



**County Employees Retirement System
Investment Committee – Regular Meeting
May 25, 2022 at 2:00 PM ET
Live Video Conference/Facebook Live**

AGENDA

- | | |
|--|--|
| 1. Call to Order | Merl Hackbart |
| 2. Opening Statement | Legal Services |
| 3. Roll Call | Sherry Rankin |
| 4. Public Comment | Sherry Rankin |
| 5. Approval of Minutes* -- December 10, 2021
April 22, 2022 | Merl Hackbart |
| 6. Quarterly Performance Report - Wilshire | David Lindberg
Craig Morton
Chris Tessman |
| 7. Investment Office Update | Steven Herbert |
| 8. Preliminary Strategic Plan Discussion | Merl Hackbart |
| 9. ADJOURN | Merl Hackbart |

****Committee Action May Be Taken***

**MINUTES OF MEETING
COUNTY EMPLOYEES RETIREMENT SYSTEM
BOARD OF TRUSTEES INVESTMENT EDUCATION SESSION
DECEMBER 10, 2021 AT 10:00 A.M. ET
VIA LIVE VIDEO TELECONFERENCE**

At the meeting of the County Employees Retirement System Board of Trustees Investment Education Session held on December 10, 2021 the following members were present: Dr. Patricia Carver, George Cheatham, Michael Foster, JT Fulkerson, Dr. Merl Hackbart, Dr. Martin Milkman, William O'Mara, and Jerry Powell. This session was opened for the Kentucky Retirement System Board of Trustees and the following members were present: John Cheshire, Campbell Connell, Joseph Grossman, Lynn Hampton, Prewitt Lane, and Larry Totten. Staff members present were Ed Owens, III, CERS CEO, John Chilton, KRS CEO, David Eager, Michael Board, Steven Herbert, Steve Willer, Vicki Hale, Andrea Freadreacea, Ashley Gabbard, Jared Crawford, Shaun Case, and Phillip Cook.

Dr. Hackbart called the meeting to order.

Ms. Hale read the Legal Opening Statement.

Ms. Rankin took Roll Call.

There being no public comment received, Dr. Hackbart introduced the agenda item *Investment Training*. KPPA Executive Director of the Office of Investments and Chief Investment Officer, Steven Herbert and KPPA Deputy Executive Director of the Office of Investments and Director of Fixed Income and Specialty Credit, Steve Willer, presented the Trustee Educational Session regarding Investments.

A motion was made by Mr. O'Mara and seconded by Mr. Fulkerson to adjourn the meeting. The motion passed unanimously.

Copies of all documents presented are incorporated as part of the Minutes of the Board of Trustees held December 10, 2021 except documents provided during a closed session conducted pursuant to the open meetings act and exempt under the open records act.

CERTIFICATION

I do certify that I was present at this meeting, and I have recorded the above actions of the Trustees on the various items considered by it at this meeting. Further, I certify that all requirements of KRS 61.805-61.850 were met in conjunction with this meeting.

Recording Secretary

I, the Chair of the Board of Trustees of the County Employees Retirement System, do certify that the Minutes of Meeting held on December 10, 2021 were approved on May 25, 2022.

Chair of the Board of Trustees

I have reviewed the Minutes of the December 10, 2021 Board of Trustees Meeting for content, form, and legality.

Executive Director
Office of Legal Services

**MINUTES OF MEETING
COUNTY EMPLOYEES RETIREMENT SYSTEM
SPECIAL CALLED INVESTMENT COMMITTEE MEETING
APRIL 22, 2022, 3:00 P.M., E.T.
VIA LIVE VIDEO TELECONFERENCE**

At the April 22, 2022 County Employees Retirement System' (CERS) Special Called Investment Committee Meeting, the following Committee members were present: Dr. Merl Hackbart (Chair), George Cheatham, II, Dr. Martin Milkman, and Jerry Powell. Staff members present were David Eager, Steven Herbert, Victoria Hale, Rebecca Adkins, Ashley Gabbard, Erin Surratt, Anthony Chiu, Joseph Gilbert, Jared Crawford, Kristen Coffey, Sherry Rankin, Carol Johnson, and Phillip Cook. Also in attendance were CERS CEO, Ed Owens III, KRS CEO John Chilton and CERS Trustee Betty Pendergrass.

Dr. Hackbart called the meeting to order.

Ms. Hale read the opening statement.

Ms. Rankin took Roll Call.

There being no public comment, Dr. Hackbart introduced agenda item *Approval of Minutes – February 16, 2022*. A motion was made by Dr. Milkman and seconded by Mr. Cheatham to approve the minutes as presented. The motion passed unanimously.

Dr. Hackbart introduced agenda item *Pooling Language – Investment Policy Statement*. Dr. Hackbart stated that after the presentation and discussion of unitization and investment pooling, the proposed language has been added to the Investment Policy Statement for consideration by the Committee. Mr. Herbert indicated that the language added to the policy statement comes from the current service provider for our plan accounting, BNY Mellon, as their process has been adopted by the Board. Mr. Herbert reviewed in detail the additional language that has been added to the policy statement. A motion was made by Mr. Powell and seconded by Dr. Milkman to approve the additions to the Investment Policy Statement. Mr. Cheatham questioned if this proposed language was needed to be codified in the Investment Policy Statement to account for the processes that were historically and currently managed. Dr. Hackbart acknowledged this statement. Mr. Cheatham stated that while he supports the addition of this language, he stressed the importance of continuing of monitoring this issue going forward, especially for future investments. The motion passed unanimously.

A motion was made by Mr. Cheatham and seconded by Mr. Powell to adjourn the meeting. The motion passed unanimously.

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CERTIFICATION

I do certify that I was present at this meeting and I have recorded above the action of the Committee on the various items considered by it at this meeting. Further, I certify that all requirements of KRS 61.805-61.850 were met in connection with this meeting.

Recording Secretary

I, as Chair of the County Employees Retirement System Investment Committee of the Board of Trustees of the County Employees Retirement System, do certify that the Minutes of the meeting held on April 22, 2022 were approved by the County Employees Retirement System Investment Committee on May 25, 2022.

Committee Chair

I have reviewed the Minutes of the County Employees Retirement System Investment Committee Meeting on April 22, 2022 for form, content, and legality.

Office of Legal Services

Wilshire

Kentucky Public Pensions Authority County Employees Retirement System (CERS)

Quarterly Board Summary

March 31, 2022

Capital Market Update

Asset Class Performance

Asset Class Returns - Best to Worst

2017	2018	2019	2020	2021	2022 YTD	Annualized 5-Year as of 3/22
Emrg Mrkts 37.7%	T-Bills 1.9%	U.S. Equity 31.0%	U.S. Equity 20.8%	REITs 46.2%	Commodities 25.5%	U.S. Equity 15.7%
Developed 25.6%	Core Bond 0.0%	REITs 25.8%	Emrg Mrkts 18.7%	Commodities 27.1%	T-Bills 0.0%	REITs 10.0%
U.S. Equity 21.0%	U.S. TIPS -1.3%	Developed 22.7%	U.S. TIPS 11.0%	U.S. Equity 26.7%	U.S. TIPS -3.0%	Commodities 9.0%
High Yield 7.5%	High Yield -2.1%	Emrg Mrkts 18.9%	Developed 8.3%	Developed 11.8%	REITs -3.9%	Developed 7.2%
REITs 4.2%	REITs -4.8%	High Yield 14.3%	Core Bond 7.5%	U.S. TIPS 6.0%	High Yield -4.8%	Emrg Mrkts 6.4%
Core Bond 3.6%	U.S. Equity -5.3%	Core Bond 8.7%	High Yield 7.1%	High Yield 5.3%	U.S. Equity -4.9%	High Yield 4.7%
U.S. TIPS 3.0%	Commodities -11.2%	U.S. TIPS 8.4%	T-Bills 0.7%	T-Bills 0.0%	Developed -5.8%	U.S. TIPS 4.4%
Commodities 1.7%	Developed -13.4%	Commodities 7.7%	Commodities -3.1%	Core Bond -1.5%	Core Bond -5.9%	Core Bond 2.1%
T-Bills 0.8%	Emrg Mrkts -14.2%	T-Bills 2.3%	REITs -7.9%	Emrg Mrkts -2.2%	Emrg Mrkts -6.9%	T-Bills 1.1%

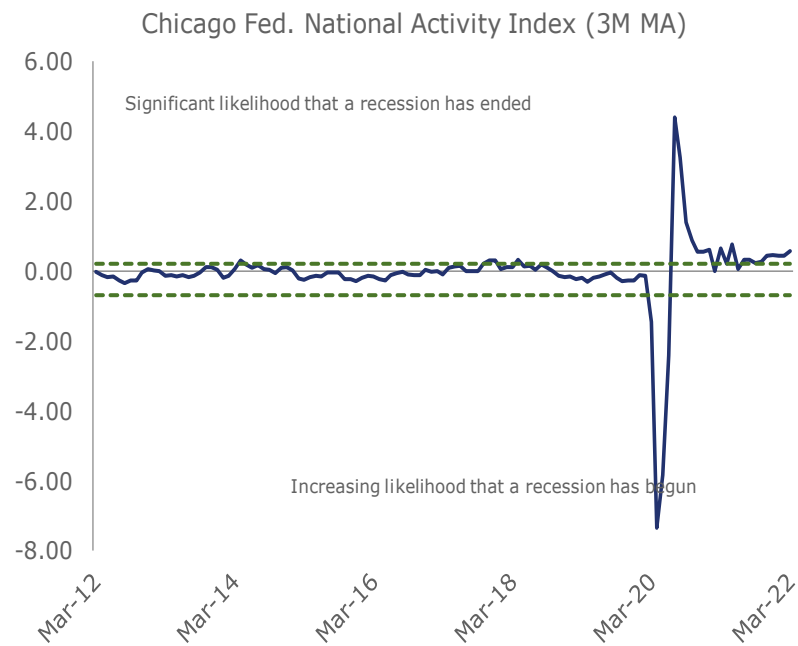
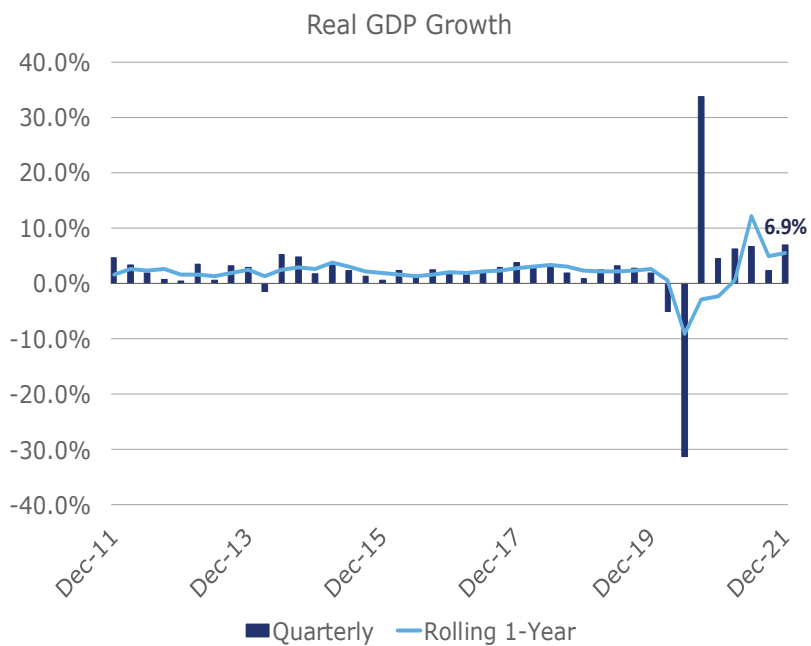
Data Sources: Bloomberg

Note: Developed asset class is developed equity markets ex-U.S., ex-Canada

March 2022 Asset Class Assumptions

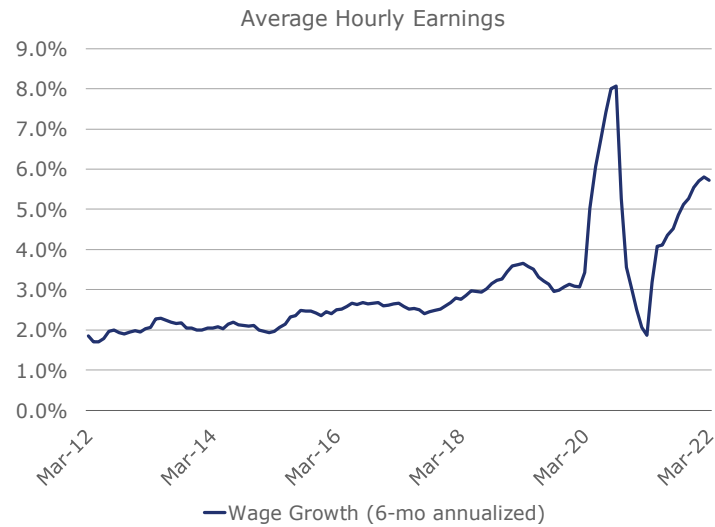
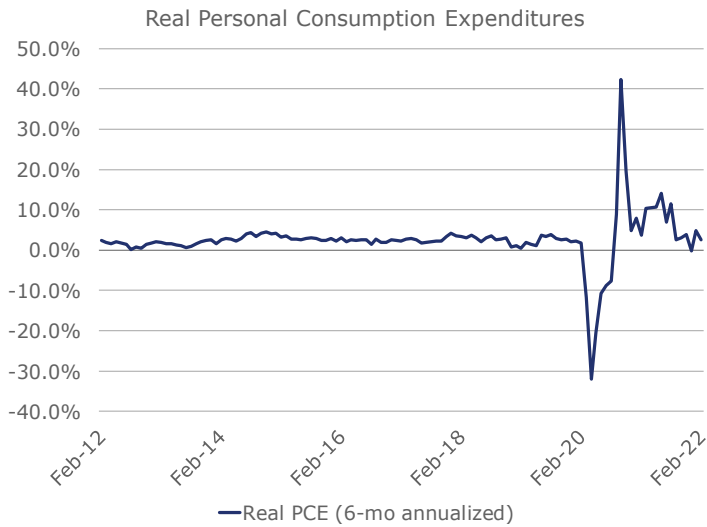
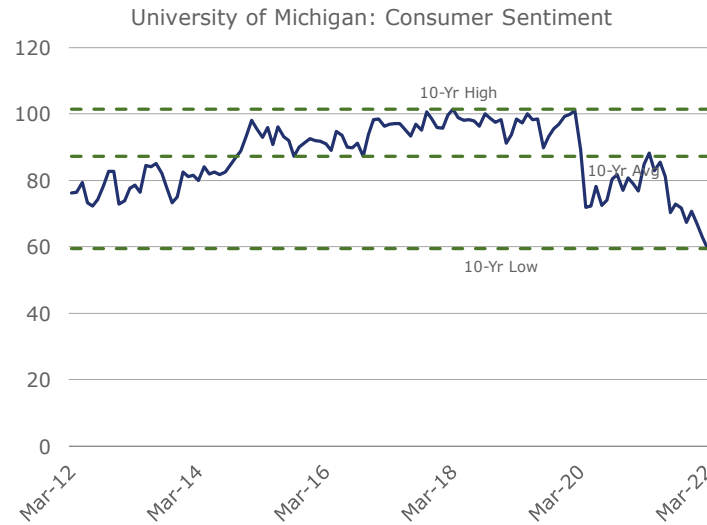
	Equity						Fixed Income					Real Assets						
	US Stock	Dev ex-US Stock	Emg Stock	Global ex-US Stock	Global Stock	Private Equity	Cash	Core Bond	LT Core Bond	TIPS	High Yield	Dev ex-US Bond (Hdg)	US RES	Global RES	Private RE	Cmdty	Real Assets	US CPI
Compound Return (%)	5.25	6.25	6.25	6.50	5.85	9.10	1.95	3.05	3.30	2.45	4.65	1.50	5.00	5.15	6.55	4.80	6.40	2.85
Expected Risk (%)	17.00	18.00	26.00	19.10	17.10	28.00	0.75	4.25	8.90	6.00	10.00	4.25	17.50	16.45	14.00	16.00	10.35	1.75
Cash Yield (%)	1.35	2.90	2.35	2.75	1.90	0.00	1.95	3.40	3.80	3.00	8.05	2.10	2.85	2.85	2.30	1.95	2.15	0.00
Growth Exposure	8.00	8.00	8.00	8.00	8.00	13.50	0.00	-0.85	-2.25	-3.00	4.00	-1.00	6.00	6.00	3.50	0.00	1.80	0.00
Inflation Exposure	-3.00	0.00	5.00	1.50	-1.25	-3.80	0.00	-2.50	-6.70	2.50	-1.00	-3.00	1.00	1.80	1.00	12.00	4.85	1.00
Correlations																		
US Stock	1.00																	
Dev ex-US Stock (USD)	0.81	1.00																
Emerging Mkt Stock	0.74	0.74	1.00															
Global ex-US Stock	0.83	0.96	0.87	1.00														
Global Stock	0.95	0.92	0.83	0.94	1.00													
Private Equity	0.74	0.64	0.62	0.67	0.74	1.00												
Cash Equivalents	-0.05	-0.09	-0.05	-0.08	-0.07	0.00	1.00											
Core Bond	0.28	0.13	0.00	0.09	0.20	0.31	0.19	1.00										
LT Core Bond	0.31	0.16	0.01	0.12	0.23	0.32	0.11	0.92	1.00									
TIPS	-0.05	0.00	0.15	0.05	0.00	-0.03	0.20	0.59	0.47	1.00								
High Yield Bond	0.54	0.39	0.49	0.45	0.51	0.34	-0.10	0.25	0.32	0.05	1.00							
Dev ex-US Bond (Hdg)	0.16	0.25	-0.01	0.17	0.18	0.26	0.10	0.66	0.65	0.39	0.26	1.00						
US RE Securities	0.58	0.47	0.44	0.49	0.56	0.50	-0.05	0.17	0.23	0.10	0.56	0.05	1.00					
Global RE Securities	0.64	0.58	0.56	0.61	0.65	0.58	-0.05	0.17	0.22	0.11	0.61	0.03	0.96	1.00				
Private Real Estate	0.54	0.44	0.44	0.47	0.52	0.51	-0.05	0.19	0.25	0.09	0.57	0.05	0.77	0.75	1.00			
Commodities	0.25	0.34	0.39	0.38	0.32	0.27	0.00	-0.02	-0.02	0.25	0.29	-0.10	0.25	0.28	0.25	1.00		
Real Assets	0.48	0.51	0.58	0.57	0.54	0.47	-0.02	0.23	0.25	0.39	0.56	0.05	0.70	0.75	0.70	0.65	1.00	
Inflation (CPI)	-0.10	-0.15	-0.13	-0.15	-0.13	-0.10	0.10	-0.12	-0.12	0.15	-0.08	-0.08	0.05	0.03	0.05	0.44	0.26	1.00

Economic Growth



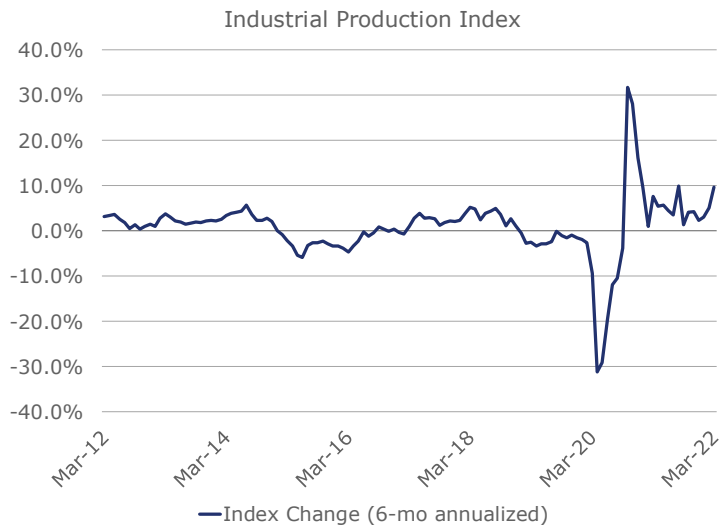
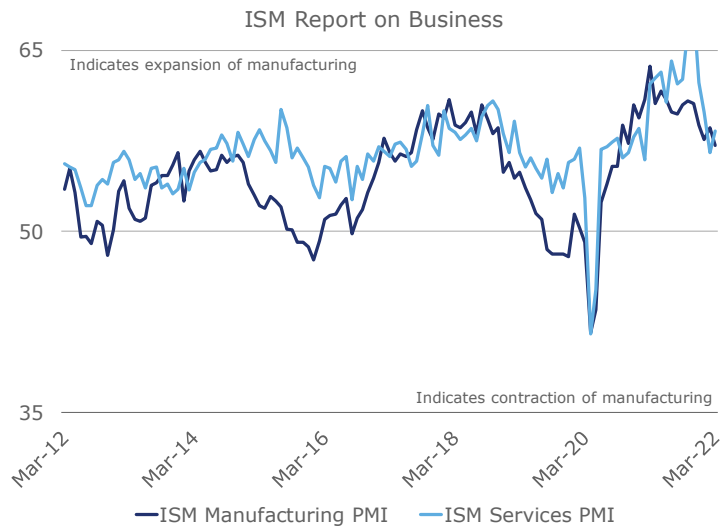
Data Sources: Bloomberg

Consumer Activity



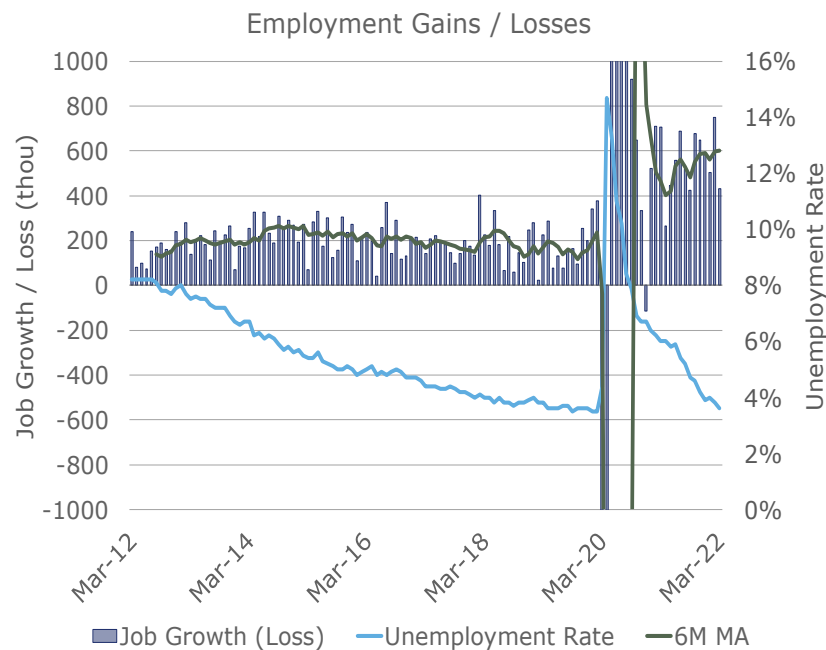
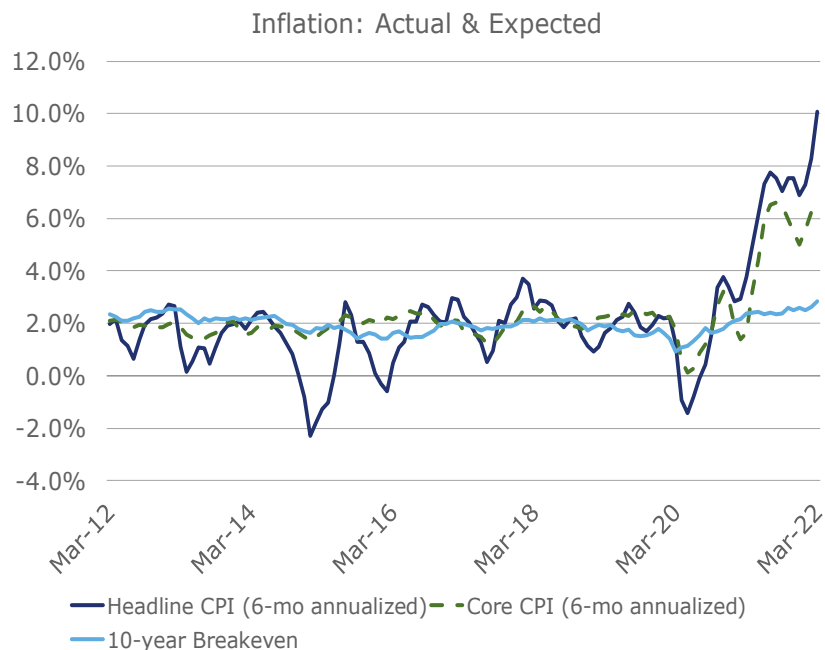
Data Sources: Bloomberg

