



# School Employees Retirement System of Ohio

## QUARTERLY INVESTMENTS PERFORMANCE REPORT

For Quarter End Date: 12/31/2023

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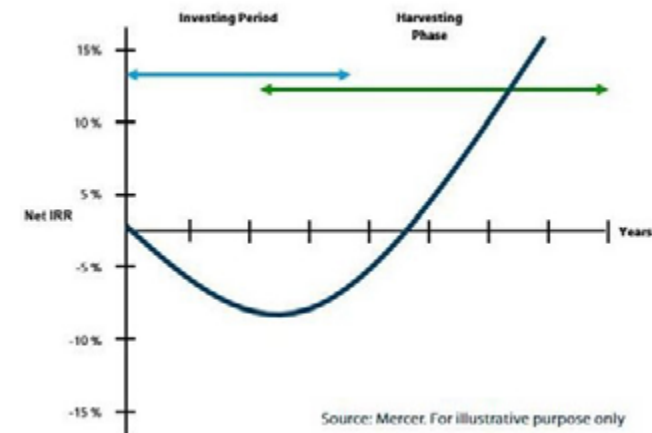
SERS investment strategic goals continue to focus on value added performance, risk management, cost effectiveness and maintenance of an investment program that meets or exceeds investment objectives over the long-term. In addition, SERS strives to provide clear and transparent reporting to stakeholders and interested parties. On a quarterly basis, SERS will post reporting to our website that provides total fund and asset class net of fee time-weighted returns along with details of the alternative investments within the SERS investment portfolio. It is important to note these reports are net of all fees.

## Time-Weighted Returns (TWR) versus Money-Weighted Returns (IRR)

- Traditional asset classes like Public Equities and Public Fixed Income have traditionally utilized TWRs, while alternative asset classes like Private Equity and Real Assets have traditionally utilized IRRs.
  - Traditional asset classes utilize TWRs because the calculation attempts to reduce, or outright remove, the impact of cash flows on investment returns. The logic behind this is that traditional asset class investment managers don't typically control the timing or size of the cash flows coming into, or out of, their accounts. Therefore, in order to compare all investment managers within a given asset class on the same footing, the TWR reduces or removes the impact of any cash flows on investment performance and produces a figure more indicative of the investment manager's skill. For plans like SERS, TWRs are calculated on a monthly basis and geometrically linked together to produce longer period returns. TWRs are typically stated in annualized terms for periods equal to, or greater than, one year.
  - Alternative asset classes utilize IRRs because the calculation specifically was designed to take into account both the size and the timing of cash flows. The logic behind this is that alternative investment managers are very much in control of not only when they call (distribute) capital from (to) investors, but how much capital they will call (distribute). IRRs can be calculated over shorter time periods, such as quarterly or over a one year time period, but are generally calculated and stated on a "since inception" basis.
- Based on the differences in calculation methodologies between TWR and IRR, the two return types cannot be combined together to produce investment returns at a total plan level. One methodology, therefore, must be chosen to calculate investment returns across each asset class, and eventually at the total plan level. SERS, and most other pension funds, utilize TWRs in investment performance reports at the asset class and total plan level. While TWRs are utilized at the asset class and total plan level for reporting, SERS staff also utilize IRRs in their analysis of alternative investment managers.

## Finer points of Money-Weighted Returns (IRR) and the J-Curve

- IRRs are inherently annualized
- IRRs, unlike TWRs, place greater weight on periods when the portfolio of a given investment is largest
- IRRs for alternative investment managers experience something known as the "J-Curve." At a high level, the J-Curve will cause most alternative investment managers to produce IRRs in early years that are negative. This is caused by a couple of factors:
  - Early calls of capital in alternative assets typically are weighted towards fee collection by the general partner, which creates a natural drag on performance
  - Valuation of assets in alternative asset accounts early in the life of the fund may be more difficult to ascertain, which can create a drag on performance
  - Early in the life of alternative assets (aka the "Investment Period"), the vast majority of cash flows are outflows. Not until later (aka the "Harvesting Period") in the life of the fund are investments liquidated and cash flows returned to the limited partners.





