



# Investment Committee

## Item Number 4a – Open Session

**Subject:** Annual Investment Cost Report

**Presenter(s):** April Wilcox, Shifat Hasan, Mike Dunigan

**Item Type:** Information

**Date & Time:** November 3, 2022 – 15 minutes

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**Attachment(s):** Attachment 1 – Cost Breakdown

Attachment 2 – Cost Trends

Attachment 3 – Peer Comparison

Attachment 4 – Portfolio Expense Breakout

Attachment 5 – Glossary

**PowerPoint(s):** Annual Investment Cost Report

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### **Item Purpose**

The purpose of this informational report is to provide the Committee a complete breakdown of the costs associated with administering the Total Portfolio, presented in the following format:

1. Historical overall costs broken out by Total Portfolio, Asset Class, Internal vs. External Management, and Public vs. Private Investments (Attachments 1 & 2).
2. A capture ratio analysis to show cost effectiveness of the Total Portfolio and asset classes over time. This is a quantitative metric to compare costs (spending) against returns (Attachment 2).
3. A peer comparison of investment cost data prepared by an external cost measurement service provider. Their analysis compares CalSTRS to peers and reports cost effectiveness based on their methodology (Attachment 3).
4. A breakdown of portfolio costs captured: internal operating and administrative expenses, management and performance fees, brokerage commissions, and private asset costs that are often capitalized or netted from the investments (Attachment 4)

## **Executive Summary**

Investment costs are an important determinant of fund performance and require close oversight and active monitoring. In alignment with CalSTRS Investment Belief 3, “Managing investment costs yield long-term benefits”, the Annual Investment Cost Report strives to provide transparency and an in-depth look into all types of expenses incurred in managing the Total Portfolio. All costs and carried interest within this report are for calendar year 2021 and on a cash basis.

There is no industry standard or format for investment cost reporting. In many cases, comparability is not possible because every pension plan is unique. Differences between plans can include respective mandates, funding objectives and cash flow constraints. Additionally, private assets have characteristics such as non-standard reporting formats and variability in deal structures, making cost reporting exceptionally complex. Therefore, performance measurement and cost extraction are intricate and not always directly comparable to peers. While most partnerships have an audited annual financial statement, which is closely reviewed by staff, the netted costs and expenses are not uniformly disclosed nor are they delineated by each respective limited partner. As a result, the information must be carefully obtained one investment at a time through direct engagement. Mercer was hired as the project consultant to obtain these costs and continues to provide their services for obtaining and aggregating expenses, fees and carried interest related to the private assets. The CalSTRS Annual Investment Cost Report sets best practice in cost reporting due to its comprehensiveness and thorough detail in reporting.

## **Background**

It is important to note that information in this Cost Report is one point in time. Costs can fluctuate significantly each year depending on the life cycle of the underlying investment and/or the investment pace of the strategy. CalSTRS is a long-term investor and as such, return and cost data is more meaningful when compared over long time periods.

**Chart 1 – Overall Costs<sup>1</sup> in Basis Points**

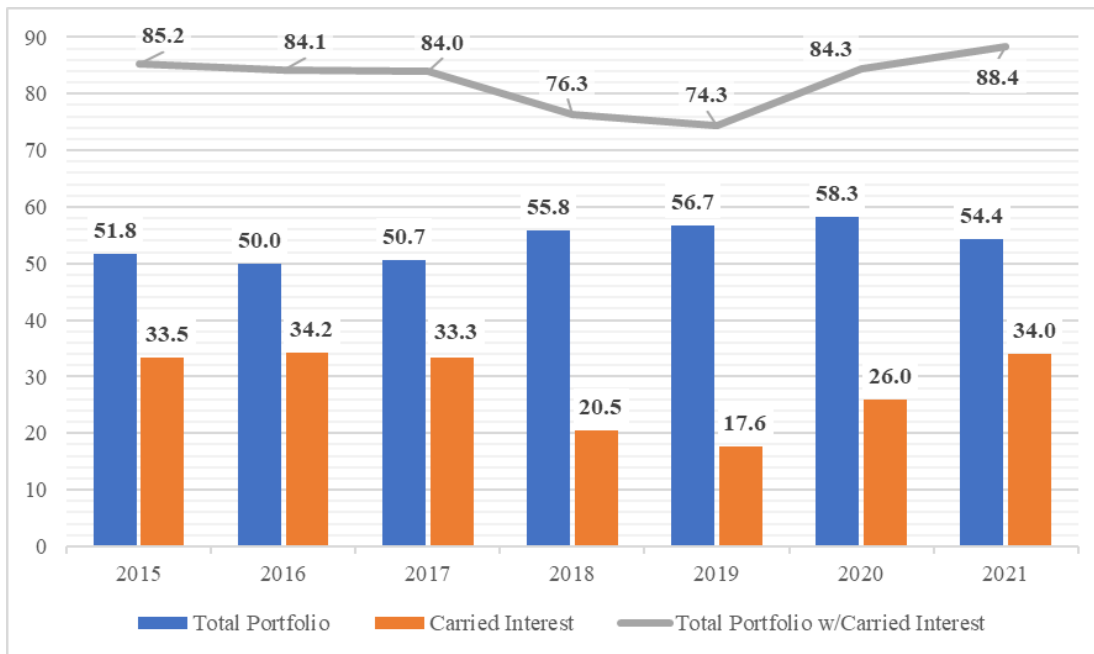


Chart 1 above expresses costs relative to the Net Asset Value (NAV) of the Total Portfolio:

- Overall costs for 2021 (grey line) increased by 4 basis points (bps).
- Total portfolio costs (blue bar) decreased relative to the NAV, for the first time in over five years by 4 bps.
- Carried interest (orange bar) increased by 8 bps.
- The seven-year average cost per dollar (excluding carried interest) is 54 bps.

Total portfolio costs and carried interest are driven by different factors. Total portfolio costs include management fees and internal operating costs that are highly correlated to the NAV of the Total Portfolio. Carried interest is a profit-sharing agreement between the general partner and the limited partners (i.e., CalSTRS), is positively correlated to investment returns and is paid to the general partner upon the profitable exit from an investment (further defined in Attachment 5).

<sup>1</sup> Based on total costs for the period over a smoothed NAV to account for new and exited investments during the respective calendar year. Basis point totals may not tie due to rounding.

**Table 1 – Overall Costs in Absolute Dollars**

(\$ in Millions)	2015	2016	2017	2018	2019	2020	2021	2021 Δ
<b>NAV</b>	186,100	194,698	218,215	225,703	242,190	261,992	<b>338,296</b>	29%
<b>Total Portfolio Costs</b>	<b>963</b>	<b>973</b>	<b>1,106</b>	<b>1,260</b>	<b>1,374</b>	<b>1,527</b>	<b>1,840</b>	<b>20%</b>
<b>Carried Interest Paid</b>	<b>623</b>	<b>665</b>	<b>727</b>	<b>463</b>	<b>426</b>	<b>681</b>	<b>1,150</b>	<b>69%</b>
<b>Total w/Carried Interest</b>	<b>1,586</b>	<b>1,638</b>	<b>1,833</b>	<b>1,723</b>	<b>1,800</b>	<b>2,209</b>	<b>2,990</b>	<b>35%</b>

Table 1 above reflects the costs paid in 2021 in absolute dollar terms.

- Total portfolio costs increased by 20%, around \$313 million more than the previous year.
- Carried interest paid increased by 69%, paying out \$469 million more than in 2020.

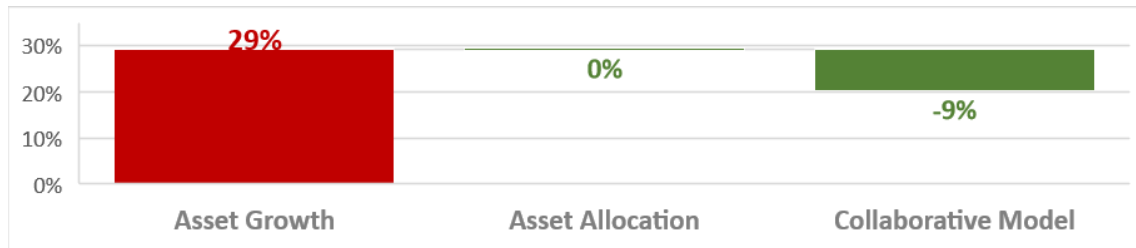
The Total Portfolio had significant growth over 2021, increasing its net assets by 29%. This is why total portfolio costs decreased from a basis point perspective even though they increased in absolute dollar terms. If things remain constant, portfolio costs shift in somewhat proportional relation to NAV. This proportionality decreases when there are shifts in asset allocations or changes in the percentage of funds managed internally. The following sections of this report will outline these drivers of cost and discuss the trends observed over the last seven years.

### The Drivers of Cost



Overall costs will increase, or decrease based on four primary reasons (shown above). Because there are four major levers which drive costs, there will be volatility from year to year. Therefore, it is most productive to examine longer rolling periods for trends.

Total portfolio costs and carried interest both increased in 2021 as indicated in Table 1. Carried interest increased by 69% and is discussed separately from portfolio costs given that it is captured on a cash basis and often corresponds to multiple years. Total portfolio costs increased by 20%, and are captured in the form of management fees, operating expenses, and other expenses (Attachment 4 provides a complete breakdown of the categories that make up operating expenses). Each of the drivers above affect these components differently. Below is a discussion attributing these changes to the four primary drivers of costs.

**Chart 2 – Total Portfolio Cost Attribution for 2021*****Asset Growth (Total Portfolio Costs)***

A greater amount of assets under management will increase total costs in absolute terms. As the Total Portfolio NAV has increased over time, so have the dollar amounts of total portfolio costs. Much of this can be attributed simply to management fees based on NAV, but a larger Total Portfolio will incur greater operating and other expenses, as well. As shown in Table 1, the Total Portfolio NAV has grown steadily year over year by 82% since 2015, including 29% in 2021 alone. This 29% increase had a similar impact to costs over 2021.

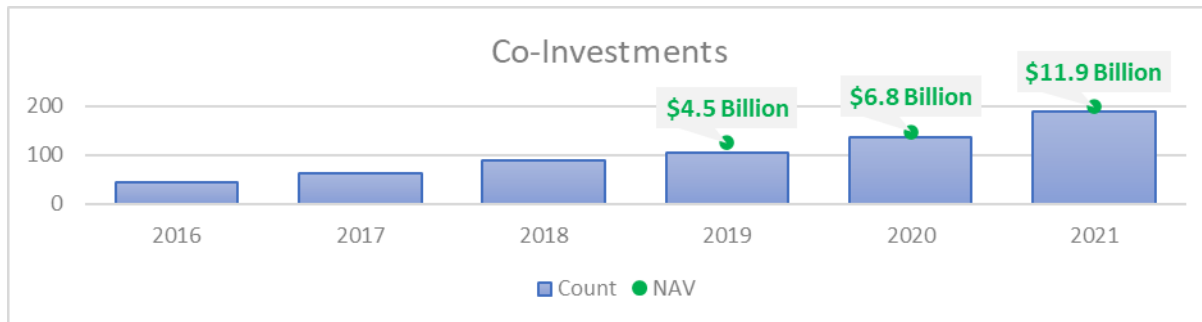
***Asset Allocation (Total Portfolio Costs)***

Private markets and active strategies have higher costs relative to public markets and passive strategies. A higher private asset allocation will often correlate to greater portfolio costs, to compensate the expertise needed to manage investments with higher risk/return profiles or additional diversifying aspects. [The 2020 Annual Investment Cost Report](#) showed that since 2016, the allocation to private assets had increased by over 7%. In 2021, the allocation to private assets stayed relatively flat to slightly decreased, which had a negligible impact to cost.