Business Activity



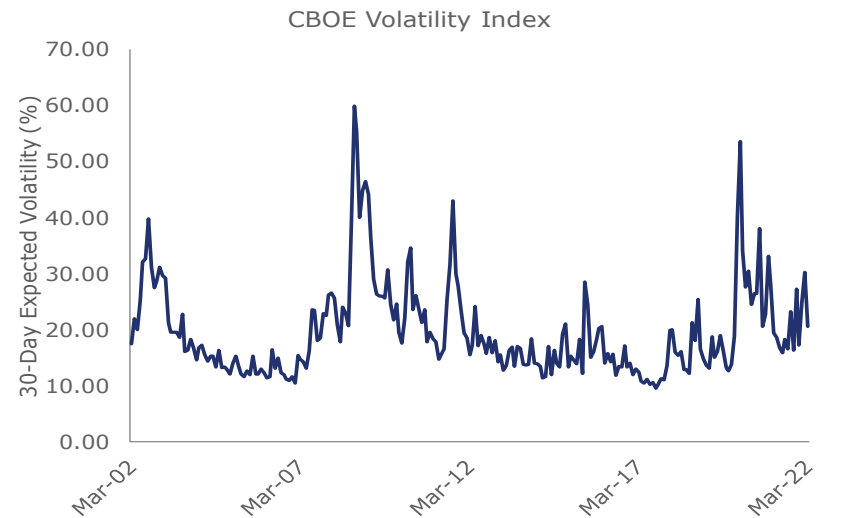
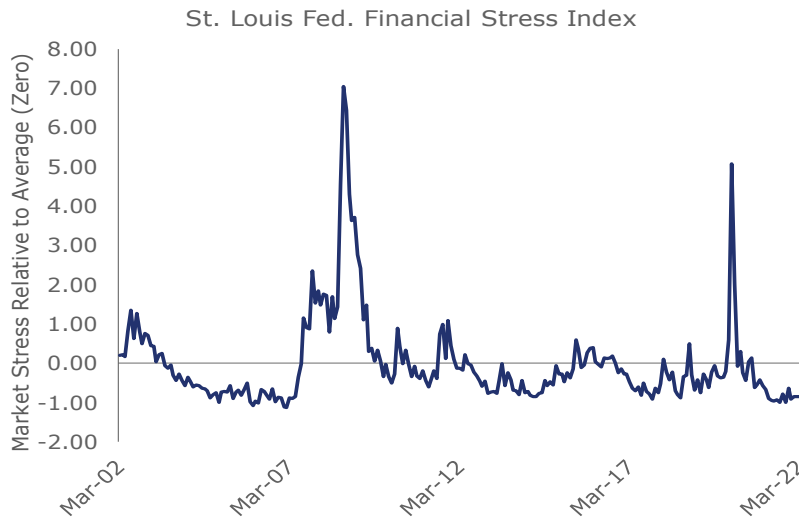
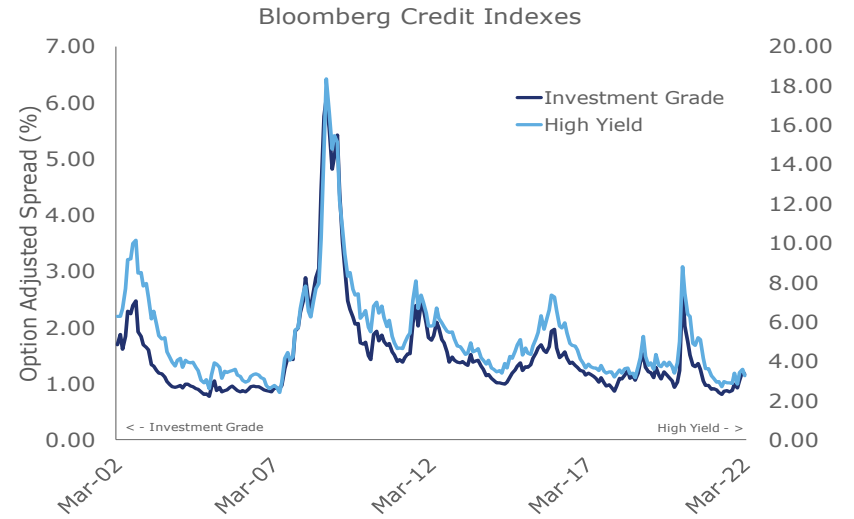
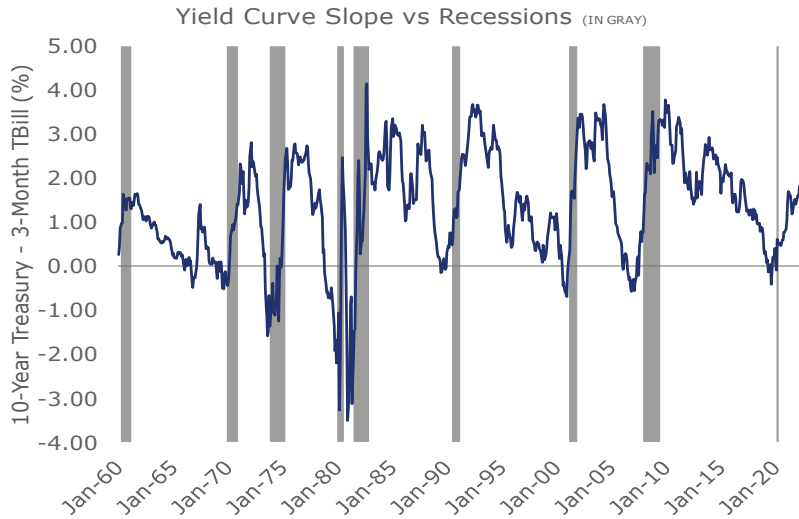
Data Sources: Bloomberg

Inflation and Employment



Data Sources: Bloomberg

Risk Monitor

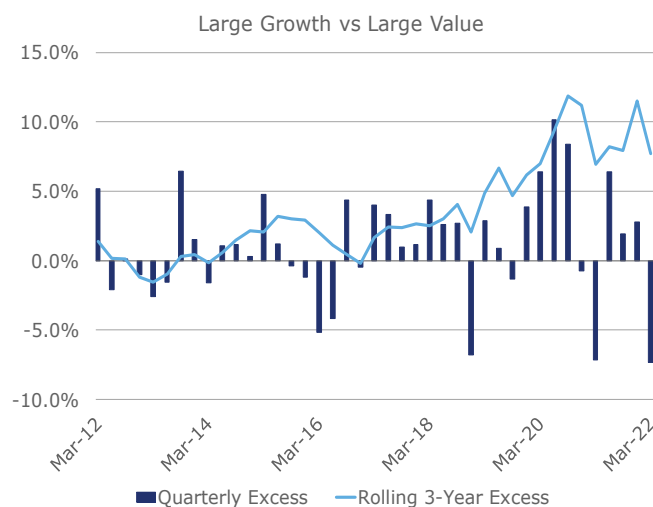
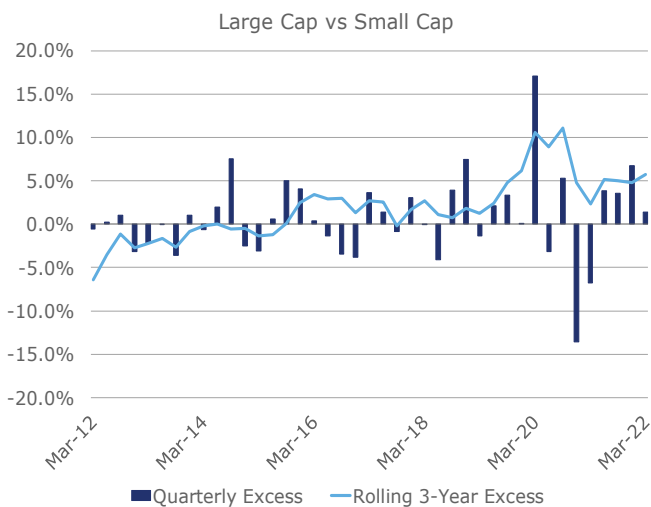
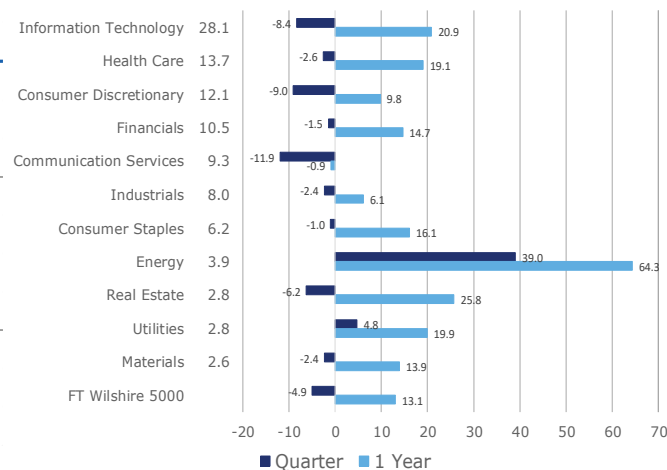


Data Sources: Bloomberg

U.S. Equity Market

As of 3/31/2022	Quarter	YTD	1 Year	3 Year	5 Year	10 Year
FT Wilshire 5000	-4.9	-4.9	13.1	18.7	15.7	14.4
Wilshire U.S. Large Cap	-4.8	-4.8	14.6	19.3	16.2	14.7
Wilshire U.S. Small Cap	-6.1	-6.1	-1.4	12.8	10.4	11.8
Wilshire U.S. Large Growth	-8.0	-8.0	16.3	23.5	19.9	16.8
Wilshire U.S. Large Value	-0.7	-0.7	12.6	14.7	12.3	12.5
Wilshire U.S. Small Growth	-10.3	-10.3	-9.4	12.5	11.5	11.9
Wilshire U.S. Small Value	-1.8	-1.8	7.3	13.1	9.2	11.5
Wilshire REIT Index	-3.9	-3.9	29.1	11.9	10.0	9.9
MSCI USA Min. Vol. Index	-3.8	-3.8	13.8	11.8	12.5	13.0
FTSE RAFI U.S. 1000 Index	0.1	0.1	15.1	17.5	13.5	13.6

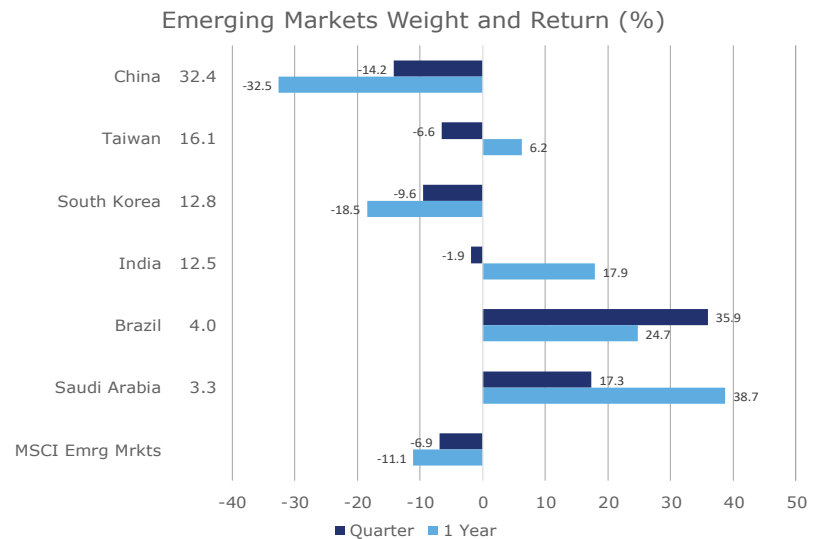
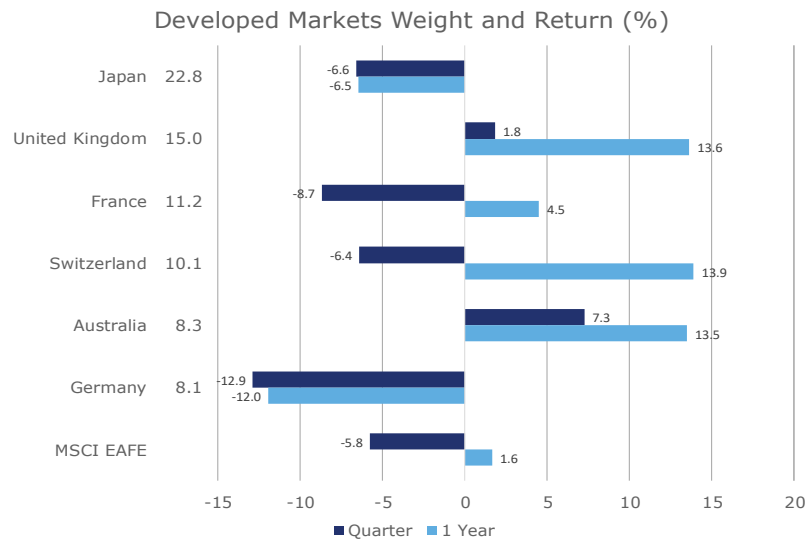
U.S. Sector Weight and Return (%)



Data Sources: Bloomberg, Wilshire Atlas

Non-U.S. Equity Market

As of 3/31/2022	Quarter	YTD	1 Year	3 Year	5 Year	10 Year
MSCI ACWI ex-US (\$G)	-5.3	-5.3	-1.0	8.0	7.3	6.0
MSCI EAFE (\$G)	-5.8	-5.8	1.6	8.3	7.2	6.8
MSCI Emerging Markets (\$G)	-6.9	-6.9	-11.1	5.3	6.4	3.7
MSCI Frontier Markets (\$G)	0.6	0.6	11.9	2.4	3.6	3.0
MSCI ACWI ex-US Growth (\$G)	-10.7	-10.7	-5.9	9.5	9.0	7.1
MSCI ACWI ex-US Value (\$G)	-0.1	-0.1	3.9	6.5	5.5	5.2
MSCI ACWI ex-US Small (\$G)	-6.4	-6.4	0.4	10.7	8.3	7.7
MSCI ACWI Minimum Volatility	-2.9	-2.9	9.2	8.3	9.2	9.7
MSCI EAFE Minimum Volatility	-5.3	-5.3	2.4	3.6	5.4	6.8
FTSE RAFI Developed ex-US	-1.3	-1.3	5.0	8.5	6.7	6.3
MSCI EAFE LC (G)	-3.6	-3.6	6.7	8.7	7.1	9.1
MSCI Emerging Markets LC (G)	-6.1	-6.1	-9.6	6.6	7.9	6.7



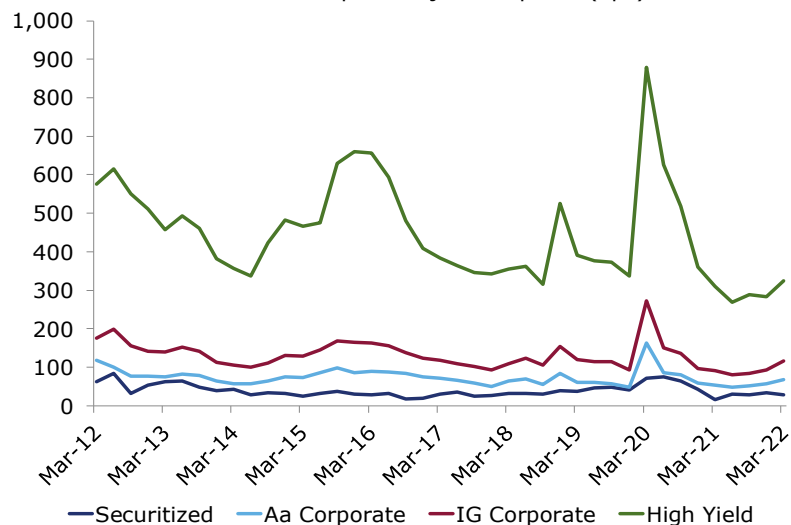
Data Sources: Bloomberg

U.S. Fixed Income

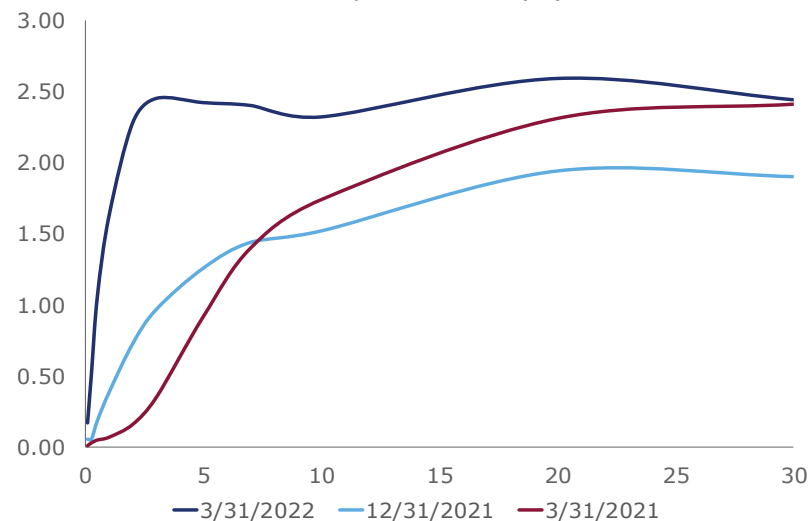
As of 3/31/2022	YTW	DUR.	QTR	YTD	1 YR	3 YR	5 YR	10 YR
Bloomberg Aggregate	2.9	6.6	-5.9	-5.9	-4.2	1.7	2.1	2.2
Bloomberg Treasury	2.4	6.8	-5.6	-5.6	-3.7	1.4	1.8	1.7
Bloomberg Gov't-Rel.	2.9	5.9	-5.4	-5.4	-3.9	1.5	2.1	2.2
Bloomberg Securitized	3.0	5.1	-5.0	-5.0	-4.9	0.7	1.4	1.8
Bloomberg Corporate	3.6	8.1	-7.7	-7.7	-4.2	3.0	3.3	3.6
Bloomberg LT Gov't/Credit	3.4	15.7	-11.0	-11.0	-3.1	4.2	4.6	4.7
Bloomberg LT Treasury	2.6	17.8	-10.6	-10.6	-1.4	3.3	3.9	4.0
Bloomberg LT Gov't-Rel.	3.9	12.9	-9.7	-9.7	-4.0	2.7	4.0	4.3
Bloomberg LT Corporate	4.0	14.4	-11.4	-11.4	-4.3	4.6	4.9	5.2
Bloomberg U.S. TIPS *	2.4	8.1	-3.0	-3.0	4.3	6.2	4.4	2.7
Bloomberg High Yield	6.0	3.9	-4.8	-4.8	-0.7	4.6	4.7	5.7
S&P/LSTA Leveraged Loan	4.4	0.3	-0.1	-0.1	3.3	4.2	4.0	4.3
Treasury Bills	0.6	0.3	0.0	0.0	0.0	0.8	1.1	0.6

* Yield and Duration statistics are for a proxy index based on similar maturity, the Bloomberg Barclays U.S. Treasury 7-10 Year Index

Fixed Income Option Adjusted Spread (bps)



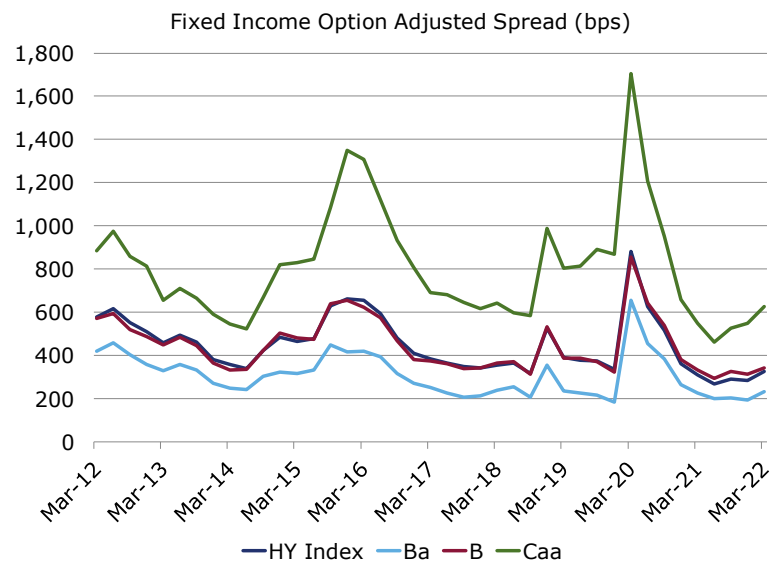
Treasury Yield Curve (%)



Data Sources: Bloomberg

High Yield Bond Market

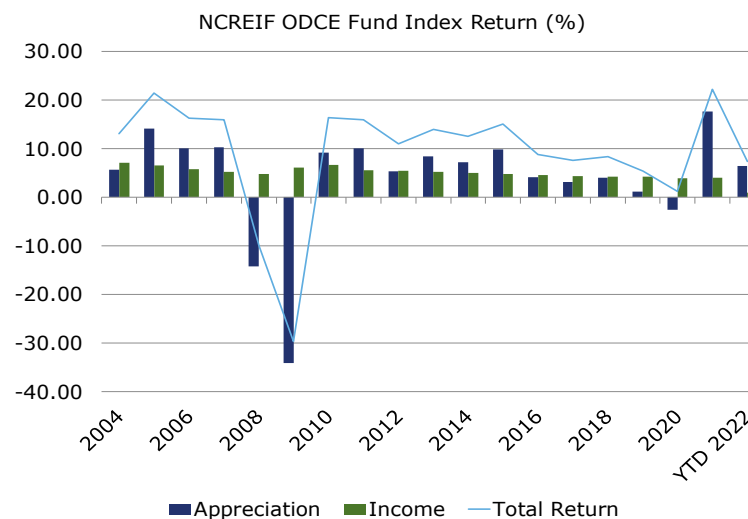
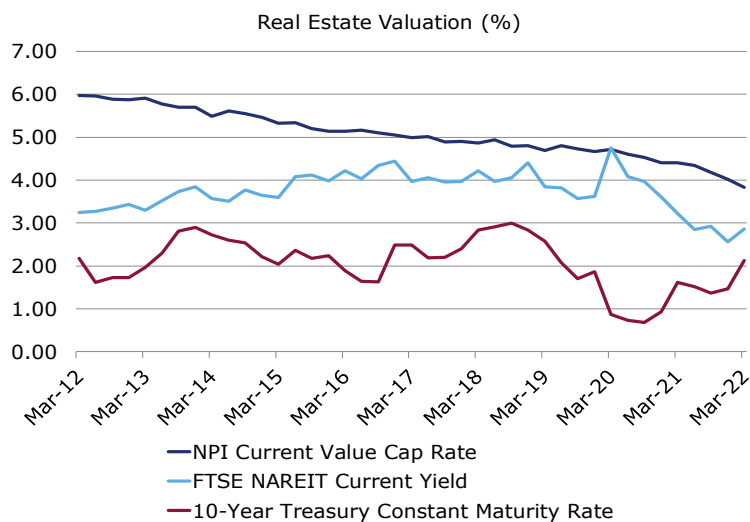
As of 3/31/2022		YTW	QTR	YTD	1 YR	3 YR	5 YR	10 YR
Bloomberg High Yield		6.0	-4.8	-4.8	-0.7	4.6	4.7	5.7
S&P LSTA Leveraged Loan		4.4	-0.2	-0.2	2.3	3.8	3.7	3.9
High Yield Quality Distribution	Weight							
Ba U.S. High Yield	51.3%	5.0	-5.9	-5.9	-1.5	5.3	5.1	5.9
B U.S. High Yield	37.0%	6.3	-3.5	-3.5	0.0	4.2	4.5	5.4
Caa U.S. High Yield	11.5%	9.1	-3.9	-3.9	0.8	2.9	3.5	5.8
Ca to D U.S. High Yield	0.3%	30.8	-3.8	-3.8	-5.5	-1.9	2.7	-3.0
Non-Rated U.S. High Yield	0.0%	0.0	0.0	0.0	0.0	-1.4	0.8	1.6



Data Sources: Bloomberg

Real Assets

As of 3/31/2022	Quarter	YTD	1 Year	3 Year	5 Year	10 Year
Bloomberg U.S. TIPS	-3.0	-3.0	4.3	6.2	4.4	2.7
Bloomberg Commodity Index	25.5	25.5	49.3	16.1	9.0	-0.7
Bloomberg Gold Index	6.6	6.6	13.1	13.0	8.1	0.7
Wilshire Global RESI Index	-3.0	-3.0	22.0	8.7	8.5	8.8
NCREIF ODCE Fund Index	7.4	7.4	28.5	11.3	9.9	10.9
NCREIF Timberland Index	3.2	3.2	11.8	4.7	4.1	5.6
FTSE Global Core Infrastructure 50/50	3.9	3.9	15.3	9.0	9.4	9.7
Alerian Midstream Energy	24.0	24.0	41.9	10.1	6.1	n.a.
Bitcoin	-1.2	-1.2	-22.4	123.6	111.8	149.7