# TOTAL FUND *(continued)*



## FUND SUMMARY BY ASSET CLASS

Report ID: IPM0005

Reporting Currency: USD

### TOTAL NET OF FEES

12/31/2023

Account Name Benchmark Name	Market Value	Month	YTD	3 Months	Fiscal YTD	Annualized					ITD
						1 Year	3 Years	5 Years	10 Years	20 Years	
<b>Total Fund</b>	<b>18,231,284,189.45</b>	<b>2.58</b>	<b>9.89</b>	<b>5.28</b>	<b>3.94</b>	<b>9.89</b>	<b>6.71</b>	<b>9.82</b>	<b>7.87</b>	<b>7.13</b>	<b>7.82</b>
<i>OSERS Policy BM</i>		2.36	10.00	5.56	3.50	10.00	5.22	8.64	7.02	6.95	7.76
<b>Excess Return</b>		<b>0.21</b>	<b>-0.11</b>	<b>-0.28</b>	<b>0.44</b>	<b>-0.11</b>	<b>1.49</b>	<b>1.18</b>	<b>0.84</b>	<b>0.19</b>	<b>0.06</b>
<b>Global Equities</b>	<b>7,597,849,133.51</b>	<b>4.72</b>	<b>20.50</b>	<b>10.55</b>	<b>7.05</b>	<b>20.50</b>	<b>5.36</b>	<b>11.99</b>	<b>8.10</b>	<b>7.69</b>	<b>7.84</b>
<i>Custom Gbl Equities BM</i>		4.80	22.20	11.03	7.26	22.20	5.50	11.40	7.80	7.43	7.56
<b>Excess Return</b>		<b>-0.08</b>	<b>-1.70</b>	<b>-0.49</b>	<b>-0.20</b>	<b>-1.70</b>	<b>-0.14</b>	<b>0.60</b>	<b>0.30</b>	<b>0.26</b>	<b>0.28</b>
<b>Global Fixed Income</b>	<b>2,509,762,928.95</b>	<b>3.82</b>	<b>7.10</b>	<b>6.85</b>	<b>4.08</b>	<b>7.10</b>	<b>-2.40</b>	<b>2.40</b>	<b>2.58</b>	<b>4.08</b>	<b>5.30</b>
<i>Bloomberg U.S. Aggregate Bond Index</i>		3.83	5.53	6.82	3.37	5.53	-3.31	1.10	1.81	3.17	4.65
<b>Excess Return</b>		<b>0.00</b>	<b>1.57</b>	<b>0.04</b>	<b>0.71</b>	<b>1.57</b>	<b>0.91</b>	<b>1.29</b>	<b>0.77</b>	<b>0.91</b>	<b>0.65</b>
<b>Global Private Credit</b>	<b>1,140,689,588.81</b>	<b>1.33</b>	<b>10.57</b>	<b>2.89</b>	<b>5.43</b>	<b>10.57</b>	<b>10.08</b>				<b>10.92</b>
<i>Custom Private Credit Inv BM</i>		0.80	9.60	2.44	4.82	9.60	6.74				6.46
<b>Excess Return</b>		<b>0.53</b>	<b>0.97</b>	<b>0.45</b>	<b>0.61</b>	<b>0.97</b>	<b>3.34</b>				<b>4.46</b>
<b>Global Private Equity</b>	<b>2,321,140,691.26</b>	<b>0.71</b>	<b>8.12</b>	<b>1.66</b>	<b>3.60</b>	<b>8.12</b>	<b>19.86</b>	<b>17.59</b>	<b>17.64</b>	<b>13.54</b>	<b>13.26</b>
<i>Custom Gbl Private Equity BM</i>		-0.58	3.77	-0.58	0.89	3.77	15.06	13.70	13.30	11.94	12.73
<b>Excess Return</b>		<b>1.29</b>	<b>4.36</b>	<b>2.24</b>	<b>2.71</b>	<b>4.36</b>	<b>4.80</b>	<b>3.89</b>	<b>4.34</b>	<b>1.60</b>	<b>0.53</b>
<b>Global Real Assets</b>	<b>3,540,088,952.43</b>	<b>-0.07</b>	<b>-4.94</b>	<b>-0.63</b>	<b>-1.71</b>	<b>-4.94</b>	<b>9.22</b>	<b>7.81</b>	<b>9.30</b>	<b>6.90</b>	<b>7.53</b>
<i>Custom Gbl Real Assets BM</i>		-1.37	-8.39	-1.37	-3.32	-8.39	6.04	5.26	7.40	8.15	8.90
<b>Excess Return</b>		<b>1.29</b>	<b>3.46</b>	<b>0.73</b>	<b>1.60</b>	<b>3.46</b>	<b>3.18</b>	<b>2.55</b>	<b>1.91</b>	<b>-1.24</b>	<b>-1.37</b>
<b>Global Real Estate</b>	<b>2,354,335,848.86</b>	<b>-0.74</b>	<b>-10.20</b>	<b>-1.78</b>	<b>-3.87</b>	<b>-10.20</b>	<b>8.82</b>	<b>7.24</b>	<b>8.85</b>	<b>6.68</b>	<b>7.38</b>
<i>NCREIF Property 1Q in Arrears M^</i>		-0.46	-8.39	-1.37	-3.32	-8.39	6.04	5.26	7.40	8.03	8.72
<b>Excess Return</b>		<b>-0.28</b>	<b>-1.81</b>	<b>-0.41</b>	<b>-0.55</b>	<b>-1.81</b>	<b>2.78</b>	<b>1.97</b>	<b>1.46</b>	<b>-1.35</b>	<b>-1.34</b>
<b>Global Infrastructure</b>	<b>1,185,753,103.57</b>	<b>1.29</b>	<b>8.47</b>	<b>1.75</b>	<b>2.95</b>	<b>8.47</b>	<b>9.51</b>	<b>9.23</b>			<b>10.46</b>
<i>RA Private Infrastructure Bmk</i>		-0.46	-8.39	-1.37	-3.32	-8.39	6.04	5.26			6.39
<b>Excess Return</b>		<b>1.75</b>	<b>16.87</b>	<b>3.12</b>	<b>6.27</b>	<b>16.87</b>	<b>3.46</b>	<b>3.97</b>			<b>4.07</b>
<b>Opportunistic &amp; Tactical</b>	<b>569,924,712.47</b>	<b>1.29</b>	<b>7.82</b>	<b>3.06</b>	<b>3.86</b>	<b>7.82</b>	<b>9.17</b>	<b>6.74</b>	<b>6.59</b>		<b>6.88</b>
<i>Opportunistic &amp; Tactical BM</i>		3.93	7.53	7.21	4.35	7.53	-1.31	2.30	3.85		4.41
<b>Excess Return</b>		<b>-2.64</b>	<b>0.29</b>	<b>-4.15</b>	<b>-0.49</b>	<b>0.29</b>	<b>10.48</b>	<b>4.44</b>	<b>2.74</b>		<b>2.47</b>
<b>Cash Equivalents</b>	<b>551,828,182.02</b>	<b>-1.93</b>	<b>-0.06</b>	<b>-5.12</b>	<b>-2.28</b>	<b>-0.06</b>	<b>5.60</b>	<b>3.77</b>	<b>2.43</b>	<b>2.25</b>	<b>2.17</b>
<i>FTSE 30 Day Treasury Bill</i>		0.46	5.13	1.38	2.75	5.13	2.19	1.84	1.21	1.35	1.34
<b>Excess Return</b>		<b>-2.39</b>	<b>-5.18</b>	<b>-6.50</b>	<b>-5.03</b>	<b>-5.18</b>	<b>3.41</b>	<b>1.92</b>	<b>1.22</b>	<b>0.90</b>	<b>0.83</b>
<b>Short-Term Cash</b>	<b>494,430,384.89</b>	<b>0.45</b>	<b>5.04</b>	<b>1.35</b>	<b>2.67</b>	<b>5.04</b>	<b>2.19</b>	<b>1.88</b>	<b>1.30</b>	<b>1.69</b>	<b>3.82</b>
<i>FTSE 30 Day Treasury Bill</i>		0.46	5.13	1.38	2.75	5.13	2.19	1.84	1.21	1.35	3.12
<b>Excess Return</b>		<b>-0.01</b>	<b>-0.08</b>	<b>-0.03</b>	<b>-0.08</b>	<b>-0.08</b>	<b>0.00</b>	<b>0.03</b>	<b>0.10</b>	<b>0.33</b>	<b>0.70</b>



# OPPORTUNISTIC & TACTICAL INVESTMENTS

## IRR and Performance Multiples

(Inception to Date | Roll Forward | Base)