***Collaborative Model (Total Portfolio Costs)***

The execution of the CalSTRS Collaborative Model is crucial to the long-term return objectives of the Total Portfolio. It is an investment strategy to manage more assets internally to reduce costs, control risks and increase expected returns. This includes leveraging our external partnerships to achieve similar benefits and analyzing each asset classes overall strategy to find the best balance of risk and return.

The largest impact of the Collaborative Model will be defined by a savings in carried interest - which is outlined in the November 2022 Board Item 4b: Collaborative Model Savings – but these actions also have a direct impact on portfolio costs: management fees and other expenses. Operating expenses may increase slightly as the Collaborative Model's infrastructure is built, but then drop when economies of scale are obtained through growth. In 2021, the Collaborative Model reduced portfolio costs by 9%. Most of the savings was due to an increase in the allocation to co-investments. The number of co-investments grew from 135 to 188 over the year. This allocation to investments with lower fee structures accounted for almost 8% of the savings (see Collaborative Savings Report for more detail), with the remaining attributed to operating expense savings from economies of scale.

**Chart 3 – Co-Investments Count*****Carried Interest***

A higher annual return in an asset class where profit sharing agreements exist will increase total costs. The agreements are tied to profits realized over a period of years rather than a single year. Multiple factors influence how much carried interest is earned, which often fluctuates until it is ultimately paid. These range from the strategy of the investment, negotiated agreement, the economic environment over its life and the timing of when dry powder is put to use. To report realized costs with certainty, the Cost Report tracks carried interest as it is paid rather than accrued, making it intricate to attribute drivers in a single year.

[The 2019 Annual Cost Report](#) discussed a correlation between the carried interest paid, vintage years, and the amount of committed capital, that when combined with favorable economic cycles, help explain cyclical increases in the amount of carried interest paid out in a given year. For 2021, carried interest paid increased by 69%, which indicates significant realized gains earned by private assets over the last few years.

**Internal vs. External Costs - Public vs. Private**

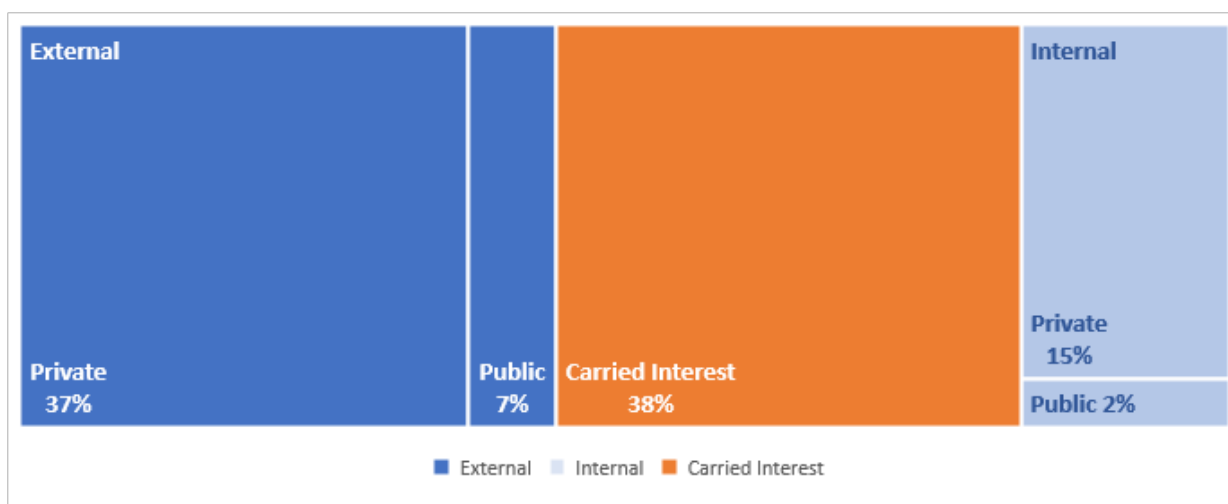
In general, it costs more to manage investments externally than internally. Internal investment management allows staff to focus on specific strategies while leveraging internal knowledge and adding value by generating meaningful cost savings. However, there are strategies that require either significant infrastructure or specialized expertise that economically justify external management. For such strategies, external investment managers and partners are utilized, overseen, and monitored by internal staff and the Investment Committee's general consultants.

Chart 4 below demonstrates the size relationship between externally managed costs, carried interest paid, and internally managed costs. It further breaks down external and internal costs into public and private. As shown in the heat map, private market costs, including carried interest, accounted for over 90% of the costs for 2021 even though they make up only 32% of the assets in the Total Portfolio (see Attachment 1). This is typical and expected as private market investments (private assets) are complex and require a higher degree of expertise, resulting in higher costs. Studies have shown that a private equity program can add significant value to a portfolio in terms of diversified risk and higher expected return specifically over a 10-20-year investment horizon.

There were approximately 886 private assets in 2021. The costs associated with 98% of the private assets, based on their NAV, have been obtained and reported within this report. General partners/managers of the remaining 2% of private assets were non-responsive. They are primarily composed of investments that are winding down and at the end of their life. Staff believes that 98% coverage provides a directionally accurate cost figure.

To obtain the cost information of the private assets, Mercer utilized the reporting template (Fee Template) developed by the Institutional Limited Partners Association (ILPA) for private assets. Mercer will be available to discuss their process and answer any questions.

**Chart 4 – Total Portfolio Costs and Carried Interest Heat Map**



For 2021, CalSTRS paid roughly \$3 Billion in overall costs: 38% in carried interest, 44% in external costs, and 17% in internal costs. Table 2 below further outlines the breakdown of public vs. private costs.

**Table 2 – Total Portfolio Costs as a Percentage of Net Asset Value (in Millions)**

	NAV	%	Cost	%	Cost in Basis Points	
<b>Externally Managed</b>	<b>112,629</b>	<b>33%</b>	<b>1,324</b>	<b>72%</b>	<b>Private</b>	
Private	68,045	20%	1,111	60%	External	Internal
Public	44,585	13%	214	12%	163	112
<b>Internally Managed</b>	<b>225,667</b>	<b>67%</b>	<b>516</b>	<b>28%</b>	<b>Public</b>	
Private	40,724	12%	454	25%	External	Internal
Public	184,943	55%	61	3%	48	3
<b>Total</b>	<b>338,296</b>	<b>100%</b>	<b>1,840</b>	<b>100%</b>		

In 2021, external management costs were approximately \$1.3 billion compared to \$516 million in internal management costs. Table 2 shows internally managed investments account for 67% of the Total Portfolio NAV, yet they represent only 28% of the Total Portfolio Costs. The difference in cost is even more

evident when differentiating between public and private assets. Externally managed private assets cost \$1.1 billion in 2021. This equates to 163 basis points vs 112 basis points per dollar for internally managed private assets. Internally managed private assets have a lower negotiated cost structure and include co-investments and joint ventures (please see the Glossary for a description of all included investments). External public assets cost 48 basis points per dollar while internal public assets cost 3 basis points. This difference includes unequal balances of active and passive strategies between external and internal management, but when strategies are directly compared, internal management is significantly less expensive.

### Capture Ratio Analysis

The Capture Ratio reflects the percentage of gross profits captured and reflected in the net returns over the seven-year period ending December 31, 2021. The ratio and its components are shown in cumulative since single year figures can swing based on carried interest from multiple years paid out in a single year. Table 3 below shows that the Total Portfolio has earned \$162.5 billion over the last seven years, while paying \$10 billion in fees and carried interest. The capture ratios for private asset classes will tend to be lower due to the carried interest paid out from these investment types, but this is offset by their long term expected net returns and risk diversification value.

**Table 3 – Capture Ratio (in Millions)**

7-Year Period Ending December 31, 2021		2021 Target Weights	Costs*	Gross Dollars**	Net Dollars**	Capture Ratio	Net Return (Time Weighted)
<b>Total Portfolio</b>			\$10,230	\$172,784	\$162,553	<b>94.1%</b>	9.93%
<b>Growth</b>	Global Equity	47%	862	91,872	91,010	<b>99.1%</b>	11.34%
	Private Equity	11%	5,138	32,804	27,665	<b>84.3%</b>	16.28%
<b>Real Assets</b>	Real Estate	14%	2,618	22,018	19,399	<b>88.1%</b>	9.66%
	Inflation Sensitive	4%	261	4,119	3,858	<b>93.7%</b>	7.54%
<b>Diversifying</b>	Fixed Income	12%	69	7,477	7,407	<b>99.1%</b>	3.63%
	Risk Mitigating Strategies	10%	735	6,085	5,350	<b>87.9%</b>	2.96%

\* Management fees and carried interest are considered the industry standard for measuring costs

\*\* Cumulative dollar gain or loss over the period

**Chart 5 – Total Portfolio Capture Ratio (Cumulative) Trend Line**

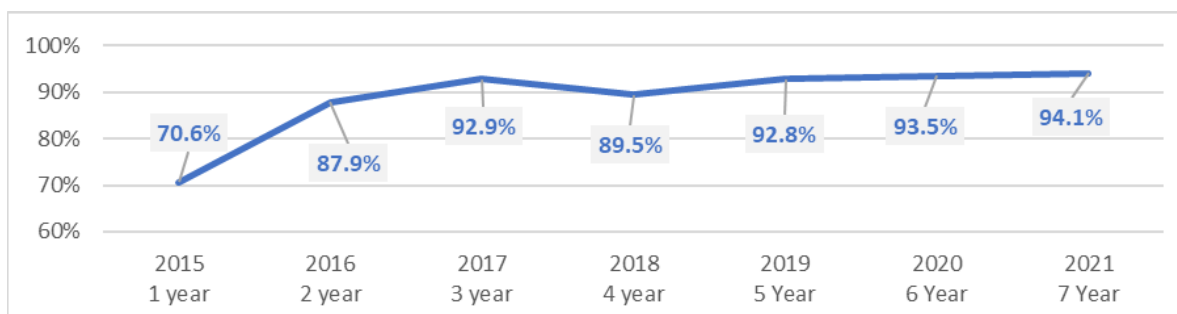




Chart 5 above shows that CalSTRS has captured 94.1% of the gross dollars earned over the last seven years.

