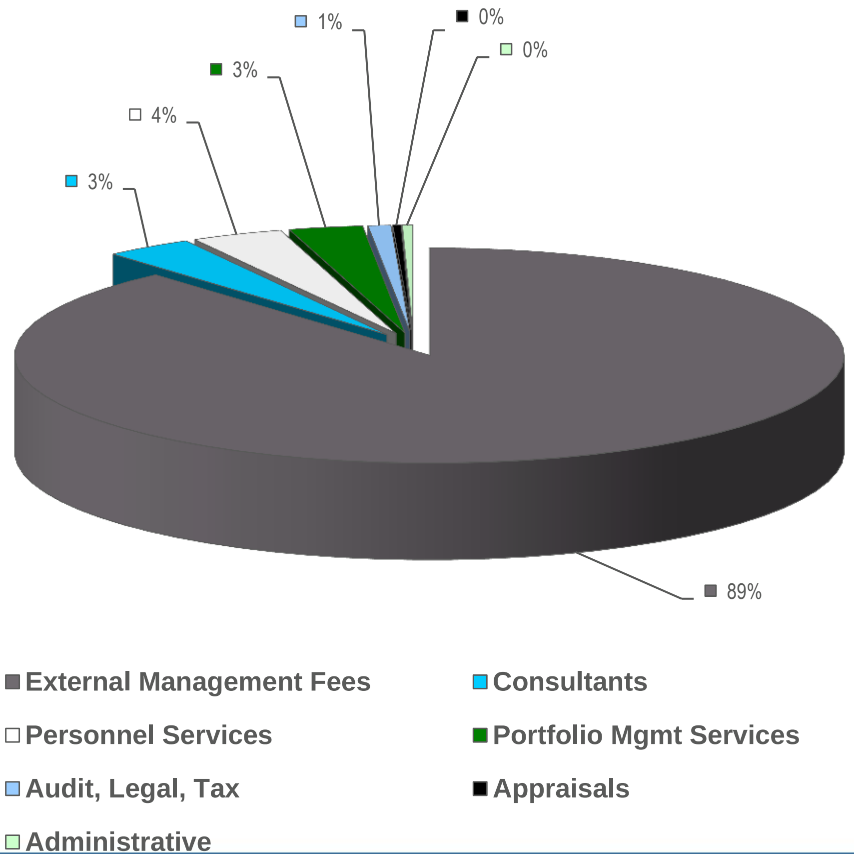
[1] Charts are from CalPERS CEM Benchmarking Calendar Year 2011 Report; asset classifications are consistent with CEM analysis and may differ from internal CalPERS reporting

Annual cost to manage the CalPERS portfolio is approximately $1.1 billion; 89% of the total cost is external management fees.

INVO Portfolio Management Expenses

Fiscal Year 2011-12: $1.1 Billion



Expense Category	$ (in millions)	% of Total Expenses
External Management Fees	$973.6	89%
Consultants	$37.7	3%
Personnel Services	$39.4	4%
Portfolio Mgmt Services[1]	$31.5	3%
Audit, Legal, Tax	$9.8	1%
Appraisals	$3.5	0%
Administrative	$4.6	0%
Total	**$1,100[2]**	**100%**
Total Cost	**53.5 bps[3]**	
Underlying FoF Fees-PE/ARS (est.)	$105.4	

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[1]Costs include technology, data, analytics, custody and fund accounting expenses

