

EXAMPLES OF DISCLOSURE

Carried Interest

EXAMPLE 1 - SOUTH CAROLINA CAFR

South Carolina Retirement Systems Schedule of Investment Managers and Fees

For the Year Ended June 30, 2018

(Amounts expressed in thousands)

Style	Investment Manager	Fair Value of Assets Under Management at 6/30/2018 ¹	Manager Fees Directly Invoiced	Manager Fees Deducted on a Net of Fee Basis ²			Total Investment Manager Fees
				Management Fees	Performance Fees	Other Fees	
Short Duration:							
	Apollo Partnership Short Duration	\$ 186,061		\$ 609		\$ 431	\$ 1,040
	Penn Limited Term HY	149,875	644				644
Fixed Income:							
Core Fixed Income							
	Loomis Sayles Investment Grade Credit	1,512	501				501
	Loomis Sayles Securitized	95,905	429				429
	Pacific Investment Management Co.	1,024,090	1,789				1,789
Mixed Credit							
	Barings	149,102	787				787
	Caspian SC Holdings LP ³	221,618		1,054	560		1,614
	Goldentree Structured Credit	449,410	2,460				2,460
	GSO Partnership Mixed Credit ⁴					2	2
	Guggenheim	440,239	2,109				2,109
	Pinebridge	379,217	1,545				1,545
Emerging Market Debt							
	Ashmore External Debt	296,622	1,200				1,200
	GMO Emerging Country Debt	338,704		1,551			1,551
	Goldman Sachs Partnership Emerging Market Debt	136,329		1,055		693	1,748
	Mondrian Investment Group, Inc.	236,166	1,245				1,245
	Wellington Emerging Local Debt	438,443	2,368				2,368
Global Public Equity							
	Aberdeen	270,185	2,330				2,330
	Algert	201,469	1,204				1,204
	AQR	914,964	2,138				2,138
	AQR Options	822,532	3,472				3,472
	Blackrock Global Equity	1,070,291	272				272
	D. E. Shaw World Enhanced	937,723	3,384				3,384
	Intech	904,746	1,829				1,829
	Integrity Small V	385,690	1,998				1,998
	Johnston ⁵	(5)					
	Lighthouse Partnership Developed International Equity	475,361		2,898		225	3,123
	LSV Asset Management	564,669		3,791			3,791
	Numeric Investors	210,161	1,087				1,087
	Pyramis Small C	387,935	2,101			2	2,103
	Russell Infrastructure Transition	87					
	Russell International Small Cap Transition	168,256	334				334
	Russell Options	941,349	1,203				1,203

Continued on pages 117-120

South Carolina Retirement Systems

Schedule of Investment Managers and Fees (cont.)

For the Year Ended June 30, 2018

(Amounts expressed in thousands)

Style	Investment Manager	Fair Value of Assets Under Management at 6/30/2018 ¹	Manager Fees Directly Invoiced	Manager Fees Deducted on a Net of Fee Basis ²			Total Investment Manager Fees
				Management Fees	Performance Fees	Other Fees	
	Schroders	466,462	2,781				2,781
	State Street Global Equity	1,123,375	170				170
	TimesSquare SMID G	219,108	2,301				2,301
	William Blair	377,471	2,183				2,183
Global Tactical Asset Allocation							
	Bridgewater Associates, Inc.	628,056		2,632		375	3,007
	Entrust Partnership Global Tactical Asset Allocation	169,904					
	Grantham, Mayo, Van Otterloo & Co. LLC ⁴		2,316	1,315			3,631
	Morgan Stanley GTAAN	780,509		1,409		335	1,744
	Pinebridge GTAAN	735,935		460		192	652
	Standard Life GTAAN	778,526		1,062		447	1,509
Infrastructure							
	Deutsche Infrastructure	612,055	2,766				2,766
Alternatives:							
Hedge Funds (Portable Alpha and Non-Portable Alpha)							
	Apollo Partnership Hedge Funds ⁴					40	40
	Blackstone SAF II	79,905		681	367	83	1,131
	Bridgewater Associates, Inc.	472,098		10,997	1,117	493	12,607
	Bridgewater Associates, Inc.	116,988		2,514		128	2,642
	DE Shaw - DE Shaw Composite	568,884		13,687	19,036	746	33,469
	GAM PA ⁴					(1)	(1)
	Goldman Sachs Partnership Hedge Funds	5,818		106		47	153
	Grosvenor Partnership Hedge Funds	10,719		619	381	156	1,156
	GSO Partnership Hedge Funds	43,767		456		163	619
	Lighthouse Partnership Hedge Funds	1,199,173		12,908	13,618	6,301	32,827
	Man Alt Beta	213,956		2,310			2,310
	Morgan Stanley Partnership Hedge Funds	54,739		42	21	206	269
	Reservoir Strategic Partners Fund L.P.	34,952		458		158	616
	Wellington Alt Beta	310,878	1,922				1,922
Private Debt							
	Angelo Gordon VI	104		31	(143)	12	(100)
	Apollo Partnership Private Debt	292,425		2,893	4,587	1,495	8,975
	Ares Jasper	213,146		939	1,461	892	3,292
	Avenue Europe II	14,338		47	1,688	73	1,808
	Avenue Spec VI	9,211		25		90	115
	Crescent Mezz V	6,615		190	1,253		1,443
	Crescent Mezz VI	50,381		829	205	265	1,299
	DE Shaw Direct Capital	5,438		119	1,552	92	1,763
	Gateway Energy	12,760		7	5	356	368
	Goldman Sachs Mezz V	1,472		73	(210)		(137)
	Goldman Sachs Partnership Private Debt	94,050		608	2,151	653	3,412
	Golub PEARLS	39,466		548	308	575	1,431
	GSO Partnership Private Debt	597,130		6,830	2,737	3,464	13,031
	Highbridge Sandlapper Credit	107,120		609	543	551	1,703
	KKR Lending Partners II	73,662		986	1,046	490	2,522
	KKR Special Situations Fund II	85,046		917		718	1,635

Continued on pages 118-120

South Carolina Retirement Systems

Schedule of Investment Managers and Fees (cont.)

For the Year Ended June 30, 2018

(Amounts expressed in thousands)

Style	Investment Manager	Fair Value of Assets Under Management at 6/30/2018 ¹	Manager Fees Directly Invoiced	Manager Fees Deducted on a Net of Fee Basis ²			Total Investment Manager Fees
				Management Fees	Performance Fees	Other Fees	
	Morgan Stanley Partnership Private Debt	6,188		105	176	121	402
	Northstar Mezz V	16,997		299	401	27	727
	Owl Rock Capital	68,769		807			807
	Sankaty COP IV	30,056		443	3,491	27	3,961
	Sankaty COP V	38,337		384	820	43	1,247
	Selene I ⁴				(15)	65	50
	Selene II	64,175		412	208	(1,094)	(474)
	SJC DL II	16,397		44	(130)	24	(62)
	WL Ross - WLR Whole Loans	9,905		79	67	79	225
	WL Ross Partnership Private Debt	39,329					
Private Equity							
	Advent - Advent International GPE VII	53,004		449	2,693	12	3,154
	Apax Europe VII	8,479			(88)	3	(85)
	Apax Europe VIII	78,525		607	3,163	309	4,079
	Apollo Partnership Private Equity	496,575		5,768	8,961	4,374	19,103
	Aquiline Financial Services II	87,445		1,035	2,526		3,561
	Azalea Fund IV	8,746		265			265
	BC European Cap IX	26,241		243	(1,703)	110	(1,350)
	Bridgepoint Europe IV ⁶	37,745		352		45	397
	Bridgepoint Europe V ⁶	68,146		1,564		484	2,048
	Brookfield Capital IV	120,675		1,741	26,438	887	29,066
	Carousel Capital III	55		(27)	6		(21)
	Carousel Capital IV	29,080		87	3,340		3,427
	CD&R VIII	24,046					
	Crestview II	66,352		629	(1,751)	328	(794)
	Crestview III	34,051		1,184	(1,534)	155	(195)
	Digital Colony ⁷	(989)		482		468	950
	Francisco Partners	6,408		373		208	581
	Goldman Sachs Partnership Private Equity	28,208		377	1,410	369	2,156
	Green Equity	41,910		147	3,835	252	4,234
	Industry Ventures VI	19,612		206	(289)		(83)
	Industry Ventures VII	37,630		275	914		1,189
	Lexington Capital VII	32,752		419	(584)	104	(61)
	Lexington Middle Market II	21,986		210	(494)	28	(256)
	Morgan Stanley Partnership Private Equity	181,703		1,536	(271)	304	1,569
	Oaktree EOF III	35,622		641	1,065	125	1,831
	Pacific Equity Partners	39,737		1,004	1,317	183	2,504
	Pantheon USA VII	63,762		994	539	495	2,028
	Paul Capital IX	27,664		605			605
	Reservoir Capital Partners (Cayman) L.P.	48,311		314	2,082	26	2,422
	Truebridge Capital I	44,812		164	175	51	390
	Truebridge Capital II	79,205		288	326	76	690
	Warburg Pincus X	52,221		250	2,647	392	3,289
	Warburg Pincus XI	49,104		(284)	2,442	197	2,355
	Welsh Carson Anderson & Stowe XI	28,136		153	(290)	13	(124)
	WL Ross Partnership Private Equity	202,245		432	987	375	1,794
	Various Private Equity Managers ⁸	188,940		1,076	361	426	1,863

Continued on pages 119-120

South Carolina Retirement Systems

Schedule of Investment Managers and Fees (cont.)

For the Year Ended June 30, 2018

(Amounts expressed in thousands)

Style	Investment Manager	Fair Value of Assets Under Management at 6/30/2018 ¹	Manager Fees Directly Invoiced	Manager Fees Deducted on a Net of Fee Basis ²			Total Investment Manager Fees
				Management Fees	Performance Fees	Other Fees	
Real Estate							
	Apollo Partnership Real Estate	39,936		661	430	330	1,421
	Blackstone Property Partners	380,062		3,162	3,464	802	7,428
	Blackstone Real Estate VII	115,605		1,261	4,634	(62)	5,833
	Brookfield REF III	156		24			24
	Brookfield REF IV	13,947		254	53	(104)	203
	Brookfield REF V	22,768		60	58	88	206
	Brookfield SREP LP	82,019		719	6,252		6,971
	Brookfield SREP II LP	57,930		1,087	1,637		2,724
	Carlyle VI	18,392		237	(3,421)	30	(3,154)
	CenterSquare ⁹	797,034	2,199				2,199
	Congaree Partners LP	28,805		183			183
	Crow Holdings	82,820		968	4,797		5,765
	Goldman Sachs Partnership Real Estate	621			(5)	30	25
	Greystar VII ⁴				2		2
	Greystar IX	96,523					
	Heitman Core Real Estate	23,114		37			37
	Lone Star II	2,993		12	(116)		(104)
	Morgan Stanley Partnership Real Estate	62,650		553	1,106	180	1,839
	Morgan Stanley Prime Property	465,127		3,722	613		4,335
	Oaktree ROF V	10,300		150	(3,886)	142	(3,594)
	Oaktree ROF VI	45,527		749	(327)	555	977
	Och-Ziff II	14,820	178	39	(157)		60
	Pembroke Capital Management - PCI Investors Fund II ⁴			12	(411)	427	28
	TA Realty X	48,403		1,128	1,039		2,167
	TA Realty Fund of One	134,901		956	447		1,403
	Torchlight III	636		88	365	54	507
	Torchlight IV	47,599		550	2,795	247	3,592
	Torchlight V	71,424		1,200	2,437	283	3,920
	U. S. REIF	417					
	WL Ross Partnership Real Estate	38,663		523		314	837
Strategic Partnerships¹⁰							
	Apollo	121,428					
	Entrust	5,240		806	1,893	834	3,533
	Goldman Sachs	18,626				1,151	1,151
	Grosvenor	845				81	81
	GSO	66,283				7	7
	Lighthouse	133,034		3,408		753	4,161
	Morgan Stanley	12,612		24		345	369
	WL Ross	17,633		831		22	853
Beta Overlay							
	Russell Investment Group	737,629	1,138				1,138

Continued on page 120

South Carolina Retirement Systems

Schedule of Investment Managers and Fees (cont.)

For the Year Ended June 30, 2018

(Amounts expressed in thousands)

Style	Investment Manager	Fair Value of Assets Under Management at 6/30/2018 ¹	Manager Fees Directly Invoiced	Manager Fees Deducted on a Net of Fee Basis ²			Total Investment Manager Fees
				Management Fees	Performance Fees	Other Fees	
Internally Managed Assets							
	Core Fixed Income	31,695					
	Short Duration	816,785					
	SCRS Liquidity	377,273					
	Cash Accounts	327,005					
	Total Fair Value of Assets and Manager Fees	\$ 31,431,925	\$ 54,383	\$ 127,801	\$ 139,223	\$ 37,548	\$ 358,955
	Adjustments, Cash, Receivables and Payables	(125,791)					
	Net Asset Value as reported by the Custodial Bank	<u>\$ 31,306,134</u>					

¹The "Fair Value" of assets under management includes categories classified as cash equivalents for financial statement purposes and excludes cash, receivables and payables; therefore, these adjustments are necessary to reconcile to "Net Asset Values" reported by the Custodial Bank and the Retirement System Investment Commission.

²Investment manager fees, whether directly invoiced (\$54,382,926) or deducted from the fund on a net basis (\$304,572,308) are classified and reported as Investment Expense. The RSIC makes a good faith attempt to account for fees that are not necessarily readily separable. Conifer Financial Services, administrator for the RSIC, provides support to the RSIC for the collection, aggregation and reasonability testing so that the RSIC can provide the Retirement Division of PEBA with investment fees and expenses that would not be disclosed otherwise. These amounts include management fees, performance fees (carried interest) and other expenses such as organizational expenses in limited partnership structures.

³This hedge fund is classified as a Mixed Credit mandate for investment purposes by RSIC due to it having higher factor or beta exposures to the asset class; however, for financial statement purposes it is classified as Hedge Funds.

⁴Account liquidated during the fiscal year. Fees may not represent a full year.

⁵Negative fair value represents FX loss on accrued dividend reclaims receivable included in the adjustment line at the bottom of this schedule.

⁶Net asset value is reported gross of performance fees.

⁷Account has not incurred initial funding but has accrued fees and expenses.

⁸Represents the aggregation of six managers, each with total investment manager fees of less than \$250,000, and one manager that has a non-disclosure agreement.

⁹This fund is classified as a Real Estate mandate for investment purposes by the RSIC; however this fund is held in custody at BNY Mellon and, for financial statement purposes, reported as Global Public Equity.

¹⁰Represents management and other fees at the Strategic Partnership level, and not fees at the underlying investment level which are included in each applicable asset class. Fair Value represents cash balances at the Strategic Partnership level.

EXAMPLE 2 - CALpers CAFR

Investment Section (continued)

Private Equity Management Fees & Profit Sharing – PERF (Dollars in Thousands)

Fund Name	Gross Management Fees	Net Offsets, Waivers, and Rebates ^{1,2}	Net Management Fees	Profit Sharing Paid ^{3,4}
57 Stars Global Opportunities Fund 2 (CalPERS), LLC	\$1,720	(\$1,114)	\$606	\$0
57 Stars Global Opportunities Fund, LLC	600	—	600	—
Aberdare Ventures IV, LP	296	(37)	259	—
Advent International GPE V-D, LP	81	—	81	—
Advent International GPE VI-A, LP	2,241	(8)	2,233	10,517
Advent International GPE VII-C, LP	4,537	(164)	4,373	—
Advent International GPE VIII-B Limited Partnership	7,500	(45)	7,455	—
Advent Latin America Private Equity Fund IV-D, LP	1,200	—	1,200	—
Advent Latin America Private Equity Fund V-H, LP	1,121	—	1,121	—
Advent Latin American Private Equity Fund III-D, LP	151	—	151	—
Affinity Asia Pacific Fund III, LP	774	—	774	—
Aisling Capital II, LP	11	(12)	(1)	—
Aisling Capital III, LP	606	(88)	518	325
AP Alternative Assets (AAA), LP	—	—	—	33,155
Apollo Credit Opportunity Fund I, LP	290	(290)	—	1,666
Apollo European Principal Finance Fund, LP	—	—	—	93
Apollo Investment Fund VI, LP	951	(163)	788	—
Apollo Investment Fund VII, LP	1,432	(288)	1,144	3,790
Apollo Investment Fund VIII, LP	4,999	(2,533)	2,466	7,696
Apollo Special Opportunities Managed Account, LP	4,688	(202)	4,486	—
Arclight Energy Partners Fund IV, LP	121	(1)	120	3,179
Ares Corporate Opportunities Fund III, LP	1,417	(7)	1,410	16,627
Ares Corporate Opportunities Fund V, LP	5,950	(19)	5,931	—
Ares Special Situations Fund, LP	—	—	—	27
Asia Alternatives Capital Partners II, LP	230	—	230	—
Asia Alternatives Capital Partners, LP	77	—	77	1,627
Avenue Special Situations Fund IV, LP	—	—	—	127
Avenue Special Situations Fund V, LP	—	—	—	139
Avenue Special Situations Fund VI (A), LP	84	—	84	—
Baring Vostok Private Equity Fund IV, LP	727	—	727	—
BDC III C, LP	2,899	(344)	2,555	—
Birch Hill Equity Partners (US) III, LP	53	(40)	13	—
Birch Hill Equity Partners (US) IV, LP	1,026	(29)	997	—
Blackstone / GSO Capital Solutions Fund, LP	571	(21)	550	216
Blackstone Capital Partners IV, LP	—	—	—	469
Blackstone Capital Partners V, LP	104	(26)	78	4,045
Blackstone Capital Partners VI, LP	2,678	(686)	1,992	9,101
Blackstone Capital Partners VII, LP	6,250	—	6,250	—
Blackstone RL Co-Invest, LP	370	—	370	4,991
Blackstone Tactical Opportunities Fund - C, LP	5,283	(129)	5,154	9,677
Blackstone Tactical Opportunities Fund (KG Co-Invest), LP	482	(1)	481	491
Blackstone Tactical Opportunities Fund (T4U Co-Invest), LP	203	—	203	—
Blackstone Tactical Opportunities Fund II - C, LP	2,289	(7)	2,282	1,114
Bridgepoint Europe II 'A', LP	—	(10)	(10)	—
Bridgepoint Europe II 'C', LP	—	(3)	(3)	—
Bridgepoint Europe III 'C', LP	—	(6)	(6)	—
Bridgepoint Europe III 'D', LP	—	(35)	(35)	—
Bridgepoint Europe IV 'B', LP	713	(52)	661	—
Bridgepoint Europe IV 'D', LP	1,822	(84)	1,738	—
Bridgepoint Europe V	7,631	(809)	6,822	—
California Asia Investors, LP	303	—	303	—