Data Sources: Bloomberg, National Council of Real Estate Investment Fiduciaries

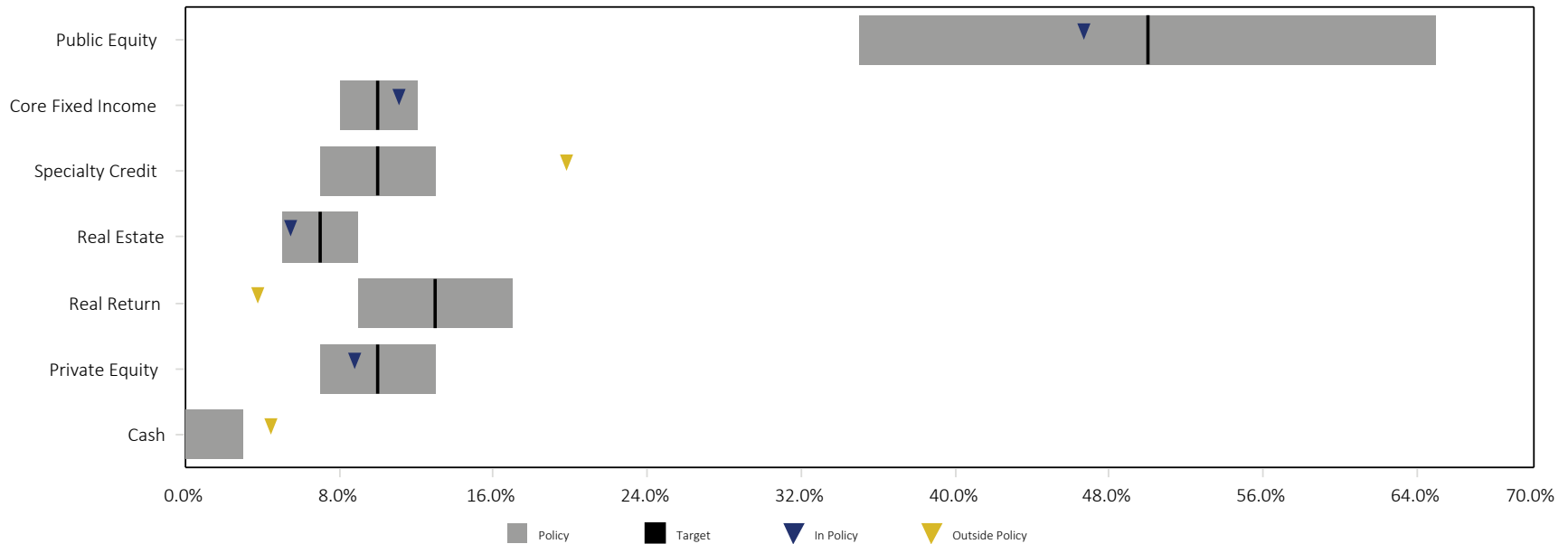
CERS Total Fund Composites

Asset Allocation Compliance

CERS Pension Plan

Periods Ended As of March 31, 2022

Executive Summary



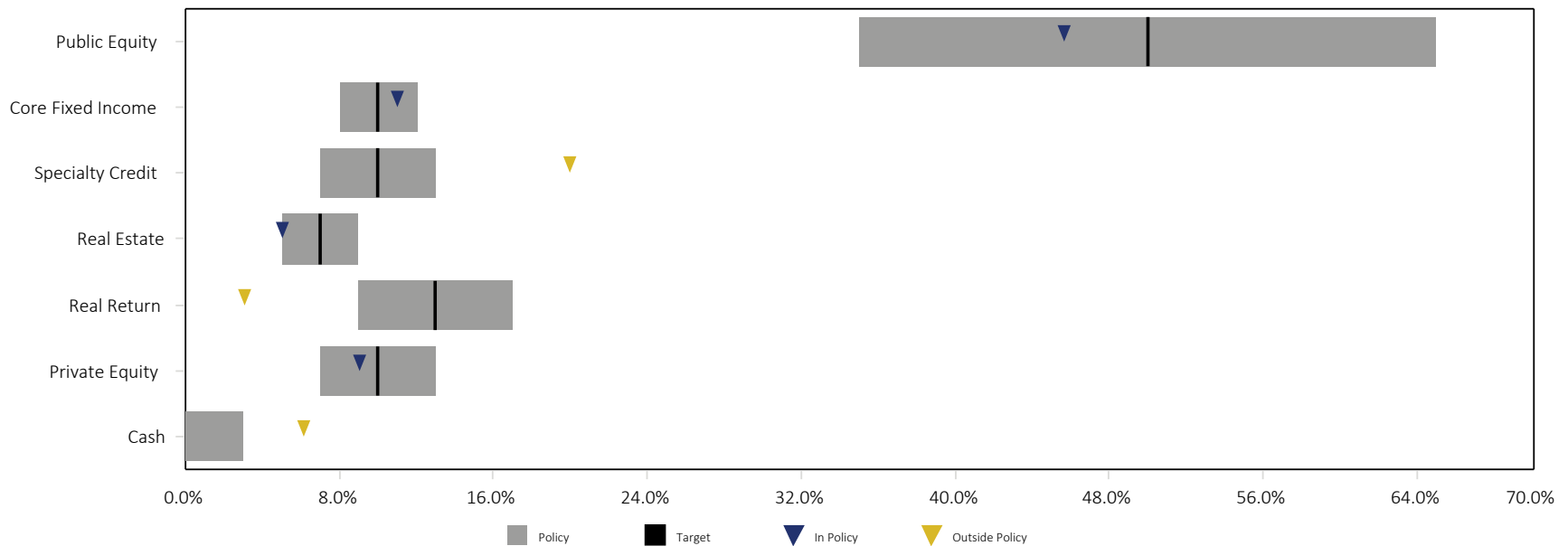
	Asset Allocation \$	Asset Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)	Target Allocation (%)	Target Rebalance \$
Public Equity	4,036,160,428	46.69	35.00	65.00	50.00	286,468,056
Core Fixed Income	957,697,669	11.08	8.00	12.00	10.00	-93,171,972
Specialty Credit	1,711,019,601	19.79	7.00	13.00	10.00	-846,493,904
Real Estate	473,909,032	5.48	5.00	9.00	7.00	131,258,956
Real Return	323,960,116	3.75	9.00	17.00	13.00	799,923,290
Private Equity	757,151,561	8.76	7.00	13.00	10.00	107,374,136
Cash	385,358,560	4.46	0.00	3.00	0.00	-385,358,560
Total Fund	8,645,256,968	100.00			100.00	

Asset Allocation Compliance

CERS Insurance Plan

Periods Ended As of March 31, 2022

Executive Summary



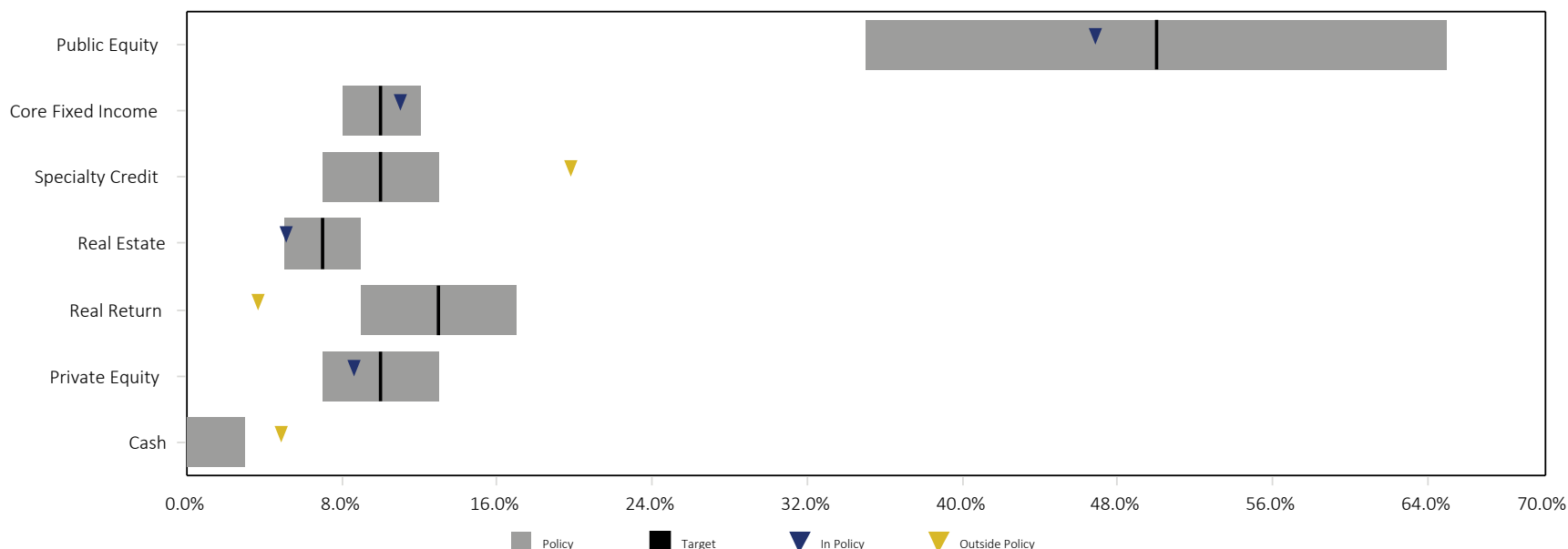
	Asset Allocation \$	Asset Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)	Target Allocation (%)	Target Rebalance \$
Public Equity	1,479,360,883	45.71	35.00	65.00	50.00	138,785,571
Core Fixed Income	356,101,313	11.00	8.00	12.00	10.00	-32,472,023
Specialty Credit	645,606,509	19.95	7.00	13.00	10.00	-321,977,218
Real Estate	163,612,557	5.06	5.00	9.00	7.00	62,927,946
Real Return	99,004,733	3.06	9.00	17.00	13.00	321,713,345
Private Equity	292,794,909	9.05	7.00	13.00	10.00	30,834,382
Cash	199,812,003	6.17	0.00	3.00	0.00	-199,812,003
Total Fund	3,236,292,906	100.00			100.00	

Asset Allocation Compliance

CERS (H) Pension Plan

Periods Ended As of March 31, 2022

Executive Summary



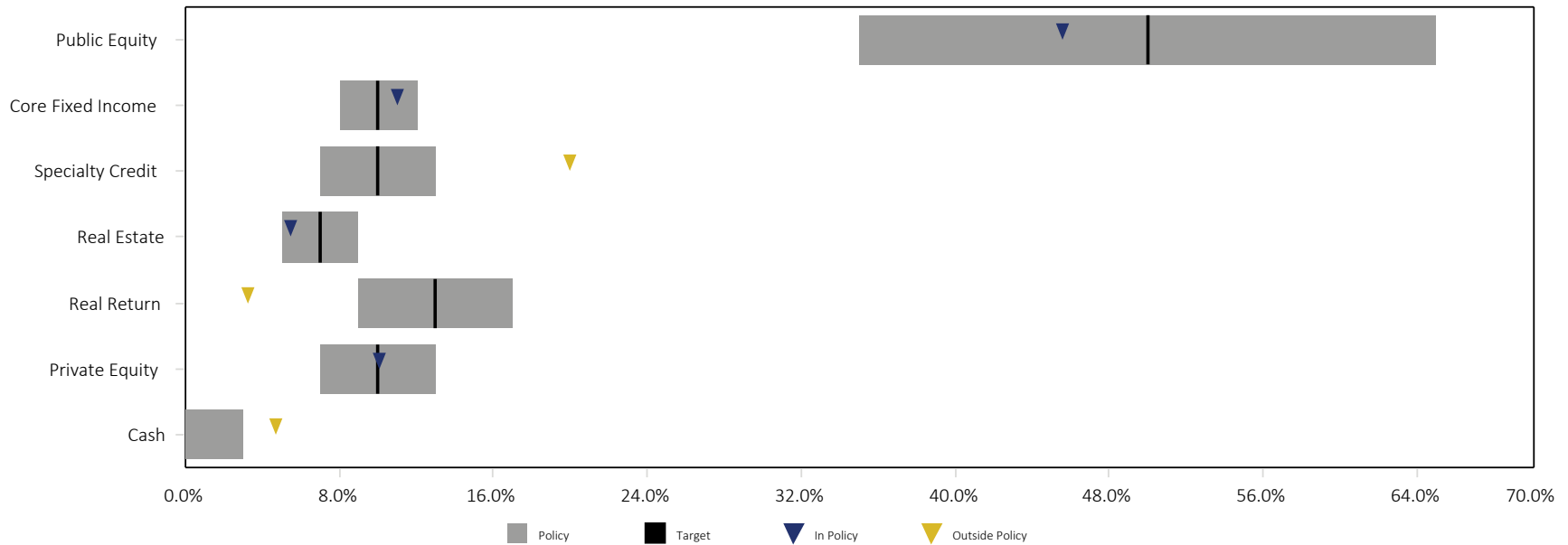
	Asset Allocation \$	Asset Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)	Target Allocation (%)	Target Rebalance \$
Public Equity	1,376,294,717	46.83	35.00	65.00	50.00	93,294,043
Core Fixed Income	324,394,800	11.04	8.00	12.00	10.00	-30,477,048
Specialty Credit	582,124,902	19.81	7.00	13.00	10.00	-288,207,150
Real Estate	150,908,383	5.13	5.00	9.00	7.00	54,834,043
Real Return	108,087,404	3.68	9.00	17.00	13.00	274,005,674
Private Equity	253,398,828	8.62	7.00	13.00	10.00	40,518,924
Cash	143,968,485	4.90	0.00	3.00	0.00	-143,968,485
Total Fund	2,939,177,520	100.00			100.00	

Asset Allocation Compliance

CERS (H) Insurance Plan

Periods Ended As of March 31, 2022

Executive Summary



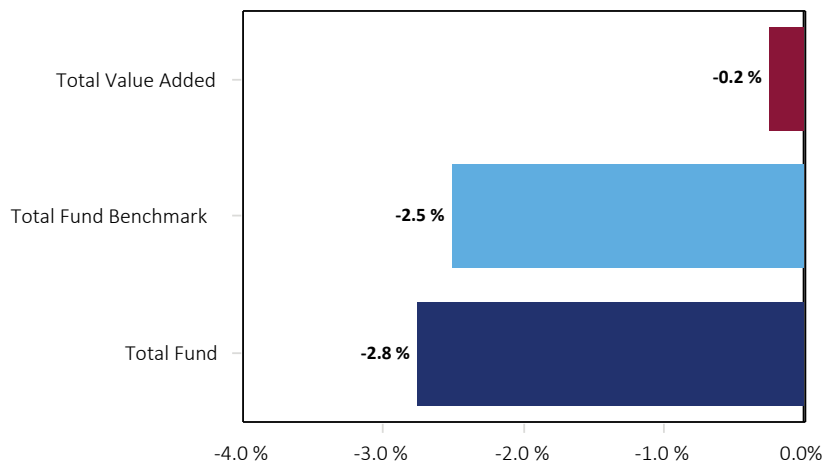
	Asset Allocation \$	Asset Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)	Target Allocation (%)	Target Rebalance \$
Public Equity	743,706,933	45.55	35.00	65.00	50.00	72,713,405
Core Fixed Income	179,750,505	11.01	8.00	12.00	10.00	-16,466,437
Specialty Credit	325,523,093	19.94	7.00	13.00	10.00	-162,239,026
Real Estate	89,676,215	5.49	5.00	9.00	7.00	24,622,633
Real Return	52,633,564	3.22	9.00	17.00	13.00	159,635,724
Private Equity	164,854,350	10.10	7.00	13.00	10.00	-1,570,282
Cash	76,696,016	4.70	0.00	3.00	0.00	-76,696,016
Total Fund	1,632,840,676	100.00			100.00	

Total Fund Attribution

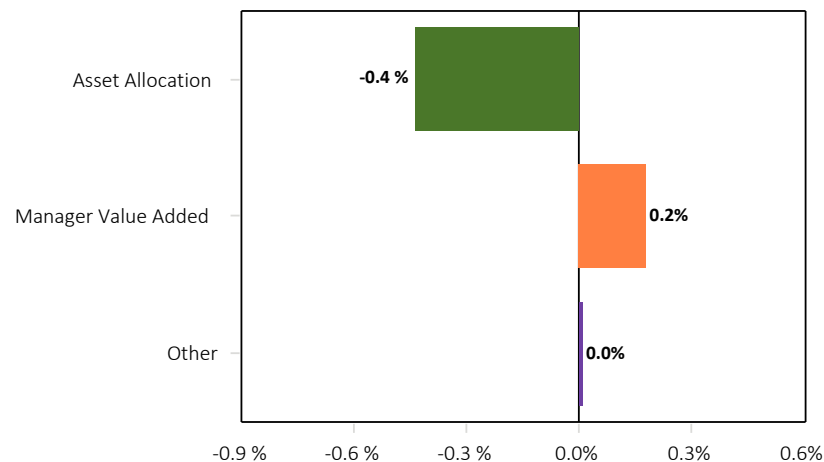
CERS Pension Plan

Periods Ended 1 Quarter Ending March 31, 2022

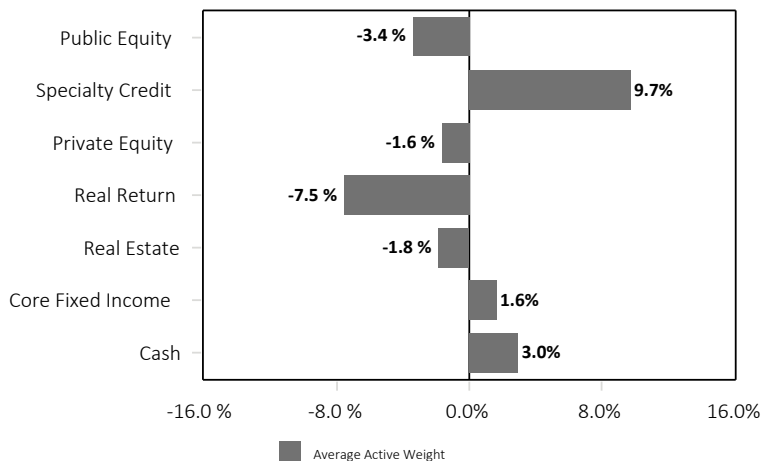
Total Fund Performance



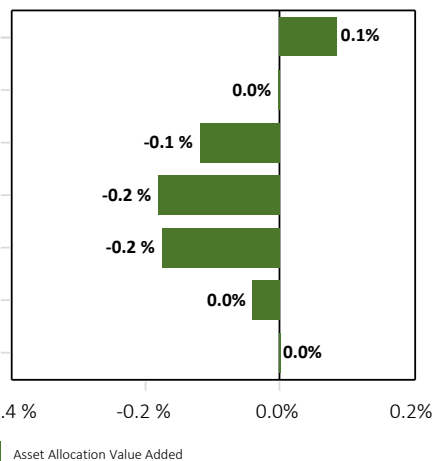
Total Value Added:-0.2 %



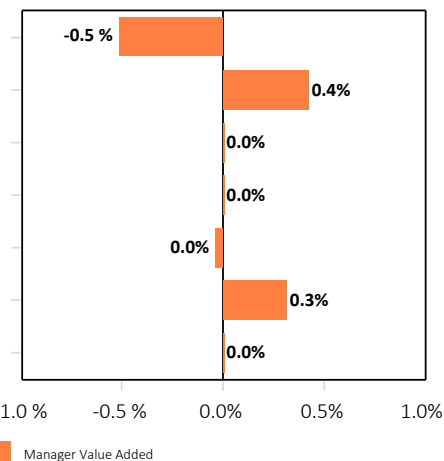
Total Asset Allocation:-0.4 %



Asset Allocation Value Added:-0.4 %



Total Manager Value Added:0.2%

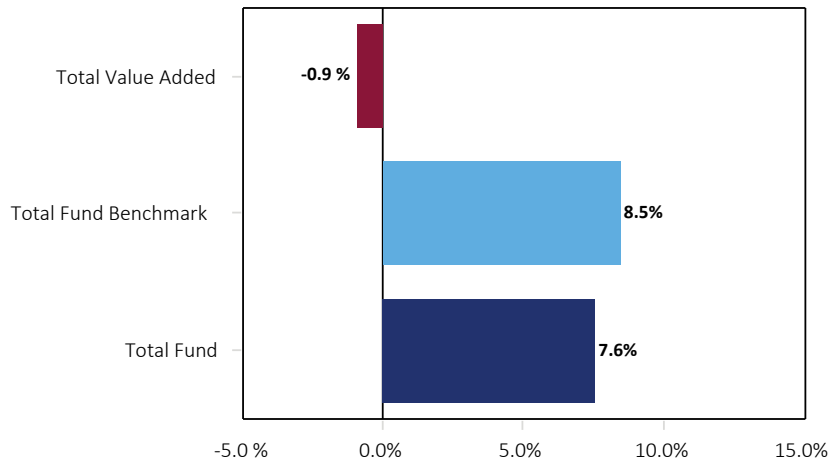


Total Fund Attribution

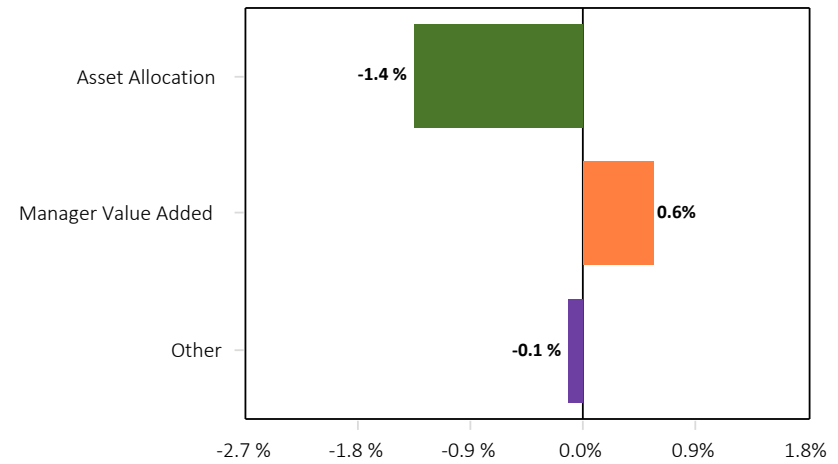
CERS Pension Plan

Periods Ended 1 Year Ending March 31, 2022

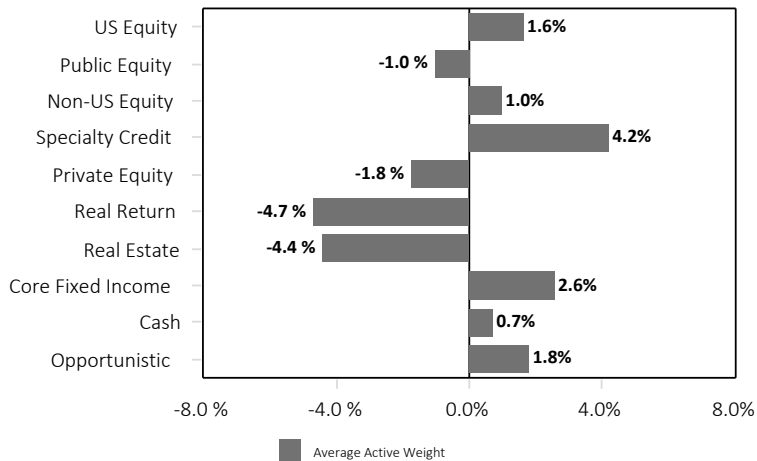
Total Fund Performance



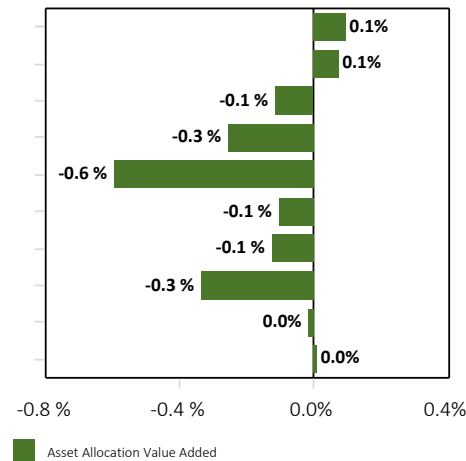
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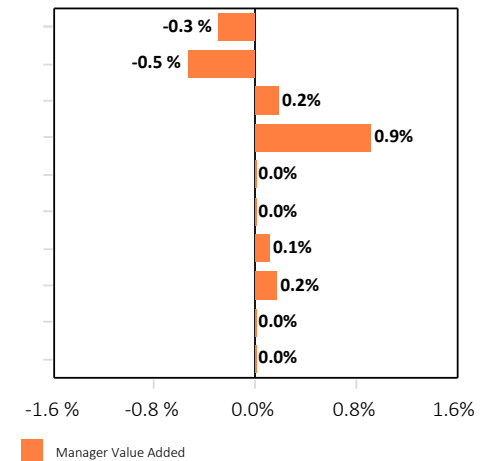
Total Asset Allocation:-1.4 %



