## AON

# **Quarterly Investment Review**

Fairfax County Public Schools | Fourth Quarter 2022

Investment advice and consulting services provided by Aon Investments USA Inc.

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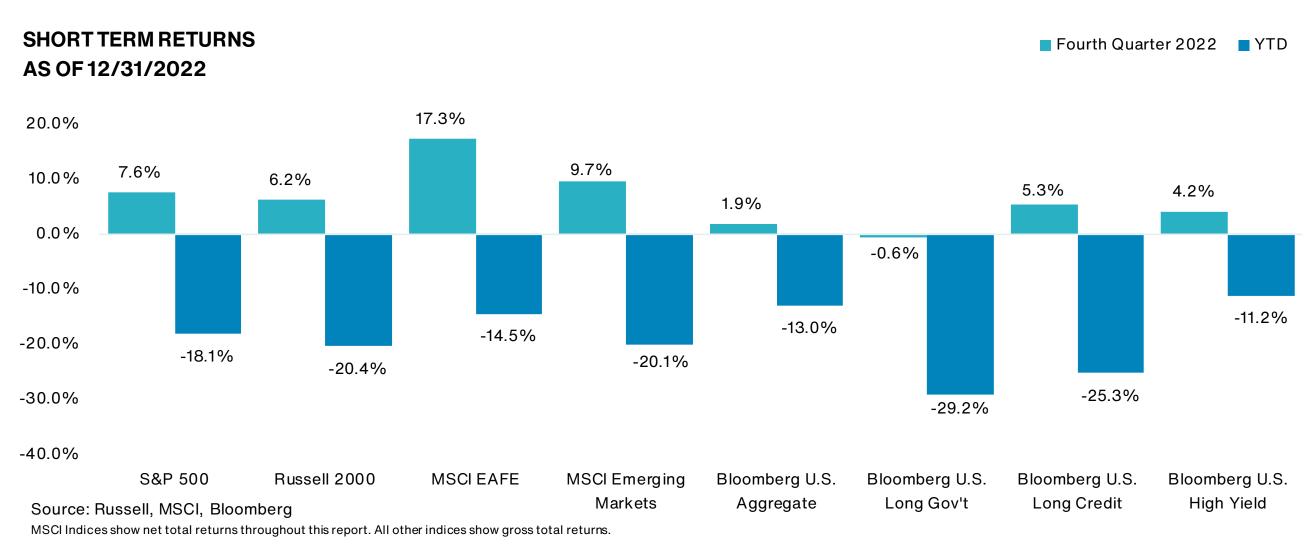
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#### **Executive Summary**



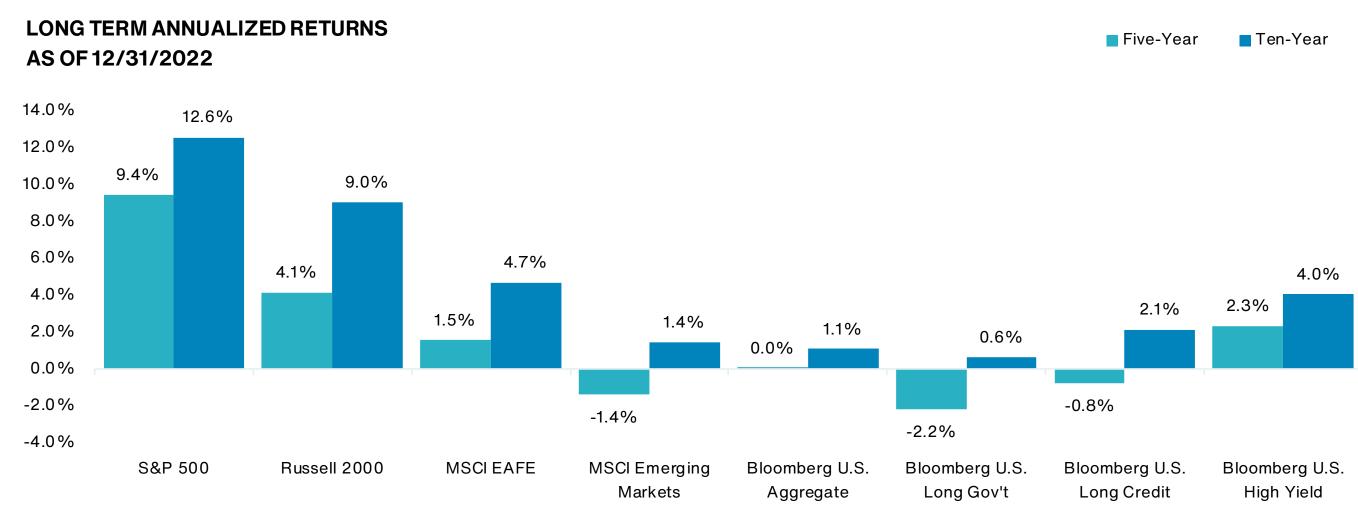
### **Market Highlights**



Past performance is no guarantee of future results. Indices cannot be invested in directly. Unmanaged index returns assume reinvestment of any and all distributions and do not reflect fees and expenses. Please see appendix for index definitions and other general disclosures.



#### **Market Highlights**



Source: Russell, MSCI, Bloomberg

Past performance is no guarantee of future results. Indices cannot be invested in directly. Unmanaged index returns assume reinvestment of any and all distributions and do not reflect fees and expenses. Please see appendix for index definitions and other general disclosures.



## **Market Highlights**

	Returns	s of the Major	<b>Capital Markets</b>				Returns of the Major Capital Markets							
					Period En	nding 12/31/2022					Р	eriod Ending 1	2/31/2022	
	Fourth Quarter	YTD	1-Year	3-Year <sup>1</sup>	5-Year <sup>1</sup>	10-Year <sup>1</sup>		Fourth Quarter	YTD	1-Year	3-Year <sup>1</sup>	5-Year <sup>1</sup>	10-Year <sup>1</sup>	
Equity							Fixed Income							
MSCI All Country World IMI	9.84%	-18.40%	-18.40%	3.89%	4.96%	7.94%	Bloomberg Global Aggregate	4.55%	-16.25%	-16.25%	-4.48%	-1.66%	-0.44%	
MSCI All Country World	9.76%	-18.36%	-18.36%	4.00%	5.23%	7.98%	Bloomberg U.S. Aggregate	1.87%	-13.01%	-13.01%	-2.71%	0.02%	1.06%	
Dow Jones U.S. Total Stock Market	7.18%	-19.53%	-19.53%	6.89%	8.65%	12.03%	Bloomberg U.S. Long Gov't	-0.59%	-29.19%	-29.19%	-7.39%	-2.19%	0.61%	
Russell 3000	7.18%	-19.21%	-19.21%	7.07%	8.79%	12.13%	Bloomberg U.S. Long Credit	5.30%	-25.29%	-25.29%	-5.78%	-0.77%	2.13%	
S&P 500	7.56%	-18.11%	-18.11%	7.66%	9.42%	12.56%	Bloomberg U.S. Long Gov't/Credit	2.61%	-27.09%	-27.09%	-6.20%	-1.21%	1.57%	
Russell 2000	6.23%	-20.44%	-20.44%	3.10%	4.13%	9.01%	Bloomberg U.S. TIPS	2.04%	-11.85%	-11.85%	1.21%	2.11%	1.12%	
MSCI All Country World ex-U.S. IMI	14.15%	-16.58%	-16.58%	0.20%	0.85%	3.98%	Bloomberg U.S. High Yield	4.17%	-11.19%	-11.19%	0.05%	2.31%	4.03%	
MSCI All Country World ex-U.S.	14.28%	-16.00%	-16.00%	0.07%	0.88%	3.80%	· ·							
MSCI EAFE	17.34%	-14.45%	-14.45%	0.87%	1.54%	4.67%	Bloomberg Global Treasury ex U.S.	6.85%	-19.55%	-19.55%	-6.81%	-3.37%	-1.90%	
MSCI EAFE (Local Currency)	8.72%	-7.00%	-7.00%	3.64%	3.81%	7.56%	JP Morgan EMBI Global (Emerging Markets)	7.44%	-16.45%	-16.45%	-4.49%	-1.00%	1.35%	
MSCI Emerging Markets	9.70%	-20.09%	-20.09%	-2.69%	-1.40%	1.44%	Commodities							
<b>Equity Factors</b>							Bloomberg Commodity Index	2.22%	16.09%	16.09%	12.65%	6.44%	-1.28%	
MSCI World Minimum Volatility (USD)	10.09%	-9.28%	-9.28%	2.46%	5.62%	9.05%	Goldman Sachs Commodity Index	3.44%	25.99%	25.99%	10.49%	6.46%	-3.30%	
MSCI World High Dividend Yield	14.60%	-3.93%	-3.93%	4.25%	5.62%	7.91%	Hedge Funds							
MSCI World Quality	10.26%	-21.90%	-21.90%	6.52%	9.42%	11.73%	HFRI Fund-Weighted Composite <sup>2</sup>	2.26%	-4.20%	-4.20%	5.68%	4.42%	4.68%	
MSCI World Momentum	13.14%	-17.34%	-17.34%	6.94%	8.89%	11.98%	HFRI Fund of Funds <sup>2</sup>	1.79%	-5.25%	-5.25%	3.71%	3.02%	3.51%	
MSCI World Enhanced Value	16.36%	-9.21%	-9.21%	1.95%	1.92%	7.10%	Real Estate							
MSCI World Equal Weighted	12.95%	-16.38%	-16.38%	2.05%	3.14%	7.43%	NAREIT U.S. Equity REITS	5.24%	-24.37%	-24.37%	-0.11%	3.68%	6.53%	
MSCI World Index Growth	4.77%	-29.05%	-29.05%	4.94%	7.73%	10.44%	NCREIF NFI - ODCE	-4.96%	7.47%	7.47%	9.93%	8.68%	10.10%	
MSCI USA Minimum Volatility (USD)	9.80%	-9.19%	-9.19%	5.14%	8.59%	11.88%	FTSE Global Core Infrastructure Index	8.66%	-5.79%	-5.79%	3.32%	6.65%	8.54%	
MSCI USA High Dividend Yield	14.19%	-3.75%	-3.75%	6.07%	7.38%	11.46%	Private Equity							
MSCI USA Quality	9.28%	-22.67%	-22.67%	6.65%	10.44%	13.57%	Burgiss Private iQ Global Private Equity <sup>3</sup>			6.18%	21.00%	18.52%	15.82%	
MSCI USA Momentum	12.16%	-17.39%	-17.39%	6.52%	8.78%	14.07%	MSCI Indices show net total returns thro	ughout this repo	ort. All other in	ndices show gr	oss total retur	ns.		
MSCI USA Enhanced Value	12.40%	-13.99%	-13.99%	3.50%	4.71%	10.90%								
MSCI USA Equal Weighted	9.71%	-16.99%	-16.99%	6.35%	7.54%	11.41%	<sup>2</sup> Latest 5 months of HFR data are estimated by HFR and may change in the future.							
MSCI USA Growth	0.59%	-31.97%	-31.97%	7.10%	10.63%	13.69%	<sup>3</sup> Burgiss Private iQ Global Private Equity	v data is as at J	ine 30, 2022					



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## **Thought Leadership Highlights**

#### **Defined Contribution**

Topic	Article	Link
Governance	What Drives Fiduciary Liability? Survey of Leading Carriers for Fiduciary Liability Insurance	<u>Link</u>
Aon United	SECURE 2.0	<u>Link</u>
Market View	Federal Reserve Outlook for 2023	<u>Link</u>
Market View	Quarterly Market Review and Outlook Video (access code 'aon!')	Link to Video
Market View	Quarterly Investment Outlook	<u>Link</u>
Market View	The good run-in value stocks may be coming to an end	Request from Consultant
Key Topics	Key Topics for DC Plans (4-minute video, access code 'aon!')	Link to Video
Plan Design	Aon Employee Financial Wellbeing and DC Survey Report	<u>Link</u>
Strategy Review	Conviction in Equity Investing Revisited	Request from Consultant
Asset Allocation	Global Equity	<u>Link</u>
Asset Allocation	The Strength of the U.S. Equity Market and its Impact on Equity Allocations	<u>Link</u>
Legal & Compliance	Legal & Compliance quarterly update newsletter (5-minute summary, access code 'aon!')	Link to Article Link to Video
Other	Negotiating Fees for Investment Management: 3 Questions With Dino Nikolopoulos	<u>Link</u>

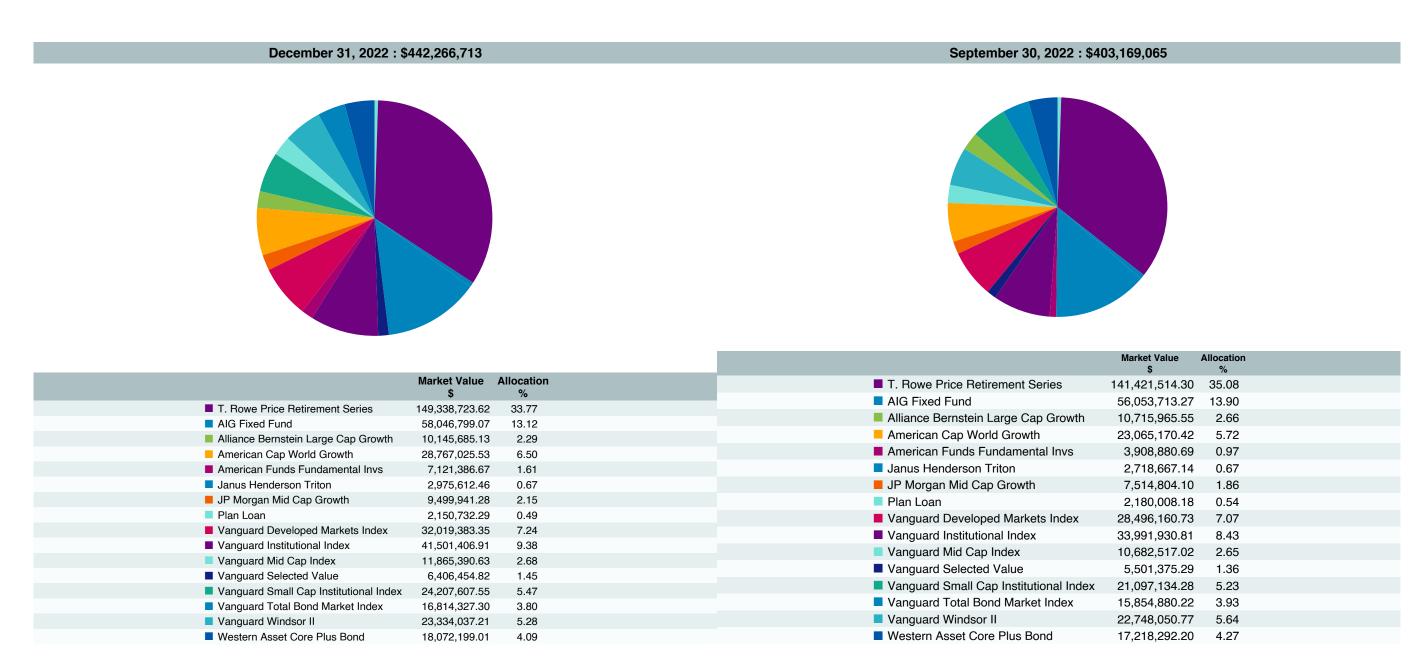
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### **Total Plan**

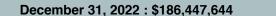


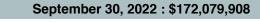
#### Asset Allocation by Manager - Corebridge 403(b) Plan