Investment Section (continued)

Private Equity Management Fees & Profit Sharing – PERF (Dollars in Thousands) (continued)

Fund Name	Gross Management Fees	Net Offsets, Waivers, and Rebates ^{1,2}	Net Management Fees	Profit Sharing Paid ^{3,4}
California Emerging Ventures II, LLC	\$88	\$0	\$88	\$0
California Emerging Ventures III, LLC	200	—	200	—
California Emerging Ventures IV, LLC	562	—	562	3,918
California Emerging Ventures, LLC	—	—	—	12
California Mezzanine Investment Fund, LP	179	—	179	—
CalPERS Clean Energy & Technology Fund, LLC	568	—	568	—
CalPERS Corporate Partners, LLC	—	—	—	18
Capital Link Fund I, LLC	477	—	477	647
Capital Link Fund II, LLC	380	—	380	3,832
Carlyle Asia Growth Partners III, LP	29	—	29	—
Carlyle Asia Growth Partners IV, LP	759	—	759	—
Carlyle Asia Partners II, LP	218	(15)	203	6,339
Carlyle Asia Partners III, LP	810	(36)	774	18,190
Carlyle Europe Partners II, LP	—	—	—	231
Carlyle Europe Partners III, LP	578	(235)	343	8,634
Carlyle Europe Technology Partners II, LP	384	—	384	4,127
Carlyle Global Financial Services Partners, LP	872	(34)	838	12,056
Carlyle High Yield Partners 2008-1	—	—	—	18
Carlyle Japan Partners II, LP	330	(34)	296	—
Carlyle Mexico Partners, LP	93	—	93	—
Carlyle Partners V, LP	1,304	(595)	709	20,201
Carlyle Partners VI, LP	6,564	(3,078)	3,486	—
Carlyle Realty Partners III, LP	—	—	—	275
Carlyle Strategic Partners II, LP	99	(50)	49	208
Carlyle Strategic Partners IV, LP	1,950	(16)	1,934	—
Carlyle U.S. Equity Opportunities II, LP	3,100	(365)	2,735	—
Carlyle U.S. Growth Fund III, LP	220	—	220	—
Carlyle/Riverstone Global Energy and Power Fund II	—	—	—	(4,105)
Carlyle/Riverstone Global Energy and Power Fund III, LP	395	—	395	(21,167)
CDH Fund V, LP	3,450	—	3,450	—
Centerbridge Capital Partners III, LP	2,250	(695)	1,555	1,454
Cerberus CAL II Partners, LP	166	—	166	—
Cerberus CP Partners, LP	2,275	(1,232)	1,043	—
Cerberus Institutional Partners V, LP	1,454	(332)	1,122	—
Clarus Lifesciences II, LP	1,101	(60)	1,041	1,637
Clayton, Dubilier & Rice Fund X, LP	1,498	(86)	1,412	—
Clearlake Capital Partners III, LP	556	(562)	(6)	4,485
Clearlake Capital Partners IV, LP	1,058	(212)	846	—
Clearlake Capital Partners V, LP	212	(59)	153	—
Clearlake Opportunities Partners (P), LP	992	(301)	691	—
Clearwater Capital Partners Fund III, LP	570	—	570	—
Coller International Partners V-A, LP	2,441	—	2,441	—
Craton Equity Investors I, LP	180	—	180	—
CVC Capital Partners Strategic Opportunities Compounding Capital, LP	5,700	—	5,700	—
CVC Capital Partners VI, LP	6,003	368	6,371	—
CVC Capital Partners VII (A), LP	1,944	—	1,944	—
CVC Credit Strategic Investment A, LP	1,996	—	1,996	—
CVC European Equity Partners IV (D), LP	—	(3)	(3)	3,722
CVC European Equity Partners Tandem Fund (B), LP	—	(4)	(4)	638
CVC European Equity Partners V (B), LP	853	(303)	550	16,375
EM Alternatives Investments, LP	200	—	200	—
Essex Woodlands Health Ventures Fund VIII, LP	1,471	(11)	1,460	—

Investment Section (continued)

Private Equity Management Fees & Profit Sharing – PERF (Dollars in Thousands) (continued)

Fund Name	Gross Management Fees	Net Offsets, Waivers, and Rebates ^{1,2}	Net Management Fees	Profit Sharing Paid ^{3,4}
First Reserve Fund XII, LP	\$1,431	(\$12)	\$1,419	\$0
First Reserve Fund XIII, LP	5,440	(787)	4,653	—
Francisco Partners II, LP	173	(3)	170	—
Francisco Partners III, LP	1,071	(190)	881	7,921
GCM Grosvenor DEM II, LP	1,250	—	1,250	—
GCM Grosvenor DEM, LP	459	—	459	—
Golden State Investment Fund, LLC	224	—	224	28
Green Equity Investors IV, LP	(4)	(38)	(42)	—
Green Equity Investors V, LP	851	(987)	(136)	10,286
GSO Capital Opportunities Fund II, LP	1,344	1	1,345	5,787
GSO Capital Opportunities Fund, LP	36	—	36	—
GSO Capital Solutions Fund II, LP	3,080	(98)	2,982	—
GSO Energy Partners-C II, LP	1,167	—	1,167	—
GSO Energy Partners-C, LP	1,925	—	1,925	—
Hellman & Friedman Capital Partners V LP	—	—	—	162
Hellman & Friedman Capital Partners VI	257	(67)	190	17,776
Hellman & Friedman Capital Partners VII	1,256	(66)	1,190	15,201
Hellman & Friedman Capital Partners VIII, LP	5,774	(1,103)	4,671	—
ICV Partners II, LP	—	—	—	79
Insight Venture Partners Growth-Buyout Coinvestment Fund (B), LP	4,145	(19)	4,126	7,867
Insight Venture Partners IX, LP	1,810	—	1,810	799
Insight Venture Partners V, LP	—	—	—	312
Insight Venture Partners VI, LP	28	—	28	3,582
Insight Venture Partners X, LP	1,580	—	1,580	—
Ithaca, LP	—	—	—	—
Khosla Ventures III, LP	2,000	—	2,000	—
Khosla Ventures Seed, LP	837	—	837	—
KKR 2006 Fund, LP	365	—	365	10,825
KKR Asian Fund II, LP	1,475	—	1,475	6,362
KKR Asian Fund, LP	270	—	270	2,075
KKR European Fund II, LP	114	—	114	111
KKR European Fund III, LP	856	—	856	6,960
KKR European Fund, LP	—	—	—	3
KKR Millennium Fund, LP	1	—	1	2,056
Kline Hawkes Pacific, LP	—	(33)	(33)	—
KM Corporate Partners Fund II, LP	700	(10)	690	—
KPS Special Situations Fund III, LP	777	(464)	313	1,843
Lime Rock Partners IV, LP	179	—	179	22,899
Lime Rock Partners V, LP	519	(6)	513	(385)
Lindsay Goldberg IV, LP	4,688	(4)	4,684	—
Lion Capital Fund II, LP	528	—	528	—
Madison Dearborn Capital Partners V, LP	652	(652)	—	6,882
Magnum Capital, LP	144	—	144	—
MHR Institutional Partners III, LP	1,480	(27)	1,453	—
New Mountain Partners III, LP	486	(486)	—	16,702
Newbridge Asia IV, LP	228	(41)	187	2,283
Oak Hill Capital Partners II, LP	52	(2)	50	268
Oak Hill Capital Partners III, LP	1,454	(22)	1,432	8,269
Oaktree Opportunities Fund VIIIb, LP	2,005	(17)	1,988	—
Onex Partners IV, LP	5,113	(429)	4,684	—
PAG Asia I, LP	670	—	670	64

Investment Section (continued)

Private Equity Management Fees & Profit Sharing – PERF (Dollars in Thousands) (continued)

Fund Name	Gross Management Fees	Net Offsets, Waivers, and Rebates ^{1,2}	Net Management Fees	Profit Sharing Paid ^{3,4}
Palladium Equity Partners III, LP	\$0	(\$8)	(\$8)	\$0
Patria Brazilian Private Equity Fund V, LP	3,018	(8)	3,010	—
Permira Europe III	—	(1)	(1)	208
Permira IV, LP 2	—	(19)	(19)	7,918
Permira V, LP	2,941	(99)	2,842	—
Permira VI, LP 1	7,058	(623)	6,435	—
Polish Enterprise Fund V, LP	—	—	—	1,674
Polish Enterprise Fund VI, LP	444	—	444	16,197
Providence Equity Partners V	113	(113)	—	—
Providence Equity Partners VI, LP	587	(204)	383	—
RFG Private Equity Limited Partnership No. 1A, 1B and 1C	59	—	59	—
Rhone Partners III, LP	—	—	—	2,730
Richardson Capital Private Equity Limited Partnership No.2A, 2B and 2C	17	—	17	—
Riverstone Global Energy and Power Fund V, LP	2,653	(379)	2,274	—
Riverstone Global Energy and Power Fund VI, LP	7,500	(133)	7,367	—
Riverstone/Carlyle Global Energy and Power Fund IV, LP	1,318	(369)	949	—
Riverstone/Carlyle Renewable & Alternative Energy Fund II, LP	1,462	(267)	1,195	—
Riverwood Capital Partners (Parallel - A), LP	353	(18)	335	5,467
Sacramento Private Equity Partners, LP	1,000	—	1,000	7,682
SAIF Partners III, LP	1,020	—	1,020	3,508
SAIF Partners IV, LP	1,899	—	1,899	—
Sankaty Managed Account (CalPERS), LP	4,766	(534)	4,232	—
Silver Lake Partners II, LP	—	—	—	1,534
Silver Lake Partners III, LP	1,145	(132)	1,013	18,184
Silver Lake Partners IV, LP	4,496	(1,364)	3,132	—
Silver Lake Partners V, LP	711	—	711	—
Siris Partners III, LP	1,513	(652)	861	—
SL SPV-1, LP	190	—	190	—
Tailwind Capital Partners (PP), LP	444	(32)	412	342
Tailwind Capital Partners II, LP	1,695	(856)	839	—
The Central Valley Fund II SBIC, LP	260	(52)	208	—
The Central Valley Fund, LP	—	—	—	135
The Resolute Fund II, LP	936	(249)	687	13
The Rise Fund (A), LP	1,259	—	1,259	—
Thomas H. Lee Equity Fund VI, LP	355	(235)	120	468
TowerBrook Investors II, LP	—	—	—	486
TowerBrook Investors III, LP	515	91	606	2,592
TowerBrook Investors IV (Onshore), LP	7,151	(401)	6,750	(45)
Towerbrook Structured Opportunities Fund (Onshore), LP	1,894	(140)	1,754	—
TPG Asia V, LP	684	—	684	—
TPG Biotechnology Partners II, LP	49	(49)	—	(2,378)
TPG Biotechnology Partners III, LP	309	(124)	185	—
TPG Growth IV, LP	662	—	662	—
TPG Partners IV, LP	—	—	—	341
TPG Partners V, LP	14	(76)	(62)	—
TPG Partners VI, LP	3,155	(508)	2,647	6,546
TPG STAR, LP	208	(27)	181	—
Trident VI	3,455	(151)	3,304	—
Trident VII, LP	3,803	—	3,803	—
Triton Fund IV, LP	1,465	—	1,465	—
T-VI Co-Invest-A, LP	—	(195)	(195)	—

Investment Section (continued)

Private Equity Management Fees & Profit Sharing – PERF (Dollars in Thousands) (continued)

Fund Name	Gross Management Fees	Net Offsets, Waivers, and Rebates ^{1,2}	Net Management Fees	Profit Sharing Paid ^{3,4}
Valor Equity Partners IV, LP	\$848	(\$274)	\$574	\$0
VantagePoint CleanTech Partners, LP	67	—	67	—
VantagePoint Venture Partners 2006 (Q), LP	769	—	769	—
Vicente Capital Partners Growth Equity Fund, LP	372	(130)	242	—
W Capital Partners II, LP	451	(19)	432	—
Wellspring Capital Partners V, LP	663	(663)	—	651
Welsh, Carson, Anderson & Stowe X, LP	45	(17)	28	4,889
Welsh, Carson, Anderson & Stowe XI, LP	397	(1)	396	3,855
Welsh, Carson, Anderson & Stowe XII, LP	4,882	—	4,882	306
Wigmore Street (BDC III), LP	3	—	3	—
Wigmore Street Co-investment No.1, LP	2	—	2	—
WLR Recovery Fund III, LP	464	(464)	—	—
WLR Recovery Fund IV, LP	1,869	(17)	1,852	—
Yucaipa American Alliance Fund II, LP	3,035	—	3,035	—
Yucaipa Corporate Initiatives Fund II, LP	310	—	310	—
TOTAL	\$276,653	(\$30,277)	\$246,376	\$431,137

(1) Amounts include management fee waivers that may be paid in a subsequent period.

(2) Positive amounts are reflective of timing differences between when a waiver is used compared with when the fee is called.

(3) Profit sharing represents the investment manager's share of the gain realized during the fiscal year, net of any return of realized profit distributed in earlier years.

(4) Negative amounts are reflective of decreased investment value resulting in the return of realized profit.

EXAMPLE 3 - MISSOURI CAFR

Schedule of Investment Manager Fees | For the Year Ended June 30, 2018

	Total Fees	Manager Fees	Fund Pass Through Expenses (1)	Incentive Fees Earned and Paid in FY18	Portfolio Company Charges (2)
Actis Emerging Markets III	\$ 407,000	\$ 377,000	\$ 30,000	\$ 0	\$ 0
Actis Emerging Markets IV	627,000	525,000	102,000	0	0
African Development Partners I, LLC	358,944	179,548	83,366	96,030	0
African Development Partners II, LLC	2,036,486	567,748	130,254	1,338,484	0
Alinda Infrastructure Fund I, LP	94,889	69,549	25,340	0	0
AQR DELTA Sapphire Fund, LP	3,970,165	3,534,269	435,896	0	0
AQR Global Risk Premium Fund IV, LP	2,446,877	2,082,827	364,050	0	0
AQR Style Premia Fund, LP	1,770,663	0	26,406	1,744,257	0
Astenbeck Capital Management	261,477	261,477	0	0	0
Axiom Asia Private Capital Fund II, LP	537,293	284,310	62,464	190,519	0
Axiom Asia Private Capital Fund III, LP	1,376,080	487,500	46,034	842,546	0
Axxon Brazil Private Equity Fund II B, LP	259,538	219,471	40,067	0	0
Bayview Opportunity Domestic III b, LP	1,154,333	353,011	216,887	584,435	0
Bayview Opportunity Domestic, LP	150,475	36,812	46,903	66,760	0
BlackRock Financial Management Bank Loans	(1,454)	(1,454)	0	0	0
Blackstone Real Estate Partners IV	175,361	0	36,902	138,459	0
Blackstone Real Estate Partners V	777,025	0	12,786	764,239	0
Blackstone Real Estate Partners VI	1,003,948	118,634	20,865	864,449	0
Blackstone Real Estate Partners VII	3,134,249	623,252	42,048	2,468,949	0
Blackstone Topaz Fund, LP	2,691,315	2,069,695	270,242	351,378	0
Blakeney Onyx, LP	615,832	334,494	242,566	38,772	0
Bridgewater Associates - All Weather @ 12%, LLC	1,997,733	1,681,375	316,358	0	0
Bridgewater Associates - Diamond Ridge Fund, LLC	3,949,106	3,784,820	164,286	0	0
Campbell Timber Fund II A, LP	1,238	1,238	0	0	0
CarVal Investors CVI Global Value Fund A, LP - private debt	27,375	0	27,375	0	0
CarVal Investors CVI Global Value Fund A, LP - real estate	27,375	0	27,375	0	0
Catalyst Fund III, LP	(2,839,875)	935,827	39,942	(3,815,644)	0
Catalyst Fund IV, LP	(748,308)	447,239	68,707	(1,264,254)	0
Catalyst Fund V, LP	1,844,167	1,977,504	173,938	(307,275)	0
Catterton Partners V, LP	47,473	37,212	8,443	0	1,818
Cornwall Domestic, LP	914,089	609,189	294,282	10,618	0
Davidson Kempner Institutional Partners, LP	378,889	146,240	54,901	177,748	0
DRI Capital - LSRC	367,620	0	167,321	200,299	0
EIG Energy Fund XIV, LP	305,486	274,260	31,226	0	0
EIG Energy Fund XV, LP	499,388	429,518	69,870	0	0
EIG Energy Fund XVI, LP	1,597,416	500,000	64,301	1,033,115	0
Elliott International, Ltd.	9,751,652	3,122,865	2,214,796	4,413,991	0
Farallon Capital Institutional Partners, LP	(129,633)	0	0	(129,633)	0
Gaoling Fund, LP	12,999,620	2,152,766	129,966	10,716,888	0
Garnet Sky Investors Company, Ltd.	8,838,921	505,966	120,840	8,212,115	0
Gateway Energy & Resource Holdings, LLC	377,385	7,602	355,763	14,021	0
Glenview Capital Opportunity Fund, LP	511,465	320,220	191,245	0	0
Glenview Sidecar	198,121	0	198,121	0	0