### **Peer Comparison<sup>2</sup>**

Data for peer comparison was compiled and prepared by a third-party cost measurement service provider utilizing various customized methodologies different from this report. Information in this section is strictly for benchmarking purposes and differs from CalSTRS reported costs primarily due to the exclusion of broker commissions, partnership expenses and carried interest within the peer comparison.

- Based on a comparison of 14 global peers from \$100.6 billion to \$751.0 billion in AUM, CalSTRS investments was a low-cost fund.
- CalSTRS investment cost of 39.8 bps was below its expected cost of 54.4 bps, demonstrating the fund was low cost compared to peers, given an identical asset mix.
- CalSTRS Investment Branch saved 14.6 bps over the expected investment costs of 54.4 bps, which equates to approximately \$491 million saved compared to its peers.

For further details on peer comparison, please refer to Attachment 3.

### **CONCLUSION**

CalSTRS staff has been reporting investment fees and expenses for many years. As reflected on the investment beliefs statements, staff acknowledges the long-term benefits of managing investment costs. Reducing costs is an integral part of CalSTRS investment decision making process and staff understands the importance of monitoring and measuring costs to meet the policy objectives.

This report is comprehensive, and through this process, costs across all asset classes and strategies are scrutinized and reported. The thoroughness and dedication to transparency, even prior to legislation requiring detailed cost reporting for California pension plans, continues to make CalSTRS the front-runners amongst peers in reporting investment costs.

The Peer Comparison (Attachment 3) provides insight into how CalSTRS is performing compared to global peers. There are challenges to the comparability of costs with peers - which includes the lack of standard practices across the industry for reporting these costs. Therefore, the peer comparison report excludes private asset performance fees and transactions costs except as a footnote.

Staff will continue to work with third party cost measurement service providers to monitor CalSTRS effectiveness in managing investment costs compared to peers. Staff has partnered together with other institutional investors and organizations (i.e., ILPA, P2F2) to advocate best practices across all the asset classes to enhance transparency and improve benchmarking. These efforts and the continued enhancements of the Annual Investment Cost Report will strive to provide the Committee the most meaningful and advanced investment cost information.

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<sup>2</sup> Data collected and compiled by CEM Benchmarking, Inc. for calendar year 2021.

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Strategic Plan Linkage: [Goal 1 of the strategic plan](#). Trusted stewards – Ensuring a well-governed, financially sound trust fund.

Board Policy Linkage: [CalSTRS Investment Policy and Management Plan](#)

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**Optional Reference Material:** *(e.g., prior board items, supplemental educational materials, etc.)*

**Internal / External Management Costs & Private / Public Market Costs** (\$ in millions)

<b>External Management Costs<sup>3</sup></b>								
Asset Class/ Investment Strategy	Net Asset Value	Ending Market Allocation	Management Fee	Operating Expense	Other Expenses	Total Expense	2021 Basis Points	2020 Basis Points
<b>Public Market Costs</b>								
Global Equity	38,570	11%	162	13	17	192	49.7	42.3
Fixed Income	4,318	1%	10	2	0	12	26.8	26.9
Inflation Sensitive	1,148	0%	3	0	0	4	34.0	49.0
SISS	555	0%	1	0	0	1	21.0	26.9
Strategic Overlay <sup>1</sup>	-7	0%	5	0	0	5	12.6	14.5
<b>Total</b>	<b>\$ 44,585</b>	<b>13%</b>	<b>\$ 181</b>	<b>\$ 15</b>	<b>\$ 18</b>	<b>\$ 214</b>	<b>46.8</b>	<b>48.0</b>
<b>Private Market Costs</b>								
Private Equity	29,240	9%	395	18	202	615	210.2	239.8
Risk Mitigating Strategies	17,267	5%	111	7	59	176	102.0	116.1
Real Estate	11,944	4%	103	7	59	169	141.7	141.7
SISS <sup>2</sup>	5,095	2%	57	2	7	66	130.2	98.3
Inflation Sensitive	3,265	1%	39	2	14	54	166.4	145.8
Innovative Strategies	1,233	0%	19	1	10	30	244.4	133.9
<b>Total</b>	<b>\$ 68,045</b>	<b>20%</b>	<b>\$ 724</b>	<b>\$ 36</b>	<b>\$ 351</b>	<b>\$ 1,111</b>	<b>163.3</b>	<b>173.2</b>
<b>Total External Mgt.</b>	<b>\$ 112,629</b>	<b>33%</b>	<b>\$ 904</b>	<b>\$ 52</b>	<b>\$ 368</b>	<b>\$ 1,324</b>	<b>117.6</b>	

<sup>1</sup> Net Asset Value reflects gains / (losses) on notional values and uses notional values for calculating basis points for currency management

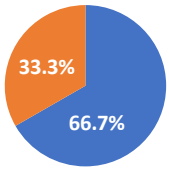
<sup>2</sup> Includes approximately \$3.2 billion in Sustainability Managers

<sup>3</sup> Zero "0" indicates a number rounded to less than 1 million. "--" indicates no value.

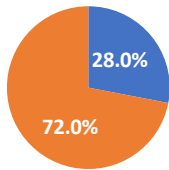
Internal Management Costs <sup>3</sup>								
Asset Class/ Investment Strategy	Net Asset Value	Ending Market Allocation	Manager Fee	Operating Expense	Other Expenses	Total Expense	2021 Basis Points	2020 Basis Points
<b>Public Market Costs</b>								
Global Equity	136,206	40%	-	37	2	38	2.8	3.5
Fixed Income	28,764	9%	-	12	0	12	4.1	4.4
Risk Mitigating Strategies	9,422	3%	-	3	-	3	3.0	3.6
Cash / Liquidity	6,768	2%	-	2	-	2	3.2	3.6
Inflation Sensitive	2,818	1%	-	1	-	1	4.3	5.1
SISS	626	0%	-	0	1	1	12.2	4.4
Strategic Overlay <sup>1</sup>	339	0%	-	1	3	4	1.1	0.8
<b>Total</b>	<b>\$ 184,943</b>	<b>55%</b>	<b>\$ -</b>	<b>\$ 56</b>	<b>\$ 5</b>	<b>\$ 61</b>	<b>3.3</b>	<b>3.8</b>
<b>Private Market Costs</b>								
Real Estate	26,717	8%	187	19	181	387	144.8	138.3
Private Equity	8,504	3%	3	7	22	32	37.8	32.8
Inflation Sensitive	4,727	1%	15	3	7	25	52.9	56.6
Innovative Strategies	609	0%	4	1	5	10	164.0	236.1
Fixed Income	102	0%	-	0	-	0	4.0	4.4
SISS	65	0%	-	0	0	0	21.0	13.1
<b>Total</b>	<b>\$ 40,724</b>	<b>12%</b>	<b>\$ 209</b>	<b>\$ 31</b>	<b>\$ 215</b>	<b>\$ 454</b>	<b>111.6</b>	<b>114.9</b>
<b>Total Internal Mgt.</b>	<b>\$ 225,667</b>	<b>67%</b>	<b>\$ 209</b>	<b>\$ 87</b>	<b>\$ 220</b>	<b>\$ 515</b>	<b>22.8</b>	
<b>Total Public Market</b>	<b>\$ 229,528</b>	<b>68%</b>	<b>\$ 181</b>	<b>\$ 71</b>	<b>\$ 23</b>	<b>\$ 275</b>	<b>12.0</b>	
<b>Total Private Market</b>	<b>\$ 108,768</b>	<b>32%</b>	<b>\$ 932</b>	<b>\$ 67</b>	<b>\$ 565</b>	<b>\$ 1,565</b>	<b>143.9</b>	
<b>Grand Total</b>	<b>\$ 338,296</b>	<b>100%</b>	<b>\$ 1,113</b>	<b>\$139</b>	<b>\$ 588</b>	<b>\$ 1,840</b>	<b>54.4</b>	

<sup>3</sup> Zero ‘0’ indicates a number rounded to less than 1 million. “-” indicates no value.

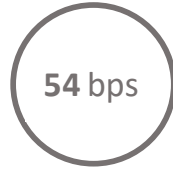
## Total Fund



2021 Internal vs. External Assets



Internal vs. External Costs



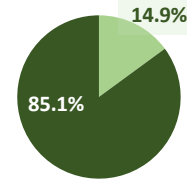
Cost per \$



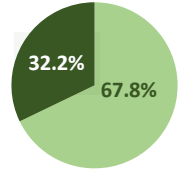
7-Year Net Return



Capture Ratio



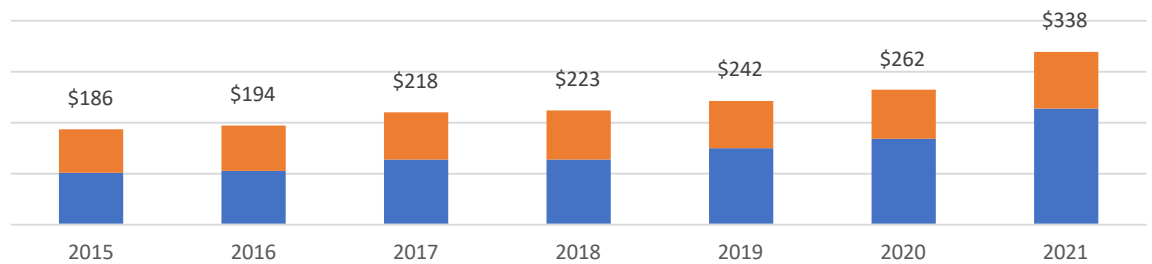
Public vs. Private Costs



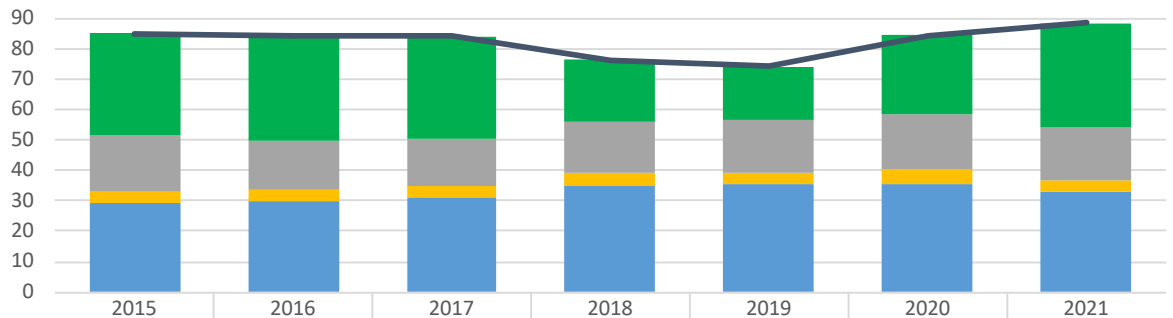
Public vs. Private Assets

### Total NAV (billions)

External NAV  
Internal NAV



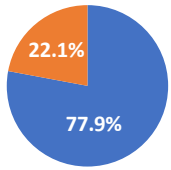
### Total Expenses (bps)