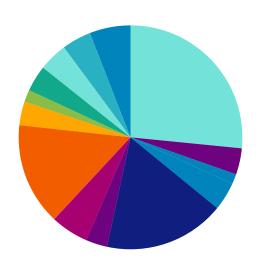


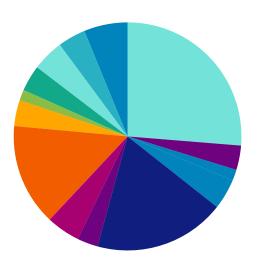


### Asset Allocation by Manager - Empower 403(b) Plan





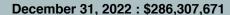


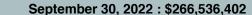


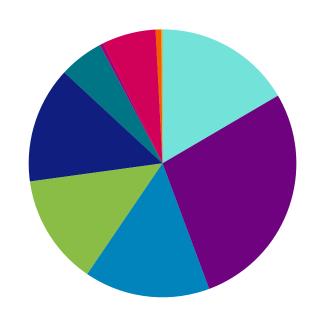
Market Value \$	Allocation %		Market Value \$	Allocation %
49,539,057	26.6	Empower Lifetime Retirement Series	45,222,953	26.3
7,070,357	3.8	American Funds EuroPacific Growth Fund	5,962,773	3.5
2,653,266	1.4	Columbia Select Mid Cap Value Fund	2,653,612	1.5
7,654,781	4.1	Delaware Small Cap Core	7,457,324	4.3
32,612,184	17.5	■ Great West Portfolio Fund	32,056,215	18.6
5,779,228	3.1	■ Empower T. Rowe Price Mid Cap Growth Fund	5,083,775	3.0
10,139,769	5.4	Fidelity International Index	8,199,319	4.8
100,297	0.1	■ Forfeiture Account	93,305	0.1
27,511,775	14.8	■ iShares S&P 500 Index em	24,839,574	14.4
6,407,133	3.4	■ Pioneer Bond	6,333,665	3.7
3,267,305	1.8	■ MFS Value	2,635,650	1.5
7,042,778	3.8	■ Parnassus Core Equity	6,363,107	3.7
7,730,499	4.1	Putnam Growth Opportunities	7,700,214	4.5
7,892,035	4.2	Vanguard Mid Cap Index	6,816,820	4.0
11,047,181	5.9	Vanguard Total Bond Market Index	10,661,603	6.2
	\$ 49,539,057 7,070,357 2,653,266 7,654,781 32,612,184 5,779,228 10,139,769 100,297 27,511,775 6,407,133 3,267,305 7,042,778 7,730,499 7,892,035	\$ % 49,539,057 26.6 7,070,357 3.8 2,653,266 1.4 7,654,781 4.1 32,612,184 17.5 d 5,779,228 3.1 10,139,769 5.4 100,297 0.1 27,511,775 14.8 6,407,133 3.4 3,267,305 1.8 7,042,778 3.8 7,730,499 4.1 7,892,035 4.2	\$ % 49,539,057 26.6	\$ %  49,539,057 26.6

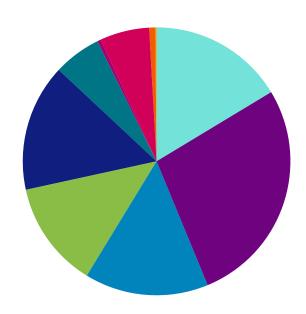


#### **Asset Allocation by Manager - Empower 457(b) Plan**









	Market Value \$	Allocation %		Market Value \$	Allocation %
■ T. Rowe Price Target Retirement Funds	47,432,663	16.6	T. Rowe Price Target Retirement Funds	43,600,707	16.4
■ iShares S&P 500 Index	79,486,891	27.8	■ iShares S&P 500 Index	73,054,928	27.4
Vanguard Mid Cap Index	43,456,139	15.2	Vanguard Mid Cap Index	39,864,220	15.0
Baron Growth Inst	38,153,688	13.3	Baron Growth Inst	34,292,291	12.9
■ Great West Portfolio Fund	40,194,657	14.0	■ Great West Portfolio Fund	40,948,578	15.4
■ PIMCO Total Return Adm	15,377,528	5.4	■ PIMCO Total Return Adm	15,325,830	5.7
■ PIMCO Inflation Response Multi-Asset Inst	1,215,218	0.4	■ PIMCO Inflation Response Multi-Asset Inst	1,178,201	0.4
Artisan International Inv	18,602,590	6.5	Artisan International Inv	15,911,136	6.0
Loan Fund	1,913,807	0.7	■ Loan Fund	1,980,291	0.7
Forfeiture Account	474,489	0.2	Forfeiture Account	380,220	0.1

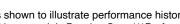


#### **Active Manager Scorecard\*\***

As of December 31, 2022

Return Relative to Benchmark Ranking Relative to Median Peer													
Fund Name	1 Quarter	1 Year	3 Years	5 Years	1 Quarter	1 Year	3 Years	5 Years	Rolling 3-Year Period Performance Benchmark	Rolling 3-Year Period Performance Peer Group Median			
Tier I - Target Date Funds													
T Rowe Price Retirement 2005*	-0.39	-0.18	-0.32	-0.30	36	65	23	16	30	100			
T Rowe Price Retirement 2010*	-0.36	-0.09	-0.31	-0.29	22	93	23	13	30	95			
T Rowe Price Retirement 2015*	-0.33	0.07	-0.18	-0.24	42	58	22	8	30	95			
T Rowe Price Retirement 2020*	-0.37	-0.06	-0.17	-0.23	51	67	18	10	35	95			
T Rowe Price Retirement 2025*	-0.43	-0.31	-0.22	-0.34	50	67	6	5	20	95			
T Rowe Price Retirement 2030*	-0.49	-0.59	-0.37	-0.46	55	84	12	11	15	95			
T Rowe Price Retirement 2035*	-0.43	-0.90	-0.51	-0.59	54	91	18	19	15	95			
T Rowe Price Retirement 2040*	-0.41	-1.19	-0.66	-0.71	57	94	29	21	15	100			
T Rowe Price Retirement 2045*	-0.43	-1.19	-0.66	-0.70	72	95	32	21	15	100			
T Rowe Price Retirement 2050*	-0.40	-1.19	-0.65	-0.71	82	93	35	23	15	100			
T Rowe Price Retirement 2055*	-0.40	-1.23	-0.73	-0.75	81	89	44	33	15	100			
Tier III - Active Core													
Great West Fixed Fund	-0.46	0.09	0.99	-	83	49	39	-	-	-			
AIG Fixed Fund***	-	-	-	-	-	-	-	-	-	-			
PIMCO Inflation Response Multi-Asset Inst	1.64	1.01	2.32	1.36	38	12	13	22	95	35			
Baird Core Plus Bond	0.27	0.13	0.44	0.37	20	36	50	38	95	80			
Boston Trust SMID Cap Fund	3.99	6.33	2.50	2.36	30	37	38	14	75	100			
GQG International Opportunities Fund	-0.44	4.97	4.97	5.93	79	20	5	1	-	-			

Peer Rule: Median percentile or above =green, third quartile = yellow, fourth quartile = red





above benchmark, and above / at median percentile

within 1.0% of the benchmark, and the third quartile peer group >1.0% below the benchmark, and the fourth quartile peer group

<sup>\*</sup>Alternate share class shown to illustrate performance history.

<sup>\*\*</sup>TierII is not included because it is Passive Core \*\*\*Performance will be available once contracting has been completed Benchmark Rule: Above Benchmark = green, within 1.0% = yellow, > 1.0% below = red

			Perform	ance %		
	1	1	3	5	7	10
	Quarter	Year	Years	Years	Years	Years
Total Fairfax Public Schools Plans						
Гier I - Target Date						
Г. Rowe Price Retirement I 2005 I	4.73 (32)	-13.51 (59)	1.42 (20)	3.08 (10)	4.66 (5)	-
T. Rowe Price Retirement 2005*	4.68 (36)	<i>-13.66 (65)</i>	1.24 (23)	2.93 (16)	4.54 (7)	4.52 (10)
T. Rowe Price Retirement 2005 Index	5.06 (26)	-13.48 (58)	1.57 (15)	3.24 (7)	4.56 (6)	4.70 (7)
T. Rowe Price Retirement I 2010 I	5.00 (21)	-13.86 (90)	1.70 (14)	3.36 (6)	5.07 (10)	-
T. Rowe Price Retirement 2010*	4.97 (22)	-14.00 (93)	1.53 (23)	3.22 (13)	4.94 (14)	5.03 (13)
T. Rowe Price Retirement 2010 Index	5.33 (10)	-13.91 (91)	1.84 (9)	3.51 (4)	4.97 (13)	5.20 (8)
. Rowe Price Retirement I 2015 I	5.20 (43)	-14.17 (58)	2.05 (13)	3.68 (5)	5.54 (1)	-
T. Rowe Price Retirement 2015*	5.23 (42)	-14.17 (58)	1.91 (22)	3.55 (8)	5.43 (10)	5.74 (8)
T. Rowe Price Retirement 2015 Index	5.56 (14)	-14.24 (62)	2.09 (12)	3.79 (3)	5.49 (9)	5.88 (3)
. Rowe Price Retirement I 2020 I	5.59 (46)	-14.46 (61)	2.34 (4)	4.03 (4)	6.16 (1)	-
T. Rowe Price Retirement 2020*	5.48 (51)	-14.66 (67)	2.19 (18)	3.90 (10)	6.02 (3)	6.47 (2)
T. Rowe Price Retirement 2020 Index	5.85 (29)	-14.59 (65)	2.36 (4)	4.13 (2)	6.08 (2)	6.54 (1)
. Rowe Price Retirement I 2025 I	6.01 (49)	-15.46 (58)	2.78 (3)	4.44 (3)	6.70 (1)	-
T. Rowe Price Retirement 2025*	6.00 (50)	-15.67 (67)	2.67 (6)	4.32 (5)	6.59 (3)	7.15 (4)
T. Rowe Price Retirement 2025 Index	6.43 (25)	<i>-15.36 (55)</i>	2.89 (2)	4.66 (1)	6.80 (1)	7.31 (2)
. Rowe Price Retirement I 2030 I	6.75 (57)	-16.86 (78)	3.11 (8)	4.77 (6)	7.19 (4)	-
T. Rowe Price Retirement 2030*	6.78 (55)	-16.98 (84)	3.00 (12)	4.63 (11)	7.07 (9)	7.73 (5)
T. Rowe Price Retirement 2030 Index	7.27 (20)	-16.39 (54)	3.37 (2)	5.10 (1)	7.42 (1)	7.94 (3)

<sup>\*\*</sup>Performance will be available once contracting has been completed



<sup>\*</sup>Alternate share class shown to illustrate performance history.

			Perform	ance %		
	1	1	3	5	7	10
	Quarter	Year	Years	Years	Years	Years
Γ. Rowe Price Retirement I 2035 I	7.65 (54)	-17.85 (79)	3.49 (10)	5.06 (14)	7.58 (4)	-
T. Rowe Price Retirement 2035*	7.65 (54)	-18.04 (91)	3.35 (18)	4.93 (19)	7.46 (10)	8.18 (7)
T. Rowe Price Retirement 2035 Index	8.08 (24)	-17.14 (58)	3.86 (5)	5.51 (4)	7.95 (2)	8.45 (5)
. Rowe Price Retirement I 2040 I	8.30 (59)	-18.72 (88)	3.84 (22)	5.35 (18)	7.94 (4)	-
T. Rowe Price Retirement 2040*	8.33 (57)	-18.86 (94)	3.70 (29)	5.20 (21)	7.81 (17)	8.53 (8)
T. Rowe Price Retirement 2040 Index	8.73 (35)	-17.66 (51)	4.36 (5)	5.91 (4)	8.42 (1)	8.86 (4)
. Rowe Price Retirement I 2045 I	8.66 (72)	-18.98 (92)	4.14 (20)	5.57 (16)	8.16 (12)	-
T. Rowe Price Retirement 2045*	<i>8.66 (72)</i>	-19.11 (95)	4.00 (32)	5.45 (21)	8.04 (20)	8.69 (13)
T. Rowe Price Retirement 2045 Index	9.09 (41)	-17.92 (45)	4.66 (7)	6.14 (3)	8.66 (1)	9.03 (6)
. Rowe Price Retirement I 2050 I	8.82 (81)	-19.09 (87)	4.13 (22)	5.57 (16)	8.16 (12)	-
T. Rowe Price Retirement 2050*	8.80 (82)	-19.17 (93)	4.03 (35)	5.45 (23)	8.04 (24)	8.70 (14)
T. Rowe Price Retirement 2050 Index	9.20 (57)	-17.98 (45)	4.68 (4)	6.16 (2)	8.67 (2)	9.04 (6)
. Rowe Price Retirement I 2055 I	8.89 (76)	-19.12 (92)	4.11 (25)	5.55 (17)	8.14 (14)	-
T. Rowe Price Retirement 2055*	8.82 (81)	-19.24 (94)	3.94 (41)	5.40 (25)	8.00 (29)	8.66 (15)
T. Rowe Price Retirement 2055 Index	9.21 (57)	-18.00 (45)	4.67 (4)	6.15 (2)	8.67 (2)	9.03 (6)
ier II - Passive Core						
Shares S&P 500 Index	7.56 (19)	-18.13 (21)	7.64 (19)	9.41 (11)	11.45 (6)	12.52 (9)
S&P 500 Index	7.56 <i>(17)</i>	-18.11 (7)	7.66 (10)	9.42 (1)	11.48 (1)	12.56 (1)

<sup>\*\*</sup>Performance will be available once contracting has been completed



<sup>\*</sup>Alternate share class shown to illustrate performance history.

			Performa	ance %		
	1 Quarter	1 Year	3 Years	5 Years	7 Years	10 Years
Tier III - Active Core						
Great West Fixed Fund	0.39 (83)	1.55 (49)	1.72 (39)	-	-	-
90 Day U.S. Treasury Bill	0.84 (8)	1.46 (59)	0.72 (95)	1.26 (90)	1.06 (96)	0.75 (98)
AIG Fixed Fund**	-	-	-	-	-	-
90 Day U.S. Treasury Bill	0.84 (8)	1.46 (59)	0.72 (95)	1.26 (90)	1.06 (96)	0.75 (98)
PIMCO Inflation Response Multi-Asset Inst	5.53 (38)	-5.12 (12)	5.70 (13)	4.59 (22)	5.98 (34)	2.58 (83)
PIMCO IRMA Benchmark	3.90 (53)	-6.13 (15)	3.39 (33)	3.22 (40)	3.99 (60)	1.00 (97)
Baird Core Plus Bond	2.51 (20)	-12.87 (36)	-2.10 (50)	0.55 (38)	1.72 (34)	1.73 (35)
Blmbg. U.S. Universal Index	2.24 (33)	-12.99 (40)	-2.54 (70)	0.18 (70)	1.26 (63)	1.33 (63)
Boston Trust SMID Cap Fund	11.42 (30)	-12.04 (37)	7.50 (38)	8.24 (14)	11.29 (8)	10.87 (16)
Russell 2500 Index	7.43 (92)	-18.37 (88)	5.00 (72)	5.89 (47)	9.00 (48)	10.03 (57)
GQG International Opportunities Fund	13.84 (79)	-11.03 (20)	5.05 (5)	6.81 (1)	-	-
MSCI AC World ex USA Index (Net)	14.28 (75)	-16.00 (53)	0.07 (67)	0.88 (62)	4.80 (45)	3.80 (74)

<sup>\*\*</sup>Performance will be available once contracting has been completed



<sup>\*</sup>Alternate share class shown to illustrate performance history.