Schedule of Investment Manager Fees continued on page 88

Investment Section

Schedule of Investment Manager Fees continued from page 87

	Total Fees	Manager Fees	Fund Pass Through Expenses (1)	Incentive Fees Earned and Paid in FY18	Portfolio Company Charges (2)
Global Forest Partners GTI7					
Institutional Investors Company, Ltd.	121,244	58,520	62,724	0	0
Harvest Fund Advisors, LLC	570,086	570,086	0	0	0
HBK Merger Strategies Offshore Fund, Ltd.	2,505,462	879,225	313,587	1,312,650	0
JLL Partners Fund V, LP	(1,922)	60,570	13,730	(76,222)	0
JLL Partners Fund VI, LP	3,154,025	338,083	26,947	2,788,995	0
King Street Capital, LP	204,519	69,290	0	135,229	0
King Street Capital, Ltd.	38,741	3,494	0	35,247	0
Linden Capital Partners II, LP	477,694	379,158	15,627	82,909	0
Mast Credit Opportunities I, LP	486,593	284,357	202,237	0	0
Merit Energy Partners F-II, LP	92,544	56,410	36,134	0	0
MHR Institutional Partners II A, LP	160,951	0	19,751	141,200	0
MHR Institutional Partners III, LP	740,674	319,643	26,790	394,241	0
MHR Institutional Partners IV, LP	922,593	853,761	68,832	0	0
Millennium Technology Value Partners II	1,437,893	438,750	36,640	962,503	0
NISA Investment Advisors	5,126,448	5,126,448	0	0	0
OCM Opportunities Fund IV b, LP	3,711	0	3,967	(256)	0
OCM Opportunities Fund VII b, LP	354,192	130,528	37,178	186,486	0
OCM Opportunities Fund VIII b, LP	326,616	250,631	49,295	26,690	0
OCM Power Opportunities III, LP	964,847	140,632	14,910	809,305	0
OCM Real Estate Opportunities Fund III, LP	9,859	0	27,714	(17,855)	0
OCM/GFI Power Opportunities Fund II, LP	(14,260)	0	31,517	(45,777)	0
Perry Partners, LP	282	282	0	0	0
Pharo Macro Fund, Ltd.	5,238,065	2,230,246	92,611	2,915,208	0
Resource Management Service - Wildwood Timberlands, LLC	675,303	372,580	28,606	274,116	0
Silchester International Investors	4,854,922	4,854,922	0	0	0
Silver Creek Special Opportunities Fund I, LP	27,112	0	27,112	0	0
Silver Creek Special Opportunities Fund II, LP	34,550	0	34,550	0	0
Silver Lake Partners II, LP	17,287	0	2,153	15,134	0
State Street Global Advisors	149,497	149,497	0	0	0
Standard Investment Research Hedged Equity Fund	3,389,191	1,979,894	165,935	1,243,361	0
StepStone Capital Buyout Fund I, LP	109,553	21,294	120,140	(31,881)	0
StepStone Capital Buyout Fund II, LP	913,355	64,752	30,664	817,939	0
StepStone Opportunities Fund II, LP	155,250	4,379	52,366	98,505	0
Stone Harbor Investment Partners	202,105	202,105	0	0	0
Viking Global Equities III, Ltd.	227,365	211,133	16,232	0	0
Grand totals	\$98,440,547	\$49,107,655	\$8,512,081	\$40,818,993	\$1,818

(1) Fund Pass Through Expenses are administrative expenses charged to the fund and paid by the limited partners (including MOSERS), in addition to the management fee. These expenses may include, but are not limited to, accounting, audit, legal, and custody expenses directly related to the administration of the underlying fund investments.

(2) Portfolio Company Charges are fees/costs paid to the general partners of private equity funds which are not applied as offsets to gross management fees. These charges are paid by the underlying portfolio companies of the funds, and therefore, are indirectly paid by MOSERS.

EXAMPLE 4 - CALstrs Annual Committee Report

TEACHERS' RETIREMENT BOARD

INVESTMENT COMMITTEE

Item Number: **15**

SUBJECT: Annual Investment Cost Report

CONSENT: _____

ATTACHMENT(S): 5

ACTION: _____

DATE OF MEETING: November 7, 2018 / 30 mins.

INFORMATION: X

PRESENTER(S): Debra M. Smith

POLICY

Investment cost reporting and monitoring requirements are governed by the [CalSTRS Investment Policy and Management Plan](#), IPMP, Teachers' Retirement Board Policy Manual, Section 1000, page A-1. As the overarching policy document for the Investment Branch, the IPMP establishes the framework for meeting CalSTRS' objectives. CalSTRS Defined Benefit, Defined Benefit Supplement, and Cash Balance investment portfolios are all governed by the IPMP.

HISTORY AND BACKGROUND OF THE ITEM

The Investment staff take cost management very seriously and strives to operate the total portfolio in the most effective, low cost manner. Investment costs have been presented to the Investment Committee (Committee) for well over 15 years. During the investment cost presentation at the November 2015 meeting, the Committee requested staff to track all expenses and fees including those that are capitalized or netted from the value of the investments. In response to the Committee's request, staff developed a project plan that included outsourcing part of the work to an existing investment project consultant. A motion was passed to confirm and implement the project plan as recommended by staff. Pavilion Alternatives Group, LLC ("Pavilion") was engaged as the project consultant to obtain paid management fees, partnership expenses, other expenses, and carried interest associated with CalSTRS investments in private markets.

At the [November 2016 meeting](#), staff presented the most comprehensive investment cost report in its history. Per the Committee's direction, the report delineated the costs and carried interest associated with managing investments in private markets. This report established a base for developing trend lines over time and presenting a more meaningful and transparent cost measurement information to the Committee.

PURPOSE

The purpose of this informational report is twofold:

- (1) To provide the Committee, the calendar year [2017 Annual Cost Report](#); enhanced with trend lines over a three year period for each asset class and investment strategy. Additional insight has been

provided to aid the discussion for the CalSTRS Collaborative Model¹ (Collaborative Model). (Attachments 3);

- (2) To provide the Committee peer comparison of investment cost data prepared by an external cost measurement service provider. Their analysis compares CalSTRS to peers and reports investment cost effectiveness based on their methodology (Attachment 4).

DISCUSSION

Approach to Investment Cost Management and Implication to Investment Returns

The comprehensive annual investment cost report is aligned with CalSTRS Investment Belief 3, which has been adopted by the Committee. Belief 3 is outlined below:

Belief 3 – Managing investment costs yields long-term benefits

Investment costs, if not managed appropriately, can have a significant (rather than frictional) impact upon overall portfolio performance. CalSTRS, as a large-scale investor, should focus on measuring, monitoring, and minimizing all relevant investment costs.

Investment costs are an important determinant of fund performance and require close oversight and active monitoring. Staff has witnessed an increasing weight being placed on the transparency and reporting of fees and expenses among peers. There is some misinterpretation related to fees and expenses which are ‘capitalized’ to the cost basis of the investment, leading some commentators to believe that these fees are not captured in reporting. This report strives to provide transparency and an in-depth look into all types of expenses incurred in managing CalSTRS investments, including the expenses that have been capitalized. This report reflects the fees, expenses and carried interest that have been already paid in the calendar year 2017; therefore CalSTRS reported net returns for the same period is reduced by these costs.

The investment staff understands that CalSTRS member benefits are paid from net returns and not from gross returns. Since increased investment costs reduces net returns, fees and expenses are consistently monitored and factored into staff’s decision making process every day.

Investment Belief 8 states that CalSTRS is best served when there is contractual alignment and transparency of financial interests with its external investment advisors and managers. Asset class staff engage in rigorous negotiations and due diligence to reduce investment costs. A combination of studies, analysis and expert fiduciary opinions are used to help obtain fees that are lower compared to market averages. CalSTRS sheer size and reputation also plays an important role in its ability to obtain better cost structures than would otherwise be available to investors. Additionally, as part of the recent research related to the Collaborative Model (that has been discussed over the past several Committee meetings), certain asset classes are exploring innovative investment vehicles with low cost structures and attractive performance potential.

¹ 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 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.

Staff is constantly looking for ways to optimize aspects of cost management and monitoring without compromising the quality of the investments.

In addition to investment cost monitoring and reporting, asset classes utilize benchmarks to measure the relative performance of the investment portfolio. The overarching criterion is to focus on ‘optimal cost’, which may not always be the lowest cost, but has the highest net payoff. Staff understands that there is an opportunity cost associated with low cost investments and often that cost can be substantial. Some market analysts believe that the markets are going into (or are already in) a low return environment; staff is aware that a compelling, yet troubling response during projected low returns is to increase risk in search of higher returns. Staff’s approach to investment cost management is holistic, with the prime focus on the highest overall payoff. Thus, staff emphasizes efforts on well balanced risk – return (net) strategies and upon the Committee’s direction, are further exploring the Collaborative Model.

As stressed on previous reports – there is no industry standard or format for investment cost reporting. Comparability is strenuous and in many cases not possible because every pension plan is unique. They are limited by their respective mandates, funding objectives and cash flow constraints. Additionally, private assets have characteristics such as non-standard reporting format and variability in deal structures, making cost reporting exceptionally complex; therefore, performance measurement and cost extraction is intricate and not always directly comparable to peers. While each partnership has 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.

The Committee’s direction to staff to delineate the capitalized costs at the November 2015 meeting has proven to be a helpful exercise. Staff continues to improve and enhance this cost report to provide more transparent information across asset classes and build best practices.

The sections below provide a synopsis of reporting enhancements and a summary of results.

Reporting Enhancements

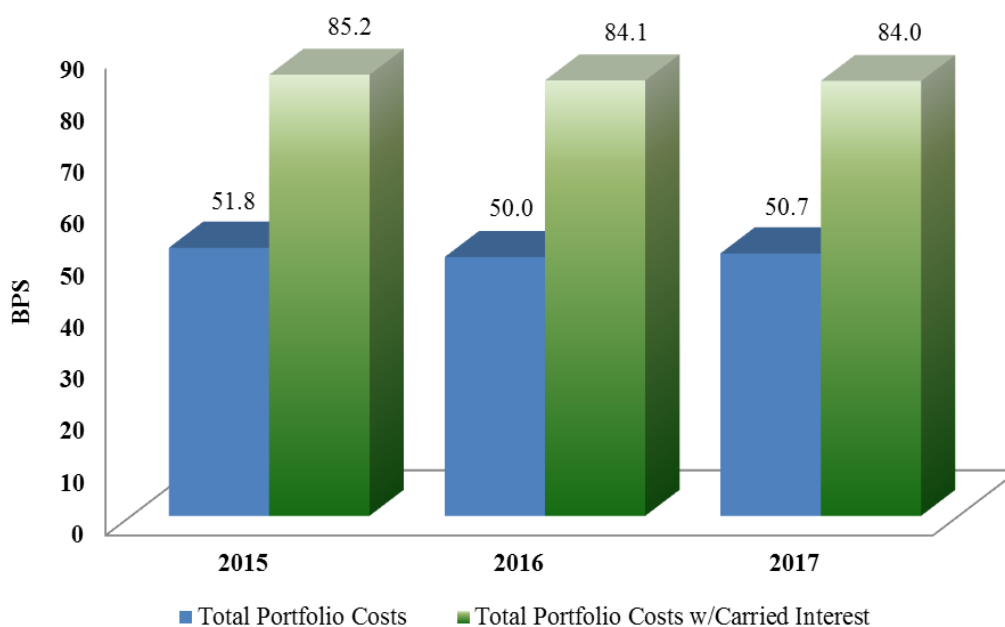
In order to enhance and improve the cost report, staff made a few changes this year compared to the reports in the previous years. This year, the following updates to the report were made, which can mostly be found in Attachment 3:

- 1) Trend lines for total portfolio, asset classes and investment strategies have been included with three years of data (Chart 1 & Attachment 3).
- 2) Insight into the costs associated with certain types of investments within Private Equity and Real Estate has been included to aid the Collaborative Model discussion (Attachment 3).

Summary of Results

All costs including carried interest within this report are for calendar year 2017 and on a cash basis. It is important to note that information on 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 asset class or investment strategy. CalSTRS is a long term investor and as such, when comparing to returns, cost data is more meaningful over long time periods such as 10-20 years.

CHART 1 – OVERALL COSTS²



Total investment costs, including as well as excluding carried interest remained relatively stable over the past three years. Paid carried interest remained quite stable from 2016 to 2017, however the absolute dollar carried interest increased in 2017 compared to 2016 and 2015 which is indicative of higher overall profits (and thus returns), shared with CalSTRS.

TABLE 1

NAV/ Dollar Costs (in \$000's)	2015	2016	2017
NAV	186,099,586	194,698,312	218,214,795
Total Portfolio Costs	963,184	972,660	1,105,997
Carried Interest	622,767	665,155	727,058
Total Portfolio Costs w/Carried Interest	1,585,951	1,637,814	1,833,055

Net asset value (NAV) grew approximately 12.1% in 2017, so did costs in absolute dollar terms. This was primarily due to the significant number of new investments in the private markets in 2017. Fee rates in the first few years of an investment are typically based on committed capital (larger base) rather than the contributed capital or NAV (smaller in the initial years). Additionally, as the economy strengthens, the portfolio has been taking profits from selling investments made during 2006-2008 as reflected by the increase in carried interest. For detailed total portfolio, asset class and investment strategy level cost trends, please refer to Attachment 3.

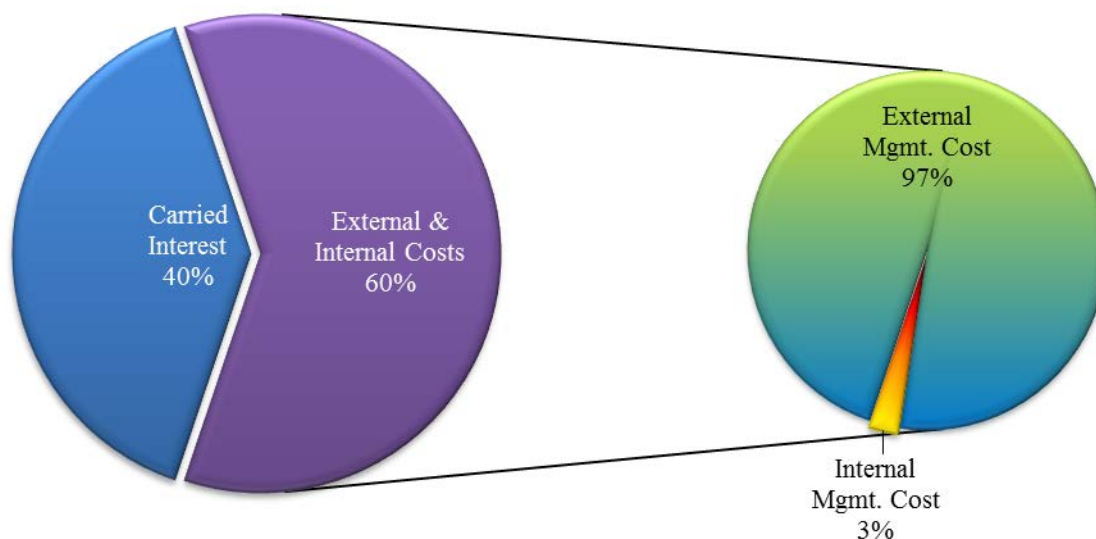
Within this report, staff has presented two views of the cost information:

- 1) External Management Costs vs. Internal Management Costs (Chart 2)
- 2) Public Market Costs vs. Private Market Costs (Chart 3)

² Based on total costs for the period over a smoothed NAV to account for new and exited investments during the respective calendar year.

Charts 2 and 3 in the subsequent pages contain summarized cost information and should be read in conjunction with the attachments.

CHART 2
CalSTRS Investment Portfolio - External & Internal Management Costs and Carried Interest



(\$ in Millions)	NAV		Costs (ex. Carried Interest)	
	\$	%	\$	%
Internally Managed Portfolio	95,303	44	30	3
Externally Managed Portfolio	122,912	56	1,076	97
Total	218,215	100	1,106	100

Chart 2 illustrates how the overall costs are broken out by external management costs, internal management costs and carried interest. ‘External Management Costs’ are expenses such as management fees of private and public market investments, partnership expenses, support and oversight of the externally managed portfolios.

‘Internal Management Costs’ are expenses that are incurred for internal asset management and include associated staff salaries, operational and administration costs for the management of those investments.

As seen above, internally managed investments represent 44% of the total portfolio; however they represent only 3% of the total costs (excluding carried interest). In 2017, external management costs were approximately \$1.1 billion compared to \$30.0 million of internal management costs. For asset class and investment strategy level details, please refer to Attachment 2.

It generally costs more to manage investments externally than internally. As the Collaborative Model is explored further, value may be added by generating meaningful cost savings by utilizing more internal knowledge and skills while increasing internally managed investments.