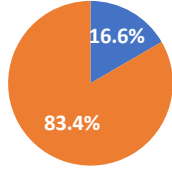
	2015	2016	2017	2018	2019	2020	2021
Carried Interest	33	34	33	21	18	26	34
Other Expenses	19	16	16	16	17	18	17
Operating Expense	3	4	4	4	4	5	4
Management Fees	29	30	31	35	35	36	33
<b>Total</b>	<b>85</b>	<b>84</b>	<b>84</b>	<b>76</b>	<b>74</b>	<b>84</b>	<b>88</b>

- The Total Fund NAV has **increased** significantly over the last 5 years **driven by** solid **returns** and increased **cost capture**: 2021 return close to 17%, 3 year return over 16%, 5 year return over 12%. Capture ratio increased 0.6%.
- While Total Portfolio Costs increased in absolute terms (20%), they **decreased relative to the NAV** by ~ 4 bps
  - The **increase in absolute costs** overall is attributed to NAV growth (management fee impact) and carried interest (realized profit sharing)
  - The decrease in relative costs is partly attributed to an **increased allocation to co-investments** (\$5 Billion), even though private assets allocation and costs stayed flat relative to public assets
  - Internally managed assets grew by 2.7% from last year

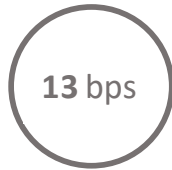
## Global Equity



2021 Internal vs. External Assets



Internal vs. External Costs



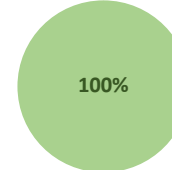
Cost per \$



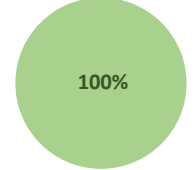
7-Year Net Return



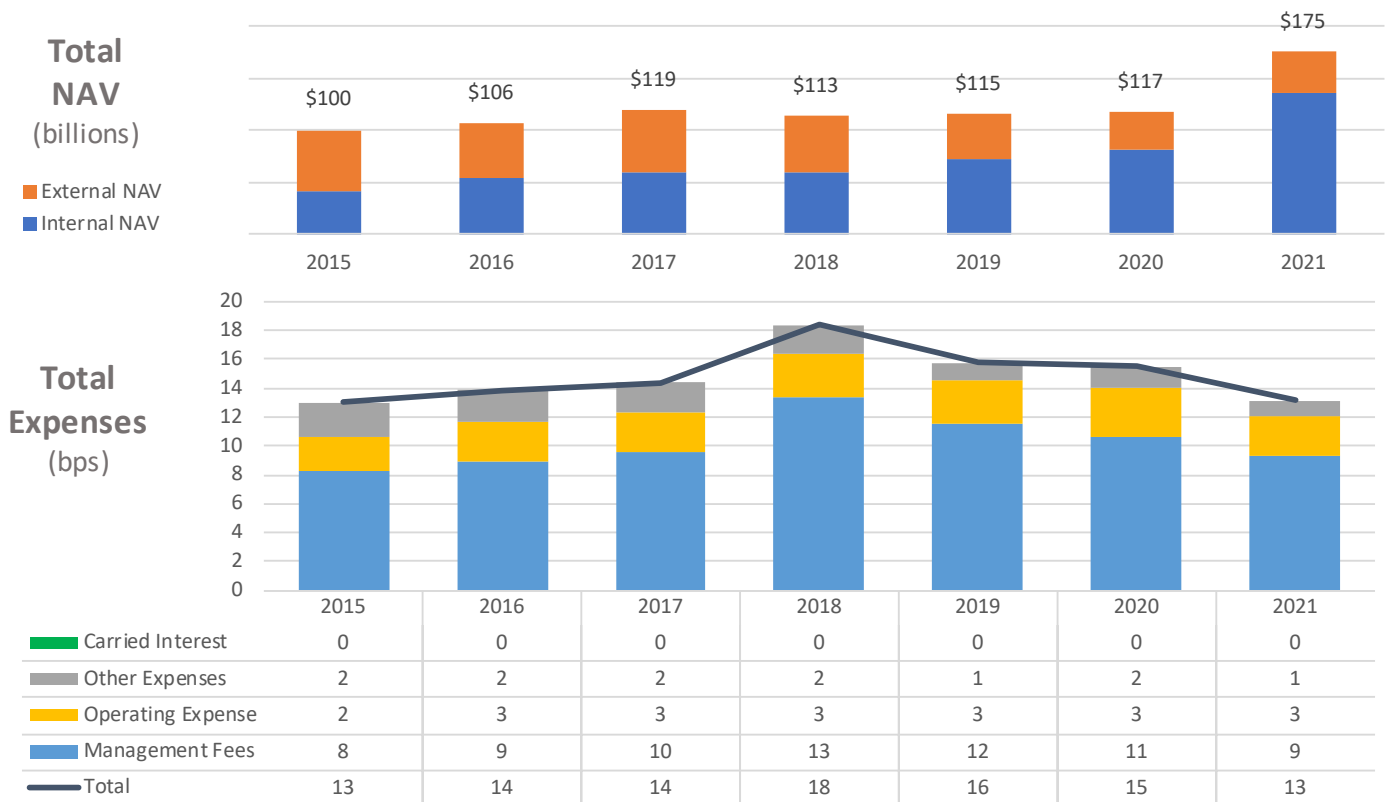
Capture Ratio



Public vs. Private Costs

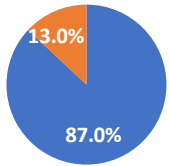


Public vs. Private Assets

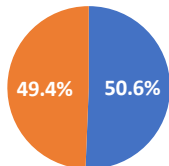


- The Global Equity NAV **increased** significantly in 2021 **driven by** strong **return** and increased **cost capture**: 2021 return ~ 18%, 3 year return over 20.5%, 5 year return over 14.4%. Capture ratio increased 0.1%.
- While Total GE Portfolio Costs increased in absolute terms (27%), they **decreased relative to the NAV** by ~ 2 bps
  - The **increase in absolute costs** overall is attributed to NAV growth (management fee impact)
  - The decrease in relative costs is partly attributed to an **increased internal management**, which grew by almost 9% relative to last year

## Fixed Income



2021 Internal vs. External Assets



Internal vs. External Costs



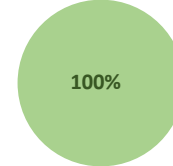
Cost per \$



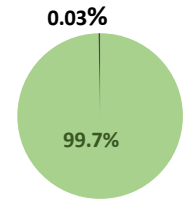
7-Year Net Return



Capture Ratio



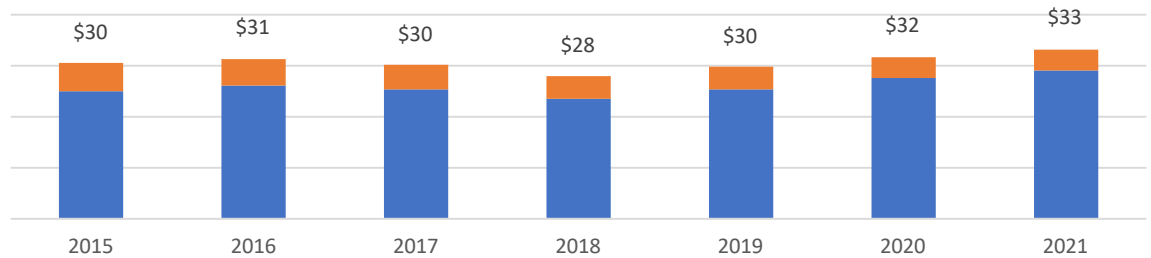
Public vs. Private Costs



Public vs. Private Assets

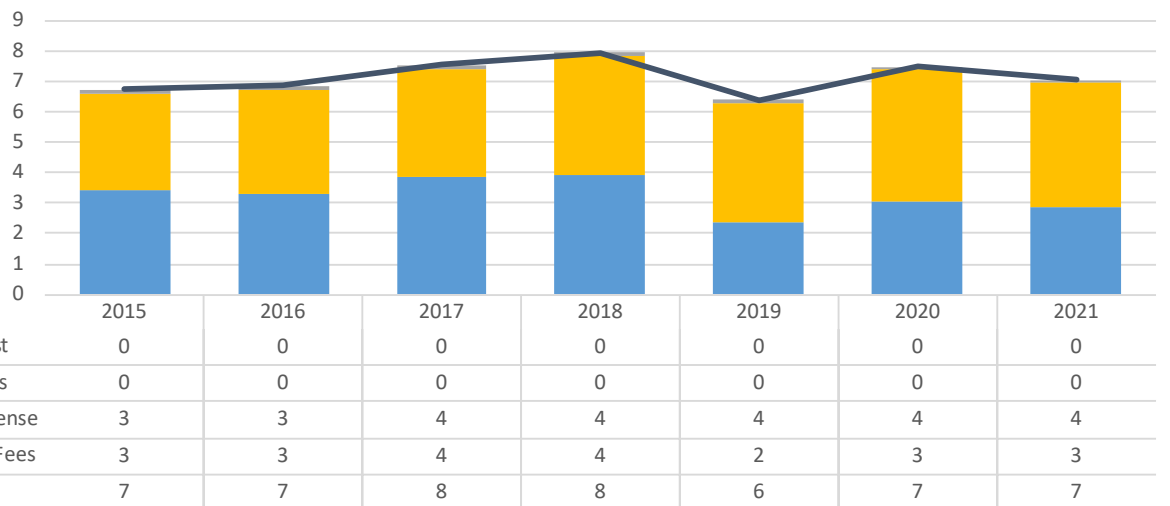
### Total NAV (billions)

External NAV  
Internal NAV



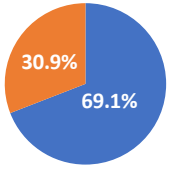
### Total Expenses (bps)

Carried Interest  
Other Expenses  
Operating Expense  
Management Fees  
Total

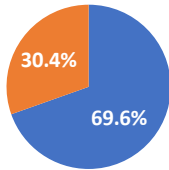


- The Fixed Income NAV **increased** slightly in 2021 **driven by** allocation balancing: 2021 return ~ -1.0%, 3 year return ~ 5.5%, 5 year return ~ 4.2%. Capture ratio decreased less than 0.1%.
- Total FI Portfolio Costs decreased in absolute terms (1.4%), but **stayed flat relative to the NAV**
  - The **decrease in absolute costs** overall is attributed to a slight increase to internal management (1%)