#### Calendar Year Performance

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Tier I - Target Date										
T. Rowe Price Retirement I 2005 I	8.18 (16)	11.51 (14)	15.16 (20)	-3.12 (54)	10.74 (18)	6.69 (29)	-	-	-	-
T. Rowe Price Retirement 2005*	8.05 (17)	11.24 (15)	15.08 (21)	<i>-3.26 (58)</i>	10.67 (18)	6.72 (28)	-0.75 (37)	4.72 (41)	9.74 (26)	11.35 (16)
T. Rowe Price Retirement 2005 Index	8.12 (17)	12.00 (10)	14.88 (23)	-2.58 (34)	10.12 (30)	5.84 (44)	-0.10 (21)	5.48 (30)	9.86 (26)	9.52 (43)
T. Rowe Price Retirement I 2010 I	8.97 (4)	12.06 (5)	16.31 (5)	-3.56 (77)	11.82 (7)	7.18 (26)	-	-	-	-
T. Rowe Price Retirement 2010*	8.75 (13)	11.90 (14)	16.16 (7)	-3.61 (81)	11.66 (9)	7.11 (27)	-0.76 (33)	4.99 (43)	11.93 (14)	12.44 (18)
T. Rowe Price Retirement 2010 Index	8.96 (5)	12.58 (1)	16.05 (8)	-3.02 (34)	11.20 (17)	6.27 (58)	-0.17 (24)	5.77 (25)	12.00 (13)	10.61 (59)
T. Rowe Price Retirement I 2015 I	9.74 (12)	12.81 (8)	17.55 (4)	-4.09 (65)	13.52 (11)	7.25 (34)	-	-	-	-
T. Rowe Price Retirement 2015*	9.54 (19)	12.57 (20)	17.40 (6)	-4.17 (68)	13.34 (14)	7.31 (28)	-0.58 (42)	5.37 (42)	<i>15.18 (6)</i>	13.81 (1)
T. Rowe Price Retirement 2015 Index	9.73 (12)	13.05 (7)	17.43 (5)	-3.58 (36)	12.87 (21)	6.91 (39)	-0.28 (29)	6.30 (24)	14.97 (8)	11.94 (47)
T. Rowe Price Retirement I 2020 I	10.60 (9)	13.31 (24)	19.45 (3)	-4.82 (70)	15.90 (1)	7.57 (16)	-	-	-	-
T. Rowe Price Retirement 2020*	10.47 (12)	13.19 (26)	19.37 (4)	-4.94 (72)	15.74 (3)	7.41 (21)	-0.31 (25)	5.63 (54)	18.05 (6)	15.01 (1)
T. Rowe Price Retirement 2020 Index	10.64 (6)	13.49 (17)	19.39 (4)	-4.38 (51)	14.87 (17)	7.51 (18)	-0.49 (30)	6.60 (14)	17.43 (12)	12.92 (54)
T. Rowe Price Retirement I 2025 I	12.04 (5)	14.62 (17)	21.15 (3)	-5.54 (65)	17.82 (1)	7.56 (26)	-	-	-	-
T. Rowe Price Retirement 2025*	11.88 (12)	14.69 (16)	20.95 (4)	<i>-5.62 (69)</i>	17.68 (1)	7.55 (27)	-0.17 (15)	5.84 (51)	20.78 (7)	16.00 (1)
T. Rowe Price Retirement 2025 Index	12.27 (4)	14.62 (17)	21.36 (1)	-5.00 (45)	16.68 (14)	8.21 (20)	-0.56 (24)	7.06 (8)	20.01 (11)	14.00 (45)
T. Rowe Price Retirement I 2030 I	13.75 (11)	15.92 (10)	22.68 (5)	-6.16 (49)	19.52 (1)	7.77 (43)	-	-	-	-
T. Rowe Price Retirement 2030*	13.55 (13)	15.90 (10)	22.48 (8)	-6.28 (60)	19.45 (1)	7.69 (47)	-0.02 (10)	6.05 (46)	23.09 (6)	16.82 (1)
T. Rowe Price Retirement 2030 Index	14.23 (4)	15.65 (15)	23.06 (1)	-5.67 (42)	18.28 (25)	8.80 (14)	-0.73 (26)	7.29 (5)	22.13 (14)	14.85 (41)
T. Rowe Price Retirement I 2035 I	15.28 (18)	17.04 (12)	23.90 (15)	-6.81 (48)	21.03 (7)	7.68 (60)	-	-	-	-
T. Rowe Price Retirement 2035*	15.08 (20)	17.05 (12)	23.70 (16)	-6.87 (51)	20.88 (7)	7.64 (63)	0.13 (7)	6.07 (58)	24.86 (8)	17.35 (1)
T. Rowe Price Retirement 2035 Index	16.07 (5)	16.50 (19)	24.46 (9)	-6.20 (27)	19.58 (31)	9.21 (15)	-0.87 (34)	7.37 (6)	23.76 (29)	15.45 (58)

Returns for periods greater than one year are annualized.

Returns are expressed as percentages.

<sup>\*\*</sup>Performance will be available once contracting has been completed



<sup>\*</sup>Alternate share class shown to illustrate performance history.

#### Calendar Year Performance

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
T. Rowe Price Retirement I 2040 I	16.58 (27)	18.16 (12)	24.89 (20)	-7.21 (40)	22.11 (3)	7.75 (68)	-	-	-	-
T. Rowe Price Retirement 2040*	16.35 (39)	18.11 (13)	24.68 (24)	-7.32 (44)	22.02 (5)	7.63 (71)	0.17 (4)	6.18 (51)	25.93 (13)	17.55 (1)
T. Rowe Price Retirement 2040 Index	17.75 (5)	17.24 (21)	25.55 (11)	-6.61 (25)	20.62 (34)	9.58 (11)	-1.01 (34)	7.43 (5)	24.73 (35)	15.66 (61)
T. Rowe Price Retirement I 2045 I	17.43 (36)	18.72 (7)	25.52 (27)	-7.51 (40)	22.55 (10)	7.75 (71)	-	-	-	-
T. Rowe Price Retirement 2045*	17.20 (44)	18.65 (8)	25.39 (36)	-7.57 (41)	22.41 (13)	7.69 (73)	0.17 (5)	6.14 (58)	25.93 (13)	17.62 (1)
T. Rowe Price Retirement 2045 Index	18.76 (10)	17.60 (24)	26.33 (10)	-6.96 (21)	21.02 (47)	9.70 (23)	-0.98 (34)	7.43 (6)	24.73 (39)	15.66 (73)
T. Rowe Price Retirement I 2050 I	17.54 (47)	18.72 (7)	25.57 (39)	-7.51 (30)	22.55 (12)	7.75 (75)	-	-	-	-
T. Rowe Price Retirement 2050*	17.35 (50)	18.68 (8)	25.32 (44)	<i>-7.58 (32)</i>	22.38 (13)	7.71 (76)	0.19 (5)	6.19 (58)	25.90 (12)	17.55 (1)
T. Rowe Price Retirement 2050 Index	18.91 (11)	17.62 (25)	26.33 (14)	-6.96 (10)	21.02 (54)	9.70 (19)	-0.98 (31)	7.43 (6)	24.73 (36)	15.66 (67)
T. Rowe Price Retirement I 2055 I	17.57 (46)	18.68 (8)	25.52 (39)	-7.50 (29)	22.57 (11)	7.65 (77)	-	-	-	-
T. Rowe Price Retirement 2055*	17.29 (51)	18.55 (9)	25.38 (41)	-7.62 (33)	22.33 (14)	7.73 (76)	0.18 (5)	6.18 (59)	25.86 (12)	17.60 (1)
T. Rowe Price Retirement 2055 Index	18.91 (11)	17.62 (25)	26.33 (14)	-6.96 (10)	21.02 (54)	9.70 (19)	-0.98 (31)	7.43 (6)	24.73 (36)	15.66 (67)
Tier II - Passive Core										
iShares S&P 500 Index	28.65 (34)	18.43 (12)	31.43 (25)	-4.38 (8)	21.77 (22)	11.92 (15)	1.35 (15)	13.61 (13)	32.21 (34)	15.84 (37)
S&P 500 Index	28.71 (3)	18.40 (23)	31.49 (8)	-4.38 (8)	21.83 (4)	11.96 (10)	1.38 (9)	13.69 (1)	32.39 (4)	16.00 (4)
Tier III - Active Core										
Great West Fixed Fund	1.65 (25)	1.95 (55)	-	-	-	-	-	-	-	-
90 Day U.S. Treasury Bill	0.05 (97)	0.67 (100)	2.28 (53)	1.87 (61)	0.86 (98)	0.25 (100)	0.03 (100)	0.04 (100)	0.05 (94)	0.08 (100)
AIG Fixed Fund**	-	-	-	-	-	-	-	-	-	-
90 Day U.S. Treasury Bill	0.05 (97)	0.67 (100)	2.28 (53)	1.87 (61)	0.86 (98)	0.25 (100)	0.03 (100)	0.04 (100)	0.05 (94)	0.08 (100)

Returns for periods greater than one year are annualized. Returns are expressed as percentages.

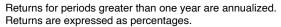
<sup>\*\*</sup>Performance will be available once contracting has been completed



<sup>\*</sup>Alternate share class shown to illustrate performance history.

#### Calendar Year Performance

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
PIMCO Inflation Response Multi-Asset Inst	13.83 (37)	9.36 (42)	10.03 (83)	-3.71 (24)	8.59 (74)	10.53 (26)	-6.77 (78)	1.57 (76)	-9.29 (100)	9.56 (63)
PIMCO IRMA Benchmark	11.22 (50)	5.85 (63)	10.30 (82)	-3.86 (25)	5.08 (92)	6.76 (55)	-7.47 (83)	-0.34 (86)	-8.89 (100)	6.58 (87)
Baird Core Plus Bond	-1.02 (65)	8.80 (49)	10.11 (36)	-0.51 (40)	4.65 (56)	4.73 (42)	0.14 (45)	6.59 (25)	-1.32 (68)	7.95 (73)
Blmbg. U.S. Universal Index	-1.10 (70)	7.58 (75)	9.29 (60)	-0.25 (34)	4.09 (74)	3.91 (55)	0.43 (26)	5.56 (46)	-1.35 (68)	5.53 (94)
Boston Trust SMID Cap Fund	30.46 (24)	8.26 (58)	26.74 (41)	-5.62 (9)	18.39 (26)	20.16 (30)	-2.46 (38)	4.14 (73)	30.67 (94)	10.97 (86)
Russell 2500 Index	18.18 (93)	19.99 (9)	27.77 (26)	-10.00 (33)	16.81 (47)	17.59 (51)	-2.90 (42)	7.07 (53)	36.80 (35)	17.88 (39)
GQG International Opportunities Fund	12.45 (31)	15.86 (29)	27.59 (20)	-6.02 (2)	31.75 (11)	-	-	-	-	-
MSCI AC World ex USA Index (Net)	7.82 (75)	10.65 (46)	21.51 (59)	-14.20 (46)	27.19 (39)	4.50 (25)	<i>-5.66 (83)</i>	-3.87 (33)	15.29 (86)	16.83 (71)



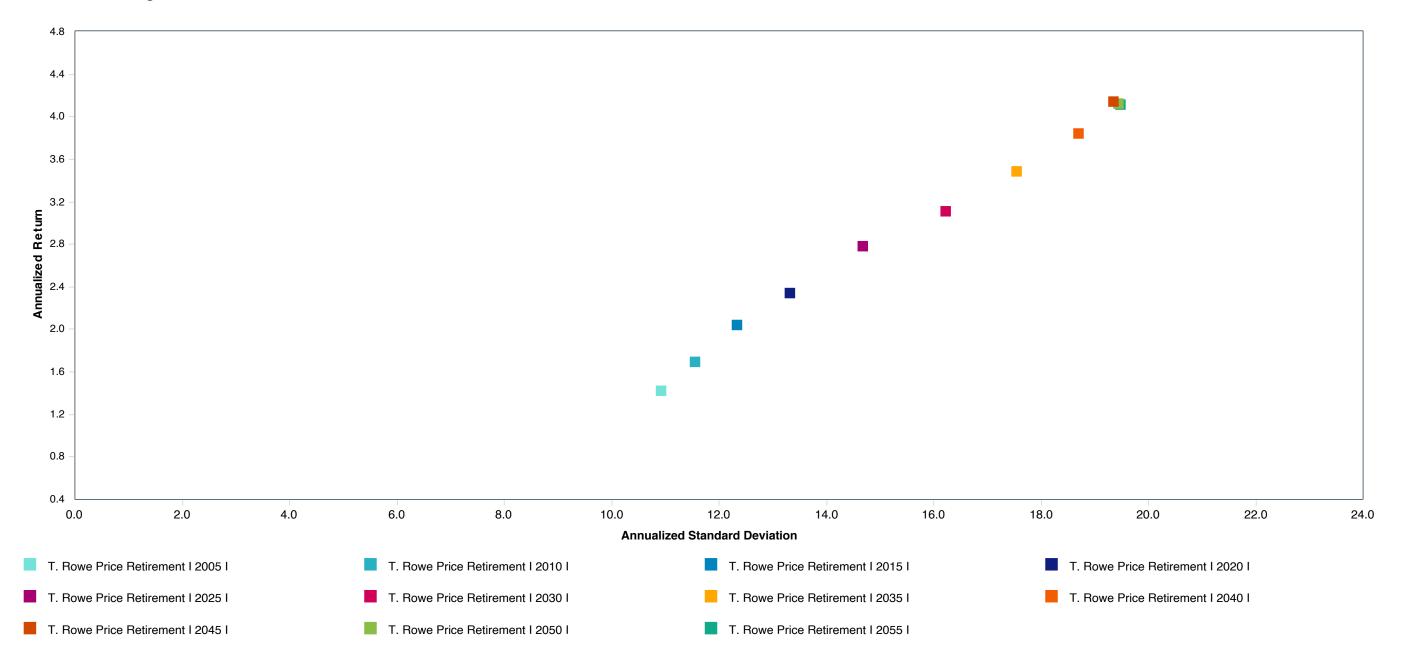
<sup>\*</sup>Alternate share class shown to illustrate performance history.