Asset Allocation Value Added:-1.4 %



Total Manager Value Added:0.6%

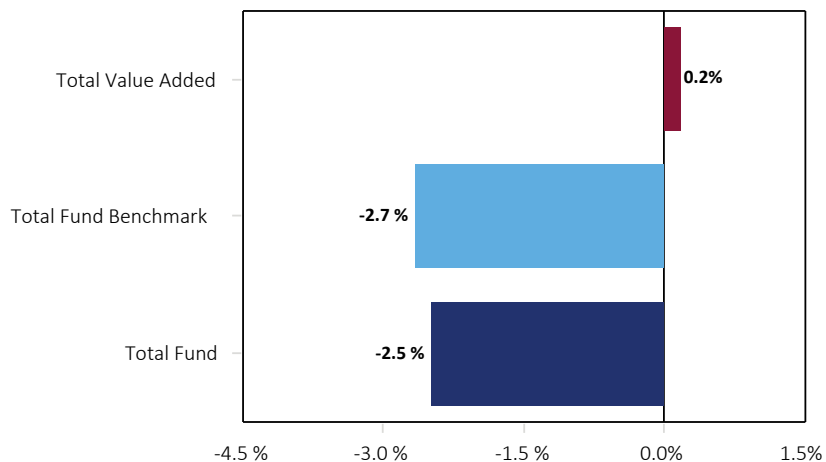


Total Fund Attribution

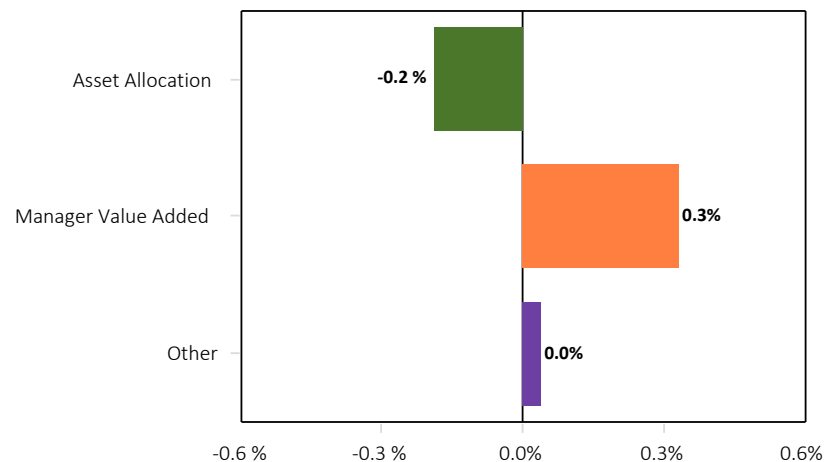
CERS Insurance Plan

Periods Ended 1 Quarter Ending March 31, 2022

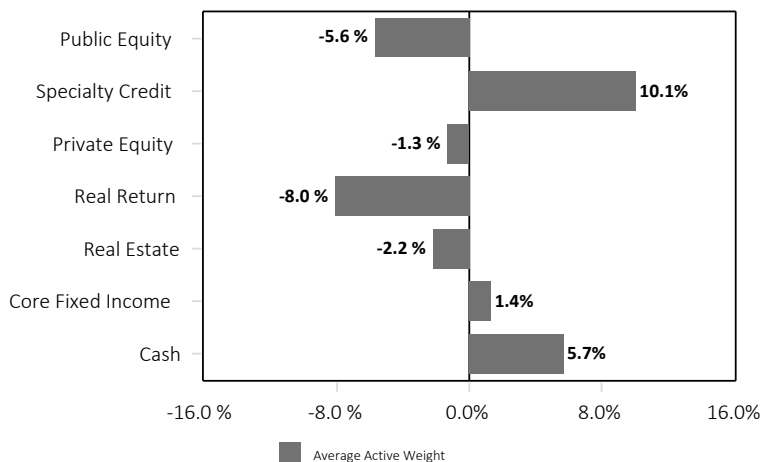
Total Fund Performance



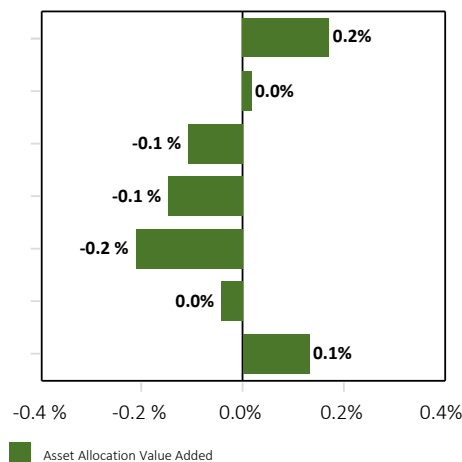
Total Value Added:0.2%



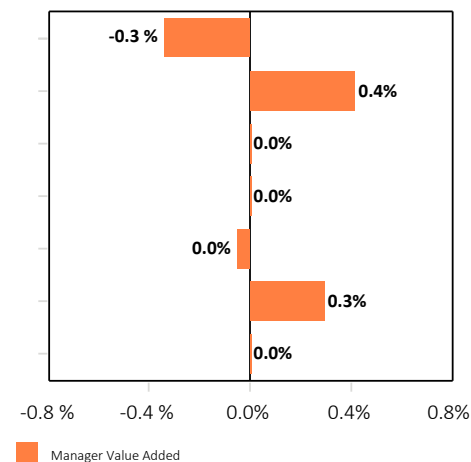
Total Asset Allocation:-0.2%



Asset Allocation Value Added:-0.2%



Total Manager Value Added:0.3%

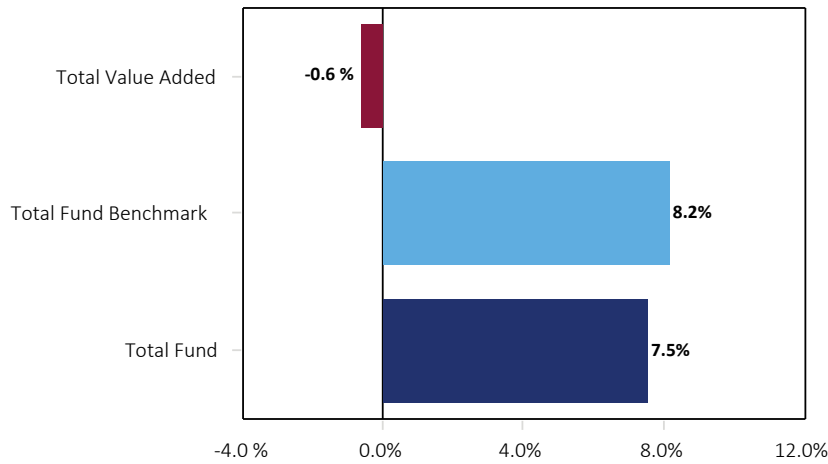


Total Fund Attribution

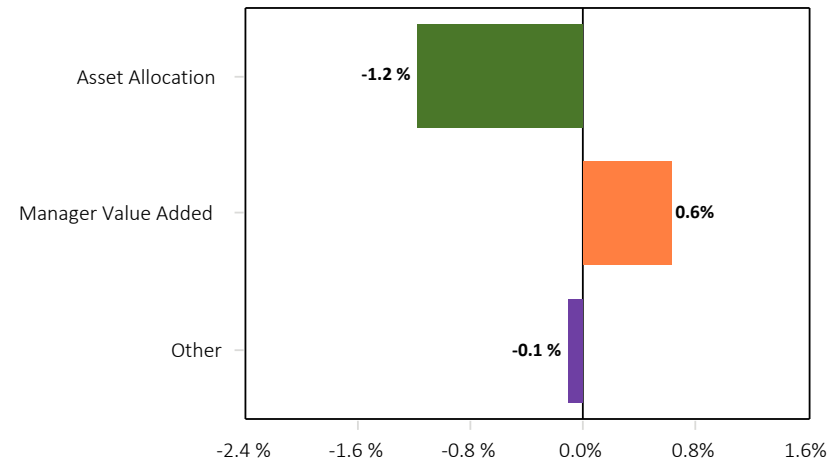
CERS Insurance Plan

Periods Ended 1 Year Ending March 31, 2022

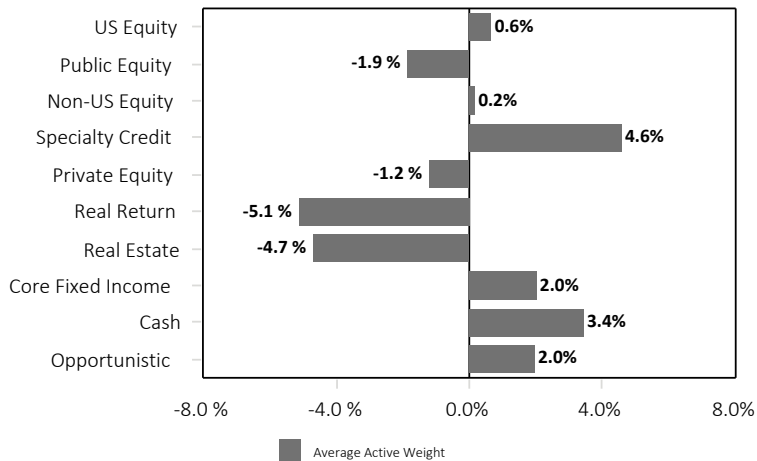
Total Fund Performance



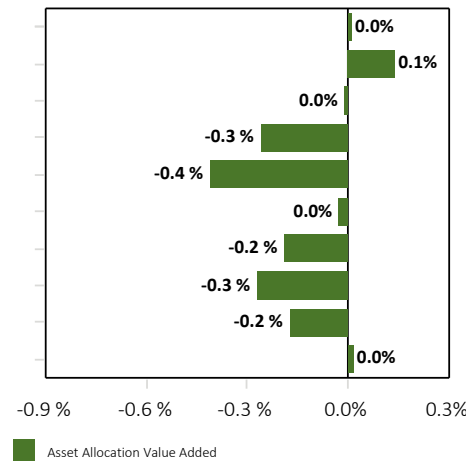
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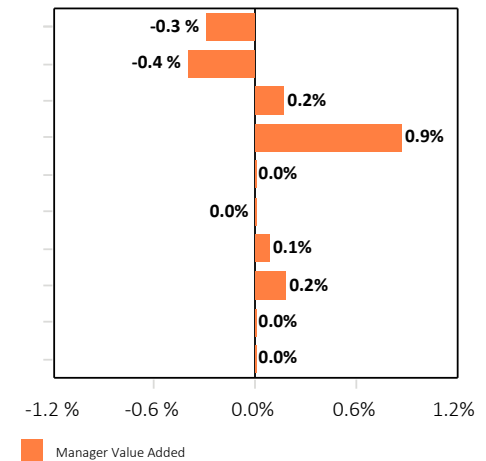
Total Asset Allocation:-1.2 %



Asset Allocation Value Added:-1.2 %



Total Manager Value Added:0.6%

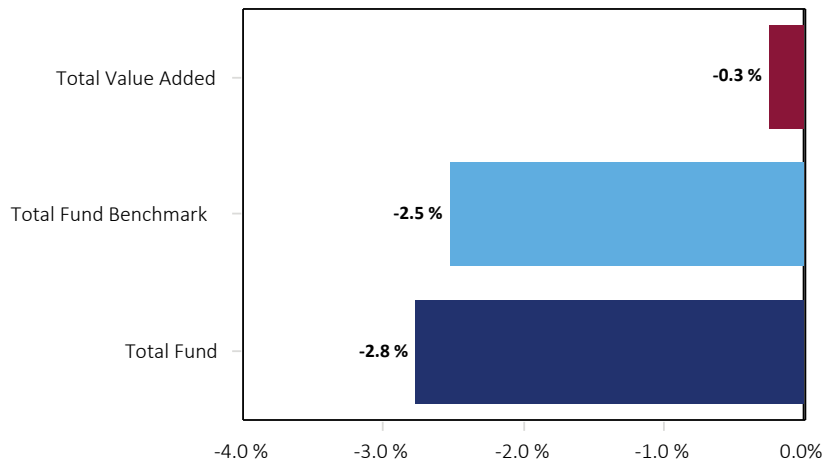


Total Fund Attribution

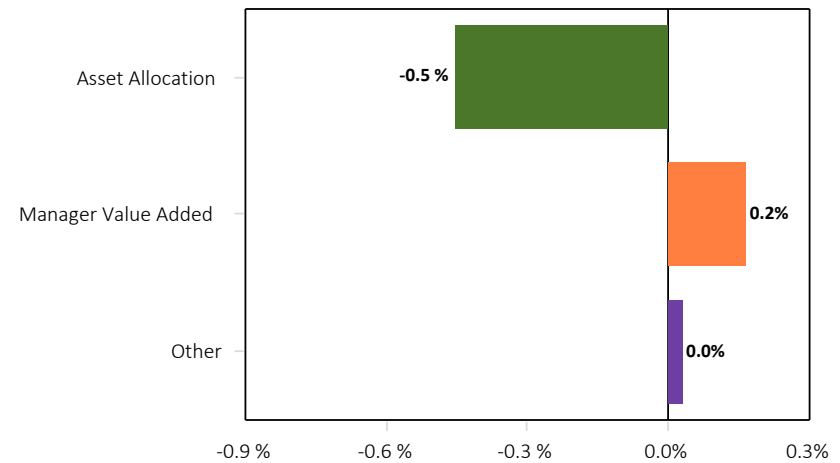
CERS (H) Pension Plan

Periods Ended 1 Quarter Ending March 31, 2022

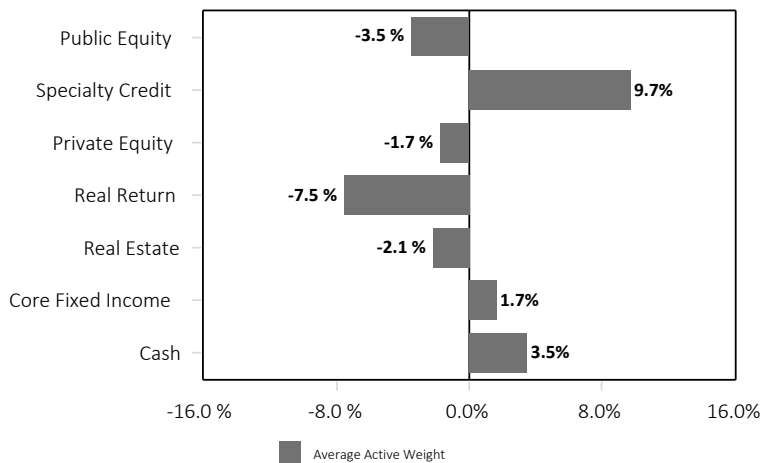
Total Fund Performance



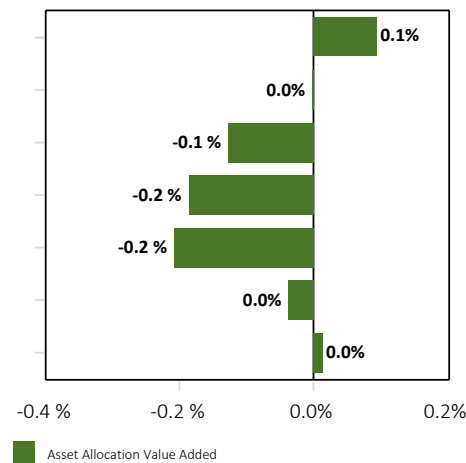
Total Value Added:-0.3 %



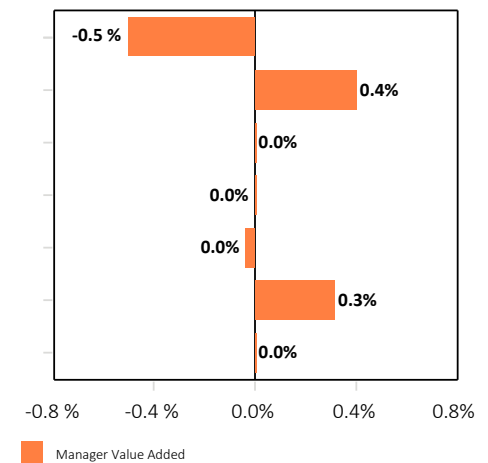
Total Asset Allocation:-0.5 %



Asset Allocation Value Added:-0.5 %



Total Manager Value Added:0.2%

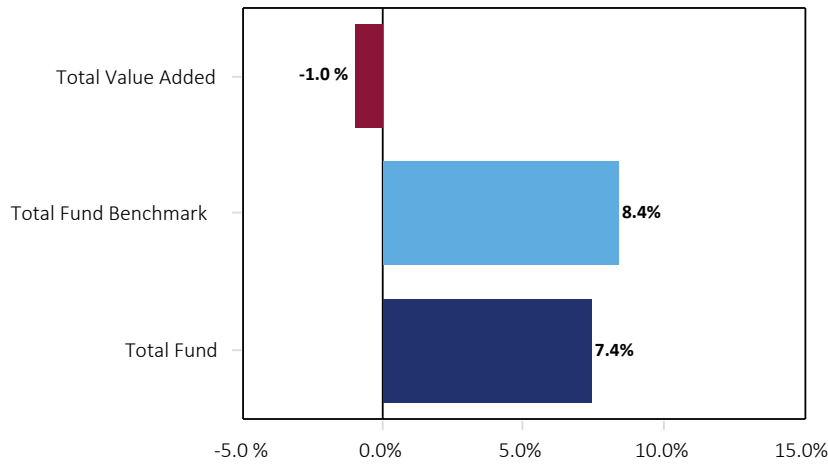


Total Fund Attribution

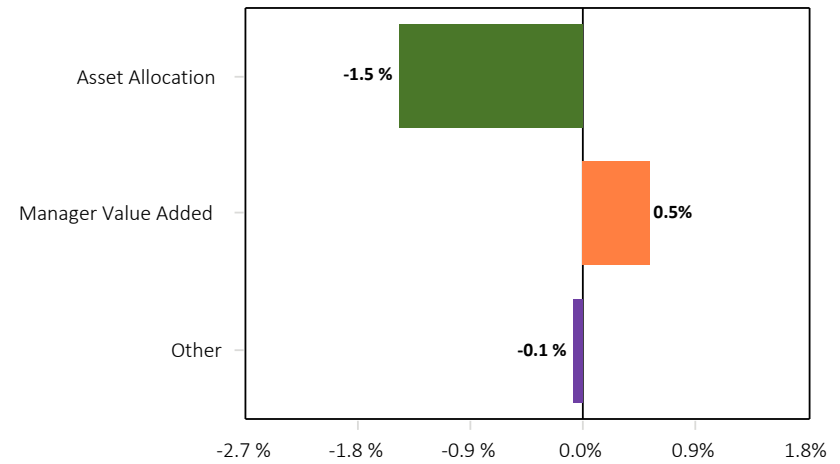
CERS (H) Pension Plan

Periods Ended 1 Year Ending March 31, 2022

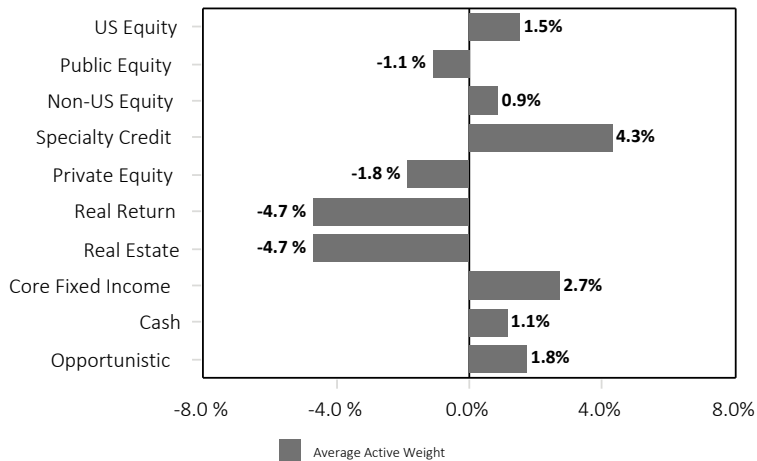
Total Fund Performance



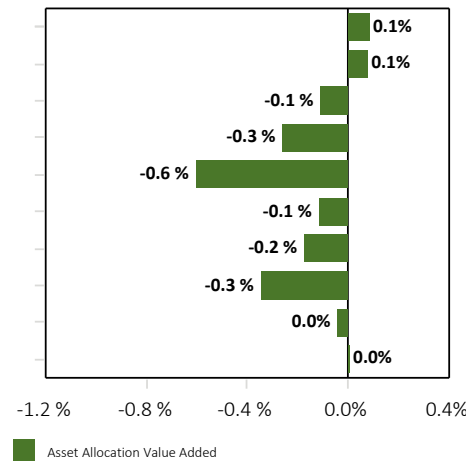
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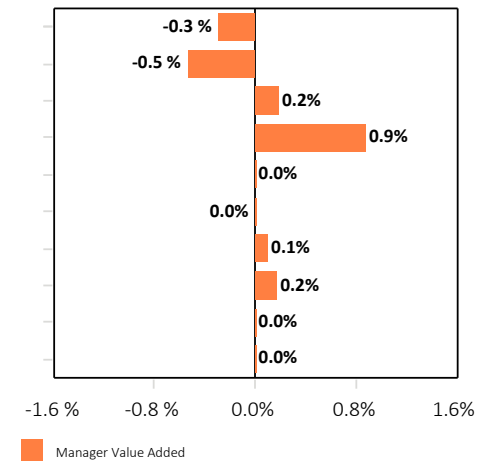
Total Asset Allocation:-1.5 %