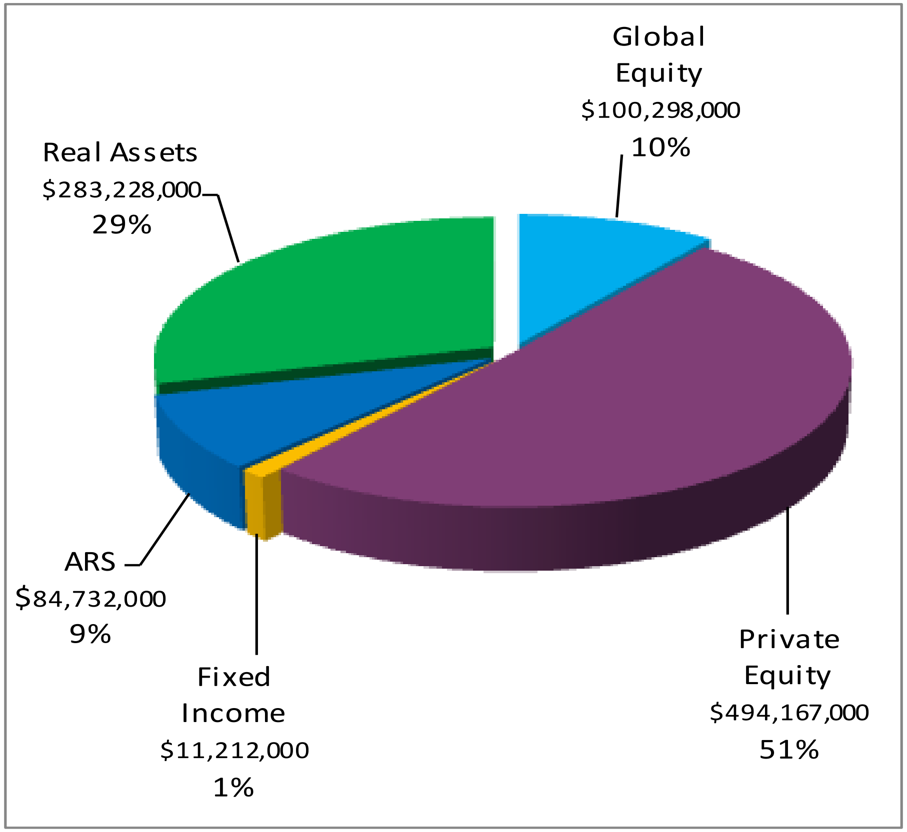
[2] Per FY 2011-12 CAFR Investment Management Expense Summary; figures do not include underlying fund of fund fees for Private Equity (PE) and Absolute Return Strategies (ARS) or carried interest for PE

[3] Total Cost bps figure per CalPERS CEM Calendar Year 2011 Report, includes underlying FoF fee estimate

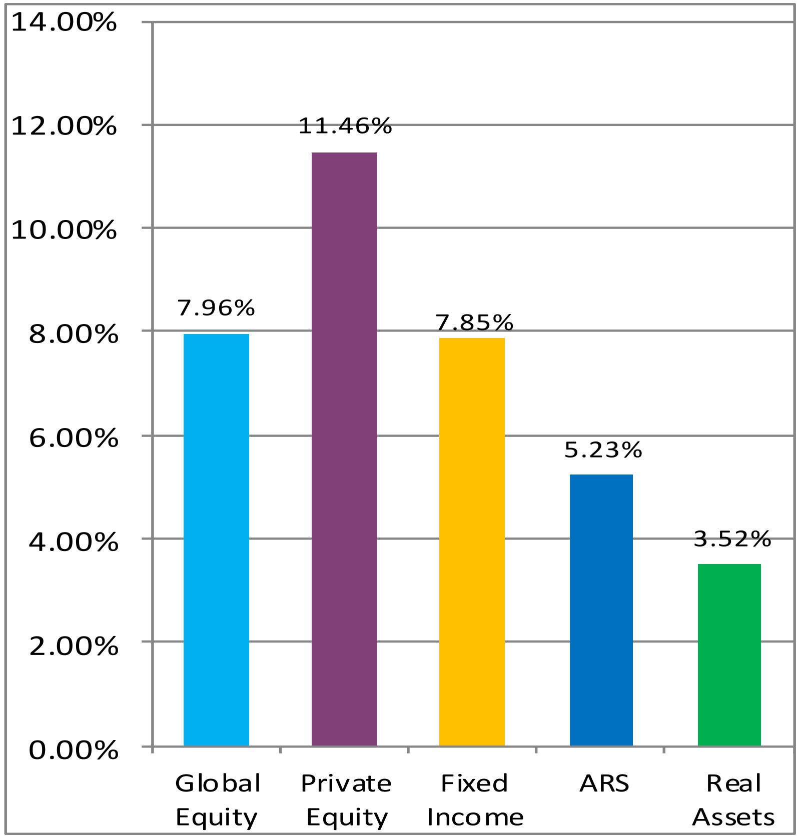
INVO Cost Structure: External Management Fees

Private assets and hedge funds are primarily externally managed and therefore represent 89% of external management fees.