<sup>\*\*</sup>Performance will be available once contracting has been completed



#### **Risk Profile - Target Date Fund**

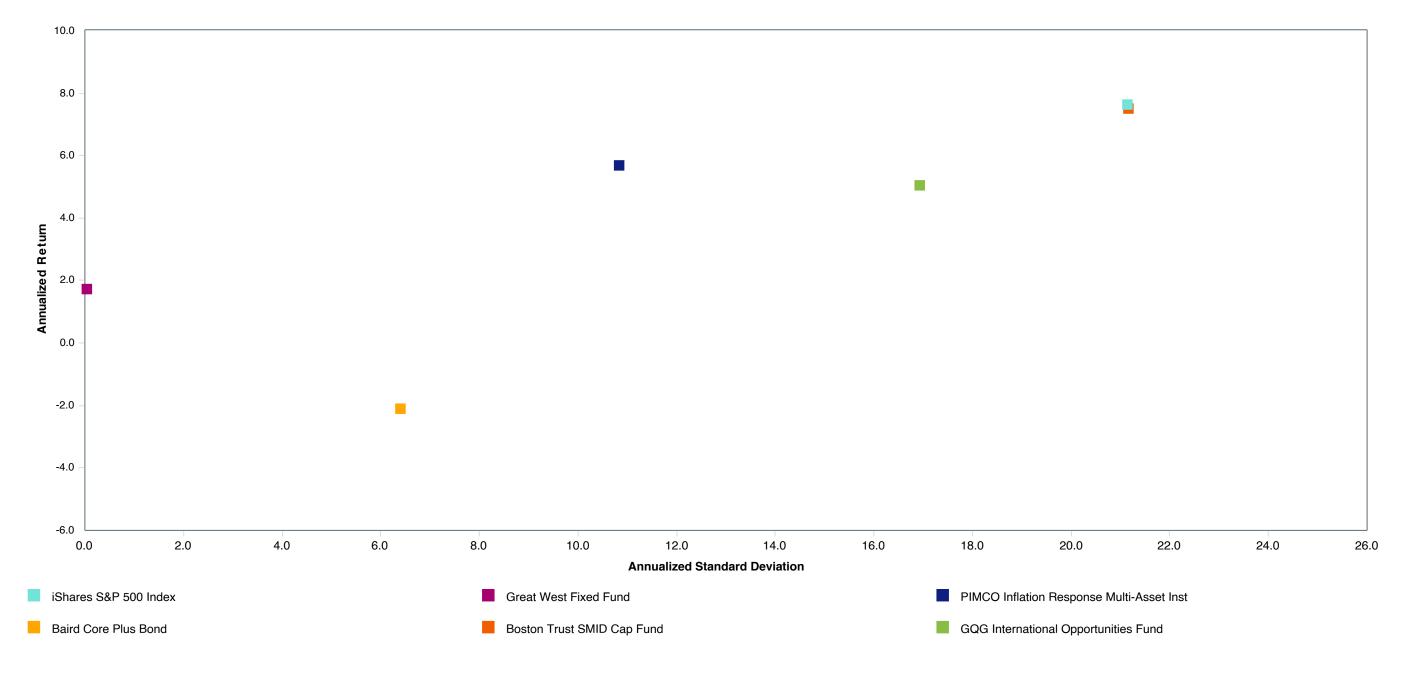
3 Years Ending December 31, 2022





#### Risk Profile - Tier II & Tier III

3 Years Ending December 31, 2022





#### **FCPS Plans**

#### Investment Fee Analysis As of December 31, 2022

			Fund Expense Information		Institutional Peer Comparison <sup>3</sup>	
Fund Name	Vehicle Type <sup>1</sup>	Peer Group	Expense Ratio <sup>2</sup>	Revenue Share	Net of Revenue Share	Universe Offering vs. Median Median
			%	%	%	%
Tier I — Target Date Funds						
T. Rowe Price Retirement I 2005 I	MF	Mixed-Asset Target Today [Active]	0.34%	0.00%	0.34%	0.48% ✓
T. Rowe Price Retirement I 2010 I	MF	Mixed-Asset Target 2010 [Active]	0.34%	0.00%	0.34%	0.37% ✓
T. Rowe Price Retirement I 2015 I	MF	Mixed-Asset Target 2015 [Active]	0.36%	0.00%	0.36%	0.40% ✓
T. Rowe Price Retirement I 2020 I	MF	Mixed-Asset Target 2020 [Active]	0.37%	0.00%	0.37%	0.42% ✓
T. Rowe Price Retirement I 2025 I	MF	Mixed-Asset Target 2025 [Active]	0.39%	0.00%	0.39%	0.44% ✓
T. Rowe Price Retirement I 2030 I	MF	Mixed-Asset Target 2030 [Active]	0.41%	0.00%	0.41%	0.45% ✓
T. Rowe Price Retirement I 2035 I	MF	Mixed-Asset Target 2035 [Active]	0.42%	0.00%	0.42%	0.48% ✓
T. Rowe Price Retirement I 2040 I	MF	Mixed-Asset Target 2040 [Active]	0.43%	0.00%	0.43%	0.49% ✓
T. Rowe Price Retirement I 2045 I	MF	Mixed-Asset Target 2045 [Active]	0.44%	0.00%	0.44%	0.49% ✓
T. Rowe Price Retirement I 2050 I	MF	Mixed-Asset Target 2050 [Active]	0.45%	0.00%	0.45%	0.49% ✓
T. Rowe Price Retirement I 2055 I	MF	Mixed-Asset Target 2055 [Active]	0.46%	0.00%	0.46%	0.49% ✓
Tier II — Passive Funds						
iShares S&P 500 Index	MF	S&P 500 Index [Passive]	0.03%	0.00%	0.03%	0.19% 🗸
Tier III — Active Funds						
Great West Fixed Fund	MF	Stable Value	N/A	0.00%	-	0.40%
AIG Fixed Fund	MF	Stable Value	N/A	0.00%	-	0.40%
PIMCO Inflation Response Multi-Asset	MF	Flexible Portfolio	0.69%	0.00%	0.69%	0.99% ✓
Baird Core Plus Bond	MF	U.S. Brd Market Core & Core+ Fixed Income	0.30%	0.00%	0.30%	0.45% ✓
Boston Trust SMID Cap Fund	MF	U.S. SMID Cap Core Equity	0.75%	0.00%	0.75%	0.92% ✓
GQG International Opportunities Fund	MF	International Equity All	0.55%	0.00%	0.55%	0.94% ✓

Important Note: The investment fee analysis reported in the table above measures only the relative fee level of your current plan offerings as compared to medians from style-specific institutional mutual fund peer universes, which Aon Investments believes is an appropriate comparison regardless of vehicle-type being utilized.

Additional universe statistics including percentile distributions, averages and dollar-weighted metrics are available upon request. Determining whether an investment's expense is reasonable depends on a variety of factors including the level of returns achieved and the method with which administration and operational expenses are paid. Understanding and evaluating the total cost of plan operations, including both investment and administration fees is a critical analysis that should be completed periodically.

<sup>&</sup>lt;sup>3</sup>Institutional mutual fund fee universes were created by Aon Investments, as of June 30, 2022, using a custom proprietary methodology. Peer universe membership data has been sourced from Investment Metrics. Fund expense information has been sourced from Morningstar. Since fund expense ratios do not change frequently, Aon Investments believes this study to be a relevant comparison for up to a year, at which time it will be updated. For complete information on methodologies, contact your Aon Investments.



<sup>&</sup>lt;sup>1</sup>Vehicle Type Definitions: "MF" = Mutual Fund, "CIT" = Collective Investment Trust, "SA" = Separate Account, "A" = Annuity

<sup>&</sup>lt;sup>2</sup>Expense Ratio is intended to represent a fund's total expense ratio which may include investment management fees, 12b-1 fees, custodial fees, trustee fees, revenue sharing components and/or charges for fund or plan administration.

#### **Ratings Report Card**

#### **FCPS Plans**

Fund	Aon Rating
Tier I - Mixed Asset	
T. Rowe Price Retirement Trust	Buy
Tier II - Passive	
iShares S&P 500 Index	Buy
Tier III - Active	
Great West Fixed Fund	Buy
AIG Fixed Fund	Buy
PIMCO Inflation Response Multi-Asset	Buy
Baird Core Plus Bond	Buy
Boston Trust SMID Cap Fund	Buy
GQG International Opportunities Fund	Buy

<sup>1</sup> Qualified rating may be assigned based on a Qualitative <u>or</u> Quantitative Review

Many factors are considered when selecting and monitoring the investment options including, but not limited to:

- Business Ownership structure, profitability, stability of organization, client, asset base
- Investment Staff Quality of personnel, depth of resources, turnover, succession planning
- Investment Process Skilled investment decisions, clear and repeatable processes, understanding of competitive advantages
- Risk Management Embedded in broader investment process, independently verified
- Performance Risk-adjusted returns, compared to appropriate benchmarks and peer groups, measured over multiple periods
- Operational Due Diligence Operational controls, valuation of assets, independent directors
- Terms & Conditions Investment expenses should be reasonable for the value provided and benchmarked for reasonability based on the specific type of investment strategy being evaluated
- ESG- Degree to which the team is aware of potential ESG risks and has taken steps to identify, evaluate and mitigate these risks



## Fairfax County Public Schools 457(b) Plan Demographic Information\*

Participants per Investment Option				
Investment Option	Participants			
Great West Portfolio	292			
PIMCO Total Return	214			
PIMCO Inflation Response MultiAsst	24			
T. Rowe Price Retirement I 2005 I	16			
T. Rowe Price Retirement I 2010 I	7			
T. Rowe Price Retirement I 2015 I	9			
T. Rowe Price Retirement I 2020 I	15			
T. Rowe Price Retirement I 2025 I	87			
T. Rowe Price Retirement I 2030 I	95			
T. Rowe Price Retirement I 2035 I	123			
T. Rowe Price Retirement I 2040 I	96			
T. Rowe Price Retirement I 2045 I	74			
T. Rowe Price Retirement I 2050 I	50			
T. Rowe Price Retirement I 2055 I	69			
iShares S&P 500 Index	594			
Vanguard Mid Cap Index	459			
Baron Growth	343			
Artisan International	317			

Participants with Balance in One Investment Option				
Investment Option	<b>Participants</b>			
Great-West Portfolio Fund	94			
PIMCO Total Return Admin	92			
PIMCO Inflation Response MultiAsst	9			
T. Rowe Price Retirement I 2005 I	7			
T. Rowe Price Retirement I 2010 I	6			
T. Rowe Price Retirement I 2015 I	6			
T. Rowe Price Retirement I 2020 I	12			
T. Rowe Price Retirement I 2025 I	15			
T. Rowe Price Retirement I 2030 I	17			
T. Rowe Price Retirement I 2035 I	24			
T. Rowe Price Retirement I 2040 I	11			
T. Rowe Price Retirement I 2045 I	12			
T. Rowe Price Retirement I 2050 I	11			
T. Rowe Price Retirement I 2055 I	14			
iShares S&P 500 Index	139			
Vanguard Mid Cap Index Ins	109			
Baron Growth Instl	104			
Artisan International Inv	92			

Investment Options	Participants
One	774
Two	413
Three	305
Four	299
Five	230
Six	242
Seven	37
Eight	18
More than Eight	23

Other Demographics				
Item	Result			
Participation Rate	44.00%			
Number of Participants with Account Balances	2,341			
Average Deferral Rate	17.11%			
Average Number of Funds per Participant	2.99			
Average Account Balance	\$121,078.55			

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<sup>\*</sup>Information directly provided by Empower Retirement

## Fairfax County Public Schools 403(b) and 457(b) Plan Statistics

	457(b)	403(b)	457(b) & 403(b)
Contributions			
December 2020	\$902,000	\$3.5 million	
December 2021	\$964,000	\$3.6 million	
December 2022	\$900,000	\$ 3.8 million	
January 2022	\$1.3 million	\$ 4.9 million	
Assets			
December 2020	\$ 297.0 million	\$ 1.1 billion	
December 2021	\$ 340.0 million	\$ 1.2 billion	
December 2022	\$ 284.0 million	\$ 1.0 billion	
January 2022	\$ 300 million		
Number of Participant	S		
December 2020	2,342	13,529	
December 2021	2,362	13,512	
December 2022	2,350 13,370		
Average Contributions	s per Month & Biweekly		
December 2020	\$774/month; \$191/biweekly	\$630/month; \$167/biweekly	
December 2021	\$875/month; \$206/biweekly	\$660/month; \$195/biweekly	
December 2022	\$890/month; \$245/biweekly	\$687/month; \$251/biweekly	
Number of Employees	Currently Contributing		
	1,154/month; 68/biweekly	5,275/month; 757/biweekly	
<b>Number of Employ</b>	ees Currently Contributing to bot	h 457(b) and 403(b)	421

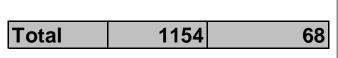


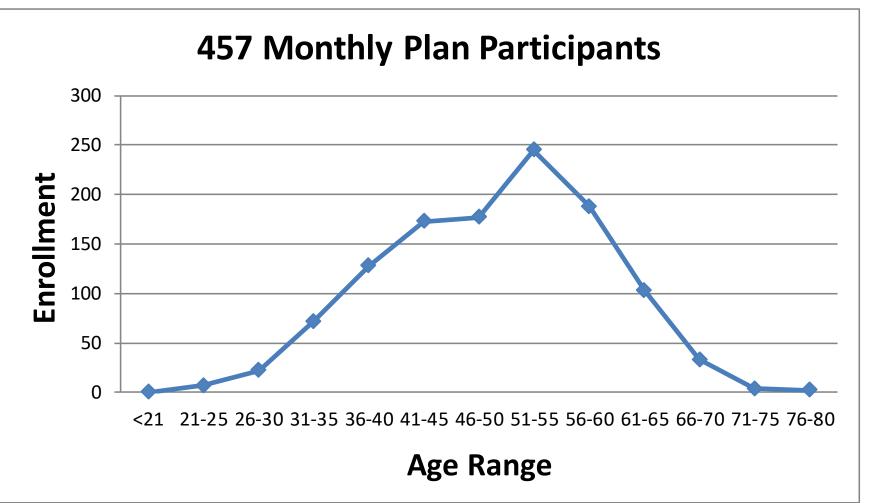
## Fairfax County Public Schools 457(b) Plan Enrollment

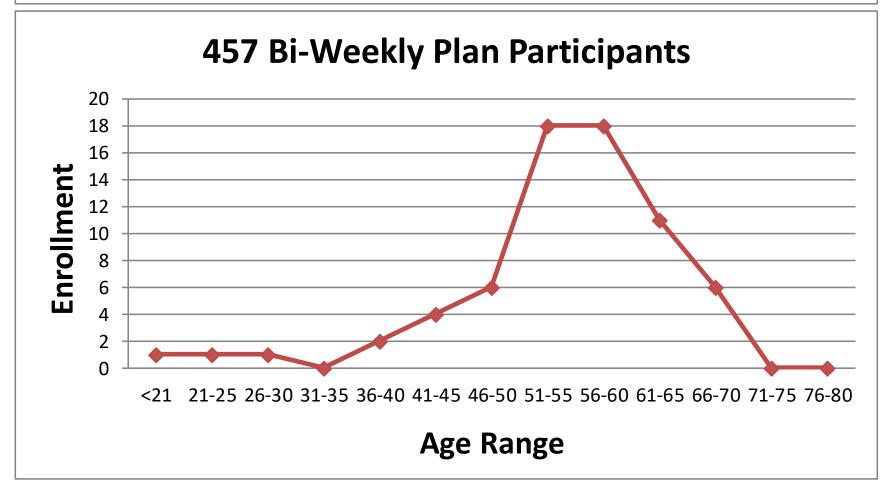
As of December 31, 2022

#### **457 Plan Participants**

Age	Monthly	Bi-Weekly
<21	0	1
21-25	7	1
26-30	22	1
31-35	72	0
36-40	128	2
41-45	173	4
46-50	177	6
51-55	245	18
56-60	188	18
61-65	103	11
66-70	33	6
71-75	4	0
76-80	2	0









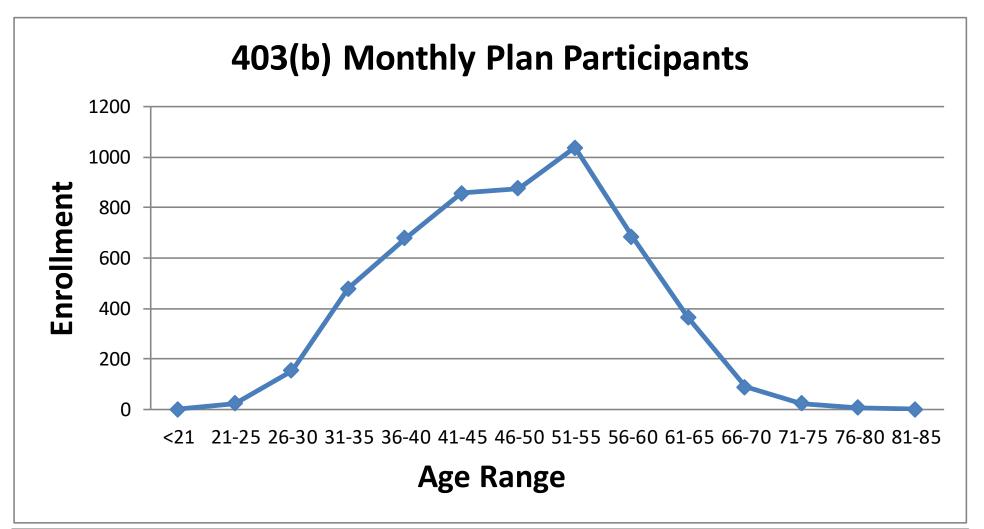
## Fairfax County Public Schools 403(b) Plan Enrollment