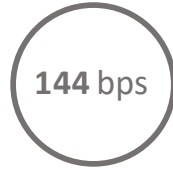
## Real Estate



2021 Internal vs. External Assets



Internal vs. External Costs



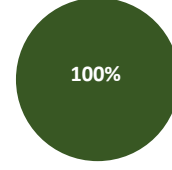
Cost per \$



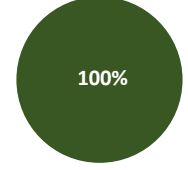
7-Year Net Return



Capture Ratio



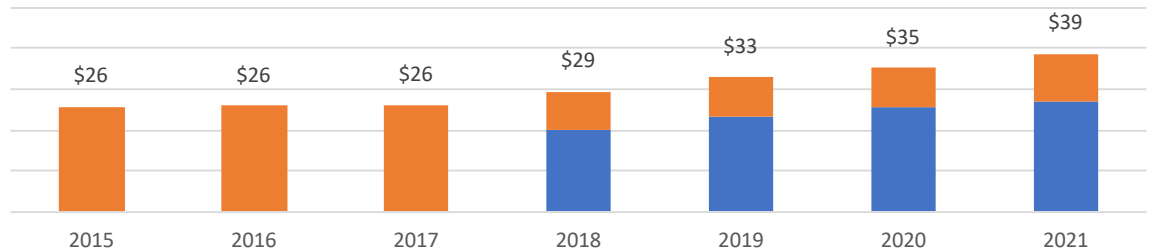
Public vs. Private Costs\*



Public vs. Private Assets\*

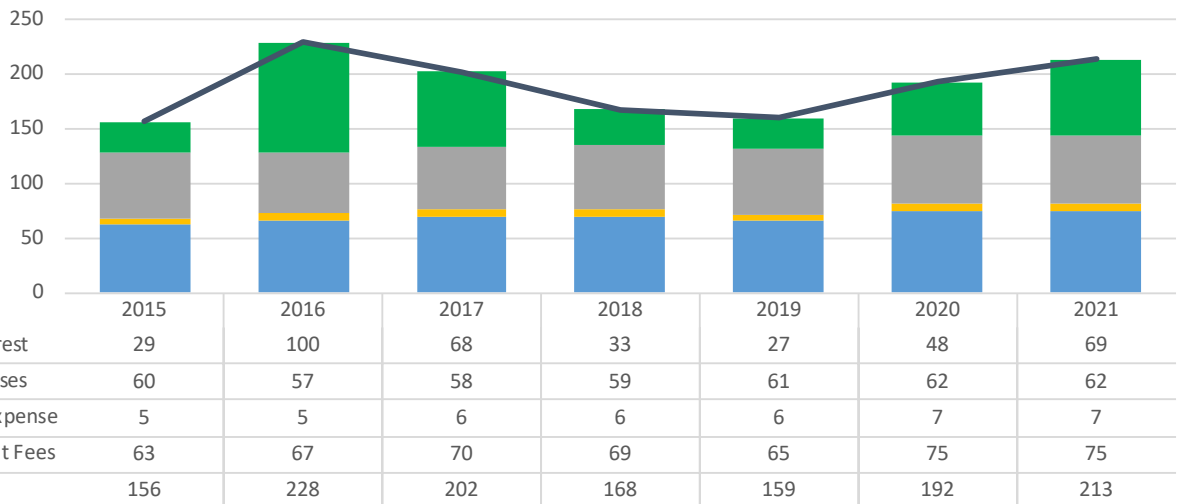
### Total NAV (billions)

External NAV  
Internal NAV



### Total Expenses (bps)

Carried Interest  
Other Expenses  
Operating Expense  
Management Fees  
Total



- The Real Estate NAV has **increased** significantly over the last 4 years **driven by** solid **returns** and increased **cost capture**:

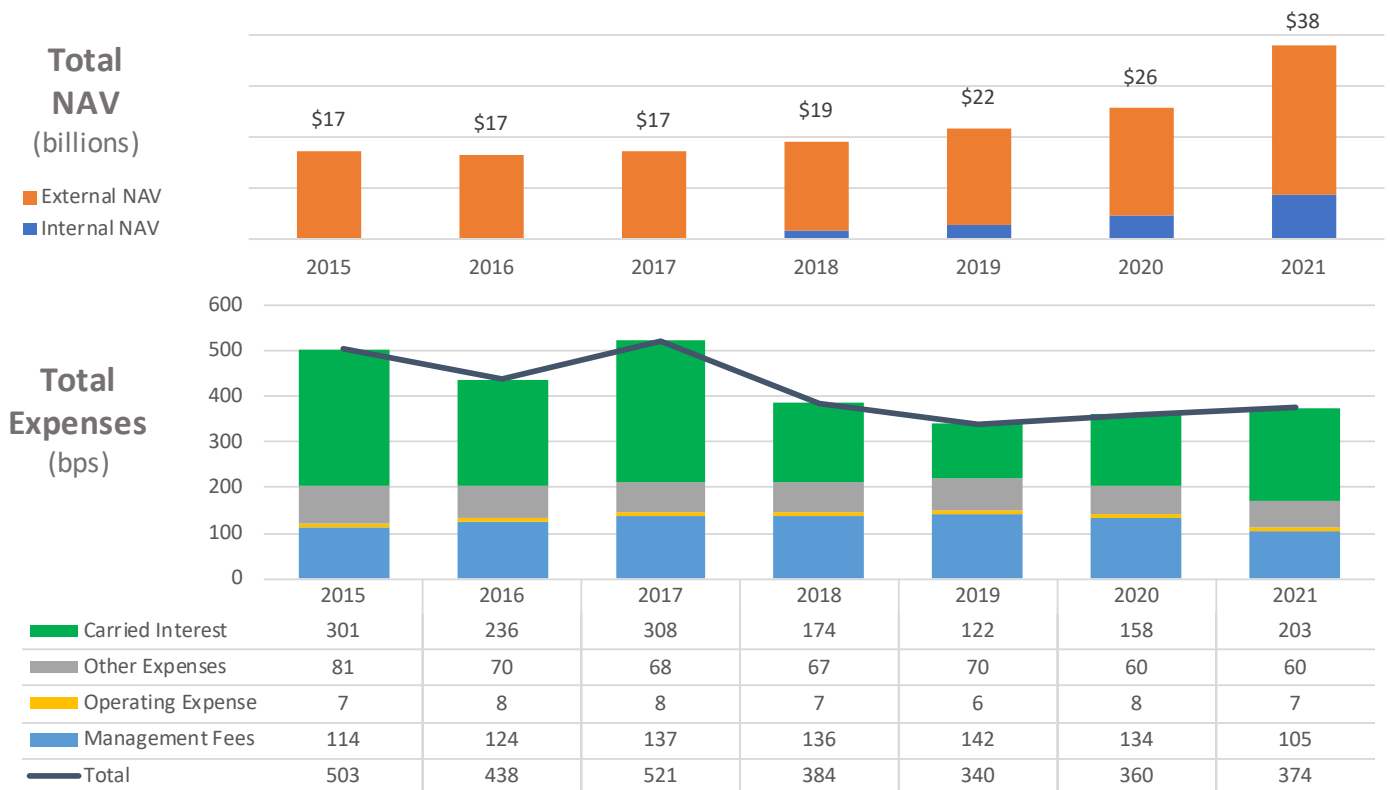
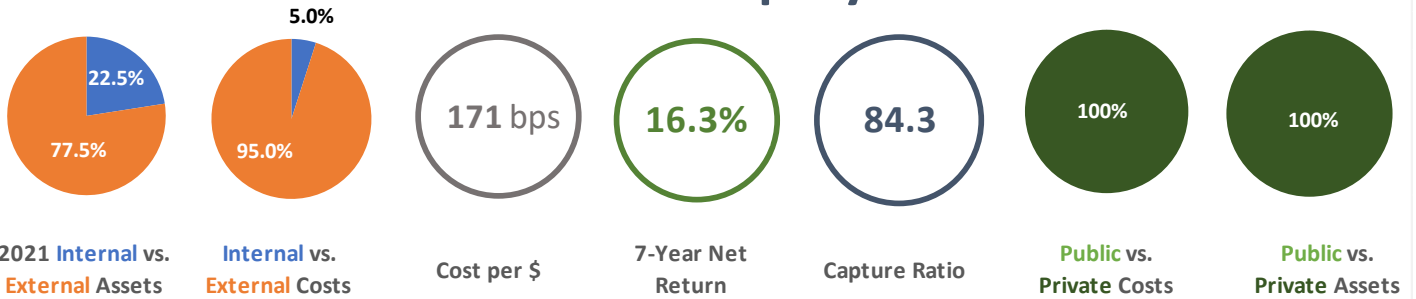
2021 return close to 14.8%, 3 year return over 9.3%, 5 year return over 9.2%. Capture ratio increased 0.9%.

- While Total RE Portfolio Costs increased in absolute terms (9.8%), they **stayed flat relative to the NAV** by ~ -0.2 bps
  - The **increase in absolute costs** overall is attributed to NAV growth (management fee impact) and carried interest (realized profit sharing).
  - Management fees increased in 2019 due predominately to increased allocation to joint ventures. These will tend to show higher relative costs in the onset due to initial investment into setup and infrastructure.