Asset Allocation Value Added:-1.5 %



Total Manager Value Added:0.5%

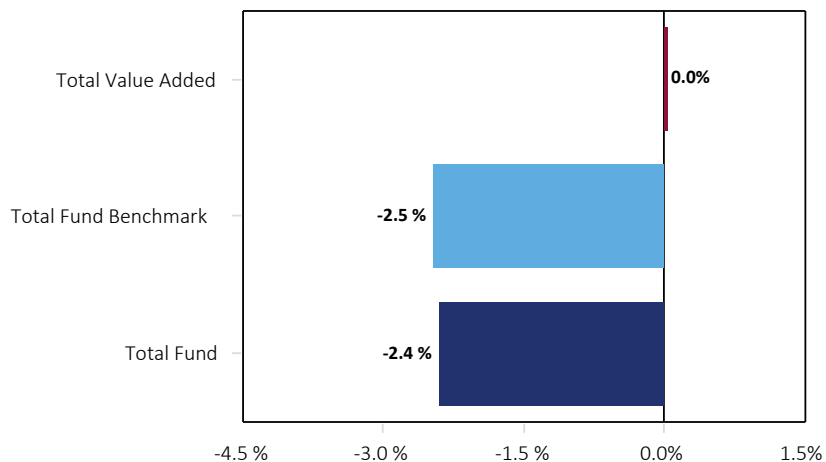


Total Fund Attribution

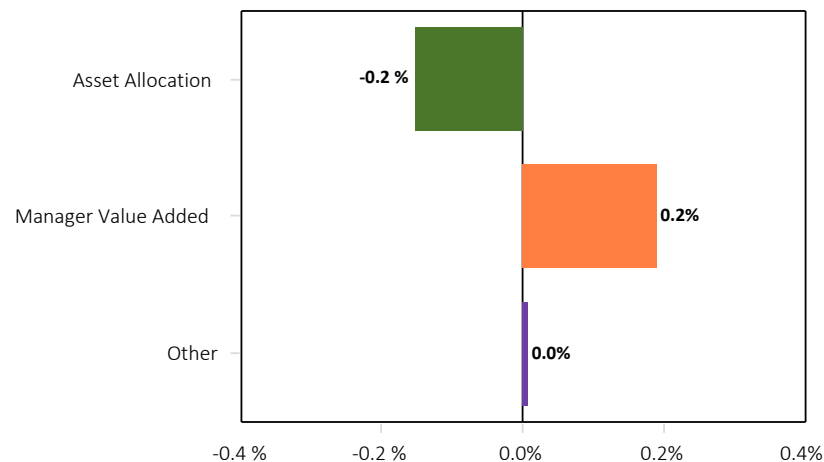
CERS (H) Insurance Plan

Periods Ended 1 Quarter Ending March 31, 2022

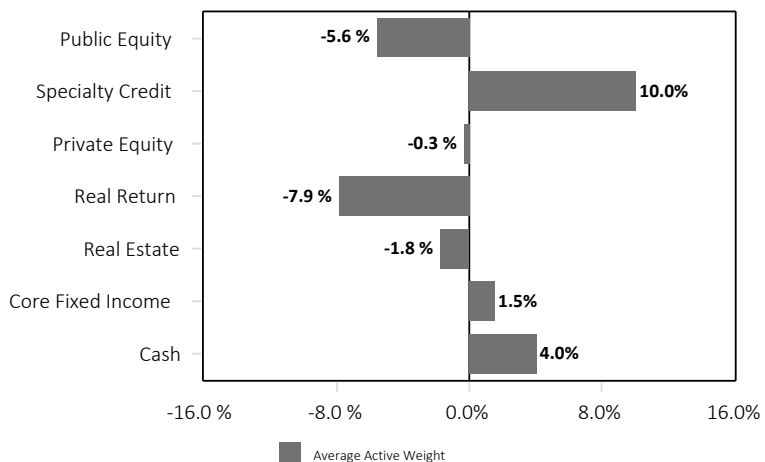
Total Fund Performance



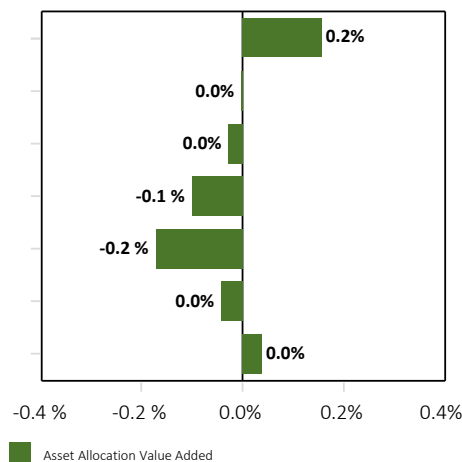
Total Value Added:0.0%



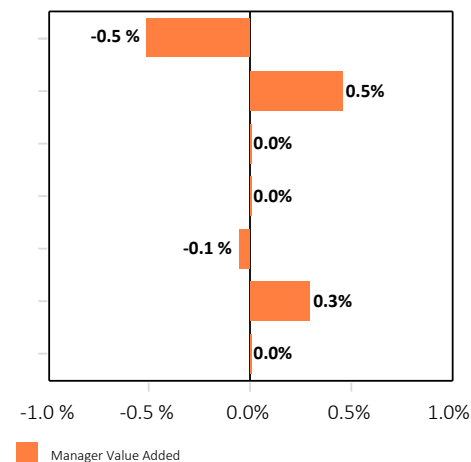
Total Asset Allocation:-0.2%



Asset Allocation Value Added:-0.2%



Total Manager Value Added:0.2%

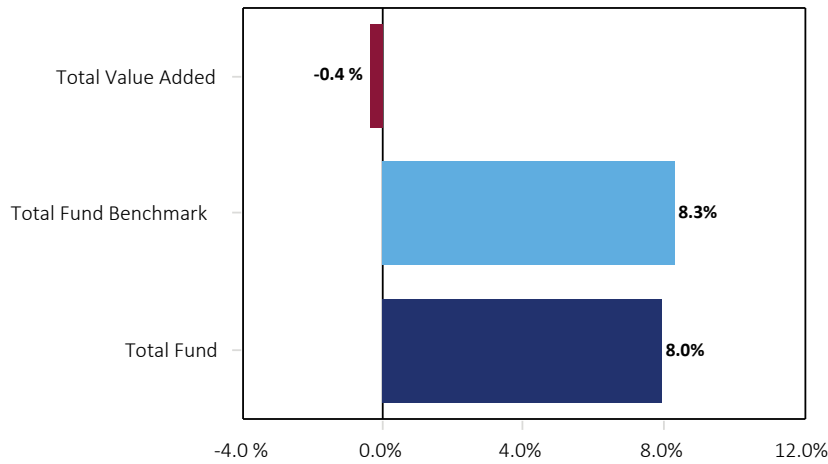


Total Fund Attribution

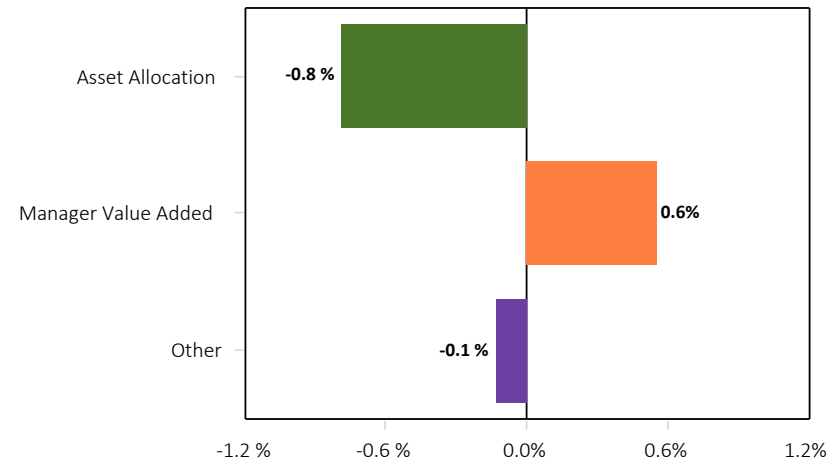
CERS (H) Insurance Plan

Periods Ended 1 Year Ending March 31, 2022

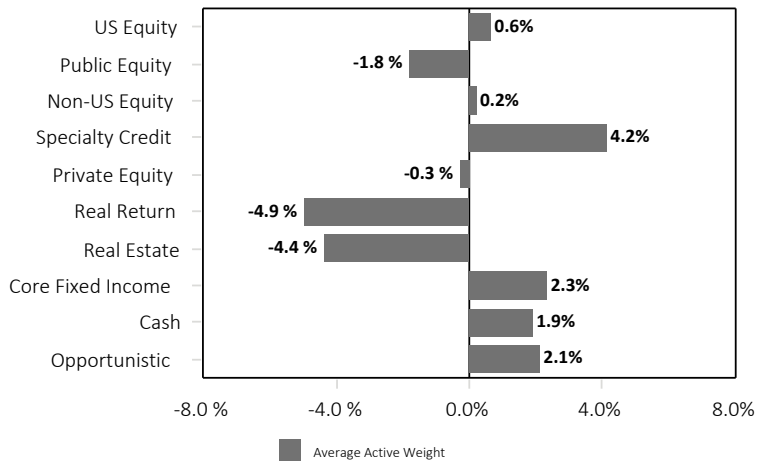
Total Fund Performance



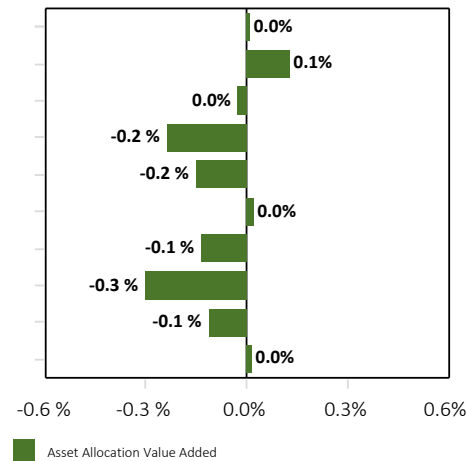
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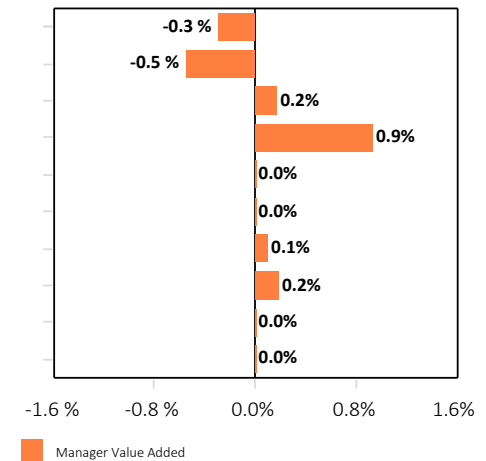
Total Asset Allocation:-0.8 %



Asset Allocation Value Added:-0.8 %



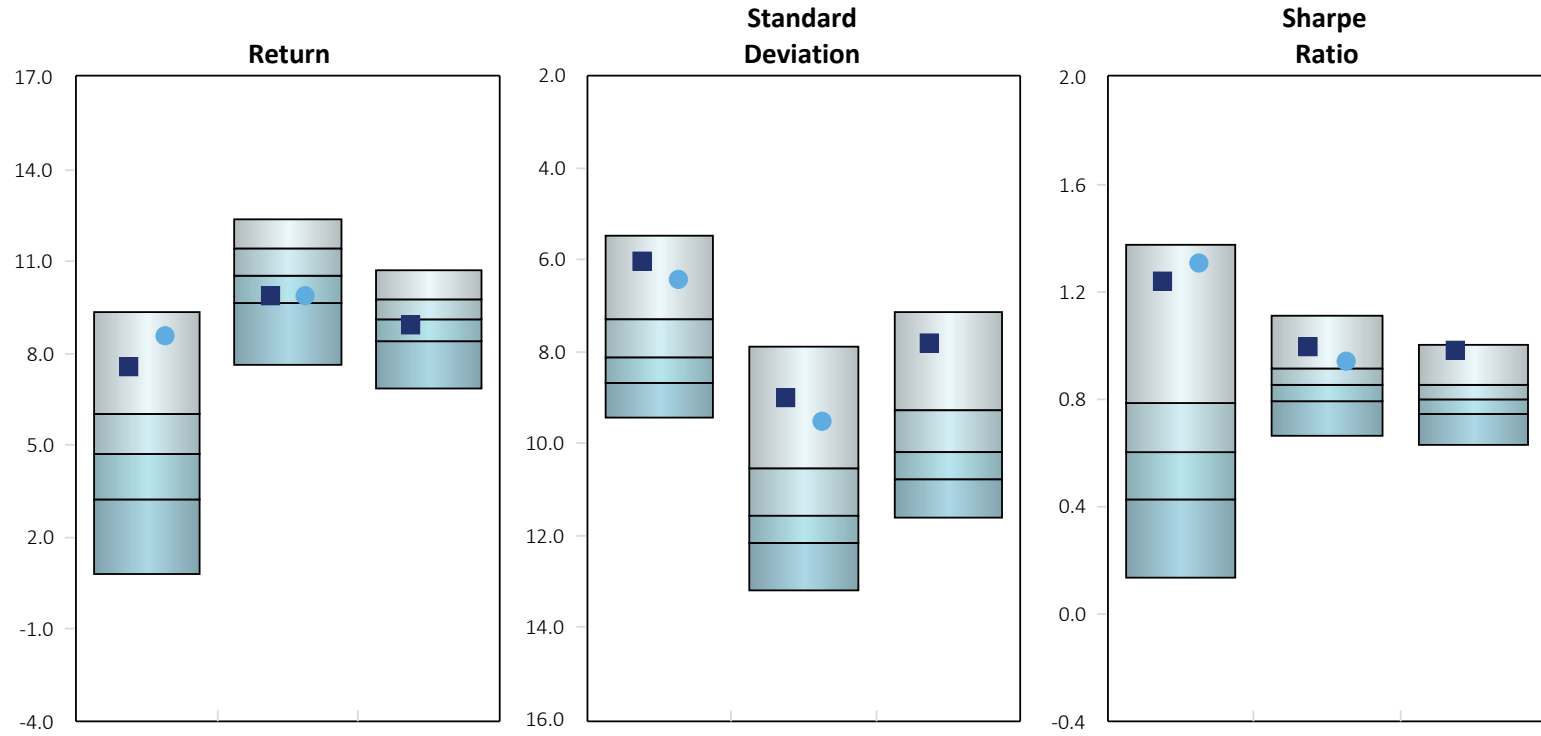
Total Manager Value Added:0.6%



Plan Sponsor Peer Group Analysis - Multi Statistics

CERS Pension Plan vs All Public Plans-Total Fund

Periods Ended March 31, 2022



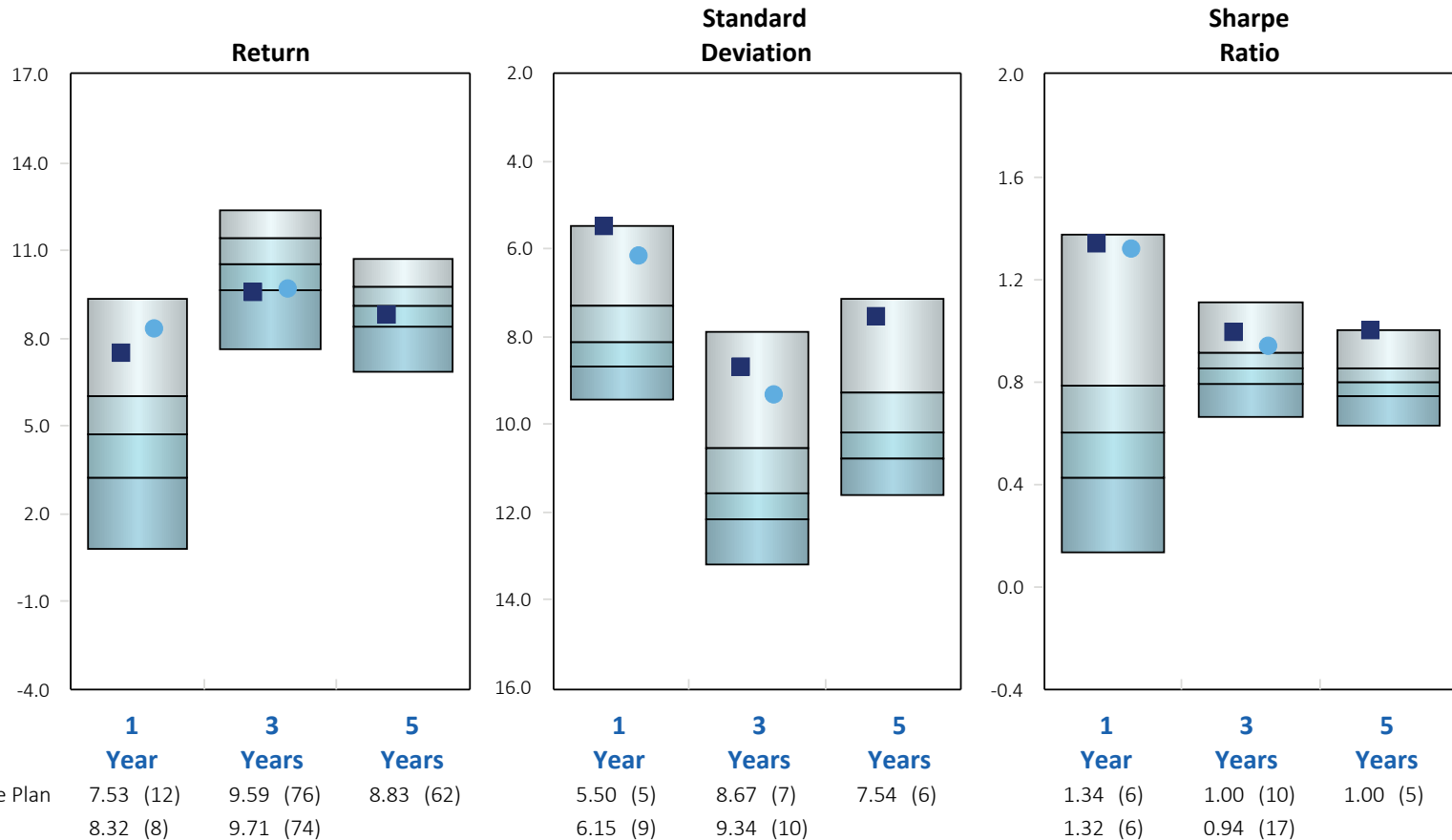
	1 Year	3 Years	5 Years	1 Year	3 Years	5 Years	1 Year	3 Years	5 Years
■ CERS Pension Plan	7.58 (12)	9.90 (70)	8.92 (59)	6.02 (8)	8.99 (9)	7.80 (8)	1.24 (6)	1.00 (10)	0.98 (6)
● CERS IPS Index	8.57 (7)	9.86 (70)		6.41 (11)	9.50 (11)		1.31 (6)	0.94 (17)	
5th Percentile	9.37	12.38	10.72	5.48	7.90	7.15	1.37	1.12	1.00
1st Quartile	6.04	11.40	9.78	7.30	10.53	9.27	0.79	0.91	0.86
Median	4.73	10.55	9.12	8.13	11.56	10.17	0.61	0.85	0.80
3rd Quartile	3.21	9.64	8.40	8.70	12.17	10.76	0.43	0.80	0.75
95th Percentile	0.79	7.64	6.85	9.42	13.21	11.63	0.14	0.66	0.63

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Peer Group Analysis - Multi Statistics

CERS Insurance Plan vs All Public Plans-Total Fund

Periods Ended March 31, 2022



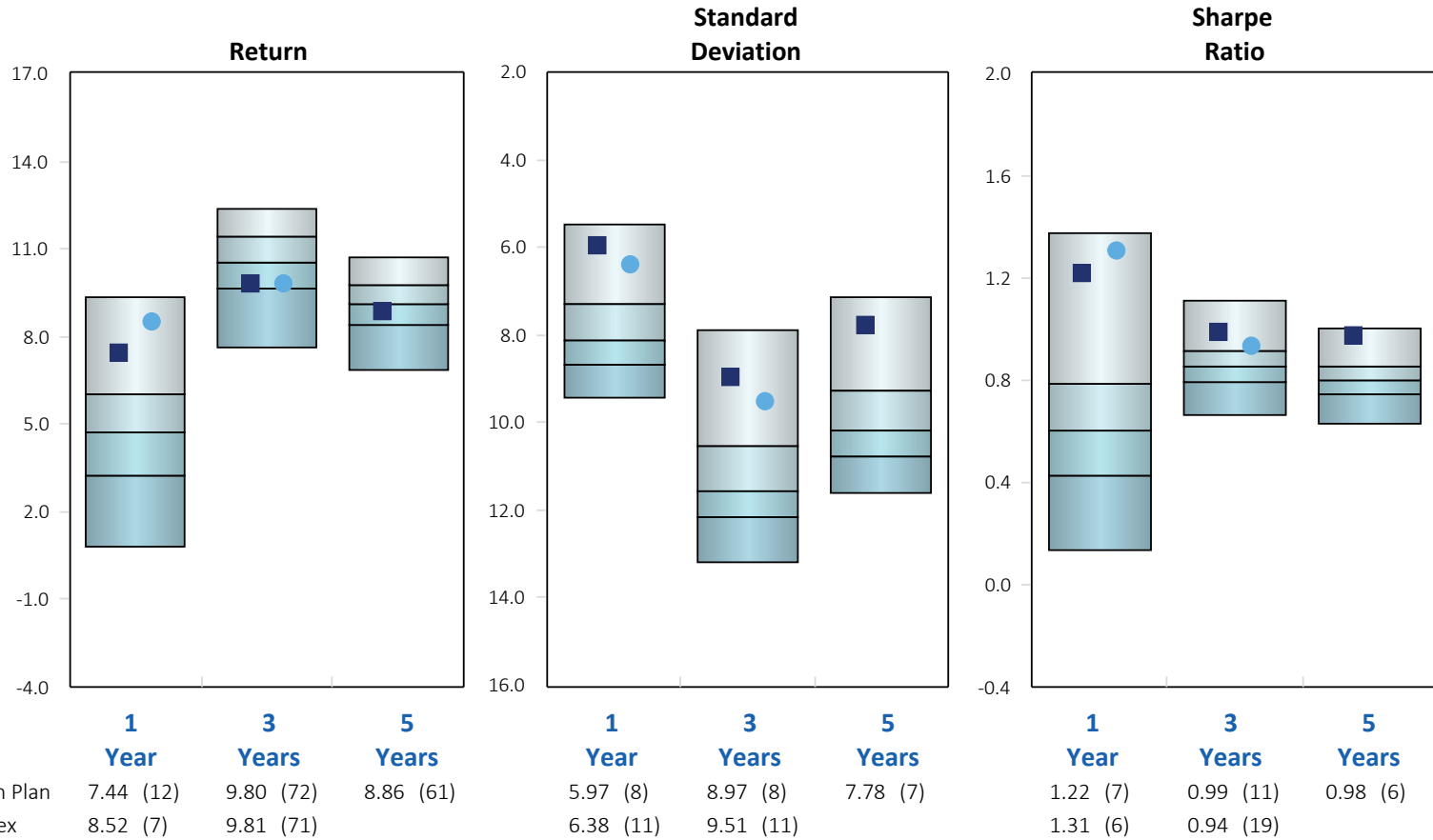
5th Percentile	9.37	12.38	10.72	5.48	7.90	7.15	1.37	1.12	1.00
1st Quartile	6.04	11.40	9.78	7.30	10.53	9.27	0.79	0.91	0.86
Median	4.73	10.55	9.12	8.13	11.56	10.17	0.61	0.85	0.80
3rd Quartile	3.21	9.64	8.40	8.70	12.17	10.76	0.43	0.80	0.75
95th Percentile	0.79	7.64	6.85	9.42	13.21	11.63	0.14	0.66	0.63

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Peer Group Analysis - Multi Statistics

CERS (H) Pension Plan vs All Public Plans-Total Fund

Periods Ended March 31, 2022



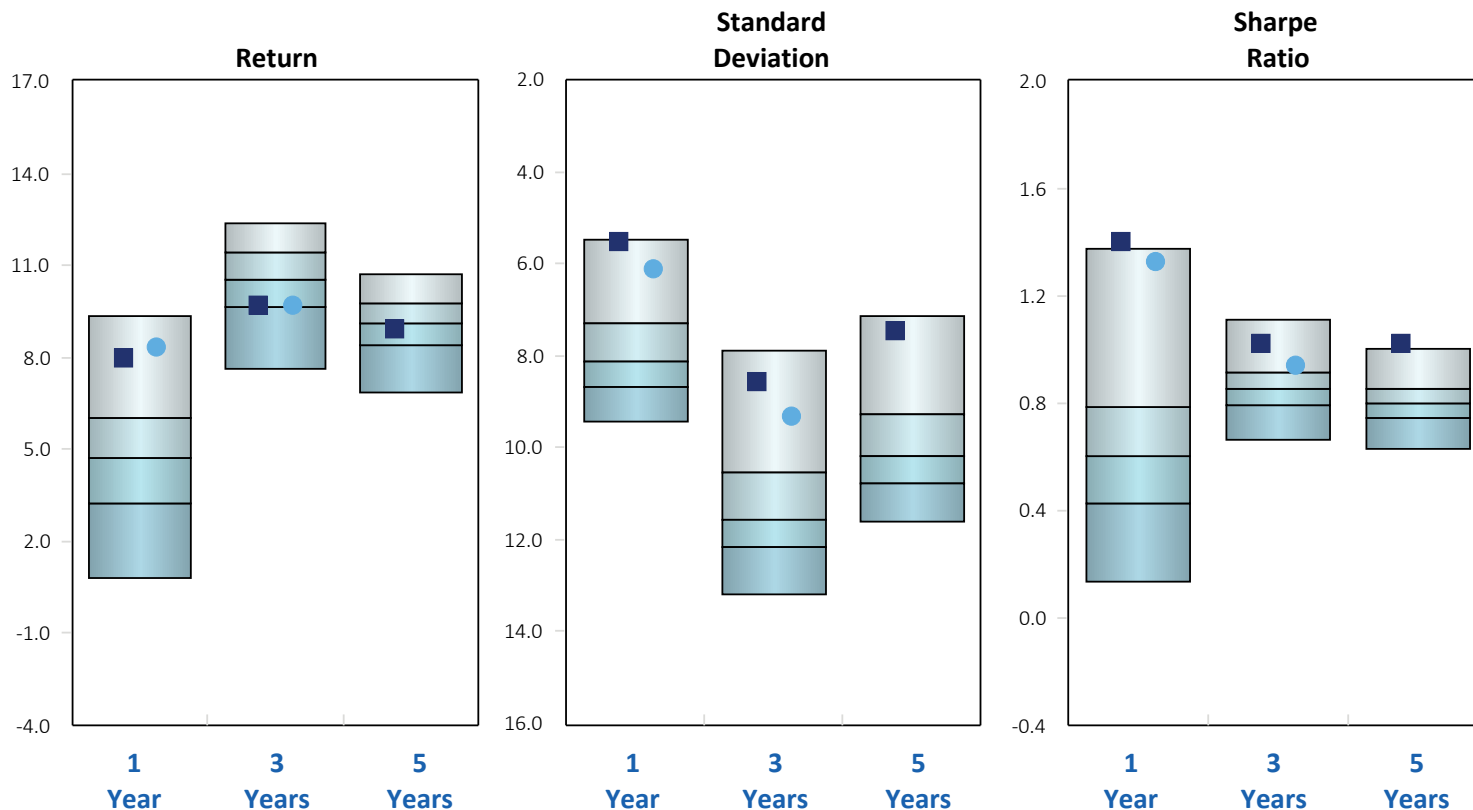
	1 Year	3 Years	5 Years
5th Percentile	9.37	12.38	10.72
1st Quartile	6.04	11.40	9.78
Median	4.73	10.55	9.12
3rd Quartile	3.21	9.64	8.40
95th Percentile	0.79	7.64	6.85

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Peer Group Analysis - Multi Statistics