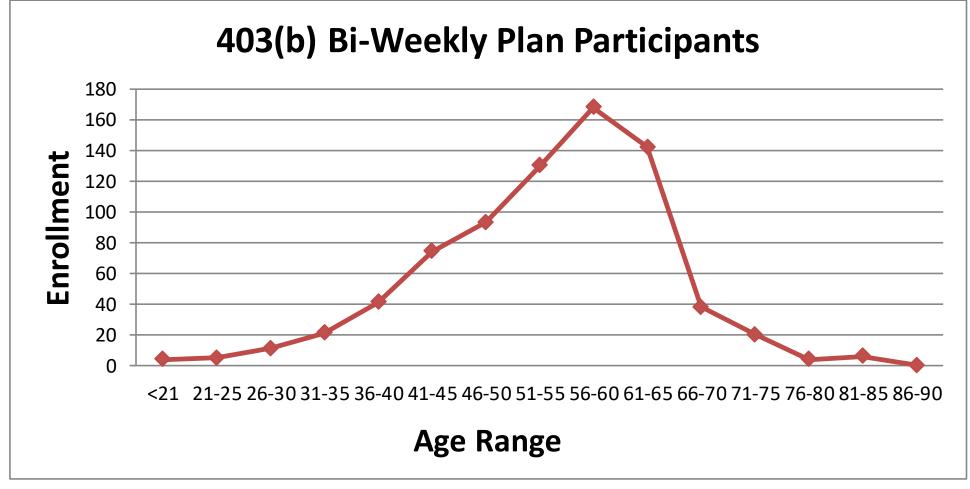
As of December 31, 2022

#### **403(b) Plan Participants**

Age	Monthly	Bi-Weekly
<21	0	4
21-25	24	5
26-30	154	11
31-35	479	21
36-40	678	41
41-45	858	74
46-50	876	93
51-55	1038	130
56-60	686	168
61-65	364	142
66-70	88	38
71-75	23	20
76-80	6	4
81-85	1	6
86-90	0	0

Total	5275	757



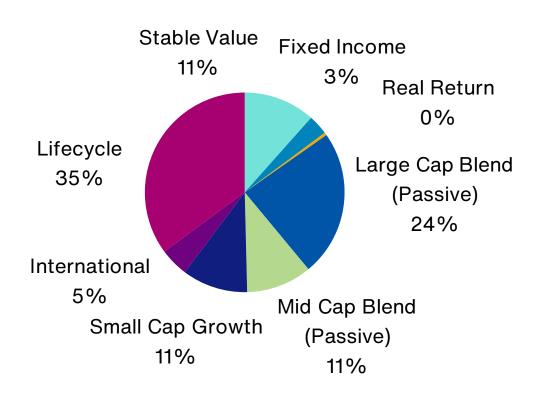




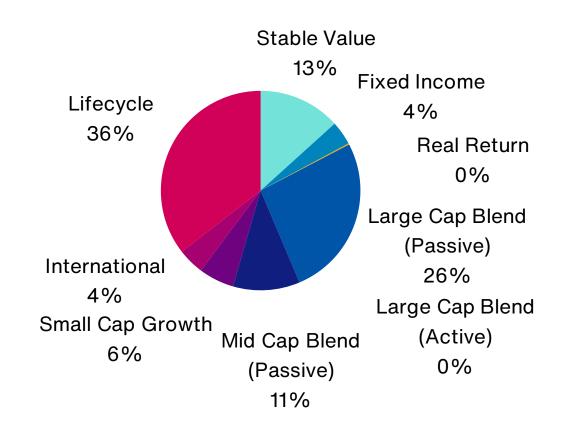
## Fairfax County Public Schools 457(b) Plan

## **Contribution Analysis**

#### 4th Quarter 2022 Contribution Allocation



#### **3rd Quarter 2022 Contribution Allocation**

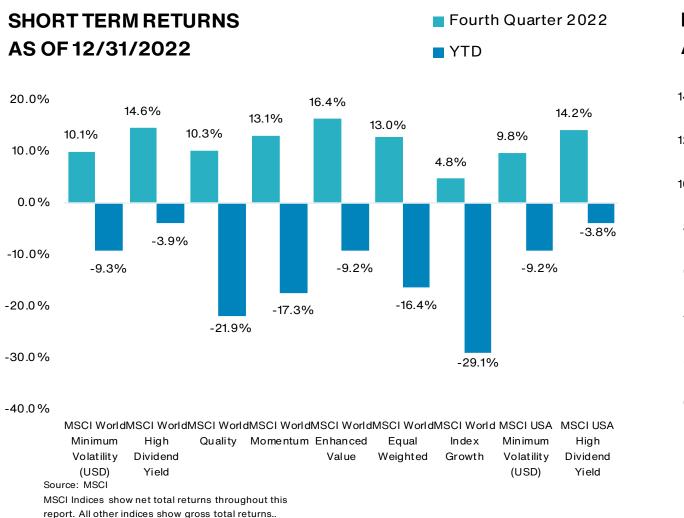




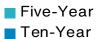
#### **Market Environment**

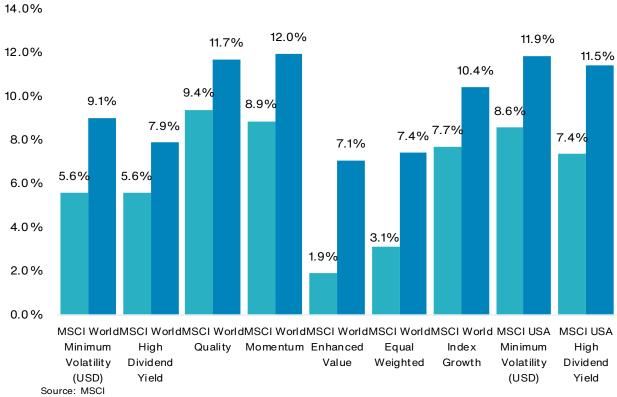


#### **Factor Indices**







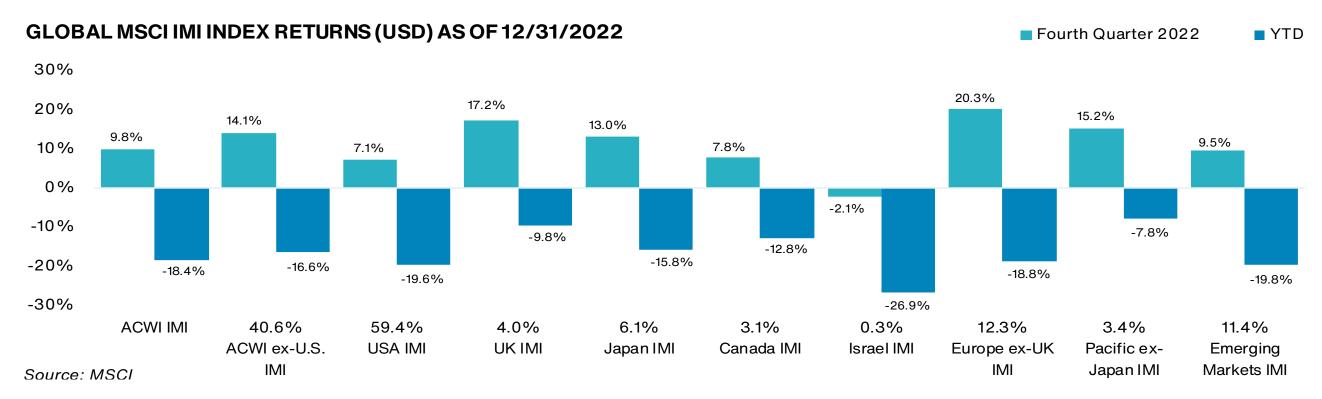


MSCI Indices show net total returns throughout this report. All other indices show gross total returns..

Past performance is no guarantee of future results. Indices cannot be invested in directly. Unmanaged index returns assume reinvestment of any and all distributions and do not reflect fees and expenses. Please see appendix for index definitions and other general disclosures.



#### **Global Equity Markets**



- In Q4 2022, equity markets rebounded as high-interest rate concerns abated. Volatility fell throughout the quarter as the CBOE Volatility Index (VIX) fell to 21.7 in December from 31.6 in the previous quarter, staying well above its 20-year average of 19.4. Yields trended higher with major central banks indicating continued support for aggressive monetary policy to control rising inflation. The MSCI All Country World Investable Market Index (ACWI IMI) returned 9.8% for the guarter but was down 18.4% on a year-to-date basis.
- Across international markets, generally all the regions were strong over the quarter. All regions apart from Israel posted a positive return.
- Europe ex-UK equities were the best regional performer with a return of 20.3% in US dollar terms due to sharp euro appreciation against the dollar. Economically sensitive sectors including energy, financials, industrials, and consumer discretionary outperformed.

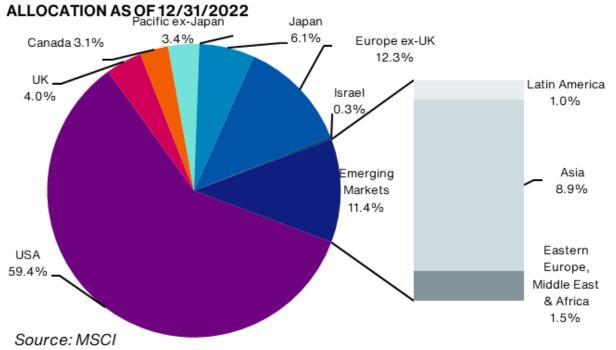
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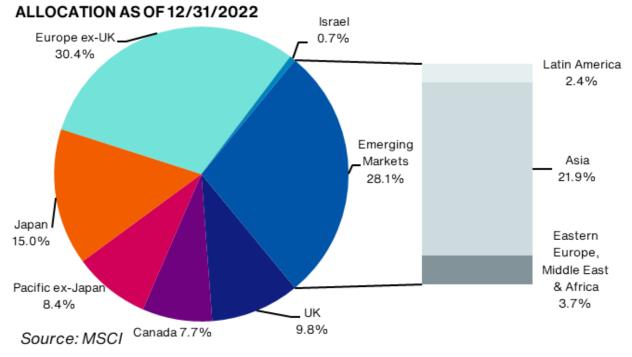
#### **Global Equity Markets**

Below is the country/region breakdown of the global and international equity markets as measured by the MSCI All Country World IMI Index and the MSCI All Country World ex-U.S. IMI Index, respectively.

#### MSCI ALL COUNTRY WORLD IMI INDEX GEOGRAPHIC



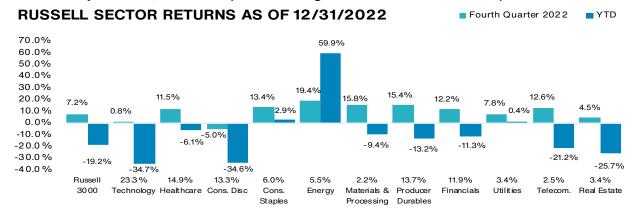
#### MSCI ALL COUNTRY WORLD EX-U.S. IMI INDEX GEOGRAPHIC

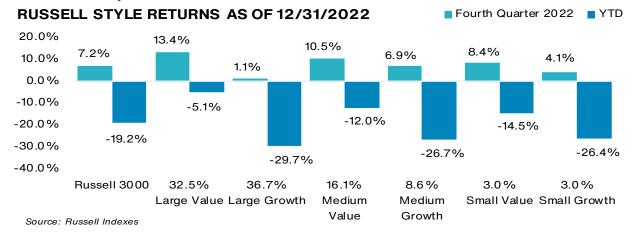




#### **U.S. Equity Markets**

- U.S. equities had a strong quarter with the S&P 500 index rising by 7.6%.
- In the US mid-term elections, the Democrats retained control over the Senate with a 51-seat majority whilst the Republicans won back control of the House of Representatives. The US Congress passed a \$1.7tn annual spending bill to fund the US government until September 2023 and avoid a government shutdown. The bill includes \$45bn in new military and economic aid to Ukraine, nearly \$773bn in domestic funding, and more than \$850bn for the US military
- The U.S. economy rebounded in the third quarter after it contracted in the first half of 2022. Annualized gross domestic product rose by 2.9% over Q3 2022, following the 0.6% contraction rate in the previous quarter. A narrowing trade deficit contributed to the U.S. economy's expansion in the third quarter, as softening consumer demand lowered imports while exports rose, particularly in the oil sector.
- The Russell 3000 Index rose 7.2% during the fourth quarter but was down 19.2% on a year-to-date basis. Except for Consumer Discretionary (-5.0%), all the sectors generated positive returns. Energy (19.4%) and Materials & Processing (15.8%) were the best performers.
- · Large-cap stocks outperformed in value and Medium-cap stocks outperformed in growth.
- On a style basis, value outperformed growth across market capitalizations over the quarter and on a year-to-date basis.



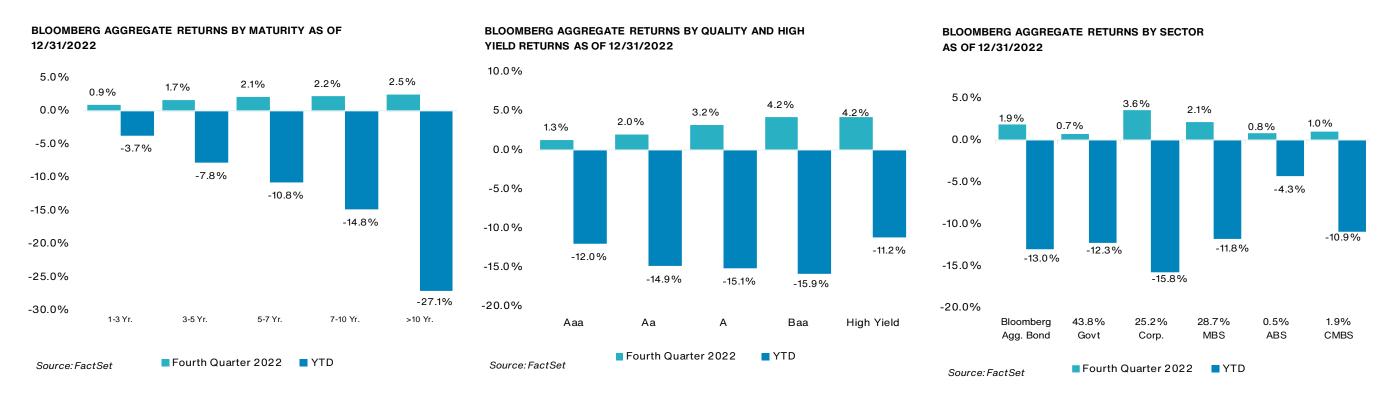


Source: Russell

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#### **U.S. Fixed Income Markets**



- The U.S. Federal Reserve (Fed) increased its benchmark interest rate by 125bps to a range of 4.25%-4.5% over the quarter. Fed chair Jerome Powell reiterated that monetary policy needs to be restrictive enough to bring inflation under control. According to the median estimate on the Fed dot plot, officials expect the policy rate to reach 5.1% by the end of 2023, up from the 4.6% forecasted in September.
- The Bloomberg U.S. Aggregate Bond Index was up 1.9% over the quarter but was down 13.0% on a year-to-date basis.
- Across durations, all maturities finished the quarter in positive territory.
- Within investment-grade bonds, lower-credit quality generally outperformed higher-quality issues, with Baa bonds rising by 4.2%. High-yield bonds also rose by 4.2%.