\* Includes a less than 1% allocation to Public REIT managers



## Private Equity

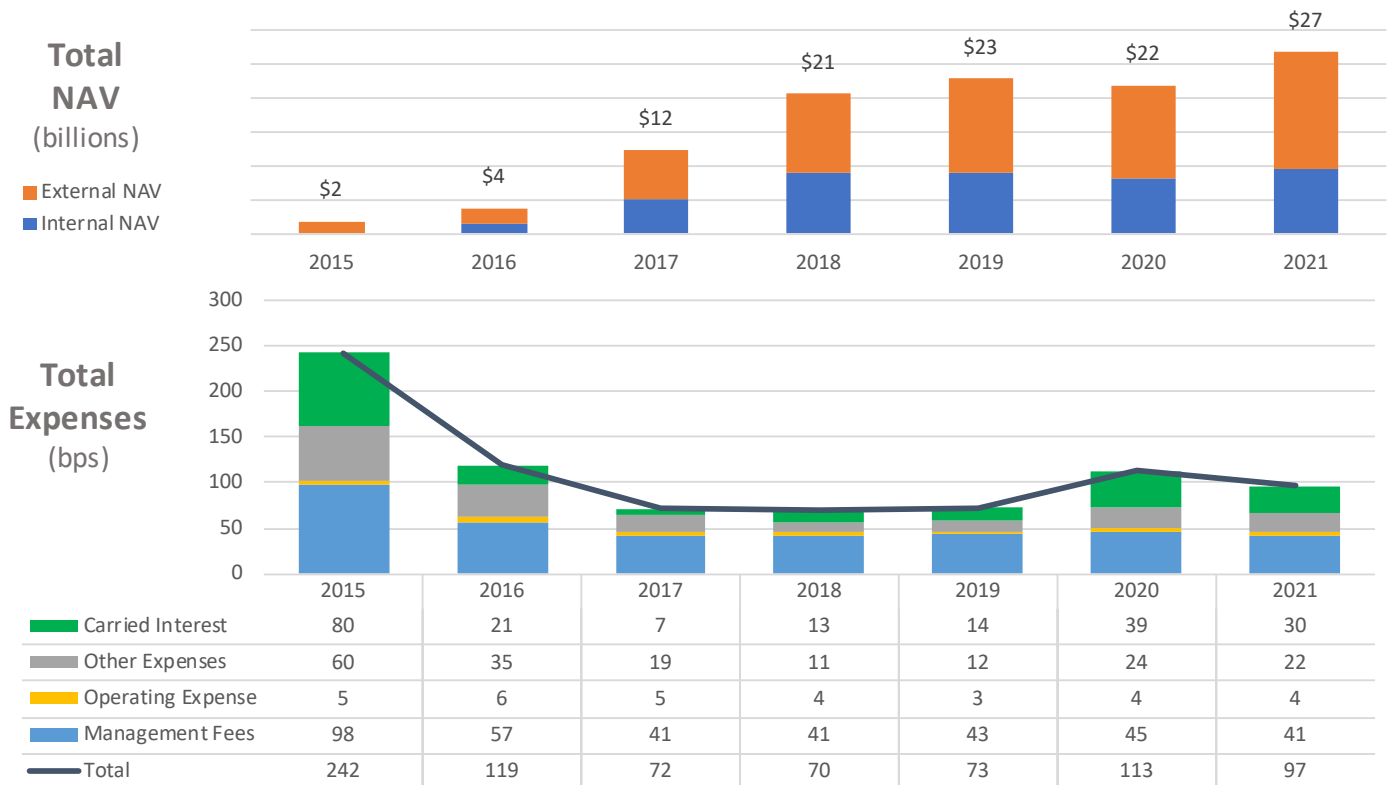
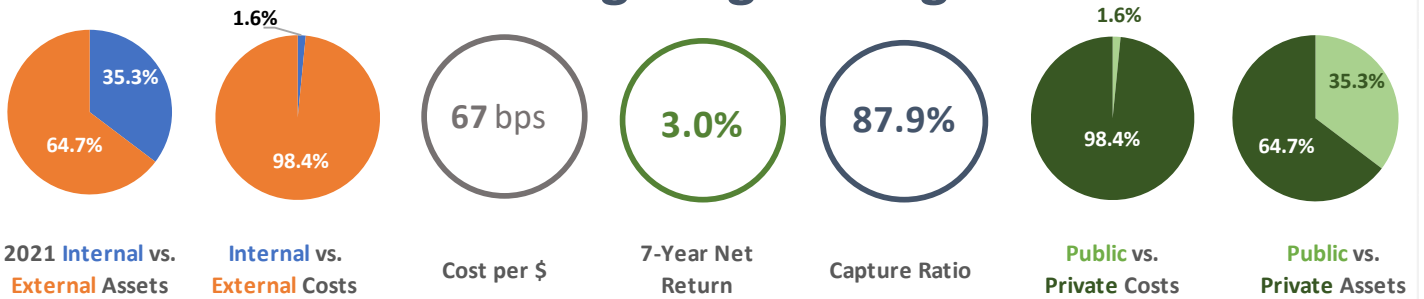


- The Private Equity NAV has **increased** significantly over the last 5 years **driven by** an increased allocation, significant **returns** and increased **cost capture**:

2021 return close to 47.8%, 3 year return over 23%, 5 year return over 20.1%. **Capture ratio increased 7.1%**.

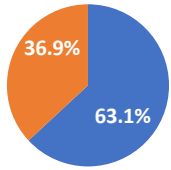
- While Total PE Portfolio Costs increased in absolute terms (25%), they **decreased relative to the NAV** by ~ 36 bps
  - The **increase in absolute costs** overall is attributed to NAV growth (management fee impact) and carried interest (realized profit sharing), while still impacted by commitment pace.
    - The Private Equity portfolio increased the commitment pace over the last five years, which generally leads to higher relative costs due to the J-curve effect.
  - The **decrease in relative costs** is partly attributed to an **increased allocation to co-investments**, as internal management increased by 4%

## Risk Mitigating Strategies

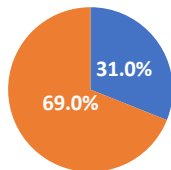


- The RMS NAV has **increased** significantly over the last 5 years **driven by** an increased allocation, positive **returns** and **cost capture**:  
2021 return ~ 4.9%, 3 year return over 9.3%, 5 year return over 5.4%. Capture ratio stayed flat.
- While Total RMS Portfolio Costs increased in absolute terms (11%), they **decreased relative to the NAV** by ~ 6.6 bps
  - The **increase in absolute costs** overall is attributed to NAV growth (management fee impact) and a slightly higher allocation to private assets
    - Other expenses when compared to pre-2019 remained higher: Portfolio costs increased by almost 15 bps in 2020. This was due to a methodology change in how brokerage costs were reported. New regulation at the end of 2018 increased transparency around fees embedded in an assets price. When this methodology is applied to current period, RMS costs actually decreased slightly.
- RMS' objective is to construct a portfolio that **provides protection to the total plan** during deep and extended equity market downturns.

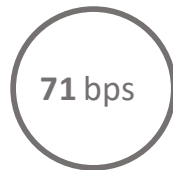
## Inflation Sensitive



2021 Internal vs. External Assets



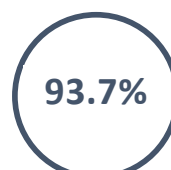
Internal vs. External Costs



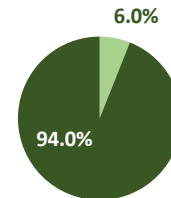
Cost per \$



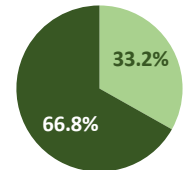
7-Year Net Return



Capture Ratio



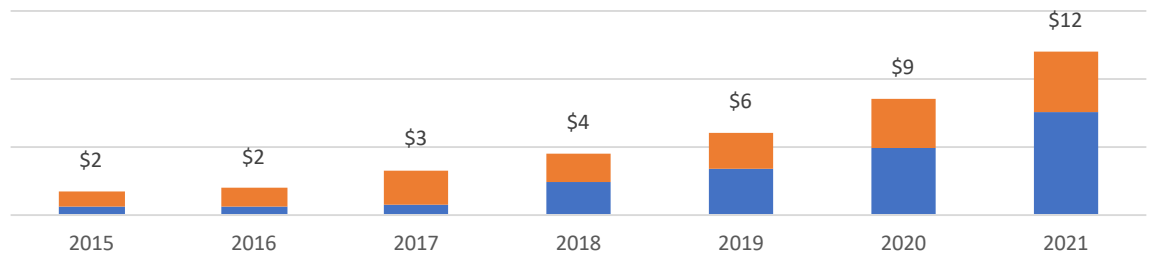
Public vs. Private Costs



Public vs. Private Assets

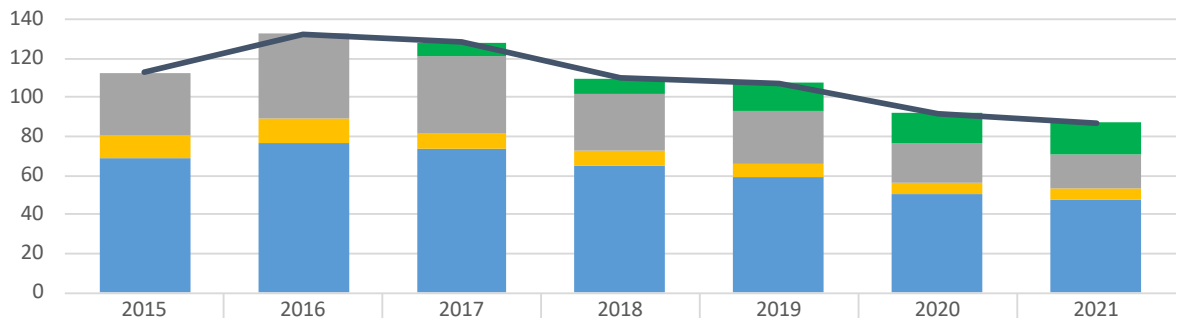
### Total NAV (billions)

External NAV  
Internal NAV



### Total Expenses (bps)

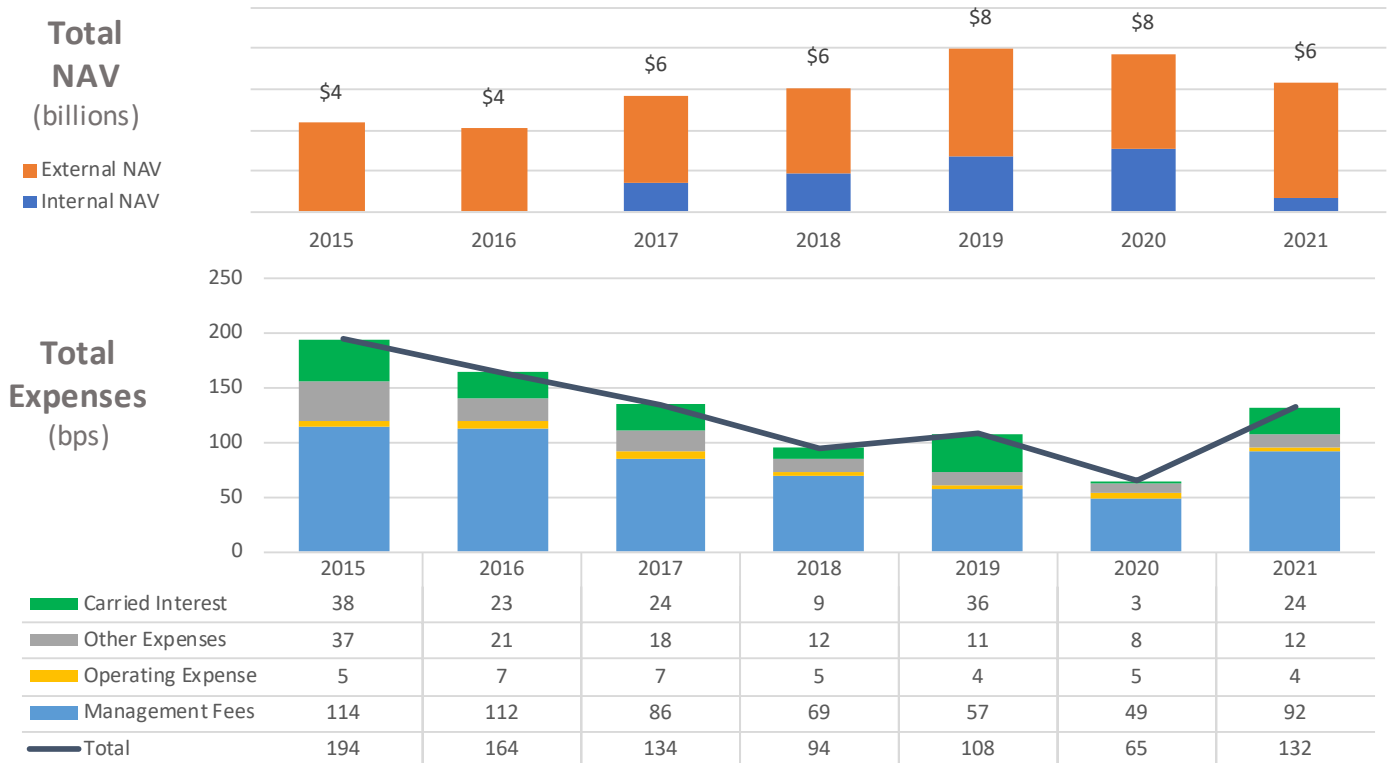
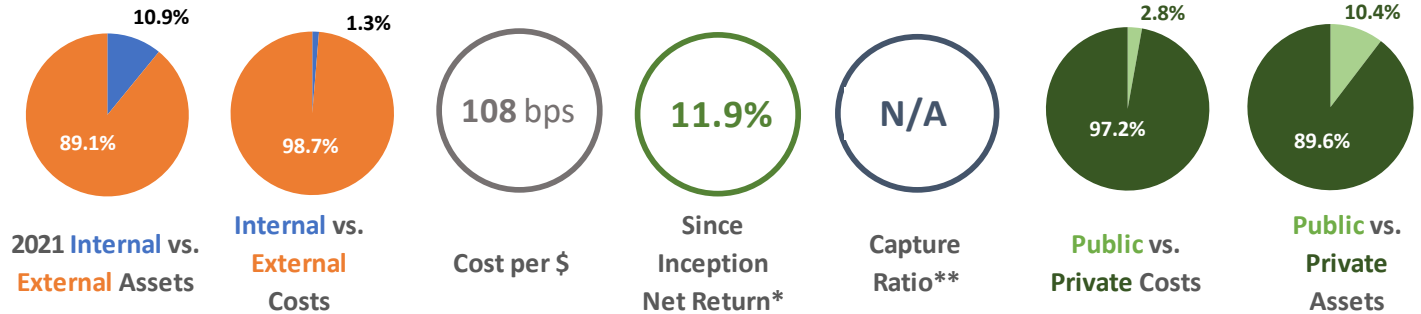
Carried Interest  
Other Expenses  
Operating Expense  
Management Fees  
Total