External Management Fees FY 2011-12 (by program)[1]



10-Year Net Rate of Return[2]



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[1] Per FY 2011-12 CAFR Investment Management Expense Summary; figures do not include underlying fund of fund fees for Private Equity and ARS or carried interest for Private Equity
[2] Per 12/31/12 CIO Quarterly Performance Report

INVO Cost Structure: CalPERS is Cost Advantaged vs. Peers

CEM Benchmark cost analysis suggests that CalPERS is low cost by 11.2 bps, or $251 million.

CalPERS Cost Compared to Benchmark Cost

	\$ (in millions)[1]	Basis Points[1]
CalPERS Actual Cost	\$1,203	53.5 bps
CalPERS Benchmark Cost	1,454	64.6 bps
CalPERS Cost Advantage	**(\$251)**	**(11.2) bps**

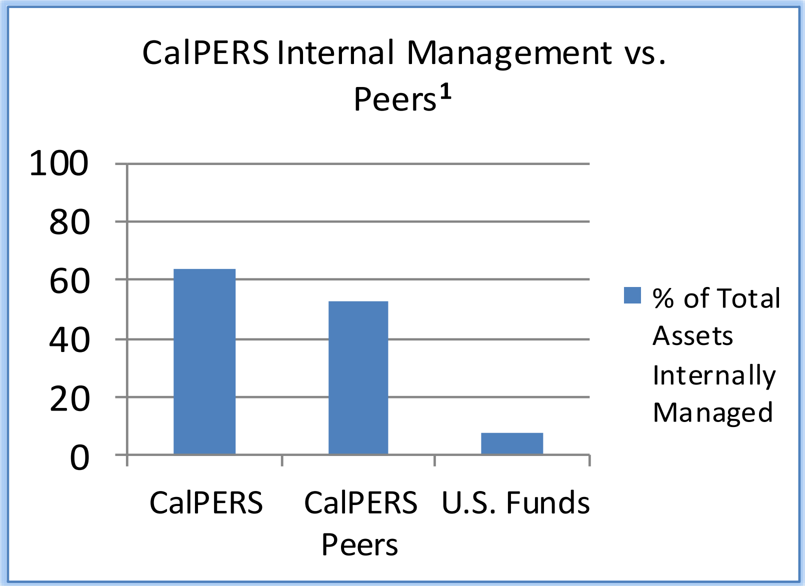
- Benchmark cost is the cost peers would incur if they had CalPERS actual asset mix
- CalPERS actual cost of 53.5 bps is less than benchmark cost of 64.6 bps due to:
  -Internal management of public assets
  -Passive management of equities
  -Lesser use of fund-of-funds than peers
- Results are positive. However, CalPERS should be relatively low cost given scale. It is important to focus not only on cost, but also on cost effectiveness (value created net of cost).

Total Cost bps figure per CalPERS CEM Calendar Year 2011 Report, includes underlying FoF fee estimate; benchmark data per custom peer group of 14 large global sponsors

INVO Cost Structure: Internal Management

Internal management of public markets and passive management of equities drive cost advantage

- CalPERS public markets cost is 7.6 bps, 40% below peer group average of 12.7 bps
- Cost benefit is driven by internal and passive management. CalPERS internally manages $160 billion or 86 % of public market assets (64% of total assets)
- Internal management drives lower total costs, but require more staff; per CEM Global Leaders Organization Design Review, “Internal assets is the best predictor of total investment FTE”



CalPERS Public Market Assets Managed Internally [2]

	Public Equity	Fixed Income	Liquidity	Inflation	Total Public Assets
Public Assets	$125	$43	$10	$8	$186
% Managed Internally	83%	91%	100%	100%	86%

[1] Peer data is from CalPERS CEM Calendar Year 2011 Report
[2] Data as of 12/31/12 Total Fund Monthly Update