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#### **U.S. Fixed Income Markets**

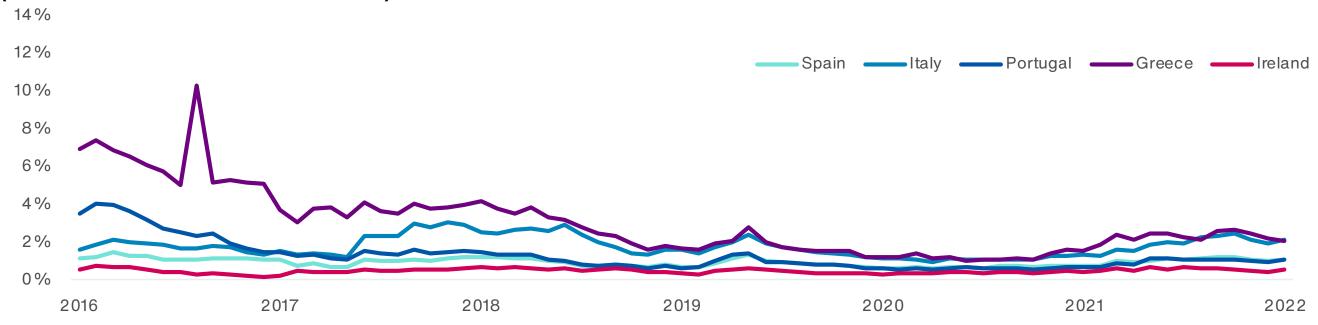


- U.S. Treasury yields saw notable increases at shorter maturities, fell marginally at medium maturities but rose slightly at the longer end of the curve. The 10-year Treasury yield was up 5bps to 3.88%, and the 30-year Treasury yield was up 18bps to 3.97% over the quarter.
- Inflation slowed down, driven by a fall in energy prices. The U.S. annual consumer price index (CPI) rose 7.1% year-on-year in November, down from the 7.7% recorded in October and less than economists' expectations of 7.3%.
- The 10-year TIPS yield fell by 10bps over the quarter to 1.58%.



#### **European Fixed Income Markets**

## EUROZONE PERIPHERAL BOND SPREADS (10-YEAR SPREADS OVER GERMAN BUNDS)



- European government bond spreads over 10-year German bunds generally narrowed across the Euro Area. The European Central Bank (ECB) raised its benchmark interest rates by 125bps to 2% over the quarter, the highest level in 14 years. The ECB president, Christine Lagarde, indicated further 0.5% rate increases in the next two meetings as the ECB announced plans to start shrinking the €5tn of bonds it purchased over the last eight years from March 2023.
- German and Portuguese government bond yields rose sharply, up 41bps and 40bps to 2.53% and 3.57% respectively over the quarter.
- Greek government bond yields fell by 20bps to 4.59% over the quarter.
- Eurozone annual inflation eased more than expected to 10.0% in November.



#### **Credit Spreads**

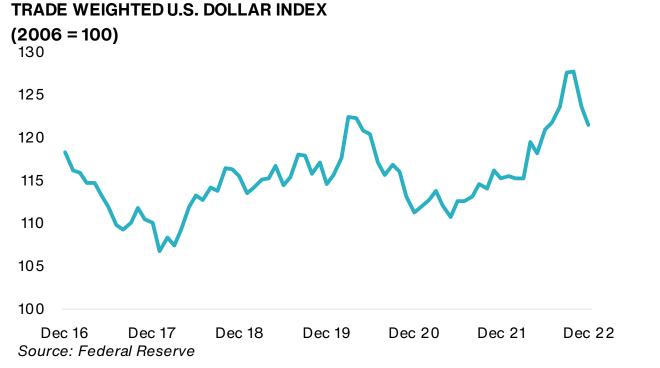
Spread (bps)	12/31/2022	9/30/2022	6/30/2022	Quarterly Change (bps)	YTD Change (bps)
U.S. Aggregate	51	62	36	-11	15
Long Gov't	2	1	0	1	2
Long Credit	157	196	130	-39	27
Long Gov't/Credit	87	107	74	-20	13
MBS	51	69	31	-18	20
CMBS	120	105	68	15	52
ABS	76	53	38	23	38
Corporate	130	159	92	-29	38
High Yield	469	552	283	-83	186
Global Emerging Markets	332	403	285	-71	47

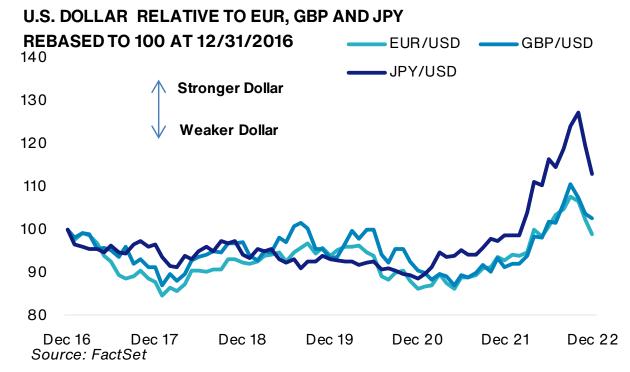
Source: FactSet, Bloomberg

- Credit markets rose amid risk-taking sentiment during the quarter, with spreads generally narrowing.
- High Yield and Global Emerging Markets spreads narrowed by 83bps and 71bps respectively while ABS and CMBS spreads widened by 23bps and 15bps, respectively.



# **Currency**

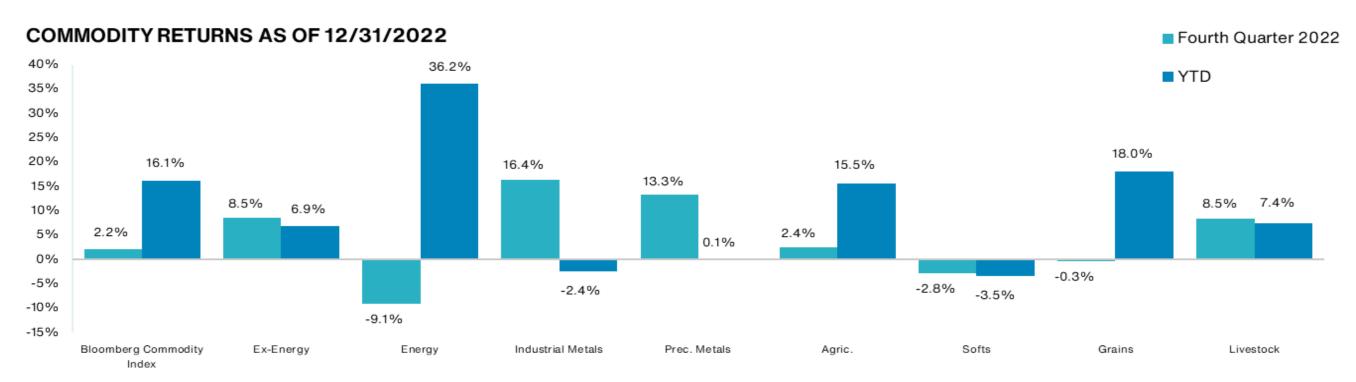




- The U.S. Dollar weakened against all major currencies over the quarter as the combination of weakening US growth and falling inflation led to expectations that the Fed would cut policy rates this year faster than previously anticipated. On a trade-weighted basis, the U.S. dollar depreciated by 4.8%.
- Sterling appreciated by 7.2% against the U.S. dollar. The Bank of England (BoE) raised its benchmark interest rate by 125bps to 3.5% over the quarter, its highest level since 2008. The central bank expects inflation could touch 10.9% in Q4 2022. The BoE became the first major central bank to actively start to unwind quantitative easing as it sold £750mn of government bonds. The BoE plans to trim its balance sheet by £80bn over the year.
- The U.S. dollar depreciated by 8.2% against the Euro and by 8.8% against the yen. The Bank of Japan (BoJ) unexpectedly changed its yield curve control policy by increasing the acceptable band of its 10-year government bond yields from plus or minus 0.25% to 0.5% around its target rate of zero. The BoJ made a series of government bond purchases to maintain the target band as yields rose across the curve following the announcement.



# **Commodities**



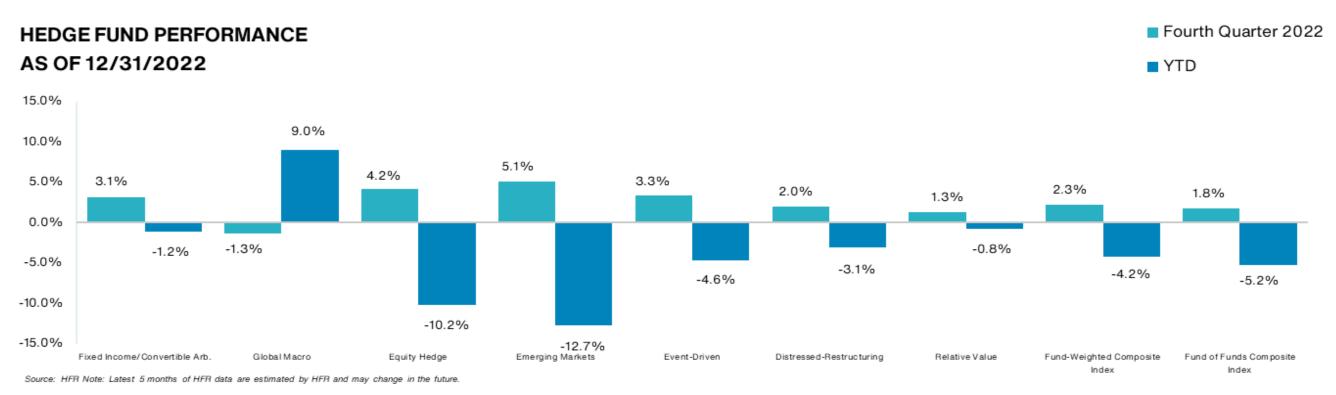
Source: Bloomberg Note: Softs and Grains are part of the wider Agriculture sector

- Commodity prices rose over the quarter with the Bloomberg Commodity Index rising by 2.2% for quarter.
- The energy sector fell 9.1% over the quarter but has risen by 36.2% on a year-to-date basis. The price of WTI crude oil was up by 1.0% to U.S.\$80/BBL.
- Industrial Metals rose the most over the quarter at 16.4%.
- Meanwhile, OPEC+ agreed to cut 2m barrels a day in oil production in an attempt to keep oil prices from falling due to weaker global demand. This cut is equivalent to 2% of global supply and threatens to further increase inflationary pressures across the globe.

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# **Hedge Funds Market Overview**



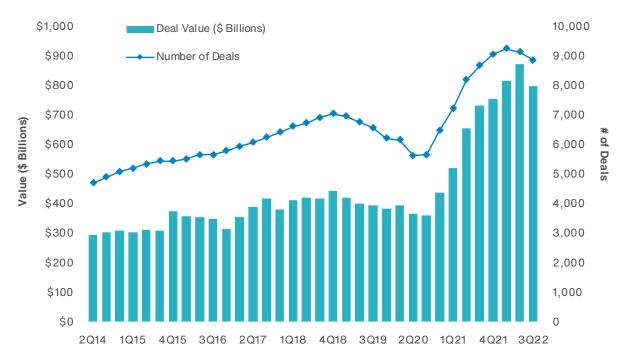
- Hedge fund performance was generally positive over the quarter.
- The HFRI Fund-Weighted Composite and HFRI Fund of Funds Composite Index produced returns of 2.3% and 1.8% over the quarter, respectively.
- Over the quarter, Emerging Markets was the best performer with a return of 5.1%.
- Global Macro was the worst performer and the only strategy with a negative return (-1.3%) over the quarter.
- On a year-to-date basis, Global Macro has outperformed all other strategies whilst Emerging Markets have performed the worst.

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# **Private Equity Market Overview - 3Q 2022**

# LTM Global Private Equity-Backed Buyout Deal Volume



Source: Pregin

Sources: 1 Preqin 2 Standard & Poor's 3 PitchBook/NVCA Venture Monitor 4 Fitch Ratings

Notes: FY=Fiscal year ended 12/31; YTD=Year to date; LTM=Last 12 months (aka trailing 12 months); PPM=Purchase Price

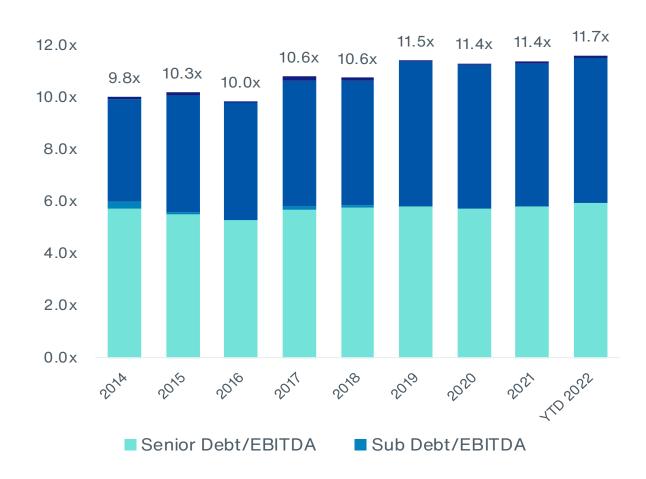
Multiples: Total Purchase Price ÷ EBITDA.

- Fundraising: During 3Q 2022, \$231.6 billion was raised by 485 funds, which was down 22.3% by number of funds raised and down by 18.7% by capital raised compared to 2Q 2022. This represented an increase of 6.8% on a capital basis compared to 3Q 2021. Dry powder stood at \$3.0 trillion at the end of the quarter, an increase of 1.3% and 43.3% compared to 2Q 2022 and the five-year average, respectively.
- Buyout: Global private equity-backed buyout deals totaled \$93.6 billion in 3Q 2022, which was a decrease on a capital basis of 64.8% compared to 2Q 2022 and a decrease of 31.2% compared to the five-year quarterly average.¹ During the quarter, the average purchase price multiple for all U.S. LBOs was 11.7x EBITDA, up slightly from 2Q 2022's average of 11.5x and up from the five-year average (11.1x). Large-cap purchase price multiples stood at 11.7x during the quarter, up compared to full-year 2021's level of 11.2x. The LTM average purchase price multiple across European transactions greater than €1B averaged 10.5x EBITDA at the end of 3Q 2022, down from 11.3x at the end of 2Q 2022. Purchase prices for transactions of €500M million or more averaged 10.2x EBITDA on an LTM basis, lower than the 11.2x seen at the end of 2Q 2022.2 Globally, exit value totaled \$67.8 billion on 298 deals during the quarter, lower than the \$125.2 billion across 348 deals during 2Q 2022.¹
- **Venture:** During the quarter, an estimated 3,076 U.S. venture-backed transactions totaling \$43.0 billion were completed, which was a decrease on a capital value and deal count basis over the prior quarter's total of \$71.9 billion across 4,055 deals. This was also a decrease of 14.2% compared to the five-year quarterly average of \$50.2 billion. Total U.S. venture-backed exit value totaled approximately \$14.0 billion across an estimated 302 completed transactions in 3Q 2022, down substantially from \$192.6 billion across 475 exits in 3Q 2021.
- **Mezzanine:** 12 funds closed on \$28.7 billion during the quarter. This was a significant increase from the prior quarter's total of \$3.8 billion raised by 7 funds and also a significant increase from the \$3.8 billion raised by 15 funds in 3Q 2021. Estimated dry powder was \$70.5 billion at the end of 3Q 2022, up from \$50.6 billion at the end of 2Q 2022.