End Date: 12/31/2023

All Portfolio Investments

Base Currency: USD

Investment			Transactions		Valuation	Performance				
Investment	Closing Date	Commitment	Paid-In Capital	Distributions	Valuation	IRR	TVPI	DPI	RVPI	
<b>Ohio SERS Opportunistic &amp; Tactical Investments</b>										
1	Barings Asset-Based Income Fund	3/31/2018	50,000,000	49,913,202	8,546,373	39,075,471	-1.39	0.95	0.17	0.78
2	Barings Global Special Situations Credit 2	6/1/2015	33,139,500	30,154,793	37,515,835	10,601,553	12.21	1.60	1.24	0.35
3	Barings Global Special Situations Credit 3	10/1/2017	49,893,344	49,252,440	33,772,218	32,169,364	7.99	1.34	0.69	0.65
4	Carlyle CLO Partners LP	10/20/2023	50,000,000	0	0	0				
5	GoldenTree Distressed Fund 2014	8/27/2014	50,000,000	48,621,811	65,367,550	15,781,869	12.27	1.67	1.34	0.32
6	GoldenTree Distressed Fund III	11/30/2018	50,000,000	48,990,296	61,533,733	18,920,495	23.22	1.64	1.26	0.39
7	GoldenTree Distressed Fund III - Co-Investment	8/1/2020	40,000,000	18,800,000	12,100,000	16,796,641	22.97	1.54	0.64	0.89
8	GoldenTree Distressed Fund IV	5/1/2021	50,000,000	13,575,000	3,806,867	13,070,303	23.96	1.24	0.28	0.96
9	GoldenTree Structured Products Fund VII	8/25/2020	50,000,000	25,525,000	1,011,076	24,643,264	0.32	1.01	0.04	0.97
10	ICG Europe Fund VIII	8/24/2021	44,332,925	11,565,892	1,072,721	13,625,662	19.04	1.27	0.09	1.18
11	Marathon Healthcare Finance Fund	8/24/2021	50,000,000	14,649,829	3,007,439	13,386,511	7.26	1.12	0.21	0.91
12	PIMCO BRAVO Fund II	5/3/2013	40,000,000	49,513,610	59,647,295	1,519,033	6.37	1.24	1.20	0.03
13	PIMCO BRAVO Fund III	10/3/2016	40,000,000	42,244,662	22,807,697	39,209,388	10.08	1.47	0.54	0.93
14	PIMCO DISCO Fund III	5/31/2020	50,000,000	25,055,767	27,438,661	1,039,207	11.93	1.14	1.10	0.04
15	Strategic Value Capital Solutions Fund II	8/24/2022	50,000,000	12,500,000	0	12,888,318	5.95	1.03	0.00	1.03
16	Strategic Value Special Situations Fund V	3/1/2021	75,000,000	39,290,625	268,169	47,178,276	11.64	1.21	0.01	1.20
<b>Total: Ohio SERS Opportunistic &amp; Tactical Investments</b>			<b>772,365,769</b>	<b>479,652,929</b>	<b>337,895,633</b>	<b>299,905,355</b>	<b>10.15</b>	<b>1.33</b>	<b>0.70</b>	<b>0.63</b>
<b>Total Investments:</b>	<b>16</b>		<b>772,365,769</b>	<b>479,652,929</b>	<b>337,895,633</b>	<b>299,905,355</b>	<b>10.15</b>	<b>1.33</b>	<b>0.70</b>	<b>0.63</b>

<sup>4</sup> Investment is Liquidated as of the Report End Date

indicates that the valuation has been rolled forward.

Missing performance values indicate insufficient cash flows or incalculable results.



# GLOBAL PRIVATE EQUITY

## IRR and Performance Multiples

(Inception to Date | Roll Forward | Base)