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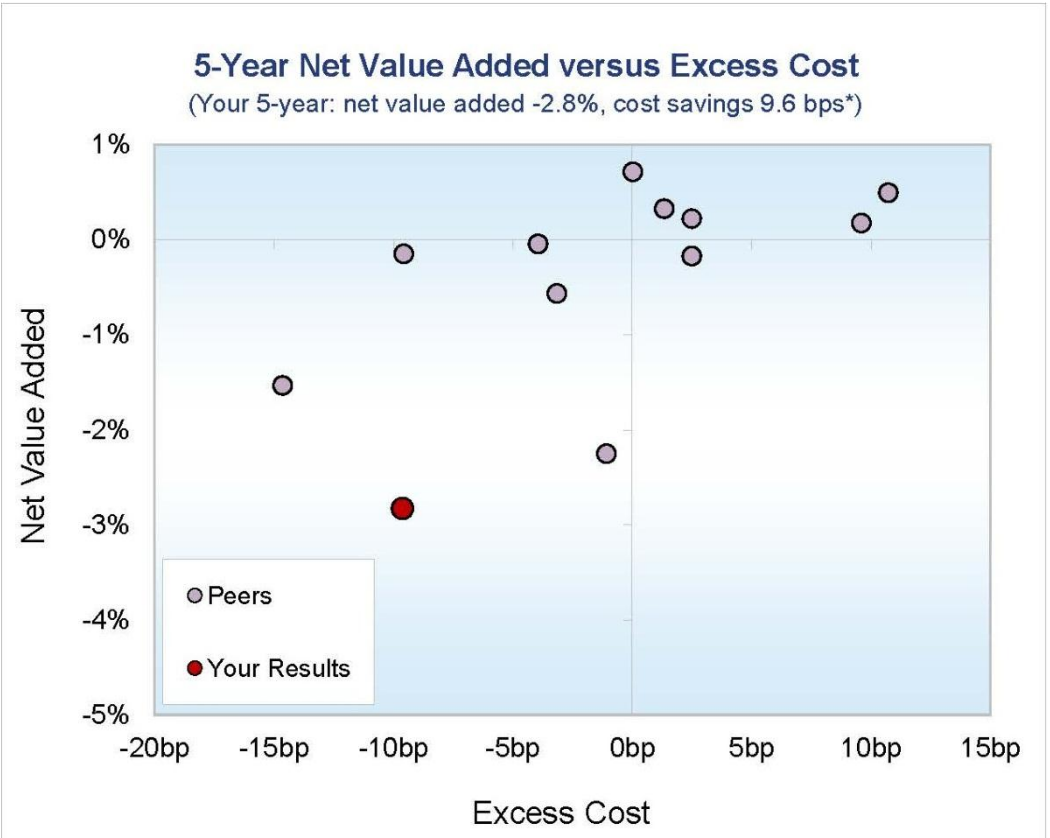
INVO Value Add: Cost Advantage Has Not Resulted In Higher Value Add

Weak 5-year investment performance overwhelmed INVO's cost advantage.



	CalPERS 5-Year [1]
Total Fund Return	0.6%
- Policy Return	2.9%
- Cost	0.5%
= Net Value Added	-2.8%

Action:

- Restructuring portfolios to improve returns
- Focus on delivering more value for cost
- Invest in risk management and control capabilities

[1] Data per CEM Benchmarking Inc. CalPERS Calendar year 2011 Report

Cost Effectiveness Strategy: Deliver More Value For Cost

- Reduce reliance on external consultants and advisors, especially for key control or portfolio monitoring functions
    - Use external resources only when external firms bring capabilities INVO can't replicate at a reasonable cost (e.g. expertise, scale, technology)

- Transition assets from external managers to internal management where it is possible for INVO to build capabilities (e.g. internalizing international and short duration Fixed Income)

- Reduce external management fees
    - Real Estate
        - Utilize separate account structure
        - Scale asset management fees; increment of fees decreases as manager grows
        - Fewer relationships to gain pricing leverage
    - Private Equity
        - Renegotiate economics on existing relationships
        - Negotiate favorable terms on fees/carry with new commitments (i.e. fees on % of invested capital vs. committed capital)
        - Increase focus on Co-Investments which have no carry/fees
    - Absolute Return Strategies (Hedge Funds)
        - Move away from Fund- of-Funds vehicles to Direct relationships

Cost Effectiveness: Results

$ 182 million reduction in year over year investment expenses; $63 million reduction excluding performance fees.