CHART 3
CalSTRS Investment Portfolio - Private & Public
Market Costs and Carried Interest

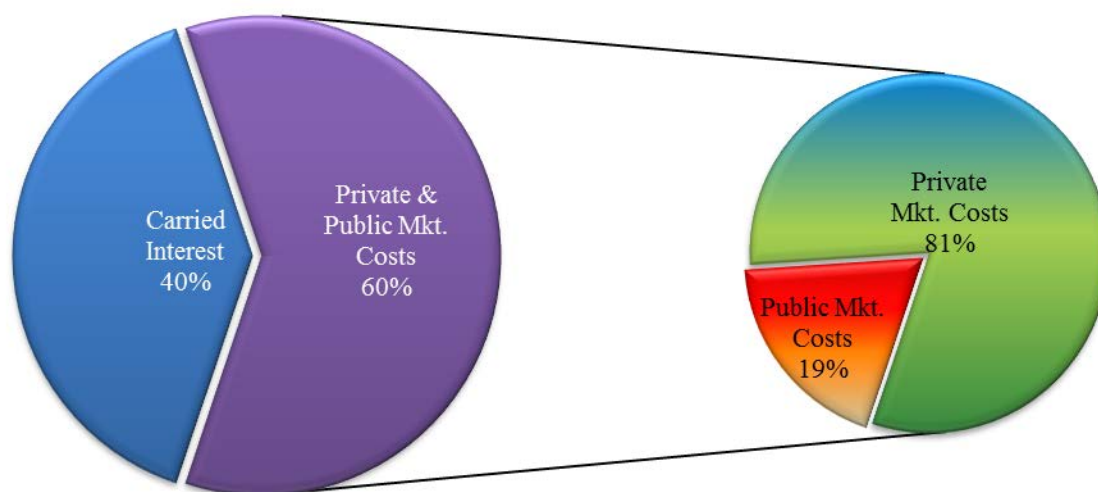


Chart 3 illustrates how the overall costs are broken out by public market costs, private market costs and carried interest. Private market investments (private assets) are complex and require a higher degree of expertise, resulting in higher costs. Studies have shown that a private equity program can add significant value to a portfolio in terms of diversified risk and higher expected return specifically over a 10-20 year investment horizon.

‘Public Market Costs’ are expenses associated with the management of the publicly traded equity investments and fixed income securities. These include external management costs such as management fees, broker commissions and applicable internal costs.

‘Private Market Costs’ are 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, portfolio company fees and other types of expenses paid to the general partner and/or its affiliates. Within this report, Private Market Costs also include relevant staff salaries and administration costs to manage the private assets.

In 2017, public market costs approximated \$208 million compared to approximately \$898 million for private market costs. For asset class and investment strategy level details, please refer to Attachment 2 & 3.

Carried interest, typically applicable to limited partnerships, is a profit sharing agreement between the general partner and the limited partners (i.e. CalSTRS). It is positively correlated to investment returns and is paid to the general partner upon the profitable exit from an investment and only after specific performance thresholds have been achieved (e.g. a preferred rate of return). Typically, carried interest is not paid until limited partners receive back all contributions (including fees and expenses) and a preferred return hurdle is met. For detailed definitions, please see Attachment 5 - Glossary.

There were approximately 639 private assets in 2017. 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, and therefore have low costs. Staff believes that 98% coverage provides a directionally accurate cost figure, particularly given these costs must be obtained for hundreds of investments across various vintage years going back to 1992.

To obtain the cost information of the private assets, Pavilion utilized the reporting template (“Fee Template”) developed by the Institutional Limited Partners Association (“ILPA”) for private equity. Data was obtained through a combination of the Fee Template and other sources, which included financial statements and supplemental schedules provided by the general partners and managers. All data was thoroughly checked for reasonableness and completeness, representing numerous validation protocols for every investment. Pavilion will be available to discuss their process and answer any questions.

PEER COMPARISON

Data for peer comparison was compiled and prepared by one third party cost measurement service provider utilizing various customized methodologies different from this report. According to the cost measurement service provider, CalSTRS was low cost because it paid less than peers for similar services, which more than offset the higher cost of implementation style. 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 \$79 billion to \$548 billion in AUM, CalSTRS investments was a low cost fund.³
- ▶ CalSTRS investment cost of 38.4 bps was below its expected cost of 44.5 bps, demonstrating that CalSTRS was low cost compared to peers, given an identical asset mix.³
- ▶ CalSTRS Investment Branch saved 6.1 bps over the expected investment costs of 44.4 bps, which equates to approximately \$132 million saved compared to its peers.³

For further details on peer comparison, please refer to Attachment 4.

CONCLUSION

CalSTRS staff has been reporting investment fees and expenses for well over 15 years. As previously stated and reflected on the investment beliefs statements, staff acknowledge the long-term benefits of managing investment costs and the alignment of interest with external investment advisors and managers. 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.

³ Data collected and compiled by CEM Benchmarking, Inc. for calendar year 2017.

This report is comprehensive, and through this reporting process, costs across all asset classes and strategies are scrutinized. 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. There are challenges to comparability of costs with peers due to the lack of standard practices across the industry for reporting these costs. The Peer Comparison (Attachment 4) provides insight into how CalSTRS is performing compared to global peers in certain aspects. By adding cost trend lines within this report, CalSTRS is on a path to setting best practices in cost reporting.

The Committee has expressed an interest in understanding how the cost information can be used to measure the returns generated from the private assets. Staff will work closely with the board's consultant, cost consultant and other data providers to capture relevant fiscal year cost data within the Semi Annual Performance Reports.

Staff will work with Pavilion starting early 2019 to gather relevant 2018 calendar year costs of the private assets. Separately, staff will work with third party cost measurement service providers to monitor CalSTRS effectiveness in managing investment costs for 2018 compared to peers. Staff will continue to partner together with other institutional investors and organizations (e.g. ILPA) 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.

Staff and Pavilion are available to answer any questions.

RECOMMENDATION

Staff recommends that, upon the oral report presentation, the Investment Committee receive this report for the record.

ATTACHMENTS/POWERPOINT

Attachment 1 – Investment Cost Report Outline

Outline of which investment costs are included in this report.

Attachment 2 – Internal/External Management Costs & Private/Public Market Costs

A view of the investment portfolio's internal and external management costs as well as the expenses associated with private and public markets. A two year comparison for each segment is also included.

Attachment 3 – Trends: Comprehensive Costs and Carried Interest

Takes a deeper dive into the costs of each asset class and investment strategy. Includes cost trend lines for total portfolio, asset classes and investment strategies.

Attachment 4 – Peer Comparison

An overview of how CalSTRS investment costs compare to its peers. Data is based on a third party cost measurement service provider.

Attachment 5 – Glossary

PowerPoint – 2017 Investment Cost Report

Prepared and Recommended by:



Shifat Hasan,
Associate Portfolio Manager



Melissa DaRonco,
Associate Portfolio Manager



April Uyematsu,
Investment Officer

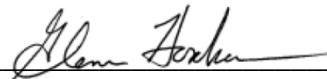
Reviewed by:



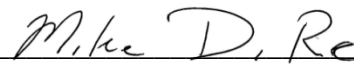
June Kim,
Director of Global Equity



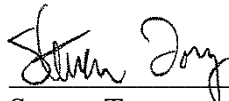
Margot Wirth,
Director of Private Equity



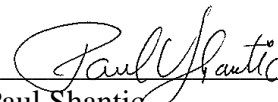
Glenn Hosokawa,
Director of Fixed Income



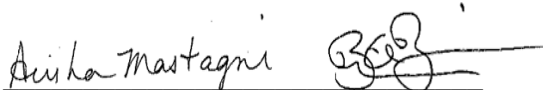
Mike DiRé,
Director of Real Estate



Steven Tong,
Director of RMS, Innovative Strategies & Risk



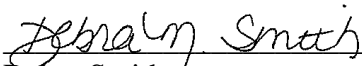
Paul Shantic,
Director of Inflation Sensitive



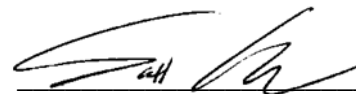
Aeisha Mastagni & Brian Rice,
Interim Co-Directors of Corporate Governance




April Wilcox,
Investments Operations Director



Debra Smith,
Chief Operating Investment Officer



Scott Chan,
Deputy Chief Investment Officer



Christopher J. Ailman,
Chief Investment Officer

Investment Committee – Item 15

November 7, 2018

Page 10



Attachment 1 – Investment Cost Report Outline

Asset Class/ Investment Strategy	Management Fees		Operating Expense ¹			Other Expenses ²			Carried Interest
	Base Management Fees	Performance Fees	CalSTRS Internal Salary	CalSTRS Operating Expense	CalSTRS Other Expenses	Partnership/ Fund Expenses	Brokerage Commission/ Transaction Fee	Soft Dollar Services	
Global Equity	✓	✓	✓	✓	✓	--	✓	✓	--
Corporate Governance	✓	✓	✓	✓	✓	✓	✓	--	✓
Fixed Income	✓	✓	✓	✓	✓	--	✓	✓	--
Cash	--	--	✓	✓	✓	--	✓	--	--
Real Estate	✓	--	✓	✓	✓	✓	✓	--	✓
Private Equity	✓	--	✓	✓	✓	✓	✓	--	✓
Inflation Sensitive	✓	--	✓	✓	✓	✓	✓	--	✓
Risk Mitigating Strategies	✓	--	✓	✓	✓	✓	✓	--	✓
Innovative Strategies	✓	--	✓	✓	✓	✓	✓	--	✓
Strategic Overlay	✓	✓	✓	✓	✓	--	✓	--	--

✓ included in reports -- not applicable

¹ “Operating Expense” throughout this report includes staff salaries, travel, supplies, training and other Investment Branch support, research services and administrative expenses.

² “Other Expenses” throughout this report include 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.



Attachment 2 – Internal/External Management Costs & Private/Public Market Costs (\$ in millions)

External Management Costs									
Asset Class/ Investment Strategy	Net Asset Value	Ending Market Allocation	Management Fee	Operating Expense		Other Expenses	Total Expense	2017 Basis Points	2016 Basis Points
				Internal Salary	Other Operating				
Public Market Costs									
Global Equity	60,247	28%	114	7	9	24	154	25.6	25.4
Fixed Income	4,852	2%	12	1	1	0	14	28.5	23.6
Strategic Overlay*	13	0%	9	0	0	0	9	17.5	18.0
Total	\$ 65,111	30%	\$ 135	\$ 8	\$ 10	\$ 24	\$ 177	25.8	25.2
Private Market Costs									
Corporate Governance**	4,338	2%	49	2	1	10	62	143.6	140.7
Real Estate	25,993	12%	182	7	9	151	348	134.0	128.6
Private Equity	17,114	8%	234	6	7	116	364	212.6	202.0
Inflation Sensitive	2,614	1%	24	1	1	13	39	151.1	185.2
Risk Mitigating Strategies	7,299	3%	51	2	2	24	79	107.7	150.5
Innovative Strategies	443	0%	3	0	0	2	6	131.5	140.2
Total Private Market	\$ 57,800	26%	\$ 543	\$ 19	\$ 20	\$ 317	\$ 898	155.4	156.2
Total External Mgt.	\$ 122,912	56%	\$ 677	\$ 28	\$ 30	\$ 341	\$ 1,076	87.5	87.6
Internal Management Costs									
Asset Class/ Investment Strategy	Net Asset Value	Ending Market Allocation	Manager Fee	Operating Expense		Other Expenses	Total Expense	2017 Basis Points	2016 Basis Points
				Internal Salary	Other Operating				
Public Market Costs									
Global Equity	58,563	27%	-	6	9	1	16	2.8	2.7
Corporate Governance	1,364	1%	-	0	0	0	1	5.5	N/A
Fixed Income	25,097	12%	-	5	4	0	9	3.5	3.4
Inflation Sensitive	679	0%	-	0	0	0	0	6.2	7.6
Risk Mitigating Strategies	5,021	2%	-	1	1	0	2	3.2	5.0
Strategic Overlay*	431	0%	-	1	0	1	1	0.4	0.3
Cash/Liquidity	4,149	2%	-	1	1	0	1	3.1	3.2
Total Internal Mgt.	\$ 95,303	44%	\$ -	\$ 14	\$ 15	\$ 2	\$ 30	3.2	3.1
Total Public Market (internal & external from above)	\$ 160,414	74%	\$ 135	\$ 22	\$ 25	\$ 26	\$ 208	12.9	12.6
Grand Total	\$ 218,215	100%	\$ 677	\$86		\$ 342	\$ 1,106	50.7	50.0

* Net Asset Value reflects gains/ (losses) on notional values and uses notional values for calculating basis points for Currency Management.

** Includes Net Asset Value of \$1,068 million in Sustainability Managers.

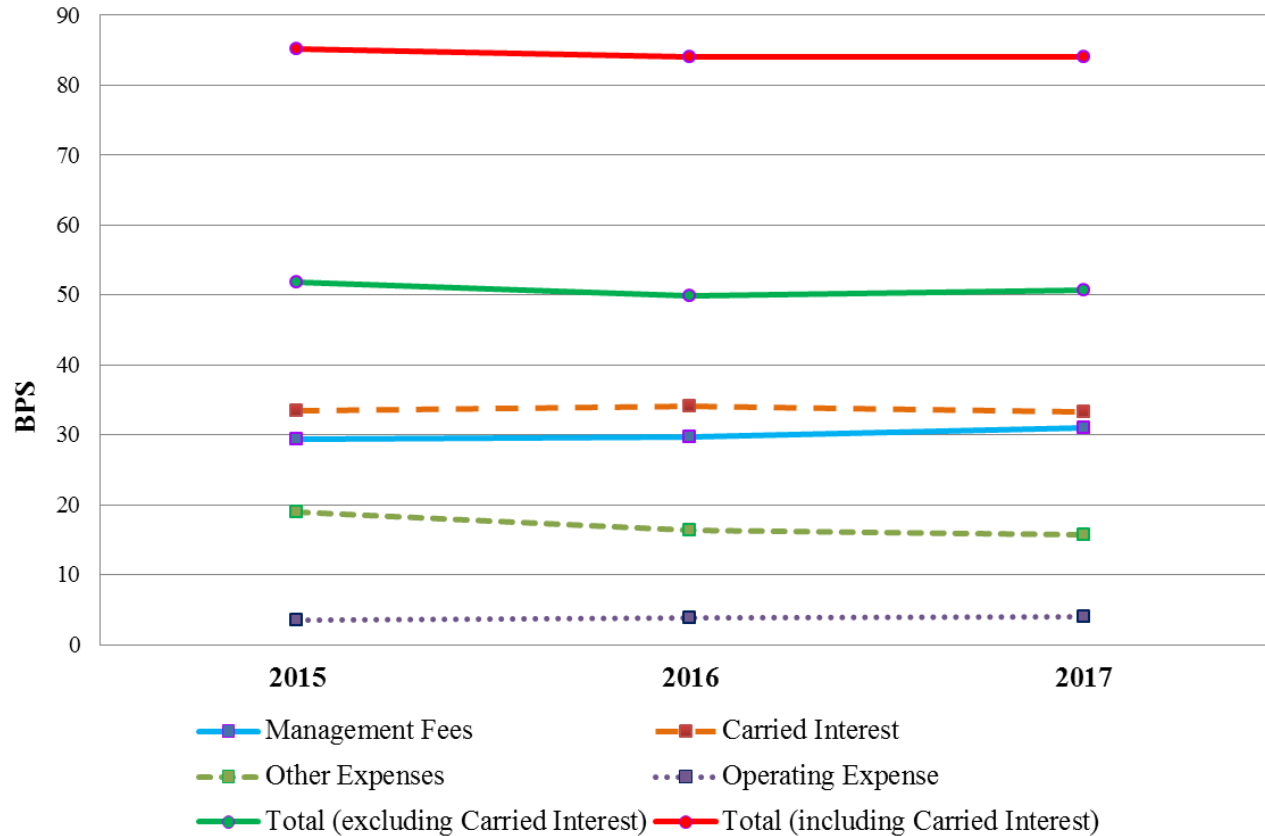


Attachment 3 – Trends: Comprehensive Costs and Carried Interest

Total Portfolio

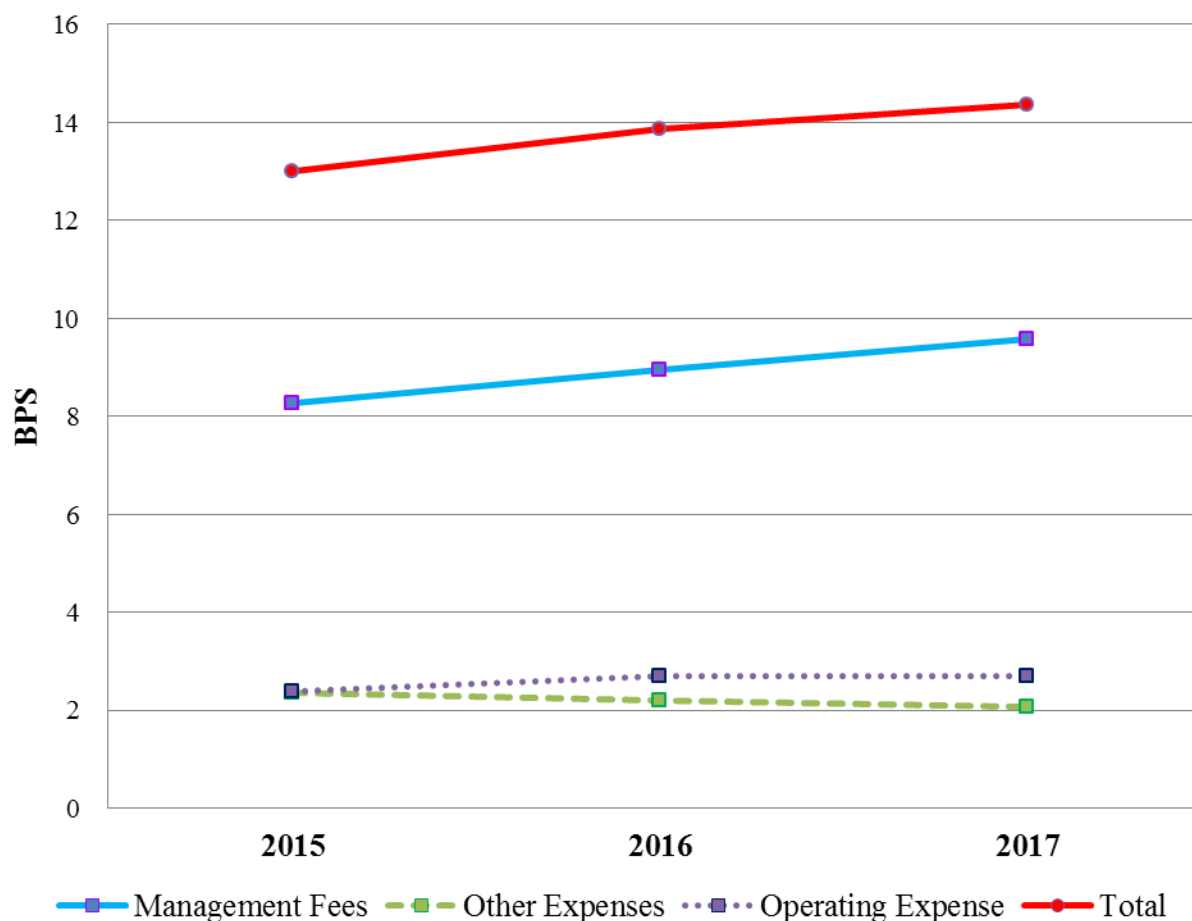
BPS	2015	2016	2017
Management Fees	29.4	29.7	31.0
Carried Interest	33.5	34.2	33.3
Other Expenses	18.9	16.3	15.7
Operating Expense	3.5	3.9	4.0
Total (excluding Carried Interest)	51.8	50.0	50.7
Total (including Carried Interest)	85.2	84.1	84.0
Net Asset Value (\$ in '000)	\$ 186,099,586	\$ 194,698,312	\$ 218,214,795

- ▶ Overall costs mostly stable over the three year period.
- ▶ Management Fees increased due to the J-curve effect of new private market investments made in 2017.
- ▶ Other Expenses, which comprise primarily of portfolio company expenses of private assets on the decline (See Private Equity section).