End Date: 12/31/2023

All Portfolio Investments

Base Currency: USD

Investment			Transactions		Valuation	Performance				
Investment	Closing Date	Commitment	Paid-In Capital	Distributions	Valuation	IRR	TVPI	DPI	RVPI	
<b>Ohio SERS Private Equity</b>										
1	Altas Partners Holdings II	9/1/2019	50,000,000	46,080,460	2,696,508	55,539,344	9.19	1.26	0.06	1.21
2	Bridgepoint Development Capital II	12/6/2011	33,139,500	42,660,092	79,177,226	-1,503,907	23.03	1.82	1.86	-0.04
3	Bridgepoint Development Capital III	5/13/2016	31,870,000	31,419,323	43,076,901	42,115,749	36.51	2.71	1.37	1.34
4	Bridgepoint Development Capital IV	3/1/2020	50,992,000	24,562,902	0	23,438,543	-4.96	0.95	0.00	0.95
5	Bridgepoint Europe IV	6/30/2008	33,139,500	39,936,142	55,430,472	6,561,242	9.58	1.55	1.39	0.16
6	Bridgepoint Europe V	10/31/2014	33,139,500	33,051,802	46,698,528	16,903,796	17.36	1.92	1.41	0.51
7	Bridgepoint Europe VI	6/22/2018	55,232,500	53,231,570	5,229,503	79,645,943	19.90	1.59	0.10	1.50
8	Bridgepoint Europe VII	12/1/2021	82,847,922	0	0	0				
9	Bridgepoint Europe VII Side-Car Co-investment	12/1/2021	20,712,188	0	0	0				
10	Bridgepoint Growth Fund II	11/17/2022	31,870,000	0	0	0				
11	Bridgepoint Growth Fund II Side-car Co-investment	11/17/2022	8,031,240	0	0	0				
12	Carlyle Asia Partners Growth II	9/15/2021	75,000,000	28,145,737	33,528	22,784,030	-23.81	0.81	0.00	0.81
13	Charterhouse Capital Partners IX	10/27/2008	31,745,801	37,481,708	50,319,793	241,951	9.50	1.35	1.34	0.01
14	Charterhouse Capital Partners X	10/1/2015	44,186,000	40,039,068	51,296,560	21,015,179	19.75	1.81	1.28	0.52
15	Cinven V	5/23/2012	33,139,500	41,401,689	59,538,029	8,642,470	17.32	1.65	1.44	0.21
16	Cinven VI	4/22/2016	30,656,344	36,232,401	31,828,794	33,900,638	18.48	1.81	0.88	0.94
17	Cinven VII	3/1/2019	33,139,500	28,925,013	1,171,305	32,890,828	9.14	1.18	0.04	1.14
18	Cinven VIII	8/24/2022	55,232,500	0	0	0				
19	Coller Capital Neapolitan Co-Invest	11/21/2023	25,000,000	0	0	0				
20	Coller International Partners V	12/1/2006	31,680,000	33,650,934	46,524,111	11,287	7.45	1.38	1.38	0.00
21	Coller International Partners VI	4/14/2011	37,638,367	39,504,605	60,837,376	4,475,363	14.94	1.65	1.54	0.11
22	Coller International Partners VII	6/17/2015	60,000,000	47,029,999	52,876,465	23,715,622	13.64	1.63	1.12	0.50
23	Coller International Partners VIII	7/31/2019	60,000,000	35,811,132	6,768,557	46,712,239	23.60	1.49	0.19	1.30
24	FdG Capital Partners II, L.P.	6/30/2004	21,037,725	27,483,423	32,328,802	550,124	3.41	1.20	1.18	0.02
25	Ford Financial Fund II	5/17/2013	30,000,000	30,026,432	8,453,623	43,462,129	7.77	1.73	0.28	1.45
26	Francisco Partners Agility	9/1/2016	25,000,000	22,251,233	85,486,690	25,972,510	82.70	5.01	3.84	1.17
27	Francisco Partners Agility II	3/31/2020	40,000,000	31,460,000	0	41,705,813	18.26	1.33	0.00	1.33
28	Francisco Partners Agility III	1/1/2022	45,000,000	0	0	0				
29	Francisco Partners III	2/19/2010	40,000,000	38,958,586	114,848,836	16,753,416	23.21	3.38	2.95	0.43
30	Francisco Partners IV	12/1/2014	50,000,000	49,209,385	96,894,382	49,461,696	26.78	2.97	1.97	1.01
31	Francisco Partners IV – Dell Co-Invest	9/1/2016	10,020,036	10,020,036	47,665,038	9,483,400	43.50	5.70	4.76	0.95
32	Francisco Partners V	8/1/2017	50,000,000	48,525,000	20,456,461	75,666,412	19.50	1.98	0.42	1.56
33	Francisco Partners V – Renaissance Co-Invest	2/1/2022	10,150,739	10,176,140	0	10,305,440	0.77	1.01	0.00	1.01
34	Francisco Partners V – LogMeIn Co-Invest	8/1/2020	10,000,000	10,014,241	734,608	7,778,181	-4.97	0.85	0.07	0.78
35	Francisco Partners V – Perforce Co-Invest	9/30/2019	8,117,165	8,233,636	0	13,746,426	13.38	1.67	0.00	1.67
36	Francisco Partners VI	4/17/2020	50,000,000	46,025,000	5,188,834	52,324,804	14.67	1.25	0.11	1.14
37	Francisco Partners VII	1/1/2022	100,000,000	750,000	0	0	-100.00	0.00	0.00	0.00
38	FS Equity Partners IX	9/21/2023	50,000,000	0	0	0				
39	FS Equity Partners V, L.P.	1/1/2004	25,000,000	21,840,133	43,566,247	426,813	15.29	2.01	1.99	0.02
40	FS Equity Partners VI	7/27/2009	40,000,000	51,750,365	133,207,319	12,849,455	23.33	2.82	2.57	0.25
41	FS Equity Partners VII	4/30/2014	50,000,000	56,421,649	36,938,316	53,436,033	9.92	1.60	0.65	0.95

<sup>4</sup> Investment is Liquidated as of the Report End Date

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indicates that the valuation has been rolled forward.

Missing performance values indicate insufficient cash flows or incalculable results.



# GLOBAL PRIVATE EQUITY *(continued)*

## IRR and Performance Multiples

(Inception to Date | Roll Forward | Base)