Expense Category	Actual FY 2011-12[1]	Actual FY 2010-11[1]	$ (Decrease)/Increase	Notes
External Mgmt Fees – Base	$808,225	$865,556	($57,331)	Private assets accounted for $49.9 million of the decrease
External Mgmt Fees – Performance	165,412	284,158	(118,746)	Private assets accounted for $102.5 million of the decrease
Total External Mgmt Fees	**$973,637**	**$1,149,714**	**($176,077)**	
Consultants	37,744	45,263	(7,519)	Investment consultant reductions
Personnel Services	39,365	34,619	4,746	Increase in INVO headcount
Portfolio Mgmt Services	31,528	25,987	5,541	Increase in system infrastructure to implement target operating model
Audit, Legal, Tax	9,788	16,715	(6,927)	PY included $5.2 million of expenses arising from Special Review
Appraisals	3,512	5,577	(2,065)	Decrease in number of real estate assets requiring appraisals
Administrative	4,642	4,015	627	Increase in travel, equipment and general office expense
INVO Total Port Mgmt Expense	**$1,100,216**	**$1,281,890**	**($181,674)**	**$63 million reduction excluding performance fees**

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[1] Per FY 2011-12 and FY 2010-11CAFR Investment Management Expense Summary and Board Expenditure Reporting; figures do not include underlying fund of fund fees for Private Equity and ARS or carried interest for Private Equity (in $000s)

INVO Cost Effectiveness: Cost Savings Accomplishments

INVO's Roadmap calls for a significant increase in staffing and increased spending in Portfolio Management Services; INVO's goal is to self-fund these by reducing consulting and external management fees.

Cost Effectiveness

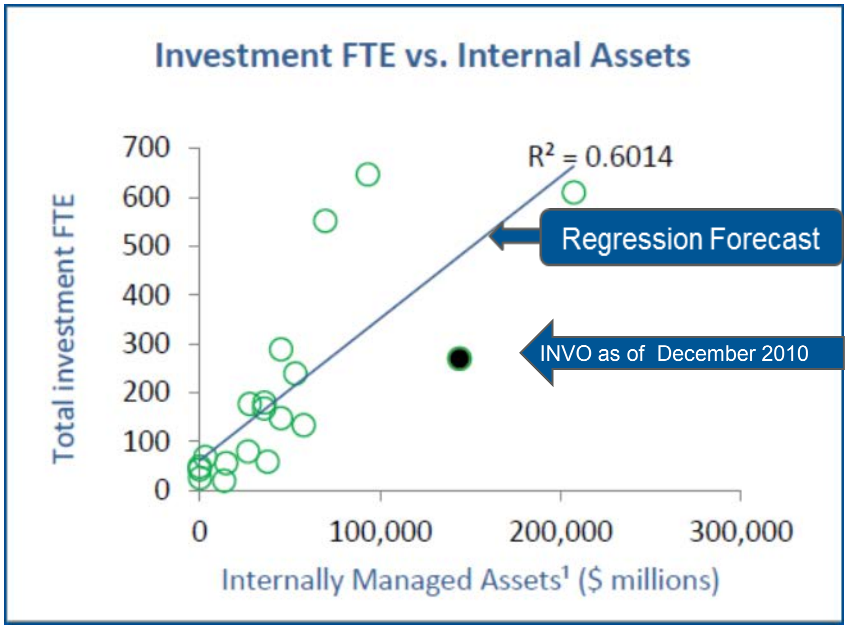
Recurring Annual Savings Identified	$80.3 million
2010-2014 Increased Headcount[1] (145 PYs)	($21.0 million)
Est. Increased Portfolio Management Services	($13.1 million)
Net Annual INVO Cost Savings	**$46.2 million**
Additional savings from carry and performance fees over 5-10 years	$245 million