	2015	2016	2017	2018	2019	2020	2021
Carried Interest	0	0	7	7	14	16	16
Other Expenses	33	43	40	29	27	20	17
Operating Expense	11	12	8	8	7	6	6
Management Fees	69	77	73	65	59	50	48
<b>Total</b>	<b>113</b>	<b>132</b>	<b>128</b>	<b>110</b>	<b>107</b>	<b>92</b>	<b>87</b>

- The Inflation Sensitive NAV has **increased** significantly over the last 5 years **driven by** an increased allocation, significant **returns** and increased **cost capture**:  
2021 return close to 20%, 3 year return ~ 11.8%, 5 year return ~ 9.9%. Capture ratio increased 3.7%.
- While Total Inflation Portfolio Costs increased in absolute terms (30%), they **decreased relative to the NAV** by ~ 5.5 bps
  - The **increase in absolute costs** overall is attributed to NAV growth (management fee impact), carried interest (realized profit sharing), and an increased percentage of private investments relative to public (Other and Operating expenses).
  - All portfolio costs decreased in basis points relative to the NAV

## Sustainable Investment & Stewardship Strategies

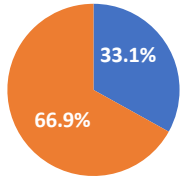


- The SISS NAV may fluctuate over time given there is not a current allocation target.  
2021 return ~ 18.8%, 3 year return ~ 22%, 5 year return ~ 15.4%.
- Total SISS Portfolio Costs increased in absolute terms (43%), and **relative to the NAV** by ~ 46 bps
  - The **increase in absolute costs** overall is attributed to a significant increase in management fees and carried interest (realized profit sharing).
    - Management fees increased predominantly by a single manager with a performance incentive that accounts for 75% of the year over year increase in management fees.
- SISS currently invests in public market securities across activist managers and sustainability-focused managers. The activist portfolios are held in limited partnership vehicles, much like private assets.

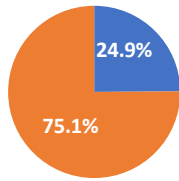
\* 7-year net return not provided as the SISS strategy does not have 7 years of return history - Inception date 07/2015

\*\* Capture ratio N/A given potentially changing strategies over time and no target allocation

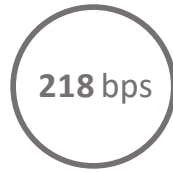
## Innovative Strategies



2021 Internal vs. External Assets



Internal vs. External Costs



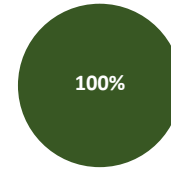
Cost per \$



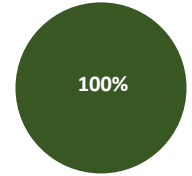
7-Year Net Return



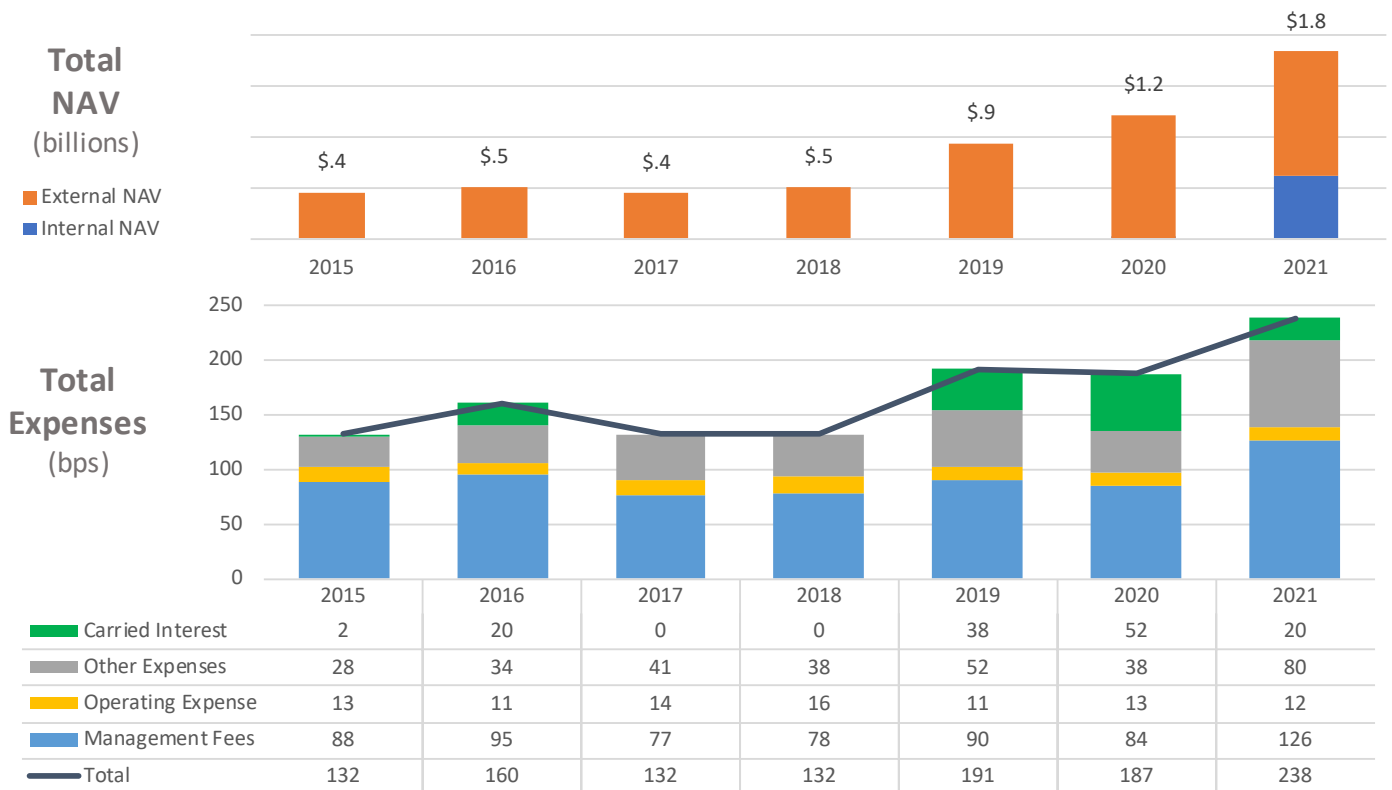
Capture Ratio\*



Public vs. Private Costs



Public vs. Private Assets



• The Innovative Strategies NAV may fluctuate over time given there is not a current allocation target. Additionally, costs can fluctuate relative to changing strategies.

2021 return ~ 15.3%, 3 year return ~ 8.8%, 5 year return ~ 8.3%.

• Total Innovation Portfolio Costs increased in absolute terms, and **relative to the NAV** due to a new cycle of private investments which will have higher relative fees at the onset (J-curve effect).

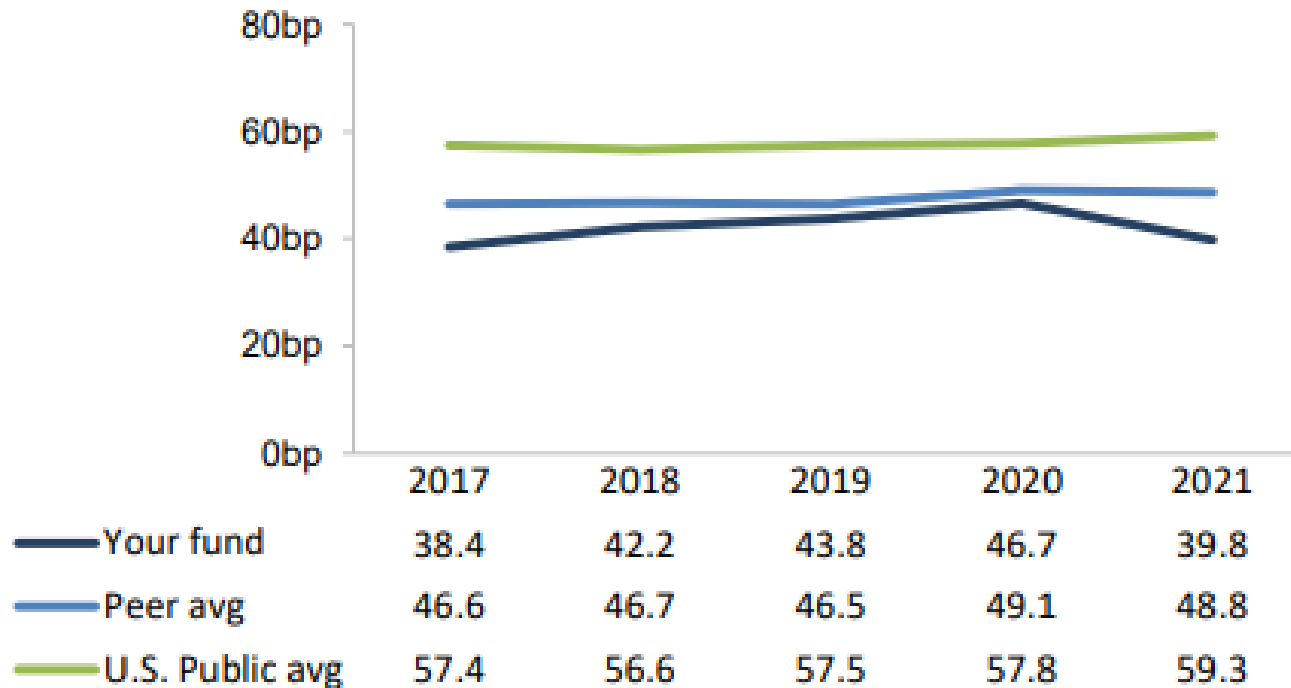
- Additionally, historical fees were paid to a specific investment to gain access to revenue share not captured in this reporting