End Date: 12/31/2023

All Portfolio Investments

Base Currency: USD

Investment			Transactions		Valuation	Performance				
Investment	Closing Date	Commitment	Paid-In Capital	Distributions	Valuation	IRR	TVPI	DPI	RVPI	
<b>Ohio SERS Private Equity</b>										
42	FS Equity Partners VII - CRH Co-Invest	3/1/2019	7,000,000	7,000,000	7,000,000	17,510,052	40.87	3.50	1.00	2.50
43	FS Equity Partners VIII	4/25/2019	50,000,000	42,727,328	2,132,016	64,565,480	18.32	1.56	0.05	1.51
44	FS Equity Partners VIII - NearU Co-Invest	8/24/2022	10,000,000	10,030,907	0	10,000,000	-0.24	1.00	0.00	1.00
45	FS Equity Partners VIII - USME Co-Invest	11/1/2020	8,000,000	8,006,753	2,453,988	12,658,869	27.07	1.89	0.31	1.58
46	FS Equity Partners VIII - White Water Express Co-Invest	1/1/2022	10,000,000	10,021,125	0	11,396,003	6.94	1.14	0.00	1.14
47	Graham Partners III	6/30/2008	40,000,000	43,160,679	90,172,279	732,514	22.64	2.11	2.09	0.02
48	Graham Partners IV	4/1/2016	15,000,000	15,046,929	35,686,092	1,521,593	32.87	2.47	2.37	0.10
49	Graham Partners V	6/1/2019	50,000,000	47,821,606	3,658,906	65,080,692	24.09	1.44	0.08	1.36
50	Graham Partners VI	11/21/2023	50,000,000	0	0	0				
51	Graham Partners VI Side-Car Co-Invest	11/21/2023	25,000,000	0	0	0				
52	Green Equity Investors CF	3/1/2021	23,329,933	21,478,995	12,464,363	16,693,430	17.57	1.36	0.58	0.78
53	Green Equity Investors IX	12/1/2021	50,000,000	480,814	0	758,366	84.21	1.58	0.00	1.58
54	Green Equity Investors V	1/30/2007	50,000,000	55,367,838	127,809,901	578,130	18.43	2.32	2.31	0.01
55	Green Equity Investors VI	9/28/2011	50,000,000	65,453,286	69,167,852	50,702,633	13.10	1.83	1.06	0.77
56	Green Equity Investors VI - ASM Co-Invest	10/1/2014	10,000,000	10,115,000	0	2,848,985	-12.98	0.28	0.00	0.28
57	Green Equity Investors VII	2/1/2016	50,000,000	54,631,146	54,042,040	52,959,105	19.93	1.96	0.99	0.97
58	Green Equity Investors VIII	10/1/2019	50,000,000	44,742,624	672,101	52,701,163	8.02	1.19	0.02	1.18
59	GS Distressed Opportunities III	8/31/2006	75,000,000	73,587,875	83,604,121	1,338,864	2.89	1.15	1.14	0.02
60	J.P. Morgan European Corp. Finance III	1/31/2006	40,000,000	42,451,402	59,293,998	1,172,854	6.13	1.42	1.40	0.03
61	J.P. Morgan European Corp. Finance IV	6/30/2008	25,000,000	24,554,300	36,909,657	3,353,675	10.81	1.64	1.50	0.14
62	J.P. Morgan Venture Capital III	12/31/2005	30,000,000	34,248,545	47,420,550	9,038,600	7.27	1.65	1.38	0.26
63	J.P. Morgan Venture Capital IV	6/30/2008	50,000,000	62,406,479	112,582,522	45,059,932	16.18	2.53	1.80	0.72
64	Jade Equity Investors	8/1/2019	30,000,000	26,953,447	5,061,265	30,739,959	20.12	1.33	0.19	1.14
65	Jade Equity Investors II	12/1/2021	50,000,000	0	0	0				
66	KKR Ascendant	3/1/2023	50,000,000	15,000,000	0	15,000,000	0.00	1.00	0.00	1.00
67	KKR Potter Coinvest	11/21/2023	15,000,000	0	0	0				
68	Kohlberg Investors IX	12/1/2019	50,000,000	44,360,524	1,627,727	61,430,575	23.04	1.42	0.04	1.38
69	Kohlberg Investors VII CV	9/30/2021	16,876,522	16,852,525	433,543	27,915,199	27.26	1.68	0.03	1.66
70	Kohlberg Investors VIII	7/1/2016	40,000,000	45,014,693	36,439,416	50,015,026	21.28	1.92	0.81	1.11
71	Kohlberg Investors X	11/17/2022	50,000,000	0	0	0				
72	Kohlberg Investors X Side Car	11/17/2022	25,000,000	10,145,602	0	10,000,000	-1.76	0.99	0.00	0.99
73	Levine Leichtman Capital Partners V	4/30/2013	50,000,000	76,010,389	140,248,521	-650,807	16.87	1.84	1.85	-0.01
74	Levine Leichtman Capital Partners VI	4/1/2017	40,000,000	52,274,950	19,369,591	58,113,361	15.70	1.48	0.37	1.11
75	Levine Leichtman Lower Middle Market Fund III	2/1/2021	50,000,000	29,371,685	5,525,453	24,764,637	3.87	1.03	0.19	0.84
76	Levine Leichtman Lower Middle Market Fund III - IPM Co-Invest	9/15/2021	8,000,000	8,000,000	397,673	9,914,142	13.11	1.29	0.05	1.24
77	Lightspeed Opportunity Fund II	4/28/2022	50,000,000	26,500,000	0	26,267,061	-1.25	0.99	0.00	0.99
78	Mason Wells Buyout Fund IV	10/1/2015	40,000,000	38,778,537	5,827,840	75,491,416	15.06	2.10	0.15	1.95
79	Mason Wells III	3/24/2010	40,000,000	38,071,440	114,967,594	-111,712	20.56	3.02	3.02	0.00
80	Monomoy Capital Partners II	12/30/2010	40,000,000	58,563,272	90,991,095	2,029,315	43.88	1.59	1.55	0.03
81	Monomoy Capital Partners IV	1/1/2021	75,000,000	32,725,094	6,918,339	32,561,433	23.76	1.21	0.21	0.99
82	Monomoy Capital Partners IV - Waupaca Coinvest	12/22/2023	10,000,000	0	0	0				

<sup>4</sup> Investment is Liquidated as of the Report End Date

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indicates that the valuation has been rolled forward.

Missing performance values indicate insufficient cash flows or incalculable results.



# GLOBAL PRIVATE EQUITY *(continued)*

## IRR and Performance Multiples

(Inception to Date | Roll Forward | Base)

End Date: 12/31/2023

All Portfolio Investments

Base Currency: USD

Investment			Transactions		Valuation	Performance					
Investment	Closing Date	Commitment	Paid-In Capital	Distributions	Valuation	IRR	TVPI	DPI	RVPI		
<b>Ohio SERS Private Equity</b>											
83	NGP Natural Resources XI	11/5/2014	50,000,000	51,885,070	53,578,688	30,564,035	↔	10.66	1.62	1.03	0.59
84	NGP Natural Resources XII	8/1/2017	40,000,000	33,318,872	31,393,344	22,521,575	↔	15.27	1.62	0.94	0.68
85	Oaktree Principal Fund V	4/28/2009	40,000,000	40,000,000	43,761,299	4,221,418	↔	3.25	1.20	1.09	0.11
86	Oaktree Special Situations Fund II	8/25/2019	50,000,000	50,000,000	23,289,620	56,555,362	↔	37.06	1.60	0.47	1.13
87	Odyssey Investment Partners IV	6/30/2008	40,000,000	34,567,752	104,118,718	1,011,093	↔	32.80	3.04	3.01	0.03
88	Odyssey Investment Partners V	4/15/2014	45,000,000	46,130,777	34,507,363	24,755,534	↔	4.86	1.28	0.75	0.54
89	Odyssey Investment Partners VI	11/1/2019	60,000,000	49,350,687	1,163,641	56,784,967	↔	7.69	1.17	0.02	1.15
90	Primus Capital Fund IX	2/1/2021	65,000,000	27,142,186	0	24,611,031	↔	-7.41	0.91	0.00	0.91
91	Primus Capital Fund VII	11/1/2012	25,000,000	27,179,325	69,310,907	3,321,420	↔	25.59	2.67	2.55	0.12
92	Primus Capital Fund VIII	8/1/2017	25,000,000	27,570,374	19,058,244	27,319,794	↔	16.08	1.68	0.69	0.99
93	Primus Venture Partners Fund V	7/1/2000	25,000,000	25,725,000	43,111,156	-298,561	↔	10.23	1.66	1.68	-0.01
94	Primus Venture Partners Fund VI	12/31/2007	25,000,000	29,228,264	54,550,434	-313,479	↔	15.18	1.86	1.87	-0.01
95	Quantum Energy Partners V	6/30/2008	50,000,000	51,819,626	77,206,844	732,098	↔	8.80	1.50	1.49	0.01
96	Silver Lake Partners III	3/23/2007	50,000,000	55,186,234	121,449,689	9,427,021	↔	18.55	2.37	2.20	0.17
97	Silver Lake Partners IV	4/11/2013	50,000,000	61,565,328	81,199,131	65,532,275	↔	20.79	2.38	1.32	1.06
98	Silver Lake Partners V	3/1/2017	50,000,000	51,433,010	28,188,991	50,318,742	↔	13.27	1.53	0.55	0.98
99	Silver Lake Partners VII	12/1/2021	100,000,000	0	0	0	↔				
100	Sole Source Capital II	11/1/2020	50,000,000	19,157,363	12,065,184	46,569,396	↔	105.79	3.06	0.63	2.43
101	SPC Partners IV	3/31/2008	30,000,000	32,602,108	65,391,023	3,790,869	↔	16.57	2.12	2.01	0.12
102	SPC Partners V	5/11/2012	40,000,000	43,705,773	46,266,630	14,611,368	↔	6.67	1.39	1.06	0.33
103	SPC Partners VI	9/1/2016	25,000,000	27,158,840	16,539,678	21,279,301	↔	10.03	1.39	0.61	0.78
104	StepStone VC Secondaries Fund V	5/1/2021	75,000,000	45,705,029	0	44,973,919	↔	-1.12	0.98	0.00	0.98
105	StepStone VC Secondaries Fund VI LP	9/21/2023	100,000,000	0	0	0	↔				
106	TPG Rise Climate	6/1/2021	100,000,000	48,370,464	2,483,127	50,410,760	↔	12.52	1.09	0.05	1.04
107	Warburg Pincus Energy	5/30/2014	30,000,000	28,464,658	20,016,961	12,500,269	↔	2.90	1.14	0.70	0.44
108	Warburg Pincus Private Equity XI	5/16/2012	50,000,000	53,375,000	74,195,221	16,759,216	↔	11.65	1.70	1.39	0.31
109	Warburg Pincus Private Equity XII	11/19/2015	65,000,000	65,000,000	75,564,970	53,764,381	↔	16.45	1.99	1.16	0.83
110	Warburg, Pincus Private Equity X, L.P.	11/4/2007	75,000,000	75,000,000	133,396,497	1,374,903	↔	9.50	1.80	1.78	0.02
<b>Total: Ohio SERS Private Equity</b>			<b>4,530,924,480</b>	<b>3,394,907,362</b>	<b>3,623,958,615</b>	<b>2,318,262,221</b>		<b>14.54</b>	<b>1.75</b>	<b>1.07</b>	<b>0.68</b>
<b>Total Investments:</b>	<b>110</b>		<b>4,530,924,480</b>	<b>3,394,907,362</b>	<b>3,623,958,615</b>	<b>2,318,262,221</b>		<b>14.54</b>	<b>1.75</b>	<b>1.07</b>	<b>0.68</b>