# **Private Equity Market Overview - 3Q 2022**

# **U.S. LBO Purchase Price Multiples - All Transactions Sizes**



Sources: 1 Pregin 2 Standard & Poor's 3 PitchBook/NVCA Venture Monitor 4 Fitch Ratings

- Distressed Debt: The YTD U.S. high-yield default rate was 1.2% as of October 2022. Fitch predicted the TTM default rate may rise to 1.5%-1.75% by year-end 2022. The high-yield default rate is projected to trend higher through 2023.<sup>4</sup> During the quarter, \$16.6 billion was raised by 15 funds, down significantly from the \$29.4 billion raised by 17 funds during 2Q 2022. Dry powder was estimated at \$153.3 billion at the end of 3Q 2022, which was down 4.4% from 2Q 2022. This remained above the five-year annual average level of \$129.4 billion.<sup>1</sup>
- **Secondaries:** 5 funds raised \$5.5 billion during the quarter, down from the \$13.8 billion raised by 17 funds in 2Q 2022. This was 50.6% lower than the five-year quarterly average of \$11.2 billion. Secondary dry powder was estimated at \$127.8 billion at the end of the quarter.<sup>1</sup>
- Infrastructure: \$33.8 billion of capital was raised by 34 funds in 3Q 2022 compared to \$40.1 billion of capital raised by 59 partnerships in 2Q 2022. At the end of the quarter, dry powder stood at \$298.8 billion, down from 2Q 2022's total of \$319.5 billion. Infrastructure managers completed 1999 deals for an aggregate deal value of \$304.4 billion through 3Q 2022 compared to 2,489 deals totaling \$530.6 billion in 2021.1
- Natural Resources: Through 3Q 2022, an estimated 19 funds closed on \$3.8 billion compared to 29 funds totaling \$13.0 billion in 2021. Energy and utilities industry managers completed 59 deals totaling \$12.3 billion in 3Q 2022, compared to \$11.6 billion across 53 deals in 2Q 2022.<sup>1</sup>



# **Appendix**



#### **Active Returns**

Measures the average excess return of the portfolio relative to a benchmark. The excess return is annualized. The higher the active return, the better the portfolio's performance versus the benchmark.

### **Alpha**

Measures nonsystematic return, or the return that cannot be attributed to the market. Thus, it can be thought of as how the manager performed if the market had no gain or loss. A positive alpha implies that the manager has added value to the return of the portfolio over that of the market.

#### **Average Credit Quality**

An average of all the credit-quality positions for the fund or underlying fund's bond holdings. The credit quality levels range from AAA (highest) to D (lowest).

## **Average Maturity**

Average maturity is the weighted average of the dates on which the bonds held in the portfolio become due and are to be paid off.

# **Average Weighted Coupon**

A weighted average of the coupons for all bond holdings in the fund or underlying fund's portfolio. This figure is generated by weighing each bond's rate of interest to its relative size in the portfolio.

# Bloomberg Barclays U.S. Aggregate Bond Index

This includes all publicly issued, non-convertible domestic debt of the US Government and all its agencies, all investment-grade corporate debt and all mortgage-backed securities. The minimum maturity is one year, but there is no maximum maturity. The bonds must have at least \$250 million par amount outstanding.

# Bloomberg Barclays U.S. Government/Credit Bond Index

Is made up of the Bloomberg Barclays U.S. Government and Bloomberg Barclays U.S. Capital Credit Indices. All issues are rated investment grade or higher, have at least one year to maturity, and have an outstanding par value of at least \$250 million.

### Bloomberg Barclays U.S. Government/Credit Intermediate Index

A measure of the movement of approximately 2,800 bonds from the Bloomberg Barclays U.S. Government/Credit index with maturities between 1 and 9.99 years. The total return calculated for the index consists of price appreciation/depreciation and income as a percentage of the original investment.

### Bloomberg Barclays U.S. Government/Credit Long Index

A measure of the movement of bonds from the Bloomberg Barclays U.S. Government/Credit index with maturities greater than 9.99 years. The total return calculated for the index consists of price appreciation/depreciation and income as a percentage of the original investment.

#### Beta

Measures the risk level of the manager. Beta measures the systematic risk, or the return that is attributable to market movements. A beta equal to one indicates a risk level equivalent to the market. Higher betas are associated with higher risk levels, while lower betas are associated with lower risk levels.

## **Bottom-Up**

A methodical approach to investing in which investors search for outstanding performance of individual stocks before considering the impact of economic trends. Companies are identified from research reports, stock screens, personal knowledge of the products and services, and other resources. The bottom-up approach assumes that individual companies can do well, even in an industry or sector that is not performing well.

# **Commingled Account**

The collective investment of the assets of several institutional clients, usually through an investment manager allowing for broader and more efficient investing.



### **Consumer Price Index (CPI)**

A measure of the average change in prices over time of a fixed group of goods and services. The CPI is published by the Bureau of Labor Statistics in the Department of Labor and is released monthly. It is widely used as a cost-of-living benchmark.

#### Correlation

Statistical measure of the degree to which the movements of two variables are related, ranging from 1 to -1. For asset allocation purposes, mixing two assets with a correlation less than 1 results in a benefit of diversification because the two assets do not behave in exactly the same manner.

#### **Core Investment Style**

An investment approach that managers utilize by reviewing the entire universe of growth and value stocks within a market capitalization range, then choosing a combination of the most attractive of either type to create a blended portfolio with a style that is neither a pure value nor a pure growth. Core portfolio characteristics including P/E ratio, P/B ratio, and dividend yield that typically lie between growth and value portfolios.

## Coupon

The interest on a debt security, e.g., a bond, the issuer promises to pay to the holder until maturity, expressed as an annual percentage of the security's face value. For example, a bond with a 10% coupon will pay \$10 per \$100 of the face amount per year.

#### **Current Yield**

The annual interest on a bond divided by the market price. If a \$1,000 bond was bought at \$800 and the annual income from the bond was \$100, the current yield is \$100 divided by \$800, or  $12\frac{1}{2}$ %.

# **Dow Jones Industrial Average**

Computed by summing the prices of the stocks of 30 companies and then dividing that total by a value which has been adjusted over the years so that the index is not affected by stock splits.

#### **Downside Risk**

Estimate that a security will decline in value and the extent of the decline, taking into account the total range of factors affecting market price.

#### Duration

Measure of the price change of a bond to a change in its yield to maturity. It summarizes, in a single number, the characteristics that cause bond prices to change in response to a change in interest rates. The price of a bond with a duration of three years will rise by approximately 3% for each 1% decrease in its yield to maturity. That price will decrease 3% for each 1% increase in the bond's yield. Price changes for two different bonds can be compared using duration. A bond with a duration of six years will exhibit twice the percentage price change of a bond with a three year duration. The actual calculation of a bond's duration is somewhat complicated, but the idea behind the calculation is straightforward. The first step is to measure the time interval until receipt for each cash flow (coupon and principal payments) from a bond. The second step is to compute a weighted average of these time intervals. Each time interval is measured by the present value of that cash flow. This weighted average is the duration of the bond measured in years.

#### **Excess Risk**

A measure of the standard deviation of a portfolio's performance relative to the risk free return, represented by 90-Day T-Bills.

## **Expense Ratio**

A figure that represents the percentage of fund assets paid for operating expenses and management fees, including 12b-1 fees, administrative fees, and all other asset-based costs incurred by the fund, except for brokerage costs and sales charges.



## **Fundamental Analysis**

A method of analyzing the balance sheet and income statement of a company in order to forecast its future stock price movements. Analysts consider the company's past records of assets, earnings, sales, products, management, and markets in predicting future trends in these indicators of a company's success or failure.

#### **Growth Stock**

Stock of a company which is growing earnings and/or revenue faster than its industry or the overall market and is expected to continue to show high levels of profit growth and P/E multiples. Such a company usually pays little or no dividends, preferring to use the income to finance further expansion. Generally, these stocks are contrasted with value stocks that trade at lower P/E multiples.

#### Information Ratio

The information ratio is a measure of the consistency of excess return. This value is determined by taking the annualized excess return over a benchmark (style benchmark by default) and dividing it by the standard deviation of excess return.

## Large Cap

"Large cap" refers to stock with a large capitalization, which is calculated by multiplying the number of outstanding shares times the price of the shares. Large cap stocks typically have at least \$5 billion in outstanding market value.

# **Long-Term Earnings Growth**

The long-term perspective earnings growth rate is the assetweighted average of the long-term perspective earning growth rates of all the domestic stocks in the fund's portfolio as of the date of the portfolio. Each portfolio holding is weighted by the percentage of domestic equity assets it represents, so that largest positions have proportionately greater influence on the fund's aggregate long-term earnings growth rate. Long-term prospective earnings growth rates for stocks are provided by a third party stock data vendor.

## **Market Capitalization**

The value of a corporation as determined by the market price of its issued and outstanding common stock, calculated by multiplying the number of outstanding shares by the current market price of a share. Market capitalization may also refer to the total current value of the holdings of a mutual fund.

#### Maturity

Refers to the date at which a debt instrument is due and payable. A bond due to mature on January 1, 2010 will return the bondholder's principal and final interest payment when it reaches maturity on that date.

#### **Median Market Capitalization**

The median market capitalization of the companies in a fund's portfolio. Half of the fund's money is invested in the stocks of companies larger than the median market capitalization, and half is invested in smaller issuers.

#### Mid Cap

"Mid cap" refers to stock with a medium capitalization, which is calculated by multiplying the number of outstanding shares times the price of the shares. Mid cap stocks typically have between \$1 and \$10 billion in outstanding market value.

#### **MSCI - EAFE**

Europe, Australia and Far East Equity Index, calculated by the Morgan Stanley Capital International group. The index acts as a benchmark for managers of international stock portfolios.

#### **Mutual Fund**

A fund operated by an investment company that raises money from shareholders and invests it in stocks, bonds, options, futures, currencies, or money market securities. Mutual funds offer investors the advantages of diversification and professional management. Shares are redeemable on demand at net asset value by shareholders, who share equally in the gains and losses generated by the fund.



#### Price/Book Ratio

This is the weighted average of the price/book ratios of all stocks in a fund's portfolio. The P/B ratio of a company is calculated by dividing the market price of its stock by the company's per share book value (negative book values are excluded).

### **Price/Earnings Ratio**

This is the weighted average of the price/earnings ratios of all stocks in a fund's portfolio. The P/E ratio of a stock is obtained by dividing the current price of the stock by its trailing 12 months' earnings per share.

#### **Quartile Universe Comparison**

These graphs depict the performance of the fund versus its peer group for the periods listed. Each floating bar represents the universe group's performance over the selected time period. For each period, there is a high, low, median, and first and third quartile point.

#### **R-Squared Statistic**

A statistic that measures the reliability of alpha and beta in explaining the return of a manager as a linear function of the market. Higher Rsquared values indicate more reliable alpha and beta statistics and are useful in assessing a manager's investment style.

# **ROE (Return on Equity)**

The amount, expressed as a percentage, earned on a company's common stock investment for a given period. Return on equity tells commons stockholders how effectually their money is being employed.

# **Risk Return Graph**

This graph is used to compare the performance and risk (standard deviation) of the fund against the performance and risk of an appropriate benchmark for a specific period of time.

# **Rolling Returns Bar Graph**

This graph shows the performance of a fund for a specific trailing period (quarterly), and for every three-month period going back for a set of previous periods.

#### Russell 1000 Index

A market index comprised of the highest-ranking 1,000 stocks in the Russell 3000 Index, representing about 90% of the Russell 3000 Index total market capitalization.

#### Russell 1000 Growth Index

This contains those Russell 1000 securities with a greater-than-average growth orientation. Securities in this index tend to exhibit higher price-to-book and price-earnings ratios, lower dividend yields, and higher forecasted growth values than the Value universe.

#### Russell 1000 Value Index

This contains those Russell 1000 securities with a lower-than-average growth orientation. Securities in this index tend to exhibit lower price-to-book and price-earnings ratios, higher dividend yields, and lower forecasted growth values than the Growth universe.

#### Russell 2000 Index

A market index comprised of the 2,000 smallest companies in the Russell 3000 Index, representing approximately 10% of the Russell 3000 Index total market capitalization.

#### Russell 2000 Growth Index

This contains those Russell 2000 securities with a greater-thanaverage growth orientation. Securities in this index tend to exhibit higher price-to-book and price-earnings ratios, lower dividend yields, and higher forecasted growth values than the Value universe.

#### Russell 2000 Value Index

This contains those Russell 2000 securities with a lower-thanaverage growth orientation. Securities in this index tend to exhibit lower price-to-book and price-earnings ratios, higher dividend yields, and lower forecasted growth values than the Growth universe.



## **Russell Midcap Index**

This contains the 800 smallest companies in the Russell 1000 Index, representing approximately 25% of the Russell 1000 Index total market capitalization.

### **Russell Midcap Growth Index**

This contains those Russell Midcap securities with a greater-thanaverage growth orientation. Securities in this index tend to exhibit higher price-to-book and price-earnings ratios, lower dividend yields, and higher forecasted growth values than the Value universe.

#### **Russell Midcap Value Index**

This contains those Russell Midcap securities with a lower-thanaverage growth orientation. Securities in this index tend to exhibit lower price-to-book and price-earnings ratios, higher dividend yields, and lower forecasted growth values than the Growth universe.

#### Sector

A particular group of stocks, usually found in one industry or a combination of industries, such as airline or railroad stocks.

# Separate Account

An account established by an investment manager for investment of a specific client's assets and maintained exclusively for such assets.

# **Sharpe Ratio**

This is a risk-adjusted measure calculated by using standard deviation and excess return to determine reward per unit of risk. In general, the higher the Sharpe Ratio, the better the fund's historical risk-adjusted performance. The Sharpe ratio is calculated by dividing the fund's annual excess return by the fund's annualized standard deviation.

# **Small Cap**

"Small cap" refers to stock with a small capitalization, which is calculated by multiplying the number of outstanding shares times the price of the shares. Small cap stocks typically have up to \$1 billion in outstanding market value.

## Standard & Poor's Index (S&P 500)

Covers 400 industrial, 40 utility, 20 transportation, and 40 financial companies of the US markets (mostly NYSE issues). The index represents about 75% of NYSE market capitalization. It is a capitalization-weighted index calculated on a total return basis with dividends reinvested.

#### Standard Deviation

A statistical gauge of risk which measures the spread of the difference of returns from their average. The more a portfolio's returns vary from its average, the higher the standard deviation.

## **Top-Down**

A methodical approach to investing in which investors consider current trends in the overall economy, and next selects the industries and then companies that should benefit from such trends. For example, if inflation stays low consumers' spending power will be enhanced; investors may be attracted to retailing companies with the best earnings prospects in the near-term. If rapid inflation is expected, investors might look at the mining industry and then try to determine which particular gold, copper or other mining company might benefit from a rising trend in prices. The opposite approach to top-down investing is a bottom-up method.

## **Tracking Error**

The deviation of a dependent variable (i.e. an investment portfolio) with respect to a reference function (i.e. a benchmark index).

#### **Turnover Ratio**

This is a measure of the fund's trading activity that is calculated by taking the lesser of purchases or sales (excluding all securities with maturities of less than one year) and dividing by average monthly assets. The resulting percentage loosely represents the percentage of the portfolio's holdings that have changed over the past year.

#### Universe

These are composites of managers that share a common investment style and provide a peer analysis of how the fund is performing relative to other investments in the same asset and style category



#### **Up/Down Capture**

The up and down capture is a measure of how well a manager was able to replicate or improve on phases of positive benchmark returns, and how badly the manager was affected by phases of negative benchmark returns. To calculate the up capture, we first form a new series from the manager and benchmark series by dropping all time periods where the benchmark return is zero or negative. The up capture is then the quotient of the annualized return of the resulting manager series, divided by the annualized return of the resulting benchmark series. The down capture is calculated analogously.

#### Value Stock

A stock that is considered to be a good investment at a desirable price, based on fundamental analysis, such as its P/B and its P/E, among other criteria. Generally, these stocks are contrasted with growth stocks that trade at higher P/E multiples.