Global Equity (52.6% Allocation as of 12/31/2017)

BPS	2015	2016	2017
Management Fees	8.3	8.9	9.6
Other Expenses	2.4	2.2	2.1
Operating Expense	2.4	2.7	2.7
Total	13.0	13.9	14.4
Net Asset Value (\$ in '000)	\$ 100,134,868	\$ 106,014,347	\$ 118,809,657

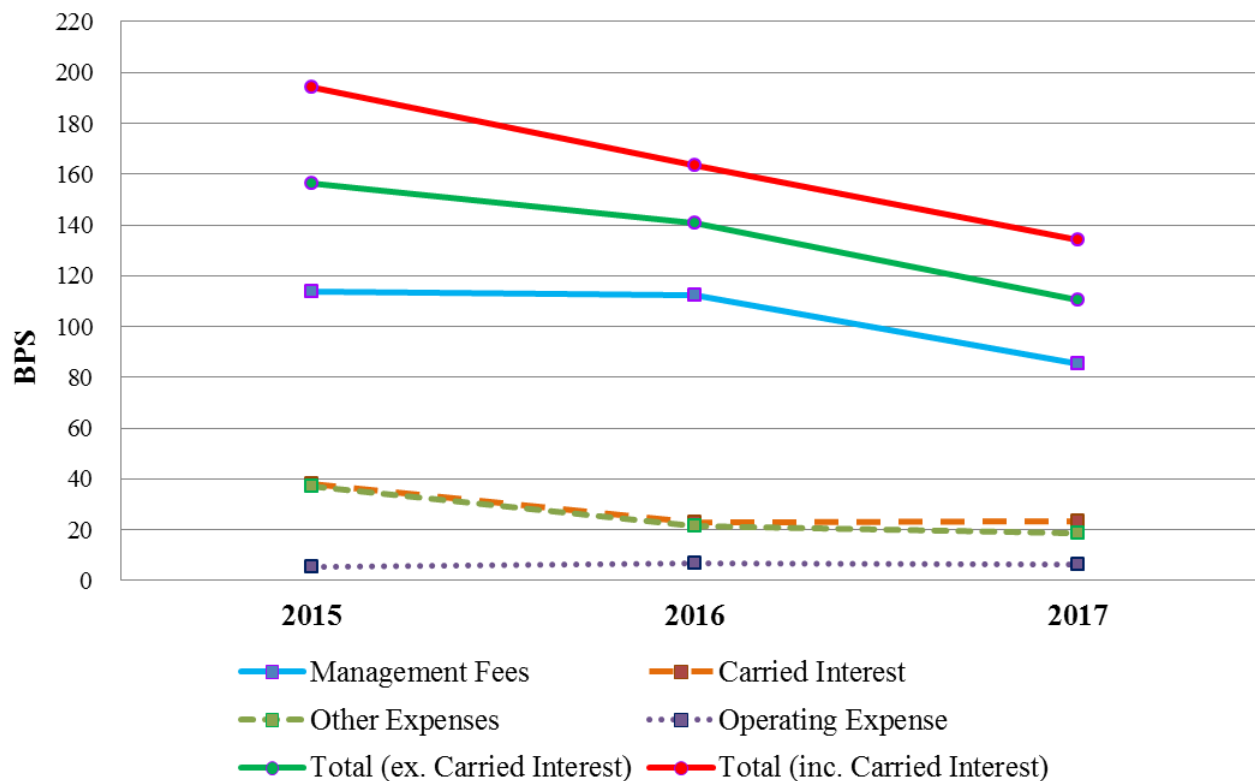


- ▶ Overall costs increased due to the increase in management fees as assets that transitioned from US to non-US equities over the year. Non-US equity managers, specifically active emerging managers tend to be more expensive.
- ▶ Other Expenses, which include broker commissions, have decreased as the transition to non-US equity was wrapped up in 2017.

Corporate Governance (2.6% Allocation as of 12/31/2017)

BPS	2015	2016	2017
Management Fees	113.7	112.4	85.6
Carried Interest	38.0	23.0	23.6
Other Expenses	37.2	21.3	18.4
Operating Expense	5.5	6.9	6.6
Total (ex. Carried Interest)	156.3	140.7	110.6
Total (inc. Carried Interest)	194.3	163.6	134.2
Net Asset Value (\$ in '000)	\$ 4,336,610	\$ 4,067,064	\$ 5,702,321

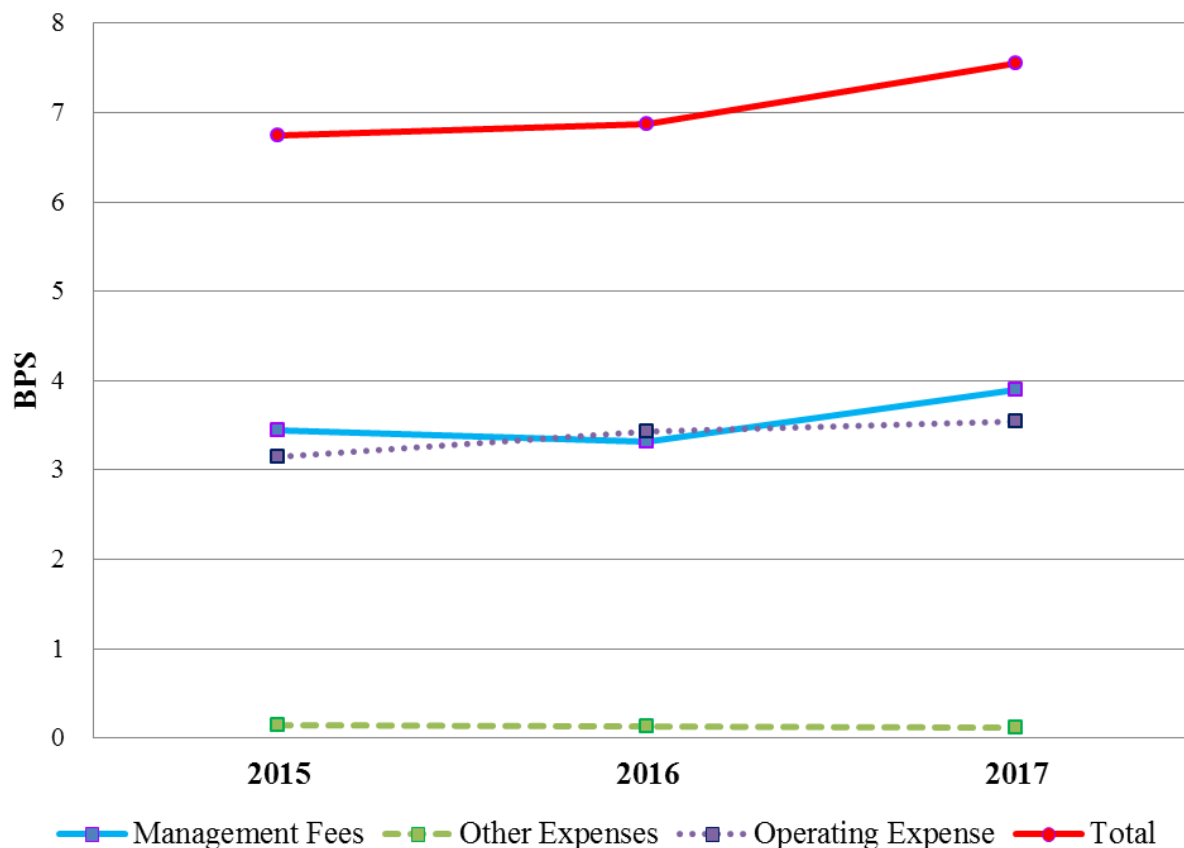
- ▶ Corporate Governance investments are invested in public market securities, but the activist portfolios are in limited partnership vehicles, much like private assets.
- ▶ Management fees decreased due to an increased allocation to ESG managers, which have lower fees compared to the activist managers.
- ▶ A 3-year period is a limited view for the Corporate Governance portfolio; most managers have holding periods that extend beyond three years. This results in uneven fee payments based on when investments are realized or when fees are paid to the manager.



Fixed Income (12.8% Allocation as of 12/31/2017)

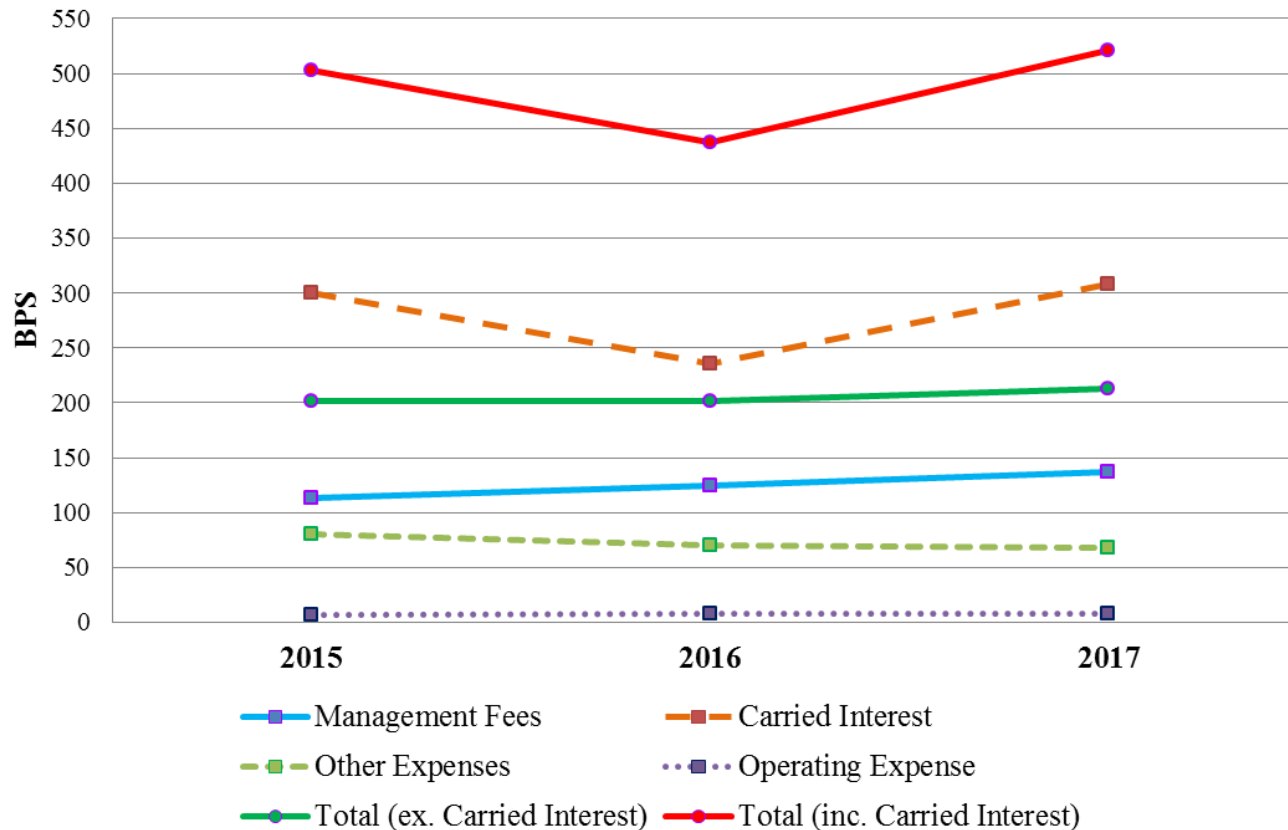
BPS	2015	2016	2017
Management Fees	3.4	3.3	3.9
Other Expenses	0.1	0.1	0.1
Operating Expense	3.1	3.4	3.5
Total	6.7	6.9	7.6
Net Asset Value (\$ in '000)	\$ 30,305,579	\$ 31,213,972	\$ 29,948,949

- ▶ Overall costs increased even though Fixed Income NAV decreased due primarily to the Board's asset allocation shift. Management fees increased due to two main factors: 1) fee reduction thresholds not reached due to lower NAV, therefore higher relative fees incurred and 2) external manager exceeded performance objectives and accordingly received performance based fees.



Private Equity (7.7% Allocation as of 12/31/2017)

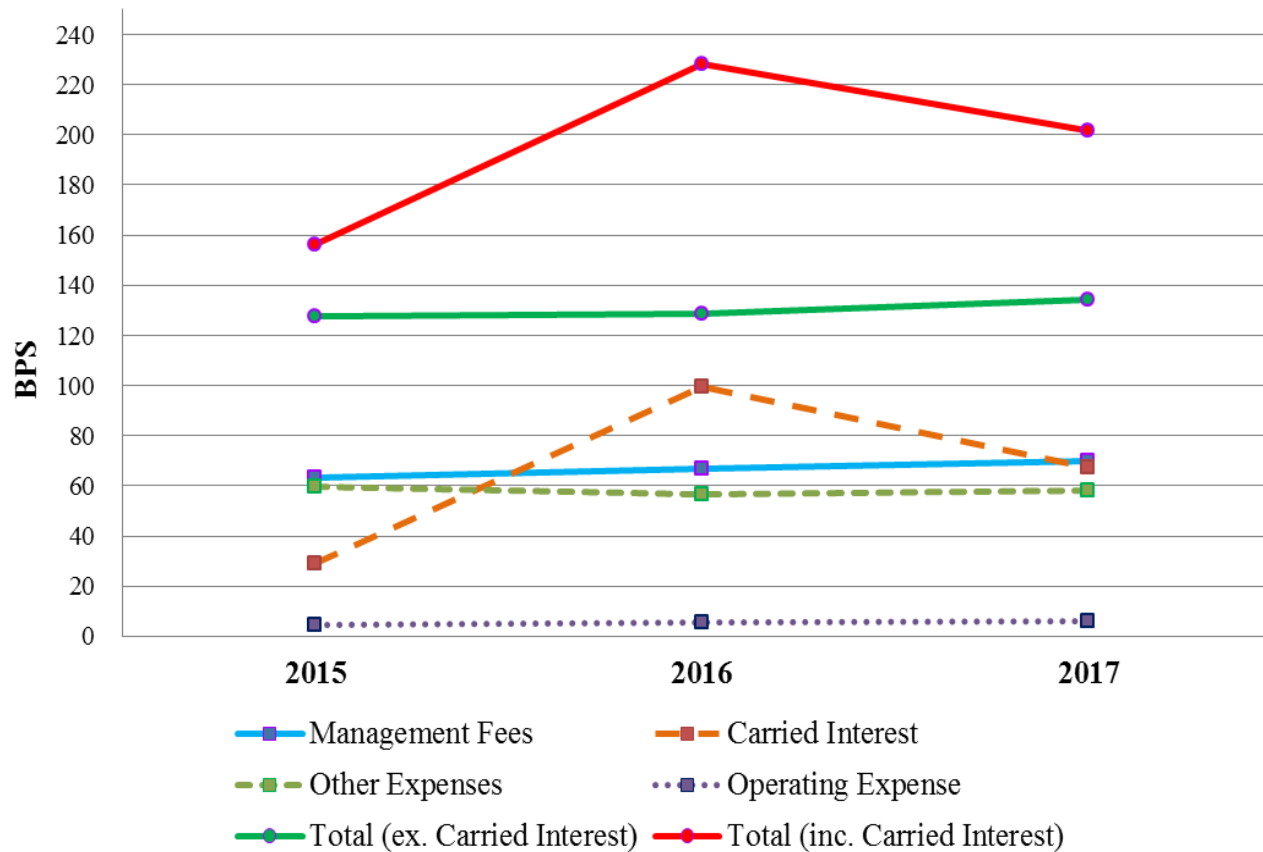
BPS	2015	2016	2017
Management Fees	113.9	124.4	136.6
Carried Interest	300.6	235.5	308.4
Other Expenses	81.0	70.1	68.1
Operating Expense	7.1	7.5	7.9
Total (ex. Carried Interest)	202.0	202.0	212.6
Total (inc. Carried Interest)	502.6	437.5	521.0
Net Asset Value (\$ in '000)	\$ 17,178,300	\$ 16,540,575	\$ 17,113,643



- ▶ Private Equity is a very expensive asset class. Overall costs are higher mostly due to the J-curve effect. The Private Equity portfolio increased the commitment pace over the last few years to meet the target allocation.
- ▶ Managers are charging less portfolio company fees as 100% offset ratios become the norm. This is reflective under Other Expense.
- ▶ A 3-year period is a very limited view for private equity investments, which are generally 10-15 year investments. The investment pace of the asset class since its inception is not even. Profits from the investments made in 2006-2008 are being realized in the current period as evident by the increase in carried interest.
- ▶ Fee analysis for each of the three years presented showed that co-investments were the lowest cost investments compared to any other type of Private Equity investment. The co-investment program is operated on a no fee/no carry basis and therefore expenses of these investments were near zero.