CERS (H) Insurance Plan vs All Public Plans-Total Fund

Periods Ended March 31, 2022



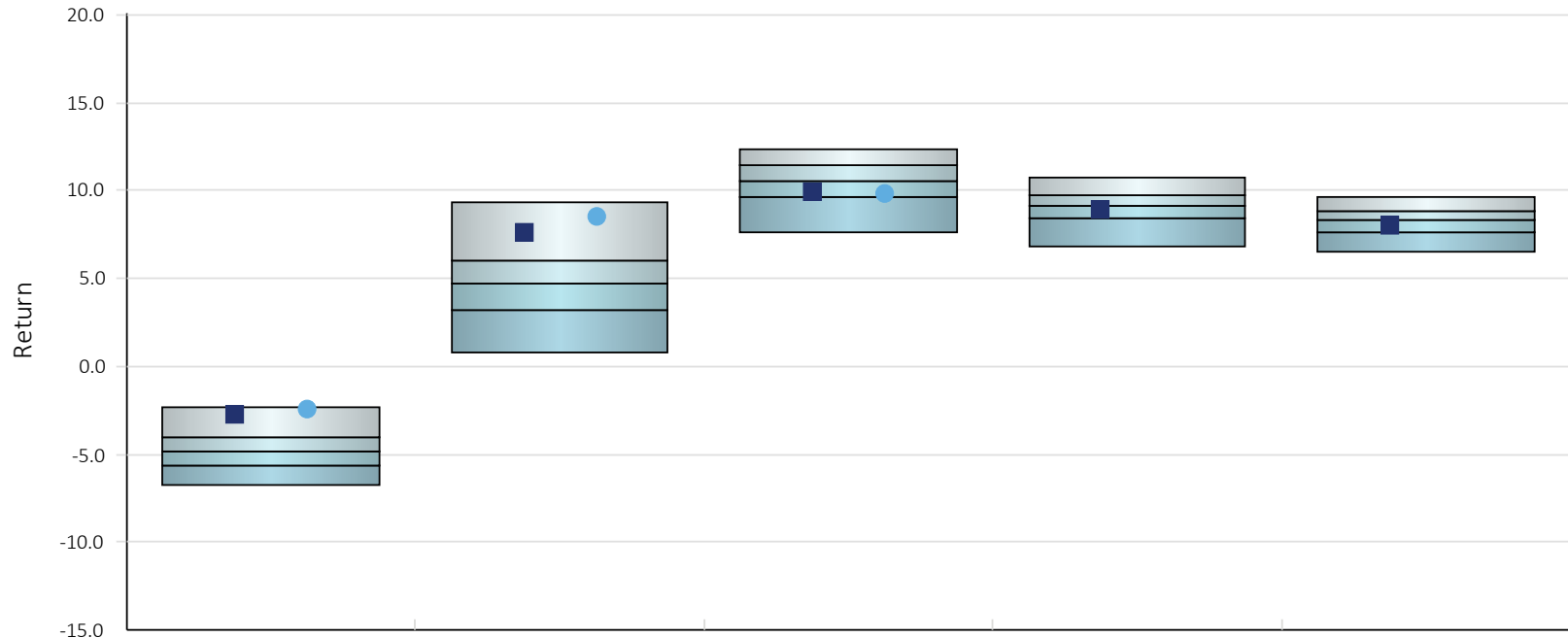
	1 Year	3 Years	5 Years	1 Year	3 Years	5 Years	1 Year	3 Years	5 Years
■ CERS (H) Insurance Plan	7.96 (9)	9.73 (74)	8.95 (58)	5.53 (5)	8.56 (7)	7.46 (6)	1.40 (5)	1.02 (8)	1.03 (5)
● CERS (H) IPS Index	8.32 (8)	9.68 (75)		6.13 (9)	9.32 (10)		1.33 (6)	0.94 (17)	
5th Percentile	9.37	12.38	10.72	5.48	7.90	7.15	1.37	1.12	1.00
1st Quartile	6.04	11.40	9.78	7.30	10.53	9.27	0.79	0.91	0.86
Median	4.73	10.55	9.12	8.13	11.56	10.17	0.61	0.85	0.80
3rd Quartile	3.21	9.64	8.40	8.70	12.17	10.76	0.43	0.80	0.75
95th Percentile	0.79	7.64	6.85	9.42	13.21	11.63	0.14	0.66	0.63

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Peer Group Analysis

CERS Pension Plan vs All Public Plans-Total Fund

Periods Ended March 31, 2022



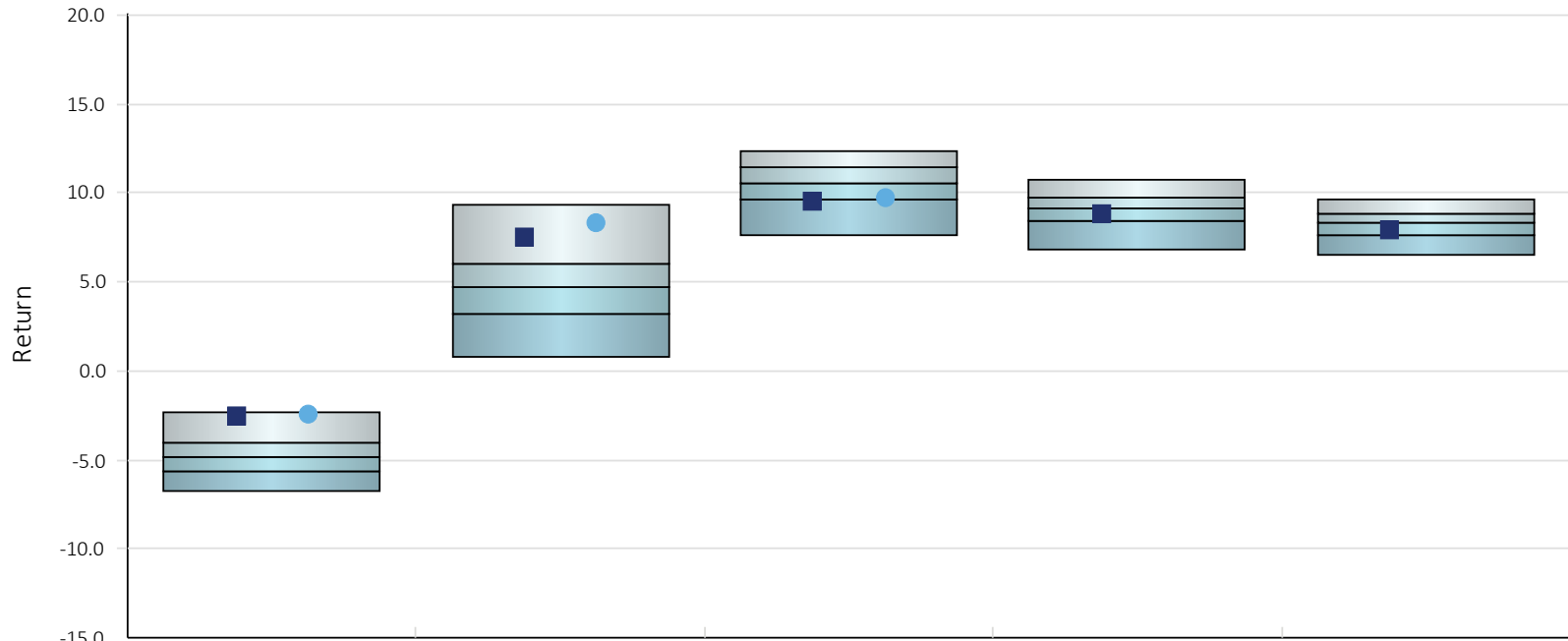
	QTD	1 Year	3 Years	5 Years	10 Years
■ CERS Pension Plan	-2.76 (8)	7.58 (12)	9.90 (70)	8.92 (59)	8.03 (61)
● CERS IPS Index	-2.43 (6)	8.57 (7)	9.86 (70)		
5th Percentile	-2.35	9.37	12.38	10.72	9.60
1st Quartile	-4.03	6.04	11.40	9.78	8.82
Median	-4.83	4.73	10.55	9.12	8.30
3rd Quartile	-5.68	3.21	9.64	8.40	7.67
95th Percentile	-6.75	0.79	7.64	6.85	6.48
Population	627	621	609	576	467

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Peer Group Analysis

CERS Insurance Plan vs All Public Plans-Total Fund

Periods Ended March 31, 2022



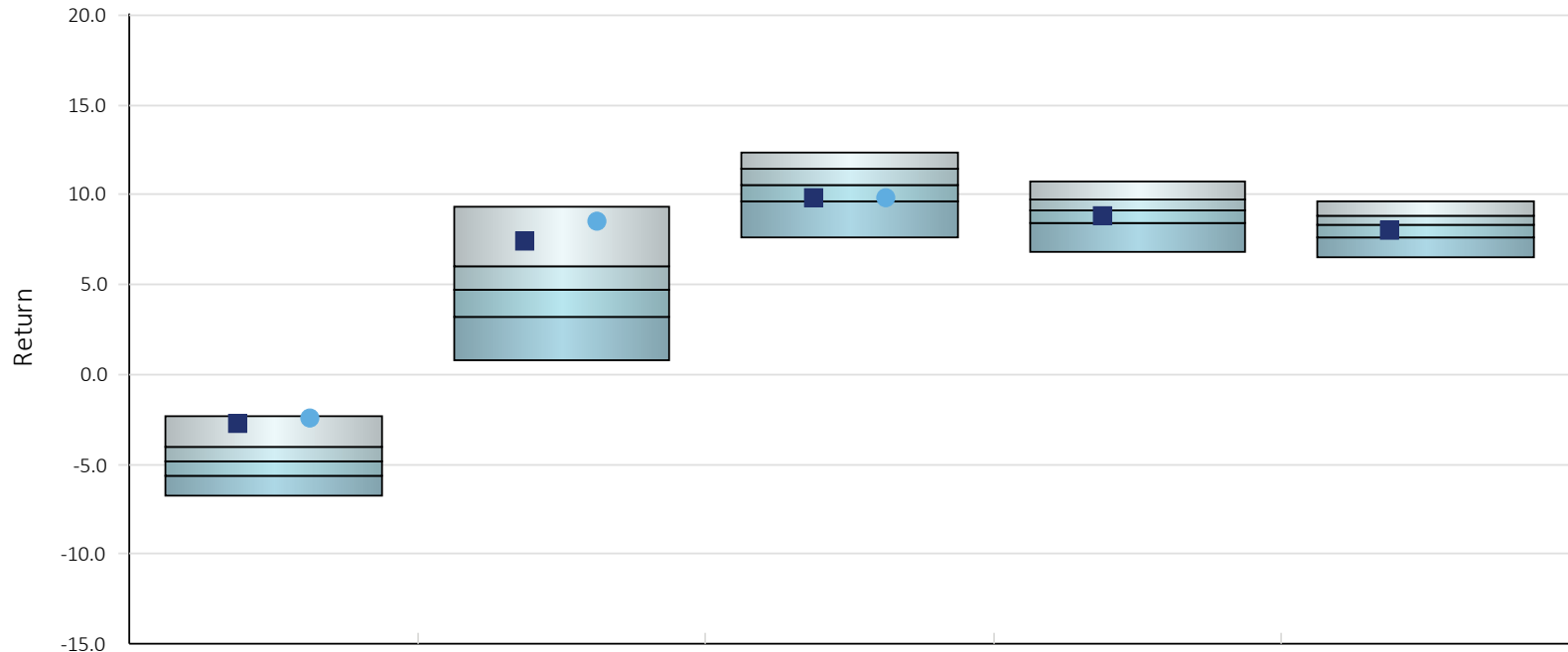
	QTD	1 Year	3 Years	5 Years	10 Years
■ CERS Insurance Plan	-2.48 (6)	7.53 (12)	9.59 (76)	8.83 (62)	7.88 (68)
● CERS IPS Index	-2.48 (6)	8.32 (8)	9.71 (74)		
5th Percentile	-2.35	9.37	12.38	10.72	9.60
1st Quartile	-4.03	6.04	11.40	9.78	8.82
Median	-4.83	4.73	10.55	9.12	8.30
3rd Quartile	-5.68	3.21	9.64	8.40	7.67
95th Percentile	-6.75	0.79	7.64	6.85	6.48
Population	627	621	609	576	467

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Peer Group Analysis

CERS (H) Pension Plan vs All Public Plans-Total Fund

Periods Ended March 31, 2022



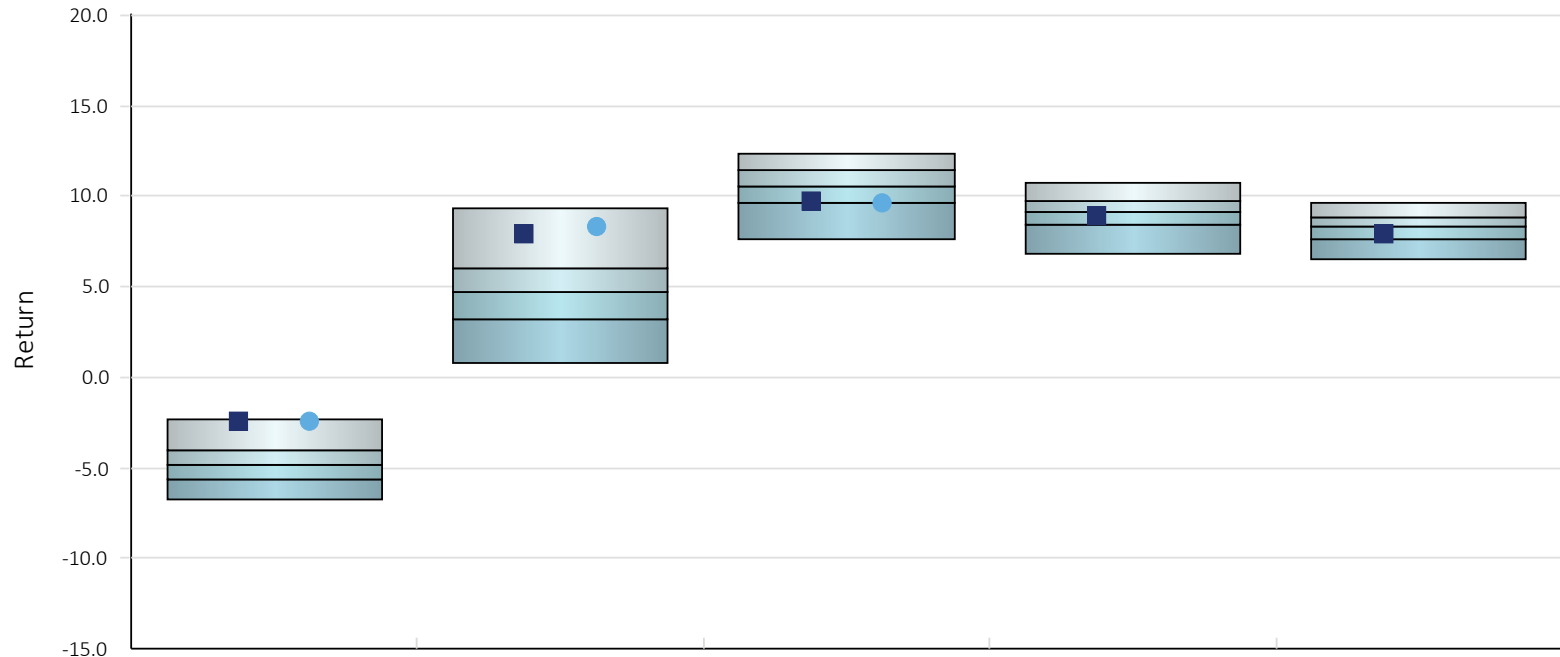
	QTD	1 Year	3 Years	5 Years	10 Years
■ CERS (H) Pension Plan	-2.77 (8)	7.44 (12)	9.80 (72)	8.86 (61)	8.01 (62)
● CERS (H) IPS Index	-2.43 (6)	8.52 (7)	9.81 (71)		
5th Percentile	-2.35	9.37	12.38	10.72	9.60
1st Quartile	-4.03	6.04	11.40	9.78	8.82
Median	-4.83	4.73	10.55	9.12	8.30
3rd Quartile	-5.68	3.21	9.64	8.40	7.67
95th Percentile	-6.75	0.79	7.64	6.85	6.48
Population	627	621	609	576	467

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Peer Group Analysis

CERS (H) Insurance Plan vs All Public Plans-Total Fund

Periods Ended March 31, 2022



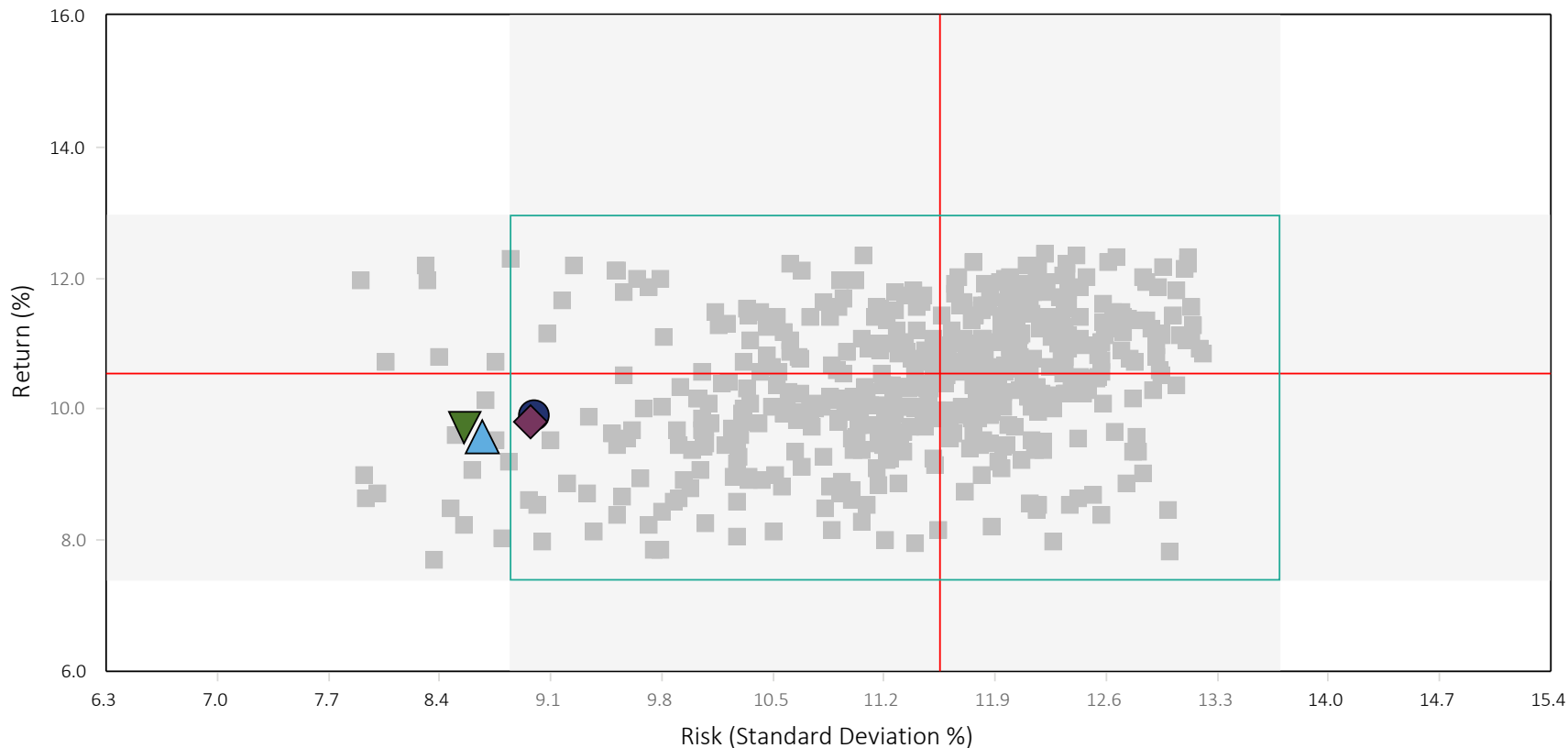
	QTD	1 Year	3 Years	5 Years	10 Years
■ CERS (H) Insurance Plan	-2.41 (6)	7.96 (9)	9.73 (74)	8.95 (58)	7.95 (64)
● CERS (H) IPS Index	-2.46 (6)	8.32 (8)	9.68 (75)		
5th Percentile	-2.35	9.37	12.38	10.72	9.60
1st Quartile	-4.03	6.04	11.40	9.78	8.82
Median	-4.83	4.73	10.55	9.12	8.30
3rd Quartile	-5.68	3.21	9.64	8.40	7.67
95th Percentile	-6.75	0.79	7.64	6.86	6.48
Population	627	621	610	577	468

Parentheses contain percentile rankings.
Calculation based on monthly periodicity.

Plan Sponsor Scattergram

CERS Pension Plan vs All Public Plans-Total Fund

Periods Ended 3 Years Ending March 31, 2022



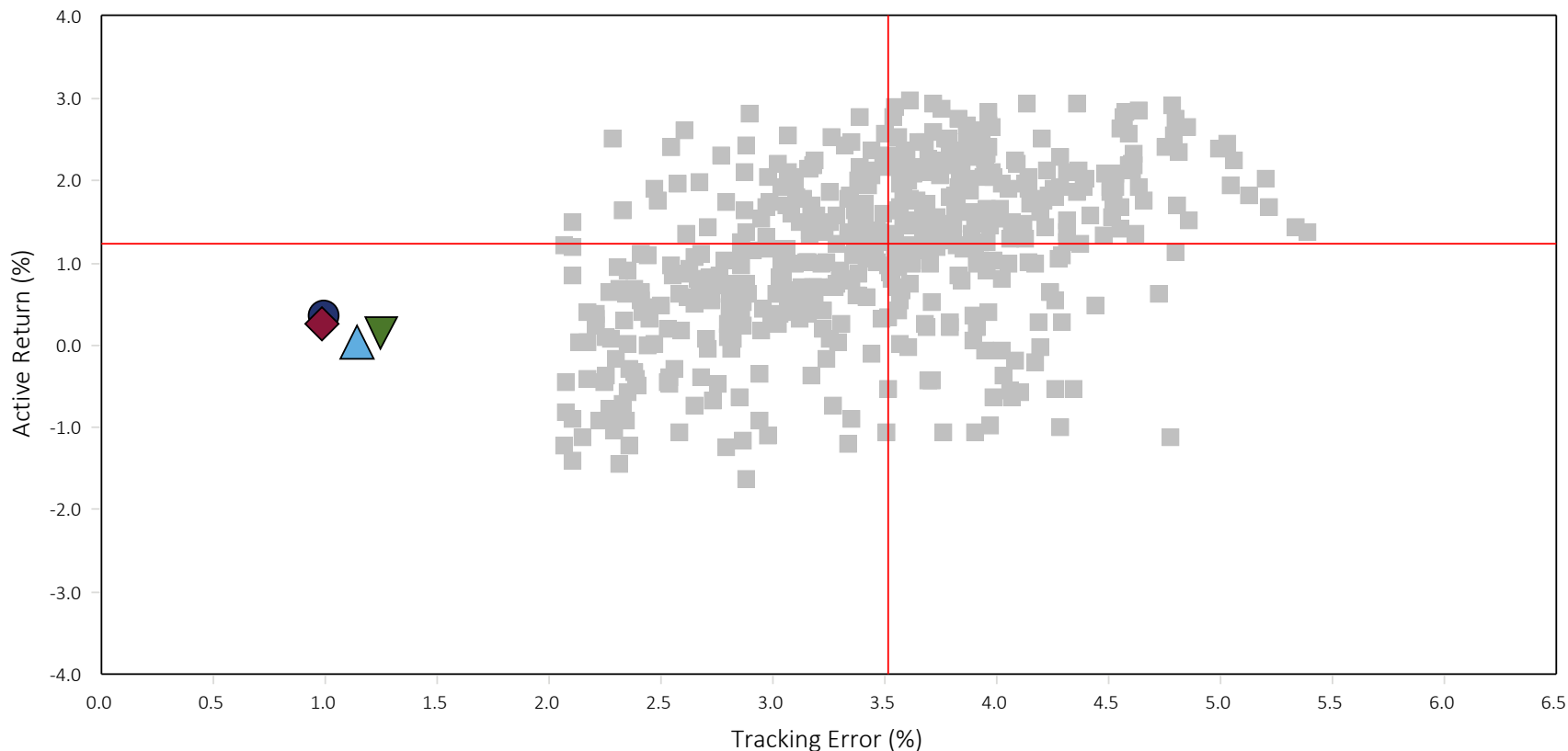
	Return	Standard Deviation
● CERS Pension Plan	9.90	8.99
▲ CERS Insurance Plan	9.59	8.67
◆ CERS (H) Pension Plan	9.80	8.97
▼ CERS (H) Insurance Plan	9.73	8.56
— Median	10.55	11.56

Calculation based on monthly periodicity.