<sup>4</sup> Investment is Liquidated as of the Report End Date

↔ indicates that the valuation has been rolled forward.

Missing performance values indicate insufficient cash flows or incalculable results.

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# GLOBAL REAL ASSETS

## IRR and Performance Multiples

(Inception to Date | Roll Forward | Base)

End Date: 12/31/2023

All Portfolio Investments

Base Currency: USD

Investment			Transactions		Valuation	Performance				
Investment	Closing Date	Commitment	Paid-In Capital	Distributions	Valuation	IRR	TVPI	DPI	RVPI	
<b>Ohio SERS Real Estate</b>										
1	Almanac Realty Securities VII	11/25/2014	75,000,000	83,057,875	70,486,542	42,592,373	10.69	1.36	0.85	0.51
2	Almanac Realty Securities VIII	1/1/2018	50,000,000	34,472,543	8,457,391	31,842,715	7.87	1.17	0.25	0.92
3	Almanac Realty V	4/30/2008	49,073,993	55,908,408	81,653,116	69,855	11.40	1.46	1.46	0.00
4	Beacon Capital VI	3/1/2009	37,500,000	38,000,857	58,957,988	180,213	16.49	1.56	1.55	0.00
5	Blackstone Strategic Partners Real Estate VIII	9/21/2023	40,000,000	2,067,916	0	1,381,368	-33.20	0.67	0.00	0.67
6	Brookfield Global Transition Fund	6/1/2021	75,000,000	27,666,020	1,713,265	26,830,858	3.53	1.03	0.06	0.97
7	Brookfield Super-Core Infrastructure Co-Investment Sidecar	4/1/2023	20,000,000	0	0	0				
8	Brookfield Super-Core Infrastructure Partners	6/30/2022	50,000,000	50,222,311	948,588	50,494,939	3.50	1.02	0.02	1.01
9	Carlyle Property Investors	12/31/2020	100,000,000	100,000,000	4,043,593	95,494,481	-0.29	1.00	0.04	0.95
10	Carlyle Realty Partners V, L.P.	11/30/2006	35,132,569	64,409,755	95,691,220	14,950	8.67	1.49	1.49	0.00
11	Carlyle Realty Partners VI	12/28/2010	20,132,055	33,403,867	45,195,372	2,485,570	16.02	1.43	1.35	0.07
12	Carlyle Realty Partners VIII	3/1/2017	50,000,000	43,399,975	38,511,477	24,844,739	22.59	1.46	0.89	0.57
13	CB Richard Ellis Strategic Partners US V - Opportunity	6/23/2008	22,721,359	23,485,851	33,582,742	148,378	5.65	1.44	1.43	0.01
14	CBRE Core Storage Partners Co-Investment	12/21/2022	15,000,000	15,000,000	76,132	14,286,868	-4.25	0.96	0.01	0.95
15	CBRE U.S. Core Partners	1/30/2015	350,000,000	348,871,438	121,672,560	447,941,080	9.23	1.63	0.35	1.28
16	Clarion Lion Industrial Trust	4/1/2005	181,000,000	200,332,280	75,323,979	478,869,315	11.36	2.77	0.38	2.39
17	Clarion Lion Properties Fund	10/1/2003	144,792,823	217,017,226	135,062,628	239,528,046	6.72	1.73	0.62	1.10
18	Clarion LIT Secondary	12/22/2023	2,700,000	2,700,000	0	3,000,000	11.11	1.11	0.00	1.11
19	Clarion LPF Secondary	12/22/2023	3,400,000	3,400,000	0	4,000,000	17.65	1.18	0.00	1.18
20	DigitalBridge Partners II	8/24/2021	50,000,000	55,517,391	10,015,770	49,932,861	6.00	1.08	0.18	0.90
21	DigitalBridge Partners II - GD Towers Co-Invest	8/24/2022	10,000,000	9,443,219	240,567	9,327,337	1.36	1.01	0.03	0.99
22	DigitalBridge Partners II - Vertical Bridge Co-Invest	11/1/2021	10,000,000	10,145,058	517,917	11,210,211	7.84	1.16	0.05	1.10
23	DigitalBridge Strategic Assets Fund I	12/22/2023	50,000,000	0	0	0				
24	Eaglecrest Infrastructure Fund	12/31/2018	70,000,000	70,175,000	1,798,009	72,670,512	2.39	1.06	0.03	1.04
25	GI Partners ETS ELK Grove Village Coinvest	10/20/2023	10,000,000	10,000,000	0	9,727,626	-2.72	0.97	0.00	0.97
26	Global Infrastructure Partners Capital Solutions Fund II	3/31/2020	100,000,000	60,732,471	5,276,986	58,009,916	5.20	1.04	0.09	0.96
27	Global Infrastructure Partners Capital Solutions Fund II Lackawanna Co-Invest	11/21/2023	10,000,000	0	0	0				
28	Global Infrastructure Partners Vantage Coinvest	12/22/2023	10,000,000	10,000,000	0	9,635,943	-3.64	0.96	0.00	0.96
29	Global Transport Income Fund Feeder LLC	6/18/2018	150,000,000	149,749,316	31,191,394	150,303,274	7.30	1.21	0.21	1.00
30	Harrison Stree Infrastructure Fund	5/1/2019	65,000,000	66,500,704	4,515,153	76,487,265	6.72	1.22	0.07	1.15
31	IFC Core Farmland Fund LP	12/21/2022	25,000,000	0	0	0				
32	IFM Global Infrastructure	10/21/2013	364,994,118	379,406,048	92,802,638	629,941,992	11.26	1.90	0.24	1.66
33	InfraBridge Global Infrastructure Fund	8/25/2016	50,000,000	67,071,587	45,044,234	40,907,995	6.32	1.28	0.67	0.61
34	JP Morgan Strategic Property Fund	1/1/1998	119,621,424	118,341,172	233,355,902	77,195,905	8.53	2.62	1.97	0.65
35	Lubert-Adler Laramar Urban Neighborhood Fund	3/23/2016	55,000,000	53,851,518	14,481,702	35,504,482	-1.56	0.93	0.27	0.66
36	Lubert-Adler Real Estate Fund VI	4/29/2011	61,869,563	67,245,644	129,456,690	4,377,217	20.75	1.99	1.93	0.07
37	Lubert-Adler Real Estate Fund VII	3/27/2015	75,000,000	74,374,313	43,702,237	33,658,839	0.73	1.04	0.59	0.45
38	Lubert-Adler Recovery & Enhancement Capital Fund	7/31/2020	100,000,000	86,927,310	6,558,008	87,586,635	6.74	1.08	0.08	1.01
39	Mesa West Core Lending Fund	12/12/2014	75,000,000	75,000,000	57,801,350	43,787,121	5.10	1.35	0.77	0.58
40	Patrizia TransEuropean IV	3/30/2007	27,616,250	33,774,988	38,191,058	227,830	2.00	1.14	1.13	0.01
41	Patrizia TransEuropean V	12/6/2011	27,616,250	32,820,773	43,379,606	232,763	8.07	1.33	1.32	0.01