Name	Description
Bloomberg U.S. Corporate High Yield Bond Index	An index that covers the USD-dominated, non-investment grade, fixed rate, taxable corporate bond market. Debt issues from emerging market countries are excluded. Securities are classified as high-yield if the middle rating is Ba1/BB+ or below.
Bloomberg Emerging Markets Index	An unmanaged index that tracks total returns for external-currency-denominated debt instruments of the emerging markets.
Bloomberg Global Aggregate	Provides a broad-based measure of the global investment-grade fixed income markets. The three major components of this index are the U.S. Aggregate, the Pan-European Aggregate, and the Asian-Pacific Aggregate Indices. The index also includes Eurodollar and Euro-Yen corporate bonds, Canadian government, agency and corporate securities, and USD investment grade 144A securities.
Bloomberg Global Treasury Ex-US	The Global Treasury ex US Index is a subset of the flagship Global Treasury Index that does not have any exposure to US debt. This multi-currency benchmark includes investment grade, fixed-rate bonds issued by governments in their native currencies.
Bloomberg Universal Index	A market value-weighted index which is the union of the U.S. Aggregate Index, U.S. High Yield Corporate Index, Eurodollar Index, U.S. Emerging Markets Index and the CMBS High Yield Index. The Index is appropriate for core plus fixed income mandates.
Bloomberg U.S. Government Index	A market value weighted index of U.S. government and government agency securities (other than mortgage securities) with maturities of one year or more.
Bloomberg U.S. Government/Credit Index	A subcomponent of the Capital Aggregate Index, this benchmark includes treasury securities, government related issues, and high-quality corporate bonds with an outstanding par value of \$250 million or greater and at least one year of maturity remaining.
Bloomberg U.S. High Yield Index	An index composed of non-investment grade corporate debt denominated in U.S. dollars. The issues have to have an outstanding par value of \$150 million or greater and at least one year of maturity remaining.
Bloomberg U.S. Inflation Index	Measures the performance of the U.S. Treasury Inflation Protected Securities ("TIPS") market.
Bloomberg U.S. Intermediate Aggregate Bond Index	A market value-weighted index consisting of U.S. Treasury securities, corporate bonds and mortgage-related and asset-backed securities with one to ten years to maturity and an outstanding par value of \$250 million or greater
Bloomberg U.S. Intermediate Government/Credit Index	A market-value weighted index consisting of government bonds and SEC-registered corporate bonds with one to ten years to maturity and an outstanding par value of \$150 million or greater.
Bloomberg U.S. Intermediate Government Bond Index	An unmanaged index considered representative of intermediate- term fixed-income obligations issued by the U.S. treasury, government agencies and quasi-federal corporations.



Name	Description
Bloomberg U.S. Intermediate Treasury	An unmanaged index considered representative of intermediate-term fixed- income obligations issued by the U.S. treasury.
Bloomberg U.S. Aggregate Bond Index	A market value-weighted index consisting of government bonds, SEC-registered corporate bonds and mortgage-related and asset-backed securities with at least one year to maturity and an outstanding par value of \$250 million or greater. This index is a broad measure of the performance of the investment grade U.S. fixed income market.
Bloomberg U.S. Long Credit Bond Index	An unmanaged index considered representative of long-term fixed-income obligations issued by U.S. corporate, specified foreign debentures, and secured notes that meet the specified maturity, liquidity, and quality requirements. To qualify, bonds must be SEC-registered.
Bloomberg U.S. Long Government/Credit Index	The Capital U.S. Government/ Credit Bond Index measures performance of U.S. dollar denominated U.S. treasuries, government-related, and investment grade U.S. corporate securities that have a remaining maturity of greater than or equal to 1 year. In addition, the securities have \$250 million or more of outstanding face value, and must be fixed rate and non-convertible.
Bloomberg U.S. Long-Term Government Bond Index	An unmanaged index considered representative of long-term fixed- income obligations issued by the U.S. treasury, government agencies and quasi-federal corporations.
Bloomberg U.S. TIPS	A market value-weighted index consisting of U.S. Treasury Inflation Protected Securities with one or more years remaining until maturity with total outstanding issue size of \$500m or more.
Bloomberg U.S. Treasury 20-30 Year STRIPS Index	A subcomponent of the Aggregate Index, this benchmark includes long-term treasury STRIPS.
Bloomberg Commodity Index	Consists of 22 exchange-traded futures on physical commodities, which are weighted to account for economic significance and market liquidity. Performance is calculated on an excess return basis and reflects commodity future price movements.
BofA Merrill Lynch 3 Month Treasury Bill	An index that measures the average return of the last three-month U.S. Treasury Bill issues .
BofA Merrill Lynch High Yield Master	A market capitalization-weighted index that tracks the performance of U.S. dollar- denominated, below investment grade corporate debt publicly issued in the U.S. domestic market.



Name	Description
Citigroup 90-Day T-Bill Index	An index that measures the average return of the last three-month U.S. Treasury Bill issues
CRSP US Large Growth Cap Index	An index comprised of nearly 330 US large cap growth companies and includes securities traded on NYSE, NYSEMarket, NASDAQ, or ARCA, representing nearly 45% of the U.S. investable equity market. The index is reconstituted quarterly after the market close on the third Fridays of March, June, September, and December. CRSP classifies growth securities using the following factors: future long-term growth in earnings per share (EPS), future short-term growth in EPS, 3-year historical growth in EPS, 3-year historical growth in sales per share, current investment-to-assets ratio, and return on assets.
CRSP US Total Market Index	An index comprised of nearly 4,000 constituents across mega, large, small, and micro capitalizations and includes securities traded on NYSE, NYSE Market, NASDAQ, or ARCA, representing nearly 100% of the U.S. investable equity market. The index is reconstituted quarterly after the market close on the third Fridays of March, June, September, and December.
Credit Suisse Leveraged Loan Index	Designed to mirror the investable universe of the U.S. dollar denominated leveraged loan market.
DJ U.S. Completion Total Stock Market Index	A capitalization-weighted index that consists of the stocks in the Dow Jones U.S. Total Stock Market Index less the stocks in the S&P 500 Stock Index.
DJ U.S. Total Stock Market Index	A capitalization-weighted stock index representing all domestic common stocks traded regularly on the organized exchanges. The index is the broadest measure of the aggregate domestic stock market and includes approximately 5,000 stocks.
FTSE 4Good U.S. Select Index	A socially responsible investment (SRI) index of US stocks that excludes companies with certain business activities such as weapons, tobacco, gambling, alcohol, nuclear power, and adult entertainment
FTSE All-World ex-U.S. Index	A capitalization-weighted stock index representing 46 developed market countries and emerging market countries excluding the U.S.
FTSE EPRA NAREIT Global ex-U.S. Index	Designed to represent general trends in eligible real estate equities worldwide. Relevant real estate activities are defined as the ownership, disposure and development of income-producing real estate.
FTSE Global All Cap ex US Index	A market-capitalization weighted index representing the performance of roughly 5350 large, mid and small cap companies in 46 Developed and Emerging markets worldwide, excluding the USA.
FTSE Global Core Infrastructure Index	Represents the performance of infrastructure and infrastructure-related securities companies in a set of industries that FTSE defines as being involved in infrastructure. The series is based on the FTSE Global Equity Index Series and both developed and emerging markets are included.



Name	Description
FTSE NAREIT U.S. Equity REITS	Free float adjusted, market capitalization weighted index of US based equity real estate investment trusts (REITs).
Goldman Sachs Commodity Index	A composite index of commodity sector returns which represents a broadly diversified, unleveraged, long-only position in commodity futures.
HFR Fund-of-Fund Index.	This index is equity-weighted including 800 constituents. It includes both domestic and offshore accounts and is valued in U.S. dollars. Only fund-of-fund products are included in the index that have at least \$50 million under managements and have been actively trading for at least one year. All funds report net returns on a monthly basis.
HFRI Fund Weighted Composite Index	The HFRI Fund Weighted Composite Index is a global, equal-weighted index of over 2,000 single-manager funds that report to HFR Database. Constituent funds report monthly net of all fees performance in US Dollar and have a minimum of \$50 Million under management or a twelve (12) month track record of active performance. The HFRI Fund Weighted Composite Index does not include Funds of Hedge Funds.
Hueler Stable Value Index	The Hueler Analytics Stable Value Pooled Fund Comparative Universe represents investment strategies of \$96 billion in stable value assets, across 24 pooled funds, invested in contracts universe across a universe of 16 general account issuers and 14 synthetic wrap providers. The allocation of pooled fund assets is dominated by synthetic contracts issued by insurance companies and banks.
J.P. Morgan EMBI Global Diversified	Comprised of dollar-denominated Brady bonds, traded loans and Eurobonds issued by emerging market sovereign and quasi-sovereign entities. The Diversified version limits the weights of the index countries by only including a specified portion of those countries' eligible current face amounts of debt outstanding, providing for a more even distribution of weights within the countries in the index.
iMoneyNet All Taxable Money Funds Index	An index made up of the entire universe of money market mutual funds. The index currently represents over 1,300 funds, or approximately 99 percent of all money fund assets.
iMoneyNet Money Fund Average.	An index made up of the entire universe of money market mutual funds. The index currently represents over 1,300 funds, or approximately 99 percent of all money fund assets.
MSCI All Country World ex-U.S. Index	A capitalization-weighted index of stocks representing 44 stock markets in Europe, Australia, the Far East, the Middle East, Latin America and North America. Index consists of 23 developed and 21 emerging countries, but excludes the U.S.
MSCI All Country World ex-U.S. Index IMI	A capitalization-weighted index of large, mid and small cap stocks representing 22 developed (excluding the United States) and 24 emerging market countries. The index is the broadest measure of the aggregate non-US stock market, covering approximately 99% of the global equity investment opportunity set outside of the United States.



Name	Description
MSCI All Country World ex-U.S. Small Cap Index	Covers all investable small cap securities with a market capitalization below that of the companies in the MSCI Standard Indices (excluding U.S.), and target approximately 14% of each market's free-float adjusted market capitalization.
MSCI All Country World Index IMI	A capitalization-weighted index of large, mid and small cap stocks representing 23 developed and 24 emerging market countries. The index is the broadest measure of the aggregate global stock market, covering approximately 99% of the global equity investment opportunity set.
MSCI All Country World Index	A capitalization-weighted index of stocks representing 46 stock markets in Europe, Australia, the Far East, the Middle East, Latin America and North America.
MSCI EAFE Growth Index	A capitalization-weighted index of 21 stock markets in Europe, Australia, Asia and the Far East designed to capture the growth-oriented companies.
MSCI EAFE Small Cap Index	A capitalization-weighted index of small cap stocks representing 23 developed country markets in Europe, Australia, Asia, and the Far East.
MSCI EAFE Value Index	A capitalization-weighted index of 21 stock markets in Europe, Australia, Asia and the Far East designed to capture the value-oriented companies.
MSCI Emerging Markets Index	A capitalization-weighted index of stocks representing 22 emerging country markets.
MSCI U.S. Broad Market Index	A capitalization-weighted stock index that aggregates the MSCI U.S. Large Cap 300, Mid Cap 450, Small Cap 1,750 and Micro-Cap Indices. This index represents approximately 99.5% of the capitalization of the U.S. Equity market and includes approximately 3,562 companies.
MSCI U.S. REIT Index	A broad index that fairly represents the equity REIT opportunity set with proper invest ability screens to ensure that the index is investable and replicable. The index represents approximately 85% of the U.S. REIT universe
MSCI World Index	A free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets, representing 24 developed market country indices.
NCREIF Property Index	NCREIF Property Index - A capitalization-weighted index of privately owned investment grade income-producing properties representing approximately \$269 billion in assets.



Name	Description
NFI ODCE Index	NFI ODCE Index - A capitalization weighted index comprised of open-end, Core funds investing in commercial real estate properties. The funds that constitute the index are subject to certain geographic and property type diversification requirements as well as leverage restrictions. The index reflects the impact of leverage on investment results. The returns shown in this report are net of management fees of the respective funds included in the index.
Rolling 3-year Constant Maturity Treasury Index	An index published by the Federal Reserve Board based on the monthly average yield of a range of Treasury securities, all adjusted to the equivalent of a three-year maturity.
Russell 1000 Growth Index	An index that measures the performance of those Russell 1000 companies with higher price-to- book ratios and higher I/B/E/S growth forecasts.
Russell 1000 Index	A capitalization-weighted index of the 1,000 largest publicly traded U.S. stocks by capitalization.
Russell 1000 Value Index.	An index that measures the performance of those stocks included in the Russell 1000 Index with lower price-to-book ratios and lower I/B/E/S earnings growth forecasts.
Russell 2000 Growth Index	A capitalization-weighted index of those stocks in the Russell 2000 Index with higher price-to-book ratios and higher I/B/E/S earnings growth forecasts.
Russell 2000 Index	A capitalization-weighted index of the smallest 2,000 stocks in the Russell 3000 Index. The index excludes the largest-and smallest-capitalization issues in the domestic stock market.
Russell 2000 Value Index	An index that measures the performance of those stocks included in the Russell 2000 Index with lower price-to-book ratios and lower I/B/E/S earnings growth forecasts.
Russell 2500 Growth Index	A capitalization-weighted index representing those companies within the Russell 2500 Index with higher price-to-book ratios and higher I/B/E/S earnings growth forecasts.
Russell 2500 Index	The Index is constructed by first identifying the 3,000 largest-capitalization U.S. stocks and ranking them by market capitalizations, choosing the bottom 2,500 names on the list.
Russell 2500 Value Index.	an index that measures the performance of those stocks included in the Russell 2500 Index with lower price-to-book ratios and lower I/B/E/S earnings growth forecasts.



Name	Description
Russell 3000 Growth Index	A capitalization-weighted index consisting of those Russell 3000 Index stocks that have higher price-to-book ratios and higher I/B/E/S earnings growth forecasts.
Russell 3000 Index	A capitalization-weighted index consisting of the 3,000 largest publicly traded U.S. stocks by capitalization. This index is a broad measure of the performance of the aggregate domestic equity market.
Russell 3000 Value Index	A capitalization-weighted index consisting of those Russell 3000 Index stocks that have lower price-to-book ratios and lower I/B/E/S earnings growth forecasts.
Russell Mid Cap Growth Index	A capitalization-weighted index representing those stocks in the Russell MidCap Index with higher price-to-book ratios and higher I/B/E/S earnings growth forecasts.
Russell Mid Cap Value Index	A capitalization-weighted index consisting of those Russell MidCap Index stocks that have lower price-to-book ratios and lower I/B/E/S earnings growth forecasts.
S&P 500 Index	A capitalization-weighted index representing stocks chosen by Standard & Poor's, Inc. for their size, liquidity, stability and industry group representation. The companies in the S&P 500 Index are generally among the largest in their industries.
S&P Completion Index	The S&P Completion Index is a sub-index of the S&P Total Market Index, including all stocks eligible for the S&P TMI and excluding all current constituents of the S&P 500. The index covers approximately 4,000 constituents, offering investors broad exposure to mid, small, and micro-cap companies.
S&P GSCI®	Both the first major investable commodity index and one of the most widely recognized benchmarks, the S&P GSCI® is broad-based, production weighted, and meant to be representative of the global commodity market beta.
S&P Leverage Loan Index	A daily total return index that uses LSTA/LPC Mark-to-Market Pricing to calculate market value change.
S&P Midcap 400 Index	A market-capitalization-weighted index of stocks in all major industries in the mid-range of the U.S. stock market.
Wilshire REIT	<ul> <li>A measure of the types of U.S. real estate securities that represent the ownership and operation of commercial or residential real estate. To be included in the index, a company must have a market capitalization of \$200 million and have at least 75% of the total revenue derived from the ownership and operation of the real estate assets.</li> <li>Indices cannot be invested in directly. Unmanaged index returns assume reinvestment of any and all distributions and do not reflect our fees or expenses.</li> <li>Past performance is no guarantee of future results.</li> <li>Please feel free to contact us at retirement@aonhewitt.com for more index information.</li> </ul>



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