Plan Sponsor Scattergram

CERS Pension Plan vs All Public Plans-Total Fund

Periods Ended 3 Years Ending March 31, 2022



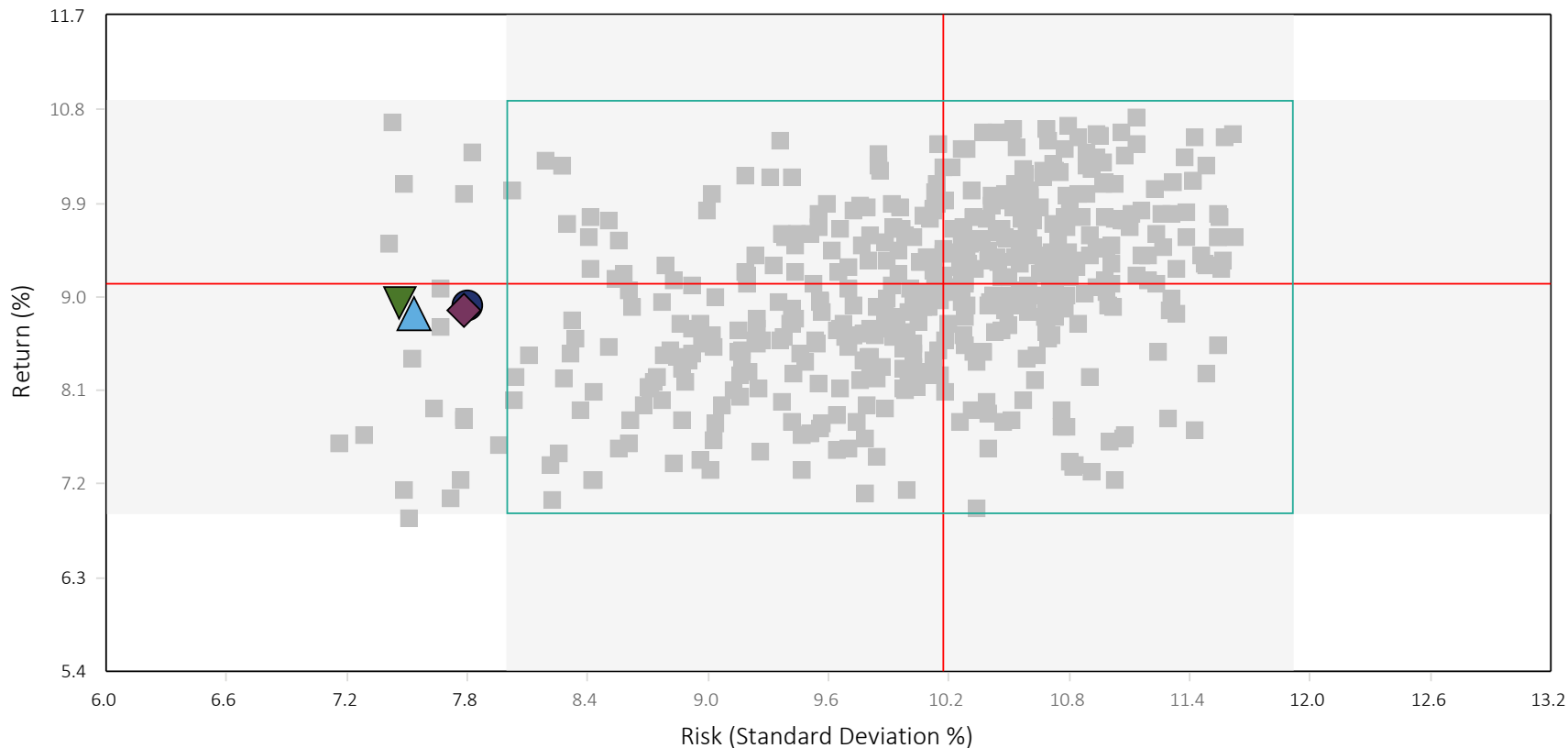
	Active Return	Tracking Error
● CERS Pension Plan	0.36	0.99
▲ CERS Insurance Plan	0.05	1.14
◆ CERS (H) Pension Plan	0.27	0.99
▼ CERS (H) Insurance Plan	0.16	1.25
— Median	1.24	3.52

Calculation based on monthly periodicity.

Plan Sponsor Scattergram

CERS Pension Plan vs All Public Plans-Total Fund

Periods Ended 5 Years Ending March 31, 2022



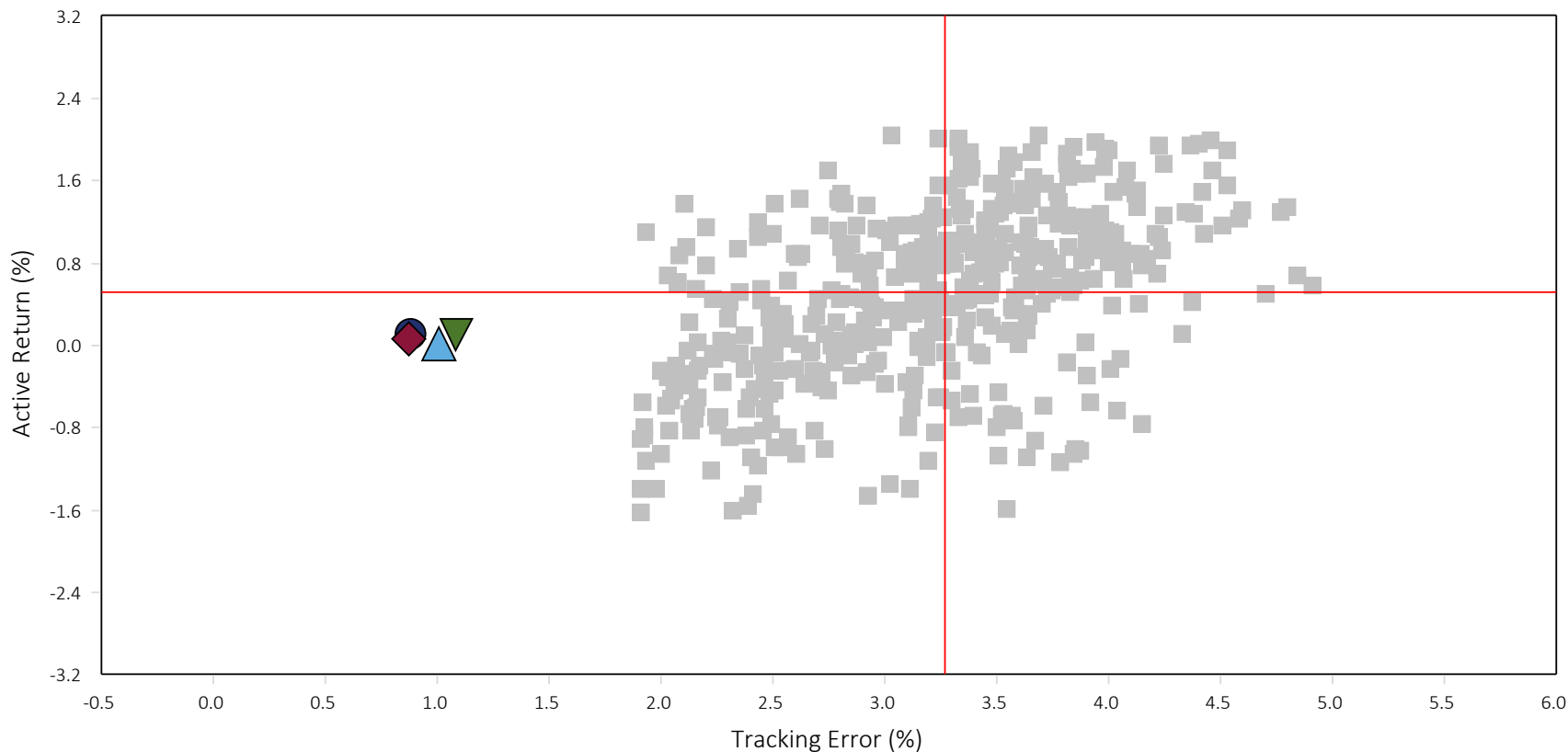
	Return	Standard Deviation
● CERS Pension Plan	8.92	7.80
▲ CERS Insurance Plan	8.83	7.54
◆ CERS (H) Pension Plan	8.86	7.78
▼ CERS (H) Insurance Plan	8.95	7.46
— Median	9.12	10.17

Calculation based on monthly periodicity.

Plan Sponsor Scattergram

CERS Pension Plan vs All Public Plans-Total Fund

Periods Ended 5 Years Ending March 31, 2022



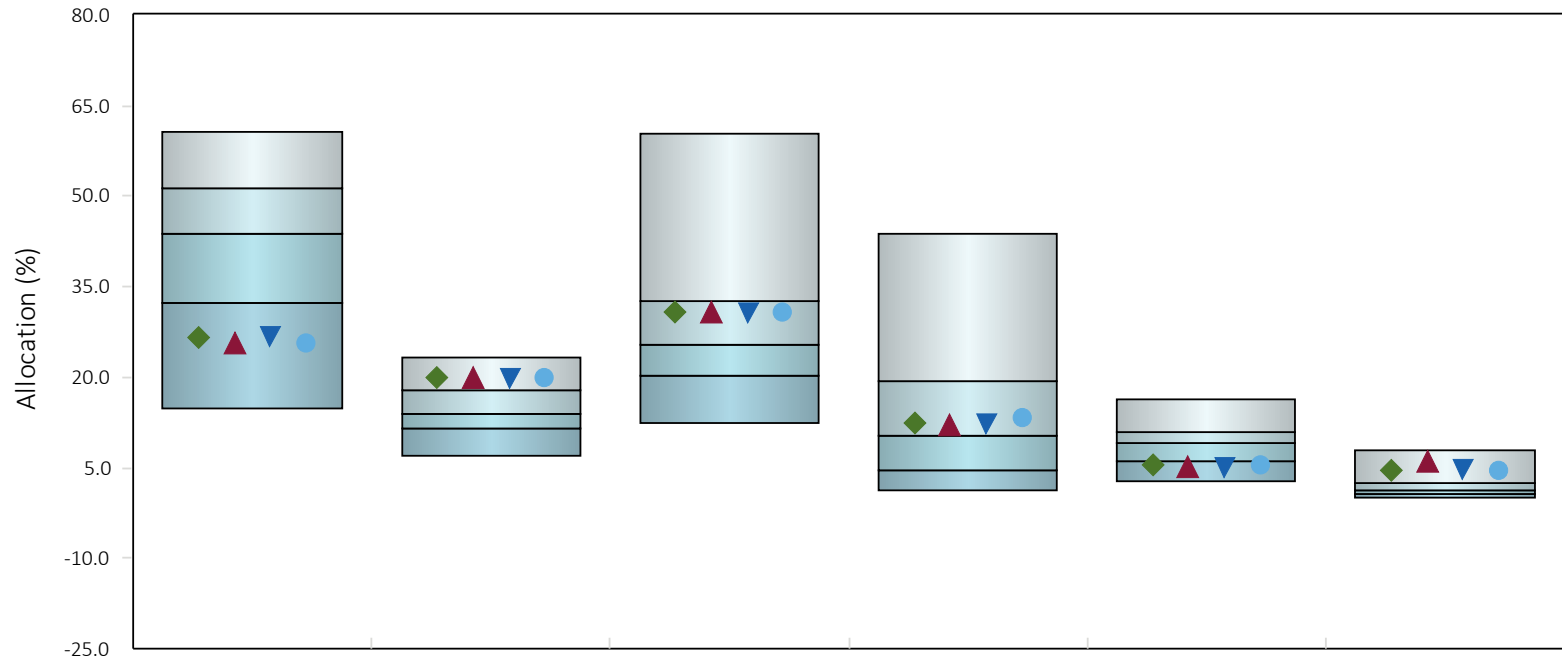
	Active Return	Tracking Error
● CERS Pension Plan	0.11	0.88
▲ CERS Insurance Plan	0.02	1.01
◆ CERS (H) Pension Plan	0.07	0.87
▼ CERS (H) Insurance Plan	0.12	1.08
— Median	0.53	3.27

Calculation based on monthly periodicity.

Plan Sponsor TF Asset Allocation

CERS Pension Plan vs All Public Plans-Total Fund

Periods Ended March 31, 2022



	US Equity	Global ex-US Equity	Total Fixed Income	Alternatives	Total Real Estate	Cash & Equivalents
◆ CERS Pension Plan	26.72	19.96	30.87	12.51	5.48	4.46
▲ CERS Insurance Plan	25.71	20.00	30.95	12.11	5.06	6.17
▼ CERS (H) Pension Plan	26.86	19.97	30.84	12.30	5.13	4.90
● CERS (H) Insurance Plan	25.58	19.97	30.94	13.32	5.49	4.70
5th Percentile	60.84	23.18	60.30	43.70	16.26	7.88
1st Quartile	51.30	17.90	32.53	19.48	11.00	2.57
Median	43.86	14.00	25.46	10.42	9.17	1.21
3rd Quartile	32.47	11.38	20.28	4.46	6.10	0.55
95th Percentile	14.72	7.06	12.43	1.37	2.64	0.08

Asset Allocation & Performance

Total Fund

Periods Ended March 31, 2022

	Market Value \$	Performance (%) net of fees							
		1 Month	QTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
CERS Pension Plan	8,645,256,968	1.13	-2.76	1.84	7.58	9.90	8.92	9.10	4/1/1984
CERS IPS Index		1.91	-2.43	2.65	8.57	9.86			
Value Added		-0.78	-0.33	-0.81	-0.99	0.04			
Assumed Rate 6.25%		0.51	1.53	4.65	6.25	6.25			
Value Added		0.62	-4.29	-2.81	1.33	3.65			
CERS Insurance Plan	3,236,292,906	1.13	-2.48	2.23	7.53	9.59	8.83	7.58	4/1/1987
CERS IPS Index		1.93	-2.48	2.88	8.32	9.71			
Value Added		-0.80	0.00	-0.65	-0.79	-0.12			
Assumed Rate 6.25%		0.51	1.53	4.65	6.25	6.25			
Value Added		0.62	-4.01	-2.42	1.28	3.34			
CERS (H) Pension Plan	2,939,177,520	1.11	-2.77	1.78	7.44	9.80	8.86	9.10	4/1/1984
CERS (H) IPS Index		1.91	-2.43	2.66	8.52	9.81			
Value Added		-0.80	-0.34	-0.88	-1.08	-0.01			
Assumed Rate 6.25%		0.51	1.53	4.65	6.25	6.25			
Value Added		0.60	-4.30	-2.87	1.19	3.55			
CERS (H) Insurance Plan	1,632,840,676	1.21	-2.41	2.55	7.96	9.73	8.95	7.60	4/1/1987
CERS (H) IPS Index		1.94	-2.46	2.90	8.32	9.68			
Value Added		-0.73	0.05	-0.35	-0.36	0.05			
Assumed Rate 6.25%		0.51	1.53	4.65	6.25	6.25			
Value Added		0.70	-3.94	-2.10	1.71	3.48			

Asset Allocation & Performance

Insurance Plan Accounts

Periods Ended March 31, 2022

	Performance (%) net of fees							
	1 Month	QTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Public Equity	1.67	-6.61					-2.78	12/1/2021
MSCI AC World Index	2.22	-5.26					-1.44	
Value Added	-0.55	-1.35					-1.34	
US Equity Composite	2.82	-5.03	3.46	11.48	17.80	14.70	10.39	7/1/1992
Russell 3000 Index	3.24	-5.28	3.40	11.92	18.24	15.40	10.61	
Value Added	-0.42	0.25	0.06	-0.44	-0.44	-0.70	-0.22	
S&P 500 Index	3.78	-4.59	6.44	15.43	19.20	16.24	9.05	7/1/2001
S&P 500 Index	3.71	-4.60	6.54	15.65	18.92	15.99	8.62	
value added	0.07	0.01	-0.10	-0.22	0.28	0.25	0.43	
Scientific Beta	2.69	-4.48	3.99	11.37	14.13	12.53	12.57	7/1/2016
S&P 500 Index	3.71	-4.60	6.54	15.65	18.92	15.99	16.45	
Value Added	-1.02	0.12	-2.55	-4.28	-4.79	-3.46	-3.88	
River Road FAV	0.23	-6.16	-5.00	-0.14	8.63	9.39	11.86	7/1/2016
Russell 3000 Value Index	2.77	-0.85	5.64	11.10	12.99	10.16	11.41	
Value Added	-2.54	-5.31	-10.64	-11.24	-4.36	-0.77	0.45	
Westfield Capital	2.33	-7.45	0.51	11.36	22.98	20.11	15.53	7/1/2011
Russell 3000 Growth Index	3.71	-9.25	1.33	12.86	22.68	20.16	16.36	
Value Added	-1.38	1.80	-0.82	-1.50	0.30	-0.05	-0.83	
Internal US Mid Cap	1.31	-4.90	0.92	4.47	14.49	11.67	11.33	8/1/2014
S&P MidCap 400 Index	1.38	-4.88	0.92	4.59	14.14	11.10	10.94	
Value Added	-0.07	-0.02	0.00	-0.12	0.35	0.57	0.39	
NTGI Structured	1.10	-5.99	-4.12	0.09	13.40	11.05	11.53	7/1/2011
Russell 2000 Index	1.24	-7.53	-9.66	-5.79	11.74	9.74	10.38	
Value Added	-0.14	1.54	5.54	5.88	1.66	1.31	1.15	

Asset Allocation & Performance

Insurance Plan Accounts

Periods Ended March 31, 2022

	Performance (%) net of fees							
	1 Month	QTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Next Century Growth	-0.54	-11.14	-8.22	2.14			46.37	11/1/2019
Russell Microcap Growth Index	0.84	-13.71	-27.80	-25.51			14.99	
Value Added	-1.38	2.57	19.58	27.65			31.38	
Non-US Equity Composite	0.23	-8.20	-9.06	-3.73	8.20	7.81	3.01	4/1/2000
MSCI ACWI ex US IMI (10/17)	0.28	-5.60	-6.50	-1.27	7.87	6.98	3.17	
Value Added	-0.05	-2.60	-2.56	-2.46	0.33	0.83	-0.16	
BlackRock World Ex US	1.16	-4.78	-2.42	3.15	8.13	7.14	7.37	6/1/2012
MSCI World ex US (11/19)	1.16	-4.81	-2.46	3.04	8.04	7.08	7.29	
value added	0.00	0.03	0.04	0.11	0.09	0.06	0.08	
American Century	1.11	-13.60	-12.63	-6.17	13.78	13.16	7.56	7/1/2014
MSCI ACWI ex US IMI (10/17)	0.28	-5.60	-6.50	-1.27	7.87	6.94	4.15	
Value Added	0.83	-8.00	-6.13	-4.90	5.91	6.22	3.41	
Franklin Templeton	0.38	-14.98	-19.22	-12.87	7.36	8.71	6.26	7/1/2014
MSCI ACWI ex US IMI (10/17)	0.28	-5.60	-6.50	-1.27	7.87	6.94	4.15	
Value Added	0.10	-9.38	-12.72	-11.60	-0.51	1.77	2.11	
Lazard Asset Mgmt	-1.46	-6.21	-8.21	-4.29	6.65	7.39	4.54	7/1/2014
MSCI ACWI ex US IMI (10/17)	0.28	-5.60	-6.50	-1.27	7.87	6.94	4.15	
Value Added	-1.74	-0.61	-1.71	-3.02	-1.22	0.45	0.39	
LSV Asset Mgmt	0.08	-3.03	-3.50	1.79	6.06	5.39	3.40	7/1/2014
MSCI ACWI ex US IMI (10/17)	0.28	-5.60	-6.50	-1.27	7.87	6.94	4.15	
Value Added	-0.20	2.57	3.00	3.06	-1.81	-1.55	-0.75	
Axiom	1.06	-17.01					-13.21	12/1/2021
MSCI AC World ex USA Small Cap (Net)	1.02	-6.52					-2.56	
Value Added	0.04	-10.49					-10.65	

Asset Allocation & Performance

Insurance Plan Accounts

Periods Ended March 31, 2022

	Performance (%) net of fees							
	1 Month	QTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
JP Morgan Emerging Markets	-3.54	-17.41	-25.88	-18.93			5.62	11/1/2019
MSCI Emerging Markets IMI	-1.62	-6.59	-14.16	-9.18			7.46	
Value Added	-1.92	-10.82	-11.72	-9.75			-1.84	
Pzena Emerging Markets	1.62	-0.98	-5.33	-4.68			8.73	11/1/2019
MSCI Emerging Markets (Net)	-2.26	-6.97	-15.62	-11.37			5.99	
Value Added	3.88	5.99	10.29	6.69			2.74	
Private Equity Composite	5.00	6.06	26.92	41.07	18.37	17.44	11.45	7/1/2002
KRS Short-Term PE Index	5.00	6.06	26.92	41.07	18.37	17.44	11.45	
Value Added	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Russell 3000 +3% 1 Quarter Lag	4.19	10.09	20.81	29.43	29.56	21.51	13.09	
Value Added	0.81	-4.03	6.11	11.64	-11.19	-4.07	-1.64	
Core Fixed Income Composite	-1.72	-3.36	-3.43	-2.59	2.41		3.16	10/1/2018
Blmbg. U.S. Aggregate	-2.78	-5.93	-5.87	-4.15	1.69		2.76	
Value Added	1.06	2.57	2.44	1.56	0.72		0.40	
NISA	-2.75	-5.85	-5.81	-4.03	1.66	2.17	2.67	7/1/2011
Blmbg. U.S. Aggregate	-2.78	-5.93	-5.87	-4.15	1.69	2.14	2.57	
Value Added	0.03	0.08	0.06	0.12	-0.03	0.03	0.10	
Loomis Sayles Intmd	-2.58	-4.88	-5.40	-4.53	1.75		2.15	2/1/2019
Blmbg. U.S. Intermediate Aggregate	-2.51	-4.69	-5.12	-4.38	1.19		1.58	
Value Added	-0.07	-0.19	-0.28	-0.15	0.56		0.57	
Lord Abbett	-1.30	-2.52	-2.47	-1.81	1.82		2.32	10/1/2018
ICE BofAML 1-3 Year U.S. Corporate	-1.67	-3.16	-3.52	-3.19	1.45		2.00	
Value Added	0.37	0.64	1.05	1.38	0.37		0.32	

Asset Allocation & Performance

Insurance Plan Accounts

Periods Ended March 31, 2022

	Performance (%) net of fees							
	1 Month	QTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Specialty Credit Composite	0.02	-0.30	3.06	6.00	6.13		6.02	10/1/2018
Specialty Credit Policy Index	-0.55	-2.48	-0.79	1.30	4.42		4.19	
Value Added	0.57	2.18	3.85	4.70	1.71		1.83	
Adams St SPC II A	0.00	0.00	6.20	12.77			11.49	6/1/2020
Adams St SPC II B	0.00	0.00	7.19	14.70			13.25	6/1/2020
Blue Torch	2.95	2.95	9.87	11.53			8.04	8/1/2020
BSP Coinvestment	1.64	1.64	4.40	7.12			6.43	10/1/2019
S&P/LSTA Leverage Loan Index	0.05	-0.10	1.76	3.26			3.98	
Value Added	1.59	1.74	2.64	3.86			2.45	
BSP Private Credit	2.04	2.04	8.42	12.28	8.29		6.13	2/1/2018
S&P/LSTA Leverage Loan Index	0.05	-0.10	1.76	3.26	4.23		3.87	
Value Added	1.99	2.14	6.66	9.02	4.06		2.26	
CapitalSpring	2.86	2.86	5.54	7.41			9.71	2/1/2020
S&P/LSTA Leverage Loan Index	0.05	-0.10	1.76	3.26			3.52	
Value Added	2.81	2.96	3.78	4.15			6.19	
Cerberus Capital Mgmt	0.82	2.93	12.67	16.96	11.69	10.39	9.69	9/1/2014
S&P/LSTA Leverage Loan Index	0.05	-0.10	1.76	3.26	4.23	4.01	3.86	
Value Added	0.77	3.03	10.91	13.70	7.46	6.38	5.83	
Columbia	-0.73	-4.22	-2.61	0.02	4.38	4.58	6.11	11/1/2011
Blmbg. U.S. Corp: High Yield	-1.15	-4.84	-3.31	-0.66	4.58	4.69	6.09	
Value Added	0.42	0.62	0.70	0.68	-0.20	-0.11	0.02	
Manulife Asset Mgmt	-0.61	-3.85	-3.79	-2.28	5.14	3.99	4.21	12/1/2011
Policy Index	-2.68	-6.11	-6.07	-4.23	1.85	2.31	1.63	
Value Added	2.07	2.26	2.28	1.95	3.29	1.68	2.58	