Real Estate (11.8% Allocation as of 12/31/2017)

BPS	2015	2016	2017
Management Fees	63.0	66.7	69.9
Carried Interest	29.1	99.7	67.5
Other Expenses	59.7	56.6	58.2
Operating Expense	4.6	5.3	5.9
Total (ex. Carried Interest)	127.4	128.6	134.0
Total (inc. Carried Interest)	156.5	228.3	201.5
Net Asset Value (\$ in '000)	\$ 25,789,619	\$ 25,804,870	\$ 25,992,580

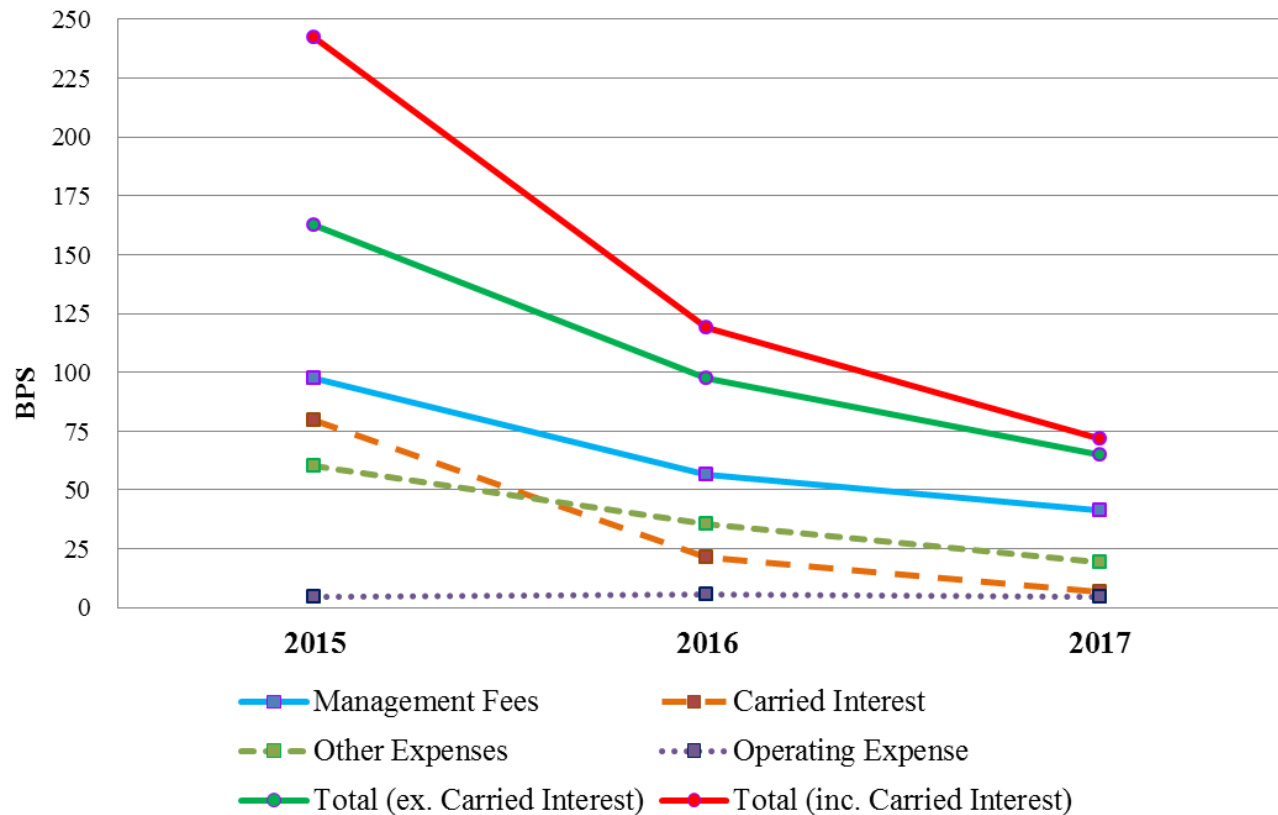


- ▶ Overall costs excluding carried interest increased slightly primarily due to the increase in management fees caused by the J-curve effect of new investments in 2017.
- ▶ A 3-year period is a very limited view for Real Estate investments, which are generally 3-15 year investments.
- ▶ In 2016, paid carried interest was the highest due to one highly profitable investment, which was completely liquidated in that year.
- ▶ Fee analysis showed that for each of the three years from 2015-2017, Real Estate investments where CalSTRS has significant ownership and control, are lower cost investments compared to other types of real estate investments. Significant ownership and control in real estate investments require staff to be more directly involved in the management of the properties.

Risk Mitigating Strategies (7.8% Allocation as of 12/31/2017)

BPS	2015	2016	2017
Management Fees	97.5	56.8	41.1
Carried Interest	79.7	21.3	6.6
Other Expenses	60.4	35.3	19.3
Operating Expense	4.7	5.6	4.7
Total (ex. Carried Interest)	162.6	97.7	65.1
Total (inc. Carried Interest)	242.3	118.9	71.7
Net Asset Value (\$ in '000)	\$ 1,852,118	\$ 3,769,181	\$ 12,319,880

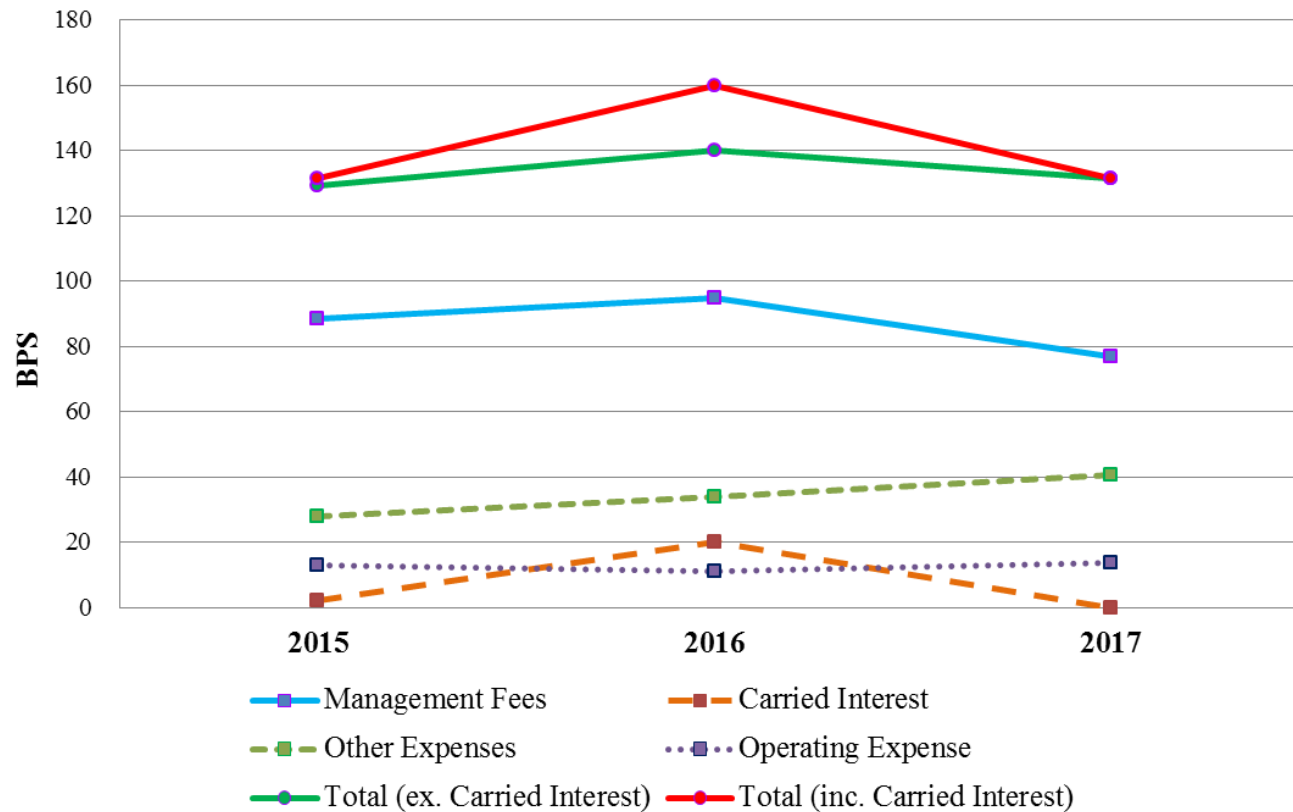
- ▶ Risk Mitigating Strategies has grown significantly since inception in 2016
- ▶ As the Strategy grows and matures, costs will fall more in line with the 2017 levels.
- ▶ A 3-year period is a very limited view for the investments within this strategy, which generally have duration of 5-15 years.



Innovative Strategies (0.2% Allocation as of 12/31/2017)

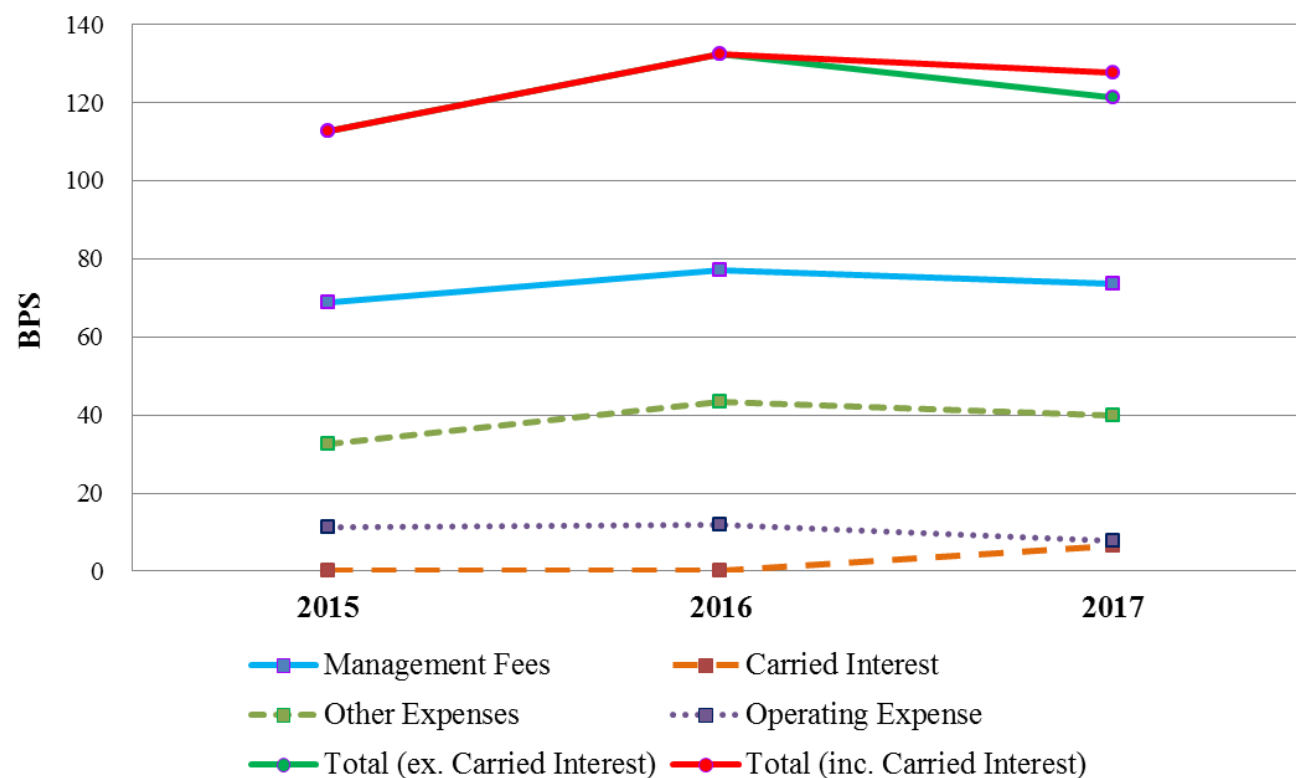
BPS	2015	2016	2017
Management Fees	88.5	95.1	76.8
Carried Interest	2.2	19.9	0.0
Other Expenses	28.1	33.9	40.8
Operating Expense	12.8	11.2	13.9
Total (ex. Carried Interest)	129.4	140.2	131.5
Total (inc. Carried Interest)	131.6	160.1	131.5
Net Asset Value (\$ in '000)	\$ 448,137	\$ 504,946	\$ 442,756

- ▶ Costs had increased slightly in 2016 and in 2017 have reverted back to the 2015 levels.
- ▶ A 3-year period is a very limited view for the investments within this strategy, which generally have duration of 5-15 year.



Inflation Sensitive (1.6% Allocation as of 12/31/2017)

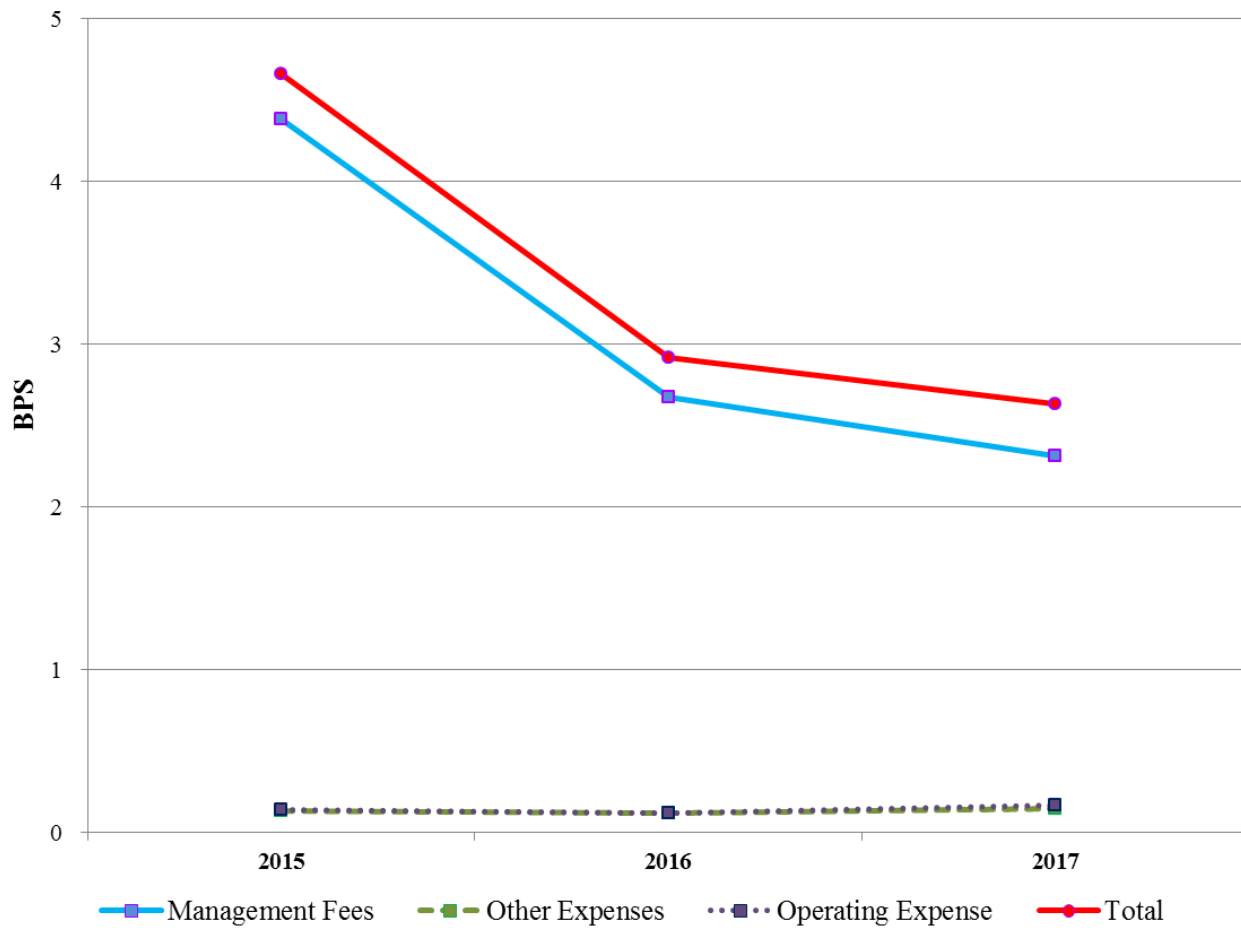
BPS	2015	2016	2017
Management Fees	68.9	77.0	73.5
Carried Interest	0.0	0.0	6.6
Other Expenses	32.7	43.4	39.9
Operating Expense	11.1	12.0	7.8
Total (ex. Carried Interest)	112.7	132.4	121.2
Total (inc. Carried Interest)	112.7	132.4	127.8
Net Asset Value (\$ in '000)	\$ 1,663,363	\$ 1,921,810	\$ 3,292,471



- ▶ NAV increased significantly over the 3-year period, driven mainly by investment vehicles early in their life cycles deploying capital. This translates to a much larger denominator diluting most cost categories on a “basis points per total NAV” basis. The portfolio’s makeup generally consists of young investment vehicles still in their investment phase as well as several new investments established during the year.
- ▶ The exception to the trend is carried interest, which increased from 0 bps to 6.6 bps as two managers started earning performance incentives.