<sup>1</sup> Investment is Liquidated as of the Report End Date

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indicates that the valuation has been rolled forward.

Missing performance values indicate insufficient cash flows or incalculable results.





# GLOBAL REAL ASSETS *(continued)*

## IRR and Performance Multiples

(Inception to Date | Roll Forward | Base)

End Date: 12/31/2023

All Portfolio Investments

Base Currency: USD

Investment			Transactions		Valuation	Performance				
Investment	Closing Date	Commitment	Paid-In Capital	Distributions	Valuation	IRR	TVPI	DPI	RVPI	
<b>Ohio SERS Real Estate</b>										
42 Patrizia TransEuropean VI	7/1/2015	44,047,162	42,925,765	26,469,100	30,285,419		5.00	1.32	0.62	0.71
43 Pretium Single-Family Rental Fund III	11/1/2021	50,000,000	50,000,000	3,732,634	50,187,144		4.55	1.08	0.07	1.00
44 PRISA	7/1/2004	49,627,184	54,390,225	57,868,090	73,722,695		6.52	2.42	1.06	1.36
45 PRISA II	7/1/2004	75,144,022	146,956,696	109,284,809	174,932,430		5.86	1.93	0.74	1.19
46 PRISA Secondary	12/22/2023	14,968,551	14,268,551	0	16,400,633		14.94	1.15	0.00	1.15
47 RREEF America REIT II	10/1/2004	73,812,238	223,068,293	185,090,036	270,688,402		7.40	2.04	0.83	1.21
48 UBS Trumbull Property Fund	9/27/1996	82,693,884	147,741,758	288,382,576	41,419,182		10.84	2.23	1.95	0.28
49 UBS Trumbull Property Income Fund	3/18/2015	75,000,000	78,598,417	105,720,430	8,654,755		6.62	1.46	1.35	0.11
<b>Total: Ohio SERS Real Estate</b>			<b>3,303,463,445</b>	<b>3,532,442,536</b>	<b>2,306,253,486</b>	<b>3,531,022,132</b>	<b>8.57</b>	<b>1.65</b>	<b>0.65</b>	<b>1.00</b>
<b>Total Investments:</b>	<b>49</b>		<b>3,303,463,445</b>	<b>3,532,442,536</b>	<b>2,306,253,486</b>	<b>3,531,022,132</b>	<b>8.57</b>	<b>1.65</b>	<b>0.65</b>	<b>1.00</b>

<sup>4</sup> Investment is Liquidated as of the Report End Date

indicates that the valuation has been rolled forward.

Missing performance values indicate insufficient cash flows or incalculable results.