Asset Allocation & Performance

Insurance Plan Accounts

Periods Ended March 31, 2022

	Performance (%) net of fees							
	1 Month	QTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Marathon Bluegrass	-1.01	-0.73	5.41	9.92	6.71	5.55	7.16	1/1/2016
Blmbg. U.S. Corp: High Yield	-1.15	-4.84	-3.31	-0.66	4.58	4.69	6.85	
Value Added	0.14	4.11	8.72	10.58	2.13	0.86	0.31	
Shenkman Capital	0.04	-0.52	1.06	2.44	3.83	3.76	3.94	7/1/2011
S&P/LSTA Leverage Loan Index	0.05	-0.10	1.76	3.26	4.23	4.01	4.24	
Value Added	-0.01	-0.42	-0.70	-0.82	-0.40	-0.25	-0.30	
Waterfall	-2.66	-0.24	4.25	8.04	4.01	6.04	8.28	7/1/2011
Policy Index	-0.81	-3.10	-2.24	-0.49	3.36	3.66	4.21	
Value Added	-1.85	2.86	6.49	8.53	0.65	2.38	4.07	
White Oak Yield Spectrum	1.63	1.63	4.22	5.85	6.15		5.34	3/1/2018
S&P/LSTA Leverage Loan Index	0.05	-0.10	1.76	3.26	4.23		3.90	
Value Added	1.58	1.73	2.46	2.59	1.92		1.44	
Arrowmark	0.91	1.73	7.97	11.30	8.97		9.19	6/1/2018
S&P/LSTA Leverage Loan Index	0.05	-0.10	1.76	3.26	4.23		3.92	
Value Added	0.86	1.83	6.21	8.04	4.74		5.27	
H/2 Credit Partner	0.01	5.07	1.32	1.13	1.75	2.24	4.46	7/1/2011
Mesa West Core Lend	1.56	1.56	3.16	7.30	6.35	6.52	6.40	5/1/2013
Mesa West IV	2.66	2.66	8.42	11.35	8.08	7.01	6.89	3/1/2017
Cash Composite	0.01	0.02	0.06	0.07	0.79	1.19	2.46	7/1/1992
FTSE 3 Month T-Bill	0.02	0.03	0.05	0.06	0.76	1.09	2.32	
Value Added	-0.01	-0.01	0.01	0.01	0.03	0.10	0.14	
Real Estate Composite	2.00	6.97	19.53	25.44	13.63	11.71	10.03	5/1/2009
NCREIF ODCE NOF 1 Quarter Lag	7.66	7.66	18.78	21.02	8.23	7.74		
Value Added	-5.66	-0.69	0.75	4.42	5.40	3.97		

Asset Allocation & Performance

Insurance Plan Accounts

Periods Ended March 31, 2022

	Performance (%) net of fees							
	1 Month	QTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Baring	2.07	0.92	1.97	12.03	23.02		20.41	1/1/2019
Barings Euro RE II	10.04	8.21	32.19	9.23			-17.59	12/1/2020
Divcowest IV	18.97	18.97	37.58	45.43	17.61	17.98	20.34	3/1/2014
Fundamental Partners III	9.94	9.94	29.15	36.51	21.50		15.57	5/1/2017
Greenfield Acq VI	-10.81	-10.81	-40.61	-40.91	-45.91	-35.58	-16.73	12/1/2012
Greenfield Acq VII	16.18	16.18	33.42	33.79	21.68	18.36	15.78	7/1/2014
Harrison Street	0.00	2.67	7.02	8.62	6.68	7.56	7.74	5/1/2012
Lubert Adler VII	4.79	4.79	8.02	8.82	-3.81	2.34	-1.23	7/1/2014
Lubert Adler VII B	7.93	7.93	49.42	54.60	23.61		15.48	7/1/2017
Patron Capital	10.76	9.38	24.89	34.43	9.76	14.33	6.11	8/1/2016
Prologis Targeted US	0.00	13.62	41.90	48.50	23.59	21.45	18.72	10/1/2014
Rubenstein PF II	3.63	3.63	4.74	5.04	-1.10	5.27	8.57	7/1/2013
Stockbridge Sm/Mkts	0.00	6.17	14.02	22.39	10.34	9.50	9.68	5/1/2014
Walton St RE VI	8.37	8.37	13.79	19.22	2.35	3.73	-12.77	5/1/2009
Walton St RE VII	2.08	2.08	9.77	12.91	-2.82	0.53	6.13	7/1/2013
Real Return Composite	1.02	-0.37	3.19	8.72	6.20	4.77	4.21	7/1/2011
Real Return (I)	1.02	-0.37	3.19	8.72	6.20	4.41	3.66	
Value Added	0.00	0.00	0.00	0.00	0.00	0.36	0.55	
Putnam	-0.38	-5.74	-1.55	4.63			13.16	7/1/2020
Policy Index	0.68	-5.46	-0.80	4.57			12.93	
Value Added	-1.06	-0.28	-0.75	0.06			0.23	

Asset Allocation & Performance

Insurance Plan Accounts

Periods Ended March 31, 2022

	Performance (%) net of fees							
	1 Month	QTD	FYTD	1 Year	3 Years	5 Years	Since Inception	Inception Date
Tortoise Capital	4.17	23.26	22.39	47.50	4.29	1.29	9.28	8/1/2009
Alerian MLP Index	2.05	18.81	12.64	36.56	2.70	-0.07	6.10	
Value Added	2.12	4.45	9.75	10.94	1.59	1.36	3.18	
Amerra AGRI Fund II	6.80	6.80	11.60	10.30	9.94	5.20	5.61	12/1/2012
Amerra AGRI Holdings	-1.72	-1.72	-1.14	-5.57	-1.61	-2.85	-1.73	8/1/2015
BTG Pactual	-3.56	-3.56	13.37	7.87	-0.54	-0.11	-4.84	12/1/2014
IFM Infrastructure	1.17	1.17	5.93	7.16			4.24	7/1/2019
Magnetar MTP EOF II	26.33	26.33	46.76	72.32	30.31	20.25	14.30	8/1/2015
Oberland Capital	1.91	1.91	11.33	11.65	19.25		14.94	8/1/2018
Taurus Mine Finance	10.95	10.95	21.43	17.92	2.84	5.93	9.32	4/1/2015
TPF II	36.77	36.77	36.34	20.90	11.21	7.02	-0.34	10/1/2008
Blackstone Strat Opp	1.22	1.20	3.86	6.13	-5.73		-2.32	8/1/2017
Luxor Capital	-0.04	-0.29	9.60	16.73	-6.48	1.83	-0.52	4/1/2014
Myriad Opportunities	-0.13	-42.82	-57.93	-56.93	-21.24	-12.13	-9.45	5/1/2016
Pine River	-0.69	0.02	0.57	2.67	11.94	6.62	4.23	5/1/2014
PRISMA Capital	-0.24	-0.28	-0.68	-1.48	-0.06	1.44	2.59	9/1/2011
SRS Partners US	0.00	0.00	-0.57	8.77	10.04		9.73	8/1/2017
Tricadia Select	0.00	0.00	0.00	0.00	0.60		-5.43	9/1/2017

What’s going on in the marketplace?

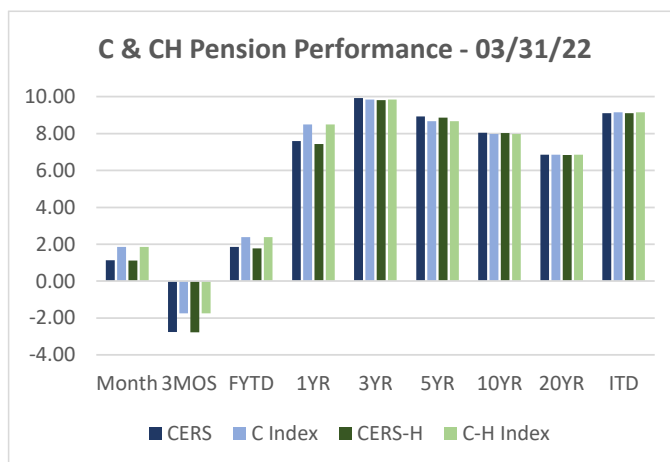
The strong rotation out of growth stocks and into value that began in November 2021 continued through the first quarter of 2022. This market shift was a reaction to a sharp increase in interest rates, a response to growing inflation by central banks. Markets were pressured by geopolitical and macroeconomic factors. Volatility heightened in response to Russia’s attack on Ukraine, as investors expressed concern over further supply chain disruptions, and the potential for impending commodity price shocks as scarcity fears increased. China’s zero covid policy lockdowns only added to tensions surrounding supply chains. All of these headwinds culminated in a fear of slowing growth, sparking a rotation into more defensive areas of the market as growth multiples collapsed. Individual companies will be challenged in the near-term as rising input costs and increasing labor expenditures weigh on margins, and therefore pressure earnings. Ultimately, there were few places to hide during the quarter, as markets were significantly lower, despite a rebound in March.

The KPPA investment portfolio returned just under 1% for the month of March, bringing the first quarter return to -2.7% and the fiscal year return to 1.6%. Private equity (+3.9%) and US equity (+2.8%) drove performance for the month. However, public equities weighed on the portfolio during the quarter (-6.5%). This was partially offset by the real return portfolio (+0.8%) and specialty credit portfolio (-0.5%) which held up relatively well. The overweight to cash helped during a volatile period. For the fiscal year, all asset classes worked to push the portfolio northward with the exception of Core Fixed Income (-3.5%) and NonUS equities (-9.0%), whose weakness for the 9-month period was almost entirely attributable to January and February’s steep decline.

US equity markets returned 3.2% during the month (R3000), and the KPPA portfolio returned 2.8%. Underperformance was driven by a small market cap tilt (SP500 3.7% vs R2000 1.2%), and relative weakness in the all cap mandates. The KPPA US equity portfolio held up slightly better than the market during the quarter despite being smaller, thanks to a slight value tilt (R3000V -0.9% vs R3000G -9.3%). For the fiscal year, the portfolio has trailed the R3000 by 16bps (3.2% vs 3.4%) due in part to weaker stock selection across several mandates.

NonUS equity markets were positive on the month (MSCI ACWI Ex-US 0.3%), and the KPPA portfolio performed in line with the index. For the quarter, the KPPA portfolio underperformed the index (-8.2% vs -5.6%). The significant underperformance was due to weakness across the growth portion of the portfolio, and one of the relative value mandates was unable to capture its style tailwind due to a couple of Russian names weighing on the portfolio. For the fiscal year, the portfolio has underperformed (-9.0% vs -6.5%), having been heavily influenced by the first quarter of 2022.

The specialty credit portion of the portfolio which includes High Yield has produced strong positive performance and added value over its IPS index, outperforming by 50bps during the month, 290bps during the quarter and 390bps for fiscal year to date. FYTD all individual mandates have outperformed their respective benchmarks except 1 which still produced positive performance. FYTD within the overall asset category, specialty credit was the largest contributor to positive absolute performance and relative outperformance as the mandates produced positive performance while the public high yield and



loan markets struggled with headwinds from rising rates and spreads.

The core fixed income portfolio, produced negative absolute performance during the month, quarter and FYTD, as public fixed income markets faced sharply rising rates, flattening yield curves and widening spreads. The portfolio continues to perform well in relative terms with the KPPA portfolio outperforming the Bloomberg Aggregate Index for the month by 101bps, for the quarter by 262bps, and for the FYTD by 242bps. The portfolio benefitted from its shorter duration profile and tactical allocation to front end investment grade credit, which outperformed during the market volatility.

The private equity allocation returned 4.4% during the quarter, bringing the fiscal year return to 20.7%. It should be noted that the asset class is reported on a quarter lag, so the volatile first quarter of 2022 is not yet reflected in these performance figures. Staff anticipates that the reported performance may be adversely impacted when it is captured.

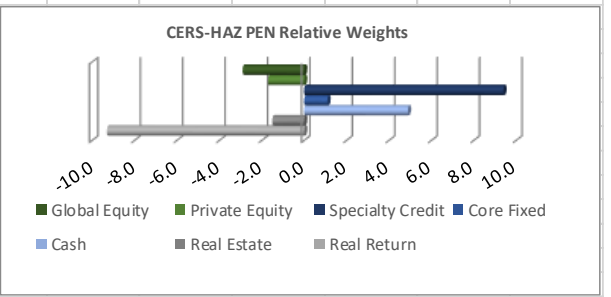
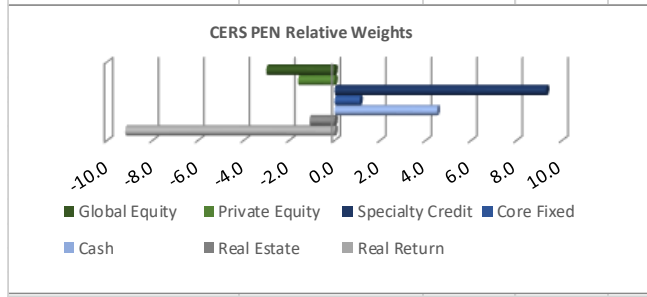
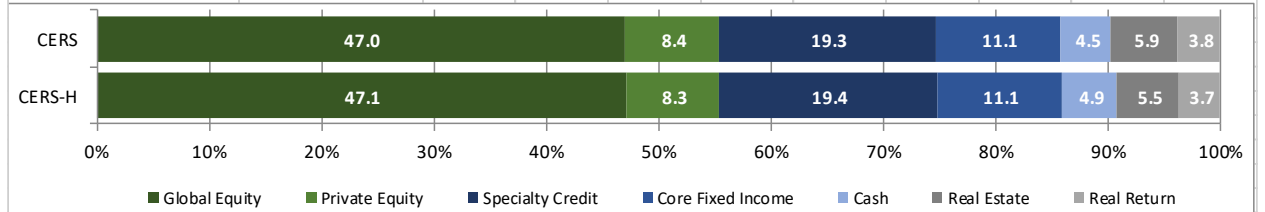
The real return portfolio returned 0.8% during the first quarter and brought the fiscal year performance to just over 4%. Helped by broad commodity price increases, investments in agriculture, mine financing, and MLPs drove a significant portion of performance. The Alerian MLP Index was up nearly 20% for the quarter.

Real estate has performed well for several quarters, and has been one of the best performing asset classes for the portfolio. The allocation returned 7.2%, bringing the fiscal year performance to 20.1%, and has been driven by continued strength in industrial and multi-family properties. It should be noted that this asset class is also reported on quarter lag, and another strong quarter of appreciation in the first quarter of calendar 2022 is not reflected in these performance figures.

The cash portfolio performed in line with the 3-month T-bill for all periods. The overweight to cash helped bolster the total portfolio during a volatile quarter; however, it has been a headwind for the fiscal year.

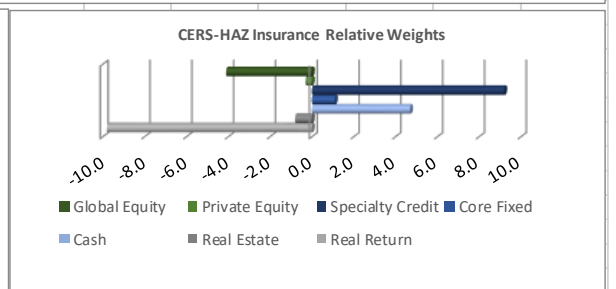
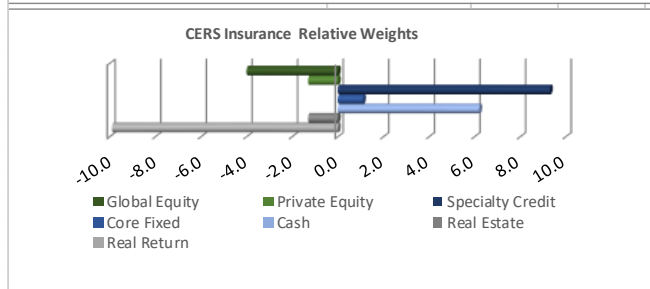
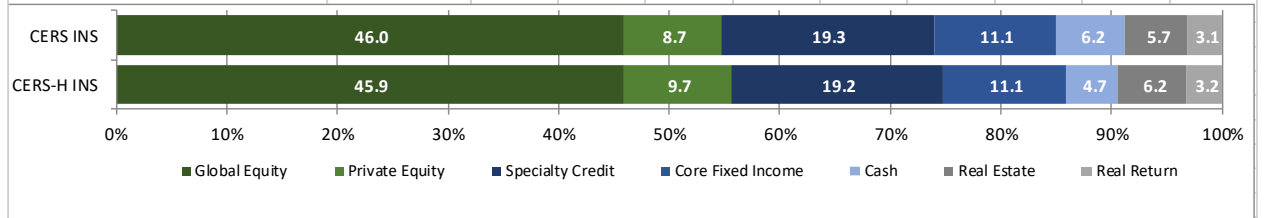
CERS & CERS-HAZ - PENSION FUND PLAN NET RETURNS - 03/31/22											
Plan	Market Value	Month	3 Months	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	20 Years	ITD	
CERS	8,645,256,970.15	1.13	-2.76	1.85	7.60	9.92	8.93	8.04	6.85	9.10	
KY Ret. CKERS Plan Index		1.86	-1.75	2.38	8.50	9.85	8.67	7.98	6.86	9.16	
CERS- H	2,939,177,520.68	1.11	-2.77	1.78	7.44	9.81	8.87	8.02	6.84	9.10	
KY Ret. CERS Haz Plan Index		1.86	-1.75	2.38	8.50	9.85	8.67	7.98	6.86	9.16	

KPPA PENSION FUND UNIT - NET RETURNS - 03/31/22 - PROXY PLAN ASSET PERFORMANCE											
Structure	Month	QTD	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	20 Years	ITD		
PUBLIC EQUITY		1.66	-6.53	-2.68	3.96	13.10	11.26	9.79	7.25	10.58	
Global Equity Blended Index		1.77	-5.42	-1.57	5.27	13.05	11.21	9.74	7.27	10.45	
PRIVATE EQUITY		3.92	4.38	20.66	40.86	21.11	18.29	15.24		12.61	
Russell 3000 + 3%(Qtr Lag)		3.92	4.38	20.66	40.86	21.11	18.29	19.61		13.19	
SPECIALTY CREDIT		-0.02	-0.45	3.05	6.01	6.20				6.11	
Custom Benchmark		-0.55	-2.48	-0.79	1.30	4.42				4.28	
CORE FIXED INCOME		-1.71	-3.31	-3.45	-2.66	2.57	2.76			2.84	
Bloomberg Barclays US Aggregate		-2.78	-5.93	-5.87	-4.15	1.69	2.14			2.41	
CASH		0.01	0.02	0.07	0.08	0.91	1.31	0.89	1.63	3.33	
Citigroup Treasury Bill-3 Month		0.02	0.03	0.05	0.06	0.76	1.09	0.60	1.20	2.91	
REAL ESTATE		2.08	7.17	20.08	25.93	13.84	12.42	10.87	8.08	6.77	
NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^		7.66	7.66	18.78	21.02	8.23	7.74	9.43	7.30	6.61	
REAL RETURN		1.32	0.78	4.18	10.49	6.16	4.78	3.79		4.40	
Pension Real Return Custom Benchmark		1.32	0.78	4.18	10.49	6.16	4.78	3.59		3.62	



CERS INS & CERS HAZ INS - INSURANCE FUND - PLAN NET RETURNS - 03/31/22										
Plan	Market Value	Month	3 Months	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	20 Years	ITD
CERS INS	3,236,292,912.07	1.13	-2.48	2.24	7.55	9.60	8.84	7.88	6.33	7.58
KY Ins. CERS Plan Index		1.86	-1.75	2.59	8.08	9.42	8.48	7.91	6.49	7.83
CERS - H INS	1,632,840,679.08	1.21	-2.41	2.56	7.97	9.74	8.96	7.96	6.36	7.60
KY Ins. CERS Haz Plan Index		1.86	-1.75	2.59	8.08	9.42	8.48	7.91	6.49	7.83

KPPA INSURANCE FUND UNIT - NET RETURNS - 03/31/22 - PROXY PLAN ASSET PERFORMANCE										
Structure	Month	QTD	Fiscal YTD	1 Year	3 Years	5 Years	10 Years	20 Years	ITD	
PUBLIC EQUITY		1.67	-6.43	-2.59	4.06	13.11	11.23	9.84	7.26	8.98
Global Equity Blended Index		1.76	-5.42	-1.61	5.21	13.01	11.18	9.70	6.90	8.80
PRIVATE EQUITY		5.02	6.05	26.40	40.48	18.18	17.29	15.69		11.41
Russell 3000 + 3%(Qtr Lag)		5.02	6.05	26.40	40.48	18.18	17.29	19.61		12.72
SPECIALTY CREDIT		0.03	-0.29	3.07	6.00	6.03				5.86
Custom Benchmark		-0.55	-2.48	-0.79	1.30	4.42				4.28
CORE FIXED INCOME		-1.72	-3.37	-3.43	-2.60	2.42	2.69			2.56
Bloomberg Barclays US Aggregate		-2.78	-5.93	-5.87	-4.15	1.69	2.14			2.41
CASH		0.01	0.02	0.06	0.07	0.74	1.14	0.74	1.45	2.44
Citigroup Treasury Bill-3 Month		0.02	0.03	0.05	0.06	0.76	1.09	0.60	1.20	2.32
REAL ESTATE		2.00	6.96	19.54	25.41	13.77	12.39	10.69		10.29
NCREIF NFI-ODCE Net 1 Qtr in Arrears Index^		7.66	7.66	18.78	21.02	8.23	7.74	9.43		6.56
REAL RETURN		1.02	-0.42	3.17	8.69	6.21	4.77	3.63		4.21
Pension Real Return Custom Benchmark		1.02	-0.42	3.17	8.69	6.21	4.77	3.64		3.67



DRAFT – subject to change



REAL ESTATE FUND SEARCH

Introduction

This report serves as a review of the competitive, open search process in accordance with the CERS and KRS Boards' Investment Policy Statement, Real Estate Investment policy, and the Investment Procurement Policy, and serves as a recommendation to the CERS and KRS Investment Committees in order to fund a strategy within the Real Estate allocation.

Established Criteria

The search criteria was as follows:

- Benchmark: NACRIEF ODCE
- Actively managed opportunistic/value add fund
- Strategy AUM at least \$500 million
- Previous strategy fund successful track record
- Albourne investment due diligence rating B or better
- Net expected IRR at least 12%

Candidate Pool

A review of recommended funds in Albourne Castle created a short list was created for further interview which are currently in progress.

They are as follows:

- Harrison Street IX (Current)
- Walton Street (current)
- Fundamental IV
- Saybrook Capital
- William Blair: International Small Cap Growth
- Pennybacker VI
- Crow Holdings Realty Partners X
- PCCP Equity Fund IX

Process

Staff begins with the Castle investment manager research portal, which consists Albourne's recommendations to investors, as the universe of investable strategies. Funds and strategies currently invested in the pension and insurance trust pools are reviewed in relation to Albourne's due diligence in Castle for possible inclusion as a candidate. Minimum criteria are set in order to narrow the candidate list. This criterion includes, but is not limited to qualitative assessments of the firm and portfolio management team, firm / product asset under management, available capacity, demonstrated ability to add value over varying periods, length of track record, etc. Staff then will conduct in-person due diligence by interviewing the investment managers that make the short list in

order to reach a finalist recommendation. In addition, site visits will be conducted to ensure the validity of research in person.

No placement agents have been involved or will be compensated as a result of this recommendation.



Investment: Strategic Objectives – 3 Years

Strategic Mission: To Enhance investment management oversight by strengthening Trustee’s core investment acumen; strengthening performance reporting; and strengthening investment compliance with statutes, board policies and institutional procedures.

Goal #1: Develop a full-day in person training curriculum for committee members to interact with various industry professionals.

- 1) Measure:** 3-5 industry professionals presenting topics relevant to investment committee members. A lunch or a dinner to foster interpersonal relationships between committee members and industry professionals.

Target: Third quarter 2023

- 2) Measure:** Work with the investment consultant to identify speakers and topics that will yield a well-rounded curriculum.

Target: Third quarter 2023

Goal #2: Advice and Consent with KPPA in the hiring of a complete Investment Office team thereby allowing more functionality to be brought in-house.

- 1) Measure:** Increasing the number of portfolio managers in the Investment Office from three (3) to six (6).

Target: Third quarter 2023

Goal #3: Strengthen the collaboration between the investment committee and the investment consultant.

- 1) Measure:** Continue and enhance the monthly meetings with the investment consultant.

Target: Second quarter 2022

- 2) Measure:** Identify and implement project-based assignments for the investment consultant.

Target: Fourth quarter 2022

Goal #4: Strengthen quarterly investment performance reporting to the CERS Investment Committee.

- 1) Measure:** Quarterly reports include both short-term (10 years or less) and long-term (30-year & since inception) performances by asset class and CERS plan (Haz, NonHaz, pension & insurance).

Target: Third quarter 2022.

- 2) Measure:** Standardize investment reports to include comparisons of actual allocations vs IPS target allocations, manager performance vs benchmarks, portfolio performance vs benchmarks.

Target: Third quarter 2022.

- 3) Measure:** Develop internal staff Portfolio Managers and establish quantitative scoring against relevant benchmarks.

Target: Third quarter 2023.

- 4) Measure:** Standardize investment consultant reporting that will include peer performance, project based services, and the providing of digital research.

Target: Third quarter 2023.

Goal #5: Strengthen quarterly compliance reporting to the CERS Investment Committee.

- 1) Measure:** Assist KPPA in the hiring of a dedicated legal/compliance professional to establish, implement and lead compliance efforts for the Investment Office.

Target: Fourth quarter 2022.

- 2) Measure:** Establish Investment Operation reporting that will internally track Manager Fee and Performance Fee amounts due Investment Managers.

Target: Second quarter 2023.

3) Measure: Develop Legal/Compliance reporting that addresses Investment Office adherence to state statutes/regulations; board policies; and established office processes and procedures on an on-going basis.

Target: Third quarter 2023.