\* Capture ratio N/A given potentially changing strategies over time and no target allocation

**Peer Comparison (Developed by third party cost measurement service provider<sup>1</sup>)**

**Trend in Total Investment Cost**

Investment costs, excluding transaction costs and carried interest, increased relative to the previous two years due to public market strategy changes and increasing allocations toward private assets. Trend analysis includes 40 U.S. Public Funds and 14 global peer funds with 5 or more consecutive years of data.



<sup>1</sup> Data collected and compiled by CEM Benchmarking, Inc. for calendar year 2021.

## Total Portfolio Expense Breakout (\$000)

Asset Class	Management & Performance Fees	Operating Expenses								Other Expenses	
		Internal Salary & Travel	Org Wide Allocated Expenses	Advisors & Consultants	Legal	Custody & Other Operating	Research & Rating Services	Risk Management Systems	Trading Systems	Partnership	Broker Commission
Total Portfolio Allocations*	0.0	20,026.8	29,722.9	3,447.3	7,126.8	9,747.6	4,704.0	6,771.6	1,708.0	0.0	0.0
Global Equity	162,023.7	6,050.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18,593.0
SISS**	58,092.3	909.6	0.0	70.7	875.4	30.2	612.7	0.0	0.0	5,921.5	1,822.1
Private Equity	397,343.6	8,398.5	0.0	6,245.1	0.0	0.0	0.0	0.0	0.0	224,645.3	119.0
Real Estate	290,110.5	8,762.2	0.0	8,566.2	0.0	0.0	0.0	0.0	0.0	239,488.9	24.1
Inflation Sensitive	56,962.2	3,150.1	0.0	280.8	0.0	0.0	0.0	0.0	0.0	20,504.3	364.3
Fixed Income	9,513.0	6,088.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	312.0
Risk Mitigating Strategies	110,678.4	2,423.6	0.0	50.0	0.0	0.0	0.0	0.0	0.0	58,765.6	0.0
Innovative Strategies	23,199.5	1,617.0	0.0	90.0	0.0	0.0	0.0	0.0	0.0	14,738.1	0.0
Strategic Overlay	4,999.3	1,104.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3,139.0
	<b>1,112,922.4</b>	<b>58,530.1</b>	<b>29,722.9</b>	<b>18,750.1</b>	<b>8,002.1</b>	<b>9,777.9</b>	<b>5,316.7</b>	<b>6,771.6</b>	<b>1,708.0</b>	<b>564,063.8</b>	<b>24,373.5</b>

\* Total Portfolio Allocations are expenses that are applied across each of the asset classes based on average NAV

\*\* Legal, other operating, and research expenses are carved out from Total Portfolio allocations due to a separate budget appropriation

## Glossary

<b>Asset Class/Investment Strategy</b>	As outlined in the Investment Policy and Management Plan (IPMP); a group of securities that have similar financial characteristics, behave similarly in the marketplace, and are subject to the same laws and regulations. CalSTRS asset classes and investment strategies include Global Equity, SISS, Fixed Income, Private Equity, Real Estate, Inflation Sensitive, Innovative Strategies, Risk Mitigating Strategies, Strategic Overlay and Cash.
<b>Basis Point (Bps)</b>	A unit of measure used in finance to describe the percentage change in value or rate of a financial instrument. One hundredth of the one percent or .0001 in decimal form.
<b>Brokerage Commissions/Fees</b>	An agent or agent’s company charges to conduct transactions between buyers and sellers. Fees are charged for services such as purchases, sales, and advice on the transaction, negotiations, or delivery. Included as “Other Expenses” within the report.
<b>Capitalized Costs</b>	An accounting method used to delay the recognition of expenses by recording the expense as a long-term asset.
<b>Capture Ratio</b>	Percentage of gross profits retained after paying management fees and carried interest.
<b>Carried Interest (Profit Sharing)</b>	Applicable to private assets only. A profit-sharing mechanism by which general partners are compensated for their performance, usually after meeting a certain performance threshold and returning all previously paid management fees to limited partners. Carried interest is distributed to the general partner as part of the profit before profits are paid to the limited partners (CalSTRS).
<b>Collaborative Model</b>	One of the objectives established for the 2017/18 Investment Committee Work Plan is to review and evaluate how CalSTRS approaches the implementation decision regarding internal versus external asset management across the portfolio. The proposed new model that is being studied is referred as the “Collaborative Model.” It focuses on developing innovative platforms and strategies by enhancing the social capital of investment organizations to improve their effectiveness and investment efficiency.
<b>External Asset Management</b>	The outsourcing to external companies of asset management of various securities and other assets in order to meet specified investments goals.



<b>External Management Costs</b>	Costs that are associated with external management of investments. Generally, these are management fees of private and public markets, partnership expenses and related salaries, support and oversight.
<b>General Partner</b>	A general partner is an owner of a partnership who has unlimited liability. A general partner can be an entity or individual who is also usually a managing partner and active in the day-to-day operations of the business or investment fund.
<b>Global Master Custodian</b>	A bank servicing the Investment Branch that takes responsibility for reconciling its records with those of each investment manager, processing and recording trades, relieving CalSTRS of this administrative burden.
<b>Internal Asset Management</b>	<p><i>Public:</i> Asset management of various securities and other assets in order to meet specified investment goals performed ‘in-house’ by CalSTRS staff.</p> <p><i>Private:</i> Investment category that represents collaborative private strategies with external partners that have been carved out for Co-Investments and where CalSTRS has significant ownership and control (full or primary) over investment decisions such as purchases, sales, or financing. The investment type is specific to each asset class or investment strategy as follows:</p> <ul style="list-style-type: none"><li>• Co-Investments: Private Equity, Real Estate, Inflation Sensitive and SISS</li><li>• Real Estate Operating Companies, Separate Accounts and Joint Ventures: Real Estate</li></ul> <p>Managed Accounts: Inflation Sensitive.</p>
<b>Internal Management Costs</b>	Costs that are incurred for internal management of the investments and relevant operational support and administration.
<b>Internal Salary</b>	An Operating Expense that comprises of salary and benefits paid to CalSTRS staff within the Investment Branch.
<b>Management Fee</b>	A periodic payment made by an investment fund to the fund’s investment advisor for investment and portfolio management services which is calculated as a percentage of assets under management. Performance-based fees are paid when the advisor generates positive returns above an agreed upon performance rate. As displayed in the cost tables, manager fees include

both asset base and performance base manager fees for public markets and manager fees excluding performance for private markets. Management Fee excludes internal staff salaries.

<b>Net Asset Value (NAV)</b>	The dollar value of the fund based on the total value of all the securities in its portfolio, any liabilities the fund has and the number of fund shares outstanding.
<b>Notional Amount</b>	The U.S. Dollar amount of the underlying assets.
<b>Operating Expense</b>	Part of Total Portfolio Costs. Broken down into staff salaries (including supplies, training and other Investment Branch support and administrative expenses), travel, and organization wide allocation to Investments. Includes advisor, consultant, risk and trade management system expenses. Also, includes investment expenses not allocated to an asset class such as custodian, audit and other organizational support budget expenses (see attachment 4 for breakdown).
<b>Other Expenses</b>	Includes portfolio company fees that the General Partner/Manager or its related parties receive from the portfolio companies for consultancy services, broken deal fees, transaction and deal fees, board of director fees, ongoing monitoring fees and capital markets fees, as well as property management fees, construction management fees, project marketing fees, and other fees for real estate partnerships; also includes fund of fund fees. It includes private asset related partnership expenses inclusive of accounting, IT, administration, audit & tax, bank fees, custody fees, due diligence, legal, organizational, travel and entertainment, insurance, partnership level taxes and other expenses charged to the partnership. Includes brokerage commissions charged to CalSTRS for trades in the public markets. Excludes trading spread for fixed income and currency instruments.
<b>Partnership Expenses</b>	Applicable to private assets. Reflected under "Other Expenses" and includes private asset related partnership expenses inclusive of accounting, IT, administration, audit & tax, bank fees, custody fees, due diligence, legal, organizational, travel and entertainment; may also include insurance, partnership level taxes and other expenses charged to the partnership.
<b>Portfolio Company Fees</b>	Applicable to private assets. Reflected under "Other Expenses" and includes fees the General Partner/Manager or its related parties receive from the portfolio companies for consultancy services, broken deal fees, transaction and deal fees, board of director fees, ongoing monitoring fees and capital markets fees, as well as property management fees,

construction management fees, project marketing fees, and other fees for real estate partnerships; includes fund of fund fees.

<b>Private Markets</b>	Refers to the market of mostly illiquid investments that do not trade on an exchange. Investment structures can range from limited partnerships, limited liability companies and joint ventures.
<b>Private Market Costs</b>	The expenses associated with private assets including the costs that have been capitalized and deducted from the gross value of the investment, such as management fees for limited partnerships, portfolio company fees and other types of expenses paid to the general partner and/or its affiliates. Within our report, private market costs also include relevant staff salaries and administration costs to manage the private assets.
<b>Public Markets</b>	Refers to the market of securities that trade on an exchange and can be bought or sold by anyone in the general population. These securities typically trade in a systemized secondary market.
<b>Public Market Costs</b>	Expenses associated with the management of the publicly traded investments and fixed income securities. These include external management costs such as management fees, broker commissions and applicable internal costs.
<b>Soft Dollars</b>	Soft dollars are the benefits provided to an asset manager by a broker-dealer as a result of commissions generated from financial transaction executed by the broker-dealer for client accounts or funds managed by the asset manager. Soft dollars, in turn might be used to pay for future commission expenses, research, advice etc.