# GLOBAL PRIVATE CREDIT

## IRR and Performance Multiples

(Inception to Date | Roll Forward | Base)

End Date: 12/31/2023

All Portfolio Investments

Base Currency: USD

Investment			Transactions		Valuation	Performance				
Investment	Closing Date	Commitment	Paid-In Capital	Distributions	Valuation	IRR	TVPI	DPI	RVPI	
<b>Ohio SERS Global Private Credit</b>										
1	Apollo Origination Partnership	8/19/2020	100,000,000	104,318,789	22,611,116	93,266,642	7.96	1.11	0.22	0.89
2	Arcmont Direct Lending II	6/1/2015	54,487,500	58,389,126	64,984,875	3,950,998	7.23	1.18	1.11	0.07
3	Arcmont Direct Lending III	2/8/2018	61,245,000	70,441,170	35,873,958	44,692,065	6.71	1.14	0.51	0.63
4	Arcmont Direct Lending SMA	3/1/2021	150,000,000	132,040,765	30,517,235	112,488,095	6.59	1.08	0.23	0.85
5	Ares Private Credit Solutions Fund II	10/1/2020	50,000,000	34,384,441	2,320,291	34,932,817	5.52	1.08	0.07	1.02
6	Barings European Private Loan Fund III	4/1/2021	150,000,000	115,070,374	19,149,649	109,683,845	7.50	1.12	0.17	0.95
7	Barings European Private Loan Fund IV	7/1/2023	75,000,000	0	0	0				
8	Carlyle Credit Opportunities Fund II	4/1/2021	100,000,000	102,980,787	25,829,279	90,112,108	8.33	1.13	0.25	0.88
9	Carlyle Credit Opportunities Fund III	1/24/2023	100,000,000	0	0	0				
10	Carlyle Direct Lending Fund IV	5/20/2022	30,000,000	30,000,000	2,406,158	31,636,849	13.53	1.13	0.08	1.05
11	CIFC-LBC SMA Credit Fund	10/24/2022	100,000,000	12,500,000	318,857	12,409,765	4.00	1.02	0.03	0.99
12	Francisco Partners Credit - ZocDoc Co-Invest	3/1/2021	7,008,018	7,107,185	602,690	8,873,880	11.39	1.33	0.08	1.25
13	Francisco Partners Credit Partners Aggregator	3/1/2020	75,000,000	46,200,000	27,577,575	40,073,769	17.58	1.46	0.60	0.87
14	Francisco Partners Credit Partners II	4/1/2021	150,000,000	85,575,000	0	92,442,294	8.89	1.08	0.00	1.08
15	GoldenTree Structures Products Opportunities Fund 2013	2/6/2014	43,248,750	51,849,258	66,919,526	414,387	10.34	1.30	1.29	0.01
16	Highbridge Principal Strategies Special Loan Fund 2016	11/15/2016	60,000,000	54,185,609	46,834,384	21,155,773	7.24	1.25	0.86	0.39
17	Highbridge Principal Strategies Special Loan Fund V	3/1/2020	150,000,000	134,691,436	31,569,281	127,907,675	10.02	1.18	0.23	0.95
18	Highbridge Principal Strategies Special Loan Fund VI	12/21/2022	75,000,000	0	0	0				
19	Invesco Credit Partners Fund II	6/2/2020	50,000,000	42,124,543	5,784,670	48,686,720	18.42	1.29	0.14	1.16
20	Invesco Credit Partners Fund III	5/19/2023	50,000,000	0	0	0				
21	KKR Dislocation Opportunities Fund	5/1/2020	50,000,000	47,294,132	22,544,726	31,631,378	7.74	1.15	0.48	0.67
22	KKR Opportunities Fund II	9/15/2021	75,000,000	20,724,811	1,931,485	19,451,409	4.88	1.03	0.09	0.94
23	LBC Credit Partners IV	8/1/2016	50,000,000	45,285,143	46,720,698	9,371,548	8.29	1.24	1.03	0.21
24	LBC Credit Partners V	3/1/2020	150,000,000	132,783,708	72,703,544	89,021,167	13.93	1.22	0.55	0.67
25	West Street Strategic Solutions Fund I	7/1/2020	125,000,000	74,116,655	11,857,013	72,742,445	6.58	1.14	0.16	0.98
<b>Total: Ohio SERS Global Private Credit</b>			<b>2,080,989,268</b>	<b>1,402,062,933</b>	<b>539,057,010</b>	<b>1,094,945,630</b>	<b>9.25</b>	<b>1.17</b>	<b>0.38</b>	<b>0.78</b>
<b>Total Investments:</b>	<b>25</b>		<b>2,080,989,268</b>	<b>1,402,062,933</b>	<b>539,057,010</b>	<b>1,094,945,630</b>	<b>9.25</b>	<b>1.17</b>	<b>0.38</b>	<b>0.78</b>

<sup>4</sup> Investment is Liquidated as of the Report End Date

➡ indicates that the valuation has been rolled forward.

Missing performance values indicate insufficient cash flows or incalculable results.

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# APPENDIX

## FOOTNOTES:

This reporting comes directly from Burgiss Private I, which is the investment system SERS uses for all alternative investments to track transactions and investment performance results. This reporting relies upon the accuracy and completeness of information (which may or may not be audited by the fund manager) provided to SERS by each fund manager. SERS has

not conducted an independent verification of the information provided nor have we conducted an audit of such information.

Performance of investments with less than three years may not be meaningful due to upfront costs.

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## DEFINITIONS:

### Closing Date:

The date the Fund begins accepting Commitments from Investors.

### Commitment:

The amount of capital that SERS has pledged to contribute to the Fund.

### Distributions:

The amount of capital that SERS has received back from the Fund for the Inception-to-Date.

### DPI – Distributed to Paid In:

The ratio of money distributed to Limited Partners by the Fund, relative to contributions.

(as defined by ILPA <https://ilpa.org/glossary/distributed-to-paid-in-dpi/>)

### IRR – Internal Rate of Return:

The discount rate at which the present value of future cash flows of an investment equals to the cost of the investment. It is determined when the net present value of the cash outflows (the cost of the investment) and the cash inflows (returns on the investment) equal zero, with the discount rate equal to the IRR.

(as defined by ILPA <https://ilpa.org/glossary/internal-rate-of-return-irr/>)

### Paid-In Capital:

The amount of capital that SERS has contributed to the Fund for the Inception-to-Date.

### Rolled-Forward Valuations:

This means that the valuation represented on the report is the most recent Capital Account Statement balance +/- cash flows up through the report end date. All valuations are net of fees.

In this example, a Rolled-Forward Valuation date as of 12/31/23 would include a 9/30/23 Capital Account Statement Valuation +/- cash flows from 10/1/23 through 12/31/23.

### RVPI – Residual Value to Paid In:

The ratio of the current value of all remaining investments within a fund to the total contributions of Limited Partners to date.

(as defined by ILPA <https://ilpa.org/glossary/residual-value-to-paid-in-rvpi/>)

### TVPI – Total Value to Paid In:

The ratio of the current value of remaining investments within a fund, plus the total value of all distributions to date, relative to the total amount of capital paid into the fund to date.

(as defined by ILPA <https://ilpa.org/glossary/total-value-to-paid-in-tvpi/>)