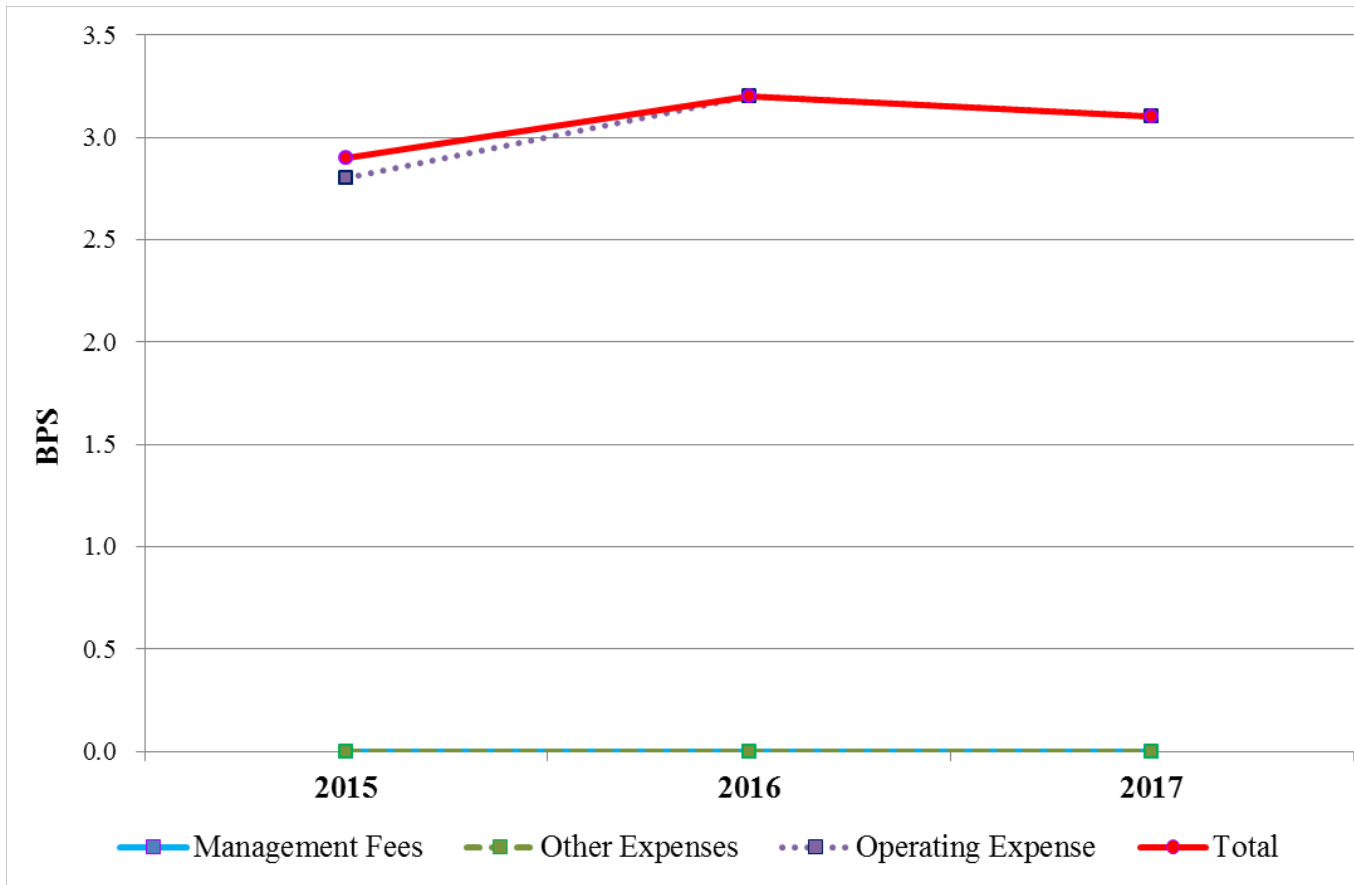
Strategic Overlay (0.3% Allocation as of 12/31/2017)

	2015	2016	2017
Management Fees	4.4	2.7	2.3
Other Expenses	0.1	0.1	0.2
Operating Expense	0.1	0.1	0.2
Total	4.7	2.9	2.6
Net Asset Value (\$ in '000)	\$ 156,598	\$ 87,267	\$ 443,780



Cash/Liquidity (2.6% Allocation as of 12/31/2017)

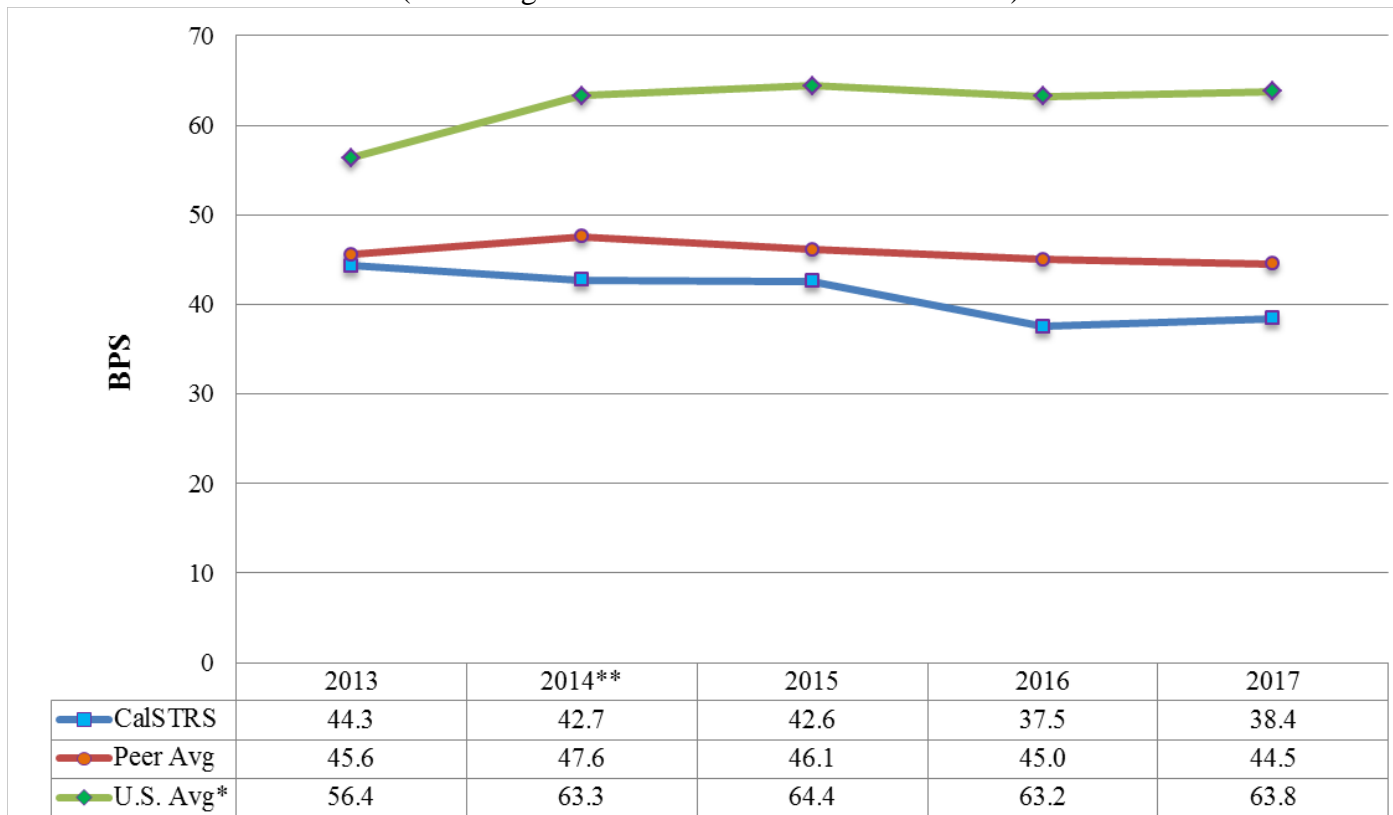
	2015	2016	2017
Management Fees	0.0	0.0	0.0
Other Expenses	0.0	0.0	0.0
Operating Expense	2.8	3.2	3.1
Total	2.9	3.2	3.1
Net Asset Value (\$ in '000)	\$ 4,234,395	\$ 4,774,280	\$ 4,148,757



Attachment 4 – Peer Comparison (Developed by third party cost measurement service provider¹)

Based on this peer comparison, CalSTRS was low cost because it paid less than peers for similar services, which more than offset the higher cost of implementation style. Investment costs, excluding transaction costs and carried interest decreased from 44.3 bps in 2013 to 38.4 bps in 2017. Trend analysis includes 14 global peer funds with 5 or more consecutive years of data.

Trend in Total Investment Cost²
 (excluding transaction costs and carried interest)



*Consists of 47 U.S. pension funds.

**Starting in 2014 hedge fund performance fees are included for all participants. This is one reason for the uptick in costs relative to 2013.

¹ Data collected and compiled by CEM Benchmarking, Inc. for calendar year 2017.

² For data prior to 2017, underlying fund of fund fees based on peer median data with a default rate applied to CalSTRS. To the extent that peers adjust prior years' data and/or there is a change in peer group, CalSTRS prior years' costs may be different from what was previously reported by CEM.

Attachment 5 – Glossary

Asset Class/Investment Strategy	As outlined in the Investment Policy and Management Plan (IPMP); a group of securities that have similar financial characteristics, behave similarly in the market place, and are subject to the same laws and regulations. CalSTRS asset classes and investment strategies include Global Equity, Corporate Governance, Fixed Income, Private Equity, Real Estate, Inflation Sensitive, Innovative Strategies, Risk Mitigating Strategies, Strategic Overlay and Cash.
Basis Point (Bps)	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.
Brokerage Commissions/Fees	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.
Capitalized Costs	An accounting method used to delay the recognition of expenses by recording the expense as a long-term asset.
Carried Interest (Profit Sharing)	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).
Collaborative Model	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.
Corporate Governance	A program within the Global Equity asset class. Some investments are structured as limited partnerships or co-investments, focused on active management where managers take large individual positions and engage boards and management to undertake value driving change. Others are structured like traditional external asset management and integrates robust environmental, social, and governance criteria into the portfolio company selection process.
Currency Management Program (CMP)	A program within the Strategic Overlay which manages CalSTRS total exposure to foreign currencies. Generally uses notional values, not market value, when calculating basis points.
External Asset Management	The outsourcing to external companies of asset management of various securities and other assets in order to meet specified investments goals.
External Management Costs	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.

Fixed Income	An asset class comprised of investment grade and non-investment grade securities in both the U.S. and non-U.S. dollar base. Examples of Fixed Income securities include debt securities and derivatives (futures, options, swap agreements or forward agreements).
General Partner	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.
Global Equity	An asset class comprised of U.S.; non-U.S. developed countries, and emerging markets securities. Examples of Global Equity securities include Exchange Traded Funds (ETF), stocks domiciled in the U.S., international securities traded on the exchanges of all countries contained in the MSCI All Country World Index ex U.S. and the MSCI Frontier Markets Index, units of participation in commingled index funds or trusts and derivatives (futures, options, swap agreements, structured notes, warrants, asset trusts or forward agreements).
Global Master Custodian	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.
Inflation Sensitive	An asset class currently comprised of Infrastructure and Treasury Inflation-Protected Securities (TIPS), this asset class should produce a relatively stable return stream, with a return level between equities and fixed income, and an overall higher correlation to inflation than equity or fixed income.
Infrastructure	A strategy within Inflation Sensitive asset class comprised of limited partnerships, co-investments, commingled funds and publicly listed investments; spanning various industries such as energy resources and utilities, transportation assets, ports, water and waste and communications.
Innovative Strategies	An program where the primary objective is to invest in strategies that do not fit any of CalSTRS existing asset classes and explore new concepts that are expected to improve diversification of the overall investment portfolio when fully implemented.
Internal Asset Management	Asset management of various securities and other assets in order to meet specified investment goals performed ‘in-house’ by CalSTRS staff.
Internal Management Costs	Costs that are incurred for internal management of the investments and relevant operational support and administration.
Internal Salary	An Operating Expense that comprises of salary and benefits paid to CalSTRS staff within the Investment Branch.
Management Fee	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.

Net Asset Value (NAV)	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.
Notional Amount	The U.S. Dollar amount of the underlying assets.
Operating Expense	Includes staff salaries, travel, supplies, training and other Investment Branch support and administrative expenses. Includes advisor, consultant, risk and trade management system expenses.
Other Expenses	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.
Custodian, Audit & Branch Support Expenses	Includes investment expenses not allocated to an asset class such as custodian, audit and other organizational support budget expenses.
Partnership Expenses	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.
Portfolio Company Fees	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.
Private Equity Asset Class	An asset class comprised of limited partnerships, direct investments, co-investments and secondary interests in leverage buyout, venture capital, distressed debt, mezzanine financing, natural resources and proactive private equity. The objective of private equity assets is to provide an enhanced investment return over those available in the public market.
Private Markets	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.
Private Market Costs	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.

Public Markets	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.
Public Market Costs	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.
Real Estate Asset Class	An asset class comprised of direct real estate investments, joint venture and value added investments, and commingled funds in Office, Retail, Multifamily and Industrial sub categories.
Risk Mitigating Strategies	An asset class that invests in a number of investment strategies including long duration U.S. Treasuries, trend following, global macro, systematic risk premia, and other types of strategies.
Soft Dollars	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.
Spread	A spread is the difference between the bid and the ask price of a security or asset.

EXAMPLE 5-
PENNsers Initial Report (2018)



COMMONWEALTH OF PENNSYLVANIA
PUBLIC SCHOOL EMPLOYEES' RETIREMENT SYSTEM

General Partner Ownership Interest (a.k.a. Carried Interest)

James H. Grossman, Jr., CPA, CFA
Chief Investment Officer

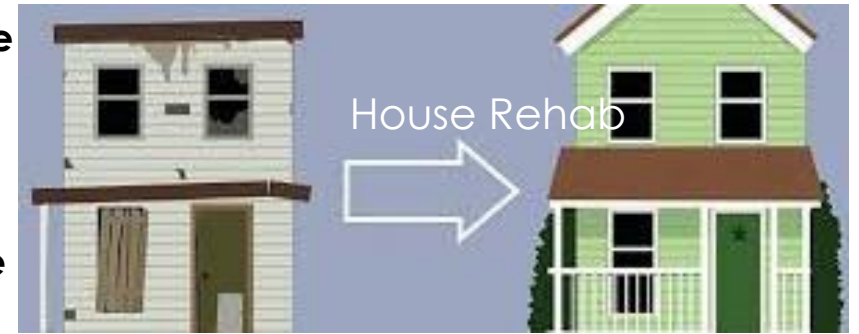
Michael Benson, CPA
Senior Investment Professional

October 12, 2018

Example of General Partner Ownership Interest (Carried Interest)

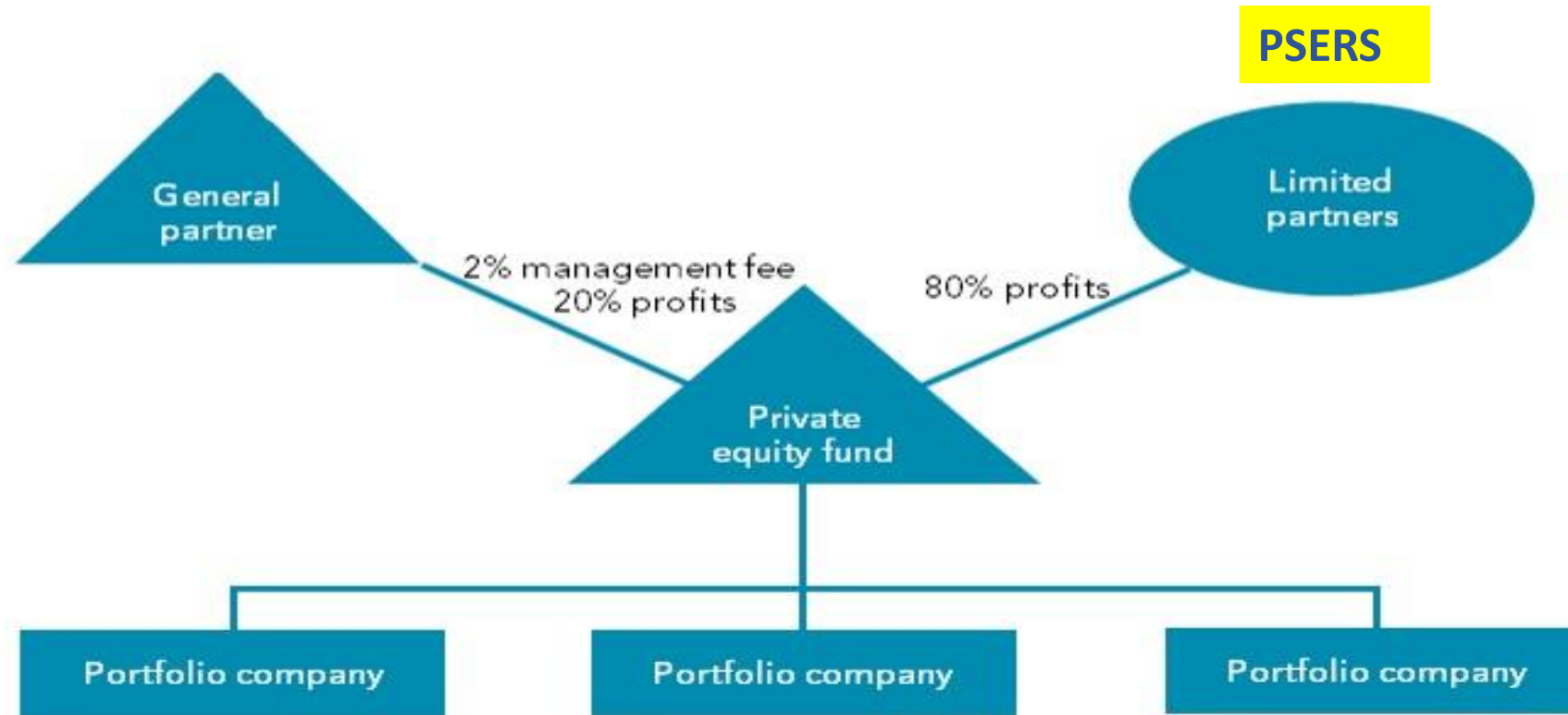
A **contractor** and an **investor** buy a fixer upper house and want to improve and sell it for a profit. The **contractor** and **investor** negotiate terms.