- ✓ **Cost Savings Efforts:** recurring annual savings comprised of consultant reductions ($20 million,) external manager fee reductions ($52 million) and demonstrated reduction in trading commissions ($8 million)
- ✓ **Headcount Additions:** incremental headcount has allowed INVO to:
  1. Internalize core, high-value functions that were previously outsourced
  2. Establish critical control functions that previously did not exist (e.g. Investment Risk Management and Investment Compliance)
  3. Transition assets to internal management and reduce fees
     - Achieving benchmark staffing of 450 would potentially require an incremental 49 employees to be requested (est. cost of $9.9 million)
- ✓ **Increased portfolio management services:** estimated incremental annual costs of new Global Equity and Private Equity technology and data platforms

[1] Includes annual cost of average Incentive Compensation and benefits; includes 22 PYs requested for FY 2013-14 and results in total INVO headcount of 401 PYs

Industry Benchmarks: INVO Target Staffing[1]

In 2010, CalPERS participated in the CEM Global Leaders Organization Design Review to obtain an understanding of staffing levels and mix across large public sector investment organizations



CONCLUSIONS:

- INVO was significantly understaffed relative to industry benchmarks given size and complexity
- INVO's functional staffing mix (front office vs. governance/support) was not industry standard; especially with regard to investment risk and strategic asset allocation.
- Based on INVO's internal assets of $143 billion as of December 31, 2010, CEM regression analysis suggested a total size for INVO (including any dedicated Enterprise staff) of 517 people; actual INVO staff was 270
- Significant progress in last 3 years towards more appropriate staffing levels and mix; FY 2013-14 planned = 401 INVO PYs
- Estimated maximum staffing = 450 INVO PYs, plus estimated allocated 50-75 Enterprise staff

[1] Chart per CEM Global Leaders Organization Design Review

INVO Cost Effectiveness: Process Accomplishments

- Partnered with Fiscal Office to accomplish the following:
  - ✓ Development of chart of accounts and coding procedures for Investment Expense
  - ✓ Identification of fees charged within funds to insure complete expense capture and reporting
  - ✓ Automated expense reporting that is produced within PeopleSoft and includes both Administrative and Investment Expense Budgets
  - ✓ Created individual detailed budgets and expense reports for each asset class (FY 2012-13)
  - ✓ Benchmarked INVO's cost and staffing levels against global peers
  - ✓ Preliminary development of accounting policies and allocation methodologies to all Trusts
  - ✓ Significantly improved investment expense reporting in CAFR

- Upcoming priorities:
  - ✓ Finalize FY 2013-14 budget and improve projection/forecast process
  - ✓ Continue to work with Fiscal Office to further automate capture of manually aggregated expense data
  - ✓ Obtain a better understanding of the total cost to manage the Private Equity portfolio, especially carried interest and the relationship between management fees and carried interest
  - ✓ Provide comprehensive periodic reporting to Board on total costs to manage the portfolio

INVO Cost Effectiveness: Summary & Next Steps

One of CalPERS potential investment beliefs is that “costs matter more than most investors think”

- CEM Benchmarking research supports this belief. Per CEM’s 2011 report, average net value add of low cost funds exceeded that of high cost funds by 23 bps over the 1991-2011 time period
- Can’t be “penny wise, pound foolish.” CalPERS experience demonstrates that investment losses can overwhelm cost advantages
- Key is to manage cost effectively: balance risk, return and cost

CalPERS has advantages that enable it to manage the portfolio at a lower total cost than peers; relatively large size enables internal management of assets, negotiating power on fees and use of lower cost vehicles such as Real Estate’s separate accounts

INVO continues to focus on managing the portfolio more cost effectively

- Focus on total cost to manage the portfolio, instead of separate “administrative” and “investment” budgets
- Focus on reducing external management fees, taking full advantage of CalPERS size and brand. Reduce use of fund-of-funds and other higher-cost commingled vehicles
- Reinvest some external fee savings in internal capabilities to enable management of portfolio at an acceptable level of risk
- Improve financial systems and process to enable automated, periodic reporting and analysis of total cost to manage the portfolio