- The **investor** agrees to commit some of its own money to the project and pay the **contractor's** costs for building supplies, labor cost, and other site management fees as the house is renovated. After the house is renovated it is sold for a profit.
- The sales proceeds are shared pro rata until the **investor** and the **contractor** each receive their initial investment; which for the investor includes all of the building supplies, labor cost and other site management fees it paid during the renovation.
- The **investor** then gets a portion of the profits (preferred return) before the **contractor** receives any profit. If the profit does not exceed the preferred return the **contractor** does not get any profit.
- Assuming the profit exceeds the preferred return, the **contractor** then receives the next dollars of profit (catch up) until the ratio of the profit has been shared 80% to the **investor** and 20% to the **contractor**.
- Once the **investor** and the **contractor** receive all of the payments as noted above THEN the **investor** and the **contractor** will split any additional remaining profit as negotiated (generally 80/20 split). This is known as general partner ownership interest (or carried interest).



Typical Private Equity Fund

FIGURE 1
A Typical Private Equity Fund



What is General Partner Ownership Interest (a.k.a. Carried Interest)?

Carried Interest - is the amount the General Partner (Investment Manager) retains as an ownership or capital interest in the investment profits of a partnership. Generally, general partners retain 20% of the investment profits in a limited liability partnership while the limited partners receive the other 80%. Carried interest is only earned by the general partner after the limited partners receive 100% of the capital they have contributed to the partnership, including the cost of investments, fees and partnership expenses plus a preferred return, usually 8%, on the contributed capital. This General Partner ownership interest may be based on each individual investment as it is realized or the partnership as a whole.

What does carried interest represent? Two views of what carried interest are:

1. A general partner's profit share on the sale of a capital asset (capital gain); or
2. A performance fee for the manager

The first looks more to the legal form of the arrangement. The second more to the perceived substance of the arrangement.

No uniform consensus exists today.

How Do Public Pension Funds Report Investment Expenses

- Three examples
 - Note the significant differences
- Types of fees
 - Readily separable – fees directly paid
 - Not readily separable – fees netted from investment income
- GASB Requirement
 - Under GASB statement No. 25, paragraph 29, footnote 12, plans are not required to include in the reported amount of investment expense those investment related costs that are not readily separable from investment income (where the income is reported net of related expenses)
- Common Practice is to NOT disclose certain investment-related costs and offsets.
Why?
 - Financial statements become less comparable with other plans
 - Cost – it is much more costly to break these fees out than to just report a net number
- Impact on the bottom line
 - None – Net investment income in dollars does not change, the Statement of Changes does not change, performance in dollars does not change

Statement of Changes in Fiduciary Net Position (Pension Fund)

Illustrative Example of Recording Only Readily Separable Expenses in FY 2017

Amounts in thousands	As Reported	Adjustment	Adjusted Amounts
Investment income:			
From investing activities			
Total investment activity income	5,457,998	(405,773)	5,052,225
Investment Expenses	<u>(474,441)</u>	<u>405,773</u>	<u>(68,668)</u>
Net income from investing activities	4,983,557	-	4,983,557
Net income from securities lending activities	<u>11,805</u>	-	<u>11,805</u>
Total net investment income	<u>4,995,362</u>	-	<u>4,995,362</u>

Assumptions:

- All base fees from private credit, private equity, absolute return, and risk parity are not readily separable (they're not)
- All performance fees for private credit, absolute return, and risk parity are not readily separable (again, they're not)
 - The base fees are invoiced via capital calls or net distribution notices, however, carried interest are paid out of the funds, not directly invoiced
 - PSERS' professionals manually break these costs out to verify the accuracy of them

Observations:

- Gross investment income (total investment activity income) and investment expenses both decreased
- Total net investment income is unchanged

Issue is it will only be a reclassification within the financial statements

- **No impact on the actual net of fee earnings**

Statement of Changes in Fiduciary Net Position (Pension Fund)

Illustrative Example of Recording Ownership Interest Payments in FY 2017

Amounts in thousands	As Reported	Adjustment	Adjusted Amounts
Investment income:			
From investing activities			
Total investment activity income	5,457,998	800,000	6,257,998
Investment Expenses	<u>(474,441)</u>	<u>(800,000)</u>	<u>(1,274,441)</u>
Net income from investing activities	4,983,557	-	4,983,557
Net income from securities lending activities	<u>11,805</u>	-	<u>11,805</u>
Total net investment income	<u>4,995,362</u>	-	<u>4,995,362</u>

Assumptions:

- Partners earned \$700 million in ownership interest payments (carry)
- Partnerships had \$100 million in other operating expenses

Observations:

- Gross investment income (total investment activity income) and investment expenses both increased
- Total net investment income is unchanged

Issue is it will only be a reclassification within the financial statements

- **No impact on the actual net of fee earnings**

Irony of issue: The better the performance, the higher the investment expenses and chance of public confusion in this model

- **Every dollar made generates 80 cents for investor (PSERS) and 20 cents for general partner**
 - **Excellent alignment of interest**

Carried Interest Analysis – Inception to Date as of 12/31/17

**Analysis of Carry and Total Fee, Expense, and Carry Load
Private Markets, Private Real Estate and Private Credit
Since Inception of Program (ending December 31, 2017)
Dollar Amounts in Millions**

	Program Inception Date	May 1985 Private Markets	Dec 1980 Private Real Estate	Oct 2007 Private Credit	Total
Net Asset Value at December 31, 2017	\$	7,642	\$ 5,710	\$ 4,819	\$ 18,171
Plus: Distributions	\$	32,191	\$ 24,092	\$ 5,403	\$ 61,686
Less: Contributed Capital (1)	\$	(26,447)	\$ (21,137)	\$ (8,035)	\$ (55,619)
Net Income to PSERS (after all fees, other expenses, and carried interest)	\$	13,386	\$ 8,665	\$ 2,187	\$ 24,238
Plus: Carried Interest	\$	3,223	\$ 1,584	\$ 363	\$ 5,170
Income gross of carried interest	\$	16,609	\$ 10,249	\$ 2,550	\$ 29,408
Carry as a % of Income gross of carried interest		19.41%	15.45%	14.24%	17.58%
Net Multiple on Contributed Capital		1.51	1.41	1.27	1.44
Net Management Fees	\$	2,146	\$ 1,085	\$ 328	\$ 3,559
Other Fund Level Expenses	\$	466	\$ 260	\$ 149	\$ 875
Total Net Management Fees and Other Fund Level Expenses	\$	2,612	\$ 1,345	\$ 477	\$ 4,434

(1) Includes Net Management Fees and Other Fund Level Expenses

Direct Alpha and Kaplan-Schoar Public Market Equivalent (PME) Analysis

As of December 31, 2017

Portfolio	Inception Date	Benchmark	Direct Alpha	Kaplan-Schoar
Private Markets ¹	Jan 1987	Dow-Jones Wilshire 5000	2.80	1.09
Private Markets ¹	May 1985	Russell 3000 Total Return	2.71	1.09
Private Markets ¹	May 1985	S&P 500 Total Return	3.05	1.10
Private Markets ¹	May 1985	Russell 2000 Total Return	1.45	1.05
Private Markets ¹	Jun 1997	Russell 3000 70% / MSCI ACWI IMI ex US 30%	3.38	1.11
Private Real Estate ²	Dec 1980	FTSE NAREIT Equity REIT Total Return	(2.52)	0.89
Private Credit ³	Oct 2007	Bloomberg Barclays High Yield Bond	(0.76)	0.98
Private Credit ³	Oct 2007	S&P LSTA/Leveraged Loan	2.50	1.07

The Direct Alpha PME is an advanced method to derive the precise rate of excess return between the cash flows of illiquid assets and the time series of returns of a reference benchmark.

The Kaplan-Schoar PME method calculates the future value of all cash flows, using a public benchmark and then finds the wealth multiple of the PE portfolio vs. the Public benchmark investment.

¹ Private Markets include Private Equity, Private Equity Co-Investments, Special Situations, and Venture Capital.

² Private Real Estate includes Real Estate funds, Direct Real Estate, REITs, Private Placement, Infrastructure, and Real Estate Co-Investments.

³ Private Credit includes Private Credit funds and Private Credit Co-Investments.

Carried Interest Analysis – Calendar Year 2017

Analysis of Carry and Total Fee, Expense, and Carry Load Private Markets, Private Real Estate, and Private Credit Calendar Year 2017

Dollar Amounts in Millions

	Private Markets	Private Real Estate	Private Credit	Total
Net Asset Value at December 31, 2017	\$ 7,642	\$ 5,710	\$ 4,819	\$ 18,171
Net Asset Value at December 31, 2016	\$ 7,789	\$ 6,042	\$ 4,159	\$ 17,990
Change in Net Asset Value for the Year	\$ (147)	\$ (332)	\$ 660	\$ 181
Plus: Distributions	\$ 2,809	\$ 1,568	\$ 813	\$ 5,190
Less: Contributed Capital (1)	\$ (1,316)	\$ (585)	\$ (1,039)	\$ (2,940)
Net Income to PSERS (after all fees, other expenses, and carried interest)	\$ 1,346	\$ 651	\$ 434	\$ 2,431
Plus: Carried Interest	\$ 378	\$ 202	\$ 89	\$ 669
Income gross of carried interest	\$ 1,724	\$ 853	\$ 523	\$ 3,100
Carry as a % of Income gross of carried interest	21.93%	23.68%	17.00%	21.58%
Net Multiple on Contributed Capital	2.02	2.11	1.42	1.83
Net Management Fees	\$ 112	\$ 54	\$ 58	\$ 224
Other Fund Level Expenses	\$ 46	\$ 16	\$ 23	\$ 85
Total Net Management Fees and Other Fund Level Expenses	\$ 158	\$ 70	\$ 81	\$ 309

Carried Interest Analysis – Calendar Year 2016

**Analysis of Carry and Total Fee, Expense, and Carry Load
Private Markets, Private Real Estate, and Private Credit
Calendar Year 2016
Dollar Amounts in Millions**

	Private Markets	Private Real Estate	Private Credit	Total
Net Asset Value at December 31, 2016	\$ 7,789	\$ 6,042	\$ 4,159	\$ 17,990
Net Asset Value at December 31, 2015	\$ 7,712	\$ 5,735	\$ 3,241	\$ 16,688
Change in Net Asset Value for the Year	\$ 77	\$ 307	\$ 918	\$ 1,302
Plus: Distributions	\$ 1,935	\$ 1,255	\$ 546	\$ 3,736
Less: Contributed Capital (1)	\$ (1,152)	\$ (1,033)	\$ (1,047)	\$ (3,232)
Net Income to PSERS (after all fees, other expenses, and carried interest)	\$ 860	\$ 529	\$ 417	\$ 1,806
Plus: Carried Interest	\$ 294	\$ 118	\$ 73	\$ 485
Income gross of carried interest	\$ 1,154	\$ 647	\$ 490	\$ 2,291
Carry as a % of Income gross of carried interest	25.48%	18.24%	14.89%	21.17%
Net Multiple on Contributed Capital	1.75	1.51	1.40	1.56
Net Management Fees	\$ 122	\$ 55	\$ 50	\$ 227
Other Fund Level Expenses	\$ 38	\$ 17	\$ 24	\$ 79
Total Net Management Fees and Other Fund Level Expenses	<u>\$ 160</u>	<u>\$ 72</u>	<u>\$ 74</u>	<u>\$ 306</u>

Private Markets, Private Credit, Private RE Management Fees, Carried Interest & Other Expenses

Presentation Methodology

- PSERS used a best efforts approach to gathering the data necessary for this presentation.
- PSERS canvassed our active funds for Carried Interest, Mgt Fee Offsets and Other Fund Expenses detail by fund. These amounts have not been tracked separately for financial statement presentation.
- PSERS added performance fees to Carried Interest estimates for Private Debt funds structured as “evergreen funds”. These fees are separately accounted for and disclosed within the CAFR. We included these fees in the analysis for comparative purposes.
- PSERS also did not have any Carried Interest, Other Fund Expenses or Mgt Fee detail by fund for liquidated funds included in Inception to Date as of December 31, 2017 amounts presented. The Mgt Fees for Private Market liquidated funds were not available due to document retention policies and/or the fact that funds were no longer in existence. Therefore, good faith estimates were used to calculate Private Markets, Private Credit, and Private Real Estate funds as detailed below:
 - Liquidated Private Market, Private Credit and Private Real Estate fund’s carried interest was estimated by applying 25% to the combined Net Cash / Net Asset Value gain for those funds with an IRR of 8% or higher since inception.
 - Liquidated Private Real Estate fund’s Mgt Fees were provided by Courtland Advisors via their internal records.
 - Liquidated Private Market and Private Credit funds’ Mgt Fees were estimated by applying the Mgt Fee rate on record to the Average Quarterly Commitment over PSERS first 16 quarters PSERS invested in those funds. For the remaining quarters PSERS invested in these funds, the Mgt Fee rate on record was applied to the Average Quarterly Adjusted Net Asset Value divided by each fund’s Multiple of Cost, to approximate average invested capital.

Note: It took more than 500 staff hours from PSERS, Hamilton Lane and Courtland Partners, a StepStone Company to provide this analysis.

Private Markets, Private Credit, Private RE Management Fees, Carried Interest & Other Expenses

(Dollars in Millions)

A - B = C + D = E F G F-G=H G/F

2016 Calendar Year	Mgt Fees	Offsets	Net Mgt Fees	Other Fund Exp ²	Total Direct Exp. of Managing Partnership	Total Dollars Earned Incl. Carried Interest	Carried Interest ¹	Net Dollars Earned to PSERS	Carry as % of Gross
Private Markets	\$ 141	\$ (19)	\$ 122	\$ 38	\$ 150	\$ 1,154	\$ 294	\$ 860	25.48%
Private Credit	51	(1)	50	24	74	490	73	417	14.89%
Private Real Estate	60	(5)	55	17	72	647	118	529	18.24%
Total	\$ 252	\$ (25)	\$ 227	\$ 79	\$ 296	\$ 2,291	\$ 485	\$ 1,806	21.17%
2017 Calendar Year	Mgt Fees	Offsets	Net Mgt Fees	Other Fund Exp ²	Total Direct Exp. of Managing Partnership	Total Dollars Earned Incl. Carried Interest	Carried Interest ¹	Net Dollars Earned to PSERS	Carry as % of Gross
Private Markets	\$ 138	\$ (26)	\$ 112	\$ 47	\$ 159	\$ 1,724	\$ 378	\$ 1,346	21.93%
Private Credit	59	(2)	58	23	81	523	89	434	17.00%
Private Real Estate	57	(3)	54	16	70	853	202	651	23.68%
Total	\$ 254	\$ (31)	\$ 224	\$ 86	\$ 310	\$3,100	\$ 669	\$ 2,431	21.58%
1980 - 2017 (Inception to Date as of 12/31/17)	Mgt Fees	Offsets	Net Mgt Fees	Other Fund Exp ²	Total Direct Exp. of Managing Partnership	Total Dollars Earned Incl. Carried Interest	Carried Interest ¹	Net Dollars Earned to PSERS	Carry as % of Gross
Private Markets	\$ 2,359	\$ (214)	\$ 2,145	\$ 466	\$ 2,611	\$ 19,221	\$ 3,223	\$ 13,387	19.41%
Private Credit	334	(6)	328	149	477	3,028	364	2,187	14.24%
Private Real Estate	Not Collected	Not Collected	1,085	260	1,345	11,594	1,583	8,666	15.45%
Total			\$ 3,558	\$ 875	\$ 4,433	\$ 33,842	\$ 5,170	\$ 24,239	17.58%

Private Markets, Private Debt, Private RE Management Fees, Carried Interest & Other Expenses

Footnotes to schedule

¹ Carried interest includes carried interest paid and accrued, offset by clawbacks. Carried interest for all active funds and for all periods presented were verified for reasonableness by applying a carry of 20% to cash / Net Asset Value gains for those funds with an Internal Rate of Return in excess of 6% and inquiring about outliers for additional documentation and substantiation.

² Other fund level expenses are partnership expenses per the Limited Partnership Agreement and are reimbursed to General Partner for services rendered and in some cases offset against Mgt Fees.



COMMONWEALTH OF PENNSYLVANIA
PUBLIC SCHOOL EMPLOYEES' RETIREMENT SYSTEM

General Partner Ownership Interest (a.k.a. Carried Interest)

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October 12, 2018